

LAND USE CONTROLS WITH SPECIAL REFERENCE TO WETLANDS

*Thesis submitted to the
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for the award of the degree of
Doctor of Philosophy
in the Faculty of Law*

By
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October 2015

Declaration.

I declare that the thesis "Land Use Controls with Special Reference to Wetlands" is the record of bona fide research carried out by me in the School of Legal Studies, Cochin University of Science and Technology, Kochi-22. I further declare that this has not previously formed the basis of the award of any degree, diploma or associateship or other similar title of recognition

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*This is to certify that the important research findings in the thesis of Smt. Dayana M.K, part time research scholar entitled "**LAND USE CONTROLS WITH SPECIAL REFERENCE TO WETLANDS**" have been presented in a research seminar held at School of Legal Studies, Cochin University of Science and Technology on 05-11-2014.*

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*This is to certify that all the relevant corrections and modifications suggested by the audience during the pre-submission seminar and recommended by the Doctoral Committee has been incorporated in the thesis entitled “**Land Use Controls with Special Reference to Wetlands**” submitted by Dayana M.K, for the award of the degree of Doctor of Philosophy.*

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Preface

This is a study of land use law in India. Land use Controls has been a subject of controversy since the human settlement. Gamut of control increased with human development. Now the controls are for many purposes.

In this context wetland protection has great importance based on the service rendered by them to man. Being an important topic the study is confined to laws on control of wetland use.

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Contents

CHAPTER 1 INTRODUCTION -----	1
Relevance and Importance of Study-----	1
Reason for Confining the Studies to Protection of Wetlands-----	3
Rationale for Land Use Controls-----	3
Object -----	3
Research Problem-----	4
Research Questions-----	4
Hypothesis-----	5
Limitations of Study-----	5
Research Methodology -----	5
Scheme of Study-----	6
CHAPTER 2 HISTORICAL EVOLUTION OF LAND USE LAWS A COMPARATIVE ANALYSIS-----	14
Evolution of Land Use Regulations: Ancient Period -----	18
Land Use Controls through International Conventions and Treaties -----	23
Land Use Regulation the United Kingdom -----	25
<i>Norman Feudalism</i> -----	25
<i>Breakdown of Serfdom</i> -----	26
<i>Feudal Tenures</i> -----	27
<i>Private ownership</i> -----	27
<i>Changes in Equity</i> -----	28
<i>Industrial revolution</i> -----	29
<i>Legislative Reforms on Land Use</i> -----	30
<i>Modern Land Law</i> -----	32
Land Use Laws: in the United States-----	32
<i>English Common Law Origins</i> -----	33
<i>Land Use Controls through Judicial Decisions</i> -----	35
Constitutional Amendments -----	38
Nineteenth Century Land Use Laws-----	39
Land use Regulations in Canada -----	41
<i>Developments through Planning Laws</i> -----	43
Land Use Regulations in India -----	45
Common Law Regulations -----	45

Land Use in Ancient India -----	46
Changes in Medieval Period-----	48
Land Tenures under British Rule -----	50
Changes in Post-Independence Period -----	51
Abolition of Zamindari and Intermediaries -----	53
Land Use Controls in Kerala -----	54
Land use Legislation and Protection of Agriculture -----	56
Developmental Planning -----	60
Administration of Planning Laws-----	61
Conclusion-----	63
CHAPTER 3 CONSTITUTIONAL BASIS FOR LAND USE CONTROLS-----	65
Classification of Land Use under the Indian Constitution -----	67
Limits of Proprietary Interest over Land -----	71
Classification of Land Use in India: A Statistical Survey-----	74
Critical Analysis of the Constitutional Scheme -----	77
<i>Duty of Central Government to Implement International Treaties on Wetlands -----</i>	<i>77</i>
<i>Land Use Controls under the Highways Legislation-----</i>	<i>79</i>
<i>Power to Legislate on Environment-----</i>	<i>80</i>
<i>Residuary Power and Legislative Scheme-----</i>	<i>82</i>
Legislative Conflicts under Federal Constitution U.S. Approach -----	84
Conclusion-----	86
CHAPTER 4 LAW ON WETLAND USE AN INTRODUCTION -----	91
Definition of Wetlands -----	93
Ecological Importance of Wetlands -----	96
Major Threats to Wetlands in India -----	99
International Schemes for Protection of Wetlands-----	100
Indian Legislations for Protection of Wetlands -----	104
Procedure of Working of Wetland Committees-----	105
Authorities Responsible for the Protection of Wetlands in India-----	107
Legal Framework for Protection of Different Categories of Wetlands -----	108
Indian Judiciary on Conservation of Wetlands -----	110
Legal Protection of Wetlands in Developed Countries -----	114
Protection of Wetlands in the United States of America -----	115
Wetland Protection in Canada-----	116

Wetland Conservation in United Kingdom -----	120
Legal framework for Conservation of Wetlands a Critical Evaluation -----	121
Conclusion-----	125
CHAPTER 5 COASTAL WETLANDS: ESTUARIES, MANGROVES AND ALLIED ECOSYSTEMS-----	128
Definition of Coastal Zone -----	129
Classification of Coastal Wetlands -----	131
Assessment of Coastal Wetlands in India-----	131
Sources of Danger to Coastal Wetlands-----	132
<i>Destruction of Mangroves-----</i>	<i>133</i>
<i>Human Intervention-----</i>	<i>134</i>
<i>Town and Country Planning-----</i>	<i>134</i>
<i>Reclamation and sand Mining-----</i>	<i>135</i>
<i>Impact of Aquaculture, Prawn Filtration and Tourism-----</i>	<i>135</i>
<i>Industrial Threats, Dams and Pollution-----</i>	<i>136</i>
<i>Climate change-----</i>	<i>138</i>
Regulatory system of Coastal Wetlands -----	138
International Efforts -----	138
Indian Scenario -----	140
<i>Forest Legislations-----</i>	<i>140</i>
<i>Wildlife Protection Measures-----</i>	<i>141</i>
<i>Pollution Control Laws-----</i>	<i>142</i>
<i>Marine Laws-----</i>	<i>142</i>
<i>Fisheries Laws-----</i>	<i>143</i>
<i>The CRZ Notification, 1991-----</i>	<i>144</i>
<i>Prohibitions and Exceptions under CRZ, 1991 -----</i>	<i>145</i>
<i>Aquaculture Laws -----</i>	<i>147</i>
Various Measures Undertaken for Protection of Coastal Wetlands-----	148
<i>Measures for Preventing Deforestation -----</i>	<i>148</i>
<i>National Mangrove Committee-----</i>	<i>148</i>
<i>Legislative Measures -----</i>	<i>150</i>
<i>Measures to Protect Living Resources-----</i>	<i>151</i>
<i>Conservation Under the World Protected Areas -----</i>	<i>151</i>
<i>Conservation Programme of Government of India -----</i>	<i>152</i>
<i>Legislative Measures -----</i>	<i>152</i>

<i>Measures to Prevent Pollution, Reclamation and Conversion-----</i>	153
<i> Protection of Fisheries -----</i>	159
<i> Need for Integrated Coastal Zone Management-----</i>	160
<i> Role of Legislations in ICZM -----</i>	163
CHAPTER 6 COASTAL ZONES: PORTS AND HARBOURS-----	165
<i> Overview of Indian Ports and Harbours-----</i>	167
<i> Ecological Sensitivity of Ports and Harbours -----</i>	168
<i> Major Threats to Costal Ecosystems from Port -----</i>	168
<i> <i>Break Waters and Dredging -----</i></i>	168
<i> <i>Removal of Sand for Construction Activities-----</i></i>	169
<i> <i>Wastes from Port-----</i></i>	170
<i> <i>Bunkering -----</i></i>	170
<i> <i>Ship Scraping and Recycling -----</i></i>	171
<i> <i>Socio- Economic Impacts of Ports -----</i></i>	172
<i> <i>Ballast Water Pollution-----</i></i>	172
<i> <i>Sewage Disposal from the Ships-----</i></i>	173
<i> <i>Pollution by Garbage from Ships -----</i></i>	174
<i> <i>Air Pollution from Ports-----</i></i>	175
<i> <i>Oil Pollution from Ships and Port-----</i></i>	175
<i> Measures for Sustainable Development of Maritime Ports: India -----</i>	177
<i> <i>Sustainable Development through International Conventions -----</i></i>	180
<i> <i>Sustainable Development through Indian Legislations -----</i></i>	186
<i> <i>Legislations to Protect Biodiversity of Coastal Wetlands -----</i></i>	188
<i> Environment Protection Act, 1986 and Attempts to Regulate Port and Harbours -----</i>	190
<i> The Moratorium on Ports -----</i>	191
<i> The EIA 2006 Notification -----</i>	192
<i> Conclusion-----</i>	192
CHAPTER 7 PADDY LAND CONSERVATION-----	195
<i> Need for Regulation of Paddy Fields-----</i>	196
<i> Ecological Functions of Paddy Field -----</i>	198
<i> Status of Indian Agriculture and its Impact on Paddy Lands -----</i>	199
<i> Impact of Agricultural Legislation on Land Use -----</i>	200
<i> The Kerala Land Utilization Order, 1967: An Analysis-----</i>	204
<i> Judiciary on Enforcement of Land Utilization Order, 1967 -----</i>	206

<i>Object of Land Utilization Order</i> -----	207
<i>Concept of Sustainable Development</i> -----	207
<i>Matters to be Taken in Account on Conversion</i> -----	207
<i>Legality of Land Utilization Order after the Commencement of the Kerala Paddy Land and Wetland Act, 2008</i> -----	208
Emergence of Legislation Bearing on Ecology -----	209
Back ground of the Kerala Conservation of Paddy Land and Wetland Act, 2008 -----	210
Objectives of the Law for Conservation of Paddy Lands -----	211
<i>Protection of Farmers</i> -----	213
<i>Mechanism for Protection of Paddy Fields and Wetlands</i> -----	213
<i>Conversion for Public Purpose</i> -----	215
Community Involvement in Protection of Paddy Lands -----	219
The Kerala Conservation of Paddy Land and Wetland Act, 2008: A Critical Evaluation-----	221
Conclusion-----	223
CHAPTER 8 LEGAL CONTROLS ON USE OF INLAND WETLANDS-----	226
Types of Inland Wetlands in India-----	229
<i>Rivers and Allied Ecosystems</i> -----	229
<i>Lakes</i> -----	230
<i>Marshes and Swamps</i> -----	231
Threats to Inland Wetlands-----	231
<i>Pollution</i> -----	233
<i>Encroachment</i> -----	233
<i>Deforestation</i> -----	233
<i>Eutrophication</i> -----	234
<i>Illegal Mining Activities</i> -----	234
<i>Unplanned Tourism Activities</i> -----	235
<i>Land Reclamation and Construction</i> -----	235
<i>Cultural Misuse</i> -----	236
Legislative Measures for Protection of Inland Wetlands in India-----	236
The National Water Policy -----	236
Water Policy of Kerala, 2008 -----	237
Legislations Bearing on Land Use Controls in Inland Wetlands-----	238
Tribunal Orders and Statutory Instruments -----	240
Legislative Measures for Lakes Conservation-----	241

The Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001-----	243
Role of Judiciary in Protection of Inland Wetlands-----	245
Application of Environmental Jurisprudence for Conservation of Inland Wetlands-----	245
<i>Doctrine of Absolute Liability</i> -----	245
<i>Polluter Pays Principle</i> -----	245
<i>Precautionary Principle</i> -----	246
<i>Doctrine of Public Trust</i> -----	246
<i>Principle of Sustainable Development</i> -----	246
Balancing of Concepts of Environment and Development -----	247
<i>Measures Taken by Judiciary to Combat Pollution of Inland Wetlands</i> -----	253
<i>Measures to Address the Illegal Mining of Inland Wetlands</i> -----	256
<i>Unplanned Tourist Activities and Cultural Misuse</i> -----	258
<i>Illegal Constructions</i> -----	259
Conclusion-----	261
CHAPTER 9 HIGHLAND WETLANDS-----	263
Various Forms of High Land Wetlands and their Ecological Functions in India-----	264
<i>High Altitude Wetlands in Himalaya</i> -----	264
<i>Meadows</i> -----	265
<i>Lakes and ponds</i> -----	266
<i>Peat lands (Swamps, Marshes, Bogs, and Fens)</i> -----	266
<i>Wetlands of Western Ghats</i> -----	266
<i>Command Areas</i> -----	267
<i>Forest Wetlands</i> -----	267
<i>Myristica Swamps</i> -----	268
Threats to High Altitude Wetlands -----	269
<i>Global Climate Change</i> -----	269
<i>Threat to Fish Diversity</i> -----	269
<i>Increased Tourist Activities</i> -----	270
<i>Over Grazing</i> -----	270
Threats to Western Ghats wetlands-----	271
<i>Deforestation</i> -----	271
<i>Land Use Changes</i> -----	272
<i>River Valley Projects</i> -----	272

<i>Mining and Illegal Constructions</i> -----	273
<i>Increasing Human- Animal Conflict</i> -----	273
Conservation Measures for Highland Wetlands-----	274
International Attempts to Protect High Altitude Wetlands-----	275
National Measures for Conservation of Highland Wetlands-----	277
<i>The Environment (Protection) Act, 1986</i> -----	277
<i>The Biological Diversity Act, 2002</i> -----	278
<i>Forest Legislations</i> -----	279
Kasthurirangan and Madhav Gadgil Committees and Reports: A Critical Evaluation -----	281
The Kasthurirangan Committee Report -----	285
Ommen Committee Report -----	287
Judiciary on Protection of High Land wetlands -----	288
<i>Forest and Wildlife conservation</i> -----	288
<i>Dam Construction</i> -----	290
<i>Controls on Mining</i> -----	292
<i>Human- Wildlife Conflict</i> -----	297
<i>Leasing out Land to Individuals</i> -----	299
<i>Protection of Western Ghats Ecology</i> -----	301
Conclusion -----	303
CHAPTER 10 CONCLUSIONS AND SUGGESTIONS -----	304
Need for Reconsideration of Proprietary Interest -----	306
Need to Promote Environment Protection by Land Use Legislation -----	307
Abuse of Powers by Land Revenue Authorities -----	308
Provision Relating to Environment in the Constitution -----	308
Comprehensive Legislation on Wetland Use -----	309
Comprehensive Wetland Inventory-----	310
Co- ordination of Land Development -----	311
A Comprehensive Land Use Policy -----	312
Stakeholder Protection in Protection of Environment -----	313
Integrated Approach to Coastal Zone Conservation -----	314
Conservation of Paddy Land and Inland wetlands-----	316
Total Prohibition on Use of High Land Wetlands -----	317
Management Policy for Wetland-----	317
BIBLIOGRAPHY -----	320
PUBLICATIONS -----	346

ABBREVIATIONS

Art.	Article
CADA	Command Area Development Authority
CBD	Convention on Biological diversity
CBO	Community Based Organization
CITES	Convention on International Trade in Endangered Species of Fauna and Flora
CMZ	Coastal Management Zone
CNPPA	Commission on National Parks and Protected Areas
COMAPS	Coastal Ocean Monitoring and Prediction systems
COPOCS	Coastal Pollution Control Series
CPCB	Central Pollution Control Board
CRoW	Countryside and Rights of Way
CRP	Conservation Reserve Program
CRZ	Coastal Regulation Zone
CS	Continental Shelf
CVCA	Critically Vulnerable Coastal Areas
CWCC	Central Wetland Conservation Committee
CZMP	Coastal Zone Management Plan
DCD	Draft Comprehensive Document
DCLG	Department for Communities and Local Government
DOD	Department of Ocean Development
DWCC	District Wetland Conservation Committee
ECA	Emission Control Areas
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EPA	Environmental Protection Agency
ESA	Ecologically Sensitive Area
FCA	Forest Conservation Act
FSA	Farm Service Agency

FWS	Fish and Wildlife Service
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Green house gases
GLWCAP	Great Lakes Wetlands Conservation Action Plan
GM	Genetically Modified
HAW's	High Altitude Wetlands
HLWG	High Level Working Group
HTL	High Tide Line
IAPH	International Association of Ports and Harbours
ICC	International Coordinating Council
ICG	Indian Coast Guard
ICZM	Integrated Coastal Zone Management
IMO	International Maritime Organization
IUCN	International Union for Conservation of Nature
KLUO	Kerala Land Utilisation Order
LTL	Low Tide Line
MAB	Man and Biosphere
MAP	Management Action Plan
MAP	Management Action Plan
MARPOL	International convention for Civil Liability for Pollution Damage
MEPC	Marine Environment Protection committee
MoEF	Ministry of Environment and Forest
MoST	Ministry of Surface Transport
MOU	Memorandum of Understanding
NDZ	No Development Zone
NEERI	National Environment and Engineering Institute
NEP	National Environment Policy
NGO	Non Governmental Organisation
NLCP	National Lake Conservation Plan

NMDP	National Maritime Development Programme
NOAA	National Oceanic and Atmospheric Administration
NWIA	National Wetland Inventory Assessment
SACON	Salim Ali Centre for Ornithology and Natural History
SWCC	State Wetland Conservation Committee
TEDs	Turtle Excluder Devices
TOR	Terms of Reference
U.K.	United Kingdom
U.S.	United States
UNDP	United Nations Development Programme
UNESCO	United Nations Economic and Social Council
VECS	Vapor Emission Control System
VPT	Visakhapatnam Port Trust
WFD	Water Framework Directive
WGEA	Western Ghats Ecology Authority
WGEEP	The Western Ghats Ecology Expert Panel
WPCI	World Ports Climate Initiative
WWF	World Wildlife Fund

LIST OF CASES

A.D.M. Jabalpur v. Shivkant Shukla. A.I.R. 1976 S.C.1207.

Abdul Satar Babu v. State of Kerala, 1 (1996) A.C.C. 24.

Adani infrastructure & Developers Pvt.Ltd. v. State of Kerala, 2014 (1) KLT 198.

Ajay Construction v. Kakateeya Nagar Co-op Housing Society Ltd, A.I.R. 1991 A.P.294.

Armstrong v. United States, 364 U.S. 40, 49 (1960).

Association for Environment Protection v. State of Kerala, A.I.R. 2002 Mad. 298.

Association for Environment Protection v. State of Kerala, (2013) 7 S.C.C. 226.

Association of Environment Protection V. State of Kerala, 2002 (1) KLT.

Bombay Dyeing and Mfg. Co. Ltd. v. Bombay Environmental Action Group, Appeal (civil) 1519 of 2006.

C.Sankareswaran v. The Commissioner, A.I.R.1992 S.C.522.

C.V.Lalu v. The Director of Mining and Geology, WP(C).No. 8452 of 2009(B).

Citizen and Consumer and Civic Action Group v. Union of India, A.I.R. 2002 Mad. 298.

Deepak Kumar v. State of Haryana, A.I.R.2012 S.C.1386.

EIH Ltd. v. State of Rajasthan, A.I.R.2001 Raj.236.

F.K. Hussain v. Union of India, A.I.R. 1990 Ker. 320.

Firose v. Revenue Divisional Officer, 11K.L.C.3896.

Goa Foudation v. Conservator of Forest, A.I.R.1999 Bom. 177.

Goa Foundation v. Diksha Holding Pvt. Ltd., A.I.R. 2001 S.C.184.

Gould v.Greylock Reservation Commission, 350 Mass 410 (1966).

Gramaphone Company of India v. Birendra Baldev Pandey, (1984) 2 S.C.C. 534.

Hadacheck v. Sebastian, 239 U.S. 394 (1915).

Heaven v. Mortimer, (1968) 20 EG 767.

Hinch Lal Tiwari v. Kamala Devi, (2001) 6 S.C.C. 496.

Illinois Central Railroad Co. v. People of the State of Illinois, 146 U.S. 387.

In Re Indo Pakistan Agreement, A.I.R. 1960 S.C. 845

Indian Council for Enviro-Legal Action v. Union of India, (1996) 5 S.C.C. 281.

Jafarkhan v. K.A. Kochumakkar, 2012(1)K.H.C. 523.

Jayakrishnan v. District Collector, 2008(4) K.H.C. 514.

Jolly Varghese v. Bank of Cochin, (1980)(2) S.C.C. 360.

Jones v. Llanrwst Urban Council, (1911) 1 Ch. 393.

Kaipadath Property Development Company (P) Ltd v. State of Kerala, (2011(1) K.L.T. 526.

Kairali Swayam Sahaya Sangham v. State of Kerala, 2009 (2) K.H.C. 312.

Kameswar Singh v. State of Bihar, A.I.R. 1952 S.C. 252,

Lunda v. Matthews, 46 Or. App. 701, 613 P.2d 63 (1980).

M.C. Mehta v. Union of India, A.I.R. 1988 S.C. 1115.

M.C. Mehta v. Kamalnath, (1997) 1 S.C.C. 288,

M.C. Mehta v. State of Orissa, A.I.R. 1992 Ori. 225.

M.C. Mehta v. Union of India, A.I.R. 1998 S.C. 1037.

M.C. Mehta v. Union of India, (2004) 12 S.C.C. 118.

M.C. Mehta v. Union of India (TajMahal Case), (1997) 2 S.C.C. 353.

M.C. Mehta v. Union of India, AIR 2004 S.C. 4016.

M.C. Mehta v. Union of India, 1997(3) S.C.C. 715.

M.Indira v. State of Tamil Nadu, W.P.No17233/2009.

M.P. Ramababu v. Divisional Forest Officer, A.I.R. 2002 A.P. 256.

Mugler v. Kansas, 123 U.S. 623 (1887).

Munn v Illinois, 94 U.S. 113(1877).

N.D. Jayal v. Union of India, 1999 (1) SCALE 463.

Nagarhole Budakku Hakku Sthapan Samithi v. State, A.I.R. 1997 Kant.293.

Narmada Bachao Andolan v. Union of India, A.I.R. 1999 S.C. 3345.

National Audubon Society v. Superior Court of Alpine County, 33 Cal. 3d 419.

Nature Lovers Movement v. State of Kerala, AIR 2000 Ker. 131.

Paristhithi Samrakshana Samithi v. State Of Kerala, WP(C).No. 33312 of 2009(S).

People United for Better Living In ... v. East Kolkata Wetlands Management Authority, W.P.No. 106 of 2007.

People United for Better Living in Calcutta v. State of West Bengal, A.I.R. 1993 Cal. 215.

Poyil Sulaiman v. Peravoor Grama Panchayat, W.P.(C) No. 34619 of 2009-V.

Praveen K v. Land Revenue Commissioner, 2010(2) K.H.C. 499.

Reliance Industries Ltd. v. The Commissioner of Land revenue, 2007(2) K.L.T. 850.

Research Foundation for Science and Natural Resources Policy v. Union of India, 2007(9) S.C.R. 906.

Research Foundation for Science and Technology and National Resources Policy v. Union of India, (2007)8 S.C.C. 853.

Research Foundation for Science and Technology and National Resources Policy v. Union of India, (2007) 8 S.C.C. 853.

Robbins v. Deptt. of Public Works, 244 NE 2d 577.

Rohtas Industries Ltd. v. Rohtas Industries Staff Union, A.I.R. 1976 S.C. 425,

Rural Litigation and Entitlement Kendra v. Devaki Nandan Pandey, 1986 (Supp) S.C.C. 517.

S.F.F.I. v. UOI, A.I.R. 1987 Raj. 129.

S.Jagannath v. Union of India, (1997) 2 SCC 87.

Sacco v. Development of Public Works, 532 Mass 670.

Shahanaz Shukkoor v. Chelannur Grama Panchayat, (2009) 3 K.L.T.899.

Shri Anadi Mukta Sadguru S MVSJMS Trust v. V.R. Rudani, A.I.R. 1989 S.C. 1607.

Snehamandal Co-op Housing Society v. Union of India, A.I.R. 2000 Bom. 121.

Soman v. Geologist, 2004 (3) K.L.T. 577.

Sri Krishna Sharma v. State of West Bengal, A.I.R. 1954 S.C. 591.

State Of Himachal Pradesh v. Ganesh Wood Products,(1995) 5 S.C.C.399.

State of Tamil Nadu v. P. Krishnamurthy, J.T. 2002 (2) S.C. 173.

State of West Bengal v. Union of India, 1963 A.I.R. 1241.

State of West Bengal. v. Mrs. Bella Banerjee, A.I.R. 1954 S.C.170.

Supreme Court Monitoring Committee v. Mussorie Dehradun Development Authority,
(1997) 1 S.C.C. 605.

T.N. Godavarman Thirumalpad v. Union of India, A.I.R. 1997 S.C. 1228.

The Goa Foundation v. Union of India, (2014) 6 S.C.C. 590.

Union Carbide Corporation v. Union of India, A.I.R. 1992 S.C. 248.

Upendra Jha v. State, A.I.R. 1988 Patna 263.

Vellore Citizen's Welfare Forum v. Union of India, A.I.R. 1990 S.C. 273.

Vellore Citizens Welfare Forum v. Union of India, A.I.R. 1996 S.C. 2715.

Visakha v. State of Rajasthan, (1997) (6) S.C.C. 241.

INTRODUCTION

Irrational and haphazard land use attracts severe criticism from several quarters. Several problems are involved in land use. Rational land use method can promote inclusive use of limited and unexpandable resource¹. Interests of all stakeholders are to be taken into account². Owner of land should use the property in a way conducive to the general expectations and legitimate demands of the society³. Even if the land is held by government predominant view is that land should be treated as community property⁴. Environmental awareness and land use controls have become a controversial subject⁵. In India land filling, land conversion, removal of minor and major mineral resources and activities within the forest are some of the hotly debated issues. In this context a study to explore the law regulating land use controls especially environmentally and ecologically important lands become significant.

Relevance and Importance of Study

Land is a significant resource over which proprietary rights are recognised⁶. Nuisance created through various land use was tried to be avoided

¹ See the Draft National Land Utilisation Policy, Department of Land Resources, Ministry of Rural Development, India (2013).

² *Ibid.*

³ Agarwal and Anil “Ecological Destruction and the Emerging Patterns of Poverty and People’s Protests in Rural India”, 35 *Social Action*, (1985), pp. 54-80.

⁴ Fernando Henrique and Cardoso, *Valuing the Global Environment: Actions and Investment for a 21st Century*, Washington DC: Global Environment Facility (1998), p.255.

⁵ Bebarta and Kailash Chandra, *Forest Resources and Sustainable Development: Principles, Perspectives and Practices*, Concept Publishing Company, New Delhi (2004), p.114.

⁶ Zonneveld and S. Isaak, “What is Meant by Land Use Change?” in Carole L. Jolly and Barbara Boyle Torrey (ed.), *Population and Land Use in Developing Countries*, Washington D. C., National Academy Press (1993), pp. 30-36.

through the common law controls⁷. Whether the utility of the activity outweighs the environmental consideration was the consideration before the court. A standard definition⁸ of nuisance could meet most of the problems relating to land use. Later on, planning and zoning laws brought in major changes. Health, safety and facilities of others attracted land use controls⁹. After the Stockholm the sphere of government interference increased. Several legislations were enacted. Existing legislations were modified. These come in conflict with the interests of different sections of society. Coastal Regulations¹⁰ and high range protection¹¹ are manifestations of such unrest. A systematic study on these issues is of current interest. Exploring of some areas in this respect is also relevant in this respect.

⁷ *Lunda v. Matthews*, 46 Or. App. 701, 613 P.2d 63 (1980).

In this case a cement plant was held liable for emitting debris, dust, and fumes that encompassed a landowner's house and aggravated his bronchitis and emphysema. The court reached this determination despite arguments that the landowner's illness made him more vulnerable to debris and dust than persons of ordinary health. The court also held that the cement plant could not escape liability merely because it was complying with state pollution standards.

⁸ Anything which is injurious to health, including, but not limited to, the illegal sale of controlled substances, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin, or any public park, square, street, or highway, is a nuisance. See the California Civil Code, s.3479.

⁹ J Maanta , “Zoning, Equity, and Public Health”, *Am. J. Public Health* (2001),pp.1033–1041.

¹⁰ See the Coastal Regulation Zone Notification, 1991(hereinafter referred to as CRZ Notification, 1991).

¹¹ The Gadgil Committee report could have adverse effect on mafias. Due to this when the report was first made public; there were a lot of protests against it. These protests came from the sand mining and quarrying lobbies in Goa. Farmers were freighted by the mafias in Kerala. They were informed that the Gadgil report is against them, and that they will lose livelihood if its recommendations are implemented. This resulted in many problems in Kerala. For more details see <http://www.downtoearth.org.in/blog/western-ghats-lessons-in-protection-43735> visited on 10-10-2014.

Reason for Confining the Studies to Protection of Wetlands

Land use controls are abundant and legislations relating to the same are also numerous. An exhaustive study of these laws is beyond the scope of a thesis. Thus a limited area alone is selected for study. Wetland protection is identified as one of such because of environmental and ecological significance attached to those areas. No comprehensive study or analysis over this area is attempted in India. Thus a pioneering study is undertaken in this area.

Rationale for Land Use Controls

Land is a limited resource. It is useful to everyone. Recognition of proprietary right evolved to promote social interest. This could be gathered from the history. Ownership of Land was a grant from government. Usually it was not based on the labour of each individual. Land is to be used for providing maximum interest to all members of the society. Common good for stakeholders is to be assured. Due significance whether given to all stakeholders is an area of debate and analysis.

Object

Control over land use constantly regarded as encroachment over rights of individual land owners. People desire the unrestricted use on shared resources. To protect the environment certain minimum restrictions and regulations are necessary. In India these land use regulations should strike a delicate balance between the individual and social interest. Being a limited resource, land is to be handed over to the future generations with the same quality existing today. To achieve this goal, improper handling and abuse of land resource is to be avoided. So the study aims to examine how far, different stakeholder interests are assimilated in land use regulations in India and also to see, whether the present regime is conducive to the sustainable land use pattern or not?

Research Problem

The present study tries to analyze whether land use control measures adopted for the protection and conservation of land, especially wetlands in India are enough to achieve sustainable development and whether they are in tune with the international standards. To carry out the study in a systematic manner researcher has formulated various sub questions in each chapter.

Research Questions

1. Need for land use regulation especially regulation on wetland use.
2. Can proprietary rights of land owners be restricted?
3. What is the constitutional scheme for regulation of land use?
4. Common law principles relating to land use controls in India.
5. Need for special legislation on conservation of wetlands – national and international approach.
6. Whether the coastal wetland use promotes conservation of ecological resources and help to promote integrated coastal zone management schemes?
7. Whether the laws for promoting estuaries and mangroves in India are capable of ensuring conservation of living resources, flora and fauna.
8. Whether the river bed protection measures adopted in India help to prevent death of rivers in the long run?
9. Whether the laws relating to high altitude and high land wetlands are in conformity with the international aspiration.

Hypothesis

Indian legislations on land use are not comprehensive for conservation of wetlands. This hypothesis is sought to be examined in this study.

Limitations of Study

Legislations, case laws, international documents in this area are collected and studied. Comparative study is made with the laws prevailing in three other countries namely Canada, England and the United States of America. General land use controls are not examined in detail. Land use controls are abundant in India and legislations relating to the same are numerous. An exhaustive study of these laws is beyond the scope of a thesis. So a specific area alone is selected for the study. Wetland protection is identified as one important area involving environmental and ecological significance. The researcher has not found any comprehensive study and analysis in this respect. Thus a pioneering study is undertaken in this relevant area

Research Methodology

This is a doctrinal study based on primary and secondary sources of legal data. The primary sources are Indian legislation, rules and bye-laws, case laws from Indian, American, British and international courts, international instruments such wetland protection conventions and subsequent developments, international environmental instruments, committee resolutions and guidelines, guidelines of international organizations in relation to various forms of wetlands and various commission reports. The secondary sources are books, journal articles, conference papers, annual reports, web- articles, news- paper and magazine reports. The theories and opinions of many legal scholars are also examined to find out whether they are supporting the existing laws.

Scheme of Study

Land use regulations existed since the inception of society. Regulations assumed changed meanings at different period of history. This mainly intended to protect the common interest of society¹². Changed circumstances demanded more controls¹³. Due to the scarce nature of resources, land use regulations are very crucial¹⁴. This is more critical in the case of ecologically important areas like wetland ecosystems. At the same time the developmental needs of the society cannot be ignored. Irrespective of the ownership pattern existing in the society each stakeholder has a right over this invaluable gift of nature¹⁵. The dilemma is regarding the sustainable utilization of land resources.

The concept of land use can be understood from various perspectives¹⁶. Treating land as a common resource at the disposal of society always comes in conflict with the perspective of individual owner who treats land as a profitable commodity in his custody. Today land use control of any type is looked upon with curiosity by all sections of society. Moreover, land use controls are an important element of environmental protection. There are many international attempts to protect land. Earlier concept of *res nullis* is rejected and the concept of common heritage of mankind is recognised now.

¹² Thomas J. Reed, "Land Use Controls in Historic Areas", 44 *Notre Dame L. Rev.* (1969), p. 379.

¹³ Kevin Gray and Susan Francis Gray, The Idea of Property in Land, in Susan Bright and John K Dewar (eds.), *Land Law: Themes and Perspectives*, Oxford University Press (1998), pp. 15 – 51.

¹⁴ Town and country planning legislations, environmental legislations and land use legislations places many controls over property rights.

¹⁵ Eric Freyfogle, an American scholar said that "a new property jurisprudenceProperty use entitlements will be phrased in terms of responsibilities and accommodations rather than rights and autonomy. A property entitlement will acquire its bounds from the particular context of its use, and the entitlement holder will face the obligation to accommodate the interests of those affected by his ... use" See (E.T. Freyfogle, "Context and Accommodation in Modern Property Law", 41 *Stan. L. Rev.* (1988), p.1529.

¹⁶ T.C. Grey, 'The Disintegration of Property', in J.R. Pennock and J.W. Chapman (eds.), *Nomos XXII: Property*, New York University Press, New York (1980).

Since the adoption of Ramsar Convention on wetlands in 1971¹⁷, world community is trying to achieve wise use of wetlands through various attempts. The Indian position is much behind compared with other developed countries. India has enacted the Wetlands (Conservation and Management) Rules only in 2010¹⁸. It is not comprehensive in nature¹⁹. It does not cover all type of wetlands in the country. In the implementation level²⁰ also the working of wetland rules do not show much improvement. Centre –state conflict in the management of these resources poses another problem. This study tries to analyze the legislative framework existing in India regarding the land use controls on different types of wetland.

This work is divided into ten chapters. The introduction chapter gives the outline of the area of study. This gives an overview of the existing scenario on the land use controls, especially the wetlands.

Chapter two gives an analysis of historical evolution of land use controls. Comparative analysis with different legal systems is attempted in this chapter. Development of land use controls based on the property concept is examined. This chapter gives an overview of the general area of land use controls in India. Analysis of historical evolution shows that land use controls changed from time to time. This was done mainly to protect the interest of society. In earlier days laws

¹⁷ The Convention on Wetlands of International Importance, Especially Waterfowl Habitat, 1971. It is an intergovernmental treaty which involves the frame work for national action with international co-operation for the conservation and wise use of wetlands and their resources.

¹⁸ By the combined reading of sections 25 and 3(2)(v)(1) of the Environment (Protection) Act, 1986, the Central Government made the Rules for protection and conservation of wetlands.

¹⁹ The Wetlands (Conservation and Management) Rules, 2010, r.2 (g) defines wetlands. It resembles Ramsar Convention, 1971 but differs in some aspects. It offers a wider definition. Under the definition itself, wetlands determined by authority is ambiguous. Wetlands under private ownership are not taken care of. Rules lists out regulations on land use and shows some overlapping areas. But no proper answer could be discerned from the provisions.

²⁰ *Id.*, r. 7.

perpetrated the interest of the ruling classes²¹. With the emergence of welfare state the Constitution set out the goal of an egalitarian society²². This tries to incorporate radical changes both in the property rights and the consequent land use controls. But the state as a machinery in protecting the society could not gain acceptance of people regarding controls on land use. This resulted in rampant violation of laws regarding land use and innumerable litigations were brought before courts. The evolution of land use controls in every society shows that it was really complex. The conflict is becoming aggravated in the changed situations. It has become a crucial area before the world community. Overview of the general land use controls reveals that they are scattered under the central and state legislations. There is a need for co-operation of various ministries and authorities of the Centre, state and local governments.

The focus of the third chapter is on the constitutional aspects of land use controls in India. This chapter analyses the existing constitutional provisions on land use controls especially the provisions relating to wetlands. It explains the legislative scheme regarding land use. The division of legislative power, and its conflicts are analyzed. Attempts made by judiciary to settle the dispute are explained. From the constitutional assembly debate on land, it is clear that the authority to make laws on land was given to states. This was for propagation of agriculture and for proper management at micro level. At that time land had not acquired prominence to promote environmental laws. But now the situation is different. Land, especially fragile ecosystem and certain biomes are treated as world heritage of mankind. Thus the resource has acquired a national and international character. A strong central policy with requisite control is the need of the hour.

²¹ Priya Nath Sen, *General principles of Hindu Jurisprudence*, Allahabad Law Agency, Allahabad (1984), p.39-45.

²² The Constitution of India, 1950, preamble.

Land use controls in India are governed by the type of property relations followed. Indian Constitution envisages an egalitarian society giving more importance to societal considerations over individual's right to acquire and hold property. The Constitution asserts that, land could be acquired for public purpose with or without compensation²³. But at the same time the Constitution recognizes freedom of individual to hold and dispose of property²⁴. The amount to be dispersed as compensation on acquisition always invited the criticism from judiciary²⁵ and society²⁶. During the constitutional assembly debate, Shri.Jawaharlal Nehru rightly pointed out that equity must apply to society and not to the individual who is deprived of the property²⁷. The government must not encroach on the right of individual unnecessarily. Thus the concept of 'public purpose' remained as the criteria of acquisition. Concept of public purpose is defined as an unruly horse. Thus the question of feasibility of land use controls changed from time to time. After independence centre and states enacted many legislation to give effect to the constitutional dream of egalitarian society²⁸. Land Reforms and land ceiling was the first measure adopted. This resulted in a tug of war between judiciary and legislature resulting in removal of property rights from fundamental right part²⁹. Agrarian reforms were the primary aim of governments during those times. Now apart from agrarian reforms, environmental protection and sustainable development have assumed lead role. Considering the area of land use regulations, a comprehensive legislation is impossible in this area. Rather

²³ The Land Acquisition Act, 1894 and related provisions of acquisition.

²⁴ The Constitution of India, 1950, Art.19(1)(f) which related to fundamental right to property.

²⁵ *Kameswar Singh v. State of Bihar*, A.I.R. 1952 S.C. 252. *State of W.B. v. Mrs. Bella Banerjee*, A.I.R. 1954 S.C.170.

²⁶ The Land Utilisation Order, 1967 was an utter failure due to its non acceptance by land owners.

²⁷ *The Constituent Assembly Debates*, Vol.IX, p.1199.

²⁸ The Land Reforms Act, 1963.

²⁹ The Forty Fourth Amendment Act, 1978.

than the general approach an ecosystem based approach has been adopted and it realises the international arena also. The issues relating to land use controls with special reference to wetlands are discussed in this chapter.

The legal framework for regulating wetlands is discussed in the fourth chapter. Attempt is made to clearly define the area under wetlands from different perspectives. Various definitions regarding wetlands are brought together to identify the characteristics necessary to count a land area as wetland. Various ecological functions of the wetlands are analyzed in detail based on the criteria laid down in the Ramsar Convention. The Convention on Biological diversity is also discussed in this chapter. Threats faced by these areas are brought to light. A comparative analysis of the management strategy adopted for protection and conservation of wetlands in different countries is also made. Role played by Indian judiciary to protect various categories of wetlands are also examined.

Wetlands cover only 6% of the world's total land area. These areas gained worldwide attention even before the Stockholm declaration, 1972. They were attempted to be defined under the Convention on Wetlands of International Importance especially Waterfowl Habitat, 1971. The Convention lays down the important principle of 'wise use' of these ecosystems through integrated management. This also lays down working models for the protection of different types of wetlands. A program of common management by designating various wetlands as *Ramsar* sites is an important feature of the Convention. Follow up actions are undertaken by the secretariat formed under the Convention. The Convention on Biological Diversity, 1992 joins its hands with the *Ramsar* and both work for the protection of ecosystems. More over treating biologically important areas as biological hot spot is another attempt made by world community today. Thus the law relating to wetland use has aroused curiosity all over the world.

India being a party to the Convention undertakes the duty to protect and conserve wetlands at its disposal. In early days attempts in this regard were paltry. Wetlands were treated as wastelands³⁰. Land use regulations in India were confined to boosting agriculture. The population explosion and the evolving of environmental protection led to intricacies in this area. Now land use controls assume wider coverage. Land use controls remains scattered both under central and state lists. The Centre has laid down the policy to be followed. But an integrated approach is not undertaken due to many problems. The ecological values of wetlands were neglected by the world community. They were viewed as habitat or sites for wild life. These areas remained the grounds for hunting and fishing for human needs. Different forms of wetlands and their peculiarities were not realised. The range of goods and services which wetlands provide have usually been taken for granted. Environmental consciousness of the community and the need for protection of bio diversity opened up the doors towards the need for protection of wetlands. Today world community realizes the unlatching ecological functions played by wetlands. Ramsar Convention, 1971 opened the doors and set the targets to be achieved towards the conservation of wetlands. Under the Ramsar Convention, 1971 wetlands are valued based on the ecological functions performed by them. For that purpose wetlands are classified into inland wetlands and coastal wetlands.

The controls over use of these wetlands are analysed in chapters five and six. As per the definition in Ramsar Convention various categories of wetlands are analysed in detail in these chapters. The fifth chapter undertakes the study of coastal wetlands. The importance of coastal zones to India is analyzed here. Coastal wetlands are understood as the most threatened ecosystems of the world.

³⁰ Sven Erik Jorgensen (Ed.), *Applications in Ecological Engineering, A Derivative of Encyclopedia of Ecology*, Copenhagen University, Denmark (2009), p. 45.

A study of the land use controls exerted on these areas since independence is examined here. Judicial attitude towards conservation of coastal zones is another area examined in this chapter.

The study of estuaries, mangroves and lagoons, ports and harbours and all other coastal wetlands are included in the fifth and sixth chapters. Mangroves, estuaries, lagoons and allied ecosystems are so precious. Their economical values cannot be assessed on mathematical terms. Their destruction may cause drastic consequences. This chapter addresses the issues faced by these areas. The legislative frame work governing the area is also analysed.

The seventh chapter examines the laws on use of inland wetland specifically the paddy fields. This chapter incorporates the study of kore wetlands also. Protection measures undertaken by governments for the paddy fields, the changes brought in the legislations are critically evaluated in this chapter. Focus of the chapter is the land use controls existed over private owned paddy field. Before 1970's paddy fields were the centers of attraction in most part of the country. Paddy is the staple food of the people of Kerala. But now the production of paddy has shown steep decline. More over paddy fields are disappearing. People are more concerned about their economic gain rather than the ecological harm inflicted on the society due to the conversion of paddy fields. Legislative attempt to protect paddy fields were often ignored.

The eighth chapter is the study of inland wetlands such as rivers and allied ecosystems, lakes, shallow lakes and ponds, bogs, marshes and swamps which are critical and vulnerable areas of wetlands. It analyses various legislations for the protection of inland wetlands. The land use controls exercised under these legislations are analysed in this chapter.

Various forms of high land wetlands are studied under the ninth chapter. The high altitude wetlands of Himalaya and the other high land wetlands such as forested wetlands, lakes, rivers from the high lands, catchment areas of these areas, dams and command areas are made the subject matter of study in this chapter. Lakes are described as eyes of nature. Various attempts through the policies and legislations to conserve and preserve these valuable ecosystems are evaluated. The destruction of these areas would lead to irreparable consequences to the whole world. The reasons for the degradation of these areas are analyzed under this chapter.

The last chapter summarizes the conclusions and suggestions of the study. Certain proposals for the changes are made in this chapter.

HISTORICAL EVOLUTION OF LAND USE LAWS A COMPARITIVE ANALYSIS

Land is a finite resource with certain special qualities and characteristics. It is treated as one of the most important resource. In every society land adorns quadrilateral significance¹. They are political, ecological, social and economical. Not only that, ultimate ownership of the land lies with state in every society. More over land signifies the economic power of state. But until the human settlement there were no specific notions regarding land use. The land use control referred here is all comprehensive.

Wetland is treated as a resource for protection of ecological balance avoiding all other aspirations of the society regarding the use of it. In ancient societies land use control was too little. Limited areas which had religious significance were protected and kept sacred². Only during the agricultural era and the consequent need for settlement, states began to acquire more power on land. Partial rights of individual over land³ also were recognised. Individuals enjoyed inalienable property right over land. State exerted control over unprecedented development of land through planning and zoning laws. Later on state fixed ceiling for the extent of land a person or family can hold. There were common law

¹ See FAO, ‘Land Resources’, <http://www.fao.org/nr/land/use/en/>, visited on 20-04-2010.

² J.D.Hughes and M.D. Subhash Chandran , Sacred Groves Around the Earth: An overview, in, *Conserving the Sacred for Biodiversity Management* by P.S Ramakrishnan. K.G. Sexana and U.M. Chandrashekara, Oxford and IBH Publishing Co., New Delhi (1998), pp.263–276.

³ Keith Pezzoli, *Human Settlement and Planning for Ecological Sustainability: The Case of Mexico City*, Massachusetts Institute of Technology, United States of America (2000), p. 94.

controls for special areas and treasure troves. Certain other controls over land use were servitudes, easements and action for nuisance. All these aimed at the common good of the society. But conservation and protection of environment was not a concern of the community during that time.

During 1950's concept of environment began to creep into the international arena. But the international law had nothing to do with land use controls of states. Sovereign states enacted their own legislations regarding their territories. Convenience of community was the sole concern of such regulations. It had no international colour. The call of Rachel Carson stating about the silent spring aroused⁴ the world consciousness about whole embracing environment. During this period transformation took place in the role played by states. States were gaining more and more powers based on their fundamental law to do more welfare activities to communities. Land use controls acquired greater thrust based on the understanding of ecological significance of land. This was a novel idea regarding land use. Protection of ecological interest coexists with all other interest of society regarding land. Earlier planning and zoning laws got strengthened. Land began to be treated as common property and as part of environment. Apart from the country based legislations reflections of controls exerted over land use could be seen in international arena also. The controls which were oriented to each society began to acquire international character. Formation of general norms for protection of resources of environment took place in the first stages. It was found that at the implementation level these general norms could not do much in this regard. Therefore the focus changed to special areas of interest. It was found that special areas are damaged irreparably. It was found that the best method to protect these areas is to restrict their use from all the four

⁴ Walter Sullivan, "Books of the Times," *New York Times*, 27 September 1962, p. 35.

aspects such as political, ecological, social and economical. This approach gave more prominence to ecological aspect.

Although land is considered as part of man's natural heritage, access to it is restricted and controlled by ownership pattern of land followed by particular society determines the extent of access. Along with this land is partitioned for administrative and economic purpose. It is used and transformed in myriad ways. Population growth, technological and social hazards and consequent environmental degradation are also to be taken into account to make decision about land. More recently, the need for thoughtful and careful stewardship of the land, together with the more intensive use and management of its resources, has emerged as a matter of major global concern. In India also various problems related to land has attracted the attention of policy makers.

Individuals value land more as property in economic terms than as a common resource to be protected and safeguarded for the future generations. Therefore property relations form the very basis of land management in every society. 'Property' is a very complicated term and it assumed altered meanings through various centuries. Real property always acquired an area of prime importance than other forms of property. There is always a conflicting question as to the 'absolute⁵' and 'ultimate' ownership of land.

Industrialisation, globalisation and urbanisation changed the land under agriculture to other needs. There are various reasons for the same. This may be due to the falling prices of agricultural produce and increasing cost in production. Farmers were given lower status in the community. In spite of the various

⁵ M.Hidayathulla, *Right to Property and Indian Constitution*, Arnold Heinemann Publication, New Delhi (1983), p.113.

attempts by states to protect agriculture⁶, the land areas undergoing agriculture showed a steep decline⁷. These areas were converted to various other purposes, mainly for building houses and for commercial purposes. Most of the farmers converted their farm lands from food crops to cash crops. This switch over provided them money for luxurious life. These changes have affected ecologically important areas also. For the conversion of paddy fields or farm lands for other purposes they needed earth and laterites. This is collected from other hilly areas and river basins and mining of other planes. This has exerted severe wounds to the ecology of many states. Sand and rocks which have a great role in the eco-balance are being exhausted. Due to uncontrolled mining, water table of different areas declined and food security of the state as a whole is affected⁸. Different parts of the country still face severe problem of drought and shortage of drinking water. This adds momentum to the market malpractices and food adulteration. Ecologically important areas such as wetlands including estuaries, river basins and command areas get affected due to the change of agricultural lands for many other purposes. As a result the ecology of the country is tilted.

Ensuring the availability of food crops at reasonable prices is an important state function. State has a function to protect the ecology and environment and to make the sustained availability of flora and fauna. The abnormal use of land is to be controlled for the common good of the society. The problems relating to the land use is grave because of the concentration of land property in the hands of individuals. Societal revolt against such social evil can also be seen. State has

⁶ Various legislations covering land reforms such as the Land Reforms Act, 1963 and the Land Utilisation Order, 1967 failed in achieving the aim of boosting agricultural production and assuring food security.

⁷ See the Kerala Conservation of Paddy Land and Wetland Act, 2008, background to the legislation.

⁸ Valery Mironenko and Fridrich Strelsky, "Hydrogeomechanical Problems in Mining", 12 *Mine Water and the Environment* (1993), pp.35-40.

adopted various measures to curb this menace. There are legislations to control such situation⁹. But all these laws remain unenforced¹⁰. The country has reached a stage where for sustenance of life, effective land use controls are necessary. But the main question which remains is how to achieve the better standard of land use management and how to bring in the sustainable management of available land resources by balancing the conflicting interests of society. The method available before the state machinery is to bring in effective land use controls for the sustainable management of resources, giving adequate emphasis to environmental protection. To understand the significance and need for sustainable land use regulations it is necessary to analyse the evolution of land use controls at international and national level.

Evolution of Land Use Regulations: Ancient Period

In the ancient period man was leading a nomadic life. He felt no necessity to control anything within his bounty. His main necessity was food. He took from nature what is necessary for him and left the rest for others. This state of affairs was described as '*res nullis*' i.e. nothing belonged to any one and everything was considered to be common property of everyone¹¹. They possessed equal rights over the objects of nature. The same was the case of land also. The person who first obtained the possession of a thing from nature considered the thing to be his own. The ownership in its elementary form can be traced to this act of occupation.

⁹ Concept of land reforms brought after the independence introduced new property relations. The land assignment and Bhoojan movement were some other legislation to bring in the concept of equality and equal distribution of wealth among citizens. Some orders were issued to make the land owners socially responsible to the needs of the society. See the Kerala Land Utilisation Order, 1967.

¹⁰ The Kerala Land Utilisation Order, 1967 was issued under the rule making power under the Essential Commodities Act, 1955. In spite of this Order conversion of paddy fields into either garden lands or living units continued unchecked in many areas. See Vinson Kurian, 'Kerala Land Utilisation Order Irrelevant, Says Study', *Hindu Business Line*, Thiruvananthapuram Edn., September 14, 2005, p.2, col. 6.

¹¹ Grotius, *War and Peace Book II*, Chap.2, A.C. Campbell, London(1814), pp. 86-89.

Therefore the ‘occupation’ became the foundation of property during that time¹². The theorists differ on whether the occupation was social or individual¹³. Whatever may be the form, the main aim of occupation of the property was to acquire the means of subsistence. There was no specific land use restrictions imposed on man during that time. Self-restraint was the law and land was abundant due to low population.

By the passage of time man began to lead a settled life. The main change brought in was the cultivation of various food crops for his subsistence and the family or the community to which he belonged. This era came to be known as the ‘agricultural era’. Thereupon the notion of property from ‘things to eat’ switched on to the ‘immovable property of land’. Importance was attached to land because it provided him shelter as well as place to cultivate¹⁴. Individual had the right to occupy land. He extended his labour for cultivation. Thereafter he utilized the products of his labour for his subsistence. Theorists argued that there was group occupation of land rather than the individual and the produce of labour was shared equally among them. Therefore it seems that the ownership was vested in groups. In the words of Seagal “the important question is not who occupies the soil, but what is done with the fruits of the soil”¹⁵.

The important element of ‘ownership’ of a property is its exclusive use. In the agricultural era this exclusiveness was a community one and their concentration was common good of the community. States intervention against the form of ownership existed was justified mainly based on the common good of community. In this era

¹² Carol M. Rose, “Possession as the Origin of Property”, 52 Uni. Chi. L. Rev., 73 (1985). See also Henry Sumner Maine, *Ancient Law*, Oxford University Press, London (1959), p.212.

¹³ A. Maine and S. Diamond, *Primitive Law Past and Present*, Methuen and Co., London (1971), p. 188.

¹⁴ Walton H. Hamilton, “Property According to Locke”, 41 Yale L.J. 864 (1932).

¹⁵ See N.S. Gopalakrishnan, *Intellectual Property and Criminal Law*, National Law School of India University, Bangalore(1995), P.6.

States are pictured in the elementary form of giving protection to the life and liberty of individual¹⁶.

It could be seen that at no point of time any kind of property rights was free from restrictions. It was restricted by the principle of “*eminent domain*¹⁷”, or by legislation enacted by state. Even the power of alienation was regulated by the personal and general laws of the land by the principles of “rule against perpetuity” or by principles of vesting and divesting of estates¹⁸.

Industrial revolution and technological development which took place in the later centuries brought in drastic changes to the life style pursued by the communities or individuals¹⁹. This in turn led to the rethinking of property relations. Therefore community holding gave way to the individual²⁰ one. Along with this the state’s power also underwent a number of changes. The concept of State as “Leviathan” which was created solely for the protection of life and liberty of individual²¹ changed to the concept of a welfare state. Along with this the functions of the state also became more complex one. Everyone expected the state to be more powerful than the Leviathan in the state of nature²². Thus protection of property acquired more individual colours than social. As the powers of state increased the duty of the state to ensure the social interest at par with individual

¹⁶ Peter Laslett (ed.), “*John Locke, Two Treatises of Government*”, Cambridge Texts in the History of Political Thought, Cambridge (1997).

¹⁷ This term refers to the power of a state or a national government to take private property for public use.

¹⁸ Muslim law restricts the right to will beyond one third of total assets. Similarly series of rules like invalidity of transfer for immoral purposes and transfer to a minor even if it is his progeny. The doctrine of *lispendens*, doctrine of *spes succession* under the Transfer of Property Act are other rules based on public policy grounds.

¹⁹ R. S. Bhalla, *The Institution of Property: Legally, Historically and Philosophically Regarded*, Eastern Book Company (1984), p.64.

²⁰ *Id.*, p.90.

²¹ See for the concept of property evolution, <http://www.britannica.com/EBchecked/topic/479008/property> visited on 03 Dec. 2010.

²² Thomas Hobbes, *Leviathan*, Oxford University Press, Lucknow (1929), p.230.

interest made the state to make more and more controls over the individualistic property. This continued through centuries and still exists. The extent of controls more or less depends upon the political philosophy followed by the concerned state and this can be gathered from the basic law of the land²³. Property is not only an economic asset, a secure property right provides a sense of identity and human freedom. Historically, however, land rights evolved to give incentives for maintaining soil fertility, making land-related investments, and managing natural resources sustainably²⁴. Therefore, property rights are normally managed well in modern economies.

Land use regulations promulgated by states restrict the private property rights mainly to protect public health, safety, morals and general welfare of society. Hence land use regulations always involves a balance and often conflicts both between private and public property rights and among private rights itself. The questions to be answered in this context are: (1) How far the restrictions imposed on land use are feasible? (2) What is the most acceptable mechanism to be evolved for this purpose? (3) What are the most relevant concerns to be satisfied without doing much harm to the resource base of the individual countries? Therefore the satisfaction of the concept of “sustainable development” in all realms of life especially with reference to land use became the need of the hour.

During industrial revolution the production increased with less labour and the individual could lead a life without much dependence on group. Property began to be recognised in terms of economic value²⁵. This brought in changes in

²³ For every recognized territory having a constitution they will specify the property relations recognized and enforced by the state. For example the Constitution of India Arts.19(1)(f), Art..31 originally dealt with real property relations.

²⁴ Rama Jois, *Seeds of Modern Public Law in Ancient Indian Jurisprudence*, Eastern book Company, Lucknow (1990), p. 53.

²⁵ David E. Dowell, “Benefit of Minimal Land Use Regulations in Developing Countries”, 12 *Cato Journal* (1992).

the mental attitude of man also. He became greedy and began to amass wealth for luxury and the concept of property lost its original notion. The original notion of property was in tune with the nature. Man had respect and love for the nature and its resources²⁶. From there onwards another notion of property began to attract significance i.e. the legal concept of property as including the ownership and its component elements like exclusiveness, possession and thing. It became an independent institution free from community control.

Some theorist like Hegel argues for protection of individual property rights and says that some control over the property is essential for the development of personality²⁷. He says that it is the control of property which makes a person free. He was an exponent of private property. He classified the gradual development of community holding of property to individual. He also said that community should give each member opportunity to toil, within his powers, acquire such property as is necessary for true self-realization²⁸. What is that extent of true self-realization is not made clear by him. It can ordinarily be the attribute the societal control or states control for the protection of social interest. Here also Hegel upheld the development of legal notion of property²⁹ as the group holding gave way to the individual one.

²⁶ The original notion of institution of property considered property as an expression of self to control and use to fulfil the needs of individual got completely changed. Greek philosopher Aristotle observed “It would be ideal, for property ought to be generally and in the main private, but common in one respect namely in use. The renowned natural law theorist, Grotius, relying on Justinian observed that private property originated in a kind of agreement among men to respect the right of occupations at the time of agreement.

²⁷ Ger Schultint, Martha Finnemore and Kathryn Sikkink , “Global Property Rights and Eminent Domain, International Norm Dynamics and Political Change”, 52 *Journal of International Organization* (1988), pp.887-917.

²⁸ Dias, *Jurisprudence*, Butterworths, London (1985), pp.274-275.

²⁹ Hegel, *Metaphysical Basis of Property Rational Basis of Legal Institutions*, 14 the Modern Legal Philosophy Series, New York(1991) , p.201.

Land Use Controls through International Conventions and Treaties

Land use today at international level is not just a norm but an effective law accepted by most of the countries. It is formed as an answer to the fact of growing industrialisation and to environmental accidents. Now this has emerged as a specific legal regime.

International attempts mainly rely on customs, traditions, and precedents and on good faith and moral obligations. The first international treaty attempted to protect the migratory wild life, marine animals and fisheries³⁰. It was during the period 1872. But no institutional machinery was set up to carry on the objectives of the treaty. Thus the treaty proved to be not effective.

Again in 1902 a convention was held for the protection of birds which were useful for agriculture. After the convention on regulation of whaling it can be seen that the attitude of the world community changed from exploitation to conservation. A pioneering convention which reflected this approach was the African Convention on Conservation of Nature and Natural Resources, 1968. But these conventions failed to establish an administrative structure to oversee its supervision. By this time concept of environment protection began to acquire momentum in West.

The first international machinery for protection of environment was made by a group of private citizens. It was a nongovernmental congress for protection of nature. Thus a consultative commission was formed at Berne. It envisaged comprehensive protection of nature. The activity of commission was at a dormant stage during the First and Second World War. After the Second World War a Swiss League sponsored conference was organised at Brunnen for protection of

³⁰ Robert Boardman, *International Organization and the Conservation of Nature*, Indiana University Press, Bloomington (1981), pp.26-32.

nature. It was attended by 24 countries and 9 international organisations. This formed the basis for International Union for Conservation of Nature.

During 1970's attention was focussed on bio-physical environment. The first ever convention which dealt with a particular ecosystem was the convention on wetlands of International importance especially as waterfowl habitat, 1971³¹. This convention established a network of protected wetland areas in the territories of the member states.

The years 1972 to 1992 witnessed an increase in the international instruments to protect the environment. Stockholm Declaration on Human Environment in 1972 is treated as the *Magna Carta* of environment. It states that' the protection, preservation and enhancement of the environment for the present and future generation is the responsibility of all states and they should ensure that activities within their jurisdiction or control do not cause damage to the environment. All states should co-operate in evolving natural laws, norms and regulations in the field of environment³². Conventions convened during this period can be divided into three categories. They are conventions for nature conservation, protection of marine environment and regulation of transboundary environmental impacts³³. These conventions had impacts on land use of concerned areas.

In 1992, the Rio Declaration along with the Convention on Biological Diversity had direct bearing on land use. Over the last few decades the change in the attitude of the world community to address and balance the environmental

³¹ Popularly known as the Ramsar Convention, 1971. For further discussion on the Ramsar Convention, 1971 see chapter 4.

³² See for awareness of environment, blog spot. in/2010/03/international-efforts-for-environment.htm. last visited on 10-06-2015.

³³ The Convention on Protection of Worlds Cultural and Natural Heritage, 1972 (UNESCO Convention), the Convention on Protection of Environment, 1974(Nordic Convention), the Convention on Conservation of Nature in the South Pacific, 1976(South Pacific Convention) and the Convention on the Conservation of European Wildlife and Natural Habitats, 1979 (Berne Convention) are some of them.

problems though sustainable development principle can be seen. Thus to conclude, there is not only increase in the number of instruments but also in the implementation level.

Land Use Regulation in the United Kingdom

The history of land use legislations of the U.K. began at Roman times. Land was the dominant source of social wealth throughout the Dark ages³⁴. The industrial revolution was the turning point from this concept. By the 19th century, political power of the landed nobility diminished. Modern legislation gave more social character to land. Land is now subject to extensive regulation necessary for the society.

English land law was formed by the policy adopted in the lower lord. Later it changed the shape to feudalism. It reflected the teutonic system in character. The main features of the teutonic system were enjoyment in common³⁵. There was absence of private ownership also. King enjoyed ultimate right over property rights. But individuals could alienate the property rights by themselves.

i) Norman Feudalism

The Normans invaded England in 1066. After their occupation of land, the Norman Kings began to enforce the England's feudal rules³⁶. The Norman Kings perpetuated the feudal tenures existed under the Anglo-Saxon and Danish period. Large acres of land were given as estates to upper classes. They divided these assigned estates to tenants. In return of the lands all of them were bound by many

³⁴ Dark ages were under the Saxon monarchs.

³⁵ Anna Vaninskaya, *William Morris and the Idea of Community Romance, History and Propaganda, 1880-1914*, Edinburgh University Press, Edinburgh (1988), p.105.

³⁶ L.Ting, "Survey Review Understanding the Evolution of Land Administration Systems in Some Common Law Countries" Department of Geomatics, The University of Melbourne Victoria, Australia available in <http://www.sli.unimelb.edu.au/research/publications/IPW/wolfdcdb.htm>. visited on 21-10-2013.

duties towards king³⁷. The grant was purely to make certain allegiance to crown. But, all the farmers were bonded labourers. They could not leave the land without consent of their Lords. Therefore common men had limited chance to acquire property. The earlier enactments also reflected this approach. Legislations could not provide a free right on people to acquire and dispose of property.

The lands could be inherited only by the heirs of lords. King was the owner of every form of land under the feudal system. Karl Marx well explained this position in the following words,

“The German Ideology” that: “[t]he chief form of property during the feudal epoch consisted on the one hand of landed property with serf labour chained to it, and on the other of the labour of the individual with small capital commanding the labour of journeymen”³⁸. Power in the feudal system vested in the institutional and legal structure that were put in place by the combined interests of landholders and the state: “...the collective power vested in the institutions of royal authority or ‘state’ would in theory function as a medium through which those holding property could acquire wide ranging influence and achieve high status...that collective power would be able to shape the institutional structures of society....”³⁹

ii) Breakdown of Serfdom

The feudal system faced critique from the lower strata of society. Peasants began to make revolt asking more wages. The Magna Carta of 1215 in England was revolutionary for the establishment of the right to not have one’s body or land

³⁷ Tenants and lords had various obligations like work, military service, and payment of taxation.

³⁸ L. Ting, I.P Williamson, J.R. Parker, and D.Grant, “The German Ideology”, Arthur, CJ et. al, (Ed.), *Lawrence and Wishart*, London(1974).

³⁹ W.Davies and P. Fouracre (ed.), “Property and Power in the Early Middle Ages”, Cambridge University Press, Great Britain (1995), p.116.

taken by the king without due process. This early document clearly shows the tension that existed between the rights of the individual and the crown or state with regard to property.

iii) Feudal Tenures

The Normans did not introduce any change in the existing structure of land- man relationship. They completed the association of territorial with personal dependence in society. But after the establishment of circuit courts the influence of local custom upon the land law diminished. The Circuit courts were King's Court and these were established during the reign of Henry II. In 1392 jurisdiction over litigation concerning the freehold was taken away from the lord's courts. Reformation took place after the breakdown of feudalism. After this the lords and slaves became very scarce. Law made people free from landlords. Even though they were freed by law they could not actually enjoy the freedom because they had no property at their disposal. Property meant for common use was enclosed by the Lords and they were also burning the houses of tenants within their estates. But the adoption of common law and equity decisions made the land laws in tune with the needs of the present society.

iv) Private ownership

John Locke's writings in the late 1600's focus on the dichotomy between the concepts of owning property in common as well as on a private, individual basis. He considers how there can be private ownership even though:

“God gave the World to Adam and his Posterity in common...The Earth, and all that is therein, is given to men for the support and comfort of their being. And...all the Fruits it naturally produces, and

Beasts it feeds, belong to Mankind in common...he Earth and all inferior Creatures be common to all Men”⁴⁰.

Locke found that one of the justifications for individual ownership was that labour expended to “value-add” was sufficient justification to claim individual enjoyment of the fruits of the land. Locke also argues that unless money had been invented, there would have been no sense in accumulating more than could be used. Proudhon’s first proposition is that:

“Individual possession is the condition of social life and five thousand years of property demonstrate this. That distinction between possession and ownership is not dissimilar to the modern concept that the essence of property ownership is the control of access rather than the enjoyment of access⁴¹.

v) *Changes in Equity*

Common law decisions created many difficulties to the people to access justice. Court of chancery mitigated the hardships created by the common law courts. During this period the social significance of land also changed. Legal developments in the property law revolved around the division between the common law courts and equity courts⁴². The courts of common law⁴³ took a strict approach to the rules of title to land, and how many people could have legal interests in land. But the King enjoyed appellate power over the decisions of the common law courts. King delegated appellate power to his Lord Chancellor this

⁴⁰ M. Kramer, *John Locke and the Origins of Private Property*, Cambridge University Press, Cambridge (1997), p.426.

⁴¹ Bradbrooke, Maccallum and Moore, *Australian Property Law: Cases and Materials*, LBC Casebooks, Sydney (1996), pp.98-106.

⁴² Fritze, H. Ronald and William B. Robison, *Historical Dictionary of Late Medieval England*, Greenwood Press (1272-1485).

⁴³ The Court of Common Pleas and the Court of the King's Bench.

later developed into court of equity. The equity courts recognised, the elements of ownership could be divided between the users under different titles. This marked the beginning of trust law⁴⁴.

vi) Industrial Revolution

Over the 18th century, the law of real property through legislation came to a standstill. But principles of land law continued to develop in the courts of equity. The national and global trade expanded and the economic and political importance of land diminished. There were significant land management changes⁴⁵. These led to improved productivity.⁴⁶ This movement, when coupled with the move by landed aristocracy into industry introduced much more changes in the relationship with land⁴⁷. Rural land was put under pressure of increased production. Urban lands had to face, land markets, land administration and property law. This led to more administrative and legal reforms on property and land⁴⁸. Property rights began to acquire more wide arenas apart from land⁴⁹. Land use controls were introduced through statutes. The Statute of Uses⁵⁰ made it

⁴⁴ During the battles, landowners who went to fight would transfer title to a person they trusted so that feudal services could be performed and received. But some who survived had returned only to find that the people they entrusted were refusing to transfer title back. They approached Lord Chancellor for justice, and the Court of Chancery decided that the true "use" or "benefit" of the land did not belong to the person on the title. Unlike the common law judges, the Chancellor held the *cestui que use* i.e. the owner in equity, could be a different person, based on the good conscience.

⁴⁵ The Enclosure movements of 1700's consolidated the tiny, inefficient parcels of feudal land into larger, more productive plots. These were made more productive by mixed agriculture and many other allied techniques.

⁴⁶ A.Toynebee, "*Lectures on the Industrial Revolution in England*", chIII(1884), http://www.berkeleycentral.com/DrPseudocrytonym/TOYNBEE_Industrial%20Revolution.html visited on 13-12-2013.

⁴⁷ *Ibid.*

⁴⁸ H.M. Cassidy, "The Emergence of the Free Labour Contract in England", *American Economic Review* (1928), pp. 201, 207-208.

⁴⁹ J.H. Baker, *Introduction to English Legal History*, Butterworths, Sydney (1979), pp.88-97.

⁵⁰ E. N. Durfee, "The Statute of Uses and Active Trusts". *17Michigan Law Review*, University of Michigan Law School (1918), pp. 87-90.

extremely difficult to convey land. There was lack of simple legal conveyance methods and the inherent feudal tendency towards creating interests in land into perpetuity⁵¹. Between the late 17th and early 19th centuries, perpetual property ownership was controlled by the rules developed by the English courts⁵². The Statute of Uses was repealed by legislative reforms⁵³. Later the property legislation was codified and simplified and the Law of Property Act 1925 got enacted⁵⁴.

A notable consequence of the industrial revolution was the growing realisation of a need for some state regulation of land use by private owners. The lessons on the impact on the local community and the wider environment emerged during that period. The Industrial Revolution led to the permanent conflict of capitalism versus socialism.

vii) Legislative Reforms on Land Use

Liberal movement in the 19th century introduced three major changes. The first change was in mode of conveyance and registration of land. The Law of Property Act, 1925 relating to land was the second. The first planning law, the Housing and Town Planning Act, 1909 were the third landmark. Important element of planning was introduced in legislation. Earlier legislation on land use not attempted to regulate land use on the basis of amenity⁵⁵. It is a concept that links the most recent concerns for sustainable development with the first planning

⁵¹ Megarry and Wade, *The Law of Real Property*, Stevens and Sons Ltd., London (1984), pp.421-466.

⁵² This was a compromise between the landowners' right to dispose of land at will and the need to prevent land being removed from the market indefinitely by way of will or grant.

⁵³ See the U.K.Law of Property (Amendment) Act, 1924, s. 1 and Schedule 1.

⁵⁴ S.R. Simpson, *Land Law and Registration*, Cambridge University Press, Cambridge (1976), p.301.

⁵⁵ Dnzil Millichap, *Law, Myth and Community: a Reinterpretation of Planning Justification and Rationale Ten Planning Perspectives*, Cambridge University Press, Cambridge (1995), pp. 278-280.

legislation. The 1909 Act was followed by the Housing Town planning Act, 1919 and the Town and Country Planning Act, 1932. These legislations required that all borough and urban districts to prepare schemes to regulate general land use. The schemes led to the zoning of land for particular uses such as residential or industrial. Developers did not have to apply for planning permission but if the development fails to conform to the scheme, the planning authority could require that the owner remove or alter the development. Along with this nature conservation was made the bounden duty of citizens⁵⁶. The County side and Rights of Ways Act, 2000 conferred wider regulating power to the conservation bodies. This repositioned the public policy towards the partnership principle.

In Britain, the legal framework for land use planning is largely provided by the town and country planning legislation⁵⁷. This aims to secure the public interest through most efficient and effective use of land. It also tries to reconcile the competing needs of development and environmental protection⁵⁸. It has an important role to play in contributing to the Government's strategy for promoting sustainable development. Now most forms of development in the UK, including mineral extraction and related activities, require planning permission before development can take place.

The land uses planning decisions in England are made at the local level. It is the role of local planning authorities. The Department for Communities and Local Government is responsible for developing national planning policy guidance, including that for mineral development, within which local authorities are required to operate. Adoption of legislations for protection of wetlands took place in 1976 after the ratification of the wetland convention. Reforms were also

⁵⁶ Under the U.K.National Parks and Access to County Side Act, 1949 the land owners were encouraged to participate in nature conservation.

⁵⁷ The U.K.Town and Country Planning Act, 1990.

⁵⁸ *Ibid.*, ss. 4-8.

brought in the judiciary. The Supreme Court of Judicature Act, 1875 abolished the difference between common law and equity. The equity principle was given preference over common law. Thus the tug of war existed between common law courts and equity came to an end.

viii) Modern Land Law

After the World War the land acquired more of social character. Most of the regulation addresses the public good. Land use in general was subject to a comprehensive regulatory framework. The old common laws relating to easements, covenants, nuisance and trespass were largely eclipsed by locally and democratically determined planning law,⁵⁹ environmental regulation, and a framework for use of agricultural resources. Wetland also comes under these regulatory frame works.

Land Use Laws: in the United States

It is an American story that a man can use his land any way he pleases without regard of his neighbours⁶⁰. In the United States land use controls have a long history. In fact, in spite of the abundance of land and a strong belief in independence, they found it necessary to impose various forms of regulation in both urban and rural areas⁶¹.

The U.S. system of land use control was founded originally on English law precedents. The English system established strong private property rights. Initially it was limited and balanced by a few common law doctrines. These were

⁵⁹ O. Mc Shane, "Land Use Control under the Resource Management Act: A Think Piece" report commissioned by the Minister for the Environment, Ministry for the Environment, New Zealand (1998).

⁶⁰ See generally, John F. Hart, *Land Use Law in the Early Republic and the Original Meaning of the Takings Clause*, Zoning and Planning Law Handbook (2000).

⁶¹ A.W.B. Simpson, *A History of the Land Law*, Oxford University Press, Oxford (1986), pp.112-145.

created and enforced principally by the courts. Steadily a system of regulating building construction and noxious, or incorrectly located, land uses evolved at the local administrative level. There was absence of national land use system in England at the time of the creation of the federal republic in the United States. States retained power to define and limit property rights. This power included right to use land and its natural resources. From there power was delegated to local governments to deal directly with the same. Gradually additional powers were granted to local governments to achieve proper development by mitigating adverse effects on natural resources and environment.

i) *English Common Law Origins*

Common law played a great role in developing land use regulations in the United States. The feudal system and holding of land for government and later developments of private property ownership etc. exerted influence on property rights of the United States. Unlimited private property rights was emphasised in the writings of William Blackstone. Controls could be made only through the legislations. Numerous trespass actions were filed in common law courts. Under this remedy even if there is no actual damage or injury resulting from trespass a person could get nominal damages from the wrong doer. This was the extension of strong private property rights enjoyed by the owner of land. This right of land owner was balanced by doctrine of nuisance. By this doctrine private land owners property use was limited, through the injurious use towards the neighbour. But this remedy was limited to offensive intrusions. All these rules developed slowly⁶².

When the cities began to develop individuals used their land in response to market needs. This gave rise to many problems in cities including diseases, traffic

⁶² For discussions on rules relating to nuisance see Rutherford H. Platt, *Land Use and Society: Geography, Law and Public Policy*, Island Press (1996), p.85.

congestions and rapid spread of fire. Great fire of 1666 in London made the U.S. government to adopt land use laws to a limited degree.

Similarly legislations passed in the U.S. during this period reflected the approach as those in the U.K. The element of social responsibility of land owner was attempted to be inculcated through legislations. In 1631, the Virginia House of Burgesses passed a law requiring each white adult male over 16 to grow two acres of corn, or suffer the penalty by forfeiting an entire tobacco crop. In 1642, the Immigration Act required the growing of at least one pound of flax and hemp. An Act of 1656 required landowners to cultivate at least ten mulberry bushes per 100 acres in order to stimulate the production of silk⁶³. Regulations in urban areas resembled those in London. The cities enforced strict land use regulations designed to promote health and safety. In the aftermath of the great fire of Boston, restrictions were set up on how a property owner could build his home. A series of laws were enacted requiring the use of brick or stone in buildings. No dwelling house could be built otherwise, and the roof had to be of slate or tile. A penalty of a fine equal to double the value of the building was also prescribed⁶⁴.

The settlers in cities cherished their freedom to use their land. They also recognized the need to regulate the use of land for the good of the community as a whole. So far as the acquisition of land for public purposes was concerned, there were few problems. Land was in abundance so that questions of compensation hardly arose. Undeveloped land was perceived to be in such plentiful supply as to have no significant value. However, where developed, improved or enclosed land was physically acquired, compensation was payable. The power, eminent domain was accepted as an inherent power of government for which specific legislation was

⁶³ Barry Cullingworth and Roger W. Caves, *Planning in the U.S.A. Policies, Issues and Processes*, Routledge, Newyork (1997) p. 58.

⁶⁴ *Ibid.*

not required⁶⁵. The “taking issue” which became of such importance in the beginning stages, later received scant attention.

The Federal Republic of the U.S. was established in 1780. The Federal Government was vested with full powers, including police power to enact laws to protect public health, safety, welfare and morals. Principal power was given to the Federal Republic that affects private land use. It was mainly to regulate the interstate commerce. After the adoption of the Environmental Policy Act, 1969 many legislations were passed based on this power⁶⁶.

ii) Land Use Controls through Judicial Decisions

The Supreme Court of the U.S. claimed the singular power to determine the constitutionality of legislation. The term “taking” was applied only to the physical acquisition of land by government. In the earlier period the policy adopted was “no taking without a touching”. Where the use of property was restricted by regulatory controls, no compensation was payable. This was so even if landowners were deprived of all use of their land. This could be observed in the decision, *Brick Presbyterian Church v. The City of New York*.⁶⁷ The case related to the restriction on the use of land for cemetery. This property was given for lease for cemetery purpose 60 years ago. The New York Court of Appeals held those sixty years ago, when the lease was made, the premises were beyond the inhabited part of the city. They were common; and bounded on one side by a

⁶⁵ See for more details on *eminent domain*, <http://www.columbia.edu/cu/cssn/expansion/infosheets/eminentdomain.pdf> visited on 20-10-2010.

⁶⁶ The Constitution of the U.S. Art. 1 s.8 allows congress to raise revenue by taxation and to spend on resources for the public good. Today these federal spending programmes are addressed towards the private land owners to achieve environmental objectives or general welfare of the nation. Art. VI states the power to enter into international treaties. Based on this power the U.S. government have entered in to a number of agreements to promote resource conservation and to prevent environmental pollution.

⁶⁷ J.Barry Cullingworth, *The Political Culture of Planning, American Land Use Planning in Comparative Perspective*, Taylor and Francis, e-Library(2006), pp. 23- 37.

vineyard. When the defendants covenanted that the lessees might enjoy the premises for the purposes of burying their dead, it never entered into the contemplation of either party, that the health of the city might require the suspension, or the abolition of that right. Since it was generally believed at the time that burying the dead produced unhealthy vapours, the court held that it would be extremely unreasonable to endanger the public by the cemetery use, despite the terms of the lease. In such cases, since the physical property as distinct from the property rights had not been invaded and no compensation was appropriate.

In another famous case *Mugler v. Kansas*⁶⁸, decided by the U.S. Supreme Court in 1887, Mugler's brewery was made virtually worthless by a Kansas Act. The Kansas Act prohibited the manufacture and sale of intoxicating liquor⁶⁹. Justice Harlan held

“There is no justification for holding that the State, under the guise merely of police regulations, is here aiming to deprive the citizen of his constitutional rights; for we cannot shut out of view the fact, within the knowledge of all, that the public health, the public morals, and the public safety, may be endangered by the general use of intoxicating drink. A prohibition simply upon the use of property for purposes that are declared, by valid legislation, to be injurious to the health, morals, or safety of the community, cannot, in any sense be deemed a taking or an appropriation of property for the public benefit. Mugler still retained his premises and could use them for any legal purpose and that is excluding the formerly legal brewery use”.

⁶⁸ *Mugler v. Kansas* 123 U.S. 623 (1887).

⁶⁹ The statute of the State of Kansas, 1885, s 13 (U.S.).

The Court while upholding the validity of legislation led to the idea that vested interest could not be asserted based on the conditions pre-existed.

This dictum was approved in *Hadacheck v. Sebastian*⁷⁰. Hadacheck had owned and operated brickworks in the open countryside since 1902. In the following Years City of Los Angles faced more development of residential colonies. The brickworks turned to be a nuisance to the local inhabitants. Thus the city passed an ordinance to prohibit the Hadacheck from continuing to operate his brickworks. The profit which could be obtained from other legal use was much less when compared to the activity carried on by him earlier. But the court held that “vested interests” could not be asserted against the ordinance because of conditions which previously existed. It asserted the community good when compared to the individual interest.

“To so hold would preclude development and fix a city forever in its primitive condition. There must be progress, and if in its march private interests are in the way they must yield to the good of the community.”

The court’s held that, the ordinance was a proper exercise of the police power.

Plethora of decisions upheld the police power of state to protect the common good of society⁷¹. Underlying these regulations was the English common law concept of nuisance which held that no property should be used in such a manner as to injure that of another owner.

⁷⁰ *Hadacheck v. Sebastian* 239 U.S. 394 (1915).

⁷¹ The manufacture of bricks; the maintenance of a livery stable; a dairy; a public laundry; regulating billboards; a garage; the installation of sinks and water closets in tenement houses; the exclusion of certain business; a hay barn, wood yard or laundry; a stone crusher, machine shop or carpet beating establishment; the slaughter of animals; the disposition of garbage; registration of plumbers; prohibiting the erection of a billboard exceeding a certain height; regulating the height of buildings; compelling a street surface railroad corporation to change the location of its tracks; prohibiting the discharge of smoke; the storing of oil; and generally, any business, as well as the height and kind of building, may be regulated by a municipality under power conferred upon it by the legislature.

All these approaches were negative. Gradually land use controls developed into more positive tools of planning. In 1867 San Francisco passed an ordinance which prohibited the building of slaughterhouses, hog storage facilities, and hide curing plants in certain districts of the city. It was in the tradition of nuisance law. The ordinance was notable because it was curative rather than after the fact and restricted land uses by physical areas of the city.

This marked the stage for further evolution of land use zoning in the United States. Governmental interference in the private developmental activities was accepted by the Supreme Court in 1877. In *Munn v Illinois*,⁷² the court ruled that when one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use, and must submit to be controlled by the public for the common good, to the extent of the interest he has thus created⁷³.

Constitutional Amendments

The U.S. constitution Fifth Amendment prohibits government from taking private property unless there is public purpose and only if just compensation is paid. Land use regulations that deny private property owners all use and enjoyment of their land or that fail to accomplish legitimate public purpose are considered as regulatory takings. Court requires governments that regulatory takings to compensate the land owners.

The Fourteenth Amendment limits governmental land use authority. It requires courts to strike down land use laws that are unreasonable and arbitrary and fail to accomplish a legitimate public purpose. Creation of land use categories

⁷² *Munn v Illinois*, 94 U.S. 113(1877).

⁷³ The relevant extract of the judgement reads, “When one becomes a member of society, he necessarily parts with some rights or privileges which, as an individual not affected by his relations to others, he might retain.

that discriminate between classes of land owners unless those categories serve a legitimate public purpose is also prohibited.

Nineteenth Century Land Use Laws

In 1800's urbanisation was becoming more prominent. This led to many problems in cities. Diseases and great fires in cities became common. This led to regulatory attempts on buildings. Municipalities were given power to regulate private activity to protect public health and safety. In 1866, the New York state adopted the Metropolitan Health Act. In 1916, comprehensive zoning ordinance was adopted. It divided city into multiple land use districts and zones. These allowed private land owners to use their land for the purposes permitted in the applicable district. The most controversial aspect of zoning was, it prohibited private land owners from using their land for activities of their own choosing. The Federal Government regulation started with the National Environmental Policy Act. The signature approach of these Federal laws is to create standards for pollution or protection that cannot be exceeded and to provide stiff criminal and civil penalties for violation. They have also adopted a number of initiatives that encourage and influence local governments to regulate private land use. They have also established land use policies for land development in coastal areas. Under The Telecommunication Act, 1996 land uses are regulated for public health. States also adopt laws that pre-empt local action. The Colorado Land Use Act lists twenty one area of state interests which includes mineral exploitation, wild life habitat and flood hazards.

The first legislative attempt with strict control on land use was the Clean Air Act, 1963. It was enacted to prevent air pollution⁷⁴. It interfered with local

⁷⁴ The U.S.Clean Air Act, 1963. It established a federal program within the U.S. Public Health Service and authorized research into techniques for monitoring and controlling air pollution.

development matters⁷⁵. This was considered as a threat to the power of states to control land use. Thus 1977 amendment was made to the Clean Air Act. It uphelded the right of the existing states and cities to plan or control land use⁷⁶.

During the past 30 years local governments have developed a new body of local regulations designed to protect natural resources. Although the U.S. land use system is still fragmentary and uncoordinated in many respects it shows signs of consistency. In spite of the importance given to the local governments, there is a co-ordination that exists between Federal republic, state governments and municipalities. From the U.S. experience it is clear that only by enabling, encouraging, guiding and directing local government experimentation in land use matters the state can make liveable, affordable and environmentally sound communities.

Four vehicles on the path to equal services are identified. They are the imposition of a common right to access drawn from the doctrine of services essential to individual survival within the community. The duty to serve all equally, inferred from and recognized as an essential part of natural monopoly power. The duty to serve all parties alike, as a consequence of the grant of the privileged power of eminent domain; and finally, the duty to serve all equally, flowing from consent, expressed or implied.⁷⁷

⁷⁵ The U.S. Air Quality Act was enacted in order to expand federal government activities. In accordance with this law, enforcement proceedings were initiated in areas subject to interstate air pollution transport. As part of these proceedings, the federal government for the first time conducted extensive ambient monitoring studies and stationary source inspections.

⁷⁶ See for land use controls under the U.S.Clean water Act, 1977, <http://www.epa.gov/air//caa/amendments.html> visited on 10-10-2011.

⁷⁷ Rutherford H. Platt, *Land Use and Society: Geography, Law and Public Policy*, Island Press (1996), p.304.

Land use Regulations in Canada

Prior to the turn of century, municipal regulations on land use were limited to a number of fairly specific nuisance, public health and building by laws. They generally applied to individual buildings. It did not regulate different land use categories. Land owners were virtually free to use their land.

Adoption and implementation of land use regulation occurred in Canada only after the turn of the century. In 1897⁷⁸ revised statutes of certain big cities and public health legislations were the only statutes containing provisions relating to public regulation of urban development. The Municipal Act provided municipalities with two basic types of authority having some impact on urban development.⁷⁹ They were 1) regulation of construction of new buildings and 2) control over certain specified public nuisances. The first allowed very specific and limited authority over the way the buildings were constructed. Municipal authorities could inspect and regulate the more oblivious public safety features of buildings and their construction. Municipal implementation of these measures was discretionary and not mandatory.⁸⁰

The second type of authority provided under the Municipal Act was control over certain specified public nuisances. This also provided a partial form of zoning authority to define districts within which certain specified trades could not be carried on. In 1897 this included slaughter houses, gas works, tanneries, distilleries, rag, bone and junk shops and other manufactories or trades which may prove to be nuisance⁸¹. The rest of the provision simply regulated such potential nuisances and smoke, the keeping of certain animals, the ringing of bells or

⁷⁸ The Ontario Municipal Act, Revised Statute, S.553 (1)(Canada).

⁷⁹ J.D. Chanski, The Origins of Urban Land use Planning in Canada, Public Health and Conservation of Human Resources (1900-1946).

⁸⁰ The Ontario Public Health Act, 1897, Revised Statutes, s.65 (Canada).

⁸¹ See the Municipal Act, 1897 ss.63-80, 113,114(Canada).

causing other unusual noises calculated to disturb the inhabitants⁸². Now this list of nuisances and authority to exclude certain uses from districts or city was also expanded.

Another Act which had direct implication on land use was the Public Health Act, 1873. This was enacted due to the periodic cholera out breaks. This Act vested the Municipalities with some additional authority to regulate land uses to the extent any user presented a potential public health hazard⁸³

The Act had a large section of nuisances⁸⁴. Thus this Act had impact on land use. By the 19th century the municipal bylaws relating to many aspects of land use tried to limit the interference. In the daily life the building bylaw had many potential impacts on urban form. Most of it regulated such things as excavations, foundations, walls, chimneys, wood beams, floor and roof loads. This law did not contain any significant measures affecting private land use and urban development decisions.

When Ontario City asked for authority relating to subdivisions it was rejected by the government. It was based on the reason that such an authority is a dangerous invasion of the rights of private property⁸⁵. In the first place land is treated as private property, because the land owes its value entirely to the presence of people in the neighbourhood.

⁸² See Aleck Ostry, "Difference in the History of Public Health in 19th Century Canada and Britain," 86 *Canadian Journal of Public Health* (1995) p.5.

⁸³ Heather MacDougall, "Epidemics and the Environment: The Early Development of Public Health Activity in Toronto, 1832–1872" in R.A. Jarrell and A.E. Roos (eds.) *Critical Issues in the History of Canadian Science, Technology and Medicine*, HSTC Publications, Ottawa (1983), pp. 145–151.

⁸⁴ Alastair R. Lucas Q.C., "Public Wrongs and Civil Rights of Action", Canadian Institute of Resources Law, University of Calgary, Canada (2012).

⁸⁵ T. Bunting, P. Filion and H.Priston, *Density Gradients in Canadian Metropolitan Regions 1971-96 Differential Patterns of Central Area and Suburban Growth and Change*, Urban Studies (2002), p.39.

A new mile stone in the land use regulation was enactment of the City and Suburbs Plans Act. It came about before well organised town planning movement had developed in Canada. This legislation addressed a much focussed and very immediate problem. It justified the interference in private development rights on the grounds of general public good. It was a pragmatic reaction to the specific conditions prevailing in larger cities at that time.

By 1984 planning had emerged as an important function of provincial and local government. Since 1945 the institutional frame work had been developed into a complex system containing planning instruments, regulation and planning authorities. This brought about yearly incremental changes to the legislation. Now all the municipalities are required to have land use bylaws. Regional plans are required to be adopted by all regional planning commissions⁸⁶. Thus all provincial legislative requirements have ensured that municipalities prepared land use control decisions within a prescribed regulatory frame work.

The discretionary power of municipalities in the regulation of land uses have increased. The philosophic origin of the legislations governing land use planning 1945 revolves round the concerns as the prevention of nuisances and the preservation of natural beauty⁸⁷ and protection of property values through zoning byelaws.

Developments through Planning Laws

The period of post World War II, environment and transportation began to acquire momentum in planning processes. The department of environment has gained a particularly prominent role in land use planning⁸⁸. It has a broad role in

⁸⁶ M.Virginia Mac Lean and John Tomlinson, *A User's Guide to Municipal By-Laws*, Lexis Nexis, Canada (2008), p.46-60.

⁸⁷ C. Burda , *Getting Tough on Urban Sprawl - Solutions to meet Ontario Climate Change Targets*, The Pembina Institute,Toronto (2008).

⁸⁸ P. Robinson., “Beyond a Technical Reponse: New Growth-management Experiments in Canada”, in S. Davoudi, J. Crawford and A. Mehmood (Eds.), *Planning for Climate Change:*

resource management and natural resource development. According to 1984 Alberta Municipal affairs report, the planners as a catalyst can encourage improvement of communities through the development of public facilities and encouragement of private public partnerships and the involvement of other levels of government in the local projects⁸⁹.

Several critical areas identified in planning are

- i) Areas for accommodating growth
- ii) Protection of regional significant land uses such as sovereignty and transportation facilities and corridors, environmentally sensitive areas, open space, recreation features and better agricultural land.
- iii) Fringe areas around municipalities
- iv) The establishment of separation distances between heavy industry and incompatible land uses.

Thus land use in Canada has become more and more complicated. It is now entering a new period as regulatory aspects are passed on to municipalities. Several legislations⁹⁰ have relevance only to particular regions of the province. Most of the legislations aim to curb urban sprawl. The Planning Act, 1990, establishes the rules for land use planning and describes how land use may be controlled and who can control them.

Strategies for Mitigation and Adaptation for Spatial Planners London, Earthscan, UK(2002) , pp. 155-166.

⁸⁹ Environment Canada Protected Areas Strategy, Environment Canada Inquiry Centre, Government of Canada (2011).

⁹⁰ The Greenbelt Act, 2004 is a legislation that establishes a 240,000-hectare greenbelt in the GGH within which urban development will not be permitted.

Land Use Regulations in India

Indian administration has been a complex one due to the invasions of various cultures. Therefore the land use controls have varied from time to time according to the needs of the society. In India land tenure refers to the way in which land is held by an individual. It shows the relationship between the land holder and the State. The absolute ownership of land rests with the Government.⁹¹ The Government gives proprietary rights to individuals or communities. Thus, a land owner is the proprietor of that land and he has to pay land revenue for that⁹². Thus the ownership becomes a conditional affair. In principle the individual does not have absolute right over his land. He is a sort of a tenant whose occupation of his property is governed by powers from above and has to observe many regulations regarding the use of his land. In short, the so called private property is not that private at all. Such regulations are needed to ensure protection of nature and its resources.

Common Law Regulations

Common Law tried to curb the abnormal use of lands to protect the neighbour's interests⁹³ over the land. But the most notable thing under this development was that the concept of sovereign immunity available to the government. So no claims could be raised against government actions.

⁹¹ Sridhar Kala Seetharam, "Impact of Land Use Regulations: Evidence from India's Cities," *47 Urban Studies* (2010), pp. 1541–1569.

⁹² Dharma Kumar, Irfan Habib and Meghnad Desai, *The Cambridge Economic History of India*, Cambridge University Press, Newyork (1983), p. 947.

⁹³ Decisions in cases like *Rylands v. Fletcher*, [1868] UKHL 1, *Mayor of Bradford v. Pickles*, [1895] AC 587 and the development of easementary rights from very earlier times shows that common law always tried to control the unreasonable interference with the peaceful enjoyment of neighbour's property rights.

Land Use in Ancient India

The ancient religious works like the *Vedas* and the Brahmas and the Buddhist and Jain chronicles reveals about the ancient political theories. The *Santiparva*, *Adiparva* and *Vanaparva* specially deal with the duties and ideals of King and government⁹⁴. The state and the government were considered as the basic instruments for promotion of peaceful and civilised life. They concentrated on the art and science of statecraft. Kautiliya the author of *Arthashastra* dealt in detail the problems concerning the acquisition and retention of land. During this period one of the main duties of provincial administration was to collect revenues and construction of public utility services. Agriculture was the mainstay of the people. Therefore, majority of the people lived in villages, where they led an energetic economic life. Most of the villagers tilled own lands, although the King claimed ultimate ownership of lands⁹⁵. Moreover they owned large areas of lands which were cultivated by the serfs and the labours in return for a fixed payment⁹⁶. The State claimed a share of the produce of the land from the cultivator. The laws of Manu mention that one sixth of the gross produce as the legitimate share of the King⁹⁷. During the war and other emergencies, it was increased to one fourth⁹⁸. The percentage of taxation differed in different periods. During these periods systematic surveys of all lands were carried before determining the revenue⁹⁹. As the pressure on land increased people started the policy of colonisation, clearing of waste and development of new areas. Certain over populated villages cleared

⁹⁴ PriyaNath Sen, *General principles of Hindu Jurisprudence*, Allahabad Law Agency, Allahabad(1984),p.39.

⁹⁵ G.D.Patel, *The Land Problem of Reorganized Bombay State*, N.M.Tripathi Pvt. Ltd., Bombay(1957), p.57.

⁹⁶ *Ibid.*

⁹⁷ Kautilya, *Arthashastra*, pp.46 and 95.

⁹⁸ Manu, *Manusmrithi*, Chapter VIII Versus237.

⁹⁹ Institutes of Manu, chap. IX, p.44.

some parts of jungle for cultivation. Thus on the basis of ancient literature it can be said that King remained the owner of lands including the cultivable one. Certain other scholars have come to the conclusion that private ownership of land also existed¹⁰⁰. The idea of private ownership of land existed as long back as the *Rig Veda* period¹⁰¹. The right of ownership of land mainly depends on the right to gift, sale and mortgage of the land. The lands were mostly gifted. There are no references about the buying or selling of land¹⁰². However the *Arthashastra* has recorded an order of priority in choosing the buyer while selling a piece of land. There is hardly any record of the sale or transfer of the land for purposes other than for religious matters. Land was not contiguous and was intercepted by land owned by private individuals. This implies that certain other pieces of land were state owned and was known as ‘*Rajyavastu*¹⁰³’. When these lands were actually transferred to the donee, it is not clear who actually cultivated it. Another problem connected with land ownership in ancient India was whether the people enjoyed occupancy right subject to the pleasure of king or it existed in the ordinary sense of the term. There is no consensus among the scholars regarding this matter. Manu says that king is the Adipati of the soil¹⁰⁴. Some scholars are of the opinion that private individual has never been given an absolute right in India¹⁰⁵. The state has always the last say in this matter whatever may have been the position in theory.

¹⁰⁰ Sundararaj Iyangar, *Land Tenures in Madras Presidency*, Modern Printing Works, Madras (1916), p. 3.

¹⁰¹ Upinder Singh, *A History of Ancient and Early Medieval India: From Stone Age to the 12th Century*, Dorling Kindersley Pvt.Ltd., Delhi(2008), p.191.

¹⁰² Irfan Habib, *Essays in Indian History: Towards a Marxist Perception*, Anthem South Asian Studies, Wimbledon Publishing Co., London(2002), p.62.

¹⁰³ Upendra Nath Ghoshal, *The Agrarian Systems in Ancient India*, Saraswat Library, The University of Michigan (1973), p.48.

¹⁰⁴ D.D. Kosambi, *The Culture and Civilization of Ancient India in Historical Outline*, Vikas Publishing House, New Delhi(1982), p. 72.

¹⁰⁵ *Ibid.*

Changes in Medieval Period

During medieval period there was a conflict between two religions and culture. There was no renaissance in that period. In the political sphere domination was of the *Muslim* rulers the country's economy continued to be dominated by *Hindus*. Large jagirs were given to *Muslim Amirs*. But cultivation was entrusted to the *Hindu* peasants. No change was introduced in the land holding and relation¹⁰⁶. The only formal change was the control of land by *Muslim* jagirs. A conscious attempt was made to unify the spheres of economy, society and polity. Agriculture remained as the main occupation even during the medieval period. There was self-sufficiency in food production and the excess was exported¹⁰⁷. Village community remained as the most important economic unit and enjoyed the "harmonious co-ordination" of the specialised functions of its various component groups of workers. Selected areas were earmarked for industries.

Major share of produce was collected by state in the form of land tax. The remainder was distributed by peasants for various purposes. The state were least interested to protect the citizens affected by famine frequently¹⁰⁸. King often made tax free land grants to the officials. Apart from lands pastures, trees and water resources also were gifted to them. Timur attempted to change the states share in produce to money terms and it was followed by Sher Shah¹⁰⁹. Famous system

¹⁰⁶ I.H. Qureshi, *Administration of Sultanate of Delhi*, Allahabad Publications, Allahabad (1971), p.44.

¹⁰⁷ Ramakrishna Mukherjee, *The Dynamics of a Rural Society: A Study of the Economic Structure in Bengal Village*, Akademie-Verlag Berlin, Germany (1957), p.16.

¹⁰⁸ K.M.Ashraf, *Life and Conditions of the People of Hinduism*, Eastern Book Company, Lucknow, P.124.

¹⁰⁹ Sher Shah had fixed the land revenue after getting the whole of the land measured through the agency of Raja Todar Mal. He got an accurate survey of all the agricultural land and fixed a definite revenue for each unit of land. See <http://www.facts-about-india.com/sher-shah-suri-facts.php>. visited on 11-01-2011.

called Todarmal¹¹⁰ was introduced by Akbar. Soils were classified in a scientific method. Under this system careful measurement and division based on the fertility of soil was made. There were four classes of land categorised in this way. Government's share was fixed as one third of gross produce. The land holding was vested with king but at the same time private ownership of land could be seen. In the words of Prof. Lallanji Gopal, interpreted regarding the ownership of land,

"The King as the master of the soil and of the soil as belonging to the peasant, this does not mean to lay down the legal status of the King as the owner of all cultivable land in the state, but only points out the sovereignty of the King implying a general lordship of the King over all things in his kingdom."

Stray references in the literary works of the period also suggest individual ownership. During the decline of Mughal Empire, control over the revenue officials became weak. Therefore the income flow was not stable. Revenue farming¹¹¹ was introduced to meet this situation¹¹². Under this system, the revenue farmer paid to the Government was nine-tenth of the whole collection and kept the rest as his collection charges.

The medieval history of India is dominated by land grants and the resultant feudalism. The actual cultivators of the land i.e. the peasants were obliged to live in their land lords' land. They were given homage, labour and share of produce, notionally in exchange for protection.

¹¹⁰ Yusuf Husain, *Glimpses of Medieval Indian Culture*, Vikas Publications, New Delhi(1973), p. 99.

¹¹¹ Dr. Tapas Kumar Banerjee Ed.), *Herbert Cowell's, History and Constitution of Courts and Legislative Authorities in India*, R Cambray and Co. Pvt. Ltd. (2008), pp.119-125.

¹¹² See for details on Mughal land revenue system, <http://www.cssforum.com.pk/css-optional-subjects/group-iv/history-pakistan-india/27074-mughal -land-revenue-system.html> visited on 10-08-2010.

Land Tenures under British Rule:

British started the administration as tax collectors for the *Mughal* emperors. They were least interested in welfare of community. Their aim was acquisition of political power. They were keenly interested in revenue augmentation. In 1793, Cornwallis introduced the permanent settlement. They did not introduce many changes in the administration¹¹³. The land grants in the medieval India created the landed aristocracy which did not exist in India earlier. Land tenures which were prevalent during that period were carried on by Britishers. Major systems supported by them were Zamindars¹¹⁴, Mahalwari¹¹⁵ and Rayatwari¹¹⁶. The basic characteristic of each system was the attempt to incorporate elements of the preceding agrarian structure. The interaction of colonial policy and existing systems produced widely different local results and hybrid forms.

Sometimes the revenue collectors turned as land owners. This system was widely practised in many parts of the country. In this system, peasants were exploited by way of higher amount of rents. No incentives to augment cultivation were given to them. The system was full of evils. But it was perpetuated by

¹¹³ Percival Griffiths, *The British Impact on India*, Cambridge University Press, London (1953), p.227.

¹¹⁴ Zamindari system was introduced by Lord Cornwallis in Bengal in 1773. Under this system, the lands of a village or few villages was held by one person or few joint owners who were responsible for payment of land revenue to the Government. There used to be number of intermediaries between the Zamindars and the actual tillers of the soil. The system took were various forms such as Zamindari, Jagirdari, and Inamdar.

¹¹⁵ Under Mahalwari system, the village lands were held jointly by the village communities, the members of which were jointly and severally responsible for the payment of land revenue. Land revenue was fixed for the whole village and the village headman received five percent commission for the collection of revenue.

¹¹⁶ Rayatwari was introduced first in Madras State and then in Bombay State. In this system, there was a direct relationship between government and the tenant or individual land holder. Every registered holder was recognised as its proprietor and he could sell or transfer the land. He was assured of permanent tenure as long as he paid the land revenue. The land holder was also allowed to sublet his land.

Britishers because it helped in regular collection of land revenue from a few persons. It created loyalist to Britishers¹¹⁷. Rayatwari was a better system as compared to Zamindari, Mahalwari and similar other forms of tenure.

But there existed confusions in the three systems. There was no proper revenue record. This put the tenants into a very insecure position. The tax collectors were given the full freedom to extract from the tenants as much as they liked. It resulted in deprivation of peasantry from their lands. To summarise the property relations were strained during the ancient and medieval India. Policy was revenue oriented. Preservation of living resources and planned development of cities caused many problems in land management.

Changes in Post-Independence Period:

Independent India envisaged an egalitarian society. The framers of the Constitution thought of changes in the property relations. They took into consideration the conflicting interest involved and took a balanced approach¹¹⁸. During the constitutional debates there was two sided argument for the type of philosophy to be followed in India regarding the property. Giving due weight to the individual interest in the property, they considered property as a fundamental right. At the same time they also gave due consideration to the needs of society and the ‘equal distribution of wealth’ concept was incorporated as a directive principles of state policy. This was a quite balanced approach and it was tilted due to the internal conflict of legislature and judiciary and at last the balance was lost.

The Constitution provided for the fundamental right of the individual to acquire, hold and dispose of property¹¹⁹. Deprivation of this was restricted except

¹¹⁷ Nicholas B. Dirks, *The Hollow Crown the Ethnohistory of an Indian Kingdom*, University of Mitchigen,The United States of America (1993), p. 23.

¹¹⁸ B.H.Baden Powell, *The Land Systems of British India.*, Clarendon Press ,Oxford (1892), p.565.

¹¹⁹ The Constitution of India,1950, Art.19(1) (f).

by the authority of law. Problem arose with regard to the quantum of compensation to be paid when they are deprived of the property rights. The proponents of natural right¹²⁰ argued for just compensation. While the socialists argued for no payment of compensation in case of compulsory acquisition for public good. Due to this conflicting approach Pandit Jawaharlal Nehru spelt out the policy to be followed, He said

“If we have to take away the individual property, we have to see that fair and equitable compensation to be given. But when we consider equity we always have to remember that the equity does not apply to the individual but to the community. No individual can override ultimately the rights of the community at large. No community should injure and invade the rights of the individual unless it be for the most urgent and important reasons”¹²¹.

The above approach was also reflected in the Constitution¹²². While at the presentation of the draft article, Nehru commented that the article was a just compromise and it does justice and equity not only to the individual but to the community¹²³. Thus the original of the Constitution guaranteed deprivation of property by law alone. It also guaranteed the payment of compensation as fixed by the legislature.

Legislative power over land vests with the state¹²⁴ government even though the obligations to implement international conventions¹²⁵ lies with the

¹²⁰ The Constituents Assembly Debates, Vol. X (1949), p. 1199.

¹²¹ Samadarshya Pal, *India's Constitution Origins and Evolution: Constituent Assembly Debates, Lok Sabha Debates on Constitutional Amendments and Supreme Court Judgments*, Lexis Nexis, Butterworths(2014), p. 209.

¹²² The Constitution of India, 1950, Art.31.

¹²³ *Supra n.* 120, p.210.

¹²⁴ The Constitution of India, 1950, Schedule VII, list II Item 18.

¹²⁵ *Ibid.*, Art.258.

Centre. The 74th amendment¹²⁶ of the Constitution also provides for delegation of more powers to the state in relation to the land and constructions and developmental activities over the land. But it is not an absolute freedom. It is to be interpreted in tune with the policy laid down by the Centre and five year planning policy adopted by the government in accordance with the needs of each area.

The leaders had thought about the need for land reforms even prior to independence. For instance, the Agrarian Reforms Committee under Shri J.C.Kumarappa had given the guidelines for formulation of land reform policies in the independent India. The committee recommended that, all intermediary interest should be abolished and land should belong to the tiller. Leasing of land should be prohibited except in case of widows, minors and other disabled persons. All the tenants who had been cultivating land for a period of 6 years should be granted occupancy rights.

The tenants should have the right to purchase the holdings at reasonable price to be determined by the land tribunal. The agrarian economy should provide an opportunity for the development of farmers.

Abolition of Zamindari and Intermediaries

India's First Five Year Plan had clearly mentioned the land policy and the specific land reform measures to be undertaken. Most of the states passed legislation for abolition of zamindari¹²⁷ and exploitative land tenure systems. The

¹²⁶ See for details on 74th Amendment, http://urbanindia.nic.in/theministry/ministry_page.htm visited on 09-04-2012.

¹²⁷ Legislations to abolish the Zamindari system were earmarked for special treatment. It was generally provided that by sub- clauses (4) and (6) of art. 31. To achieve the goal of treating an egalitarian society specific provisions were included in the Directive principles of the state policy for distribution of wealth. Accordingly Art 39(b) and (c) were included clearly stating that ownership and control of material resources should be distributed to sub serve the common good and that the operation of economic system should not result in the concentration of wealth. Thus the framers had approached the right to property from a socialistic perspective.

first legislative attempt in this regard was made by Madras in 1948¹²⁸. Property relocations got redefined according to the Constitutional dreams. Still the land use regulations tries to achieve the egalitarian society. As a result of abolition of Zamindari and intermediaries, about 26 lakh intermediaries and 20 lakh tenants got proprietary rights over lands. They became the land owners¹²⁹. This has resulted in improving their economic and social conditions. The land revenue income of the states also increased. Protection of tenants and regulation of rent are the major steps in the tenancy reforms. The ultimate object of the reform is "land to the tiller". The tenancy laws have moved in that direction.

These legislations could not achieve the expected result. This adversely affected the property relations ecology and environment of the state. Proper planning is lacking in the area of land use. Land being a state subject interference of centre in this remains scant. Different aspects of the land use regulation are administered by various authorities under the state government. There is no coordination among them.

Land Use Controls in Kerala

Since the inception of the State of Kerala in 1957, the government made tireless efforts to protect and improve land for agricultural purpose. Numerous laws had been enacted with the objective. An analysis of the existing laws of Kerala bearing on land reveals that they can be classified into two: laws controlling the use and exploitation of privately owned lands¹³⁰ and laws

¹²⁸ See the Madras Estates (Abolition and Conversion into Ryotwari) Act, 1948.

¹²⁹ Agarwal, Anil, Darryl D' Monte, et. al (Eds.), "The Fight for Survival : Peoples Action for the Environment", Centre for Science and Environment, New Delhi(1987).

¹³⁰ See the Kerala Land Utilisation Order, 1967, the Land Development Act, 1964, the Land Acquisition Act, 1894, the Land Reforms Act 1963 and the Highways Act, 1951.

governing the preservation and protection of the government lands¹³¹. There is no comprehensive legislation dealing with land use, land conservation and land development. A perusal of the existing legislations also reveals that there is multiplicity of authorities and agencies exercising powers and functions in relation to these activities¹³². This starts from the state government represented by the minister-in-charge at the top, the Land Use Board¹³³ and many other agencies and government departments. Each of them is working independently without proper co-ordination and consultation. Multiplicity of authorities created under different statutes cause considerable difficulties in evolving a comprehensive scheme for land use and land development in Kerala. The Land Use bill, 2002¹³⁴ aimed protection of agriculture in state. This is yet to become law.

The existing provisions governing land use are scattered in various enactments. The Kerala Land Development Act, 1964 is the principal law enacted for regulating land use and land development in Kerala. The objects of the Act as set out in its preamble are preparation and execution of land development schemes, conservation and development of soil resources, the control and prevention of soil erosion and reclamation of waste lands.

The land development schemes can regulate the land use¹³⁵. It may increase the productivity and enhance the land quality. The matters for which a scheme may provide for are enumerated in the Act¹³⁶ in tune with the objectives

¹³¹ See the Kerala Land Conservation Act, 1964 and the Kerala Command Area Development Act. 1986.

¹³² R. Ravindra, *Urban Land Policy Study of Metropolitan City*, Concept publishing House, New Delhi(1996), p.180.

¹³³ The Kerala State Land Use Board was established in 1975 under the Department of Planning and Economic Affairs, Government of Kerala. The Board is assisting the State Government to frame policies for optimum land use and natural resource management in the State.

¹³⁴ See for details on Land Use Bill, 2002, www.kerlalegislations.org. visited on 21-11-2010.

¹³⁵ The Kerala Land Development Act, 1964, S.5 Functions of the Land Development Board.

¹³⁶ *Ibid.*, S. 8. Provides: Matters for which a scheme may provide.

of the legislation. Control and prevention of soil erosion, conservation and improvement of soil, reclamation of waste lands, improvement in the methods of cultivation, construction works for the improvement of land, regulation on destruction of trees and regulation of water supply are the important matters that can be decided by such schemes.

Deterioration of land may be caused due to the poorly planned development projects and programs. Environmental degradation may happen due to the absence of long term assessment also. When a scheme is approved by the government, the district committee¹³⁷ constituted under the Act can restrict, regulate or prohibit the land use within the area notified under the scheme¹³⁸. The committee is empowered to prevent clearing and breaking up of land. The nature of cultivation can be determined by the committee¹³⁹. Within the area of restrictions the erection of building is also regulated. It is the obligation of the owner of land situated within the notified area to execute any maintenance or repair work on the land on direction given by the collector¹⁴⁰. The failure on his part will empower the collector to undertake the work and recover the cost of the work¹⁴¹.

Land use legislation and Protection of Agriculture

The development of agriculture is given due importance by state governments. Various schemes are set out under the rural development programs for agricultural activities. The regulation on conversion of agriculture lands to building sites suggests the enthusiasm to promote food crops. The Kerala Plant

¹³⁷ *Ibid.*, s. 7 provides Functions of the District Committee.

¹³⁸ *Ibid.*, ss. 9 and 10.

¹³⁹ *Id.*, s. 10(4) and (5).

¹⁴⁰ *Id.*, s. 14(1).

¹⁴¹ *Id.*, s. 14(5).

Diseases and Pests Act, 1972¹⁴² is another legislation which seek to protect plants from the spread of various diseases. If any area is notified under this Act, the owner of land is bound to carry out the remedial measures set out under the scheme¹⁴³. But one could see that no mechanisms are there to control the use of pesticides¹⁴⁴ and insecticides under the law. This has created a severe problem to the economy. As a result of serious objection from various streams of society¹⁴⁵ now the government banned the uncontrolled use of life threatening pesticides and insecticides.

The use of land under the control of government is regulated by the Kerala Land Conservation Act, 1957. The purpose of the Act is to check the unauthorised use and occupation of government lands by private individuals. The Act provides for licensing, for occupation of government lands, removal of earth, laterite, metal and lime shell from the government lands. The use of land without such licence will lead to punishment. The term “conservancy” suggests conservation but provisions shows that it is only an enabling Act empowering the government to regulate the activities within the government land.

The Kerala Land Reforms Act, 1963, also some provisions for the regulation of land use. Excess land recovered from landlords can be assigned for public purpose. The use of such lands can be made either by the government or by the local authority. This provision enables authorities to set apart land for the community use. Open spaces, parks, play fields and community amenity centres can be opened in such places. Otherwise the future generation will have no open space to breathe in.

¹⁴² The Kerala Plants Diseases and Pests Act, 1972 preamble states that ,WHEREAS it is expedient to make provision for preventing the introduction, spread or re-appearance of plant diseases, pests, parasites and noxious weeds which are or may be destructive to plants, or are likely to contaminate water supply or are obstructive to waterways in the State of Kerala.

¹⁴³ *Id.*, s. 4.

¹⁴⁴ The Gazette of India Extra Ordinary, part II section 3 Sub Section (I) Published by Authority, Ministry of Health and Family Welfare(Dept. of Health), 29th September 2003 G.S.R 769(E).

¹⁴⁵ Savvy Soumya Misra, “Pesticides Ban Land, Kerala in Court”, *7 Down to Earth* (2011).

The Kerala Land Utilisation Order, 1967 was another bold attempt from the Government of Kerala to boost the food crops cultivation after the great famine India had to face. It was issued under the Central Statute, the Essential Commodities Act, 1955. But the machinery entrusted to implement this order did not show much enthusiasm. Under this order government is given wider power to direct the holder of land to grow particular crops in the land¹⁴⁶. The collector can also order any holder to cultivate land with paddy or any other food crops for a specified period¹⁴⁷. This was intended to prevent the non-use of agricultural fields and to increase the production of food crops in the state and also to prevent the conversion of agricultural lands for various other development purposes. The collector can order the sale of cultivation right¹⁴⁸ in case of non-compliance with the order to cultivate by the owner himself. The ownership of the land is retained by the original owner. This is done with the aim of protection of interest of the society. But for the survival of every law, acceptance by the society is necessary. Here, working of this legislation shows that acceptance of the law by the society was lacking. This could be gathered from the information of large scale conversion which took place even after the enactment of the law. The corrupt bureaucracy and the lack of criminal provisions against the non-performance of duties and absence of proper checks and balances on the implementation led to failure of law¹⁴⁹. The order was filled with a laudable measure providing for proper land use. But the aim appears to be conservation of agricultural land and no other criterion is stated.

¹⁴⁶ See the Kerala Land Utilisation Order, 1967 clauses 3 and 4 require the holder of land to grow specified crops.

¹⁴⁷ *Ibid.*, clause 7 vest the collector the power to direct cultivation of land with the food crop which was being cultivated.

¹⁴⁸ *Id.*, clause.5 power of the collector to direct the sale of the right to cultivate.

¹⁴⁹ B.M. Kumar, “Land Use in Kerala: Changing Scenarios and Shifting Paradigms”, 42 Journal of Tropical Agriculture (2005), pp.1-12.

The Local Authorities (Amendment) Act ,1989 empowers the municipal corporation to levy conversion cess¹⁵⁰ in respect of conversion of land into garden land or building site. The provision applies only to land comprised within municipal areas. This nominal charge will not necessarily deter unnecessary conversion of land. These legislations can be modified with clear guidelines for the conversion and can be extended to areas other than municipalities with enhanced levy of conversion charges. The Travancore Cochin Fisheries Rules, 1951 also contains provisions prohibiting conversion of paddy fields for prawn cultivation. A licence from the fisheries department is required for filtration and cultivation of prawns in agricultural fields. Such a licence should be given only when the authority is satisfied that the agricultural production will not be hampered by such land use. Another notable legislation is the Command Area Development Act, 1986. This Act restricts and regulates the use of land within the specified areas¹⁵¹. The regulation here is mainly intended as part of the measures for development of command areas or for better planning control.

In addition to the Kerala laws, Central enactments like the Highways Act, 1956 also regulate land use to some extent. The legislation on land is an exclusive state subject and the land use regulations under the central enactments were only incidental to some other activity. For example, the prohibition on quarrying near highways is only to retain lateral support to highways.

The land use regulation in Kerala appears to be a piecemeal measure. Their aim is not to ensure scientific land use. It is either protection of government lands or conservation of food crops. The legislative scheme should attempt to ensure proper use of land considering the quality and location of land and the needs of

¹⁵⁰ Not exceeding Rs. 250/- per acre.

¹⁵¹ The Command Area Development Act, 1986 provides authority on farm development works with the aim of providing adequate, reliable and equitable distribution of water for securing optimum production from the field.

the community. The prohibition on mining and quarrying on government lands contained in the Land Conservation Act, 1957 is a measure to increase the revenue. Moreover it applies only to government lands. But considering the environmental impacts it is necessary to control mining and quarrying operation in every land. The removal of earth, stone, laterite and other materials from land can be and need to be regulated by law. At present the local authorities can prohibit operations on private lands only if it amounts to nuisance.

The Kerala Conservation of Paddy Land and Wetland Act, 2008 is a legislation made by the Kerala state to protect land under paddy cultivation and wetlands which serves numerous ecological functions to total land areas. This also aims at prevention of conversion of paddy land for any purpose. Only the government can convert the land in public interest. But the main concern is to protect the ecology and environment based on the principle of sustainable development. But the working of the Act shows no enthusiasm for the betterment of the existing pathetic conditions of paddy lands and wetlands. Still the conversions are rampant¹⁵². The Land Development Act and planning acts envisage the preparation and final approval of the scheme before an action can be taken for controlling land use. The need for scientific land use cannot be achieved even with the help of this legislation. Comprehensive land use legislation with the necessary infrastructure for the assessment and determination of land use is required.

Developmental Planning

Planning for development is much connected with public health. So the state governments are well within their powers to enact laws on development planning. In Kerala different planning laws exist in different parts of the state. In

¹⁵² Sheeba Abraham, "The Relevance of Wetland Conservation in Kerala", 2 *International Journal of Fauna and Biological Studies* (2015), pp.1-5.

Malabar area the Madras Town Planning Act, 1920 is in force. In Travancore area the Travancore Town and Country Planning Act, 1120 as well as the Town Planning Act, governs the planning matters. In addition to this, the Kerala Panchayathiraj Act, 1994, the Municipalities Act 1994 and the Municipal Corporation Act also contain provisions enabling the local authorities to exercise planning controls. Specialised agencies like the Travancore Town Planning Trust, the GCDA, the Calicut Town Planning Trust, and the Cochin Town Planning Trust also wield the powers in relation to planning.

Administration of Planning Laws

Due to multiplicity of legislations, the authorities for implementing planning laws are also large in number. Apart from the state department of planning, planning departments exist in local administration and in specialised bodies. There are also agencies for implementing land development laws. Practically there is no co-ordination between these agencies and each authority proceeds with their own ideas. Moreover law prevailing at different parts of the state are different. Absence of consolidated and codified law creating one line of authority for planning is a major detriment for environmentally sound planning proposals.

The Town and Country Planning Act, 1120ME authorises preparation of schemes for the development of planning of land. Protection of public health and development of rural amenities also form part of the scheme. Under the Act development of land includes building and rebuilding operations. However the schemes will be applicable to controlled areas notified by the government. The contents of the scheme and the matter that can be provided under the scheme are also spelt out¹⁵³. This includes the provisions for sanitary conditions, public

¹⁵³ The Town and Country Planning Act, 1120ME, General Guidelines.

amenities, public health and prevention of infectious disease. In the controlled areas erection or re-erection of buildings can be undertaken only in conformity with the rules made under the Act.

The Act also lays down the guidelines to be followed in respect of buildings. There can be regulation on the space, number of buildings, height, size, design and external appearance of the building. The authorities under the Act are empowered to enforce the provisions of the Act in the manner provided under the Act. There is provision for appeal to the Government from the orders of the authorities.

The Town Planning Act, 1108¹⁵⁴ is another important legislation regulating the development of towns. The object of the Act is to regulate the development of towns to secure better sanitary conditions, amenity and conveniences. The Town Planning scheme prepared under the Act can include water supply, drainage, zoning, preservation of archeologically and historically important objects and buildings.

The schemes have to be notified in the prescribed form. Opportunity for inspection should be given to the public. Persons affected by the scheme are allowed a hearing. The authorities are bound to hear the objections and give suggestions to the scheme. They can modify or amend the scheme. The scheme will get statutory force on being approved.

The planning controls envisaged under these legislations are insufficient to promote environmental quality. The legislations based on different strategy are required¹⁵⁵. Proper planning laws can control environmental hazards caused by

¹⁵⁴ The Town and Country Planning Act, 1108, s. 3 provides the matters to be dealt under the Town Planning Scheme.

¹⁵⁵ Government of Kerala, “Report of the Administrative Reforms Committee”, Government Press, Thiruvananthapuram (1958). And also see E. K. Santha, *Local-self government in Malabar 1800-1960*, New Delhi, Institute of Social Sciences (1993). Also refer to V. Ramachandran,

overcrowding, concentration of industries, insufficiency of roads and many other matters.

The planning for the entire state should be entrusted to a single authority. The function can be divided among different districts or local units. The industrial and agricultural requirements of the state as well as the environmental assets available in the state should be assessed properly. On the basis of such assessment and after considering the location and suitability of different existing industrial and agricultural projects allocation should be made to different regions.

Conclusion

Since the time man began to occupy land he considered it as his property. States control differed according to the nature of land. To avoid conflict among users and to maintain peace and tranquillity states controlled identical uses. Subsequently land use regulations oriented towards community interest. For the welfare of the community planning and zoning laws were introduced. They had set and accepted norms. People usually obeyed such norms for the greater community interest. Building rules also came along with zoning and planning. All these aimed at protection of health, safety and lateral support of neighbouring property. Legislations covering all these aspects had exerted land use regulations in varying mode.

The second half of the twentieth century witnessed the sprawl of urban centres. This again necessitated more land use regulations. Momentum to these regulations was added by the Stockholm Declaration, 1972. Consequent to this several legislative attempts tried to control land use.

"Report on the measures to be taken for Democratic Decentralisation at the District and Lower Levels", Government press, Thiruvananthapuram (1988).

The Ramsar Convention, 1971 and the Stockholm Declaration, 1972 began to treat land as resource from environmental perspective. These were international instruments which provided the skeleton for the countries to follow. This compelled the individual nations to enact legislations based on the requirements set under these instruments. Nations sovereignty is not encroached upon. In this context it could be concluded that property rights over land was and is always subject to community benefits.

CONSTITUTIONAL BASIS FOR LAND USE CONTROLS

India from early days recognized and protected private property¹. This concept was similar to the Roman concept of occupancy². King had no proprietary right over land but collected tax for the protection offered by him to private property of individuals. This led to the feudal type of land holdings in India³. This system was perpetrated by the Britisher's through permanent settlement⁴. Thus zamindars who were the collection agents of tax became the owners of large tracts of land in long run. Farmers who actually cultivated the land became tenants. Farmers had to pay tax to the zamindars. Abolition of this system was one of the slogans of the independence struggle⁵.

After independence India envisaged an egalitarian society⁶. But private property rights over land were recognized to a limited extent⁷. So state in its long run will exert land use controls on private individuals, for the benefit of the

¹ Ram Sharan Sharma, *Aspects of Political Ideas and Institutions in Ancient India*, Motilal Banarasidas Publishers Pvt. Ltd.(1996), p.80.

² E. Washburn Hopkins, "Land-Tenure in Ancient India", 13 *Political Science Quarterly*(1898), pp. 669-686.

³ Balakrishne Govinda Ghokalae, *Ancient India History and Culture*, Popular Prakasan Pvt. Ltd., Mumbai (2001), p.104.

⁴ B.D. Chattopadhyaya Ed., *A Social History of Ancient India* Vol.2, Centre for Studies in Civilizations (2009), p. 67.

⁵ Amlan Datta, *An Introduction to India's Economic Development Since 19th Century*, Popular Prakashan Pvt.Ltd., Bombay(1989), p.62. See also Anil Kumar Thakkur and Ram Uddesha Singh, *Inclusive Growth in India*, Deep and Deep Publications Ltd., New Delhi(2009), p.48.

⁶ See the Constitution of India,1950, preamble.

⁷ *Id.*, Art. 19(1)(f).

members of the community. The land use controls refers to the restriction exerted over owner's right. Thus it is necessary analyse the feasibility of land use controls and extent of controls which can be exercised by the State based on the Constitution. After the change in property relations⁸ most of the areas under wetlands are government owned. Only paddy fields are one large area of wetland with private individuals. But during the early periods after the formation of state, property right over these government lands were given to private persons by revenue authorities based on their occupation for long time⁹. Forest lands also were got encroached in the same way.

Public interest was the major concern of the government while exerting different types of controls on land use of owners. The National High Ways Act, 1951, the Mines and Minerals Act, 1957, the sand mining prohibitions and the Treasure Troves Act, 1878 are some of the examples, which are either Central or state legislations. Later on certain land areas required special protection either through the international commitments or through ecological importance of those areas. Coastal areas, ports, harbors, mangrove forest, swamps and marshes are some of such areas. Most of the areas referred are under the protection of the Central government. Only a license to operate these areas is given to the state government which causes various issues related to the land use regulations. The federal structure which India follows and constitutionality of various legislative entries related to land use controls and the problems confronted by the central and state governments need to be analysed.

The concept of land use controls is mainly directed towards the common good even if it is self control or state created. It gets more and more complicated

⁸ See the land reform measures adopted in India after the adoption of the Constitution to achieve the Directive Principles of State Policy under Arts. 39 (a) and (b).

⁹ N.C.Saxena, "Tenancy Reforms Vs. Open Market Leasing- What would Serve the Poor Better", Discussion Paper, Planning Commission, Government of India(2013).

when it enters in to the private individuals land use rights. Major questions to be answered are how far an acceptable scheme for use of different categories of land especially categories of wetlands is adopted through the constitutional scheme. Another related question is whether the legislative scheme of control over different types of uses of wetlands is satisfactory or not.

To answer these questions from Indian perspective it is necessary to analyze classification of land use, limits of proprietary interest over land, regulatory scheme for different versions of land under Indian constitution and constitutional scheme of legislation on wetlands. It is also necessary to analyse the various categories of land use adopted in India whether it is a scientific way for protection of wetlands.

Classification of Land Use under the Indian Constitution

Land is a state subject¹⁰. The absorption of international obligations¹¹, special areas of interest and protection of environment as a whole lies with the Central Government. Most of the land areas are governed by multiple authorities and legislations. This leads to more confusions rather than better enforcements. More over legislations without societal acceptance cannot be successful¹². How can the constitutional scheme be clarified to resolve the doubt existing in areas of land use and to make it more viable to the concept of sustainable development? How to meet the triangular needs of International standard to the central scheme acceptable to the states retaining the federal character of the Constitution?

¹⁰ The Constitution of India, 1950, Art.246, Schedule VII, Entry 18.

¹¹ *Id.*, Entries 13,14.

¹² See the Dowry Prohibition Act, 1961.

Indian constitution accepts the federal concept¹³ and distributes the legislative powers between the coordinate constitutional entities, namely, the union and the states. This concept implies that one cannot encroach upon the functions or instrumentalities of the other unless the Constitution provides for such interference. The legislative fields allotted to the units cover subjects for legislation. They do not deal with the relationship between the coordinate units functioning in their allotted fields. This is regulated by other provisions of the Constitution. There is no provision which enables one unit to take away the property of another except by agreement¹⁴. From the environmental point of view, allocation of legislative authority is very important¹⁵. Part XI¹⁶ of the Constitution provides for the distribution of legislative powers between the centre and the states. Union List contains ninety seven subjects upon which the parliament alone has the power to legislate. The State List contains sixty six subjects on which the state legislatures have the power to legislate. However in respect of Concurrent List which contain fifty two subjects both parliament and state legislatures have power to legislate.

Even though the land is considered as the state, subject considering the environmental aspect, the centre could exert some control over the land¹⁷ for the maintenance of environmental quality¹⁸. Ancient modes of classification of land

¹³ Dr. L.M. Singhvi, (Ed.), *Constitution of India* Vol. 3, Jagdish Swarup, Modern Law publications (1967), p.2637.

¹⁴ *State of West Bengal v. Union of India*, 1963 A.I.R. 1241.

¹⁵ The legislative powers under the scheme of the Indian Constitution is divided into three lists viz. the Union list or List I, the State List or List II, the Concurrent List or List III under Schedule VII.

¹⁶ The Constitution of India, 1950, Arts. 245-263.

¹⁷ Parliament has exclusive power to make any law with respect to any matter not enumerated in the Concurrent List or State List. It is clear that all residuary powers of legislation remain with Parliament by Art. 248.

¹⁸ The Constitution of India, Art. 51 A (g) states that it shall be the duty of the citizen of India to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures.

use¹⁹ and the methods to tackle the different uses of land have put the land under great and unimaginable pressure. Moreover, the paradigm shifts brought out in the land use²⁰ has exerted another tension. Not only this, land remains to be the prime resource, which can be treated as a fertile asset even without the productivity assigned to it. Thus in order to understand the gravity of the problem it is necessary to understand the concept of land use existing in India. Land is treated as resource to be protected and conserved from environmental point of view. This is necessary for the existence of humanity. Importance of land has acquired international character. Environment has no national barriers. The general norms on land use restrictions are becoming stringent. On the other side, each nation and people who own land consider land as property. Therefore it acquires the legal characteristics. It is through the Constitution blending of these two interests takes place. Considering the former view entire authority over land is to be vested in the Central Government. The Constitution also supports it. Only the implementation of measure adopted lies with concerned state entities. On the other hand any other matters related to land as property can be resolved by state using its legislative power.

Land reform measures adopted just after the independence was based on the constitutional objective of egalitarian society. Legislations were enacted because land tenures in each state were different. The property transfer continued to be governed by the Transfer of Property Act, 1882, a Central legislation. It was accepted by all states as a preconstitutional law. Forest was another important area of land and spread over many states. Considering the importance of the area,

¹⁹ The Constitution while dividing the legislative power have not incorporated various types of lands such as internationally important lands, environmentally important lands , community interest areas, fragile areas forest, marshy, wetlands, cultivated and areas put under development projects.

²⁰ Reasons for the land use changes are demand of land for non agricultural purposes, expansion of state activities, technological changes, increase in population pressure, change in farming practices, indiscriminate constructions, filling of paddy fields and rise in land prices.

it was incorporated under concurrent list. Central legislation governing the same brought forest under the control of the Central Government. The Forest Act, 1927 and the Forest (Conservation) Act, 1980 clearly lays down certain principles which states should necessarily follow.

To achieve equality in property holdings which is also another constitutional dream state law regarding land ceiling was enacted²¹. Surplus lands were collected. This land was vested in state government and was redistributed among farmers²². Later on land development programmes²³ for the development of waste lands and paddy lands were introduced. Land conservancy legislation²⁴ defined government land. This was a state legislation. Ports, harbours, coastal and allied areas are governed by central laws²⁵, but many of the regulation in these areas regarding building and other activities come from local bodies²⁶. Under many central legislation which regulates land use various authorities and departments shares the responsibility. Land coming under world heritage sites situated in different states is governed by central legislation. While the internal waters and their regulation is with state. Whatever may be the type of land, due to the federal demarcation of subjects, numerous legislations exist. There is lack of coordination between these entities. These departments have conflicting aims of administration. They lack clarity of approach in many forms of land. This creates chaos and confusion among the general public and many of land forms goes unprotected. Wetland is one of such area. Some wetlands are state governed, some

²¹ See the Draft National Land Reforms Policy, Department of Land Resources, Ministry of Rural Development Government of India(2013), pp.4-5. See also the Land Reforms Act, 1963, chapter III, ss. 81-98A .

²² *Ibid.*

²³ See the Kerala Land Development Act, 1964.

²⁴ See the Kerala Land Conservation Act, 1957, s.3.

²⁵ See the Indian Ports Act, 1908.

²⁶ See the Municipality Act, 1994 and the Kerala Panchayath Raj Act,1994.

are central and some wetlands are of internationally important ones. These legislations and authorities should be properly coordinated to achieve the aim of sustainable development.

Limits of Proprietary Interest over Land

In many countries wetland related legislations and planning is the result of combination of tradition, historical policies, deliberate action, institutional and cultural possibilities and informal initiatives²⁷. Under the Indian federal structure, wetlands are covered by central laws, state laws, municipal laws and customary laws. In India most of the wetlands and their resources are treated as state property. There is wide variation in the extent to which the exploitation of these public resources is controlled. Rules of access to common resources²⁸ such as forests, coastal zones, water bodies and wild life were nonexistent. Over time, space in the management of many wetlands under public property regimes has left the way clear for community management²⁹ or for the alienation of the area for private use³⁰. However the national legal systems do not provide tenure and access for local or indigenous people³¹ who had conserved high levels of biodiversity. Frequently this absence of defined property rights or legal responsibility in wetland has undermined a sense of collective responsibility³². In broader context leases and concessions to

²⁷ Karen Frenken and Isiah Mharapara, Wetland Development and Management in SADC Countries, Proceedings of Sub-Regional Workshop2001, Harare, Zimbabwe (2002), p.36.

²⁸ R De Young, Tragedy of Commons, in D.E. Alexander and R.W. Fairbridge (Eds.), *Encyclopaedia of Environmental Science* (1999), pp. 601-602.

²⁹ In the long run, government has realized the need for community participation in forest management and devised programmes for the same.

³⁰ Private participation in the management of common property resources is the trend of administration. Example is privatization of lakes in Bangalore. Even the Central Policy relating to land use in 2013 considers this as good governance measure for conservation.

³¹ Adivasis who were considered as the eyes and ears of forest were evicted from there after the enactment of the Forest Act, 1927. Not only that they were not given any right to forest produce and places for alternative settlement even under the Forest (Conservation) Act, 1980.

³² A.W.H. Adkins, *Merit and Responsibility*, Clarendon Press, Oxford(1960), p.58.

coastal and inland wetlands have historically been granted to third parties for commercial or recreational purpose ranging from mineral extraction to tourism. Many such instruments predate the enactment of stringent land use controls or environmental protection legislation. It is extremely difficult under national legal system to cancel or refuse to renew existing wetland leases, to evict unlawful users of wetlands or to require restoration of previously drained or modified wetlands³³.

The implications for compensation can be enormous.

Where the wetland owner is different from its users there may be divergence of private and social benefits. The owner may have no interest in maintaining wetlands where the benefit go to others. Sensitive handling of change is particularly important. When private users are evicted there must be viable alternatives. If private land owners derive no advantage from maintaining wetland functions and values for the wider community³⁴, then there is little incentive for them to use wetland resources sustainably. Consideration of consistency between statutory, traditional and religious laws of countries is also important. Prior consultation and rationalisation is also important while dealing with such a sensitive area.

Wise use of wetlands requires maintenance of fresh water regime³⁵ throughout the ecological units. They range from water sheds, catchments, and river basins. Catchments include upstream areas such as origin of river, downstream connections between flood plains, river mouths and ground water flows. River boundaries are not the same as political borders. It may flow through several jurisdictions. In India the position tends to be complicated. Ministry of Environment and Forest have governance over these areas. States also have

³³ T.V. Ramachandra, "Restoration and Management Strategies of Wetlands in Developing Countries", 15 *Electronic Green Journal* (2001), p. 42.

³⁴ See the incentives which are provided in America to the owner for maintaining the wetlands under their custody.

³⁵ Integrated river basin management is an attempt in this direction.

competency over land. Who take the primary responsibility for wetland conservation measures?

Jurisdiction over coastal areas is vested in the Central Government³⁶. But state and local authorities have differing degrees of responsibility for managing other parts of the coastal zone. In India internal waters and territorial sea come under state. Central Government administers the areas under the Exclusive Economic Zone. The power of land use planning authorities usually stops at intertidal zone. Planning responsibility at sea beyond tide level comes under separate Ministries.³⁷ Different authorities in India have responsibility for conserving migratory marine species and birds. Systematic institutional coordination is necessary in this aspect. Each side of the land-sea divide is usually governed by separate legislation and there is rarely any coordination between the administrations concerned. Along with the Coastal Regulation Zone Notification, 1991 regulations ordinary planning, conservation and fisheries laws govern coastal zone. These laws were originally designed to regulate and manage other areas and activity. In the absence of institutional and legislative co-ordination it is very difficult to develop integrated management of coastal areas. Coastal wetlands suffer from narrow institutional remits that fail to take account of the complex functions and values of certain habitat type. Mangrove forest ecosystems in particular are known to have multiple functions of great economic importance. However administrative responsibility to mangroves is entrusted to forestry authorities without any statutory duty to consider fisheries and other values when exercising their functions.

³⁶ See the Coastal Regulation Zone Notification,1991.

³⁷ R.P.Misra and B.S. Bhooshan(Ed.), *Habitat Asia Issues and Responses*, N.N. Sastry and Rameswary Varma, Naturang Rai Concept Publishing Co., New Delhi(1979).

The Constituent Assembly³⁸ that framed India's Constitution did not specifically consider the question whether the Parliament or state legislatures should regulate the environmental matters relating to use of land. Instead, the distribution was influenced by distribution of environmental matters within three lists of the Government of India Act, 1935. It was also influenced by the conflict between those who wish to create a strong centre and others who preferred to secure more power to states³⁹. Understandably, there was a tussle for control over natural resources such as forest and fisheries which were important economic subjects. Therefore the federal structure⁴⁰ and the division of powers had put some tensions in matters relating to regional development and natural resources especially 'the land'. There are about two hundred central and state legislations bearing on environmental protection which covers various aspects of land use. But the central and state laws have proved to be inadequate to meet the modern challenges of integrated management⁴¹.

Classification of Land Use in India: A Statistical Survey

Indian land area was classified into five categories prior to independence. It was known as fivefold land utilisation classification⁴². It gave a very broad outline of land use. It was not adequate enough to meet the needs of agricultural and developmental planning in the country. There was lack of uniformity in the definitions and scope of classification covered by these five broad categories. Thus it was not able to provide a comparable data. To remove these difficulties

³⁸ See the Constituent Assembly Debates, Constituent Assembly of India, Vol. IX (10th September, 1949).

³⁹ S. Rao, *The Framing of India's Constitution: Select Documents*, Vol. 4(1968), p.315.

⁴⁰ *I.C. Golak Nath v. State of Punjab*, A.I.R. 1967 S.C. 1643. Also see *Kesavanada Bharathi v. State of Kerala*, A.I.R. 1973 S.C. 1461.

⁴¹ Shyam Divan and Armin Rosencranz, *Environmental Law and Policy in India*, Oxford University Press (2005), pp.48-49.

⁴² These categories were :(i) forests, (ii) area not available for cultivation, (iii) other uncultivated land, excluding the current fallows, (iv) fallow lands, and (v) the net area sown.

the Technical Committee on Co-ordination of Agricultural Statistics was set up⁴³. A new nine fold classification was suggested by the Committee. It also recommended standard concepts and definitions for all the states to follow. That incorporated forests, land put to non-agricultural uses, barren and uncultivable land, permanent pastures and other grazing lands, miscellaneous tree crops and groves, not included in the net area sown, culturable waste, and fallow land other than current fallows, current fallows and net area sown⁴⁴ . The revised classification has been accepted in principle by all the states. The main purpose of the committee is to show the distribution in detail of the existing land according to its actual use. Thus the potential land-use classification is overwhelmed with several difficulties. In order to remove these and classify land based on its potential use, large amount of data are to be collected through soil surveys, land use surveys and waste land utilization surveys. With the adoption of the nine-fold classification since 1950-51 the classification before and after this became non comparable⁴⁵. The concepts and definitions involved under this classification were standardized by the technical committee on co-ordination of agricultural statistics⁴⁶. From this classification it can be found that in India the scope for

⁴³ The committee was set up in 1948 by the Ministry of Food and Agriculture.

⁴⁴ Government of India, Ministry of Agriculture , '*Agricultural Statistics at a Glance*' in 1948 (2010). For further details see www.eands.dacnet.nic.in/Advance_Estimate-2010.htm visited on 18-06-2015.

⁴⁵ For instance, in the old land-utilisation classification, the term 'current fallows' included the land lying fallow even up to a period of ten years in the former Bombay state and for two years in the former Punjab state where as in the revised nine-fold classification, the current fallows have been limited to the lands lying fallow for one year only, and the term 'other fallow land' includes land lying fallow for more than one year, but less than five years.

⁴⁶

Land Utilisation in India- 2008-2009		
S.No. Classification	Area('000 ha)	Percentage of the reporting area
1	2	3
1. Total geographical area	328,048	-
2. Reporting Area:	305,985	100.0
(i)Forests	65,928	21.6
(ii)Not available for cultivation	46,215	15.1
(a)Non-agricultural uses	16,049	5.2

extension of cultivation to new lands is limited. About 49.7 percent of the total area is being cultivated. Any shift in the pattern of cultivation ill affect the total land negatively⁴⁷.

This shows the extent of various lands existing in India. They are agricultural lands, non agricultural lands, lands put under developmental purpose, ecologically fragile and important lands, forest lands, irrigated lands, tribal lands, lands which are declared to be of international importance.

There are various legislations governing different areas of land. Legislations on them may be central or state. The tendency of federalism to limit every side of the action of governments and to split up the strength of the state among co-ordinate and independent authorities is especially noticeable. This is done to retain the difference between federal and unitary system.⁴⁸. Thus the power is distributed and also subjected to the Fundamental Rights and other provisions of the Constitution. More over the constitutional framers opted for a strong centre⁴⁹. The states are entrusted with subjects of local importance such as

(b)Barren and unculturable	30,166	9.9
(iii)Other uncultivated land(excluding fallow land)	32,500	10.6
(a)Permanent pastures & other grazing land	12,996	4.2
(b)Miscellaneous tree crops & groves	4,339	1.4
(c)Culturable waste land	15,165	5.0
(iv)Fallow land	20,181	6.6
(a)Fallow land other than current fallows	9,072	3.0
(b)Current fallows	11,109	3.6
(v)Net area sown	141,161	46.1
(vi)Gross cropped area	167,412	-
(vii)Area sown more than once	26,251	-
(viii)Net irrigated area	31,292	-
(ix)Gross irrigated area	38,552	-

Source: Land Use Statistics, https://data.gov.in/catalog/land-use-statistics-lus#web_catalog_tabs_block_10 visited on 10-10-2014 visited on 30-11-2010.

⁴⁷ R. Mahesh, "Causes and Consequences of Change in Cropping Pattern: A Location-Specific Study", Discussion Paper No. 11, December 1999, Kerala Research Programme on Local Level Development Centre for Development Studies, Thiruvananthapuram.

⁴⁸ A.V. Dicey, *An Introduction to the Study of the Law of the Constitution*, Macmillian Publication, U.K. (1985), pp. 151,155.

⁴⁹ Constituent Assembly Debates, Official Report, New Delhi, Third Reprint (1999), P.889. See the discussions regarding Entry 21 in the draft Constitution which dealt about agriculture. Sri

public order, public health, agriculture, forest and fisheries. The Concurrent List deals with some aspects of land use.

Critical Analysis of the Constitutional Scheme

Duty of Central Government to Implement International Treaties on Wetlands

Union is vested with the power to participate in international conferences, associations and other bodies⁵⁰. It also confers power on the Centre to implement decisions there at⁵¹. These obligations or international standards cannot be adopted by the government to the domestic arena as such. It has to go through the process of adoption or transformation⁵². It means that the legislature of the nation has to create a new law adopting the same to national stream. This transformation is decided by Constitution. Various provisions⁵³ of the Constitution mandate enforcement of international treaty obligations and maintenance of the same in which India is a party. In *A.D.M. Jabalpur v. Shivkant Shukla*⁵⁴ the dissenting judgment of Justice Khanna rightly held that if two constructions of municipal law are possible, courts should lean in favour of adopting such construction as would make the provisions of the municipal law in harmony with the international law or

Brijeswar Prasad said “Unless Centre has got ample powers, unless agriculture becomes a central subject the problem of food supply and distribution will not be efficiently tackled with and all programmes and schemes will unhappy come to naught. The real problem is how to prevent subdivision and fragmentation of land. The laws of inheritance of national economy are to be laid on sound scientific basis”. *Id.*, p. 891.

⁵⁰ See The Constitution of India, 1950, Art. 246, Entries 13 and 14.

⁵¹ *Ibid.*

⁵² The rules of international law cannot directly and *ex proprio vigour* (by their own force) be applied within the domestic sphere by national courts or otherwise. Such rules for their application must undergo a process of specific adoption by national law. The doctrine of transformation requires that rules of international law do not become part of national law of a state unless they have been expressly adopted by state. In the case of international law derived from treaties there must be a transformation of the treaties into national law. This is not merely a formal requirement but a substantive one. This alone can validate the extension of rules laid down in treaties to individuals.

⁵³ The Constitution of India, 1950, Arts. 51(c) and 372(1).

⁵⁴ A.I.R. 1976 S.C.1207.

treaty obligations. Justice Khanna's opinion was followed in *Vellore Citizens Welfare Forum v. Union of India*⁵⁵. Sustainable development⁵⁶, Precautionary principle⁵⁷ and polluter pay principle⁵⁸ and public trust doctrine⁵⁹ were held to be part of environmental law of the country. In *Jolly Varghese v. Bank of Cochin*⁶⁰, V.R. Krishna Iyer J. held that international conventional law can be accepted to the domestic law only after it gets internalized through legislation. In the event of doubt in interpreting the national rule, it can be interpreted according to the state's international obligation. This view was subsequently liberalized by the courts in later decisions. The present position is that provisions of convention or treaty which elucidate and go to effectuate the fundamental rights guaranteed by our Constitution can certainly be relied up on by courts as facets of those Fundamental Rights and hence enforceable as such. In *Visakha v. State of Rajasthan*⁶¹, the court observed,

“any international convention not inconsistent with the fundamental rights and in harmony with the nations spirit must be read into legal provisions to enlarge meaning and content thereof to promote the object of constitutional guarantee.”

⁵⁵ A.I.R.1996 S.C.2715.

⁵⁶ *Our Common Future* defined sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. See the United Nations General Assembly Discussions (1987), p. 43.

⁵⁷ Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. See the United Nations Convention on Environment Development (1992), Principle 15.

⁵⁸ The ‘polluter pays principle’ states that whoever is responsible for damage to the environment should bear the costs associated with it.

⁵⁹ The ‘Public trust doctrine’ states that certain natural resources are held by the sovereign in trust and on behalf of all the citizens because of their unique characteristics and central importance.

⁶⁰ *Jolly Varghese v. Bank of Cochin*, 1980 (2) S.C.C. 360.

⁶¹ *Visakha v. State of Rajasthan*, 1997 (6) S.C.C. 241.

Therefore it can be concluded that the center is having power to legislate on any subject of international treaty in which India is a signatory. Land use regulations also have fallen within that. International conventions bearing on environment covers various aspects of land also. Thus the implementation of international obligations considering national needs can be done by the centre. This is because the Constitution has vested power in the Central Government alone and only the Parliament can make law applicable to the whole country. More over land includes the character of hot biological reserve, *Ramsar sites* and common heritage of mankind. Based on this many legislative changes have been brought in India. Thus using this Entry the Central Government can exert controls on land use.

Land Use Controls under the Highways Legislation

Another article which vests power in the Central government for the control of land use is relating to highways⁶². The National High Ways Act, 1956 and the rules framed there under states that national highways passes through the state and it is the obligation of state to maintain the same in proper conditions. This power extends to regulate the land which has been acquired for high way and land adjacent to that⁶³. This regulation is a restriction of ownership rights exercised by owners of that piece of land⁶⁴. But this restriction is directed towards common good. Along with this, another Entry in List I cast duty on the Central government to protect ancient monuments in the archeological site⁶⁵. Similar provision is also contained in List II⁶⁶. It empowers the state to protect the ancient monuments other than those declared as national importance. In a dispute which challenged

⁶² See the Constitution of India, 1950, Schedule VII, List I, Entry 23.

⁶³ See the National High Ways Act, 1956, ss. 4,5,6 and 8B.

⁶⁴ See the Control of National Highways (Land and Traffic) Act, 2002, ss. 2(e), 23, 38.

⁶⁵ See the Constitution of India, 1950, schedule VII, List I, Entry 67.

⁶⁶ *Ibid.*, Schedule VII, List II, Entry 12 and List III, Entry 40.

the legality of such legislation, the court favoured the common good⁶⁷. Whether the legislation falls under List I or List II does not matter.

Power to Legislate on Environment

Various Entries under the State List also have bearing on land use. The Entry “land” itself falls under the State List⁶⁸. Matters which fall under category of wetland protection are water, fisheries, Mines and minerals, land and buildings. But legislative history shows that water has acquired greater importance and it could not be dealt by state legislation alone⁶⁹. Development of the concept of environment worldwide necessitated comprehensive protection of water. Just after the Stockholm conference, the Central Government enacted a legislation to prevent water pollution. Thus it could be seen that if any resource acquires national or international importance or more than one state consider that it is necessary for the centre to intervene, the Central Government can intervene. Only aim is protection of national resources rather than encroachment on the power of state to legislate on the subject. Moreover federalism does not envisage water tight compartmentalization of legislative powers. In all the Entries relating to land, states have come up with legislations. The land use board⁷⁰ is the apex body which co-ordinates the works relating to the land resources. More over legislations, rules and directions for the protection of environment are an increasing phenomenon. It is based on the community needs for the integrated

⁶⁷ *Archeological survey of India v. State of Madhya Pradesh*. For further details see http://www.vidyasagar.net/wp-content/uploads/2014/05/SC_Copy_Kundalpur.pdf.

⁶⁸ See the Constitution of India, 1950, Schedule VII, List II, Entry 18.

⁶⁹ See the Constitution of India, 1950 , Art.253 and the enactment of the Water (Prevention and Control of Pollution) Act, 1974.

⁷⁰ The Kerala State Land Use Board was established in 1975 under the Department of Planning and Economic Affairs, Government of Kerala and is functioning as a full fledged department. The Department is functioning as an agency to assist the state government to frame policies for optimum land use and natural resource management in the state, with the basic objective of providing necessary advisory support on matters related to the optimum use of land and land resources such as soil, water, plant, animal system.

environmental development. Some of the latest efforts are the Coastal regulation Notification, 1991⁷¹ and measures undertaken for protection of Western Ghats. These are issued under the Environmental Protection Act, 1986. It is an umbrella legislation which comprehensively covers environment. There are many areas in which both the Centre and state legislations coexist. Thus multiplicities of authorities without clear demarcation of powers become another problem. A comprehensive land use policy directives incorporating all aspects' of land use has been issued by the Government of India in 2013⁷². It provides the framework for land use planning and management. The principles based on which land use is to be planned are dealt in detail in this policy⁷³. The goal of national land utilisation policy is to achieve improved livelihood, food and water security. Policy aims best possible relation of various developmental targets so as to ensure sustainable development. Its objective is to ensure optimal utilisation of the limited land resources. Policy strives for sustainable development addressing social, economic and environmental considerations⁷⁴. It provides a framework for the states to formulate their respective land utilization policies incorporating state specific concerns and priorities. Thus the states are free to develop a policy which is suitable for their region⁷⁵. The differences between legislation could be avoided by adopting suitable changes in the basic legislation within general framework laid down by the Centre.

⁷¹ See the Coastal Regulation Zone Notification, 1991.

⁷² See the Draft Land Use Policy, Department of Land Resources, Ministry of Rural Development, Government of India (2013).

⁷³ Human beings are at the centre, inclusive growth, poverty eradication and gender equality and equal opportunities, balanced development and intergenerational justice, efficient utilisation of resources and mitigation of impacts, integrated and comprehensive developmental planning, and states are custodians of land, harmonization of existing policy, legislative and regulatory framework.

⁷⁴ *Supra n. 72.*

⁷⁵ Core issues faced by the land utilisation policy in India are high growth targets; industrialisation; conservation; competing and conflicting land uses and urban and regional land use planning.

Residuary Power and Legislative Scheme

The Concurrent List under the Constitution of India gives both the Centre and states power to legislate on the subjects under it. There are many Entries, which has bearing on land use. But when the centre has come up with a comprehensive legislation, state legislation can work parallel to that. Only changes which are necessitated by the peculiar nature of the state can be brought in each state while implementing the legislations. Every Entry under the Concurrent List is of great value to the national economy. Therefore the central legislations work more in this field rather than the piecemeal legislations by states.

The Constitution of India vests, residuary power on the parliament⁷⁶. Similarly Article 253 empower the Parliament to make law for the whole or any part of the territory of India for implementing the treaties and international conventions. In other words the normal distribution of powers will not stand in the way of the parliament in passing any law for giving effect to an international obligation even though such law relates to the Entry in the State List. The treaties can be implemented only through legislations and they cannot operate by themselves. But these legislations are subject to constitutional limits of Fundamental Rights⁷⁷. Along with this, under Article 249 power is given to the parliament to legislate. According to the Article if the Rajya Sabha passes a resolution supported by 2/3 of the members present and voting that it is necessary and expedient in the national interest that the Parliament should make laws with respect to any matter enumerated in the State List, then it shall be lawful for the Parliament to make laws for the whole or any part of the territory of India with respect to the matter so long as the resolution remains in force. Such a resolution

⁷⁶ See the Constitution of India, 1950, Art. 248

⁷⁷ *Sri Krishna Sharma v. State of West Bengal*, A.I.R. 1954 S.C. 591. In *Re Indo Pakistan Agreement*, A.I.R. 1960 S.C. 845.

last for one year and it can be renewed. Besides the above constitutional provisions, there are many policies and programmes in India that promote sustainable development and management of land resources⁷⁸.

All these lead us to the specific question whether the scheme provided by the Constitution is adequate enough to meet the challenges of today. Historical evolution of land use controls has made it clear that land is considered as common property over which the *eminent domain*⁷⁹ of the state can be exercised for the *salus populi*⁸⁰. But problem arises when the land is within the individual ownership. The registered ownership conferred on the owner of property vest him with the title to use it and maintain its quality and pass a valid title to his successor or pass with a better quality. But when the owner misappropriates the title of exclusive use given to him what are the exact controls which can be placed on him? The constitutional scheme referred above does not give a correct answer. If the ultimate owner of land is state whether the rights conferred on the individuals are not absolute. Another area of special consideration is, when the government owns lands. When they come under various legislative authorities what are the mechanism appropriate to meet the situation⁸¹. All these lead us to the answer that the Constitution provides only fragmental or piecemeal approach⁸². Legislative and administrative scheme envisaged by the Constitution should be reorganized to meet the situation. When there are overlapping areas these are to be redressed amicably by proper policy on land use. A comprehensive

⁷⁸ R.C. Chandana, *Geography of Population: Concepts Determinants and Patterns*, Kalyani Publishers, Ludhiyana(2002).

⁷⁹ Dr. N. Maheswaraswamy, *Land Laws under the Constitution of India*, Asia Law House, Hyderabad (2005), p.7.

⁸⁰ *Id.*, p.55.

⁸¹ The problem particularly arises with the intertidal areas, coastal areas, specially challenged areas such as mangroves, estuaries, particularly sensitive sea areas etc.

⁸² R.S. Deshpande, “Current Land Policy Issues in India”, Economic and Social Development Department, Food and Agricultural Organisation(2000).

law covering all aspects of land use can help the situation. This acquires importance in the implementation of international conventions. Judiciary is also not providing any clear answer to this problem. A specific entry incorporating the term environment is absent in the constitution. The incorporation of the same can make situation clear.

Legislative Conflicts under Federal Constitution U.S. Approach

It would be appropriate to analyze the constitutional scheme adopted by the United States to meet challenges arising in the centre state relations. In 1868, Michigan professor and an eminent jurist, Thomas M. Cooley published the first edition of his classic '*Treatise on Constitutional Limitations*'. There he described the powers of sovereignty: the eminent domain; the power of taxation; and the police power exercised by the State. His contribution is given below,

“Judicial decisions, legal treatises, and historical events, as a convenient guide”. He undertook the task of considering the constitutional limitations that restrict the exercise of these sovereign powers. Cooley wrote in “full sympathy with all those restraints . . . upon the exercise of the powers of government,” thus leading the way in safeguarding vested rights and private property.”⁸³

Early in the twentieth century the mood shifted. In 1921 jurist Benjamin N. Cardozo pioneered “sociological jurisprudence.” He argued that “the final cause of law is the welfare of society” and that existing legal principles and judicial precedents should be “extended or restricted” so as to fix the path of the law in the direction of “justice and general utility.”

⁸³ Thomas M. Cooley, *A Treatise on the Constitutional Limitations Which Rest upon the Legislative Power of the States of the American Union*, Little Brown and Co., Boston (1883).

“Property . . . though immune under the Constitution from destruction, not immune from regulation essential for the common good.”⁸⁴

Cardozo’s argument carried the day as progressive jurists fluidly and dynamically interpreted the Constitution so as to legitimize land planning, zoning, slum clearance, and urban renewal⁸⁵. But situation is different now.

“Regulations, rather than promoting the common good, may be designed to . . . force some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole.”⁸⁶

Recently the U.S. Supreme Court reconsidered various constitutional provisions to call into question the legitimacy of land-use controls, environmental regulations, economic restrictions, and public exactions. Thomas Cooley’s ‘*Constitutional Limitations*’ once again gained significance the jurisprudence. It seems to be the time to readdress the clash between sovereignty and property. This compilation does so by presenting a number of cases from over the two hundred year history of the American Republic. Many a time Courts have considered the legitimacy of government intervention in private affairs. It took a detailed look at the constitutional history behind many of the legal controversies relating to the legitimacy of government-sponsored wealth redistributions, the mobility boundary on federal power; the public use limitation on eminent domain and the tension between government authorities.

⁸⁴ Benjamin N. Cardozo, *The Nature of the Judicial Process*, Yale University Press, London (1921), pp.66-81.

⁸⁵ Garrett Power, Constitutional Limitations on Sovereignty, Social Science Research Network (2014).

⁸⁶ *Armstrong v. United States* 364 U.S. 40 (1960), p. 49. Since 2012 decision addressing the constitutionality of the Affordable Care Act considered many of the same issues.

Conclusion

The Commission on Centre State Relation⁸⁷ on legislative matters recommended the incorporation of a provision on environment to meet the challenge relating to wetlands. This particular constitutional provision has to see the two challenges such as (a) the relationship of man with nature and (b) the dichotomy which emerges between development and livelihood on the one side and needs of conservation on the other. The Constitution cast a duty on the State to secure a social order. This social order is necessary for the promotion of the welfare of the people. It should inform all the institutions of national life⁸⁸. This requires the State and the citizens to protect and improve the natural environment⁸⁹. These provisions in a manner cover aspects both of development and livelihood as well as protection and development of environment and natural resources. But this scheme is found inadequate to meet the emerging challenges.

History reveals the compromising nature of man with nature earlier. But the picture is different in the existing state of environment. It would be difficult to sustain and support development and livelihood unless the natural systems are secure. Conservation and only ‘wise use’ of resources⁹⁰, either protecting certain resources as such and in some cases sustainable utilization without depleting the resource base can meet the situation.

⁸⁷ Government of India, Planning Commission, “Towards Faster and More Inclusive Growth: An Approach to the 11th Five Year Plan”. see also Government of India, Ministry of Environment and Forests, “State of Environment Report India 2009”. Also refer to Government of India, Ministry of Environment and Forests, “National Environment Policy, 2006”.

⁸⁸ See the Constitution of India, 1950, Art.38.

⁸⁹ *Id.*..Art. 48A and 51A.

⁹⁰ O.V. Nandimath, *Handbook of Environmental Decision Making in India: An EIA Mode*, Oxford University Press(2009). also see “Environment and Human Well Being: A Practical Strategy Report of the Task Force on Environmental Stability UN Millenium Project”, UNDP Earthscan (2005).

It is clear that issues on environment, resource depletion, pollution and consequent climate change threaten the nation as well as the global community. The basic law of land needs to adopt the changes through its provisions. These are brought in through the Constitutional amendments⁹¹. The attempt was to influence the state policy through the Directive Principles and Fundamental Duties provisions. These changes are brought in the State Policy, individual's behavior towards environmental issues and also by providing an important role to local bodies⁹². But these are not adequate to suit the complex situations. Some available options before the Government are (a) stronger Constitutional statements or (b) incorporation of specific Articles in the text of the Constitution on matters concerning the environment (c) conferment of specific legislative powers according to the basic Constitutional scheme under the Seventh Schedule to the Constitution to the Centre.

Many Constitutions⁹³ of other nations have provisions for Constitutional statements on important issues. Indian Constitution does not provide for such elaborate statements. The substance of such vital issues which guide the state and citizen are contained in the Articles relating to the Directive Principles and Fundamental Rights and Duties. These have already been done and further detailing them would not make any difference.

⁹¹ See the Constitution of India, 1950, the 42nd, the 73rd and 74th Amendments.

⁹² M.Gadgil and R. Guha, *The Fissured Land*, Oxford University Press(1992),p.186. See also M.Gadgil and R. Guha, *Ecology and Equity*, United Nations Research Institute for Social Development(1995).

⁹³ The South African Constitution of 1996, Art. 24 say “everyone has the right..... to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that..... secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development”.

The Venezuelan Constitution Art. 127 run as follows –“It is the right and duty of each generation to protect and maintain the environment for its own benefit and that of the world of the future..... it is a fundamental duty of the State, with the active participation of society, to ensure that the populace develops in a pollution-free environment in which air, water, soil, coasts, climate, the ozone layer and living species receive special protection, in accordance with law”.

Similarly the Constitutional structure does not provide for individual subjects being the subject matter of legislation either by the Union or states to be dealt with separately in the body of the text. All such subjects are provided for in the Seventh Schedule. Although the issues relating to environment is of the greatest importance it is neither necessary nor desirable to disturb the well considered structure of the Constitutional provisions.

The third option is a viable and desirable one. It is suggested that the scope of Entry 20⁹⁴ in the Concurrent List can be extended and a new Entry. It can be entitled as “Environment and Ecological Planning for natural resource use and management”. Such an Entry would definitely provide a legislative focus to all environmental issues. This could have effect on the role which the Centre and States are already performing by virtue of Entry 20. State List empowers states on matters concerning land, agriculture, water and minerals. State plays a vital role in these matters. Balance in these issues is tilted with the issues relating to environment. The specific legislations concerning the natural resources can take care of environmental issues.

The examination on environmental issues relating to land use has led to the conclusion that what is lacking is a clear policy directive concerning the natural resources. There should be set of basic actions which encompass all activities relating to natural resources. Even if there is variations in the use of agencies, and in programme contents the essential features should be similar. Such a national focus and clear unambiguous direction can be done through the constitutional provision. Earlier method namely indirect⁹⁵ mode of legislation need not be

⁹⁴ See the Constitution of India, 1950, Schedule VII, Entry 20 deals about Economic and Social Planning.

⁹⁵ The Water (Prevention and Control of Pollution) Act, 1974 was promulgated under Article 252 even though water was a State subject. On the other hand, the Air (Prevention and Control of Pollution) Act, 1981 and the Environment (Protection) Act, 1986 were promulgated under Article 253.

resorted to on environment. In the landmark decision of the Supreme Court *T.N. Godavarman Thirumalpad v. Union of India*⁹⁶, the Court delinked ecology from land and its ownership.

“Ecology is not a property of any State but belongs to all being a gift of nature for the entire nation.”

The Court has taken away legal jurisdiction which the states may have claimed on the basis of territorial jurisdiction. Environment and ecology are no more merely physical attributes but very life blood of the nation. The Union must hence be empowered by a clear Entry in List I of the Seventh Schedule. Through this state's authority to administer the natural resources should not diminish. On the other hand it should help in integration with executive authorities across state boundaries. This Entry can be titled as ‘Environment, Ecology and Climate Change’. This would enable the Centre to formulate a comprehensive Policy Statement on Environment issues, to bring in legislation as and when required, to fulfill its international obligations and provide institutional mechanisms for coordination involving states, local bodies and elements of civil society.

The observation made by judiciary with regard to this issue is an important one and can be beacon light in this situation⁹⁷. The Court said that the state in exercise of its power under Art.162⁹⁸ of the Constitution can issue executive directions in relation. Therefore based on the Entries assigned to states, there cannot be any doubt that it has requisite jurisdiction to issue executive instructions in relation to the

⁹⁶ A.I.R. 1997 S.C. 1228.

⁹⁷ *M.P.Ramababu v. Divisional Forest Officer*, A.I.R. 2002 A.P. 256.

⁹⁸ The Constitution of India,1950, Art. 162 states that Subject to the provisions of this Constitution, the executive power of a State shall extend to the matters with respect to which the Legislature of the State has power to make laws:

Provided that in any matter with respect of which the Legislature of a State and Parliament have power to make laws, the executive power of the State shall be subject to, and limited by, the executive power expressly conferred by this Constitution or by any law made by Parliament upon the Union or authorities thereof.

matters covered under its legislative competence. If therefore any of such instructions have been issued, those cannot be said to be bad in law. The argument that such restrictions would amount to deprivation of property under Art 300 A is not valid. A person, in terms of Art.21 of the Constitution cannot take recourse to or earn his livelihood by violating the provisions of any law. Therefore the state has the right and duty to regulate the activities affecting public as well as private land use, considering the aspect of sustainable development.

LAW ON WETLAND USE : AN INTRODUCTION

Wetlands are important life sustaining ecosystems of the world. Its use is an important area that involves interest of all sections of society. Wetlands are defined as an ecosystem that arises when water inundation produces soils dominated by anaerobic processes¹. It forces the biota, particularly rooted plants, to adapt to flooding. In simple terms, land is transitional between terrestrial and aquatic eco-systems where the water table is usually at or near the surface or the land is covered by shallow water². Wetlands vary widely because of regional and local differences in soils. It may vary based on topography, climate, hydrology, water chemistry, vegetation and other factors including human disturbance. Indeed, wetlands are found from the tundra to the tropics and on every continent except Antarctica³. There are four main kinds of wetlands such as marsh⁴, swamp⁵, bog⁶ and fen⁷. Apart from these, some additional recognized

¹ William J. Mitsch and James G. Gosselink, *Wetlands*, Wiley Publication (2000), p. 224.

² Keddy and A. Paul, *Wetland Ecology: Principles and Conservation*, Cambridge University Press, New York (2010), p. 497.

³ Stephen Thomas and Robert Turrell Clarke, *Contaminated Land*, Sweet and Maxwell, London (2008) p.124.

⁴ Marsh means permanently or periodically inundated site characterized by nutrient-rich water. In Europe this must have a mineral substrate and lack peat accumulation.

⁵ Swamp is characterized by forest, shrub, or reed cover (fen).Particularly a forested wetland in North America. depends on nutrient-rich ground water derived from mineral soils.

⁶ Bog means peat accumulation usually dominated by moss. It receives only direct precipitation; characterized by acid water, low alkalinity, and low nutrients.

⁷ Fen means peat accumulation; may be dominated by sedge, reed, shrub or forest. Receives some surface runoff and ground water, which has neutral pH and moderate to high nutrients.

wetland types are wet meadows and aquatic ecosystems⁸. Wetlands are found in flat vegetated areas, in depressions on the landscape, and between water and dry land along the edges of streams, rivers, lakes, and coastlines⁹. Inland wetlands receive water from precipitation, ground water or surface water. Coastal and estuarine wetlands receive water from precipitation, surface water, tides or ground water. High land wetlands are formed in command areas, dam sites and in high altitude lakes.

Earlier wetland areas were considered to be waste lands. Only after the *Ramsar Convention, 1971*¹⁰ most of the countries recognized the need for protection of wetlands. *Ramsar Convention* has its own classification of wetlands. They are mainly, marine or coastal wetlands, inland wetlands and human made wetlands. Each category mentioned here provides only a very broad framework to aid brisk identification of wetlands represented in each one¹¹. Each nation is given the flexibility to enact their own legislation and mechanism. Basic policy laid down in *Ramsar Convention, 1971* could be kept as an aid in formulating the national policies. *Ramsar's* working mechanism is based on the selection of certain important wetlands and designating them as *Ramsar sites*. They are given special treatment and benefits. Certain wetlands from India were also chosen as *Ramsar sites*¹². But the question is whether Indian mechanism to conserve and preserve these *Ramsar sites* is adequate

⁸ Five major wetland types are generally recognized: marine (coastal wetlands including coastal lagoons, rocky shores, and coral reefs); estuarine (including deltas, tidal marshes, and mangrove swamps); lacustrine (wetlands associated with lakes); riverine (wetlands along rivers and streams); and palustrine(meaning “marshy” – marshes, swamps and bogs).

⁹ The Convention on Wetlands of International Importance especially as Waterfowl Habitat commonly known as the Ramsar Convention or Wetlands Convention, 1971.

¹⁰ Rodgers and Christopher, “Environmental Management of Common Land: Towards the New Legal framework?”, 11 *Journal of Environmental Law* (1999).

¹¹ *The Ramsar Convention Manual: A guide to the Convention on Wetlands Ramsar*, Iran, 1971, Ramsar convention Secretariat, Gland , Switzerland (2013).

¹² India has only 25 protected wetland areas under the Ramsar list comprising of 67711 hectares of aquatic biodiversity. It can be seen that India is one of the countries with less number of notified wetlands under the International Convention.

or not. Whether the concept of wetlands existing in Indian legislations, is in tune with the concepts laid down by the *Ramsar Convention*, 1971? Whether India has made a conscious effort to identify wetlands and protect them? Whether the various policies and programmes adopted internationally influences India in designing her policy? Implementation of *Ramsar* policies in other countries are to be examined in this context. Whether India's situations demand any change in policy is also an important issue which needs consideration. Legislative and administrative measures in India bearing on wetlands and their shortcomings are to be analysed. It is also to be assessed whether the approach of Indian judiciary is adequate to conserve the wetlands. Therefore an attempt is made in this paper with these objectives to show whether the wetlands protection is in conformity with the community expectation and concept of sustainable development of environment.

The wetlands are covered under various legislations bearing on land. Many of the early legislation are made for promoting values other than environmental or ecological concerns. Forest laws, planning and zoning laws, laws on fisheries, wild life protection, irrigation laws and land conservancy laws are intended for distinct purposes. In the present context all these laws are useful instruments to protect wetlands and conserve them to achieve internationally recognized goals.

Definition of Wetlands

According to the Clean Water Act, 1977 of United States of America, wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes,

bogs and similar areas¹³. Another widely accepted definition existing in the United States is as follows.

'Wetland is a land where an excess of water is the dominant factor determining the nature of soil development and the types of animals and plant communities living at the soil surface. It spans a continuum of environments where terrestrial and aquatic systems intergrades'.¹⁴

This definition comprises three aspects of wetlands i.e., water, soil, and organisms, which are accepted by wetland scientists as the basis for recognizing and describing wetland ecosystems¹⁵.

The Ramsar Convention, 1971, brings a scientific definition of wetlands as a result of thorough study,

"Wetlands are 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 meters.¹⁶" and "Wetlands may incorporate riparian and coastal zones adjacent to the wetlands, and islands or bodies of marine water deeper than six meters at low tide lying within the wetlands¹⁷."

This definition also comprises the elements such as water, soil and organism. Most of these areas are protected under forest legislations, the coastal regulation zone¹⁸ notification, law of the sea conventions, river bed protections,

¹³ This definition has been used in the enforcement of the(U.S.) Clean Water Act, 1977, s. 404.

¹⁴ This definition has been adopted by The U.S. Fish and Wildlife Service.

¹⁵ *The American Heritage Dictionary of the English Language*, Houghton Mifflin Company (4th Edn., 2000, updated in 2009).

¹⁶ The Ramsar Convention, 1971, Art.1.1.

¹⁷ *Id.*, Art 2.1.

¹⁸ Here in after referred to as CRZ, 1991.

agriculture legislations, planning and zoning laws and command area protection laws. This definition signifies that these areas deserve utmost consideration. They need wise use and conservation for its sustainable development.

The Indian definition of wetlands is framed under the Environment (Protection) Act, 1986 rules i.e. the Wetland (Conservation and Management) Rules, 2010 in the following manner

“Wetland means an area of marsh, fen, peat land or water; 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 tides does not exceed six meters and includes all inland waters such as lakes, reservoir, tanks, backwaters, lagoon, creek, estuaries and manmade wetland and zone of direct influence on wetland that is to say the drainage area or catchment region of the wetlands as determined by the authority but does not include main river channels, paddy fields and coastal wetland covered under the notification of the government of India in the Ministry of environment and forest S.O number 114(E) dated the 19th February, 1991.”¹⁹

The Kerala Conservation of Paddy Land and Wetland Act, 2008²⁰ also defines wetland

‘land lying between terrestrial and aquatic systems, where the water table is usually at or near the surface or which is covered by shallow water or characterized by the presence of sluggishly moving or standing water, saturating the soil with water and includes backwaters,

¹⁹ The Wetland (Conservation and Management) Rules, 2010, rule 2(g).

²⁰ The Kerala Conservation of Paddy Land and Wetland Act, 2008, s. 2 (xvii).

estuary, fens, lagoon, mangroves, marshes, salt marsh and swamp forests but does not include paddy lands and rivers'.

But paddy is not included in the definition of wetlands in the Central Wetland Rules; 2010. It may be due to the regional importance of paddy fields. It can also be due to the availability of special legislative provisions for conservation of paddy fields. According to the constitutional mandate land lies with the State's legislative power. But the protections of different categories of wetlands come under the international obligation. The mandate to carry out international obligations undertaken under the conventions can be done only by Central Government.

All the definitions analysed above differ in some or other aspects. A common definition may not meet the regional requirements. But in all the definitions the term wetland bears some common elements. Presence of water, soil, and organisms as laid down by the scientists is stipulated as the basis of determining any form of land as wetland. Thus the land forms which require protection as wetlands are mangroves, paddy fields, swamps, lakes, river mouths, estuaries, bays, creeks, coastal waters, intertidal areas, lagoons, mud flats and highland wetlands situated mainly within forested areas.

Ecological Importance of Wetlands

The ecological values of wetlands were not known to the world earlier. These areas were disregarded by the communities. Wetlands were viewed as habitat or sites for wild life. These were considered to be waste lands. Their economic value was considered as less compared to the agricultural lands. The range of goods and services which wetlands provide have usually been taken for granted. Later scientific community realized the need for conservation and protection of wetlands. Wetland protection was mainly for protection of bio-

diversity. This approach was after the inception of the concept of environment. Today world community realizes the unmatched ecological functions played by wetlands. Under the Ramsar Convention, 1971, wetlands are valued based on the ecological functions performed by them. Depending on the geographical location functions of wetlands change. Based on that, wetlands are classified into inland wetlands and coastal wetlands and high land wetlands. The ecological functions performed by them can be grouped under four main heads, namely provisioning, regulating, supporting and cultural²¹.

Provisioning roles of inland and coastal wetlands are, mainly food production. It contains wide variety of fish, fruits and grains. Another most important function of these areas is supply of fresh water. It is done by the capacity of these areas to store and retain water. This water is used for both irrigation and for drinking. These also produce timber, fuel wood, peat, fodder, aggregates and bio chemical products. Thus they help in fibre and fuel production. Genetic materials such as medicine, genes for resistance to plant pathogens, ornamental species and so on are also obtained from these areas.

They also function as regulators in many matters. Most important among them is climate regulation. They regulate the greenhouse gases, temperature, precipitation and other climatic processes and chemical composition of the atmosphere. They regulate the hydrological cycle also. For example they recharge and discharge the ground water and stores the water for agriculture and industry. Pollution control and detoxification is one of the regulatory function rendered by these areas. This is done by retention, recovery and removal of excess nutrients and pollutants. Erosion protection and natural hazards prevention are some other regulatory functions done by these areas. It prevents the structural change and

²¹ *Supra n. 11.*

retains soil in its original form. They control the flood and prevent the storm. Thus they help in maintaining the ecology intact.

Various cultural functions administered by the wetlands are spiritual and inspirational, recreational, aesthetic and educational. They render professional feelings and well being which has certain religious significance. They provide opportunities for tourism and recreational activities. They help to appreciate the natural features and provide opportunities for formal and informal education and training.

Another important function patroned by wetlands is supporting. They support the bio-diversity, soil formation, nutrient cycling, and pollination. They are the habitat for resident and transient species. They help in sediment retention and accumulation of organic matter. They also store, recycles, process and acquire the nutrients. They are the supporting ground for the pollinators.

Important ecological functions offered by the wetlands can be summarised as improving the quality of adjacent eco systems, smoothing the undesirable flooding hazards, denitrification²², retention of the nutrients in the sediments and microbial immobilization²³. These areas are nesting and preferential habitat for many animals and birds. Waterfowl is the most important ecological function of wetlands. These are absolutely essential for migratory birds. Various fishes, algae, and invertebrates are produced by wet lands. Wetlands stores and retains fresh water through surface water inflow. It provides water for drinking and irrigation. It also produces and supplies fibre, fuel and other raw materials.

²² Denitrification is the process of removal of nitrogen from the ecosystem.

²³ Microbial immobilization is a process by which aquatic macrophytes and specially their associated microbial communities exert a particularly relevant role in organic matter decomposition and nutrient recycling.

Thus these areas can be categorised as wonders of nature which no man can ever create. Thus their protection is very important. But these areas are exploited to their maximum extent. This poses threat to their very existence.

Major Threats to Wetlands in India

Wetlands are one of the most threatened habitats of the world. In India these threats are classified into biotic and abiotic. Therefore wetlands in India are increasingly facing several human pressures. The rapidly expanding human populations, large-scale changes in land use and land covers, upcoming development projects and improper use of watersheds have caused a substantial decline of wetland resources of the country²⁴. Significant losses in the land cover of wetlands have resulted from conversion for urban developments. These conversions have led to hydrological perturbations and pollution²⁵. Unsustainable levels of grazing and fishing activities have also resulted in degradation of wetlands²⁶.

Some of the biotic²⁷ pressures faced by wetlands are uncontrolled siltation and weed proliferation. Aquatic weeds invasion occurs due to the cumulative effect of uncontrolled discharge of waste water, industrial effluents and surface run-off. In coastal wetlands this occurs due to the ballast and port related pollution²⁸. It adversely affects the natural flora and fauna of wetlands. Tree felling for fuel wood and wood products causes soil loss in wetlands. This affects the important mangroves and forest wetlands. Loss of various aquatic species

²⁴ “Planning for Sustainable Future”, in the Baker Report on Land Use Planning 2006, Government White Paper (2008).

²⁵ Srivastava, *Commentaries on Forest Law*, Law Publishers Pvt. Ltd, Allahabad (1998), p.341.

²⁶ Govindan Parayil and T.T. Sreekumar, “Kerala’s Experience of Development and Change”, 33 *Journal of Contemporary Asia* (2003), p. 465.

²⁷ *Ibid.*

²⁸ Ballast water is the ship stabilizer which is discharged after a long voyage by ship. It creates serious problems to the port and allied ecosystems particularly the wetlands in coastal areas.

occurs due to water-level fluctuation. Another important biotic pressure is habitat destruction leading to loss of fish and decrease in number of migratory birds.

Along with this abiotic pressures are also sensed about these matters of wetlands. Human encroachment to wetlands for residence leads to shrinkage in the wetland areas. This leads to habitat destruction and loss of biodiversity. Dredging of wetlands also changes the total ecology. All these cumulatively affect the hydrology of the area and consequently loss of aquifers. Subsidence, sea level rise, drought, erosion and siltation are some abiotic causes of loss of wetlands. Drainage of wetlands is another major threat. More than fifty percent of the wetlands are drained for intensive agriculture. Major areas of wetlands may be lost by drainage or infilling. Sometimes even if the wetland remains its benefits can be lost in a degraded state. Social, economic forces and political decisions can also cause wetland loss.

Effective control on these threats is crucial for conservation of wetlands. The existing scheme to curb the threats are analysed along with the statutory measures. To ensure the sustainable use of the rest of the wetlands it is highly necessary to form a stringent regulatory frame work as well as the enforcement machinery. Regional needs of the community cannot be disregarded. In this context international framework for protection of wetlands and regulatory frameworks in some of the developed countries are analyzed along with Indian legislations.

International Schemes for Protection of Wetlands

Realization of the value of wetlands led to adoption of various measures worldwide to conserve and preserve wetlands. All these attempts were to attain the goal of sustainable development. First attempt towards was made even before the Stockholm Declaration, 1972 namely the *Ramsar Convention*, 1971²⁹. This

²⁹ The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention or Wetlands Convention) was adopted in Ramsar, Iran in February 1971 and came into force in December 1975. The Convention covers all aspects of wetland

convention with the Convention on Biological Diversity, 1992³⁰ have a great role in the protection of wetlands. The Ramsar Convention, 1971 was the first convention to protect a particular eco system in the world. Till the *Ramsar*, 1971 the whole world was unaware of the importance of wetlands. Some legislation regulating land use protected wetlands incidentally. But *Ramsar* has alerted the world consciousness and by this agreement wetlands are protected.

The Ramsar Convention, 1971 is an intergovernmental treaty³¹. Its mission is the conservation and wise use³² of all wetlands through local, regional and national actions and international cooperation. It is done as a contribution towards achieving sustainable development throughout the world. The *Ramsar Convention* works on principles such as establishment of national wetland policies, knowledge of wetlands and their policies and action at a particular wetland sites. Therefore it laid down two important principles namely agreement of the contracting parties to protect the wetlands which are declared to be of national importance and the wise use of wetlands³³ in their concerned territories. These principles acquire importance in the decision making process of the country. Along with these principles the working formula for these principles are also laid down by different

conservation and wise use. The Convention has three main 'pillars' of activity: the designation of wetlands of international importance as Ramsar sites; the promotion of the wise-use of all wetlands in the territory of each country; and international co-operation with other countries to further the wise-use of wetlands and their resources. The Convention's Contracting Parties have assumed a wide range of related obligations.

³⁰ The Convention was adopted in the year 1992 and opened for signature in the Rio Conference in June 1992. For further details, see Patricia W. Birnie and Alan Boyle, *Basic Documents on International Law and Environment* (1995), pp. 390-414.

³¹ As of October 2010, 160 nations have joined the Convention as Contracting Parties, and more than 1900 wetlands around the world, covering over 186 million hectares, have been designated for inclusion in the *Ramsar* List of Wetlands of International Importance.

³² Wise use is defined as "sustainable utilization for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem".

The wise use of wetlands is their sustainable utilization for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem.

committee reports. It also incorporates the integrated framework for wetland inventory, wetland assessment and wetland monitoring.

The wetland inventory is the collection and collation of core information for wetland management. It includes the provision of an information base for specific assessment and monitoring activities. The wetland assessment is based on the identification of the status and threats to wetlands as a basis for the collection of more specific information through monitoring activities. The wetland monitoring acts on the collection of specific information for management purposes in response to hypotheses derived from assessment activities, and the use of these monitoring results for implementing management³⁴. The main object behind this framework is to uncover the great value of the wetlands. This helps to protect wetlands from being converted to any other uses. Thus the mechanism adopted under *Ramsar* tries to control the use of wetlands for the sustainable development of the environment. This seems to be one of the reasonable restrictions on the use of property for the public purpose and each state can act on the basis of public trust doctrine.

The Convention on Biological Diversity, 1992 also marked its role in the conservation of ecologically fragile areas such as wetlands. It came out with more concrete objectives and greater consensus. It has its basis on two important principles such as *exsitu*³⁵ conservation and *insitu*³⁶ conservation. Through these principles the Convention aims to the conservation of biological diversity, sustainable use of its components and the fair and equitable sharing of benefits arising out of the utilization of genetic resources. Along with the conservation of

³⁴ The collection of time series information that is not hypothesis-driven from wetland assessment is here termed surveillance rather than monitoring.

³⁵ "Ex-situ conservation" means the conservation of components of biological diversity outside their natural habitats.

³⁶ In-situ conservation" means the conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings.

other areas of gene banks the convention lays emphasis on the protection of wetlands. Under the Convention on Biological Diversity, 1992, a protected area³⁷ is defined as “a geographically defined area, designated or regulated and managed, to achieve specific conservation objectives”. This categorisation includes within it various categories of wetlands.

Apart from the above said protective measures International Union for Conservation of Nature has its own system of protection offered to certain geographically defined locations. Their boundaries are clearly delineated or established³⁸. The boundaries are typically provided first in legislation, and then, in many cases, translated into something concrete. These are designated as protected areas. The precise purpose for which protected areas are managed, differ greatly. Purposes includes scientific research, protecting wilderness, preserving species and genetic diversity, maintaining ecosystem services, protecting specific natural and cultural features, tourism and recreation, education, sustainable use of resources from natural ecosystems and maintaining cultural and traditional attributes. Six of these management strategies have been identified as strict nature reserve or wilderness areas, national parks, natural monuments, habitat or species management areas, protected landscape or seascapes and resource protected areas. They are categorised and protected either for science, wilderness protection, ecosystem conservation and conservation of natural features. Protected areas are part of international networks, such as biosphere reserves. These are recognized

³⁷ “Protected area” means a geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

³⁸ Through the Commission on National Parks and Protected Areas (CNPPA), IUCN has guided the international categorization of protected areas since 1969. In 1978, IUCN published the CNPPA report. Categories, Objectives and Criteria for Protected Areas are laid through this report. The report proposed a system of 10 protected area management categories. This system has subsequently been incorporated into the national legislation of many States and it has been used worldwide for protection of various ecologically important areas.

under international conventions, such as the World Heritage Convention, 1972 and the Wetlands Convention, 1971.

The commitments and obligations laid down in the three Conventions do not infringe upon the rights of state parties to exploit their "own" resources. Those resources located in areas within the limits of their national jurisdiction. They have the freedom to choose the appropriate regime to regulate exploitation. Those countries have to observe their obligations on transfrontier environmental protection. They have to abide by the UN Charter and the principles of environmental protection which are part of international law. Therefore the principles laid down in these international instruments give greater importance to the protection of environment and the sustainable development principle.

Indian Legislations for Protection of Wetlands

In India the primary responsibility for the management of wetland ecosystems is in the hands of the Ministry of Environment and Forests. Some wetlands have been protected after the enactment of the Wildlife Protection Act, 1972³⁹. Still the others are in grave danger of extinction. There are various legislations⁴⁰ to provide protection to different categories of wetlands. Government makes various measures for protection of different categories of wetlands under these legislations. Protection of the wetlands in India is indirectly influenced by an array of policies⁴¹. There was

³⁹ The Wildlife (Protection) Act was enacted on 7th September 1972. It provides legal guidelines for the protection, conservation and management of wildlife in India. It covers all matters relating to India's wildlife, including protected areas, activities within protected areas, control of hunting and poaching, trade of wildlife, enforcement and administrative functions of wildlife authorities.

⁴⁰ The Indian Fisheries Act, 1857, the Indian Forest Act, 1927, the Wildlife Protection Act, 1972, the Water (Prevention and Control of Pollution) Act, 1974, the Territorial Water, Continental Shelf, Exclusive Economic Zone and other Marine Zones Act, 1976, the Maritime Zone of India (Regulation and Fishing by Foreign Vessels) Act, 1980, the Forest (Conservation) Act, 1980, the Environment (Protection) Act, 1986, the Coastal Zone Regulation Notification, 1991, the Wildlife (protection) Amendment Act, 1991.

⁴¹ S.N. Prasad, et al. "Conservation of wetlands of India - a Review", 43*Journal of Tropical Ecology* (2002), pp.173-86.

no formal system of Wetland Regulation in India. The National Environment Policy⁴², 2006 made the first attempt towards legally enforceable mechanism. This sought to protect identified valuable wetlands. This tried to prevent their degradation and enhance their conservation. It undertook to create an inventory of such wetlands. In pursuance of the 2006 policy resolution a Multi-Disciplinary Expert Group had held a series of meetings. They formulated a regulatory framework for the wetlands. They have identified the categories of wetlands and made suggestions regarding various regulations to be imposed on them. The process and procedure for identification of wetlands also been laid down by the committee. They designed the composition of regulatory authority and its functions and its activities for regulating the conservation of wetlands. Based on these recommendations the Government of India issued the Wetlands (Conservation and Management) Rules, 2010⁴³. Under these rules, the Central, State or District authorities are empowered to assess the conservation procedure of the wetlands. They monitor and review the implementation of the regulations. Monitoring of wetlands is done through committees such as Central Wetland Conservation Committee, State Wetland Conservation Committee and District Wetland Conservation Committee. This monitoring depends on the category of the wetland. The committees consist of members who are expert in wetland related disciplines. The committee gets reconstituted in every three years.

Procedure of Working of Wetland Committees

To conserve wetlands, proper identification and categorisation is necessary. After that, the types of controls which could be imposed on these wetlands are identified by the committee. Process of identification of wetlands could be entrusted to Central or State or local public organization, or a recognized university or research institution or a recognized community based organization or

⁴² Here in after referred to as NEP.

⁴³ This rule was issued under the authority of the Environment (Protection) Act, 1986.

a registered industrial association. After the identification of wetlands, proposal for conservation of the wetland should be placed in front of the committee. The proposal should be based on whether the water body belongs to A, B or C category⁴⁴. These categories of wetlands have been laid down by the regulatory committee. Once the proposal is received the committee shall review the proposal within a period of forty-five days from the date of receipt of the proposal. The committee has the right to accept or reject the proposal. If the committee finds merit in the proposal, it will prepare the draft notification. Sometimes preparation of the Draft Comprehensive Document⁴⁵ may be entrusted to a professional body in the light of the detailed terms of reference prescribed by the committee. Based on the draft comprehensive document an initial public consultation shall be held by the State Pollution Control Board. The professional body will prepare the revised second draft comprehensive report in the light of the outcomes of the initial public consultation. The revised draft comprehensive report will be reviewed by the committee and will approve the same as Management Action Plan for the wetland. Thus the national wetlands strategy encompasses⁴⁶ conservation, collaborative management and prevention of loss, restoration and sustainable management⁴⁷.

The wetland strategy calls upon the government to take up measures for regeneration of economically less important aquatic organisms and reduction of culture of exotic fish species. The most important aspect is regular maintenance of the water bodies. Therefore Indian Government has incorporated the concept of

⁴⁴ See the Wetlands (Conservation and Management) Rules, 2010 for categories of protected wetlands.

⁴⁵ Here in after referred to as DCD.

⁴⁶ See the Anonymous.“Wetland Ecosystem Conservation: A Review” from: <http://www.holisticthoughts.com/holistic-ecology/wetland-ecosystemconservation-a-review/> 2010, accessed on 10-11-2011.

⁴⁷ These include various measures such as Protection, Planning, managing and monitoring.

sustainable resource development within the policy framework of wetlands. These measures include economic valuation of wetlands to determine and allocate resources on equitable basis. Thus India being a signatory to the Ramsar and Convention on Biological Diversity tries to incorporate within the existing legislative policy, wetland inventory, assessment and monitoring. But whether these are getting implemented in its spirit is to be identified.

Authorities Responsible for the Protection of Wetlands in India

The Ministry of Environment and Forests is primarily responsible for conservation and wise use of protected wetlands. It is done through the implementation of National Lake Conservation Plan. Functioning of other Central Ministries such as water resources, ministry of Agriculture, Chemical and Fertilizers, Commerce and Industries, Science and Technology,

Tourism, Panchayati Raj and several State bodies⁴⁸ have a direct bearing on the state of country's wetlands. But these bodies lack co-operation and coordination. The conflicting aims of these government bodies have led to the exploitation of wetlands, and their consequent degradation⁴⁹. The Irrigation Department and the Fisheries Department maintain certain wetlands, but do not maintain the multi-functional and multi-use aspects of these natural resources⁵⁰.

Another drawback of the existing environmental governance system in India is that it is still State centric. In the existing institutional structure there is no provision for direct and active role for other actors of governance. Society is still struggling for the reorganization of environmental governance. State is yet to raise

⁴⁸ The Departments of Fisheries, Agriculture, Irrigation, Environment, Forests, Science and Technology, Tourism and the Pollution Control Board.

⁴⁹ A.G. Prasad, *et.al* "Fish Diversity and its Conservation in Major Wetlands of Mysore", 30 *Journal of Environmental Biology* (2009), p.23.

⁵⁰ See Foote Lee , Pandey and N. Krogman, "Processes of Wetland Loss in India", 23 *Journal of Environmental Conservation*(1996), pp.35-45.

their consciousness to the level of willingness for conserving the environment. Wetlands under private ownership and its conservation is also another important issue to be considered. All these aspects are to be incorporated into the Wetlands (Conservation and Management) Rules, 2010. Municipal and community planning laws control land use and development in the urbanized regions of the state. They play a significant role in wetland protection because it is at this jurisdictional level that many decisions regarding wetlands in and around urban areas are made⁵¹. Municipal planning, zoning, park and land acquisition, bylaws and environmentally sensitive areas statutes can all have a major impact on wetland protection in urbanized areas. But there is an absence of proper data bank of wetlands in the states and thus their protection is in dilemma. Proper guideline regarding this area is necessary for the identification and conservation of various types of wetlands. Thus only through co-ordination of various departments, both Central and State level, the protection of wetland can be achieved.

Legal Framework for Protection of Different Categories of Wetlands

An analysis of the definition of wetlands in India brings out various categories of wetlands. Based on the land forms they can be categorized as inland waters such as lakes, reservoir, tanks, backwaters, lagoon, creek, estuaries, paddy fields, coastal wetlands or marine water the depth of which does not exceed 6 meters at high tide or river channels or river mouths and marsh, fen and peat land.

Several Central and State legislation govern each and every area of wetland. Constitutional mandate regarding paddy field can be gathered from the legislative entries in Schedule VII of the Constitution of India. Agricultural land as a state subject and paddy field is part of the same. But as part of environmental

⁵¹ See Optional Reform under Jawaharlal Nehru National Urban Renewal Mission, “The Reform: Simplification of Legal and Procedural Framework for Conversion of Agricultural Land to Non-Agricultural Purposes”, Ministry of Urban Development (2014).

conservation, the Environmental Protection Act, 1986, plays the role of umbrella legislation. The Land Utilization Order, 1967 also plays a great role in state in the protection of agricultural fields. But this a Central Order promulgated to ensure sufficient food crops within the state. Along with this, irrigation laws, land reform laws, land conservancy laws and land development legislation also helps to conserve paddy lands. But these legislations overlap in some areas face many problems of implementation.

Coastal wetlands, marine wetlands and rivers play a vital role in storing and cycling nutrients, filtering pollutants, protecting the shorelines from erosion, storms and climate regulation. These areas incorporate within it, ecosystems like mangroves, coral reefs, sea grasses, salt marshes, sand dunes, estuaries, lagoons and natural habitats. There is a plethora of fragmented and incomplete institutional framework on these regions. There is lack of integrated and coordinated decision making system regarding these areas. Constitutional mandate regarding these areas are spread in the three lists⁵² of the VIIth Schedule of the Constitution. Along with this, national policies⁵³ and a plethora of legislation serve to protect and conserve these areas.

Another area of wetlands which are seen in India are internal waters and connected ecosystems. They are lakes, rivers, creeks, tributary, bogs, bays, river mouths, pool, channel, landward side of the baseline of territorial sea. These are also regulated by the constitutional provisions, conventions, legislations and various authorities under water laws, maritime laws and coastal zones, river protection, irrigation, environment protection and forest laws and wetland laws. National policies governing various aspects of these areas operate in this field.

⁵² See the MoEF-Integrated Coastal Zone Management Project, Environmental and Social Assessment Final Report, accessed on 15-06-2015.

⁵³ *Ibid.*

Another important type of wetland for protection is highland wetlands. Most of them are coming under the world heritage and deserve an international level of protection because of their ecological significance. They are protected specifically under the Conventions, adopted through the Constitution and imbibed in the national legislation in the priority list. The Western Ghats and high land wetlands of Himalaya can be considered as examples. Most of these wetlands are lying in the reserved forest areas or near to it. Thus the forest laws, protection of ecologically fragile areas and special action plans undertaken for their protection are to be examined in detail.

Indian Judiciary on Conservation of Wetlands

Judiciary has shown its activism by raising environmental consciousness and adoption of precautionary approach⁵⁴ in conservation of wetlands. In cases relating to unauthorized conversions of wetlands, the courts have pointed out the social necessity for protection of these areas⁵⁵. The rationale of the decision with respect of the wetlands is applicable with equal force to agricultural lands also. The control on the use of agricultural land for inappropriate purposes is a social necessity, warranted by the considerations of social propriety. One has to remember that there is no sustainable alternative to ecological land use based on natural cycles that causes least destruction of vital resource like wetland⁵⁶.

⁵⁴ (1996) 5 S.C.C. 281.

⁵⁵ This benefit to the society cannot be weighed on mathematical nicety so as to take note of the requirement of the society – what is required today may not be a relevant consideration in the immediate future. See for further discussion in A.I.R. 1993 Cal. 215.

⁵⁶ N.D. Jayal, *Eliminating poverty: An Ecological Response*, Indian National Trust for Art and Cultural Heritage, New Delhi (1986), p 19.

There is rich environmental protection jurisprudence available in the country through a series of decisions, by various high courts and the Supreme Court of India. In one of the early cases U.C. Banerjee J.,⁵⁷ held

‘in a developing country like India, there shall have to be development, but that development shall have to be in closest possible harmony with the environment, as otherwise there would be development but no environment, which would result in total devastation, though, however, may not be felt in present but at some future point of time, but then it would be too late in the day, however, to control and improve the environment.’

It was pointed out that there must be a balance between the developmental activities and the environmental protection. The present case was with regard to the protection of wetlands in the eastern fringes of the city of Calcutta which was declared as a *Ramsar* site. The Court decided the case in favour of the petitioner by staying all developmental activities at the sites. The Court held that

‘Wetland acts as a benefactor to the society and there cannot be any manner of doubt in regard thereto and as such encroachment thereof would be detrimental to the society which the courts cannot permit. This benefit to the society cannot be weighed on mathematical nicety so as to take note of the requirement of the society - what is required today may not be a relevant consideration in the immediate future, therefore, it cannot really be assessed to what amount of nature's bounty is required for the proper maintenance of environmental equilibrium.’

⁵⁷ *People United for Better Living in Calcutta v. State of West Bengal*, A.I.R. 1993 Cal. 215.

The importance of maintaining the ecosystem is aptly explained by the Court in this case. This Judgment was considered as a milestone in the interpretation of statutes and in the wetland protection.

In *M.C. Mehta v. Kamal Nath*,⁵⁸ the Supreme Court confirmed the above proposition and also invoked the Roman and English common law principle of “public trust doctrine.” The Court pointed out that the public trust was more than an affirmation of State power to use public property for public purposes. It is an affirmation of the duty of the State to protect the people’s common heritage of streams, lakes, marshlands and tidelands, surrendering that right of protection only in rare cases when the abandonment of that right was consistent with the purposes of the trust.

Thus the “public trust doctrine” is now a part of the law of the land through this decision. The Court also ordered the motel to pay compensation by way of cost for the restitution of the environment and ecology of the area.

Again in *M.C. Mehta v. Union of India (Taj Mahal Case)*⁵⁹ the Supreme Court held that the development of industry was essential for the economy of the country, but at the same time the environment and the ecosystems had to be protected. The above position was confirmed in *Bombay Dyeing & Mfg. Co. Ltd. v. Bombay Environmental Action Group*.⁶⁰ The Court held that the development of the doctrine of sustainable development in India was a welcome feature but a delicate balance must be struck. It was not possible to ignore intergenerational interest. Similarly, it was not possible to ignore the dire need which the society urgently required. The two essential features of sustainable development are the precautionary principle and the polluter pays principle.

⁵⁸ (1997) 1 S.C.C. 388.

⁵⁹ (1997) 2 S.C.C. 353.

⁶⁰ (2005) 5 SCC 61.

Following the above judgments the Calcutta High Court in *People United for Better Living v. East Kolkata Wetlands Management Authority*,⁶¹ allowed construction of a water treatment plant in the East Kolkata Wetland Area, a declared *Ramsar Convention* site under the East Kolkata Wetlands (Conservation and Management) Act, 2006. Further the Court appointed a monitoring committee and ordered to do the construction in a most eco-friendly manner and remedial measures in the vicinity of the area. These judgments should be seen in the background of developmental needs of the developing countries without hurting the environment.

In a direct wetland involved case, *M. Indira v. State of Tamil Nadu*,⁶² the petitioners questioned the de-notification of 317 hectares of the marshland (swamp) near Pallikaranai, under the Tamil Nadu Forest Act, 1882 and the Forest (Conservation) Act, 1980 by the Government. The State of Tamil Nadu argued that originally 5000 hectares of wetland were reduced to 500 hectares in a period of time and it is the duty of the State to protect the wetland which was included by the Government of India under the National Wetland Conservation Programme. The Court declared that the Government can declare any land under the Forest Act against deforestation and environmental protection and affirmed the decision of the State Government.

In this case, it is interesting to note that there is no special legislation to protect wetlands in Tamil Nadu. But the State found the Forest Act is appropriate to invoke the protection of the wetland. Absence of specific laws is an impediment to protect wetlands in many States. This case substantiates the argument that there must be a Central Legislation on wetlands to be followed by the states for the protection of wetlands in India, especially, in the urban cities. It

⁶¹ A.I.R.1993 Cal.215.

⁶² 2012 (3) M.L.J. 646.

is the usual definition of this kind of government land as “puramboke,” meaning excess waste land, according to land records and later on “pattas” (ownership rights) will be issued to the occupants. This is mainly due to the lack of a uniform definition of wetland in the land laws of India.

Legal Protection of Wetlands in Developed Countries

There are no direct laws specifically framed for the protection and conservation of wetlands in many developed countries. These water bodies receive indirect protection⁶³. This is through conservation Acts at different level. This depends on the institutional and legislative systems of the country. Wetlands are protected mainly through policies and agreements. These are significantly valuable but do not have the same power as legislation. For example, in Canada water bodies receive indirect protection through legislations at a Federal level⁶⁴. Similarly, in the UK there is no water related legislations exclusively for the management of wetlands. The regulations are much more general pertaining to water bodies as a whole.

However, the European Union adopted a directive for protection of water bodies⁶⁵. The purpose of the Directive was to establish a framework for the protection and conservation for a whole general set of water bodies. Directive provides that all member states are required to establish river basin directives and a river basin management plan. Both these will be then reviewed through a cyclical process every 6 years.

⁶³ W. Maresch and M. R. Walbridge, “Enhancing Conservation on Agricultural Landscapes: a New Direction for the Conservation Effects Assessment Project”, 63 *Journal of Soil and Water Conservation* (2008), pp. 198 -203.

⁶⁴ See the Canada Wildlife Act, 1985, the Canada Fisheries Act, 2012, the Canada Migratory Birds Convention Act, 1994, the Canada Species at Risk Act, 2002 and the Canadian Environmental Assessment Act, 1992.

⁶⁵ See the U.K. Water Framework Directive in 2000.

Protection of Wetlands in the United States of America

After realizing the value of wetlands the US federal government introduced various measures to protect them. Generally these include giving incentives for protection of wetlands whose service have no market value. Government manages the property and regulates the activities done over there. Some other mechanisms adopted are acquisition, planning, mitigation, disincentives for conversion of wetlands, technical assistance, education and research⁶⁶.

Different States of US have their own wetland regulations. Even then the Federal Government heads all major activities. There are five federal agencies responsible for wetlands⁶⁷. Each of the Federal agencies has their own entrusted duties in protection of wetlands. The Army Corps of Engineers has the duties related to navigation and water supply. The EPA's authorities related to protection of wetlands for their contributions to chemical, physical, biological integrity of nations waters. The FW's manages fish and wildlife game species and threatened and endangered species, the NOAA is in charge of management of coastal resources and the NRCS focuses on wetlands affected by agriculture.

The Clean Water Act, 1972⁶⁸ serves primarily for federal regulation of activities in wetlands. Discharge commonly associated with projects such as channel construction and maintenance, port development, fills to create dry land for development sites near water, water control projects and straightening of river channels are regulated by this provision. If these activities involve discharge of

⁶⁶ Todd H. Votteler, "Wetland Management and Research Wetland Protection Legislation", National Water Summary on Wetland Resources", *United States Geological Survey Water Supply Paper 2425, University of Texas* (1999).

⁶⁷ They are Department of Defence, the Army Corps of Engineers, the Environmental Protection Agency, Department of the Interior U.S., the Fish and Wildlife Service, The Department of Commerce, National Oceanic and Atmospheric Administration, Department of Agriculture and Natural Resources Conservation Service.

⁶⁸ The(U.S.) Clean Water Act, 1972, s. 404.

more than incidental amounts of soil or other materials into wetlands or other waters those are prohibited. The State Fish and Wildlife agencies advise about the potential environmental effects of pending section 404 permits. Public hearing is also conducted for the same. The guidelines⁶⁹ must consider the public interest when evaluating the permission⁷⁰.

“Swamp Buster” program is another legislative measure for the protection of wetland. This seeks to remove federal incentives for agriculture conversion of wetlands. It works as part of the Food Security Act of 1985 and 1990. The Coastal Barriers Resources Act, 1982 provides additional protection to wetlands. Through this Act state denies the federal subsidies for development within undeveloped and unprotected coastal barrier areas including wetlands.

Many other legislation⁷¹ also discourages or prevents wetland conversion⁷².

Wetland Protection in Canada

Wetlands cover about 14% of the land area of Canada. They were once abundantly distributed throughout the country. Recently, wetlands have become an increasingly scarce resource in settled areas of the country. Throughout Canada, wetlands have been adversely affected by land use practices that have

⁶⁹ *Id.*, s. 404 (b) (1).

⁷⁰ Environmental Law Institute, “National Wetland Mitigation Banking Study”, 94 IWR Report, Washington, D.C., p.178.

⁷¹ See the U.S. Comprehensive Environmental Response Compensation and Liability Act, 1980, the U.S. Coastal Zone Management Act, 1972, the U.S. Estuary Protection Act, 1968, the U.S. Federal Water Project Recreation Act, 1965, the U.S. Fish and Wild life Coordination Act, 1956, the U.S. Migratory Birds Conservation Act, 1929, the U.S. National Environmental Policy Act, 1969, the U.S. Rivers and Harbours Act, 1938, the U.S. Wild and Scenic River Act, 1968, the U.S. Wilderness Act, 1964.

⁷² See the White House, “*Protecting America's Wetlands-A Fair, Flexible, And Effective Approach*”, Office of Environmental Policy (1999), p. 15.

resulted in vegetation destruction, nutrient and toxic loading, sedimentation, and altered flow regimes⁷³.

Within its legal framework, wetland policy holds a special place. It is a common view that policy is an inferior government tool since it does not have the "teeth" that statutes do. The The Federal, provincial, territorial and municipal governments in Canada has the authority to make and enforce laws that affect wetlands⁷⁴. However, the authority over wetlands lies mainly with the provinces, by virtue of their ownership of the natural resources that lie within their boundaries, and their jurisdiction over civil rights; an authority limited only by the existence of federal areas of responsibility. Thus, the majority of statutes that can influence wetlands in Canada have been enacted at the provincial level.

In Canada wetlands receive indirect protection through other many related legislations⁷⁵. Wetlands are specifically recognized in the natural heritage protection measures of Planning and Development Act, 2007. However, other legislation, such as the provincial *Tile Drainage Act, 1990*, still works against wetland conservation by permitting wetland drainage for agricultural purposes⁷⁶. In most cases, the installation of municipal drains significantly alters the local water cycle, resulting in dramatic changes to wetland area and function.

⁷³ In southern Ontario, 68% of the original wetlands have been converted from their natural state to support alternative uses such as agriculture and housing. Similarly, only about 25% of the original wetlands of the "pothole" region of southwestern Manitoba remain in existence. In the North, however, most of the wetlands are intact. See "Environment Canada", Ottawa, Ontario, Canada.

⁷⁴ I. Attridge.(Ed.), "Biodiversity Law and Policy in Canada: Review and Recommendations", Canadian Institute of Environment and Policy, Toronto, Ontario(1996),p.534.

⁷⁵ The Planning and Development Act,2007, the Fish and Wildlife Conservation Act,1997, the Municipal Act,2001, the Lakes and Rivers Improvement Act,1990, the Conservation Land Act, 1990, the Conservation Authorities Act,1990, the Environmental Assessment Act 1992, and the Water Resources Act,1985.

⁷⁶ Bryson and Associates, "Forest and Wetland Attributes for Highly Protected Conservation Areas in Canada Contract Report", North American Wetland Conservation council (1993), p. 40.

At the federal level, the *Wildlife Act, 1985*, the *Fisheries Act, 2012*, the *Migratory Birds Convention Act, 1994*, and the *Environmental Assessment Act, 1992* provide some protection to wetlands through species and habitat conservation measures. As seen these areas are protected through policies and rules which often do not have the power of legislation.

The large task of conserving wetlands in the Great Lakes basin is divided into eight parts or strategies under the Great Lakes Wetlands Conservation Action Plan⁷⁷. Through these eight strategies a wide range of initiatives are being implemented - everything from information gathering and policy reform to the direct acquisition of wetlands. Each strategy includes a number of specific tasks or milestones, implemented by a large number of partners, against which progress can be measured⁷⁸.

The strategies for the second GLWCAP have remained the same since there is work still to be done in each area. However, the individual milestones under each strategy have changed. For example, in the first Action Plan one of the milestones under strategy 1 the primary aim was to increase public awareness and commitment to protecting wetlands. A mobile wetland display was done for the development and production of the same. These milestones, and many others, were completed under the first action plan. New milestones have been developed to further the progress of the eight strategies for the duration of the new action plan.⁷⁹

Thus Governments at all levels have a diverse suite of legal mechanisms available for conserving wetlands in Canada. Across the country these statutes

⁷⁷ Herein after referred as GLWCAP.

⁷⁸ *Supra. n. 76.*

⁷⁹ K. W. Cox and A. Grose, "Wetlands a Celebration of Life", Final Report of the Canadian Wetland Conservation Task force on Sustaining Wetlands Issues Paper No. 1993- 1, Northamerican Wetland Conservation Council, ottawa, Ontario, Canada (1993), p. 67.

provide the authority for Crown agencies to acquire wetlands for protection. To prevent harm on public wetland they can regulate the use of such wetlands. They can also regulate activities on private lands when the activities on private lands interfere with resources under federal or provincial jurisdiction .this may include the subjects like fisheries, migratory birds, and water. They can also apply land use restrictions using bylaws, zoning, and environmentally sensitive areas designations and statutes and require project proponents to assess and mitigate impacts on wetlands⁸⁰. Other statutes enable conservation agreements with private landowners, and tax incentives for conserving wetlands on private lands⁸¹.

Legislations in Canada also try conserving the wetlands in Canada through voluntary stewardship of private lands⁸². Provinces as well as local level, municipal planning acts are being used effectively to promote stewardship programs⁸³. Many provincial legislation evolve with the important objective of wetland protection and environmental conservation after realising the need for preservation of wetlands. Wetlands have become an important component in the development of broader biodiversity conservation strategies across Canada⁸⁴.

Therefore provincial, territorial and federal wetland policies and programs, with more and more regulatory approach, focus on sustainable

⁸⁰ K. W. Cox and A. Grose, "Wetland Mitigation and Compensation: Proceedings of a National Workshop. Report No. 98-1", North American Wetlands Conservation Council ,Ottawa, Ontario, Canada (1998), p.77.

⁸¹ D Estrin and J. Swaigen, *Environment on Trial: A Guide to Environmental Law and Policy*, Canadian Institute for Environmental Law and Policy, Toronto, Ontario(1993), p. 910.

⁸² The federal government amended the Income Tax Act, 1996 to facilitate donation of ecologically sensitive lands, easements, covenants and servitudes to municipal, Crown and nongovernment environmental organizations.

⁸³ Government of Canada, "The Federal Policy on Wetland Conservation and Environment", Ottawa, Ontario, Canada(1991), p. 14.

⁸⁴ P. Lynch-Stewart, P. Neice, C. Rubec and I. Kessel-Taylor, "The Federal Policy on Wetland Conservation, Implementation Guide for Federal Land Managers", Canadian Wildlife Service, Environment Canada, Ottawa, Ontario (1998) ,p.32.

development⁸⁵. Wetland conservation is inextricably linked to this theme at the international, national, regional and local levels⁸⁶.

Wetland Conservation in United Kingdom

The U.K. ratified the *Ramsar Convention* in 1976. They decided to designate the *Ramsar sites* as sites of special scientific interest and areas of special scientific interest. Based on this classification these wetlands receive statutory protection⁸⁷. Along with these, policy statements are issued for conservation of *Ramsar sites*. These attempts provide them adequate protection.

Apart from these measures, a National Ramsar Committee is incorporated. It is an advisory body. This body undertakes the implementation of conventions measures. The committee has well-focused terms of reference. It also has a rolling three-year work plan linked to the Convention's Strategic Plan. Along with this the UK Biodiversity Action Plan and UK implementation of the European Commission Water Framework Directive⁸⁸ involve action on a wide range of wetland habitats and species. This requires the 'good status of all inland waters and other water bodies. Many other directives and regional conventions also play an important role in conservation of wetlands⁸⁹. The UK's ratification of *Ramsar convention* also extends to its overseas territories and crown dependencies. Throughout these territories international mechanisms of global importance is provided for the protection of designated sites.

⁸⁵ Ontario Ministry of Municipal Affairs and Housing, *Provincial Policy Statement*, Queen's Printer, Toronto, Ontario (1997), p.18.

⁸⁶ T. Southam and E. A. Curran(Eds.), *The Wetland Keepers Handbook: A Practical Guide to Wetland Care*, Wildlife Federation and Environment , Vancouver B.C, Canada(1996),p. 160.

⁸⁷ See the U.K.Wildlife and Countryside Act, 1981, the Nature Conservation Act, 2004 and the U.K.Nature Conservation and Amenity Lands Order, 1985.

⁸⁸ See the EC water directive (2000).

⁸⁹ See the EC Directive on the Conservation of Wild Birds and the EC Habitats and Species Directive and the African-Eurasian Water birds Agreement under the Bonn Convention.

Ramsar Steering Committee is part of the UK Natura 2000. It contributes to the development of Government policy by providing scientific advice and participating in delegations to national and international Ramsar meetings. They also assist government to concur with Ramsar procedures. It brings together the creation of the UK's national report to the triennial conferences of the parties to the convention. Valuable summaries of the UK activities in protection of Ramsar sites can be gathered from this report.

Primary legislation is made by UK Parliament. Laws may be amended through successive legislation or specific Amendment Acts. As a result, laws relating to wetlands as protected sites are often found in more than one piece of legislation. The main piece of legislation relating to nature conservation in Great Britain is the Wildlife and Countryside Act 1981. This Act is supplemented by provision in the Countryside and Rights of Way Act of 2000, the Natural Environment and Rural Communities Act, 2006 and the Nature Conservation Act, 2004. Thus all these legislations play an important role in the protection and conservation of specified wetland areas and there exists a co-ordinated attempt to protect these areas.

Legal framework for Conservation of Wetlands a Critical Evaluation

Although India is party to the Ramsar Convention, it does not have strong national laws to prevent the misuse of the wetlands. During the 1991-2001 periods, India lost more than forty percent of its wetland sand some districts lost of over 88%⁹⁰. SACON⁹¹ has documented wetlands in the country. Number of wetlands is estimated to be some 700 excluding the smaller ones. Out of this

⁹⁰ A Study published by the Salim Ali Centre for Ornithology and Natural History (SACON), Coimbatore (2012).

⁹¹ See for detailed study on Wetland Ecology and Management, [http://www.Wetlands Ecol Manage \(2012\) 20:165–171DOI 10.1007/s11273-012-9264-4](http://www.Wetlands Ecol Manage (2012) 20:165–171DOI 10.1007/s11273-012-9264-4) visited on 10-08-2014.

about 200 wetlands are recommended for incorporation in the *Ramsar sites*. But, India has only 25 listed wetlands as part of the Ramsar convention. Even these areas of wetland are under rapid decay. The National Wetlands Conservation programme was on track from 1987. But this restricts its working solely to 25 *Ramsar sites*. The protection of wetlands is under different Acts without proper codification of functions and authorities for implementation. India's wetlands are extraordinarily diverse ranging from lakes and ponds to marshes, mangroves, backwaters and lagoons and play a vital role in maintaining water balance, flood prevention, biodiversity and support food security and livelihoods. Yet they are classed as "wastelands" by the government⁹². By this tactics wetlands are systematically converted into "real estate" by vested interests or simply used as a dumping ground for sewage and garbage and are receptacles for toxic waste.

Considering the need for a national regulation, the Ministry of Environment and Forests enacted a regulatory framework for conservation of wetlands in 2010, under the provisions of the Environment (Protection) Act, 1986. It is called the Wetlands (Management and Conservation) Rules, 2010⁹³. But the Environment (Protection) Act, 1986 and its effectiveness in implementation are doubtful. The Wetland Rules protect only those areas declared as Ramsar sites. Very often wetlands are protected through the appropriate direction of court⁹⁴. The Environment (Protection) Act, 1986 cannot act as a successful protector of wetlands. Absence of a specific rule has allowed many mishaps. The present

⁹² See the Land Use Classification of India, http://eands.dacnet.nic.in/LUS_1999_2004.htm visited on 20-09-2014.

⁹³ See the Wetlands (Management and Conservation) Rules, 2010, <http://www.moef.nic.in/downloads/public-information/Wetlands-Rules-2010.pdf> visited on 15-10-2014.

⁹⁴ DahanuTaluka Environmental Welfare Association filed a Public Interest Litigation against the Union of India before the Supreme Court in order to save this wetland from unplanned aquaculture. The Court in its landmark decision held to conserve the biodiversity rich network of wetlands. The Court directed the Ministry of Environment and Forests under the EPA to designate and notify Dahanu as 'ecologically sensitive' area permitting only certain types of industries in this area.

framework enlists all the activities to be regulated or prohibited in the wetlands. A particular department will control a certain regulated activity. If there is overlapping of the legal provisions then only one agency will regulate the water body. Whoever fails to comply with or contravenes any of the provisions of these rules or order issued there under, shall be liable for action under the provisions of the Environment (Protection) Act, 1986.

The Wetlands (Management and Conservation) Rules, 2010 have excluded main river channels, paddy fields and coastal wetlands. They cover 53% of the total area of wetlands. The Ministry made it clear that the coastal wetlands are covered under the Coastal Regulation Zone Notification of 1991. But CRZ has already been replaced by the new Coastal Management Zone Notification. The CMZ does not guard the interests of the livelihood connected to the coastal regions. It is stated that CMZ has completely ignored the land use pattern of the surroundings.

The threat on biodiversity has been completely ignored in the draft. In some wetlands, major threat arises due to the diminishing fauna and flora. The maintenance of the storm water drains polluting the water bodies is not covered in the policy. There is no grant of incentive for the restoration of wetlands in private lands. United States of America has recognized the importance of the role of private owners in restoration process. There has been a very little involvement of the common man in the management process of Indian legislation.

There is confusion in the definition of wetlands categorized in India. According the rules, Group A wetlands are areas declared as Ramsar sites. But in the section 2 b, the coastal wetlands have been excluded. What about the coastal wetlands declared as Ramsar site? The wetland of category C is a major source of drinking water for local communities involving at least 100 households. But unfortunately in India we do not find a proper identification and characterization

of the existing water bodies. There is a definite chance that the ponds, which form a very important part of socio-economic status of villagers, can be ignored.

Another important regulatory action mentioned in the policy is ‘dredging’. Dredging is done not only for improved navigation but also for economic purpose. The policy provides that the notified wetland should be free from ‘conflict of interest’⁹⁵. There are encroachments on the catchment of lake beds by both government and private agencies. There is always a conflict of interest of the common people with the builders and the industrialists over the lake beds.

The wetlands are public property and the government lease out the property on public-private partnership. If there is any violation of the law in this, the rules does not clearly mention remedies of this offence. The policy has generalized the offence and punishment stating that the penalty will be as per the Environment Protection Act, 1986.

It is also not clear from the rules that what will be the status of the wetlands falling on the private property. The other aspects, which are to be made clear, are the land use pattern of the approach areas of the inland wetlands and site-by-site treatment of wetlands. The latter point will cause confusion for fluvial wetlands where there is a clustering of smaller wetlands.

The identification of wetlands should be on the basis of its ecological importance rather than a long process of Management Action Plan. Legislation has to be carved and implemented to provide environmental clearance for any initiative by a person or groups of person working in this field. The storm water drains should be maintained well and biodiversity part to be included.

Some experts in this field argue that the framework should include biodiversity values of wetlands. They suggest that the Government of India should

⁹⁵ The Wetlands (Management and Conservation) Rules2010, r. 7.

enact a law, The Wetland (Conservation) Act, on the pattern of the Forest (Conservation) Act, 1980. The Forest Conservation Act has successfully decreased deforestation to a large extent. Presently, millions of village, semi-urban and urban wetlands are under control of village Panchayaths and municipalities although villagers have interest to protect them, the administrators have practically no interest and succumb to land mafia's easily. Many times, these wetlands are 'inspected' during peak summer, when there is no water, and allocated to land sharks as wastelands. Only a strong Wetland (Conservation) Act can save them from misguided authorities.

The concern of people can be gathered from the following statement

"Today, most of the wetlands in India are under the control of the Central and State government. Involvement of society in the welfare of these wetlands is almost minimal. What is required today is that the government ought to become a facilitator (instead of controller) and also an owner in wetland management while the actual role of care taking should be with the community."

Conclusion

All significant decisions pertaining to the conservation and welfare of any wetland should be initiated and promoted by the end-users of that wetland. Unfortunately, just the reverse is happening at present. The Wetlands (Management and Conservation) Rules, 2010 provides for identification of such wetlands that are socially and culturally important to the local communities. It would be good if the wetlands are identified on the basis of their ecological importance to the local communities."⁹⁶

⁹⁶ See Strategies for Protection of Wetlands, <http://www.sciencedirect.com/science/article/pii/S221458181400010X> visited on 14-1-2014

The notification of the Wetlands (Conservation and Management) Rules, 2010 has provided a legal framework for protecting an ecosystem that has come under serious threat from unregulated development activity. If cities depend on them as reservoirs and flood control systems, rural communities derive basic sustenance from them. It is welcome, therefore, that the rules prohibit some of the more destructive activities. Inland and coastal wetlands have been lost over the years due to reclamation, conversion to industrial use, dumping of solid waste, discharge of untreated sewage from cities and towns and effluents from industries, and encroachment for construction. The Ministry of Environment and Forests has acted commendably to stop this tragic course. But the conservation effort can succeed only if the Central Wetlands Regulatory Authority created under the new rules has sufficient independence to work with the State governments and local authorities to identify and protect water bodies. Also, it is important to allay, the apprehension among research scientists that the Authority may not have the freedom to pursue its mandate. This is because the Secretary in the same Ministry heads it.

A good beginning has been made by extending the rules to, among others, 25 wetland sites listed under the *Ramsar* Convention. Some of them are also covered by other environmental protection laws pertaining to forests and wildlife. In addition to the biodiversity-rich *Ramsar sites*, there are several less-known wetlands in India that have been documented by the Salim Ali Centre for Ornithology and Natural History. All of these are very important to local communities and need a protected status. The real test for the Wetlands (Management and Conservation) Rules lies in the ability of the Authority to monitor the actions of the nodal department in the States, which will be responsible for enforcement. These departmental personnel must ensure the health of wetlands that fall outside the jurisdiction of the forest department. There is growing community interests, who are keenly documenting the state of water bodies. The community conservationists should be registered as Authorities voluntary field

workers to maintain the vigil. State governments and local bodies, must move with alacrity to enforce the rules. Thus the only way to protect and preserve the wetlands is that the government and people should work hand in hand with the backing of strong national legislation.

COASTAL WETLANDS: ESTURIES, MANGROVES AND ALLIED ECOSYSTEMS

India has a long coastline of 7500 km. It ranges from Gujarat to west Bengal and two islands of Andaman and Lakshadweep. Coast is a precious natural resource and an important economic asset of the country. The coastal zone usually includes the coastal oceans as well as the portion of the land adjacent to the coast that influences coastal waters¹.

The coastal zone encompasses within it a wide variety of geomorphologic types of ecosystems. These comprises of coral reefs, sand dunes, watersheds, wetlands, estuaries, mangroves, deltas, special protection zones, *Ramsar Sites*, salt marshes, ports and harbours. Coastal zone also includes inland water bodies influenced by tidal action including its bed and the adjacent land area up to the land ward boundary of the local self government abutting such water bodies. They may also incorporate lakes, lagoons, creeks, mud flats, marine wild life protected under the Wildlife (Protection) Act, 1972, coastal fresh water lakes, habitats and nesting grounds of many sea organisms.

A wide variety of coastal wetlands deserves special attention and study. The coastal wetlands such as mangroves, estuaries, ridges and rocks, internal waters and intertidal zones are facing severe threats from various pressures. Other important wetland areas are located near to ports, harbours and coastline. These coastal wetlands are degraded in India due to inadequate conservation measures.

¹ D.M. Alongi., *Coastal Ecosystem Processes*, CRC Press, Boca Raton (1998), p.419.

There are a number of international and national regulations governing this area. These measures offer protection from various angles. An integrated approach will help in the sustainable development of this area. Hence it is necessary to analyse the issues faced by these wetlands and the legislative measures both national and international to protect this area.

Definition of Coastal Zone

Some of the definitions which attempted to give a concise picture of coastal zone are given below. According to the United States Coastal Zone Management Act, 1972², coastal zone means

“The coastal waters including the land therein and there under, strongly influenced by each and in proximity to the shorelines of the several coastal states and includes islands, transitional and intertidal areas, salt marshes, wetlands and beaches.”

South Africa’s Integrated Coastal Zone Management Act, 2008 defines coastal zone as

“the area comprising coastal public property, the coastal protection zone, coastal access land and coastal protected areas, the sea shore, coastal waters and exclusive economic zone and includes any aspect of the environment on, in, under above such area³. ”

World Bank in 1996 proposed a definition of coastal land. According to them coastal zone is the interface where the land meets the ocean encompassing shoreline environment as well as adjacent coastal waters. Its components can include river, deltas, coastal plains, wetlands, beaches and dunes, reefs, mangrove forests, lagoons and other coastal features.

² See the U.S.Coastal Zone Management Act, 1972, s. 304 (1).

³ See South Africa’s Integrated Coastal Zone Management Act, 2008, s. 1(5) (23).

Another important definition which reflects the characteristic features of coastal land is given by the Mediterranean Integrated Coastal Zone Management Protocol, 2008⁴.

“Coastal zone means the geomorphologic area either side of the seashore in which the interaction between the marine and land parts occurs in the form of complex ecological and resource systems made up of biotic and abiotic components coexisting and interacting with human communities and relevant socio economic activities.”

In India as per the Coastal Regulation Zone Notification, 1991 says that coastal zone include coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action (in the inward side) up to 500 meters from High Tide Line and the land between Low Tide Line and High Tide Line as coastal regulation zone⁵. Apart from the above stated definitions, the Swaminathan Committee appointed to make a national action plan for protection of coastal zone defined the coastal zone as an area from the territorial waters limit⁶ including its sea bed up to the landward boundary of the local self government abutting the sea coast.

From these definitions general trends relating to coastal zones can be deduced. They are interface of land and sea, biological interactions and human activities. Flexibility exists in the demarcation of the area. Precise delimitation depends on the problem posed initially. The limits should therefore extend into the sea and land just as far as required by the objectives of the management plan.

⁴ See the Mediterranean Integrated Coastal Zone Management Protocol, 2008, Art. 2(e).

⁵ See the CRZ Notification, 1991.

⁶ Territorial sea extends to 12 nautical miles.

Classification of Coastal Wetlands

India's coastal zone is endowed with abundant wetland ecosystems that include a wide range of mangroves, coral reefs, sea grasses, salt marshes, mud flats, estuaries, lagoons, and unique marine and coastal flora and fauna. The Sundarbans in India are the largest bordering mangroves in the world. India also has major reserves of corals, fish, marine mammals, reptiles and turtles, sea grass meadows, and abundant sea weeds which are observed and nurtured in coastal wetlands. The Ramsar Convention gives a comprehensive classification of various types of coastal wetlands⁷.

Assessment of Coastal Wetlands in India

Coastal wetlands in India encompass enormous variety of marine and coastal species, open sea habitats and ecosystems. The confluence of rivers and sea makes estuaries. These estuaries, lagoons, mangroves, backwaters, salt marshes, mud flats, rocky shores and sandy stretches form part of coastal wetlands in India. Rocky structures predominantly seen in the west coast are also forming part of coastal wetlands. The mainland coast of India has two widely separated areas containing reefs. They are Kachchh and Pack Bay. There are patches of reef growth in the west coast too.

Mangrove ecosystem is an extraordinary ecological formation occurring in the tropics. These protect coastal areas from sea erosion. Protection is provided from the violent effects of cyclones and tropical storms. East coast is gifted with world's largest mangrove ecosystem, the Gangetic Sunderban in West Bengal. They are deltaic type⁸. It extends to 2109 Kms. It has 30 of the 50 species of the true mangroves in the world. The Sunderbans active delta has a network of tidal rivers,

⁷ See the Ramsar Classification System for Wetland adopted in 1990 and modified in 1996.

⁸ See FAO, *Mangrove Forests Management Guidelines* (1994), p.46.

channels, mudflats, creeks, distributaries, islands and coastal dunes .The inner mudflats are the natural abode of mangrove. The Sunderbans has a tidal estuary too. The mangrove area occurs in Orissa, Andra Pradesh and Tamil Nadu. One of the protected and unspoilt mangrove forests is found in Pichavaram, Tamil Nadu.⁹

Sea grass and sea weeds also form part of the coastal wetlands. Former occur in intertidal and midtidal zones. At about 14 species are found along the Indian coast. The estuarine resource including the associated waters of India is another rich coastal wetland. They act as effective nutrient traps. They provide natural resources and are useful for commercial industrial and recreational purpose.¹⁰

Shallow coastal water body known as lagoon can be seen along the Indian coast. They get separated from the ocean by a barrier. There are a number of lagoons is on the east and west coast of India. There are 17 noteworthy lagoons along the Indian coast. These areas are important for marine fisheries. They serve as nurseries for many species. Among the coastal wetlands, estuaries, mangroves and coastal lagoons are biodiversity rich areas.

Sources of Danger to Coastal Wetlands

Coastal wetlands suffers from the ill effects of population pressure, destruction of mangrove forest, industrial and solid waste disposal, increasing urbanization, coastal constructions, natural disasters, impact of ports, coastal erosion, atmospheric pollution, large scale aquaculture, unregulated tourist activities, ingress of sea water, coastal mining, impact of power plants, sea-level rise and coastal highways¹¹. Some of these sources requires in depth analysis.

⁹ K.R. Naskar and R.N. Mandal, *Ecology and biodiversity of Indian Mangroves*, Milton Book Company. Dehradun, India(1999),p.210.

¹⁰ M.N.Madhyastha, P.D. Rekha and K.C. Shasikumar, "Mangroves and Estuaries", Department of Biosciences, Mangalore.

¹¹ "Environment and Livelihood in Tropical Coastal Zones: Managing Agriculture" paper published by International Rice Research Institute.

i) **Destruction of Mangroves**

Many activities and factors cause mangrove ecosystem degradation. Most important one is deforestation. This is mainly done for firewood and for construction. Along with this overexploitation of molluscas and shrimp seeds poses problem to this precious ecosystem. Cattle grazing, effluents from nearby industries, discharges from agricultural fields and conversion for aquaculture are other problems faced by mangrove forest. Natural events such as cyclones, river influx, tidal incursions, erosion and accretion are also of equal concern. Mangroves are indiscriminately cut by the locals mainly to meet their daily needs. Over-exploitation of these resources is a major concern causing ecological imbalance in the mangrove ecosystem¹².

Clearing of mangrove forests to establish coastal shrimp farm facilities¹³ poses another threat to mangroves. Collection of post larvae of tiger shrimp for aquaculture industry is another major activity which is likely to have adverse impact on the mangrove forest.

Large number of cattle, buffaloes in the nearby villages of mangrove forest shows that grazing could also be an important factor for degradation of mangroves. Cattle's grazing in mangroves take place in the peripheral areas of mangrove.

Some of the major fertilizer and chemical industries do not treat their effluents and discharge them into sea¹⁴. These effluents are likely to have a serious impact on the water quality, productivity and regeneration of mangroves. Runoff from agricultural fields could result in eutrophication, leading to algal blooms, and accumulation of pesticide.

¹² V.P. Upadhyay, R. Ranjan and J.S. Singh, "Human–Mangrove Conflicts: The Way Out", 83 *Current Science* (2002), pp. 1328-1336 .

¹³ K. Kathiresan, "Why are Mangroves, Degrading?", 83 *Current Science*(2002), pp.1246-1249.

¹⁴ C. Anupama and M. Sivadasan , *Mangroves of Kerala*, Rheeda, India(2003), pp.9-46.

Cyclones and floods are regular features in this region causing large scale degradation and loss of habitat. Geomorphological changes due to littoral and tidal currents and consequent siltation, erosion and accretion have an impact on the mangrove ecosystem¹⁵. Thus deforestation and allied activities which leads to deforestation is a serious threat to mangrove forests.

ii) Human Intervention

Increase in population has exerted demographic pressure on the coastal wetlands. The technological development and greed of man contribute momentum to this. All these cumulatively result in over exploitation of resources from coastal wetlands. These areas are very sensitive and the over catch and destructive catch of fauna and exploitation of various resources resulted in the deterioration of the quality of the wetlands¹⁶. The nine coastal states of India have a combined population of about 440 million people out of which 330 million people live within 150 km of the coast. Resource rich coastal land is exploited for people and infrastructure necessities¹⁷. They range from dwelling structures, road and rail transport, production and service industries, port facilities, petroleum industries and refineries.

iii) Town and Country Planning

Constructions of engineering structures on the coastal areas affect the areas adversely. The projects approved and working alter the entire physical and chemical conditions of the ecosystem. Particularly estuaries and backwaters areas of nursery for prawns and other fishes get affected. Constructions prevent the

¹⁵ A.B. Choudhury, *Mangroves of the Sundarbans: India*, The IUCN Wetlands Programme. Bangkok, Thailand, IUCN(1994).

¹⁶ K. Kathiresan , “A Review of Studies on Pichavaram Mangroves South East Coast of India”, 15 *Hydrobiologica* (2000), pp.185-205.

¹⁷ See *The State of Environment*, Ministry of Environment, Government of India (2009) p.3.

influx of sea water towards the area. Most of the constructions in the Ernakulum city and the Vallarpadam Container Terminal Project and the forth coming Vizhinjam projects and Thaneermukkam Bund project in Vembanadu lake can be cited as best examples of such ill effects. This affects the flora and fauna peculiar to the coastal wetlands. Constructions arrest the tidal flow as well as increase the rate of pollution. Authorities approving and sanctioning these projects does this violating all the regulations and restrictions existing in this area.

iv) Reclamation and sand Mining

There is a growing tendency due to the population pressure to reclaim the coastal wetlands for agriculture, urban development and industrial purpose. New industries relating to the sand cleaning are at a sprout due to the increasing demands for construction materials. This affects the tidal flow and water circulation. Also reduction in the space for the fishery conservation takes place due to this. These reclamations and sand mining shrinks the backwaters and shallow coastal areas. Along with this dredging in shore lines is most destructive to the marine habitat¹⁸. Fishes which are bottom dwellers feeding on the substances available at the bottom will be affected by the dredging activity.

V) Impact of Aquaculture, Prawn Filtration and Tourism

Aquaculture, prawn filtration and tourism activities are at an increase in these regions. It poses serious threat to the region. Commercialization of these industries is the major reason for such ill effect. Indian Supreme Court intervened in coastal wetland protection through a question came up before the court related to the feasibility of commercial aquaculture in the coastal zones. It was through

¹⁸ K.Kathiresan and S.Z.Quasim , *Biodiversity of Mangrove Ecosystem*, Hindustan Publishing Corporation, New Delhi(2005), p.251.

public interest litigation, *S.Jagannath v. Union of India*¹⁹. The Supreme Court assessed the negative environmental impacts of aquaculture industry. The Court decided that apart from the traditional aquaculture, intensive, semi-intensive and extensive practices are real threat to the ecology of the coastal areas. Traditional aquaculture is a practice existing in India in rotation of rice farming. Judgment of the Supreme Court resulted in the establishment of the Aquaculture Authority in 1997 and enactment of the Coastal Aquaculture Authority Act,2005. The Act regulates coastal aquaculture activities. The Act is rooted on the principle of responsible coastal aquaculture²⁰. The Act gives guidelines regarding registration of coastal aquaculture farms and construction and operation of aquaculture farms. The authority established under the Act is vested with the power of inspection to aquaculture farms to assess its working. The authority can order the removal or demolition of aquaculture farms if they cause environmental hazards²¹. Rice is grown in part of the year and shrimp and other fish species cultured the rest of the year. Chemicals and other feeds are not used in this method.

vi) Industrial Threats, Dams and Pollution

Urbanization is a major cause of impairment of wetlands. Urbanization has resulted in direct loss of coastal wetland as well as degradation of wetlands. Degradation takes place due to changes in water quality, quantity, and flow rates. This increases in pollutant inputs and changes in species composition, introduction of non-native species and disturbance to the existing species takes place due to this. The major pollutants associated with urbanization are sediment,

¹⁹ A.I.R. 1997 S.C.811. The petitioner was the chairman of the voluntary organization for the upliftment of the weaker sections of the society. He sought to enforce the CRZ Notification,1991. He prayed for stopping the intensive, extensive and semi-intensive aquaculture. He alleged in his petition that the uncontrolled feeds, seeds, other inputs and water management practices had brought serious threat to the ecology.

²⁰ See the Coastal Aquaculture Act 2005, s.3.

²¹ Biliana Cicin Sain, David L. Vander Zwagg and Mirium C. Balgos (edt.), *Routledge Hand Book of National and Regional Ocean Policies*, Routledge(2015), p.282.

nutrients, oxygen-demanding substances, road salts, heavy metals, hydrocarbons, bacteria, and viruses²². These pollutants may enter wetlands from point sources²³ or from nonpoint sources²⁴. Construction activities are a major source of suspended sediments that enter coastal wetlands through urban runoff.

Construction of dams also interferes with the coastal environment. Consequent to this substantial ecological changes occur in the original ecosystems. It will affect the whole life cycle of fishes. This will also prevent them from migrating to their breeding grounds. It may cause complete change in the timidity and silting patterns. Fluctuation of water levels also effects the spawning of many important fishes²⁵. Pollution makes fish folk unfit for human consumption and large scale fish mortality leading to reduction in the growth and survival of fish folk²⁶.

Domestic waste discharge in surface water also increases directly proportionate to the increase in population. Agricultural waste poses a serious environmental problem to the coastal wetlands. The insecticides and pesticides used in the fields reaches the sea and affect the sea. High mechanization of the fishing also causes serious threat to the coastal ecosystems.

²² Debra E. Einstein,"Urbanisation and its Human Influence", Paper Presented in Seminar on Global Sustainability, University of California, Irvine(1999).

²³ The term point source means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be ... See the National Water Quality Monitoring Council, 2007, Glossary of water-quality monitoring terms: Advisory Committee on Water Information, U.S., accessed on date 01-07-2011.

²⁴ Non Point Source pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters and ground waters. See the U.S.Clean Water Act, 1977, s. 504(14).

²⁵ *National Wetland Inventory of India and Assessment*, Space Application Research Centre, Ahmadabad, Mininstry of Environment and Forest (2011).

²⁶ Government of India,. *The State of Forest Report*, Forest Survey of India, New Delhi, Ministry of Environment and Forests(1997), p.5-6.

vii) Climate change

Climate change also affects the coastal wetlands. Increase in temperature is causing polar ice to melt and sea level to rise. This results in swamping of shallow wetlands and drowning of certain mangrove trees²⁷. At the same time other wetlands such as estuaries, flood plains and marshes are being destroyed through drought. The essential carbon cycle also gets affected.

From the above analysis it could be observed that the Indian coastal zones are diverse. Extensive tidal flats of Gujarat, lagoons of Lakshadweep and narrow sandy beaches of Kerala deserve an integrated management suited to each region. Not only that mangroves, estuaries sand dunes, turtle breeding grounds, coral reefs, uninhabited small islands, areas of outstanding natural beauty, heritage or archeological sites and areas likely to be inundated by various threats need to be protected through an integrated approach²⁸.

Regulatory system of Coastal Wetlands

Plethora of legislations and conventions exists regulating and protecting the areas under the coastal wetlands.

International Efforts

International conventions such as the World Conference on National Parks, 1962 considered the need for protection of coastal and marine areas. It failed in the development of a regulatory frame work with the consensus of nations. Therefore it could not enforce the objectives set under them. In 1958, the Geneva

²⁷ Kevin L. Erwin, "Wetlands and Global Climate Change: the Role of Wetland Restoration in a Changing World", 17 *Wetlands Ecol. Manage.* (2009), pp. 71–84.

²⁸ For more details, see the Government of India, *State of the Environment*, Ministry of the Environment (2009), p.3.

Convention on the Law of the Sea²⁹ considered the matter of conservation of coastal wetlands. It considered the ill effects of technological progress and consequent over exploitation of marine resources. These Conventions tried to develop a growing concern regarding the regional nature of the marine living resources. Many global and regional conventions also promote conservation of coastal wetlands³⁰.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973, originally addressed depletion of coastal wetlands resulting from demand for luxury goods. As of 2013 the demand was massive and had expanded to include thousands of species previously considered unremarkable and in no danger of extinction³¹. The Convention on Conservation and Protection of the World Culture and National Heritage, 1972 gave international recognition to areas of outstanding universal value. In 1972 UNEP governing Council was entrusted with the task of identifying emerging environmental problems. The IUCN conference on Marine Protected Area in 1975 suggested to establish a well monitored system of marine protected areas as world's representative ecosystem³². Workshop of UNESCO in 1981 developed a coral reef management hand book³³. The UNESCO organized the first World Biosphere Reserve Congress in Minsk, USSR in 1983. It incorporated marine environment also within its purview. In 1987 the World Commission on Environment and Development published the book "Our

²⁹ This includes three conventions within it. They are the Convention on the Continental Shelf, the Convention on the High Seas and the Convention on the Conservation of Living Resources of the High Seas.

³⁰ The African Convention on Conservation of Natural Resources, 1968, the Ramsar Convention 1971, MARPOL 1973, the London Dumping Convention 1972, Convention on Civil Liability for Oil Pollution Damages, 1969 its protocol 1976, the Fund Convention, 1971 and its protocol 1979 play an important role in the coastal protection.

³¹ International Conventions, Ministry of Environment Forest and Climate Change, India (2015).

³² *Ibid.*

³³ K. Venkataraman, "Natural Aquatic Ecosystems of India", National Biodiversity Strategy Action Plan, Zoological Survey of India(2003).

Common Future". It highlighted the importance of marine conservation. The Convention on Biological Diversity, 1992 defines biodiversity as the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes. This includes diversity within the species and of ecosystems³⁴. Thus a range of programmes adopted under these conventions makes India liable to protect its coastal zone and biodiversity with utmost care.

Indian Scenario

i) Forest Legislations

The Indian Forest Act, 1927, the Forest (Conservation) Act, 1980 along with its amendment in 1988 tries to protect forest area comprehensively. The term forest is not defined under these Acts. But the Supreme Court in *Supreme Court Monitoring Committee v. Mussorie Dehradun Development Authority*³⁵ held that the term 'forest' means wide area covered with trees and developing saplings along with pastures or any other area that is declared by states as forest land. These Acts create and manage reserved forests, protected forests and village forests. They also protect nongovernmental forests and private forest land. The New Forest Policy³⁶ brings within it conservation and protection of natural heritage to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium. It brings within its ambit conserving the natural heritage of the country by preserving the remaining natural forest with vast

³⁴ F. Berkes, *Cross Scale Linkages : Some Promising Institutional and their Dynamics the Drama of the Commons*, Academy Press, Washington DC (2002).

³⁵ *Supreme Court Monitoring Committee v. Mussorie Dehradun Development Authority* , (1997) 1 S.C.C. 605.

³⁶ The Forest Policy 1952 was revenue oriented and conservation of resources was not given importance. This policy is replaced by the policy in 1988.

variety of flora and fauna which represents the remarkable biological diversity and genetic resources of the country.

ii) Wildlife Protection Measures

The Wildlife Protection Act, 1972 defines wild life to include any animal, bees, butterfly, crustaceans, fish and moth and aquatic or land vegetations which form part of any habitat³⁷. Thus wildlife refers to living organisms in their natural habitats. This Act was amended several times to make its implementation smooth. As per the 2002 Amendment protection of various species of wild animals, management of their habitats and regulation of trade in parts and products derived from various species of wild animals are made compulsory.

The Act proposes two new reserves namely conservation reserves³⁸ and community reserves³⁹. The former would be an area owned by a state government adjacent to national parks and sanctuaries for protecting the landscapes, seascapes and habitat of flora and fauna. As per the Act animal includes mammals, birds, reptiles, amphibians, fish and other chordates and vertebrates and also includes their young and eggs⁴⁰. Another provision defines land⁴¹ to include canals, creeks and other water channels, reservoirs, rivers, streams and lakes whether artificial or natural. It also includes marshes, wetlands, boulders and rocks. Protected area⁴² under this Act means a National Park, a sanctuary, a conservation reserve or a community reserve notified⁴³ under the Act. It also says that territorial waters⁴⁴

³⁷ The Wild Life (Protection) Act, 1972, s.2 (1).

³⁸ *Id.*, s. 36A.

³⁹ *Id.*, s. 36C.

⁴⁰ *Id.*, s. 2(1).

⁴¹ *Id.*, s. 2(17).

⁴² *Id.*, s. 2(24 A).

⁴³ *Id.*, ss. 18, 35,36 A and 36 C

⁴⁴ *Id.*, s. 2(30 A).

shall have the same meaning as in s.3 of the Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976.

iii) Pollution Control Laws

Terrestrial sources of pollution are controlled by the Water Act, 1974. The Water Act is comprehensive in its coverage applying to streams, inland waters, subterranean waters, sea and tidal waters. This Act prohibits disposal of polluting matter in streams, wells and sewers or on land in excess of standards established by the state boards. The Environment (Protection) Act, 1986 covers all aspects of environment⁴⁵.

iv) Marine Laws

Under the Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976, territorial waters extend 12 nautical miles from the defined baseline. Continental Shelf is the natural prolongation of India's land territory to the outer edge of the continental margin or 200 nautical miles where the continental margin does not extend up to that distance. The Exclusive Economic Zone extends beyond the territorial waters to a distance of 200 nautical miles from the base line. The Act asserts India's sovereignty over the Continental Shelves⁴⁶ and Exclusive Economic Zone⁴⁷. It also confer exclusive jurisdiction on the Central Government to preserve and protect the marine environment and to prevent and control marine pollution within the continental shelves and exclusive economic zone. There are no specific regulations framed under the Act to regulate the dumping of substances in the sea or other causes of marine pollution. The Coast Guard Act, 1978 is another legislation which makes coast guards

⁴⁵ See P. Leelakrishnan, *Environmental Law in India*, LexisNexis, Butterworths (2005), p.92.

⁴⁶ The Territorial Waters, Continental Shelf, Exclusive Economic Zone and other Maritime Zones Act, 1976, s. 6(3) (a).

⁴⁷ *Ibid.*, s.7(3)(a).

responsible for the protection and preservation of maritime environment. They patrol the maritime zones and prevent and control marine pollution⁴⁸.

The Merchant Shipping Act, 1958⁴⁹ governs the civil and criminal liability of the owner of an Indian and foreign vessel that damages the environment in territorial water or exclusive economic zone. of the Merchant Shipping Act⁵⁰ contains provision for preventing and controlling oil pollution. Both parts were incorporated under the Act in 1980 to give effect to an international convention⁵¹. This special law prevails over the general pollution control statutes.

The coastal development was governed by the Central Department of Environment. They issued administrative guidelines known as the guidelines for the development of beaches in 1983. Under this guideline the beaches were defined to cover the entire coast as well as water front along rivers and lakes. This laid the foundation for the following statutory regulation. The foreshore development was initially regulated by building rules under local town and country planning laws and the land revenue code.

V) Fisheries Laws

The only Indian legislation for the conservation and management of offshore and deep sea fisheries” is the Marine Products Export Development Authority Act, 1972. The Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Act, 1981, the Maritime Zones of India (Regulation of Fishing by Foreign Vessels) Rules, 1982 fails to bring up conservation or management of fisheries resources. Since maritime states are responsible for marine fisheries

⁴⁸ See the Coast Guard Act, 1978 , s. 14(2).

⁴⁹ See the Merchant Shipping Act, 1958, Part X B.

⁵⁰ *Id.*, Part XI A.

⁵¹ The International Convention on Civil Liability for Oil Pollution Damage, 1969 and amendments to the International Convention for the Prevention of Pollution of Sea by Oil, 1954.

legislation within the territorial sea, states proceeded to develop their own maritime fishing regulation laws and regulations. The Kerala Marine Fishing Regulation Act, 1980 imposed regulation on mechanised vessels from trawling within the Territorial Waters and banned the use of certain types of gear by mechanized craft. This mainly aimed at the protection of ocean resources. The West Bengal Fishing Regulation Act, 1993, the Karnataka Marine Fishing Regulation Rules, 1987 implementing the Karnataka Marine Fishing Regulation Act, 1986 incorporates provisions for protection of traditional fisherman and maintaining law and order. This legislation failed to provide for limited access, effective legal action against infringement and interstate vessel movements. Along with this the Travancore Cochin Fisheries Act, 1950, the madras amendment to the Indian Fisheries Act, 1897 also contain some provisions for the protection of fisheries. The Travancore Cochin Fisheries Act, 1950 provides that the government can make rules for the protection of fish in selected waters⁵².

vi) The CRZ Notification, 1991

After the enactment of Environment (Protection) Act, 1986, Government of India felt the need for a management policy based on regulatory approach towards coastal zones. It defined coastal zones⁵³within the limit of coastal regulation zones. This notification declared the limits of and the prohibitions in the coastal regulation zones. It highlights the regulation of permitted activities and classifies the zones into four categories⁵⁴ for the purpose of regulation. This notification was finalized in the year 1991. It was amended on several times⁵⁵.

⁵² See the Travancore Cochin Fisheries Act, 1950, s.4.

⁵³ It consist of coastal stretches of seas, bays, creeks, rivers and back waters which are influenced by tidal action. They extend up to 500 meters from the HTL.

⁵⁴ For details of the categories, see the CRZ Notification, 1991.

⁵⁵ The latest amendment was published in 2011.

Prohibitions and Exceptions under CRZ,1991

The CRZ notification lays down certain prohibitions. It also lays down exceptions to those prohibitions. Setting up of new industries and expansion of the existing industries are prohibited. Manufacture, handling, storage or disposal of hazardous wastes and substances also fall within the prohibition. Except the CRZ I such prohibitions are relaxed to certain level for the receipt and transfer of certain hazardous matters⁵⁶. Even these permissions are subject to the further terms and conditions specified by the MoEF from time to time for the protection and upgrading of environment of the particular area⁵⁷. It is pertinent to note that all the permitted activities are to be undertaken without adverse impact upon the ecology of the coastal zone⁵⁸. Discharge of untreated wastes and effluents and dumping of municipal wastes as landfills, or otherwise is prohibited⁵⁹. Land reclamation or such other acts disturbing the natural course of sea water are allowed only for the purposes of construction of ports, harbours, jetties, wharves, quays, bridges and sea links and other facilities. On the other hand reclamation for commercial purposes such as shopping and housing complex hotels and entertainment activities are impermissible⁶⁰. Mining of sand, rocks, and other substrata materials, except rare minerals not available outside CRZ is prohibited⁶¹.

Pollution and exhaustion of groundwater in coastal aquifers are potential hazards in the coast. Harvesting or drawing of ground water and construction of mechanism for such acts within 200 meters of HTL are prohibited⁶². However,

⁵⁶ See the prohibitions and exception to CRZ Notification, 1991.

⁵⁷ *Ibid.*

⁵⁸ *S.Jagannath v. Union of India* (1997) 2 S.C.C. 87.

⁵⁹ See the CRZ Notification, 1991 paras. 2(v) and (vi).

⁶⁰ *Ibid* ., para 2 (viii).

⁶¹ *Ibid* ., para2(viii) proviso. Inserted by the Amendment in 1997.

⁶² *Ibid.*

ordinary wells for the purpose of drinking, horticulture, agriculture or fisheries are permitted in the zone between 200 meters to 500 meters⁶³.

No construction activity in an ecologically sensitive area or between the HTL and LTL is allowed. Except those permitted under the CRZ Notification, 1991 dressing or altering of sand dunes, hills, natural features including landscape changes for beautification or recreational or other purposes are prohibited.

All permissible activities are regulated by a clearance mechanism. The clearance is to be done by the MoEF. The time period of 90 days prescribed for the clearance after the receipt of all the requisite data and documents. This shall remain valid for 5 years from time of clearance. Among the many activities listed some are land related activities. They are

- (i) Construction activities related to projects of department of atomic energy or defense requirements
- (ii) Operational construction of ports, harbours, light houses and housing schemes in CRZ as per norms specified.
- (iii) Mining of rare minerals.

Activities involving investment of less than five crore rupees should be regulated by the concerned authorities in the state or union territory level⁶⁴.

Through this legal regime attempts were made by the government to protect established zones from perils. But hotels and resorts, aquaculture industries and developmental projects continued to create problems to the coastal zones.

⁶³ *Ibid.*

⁶⁴ *Id.*, para. 6 (2).

There are separate guidelines for construction of beach resorts or hotels in the designated areas of CRZ. In ecologically sensitive areas⁶⁵, construction of beach resorts and hotels are not be permitted. No live or barbed fence around private property may be allowed to hamper public access to beach. No flattening of sand dunes will be allowed in this area. Courts had opportunity to analyse the attempts from the Central Government to dilute the norms existing in the CRZ areas regarding construction activities. In 1996 the court while considering a case relating to shrimp farming gave a mandatory direction to the coastal states to prepare a costal management plan to implement the regulation immediately⁶⁶.

vi) Aquaculture Laws

The Coastal Aquaculture Authority Act, 2005⁶⁷ relates the environmental sustainability of the aquaculture operations. The Aquaculture Authority was established under the Coastal Aquaculture Authority Act, 2005. Provisions prevents construction of shrimp farms in mangrove areas other sensitive areas and in agricultural land. Compulsory environment impact assessment is prescribed for larger farms. It also provides for wastewater quality standards and effluent treatment plants and use of chemicals and drugs. Licensing and mandatory applications of code of conduct and provision for registration of shrimp farms are also provided.

Thus coastal area protection covers a number of ecologically sensitive areas. The Central Government, state governments and local self government and various departments exercise powers in different perspective. Actual coordination

⁶⁵ Marine parks, mangroves, coral reefs, breeding and sparring grounds of fish, wild life habitats and such other areas as may be notified by the Central Government, state government and union territories.

⁶⁶ *S. Jagannath v. Union of India*, A.I.R. 1997 S.C. 811

⁶⁷ The negative environmental impacts of the aquaculture industry were assessed and discussed in detail by the Supreme Court in case, *S. Jagannath v. Union of India*, A.I.R. 1997 S.C. 811. This judgment led to the establishment of the Aquaculture Authority in 1997.

among these units is necessary for the protection of this common heritage of mankind.

Various Measures Undertaken for Protection of Coastal Wetlands

i) *Measures for Preventing Deforestation*

Protection of mangroves incorporates the aspects of resource conservation and the needs of the local community. To meet this need, the new management opens new avenues for self-employment such as ecotourism, fishing, and cottage industries based on mangrove forest products. The management should help to improve the socio-economic conditions of the local communities.

India has a long tradition of mangrove forest management. The Sundarbans mangroves, located in the Bay of Bengal, were the first mangroves in the world to be put under scientific management. The area's first management plan was implemented in 1892⁶⁸. The concern of the Government of India for the conservation of forests and wildlife was clearly reflected in the 1976 amendment to the Indian Constitution⁶⁹. The amendment states that it shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife.

1) *National Mangrove Committee*

The Government of India set up the national mangrove committee under MoEF in 1976. This committee advises the government about mangrove conservation and development. The panel of committee consists of scientists, research scholars and experts on the mangrove ecosystem.

⁶⁸ See the Document FAO-FO--DP/BGD/84/056 on Integrated Resource Management Plan of the Sundarbans Reserved Forest, Executive summary, Department of Forest (1998).

⁶⁹ See the Constitution of India, Art.51(A) (g).

In its first meeting, they emphasized the need to conduct a survey of the extent of existing mangrove areas in the country. Later on the government introduced a scheme for mangrove conservation and protection⁷⁰. The scheme consists of identification of selected mangrove areas for conservation, preparation of a management plan, promotion of research and adoption of a multidisciplinary approach involving state governments, universities, research institutions and local organizations. In 1979, the national mangrove committee recommended areas for research and development and for management of the mangroves⁷¹. These areas included nationwide mapping of the mangrove areas, preferably by remote sensing techniques coupled with land surveys, and time series to assess the rate of degradation of the ecosystems. It also includes quantitative surveys of area, climatic regime, rate of growth of forest trees and seasonal variations of environmental parameters, assessing suitable sites for reserve forests and conservation programmes⁷². Another important measure was afforestation of degraded mangrove areas. They also suggested study of management methods, the ecology of mangroves, their flora and fauna, their microbiology and the biochemistry of organic matter and sediments.

As per the recommendation of the National Mangrove Committee, 15 mangrove areas were identified for conservation. The Government of India guides and finances the coastal states and the Union Territories for the preparation and implementation of management action plans for the conservation and development of these mangrove ecosystems. Now these plans are being implemented. Broadly they cover survey and demarcation, natural regeneration in

⁷⁰ See the Minutes of the National Coordinating Body of India, Ministry of Environment and Forest, New Delhi (2007), p.1.

⁷¹ T. A. Rao, S. Molur and S. Walker, *Mangroves of India: Report Summary 1998*, Public Zoo Outreach Organization, (1999) pp. 1-49.

⁷² R. Kumar, "Conservation of Mangrove Forest in India, with Special Reference to Goa and Middle Andaman Island", FAO Document, India(1999).

selected areas, afforestation, protection measures, fencing and awareness programmes.

Research by academic institutions for development of mangrove ecosystems on a sound ecological basis is felicitated by the government. The National Forest Policy, 1988 enlist effective management and conservation of the mangrove ecosystem as a priority area in forestry research⁷³.

2) Legislative Measures

In India, a legislative framework for the conservation and management of mangroves is already in place. The Indian Forest Act, 1927 and the Wildlife (Protection) Act, 1972 provide protection to flora and fauna. Although they do not specifically mention mangroves, these acts can also apply to the conservation of the flora and fauna of mangrove ecosystems. Since 1927, the Indian Forest Act, 1927 has been applied to the mangrove forests of the Sundarbans, which have been declared as a reserved area .The Forest (Conservation) Act, 1980 states that no forest area can be diverted for any non-forestry purpose without prior approval of the Government of India. This Act has proved very effective in preventing diversion of mangrove forest areas for non-forestry purposes.

The Environment (Protection) Act, 1986 has a crucial role in the conservation and management of mangrove ecosystems. It prohibits discharge of untreated water and effluents, dumping of waste, land reclamation and bunding in order to protect the coastal environment⁷⁴. Coastal stretches are classified into four categories, and mangroves are included in the most ecologically sensitive category⁷⁵.

⁷³ Government of India, *Mangroves in India – Status Report*, Ministry of Environment and Forests, New Delhi (1987), p.52-55.

Government of India, *The State of Forest Report, Forest Survey of India*, Ministry of Environment and Forests, New Delhi (1997), pp.1-8.

⁷⁴ *Ministry of Environment and Forest Annual Report (2008)*, p.45.

⁷⁵ Pavneet Singh, *India Year Book 2014*, Dorling Kindersley (India) Pvt. Ltd., Noida (2014), p. 51.

ii) Measures to Protect Living Resources**1) Conservation Under the World Protected Areas**

Marine ecosystems have large coverage but poor representation in world's protected areas. India which has substantial biodiversity had only four protected areas with reference to the marine ecosystem⁷⁶. Certain areas of coastal ecosystem along with the terrestrial ecosystem are internationally recognized within the frame work of UNESCO as biosphere reserve. These reserves are required to follow a minimal set of criteria and adhere to a minimal set of conditions before being admitted in the network of biospheres. These mandates are that the areas should be devoted to conserving biological diversity, promoting research and monitoring as well as seeking to provide models of sustainable development in the service of mankind. The Central Government provided financial assistance to the respective state governments for conservation and management of biosphere reserves. Research and development projects were also supported. On the basis of the proposal submitted by the ministry, the International Coordinating Council of Man and Biosphere Programme of UNESCO in November, 2001 approved designating the Sunderban and Gulf of Mannar on the world network of biosphere reserves. This facilitates international recognition and attracts additional funding in these sites. A special project for long term conservation and sustainable utilization of the resources of the Gulf of Mannar Biosphere Reserve has been approved based on this. Completed research projects provide help in scientific management of these Reserves.

⁷⁶ The four protected areas were Gulf of Mannar, Gulf of Kachchh, Marine National Park of Andaman and Nicobar Islands, Rani Jhansi Marine National Park.

2) Conservation Programme of Government of India

Government of India has launched a scheme on conservation and management of wetlands, mangroves and coral reefs in 1987. The Scheme is continued to the Tenth Five Year Plan. Many of the coastal wetland areas are identified by the government. They were brought under the people's participation for their conservation and management. Activities under these action plans are many folds such as survey and demarcation, protection, afforestation, natural regeneration and restoration. This also incorporates catchment area treatment, pollution control, weed control, wildlife conservation, sustainable fisheries development and environmental education.

3) Legislative Measures

There are many Central legislation to protect wetlands⁷⁷. To protect the corals and coral reefs, there is a provision in the Mines and Minerals (Regulation and Development) Act, 1957⁷⁸. Marine turtles and mammals such as whales, dolphins and tortoises are the endangered species along the coastal wetlands. To protect the turtle population the Indian Wildlife (Protection) Act, 1972 introduced some measures. All species of sea turtles were placed as endangered species⁷⁹ in Schedule I of the Act. India is a member of the *Convention on International Trade in Endangered Species of Fauna and Flora*, 1973. It prohibited trade in turtle products by member countries. India became a party to the *Bonn Convention on the Conservation of Migratory Species of Wild Animals*, 1981. Efforts are also made to reduce the mortality of turtles by attaching turtle excluder devices to the

⁷⁷ See the Wild Life Protection Act, 1972, amendments of the Wild life Act in 2002, the Environment (Protection) Act, 1986, the Biodiversity Act, 2002 and forest legislations contributes to the protection of living resources.

⁷⁸ See the Mines and Minerals (Regulation and Development) Act, 1957, s. 10(3).

⁷⁹ See the Indian Wildlife (Protection) Act, 1972, Schedule 1.

trawl. Certain areas were declared as closure areas of fishing during the mass nesting season of turtles.

iii) Measures to Prevent Pollution, Reclamation and Conversion

Due to coastal erosion opportunities for coasts to fulfill their socio-economic and ecological roles in the long term at a reasonable societal cost is lost. The Indian Forest Act, 1927 and the Forest (Conservation) Act, 1980 regulate the conversion of forest area under the coastal wetlands. But all these are proved to be futile. Destruction has occurred to the mangrove ecosystem. Now regional plans are prepared taking into consideration the needs of the local people. The social forestry program and reafforestation of mangroves are certain activities undertaken by the government to prevent conversion of the coastal ecosystem.

*The Basel Convention*⁸⁰ contains specific provisions for the monitoring of hazardous waste. A number of articles in the convention oblige national governments which have acceded to the Convention to take appropriate measures to implement and enforce its provisions, including measures to prevent and punish conduct in contravention of the convention. Disposal of ship-based wastes are controlled⁸¹ to protect coastal wetlands. The National Environment Appellate Authority Act, 1997 addresses appeals with respect to restrictions of areas in which classes of industries are carried out. The objective is to bring in transparency and accountability and to ensure the smooth and expeditious implementation of developmental schemes and projects. The National Environmental Tribunal Act, 1995 has been created to award compensation for damages to persons, property and the environment arising from any activity involving hazardous substances. The Indian Fisheries Act, 1897 offers protection

⁸⁰ The Basel Convention, 1992.

⁸¹ The International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978. Here in after referred to as MARPOL 73/78 and United Nations Conference on Law of the Sea, Here in after referred to as UNCLOS.

of fisheries against use of explosives and dynamites. The Coast Guards Act, 1950 provides heavy penalties for pollution of port waters⁸². The Merchant Shipping Act, 1958 controls pollution from ships and offshore platforms⁸³. More over the Water Act, 1974 control pollution from land based sources⁸⁴. The Hazardous Waste Management Rules, 1989 provides guidelines for the hazardous waste. All these legislations along with the Environmental Protection Act, 1986⁸⁵ tries to protect the coastal wetlands from pollution and its ill effects.

Since 1982, the Central Pollution Control Board has been carrying out a rapid inventory annually to assess the pollution status of coastal waters of India. This programme known as the Coastal Pollution Control Series, comprises of a) Identification of the uses of coastal water at different stretches and the best use among them, class designation of the sector or a portion thereof, and b) Identification of land-based pollutants and polluting activities and those that require immediate control. The Coastal Ocean Monitoring and Prediction systems programme was launched in 1991, by the Department of Ocean Development for monitoring the health of India's coastal waters. The programme monitors the effect of anthropogenic activities on the marine environment periodically and assesses the impact on the marine flora and fauna in the coastal wetlands of India. Studies related to the waste assimilation capacity of coastal waters have been undertaken from 1997-98 onwards. Efforts have been made to set up sewage treatment plants in all coastal states. Certain bold attempts made by judiciary are also worth

⁸² See the Coast Guards Act, 1950, Chapter V, ss.53-58.

⁸³ See the Merchant Shipping Act, 1958, Part XI A.

⁸⁴ See the Water (Prevention and Control of Pollution) Act, 1974, s. 24.

⁸⁵ See the Recycled Plastics Manufacture and Usage Rules, 1999, the Municipal Solid Wastes (Management and Handling) Rules, 2000, the Ozone Depleting Substances (Regulation) Rules, 2000 and the Prevention and Control of Pollution (Uniform Consent Procedure) Rules, 1999, are some of the rules framed under EPA, 1986, with an aim to providing environmental protection relevant to the coastal environment .

mentioning in this regard. In *S. Jagannath v. Union o India*⁸⁶, the Supreme Court analysed the reports of Dr. K.Algiriswami⁸⁷ and the study conducted by NEERI⁸⁸ in support of the arguments filed by the petitioner. The Court found based on these arguments that the CRZ Notification, 1991 tries to protect the ecologically fragile areas. This also tries to safeguard the aesthetic qualities and uses of sea coast. The Court also said that before a shrimp farm is installed it has to pass through the strict environment test. There has to be a high powered authority to scrutinize each and every case from environmental point of view. One among the direction issued by the Court was that land meant for public purposes, agricultural land, mangroves, salt pan lands, wetlands and forest lands should not be used or converted for construction of shrimp culture ponds. Thus it was a land mark attempt of protection through regulation of use of wetlands.

Another related question of land use by the private owner came for the consideration of the Andra Pradesh Court in *M.P. Ramababu v. Divisional Forest Officer*⁸⁹. The issue was the impact of fresh water aquaculture on the neighbouring

⁸⁶ A.I.R. 1997 S.C.811. It was a PIL seeking the intervention of the Court with appropriate direction to stop intensive, extensive and semi-intensive aquaculture.

⁸⁷ This report refers to the evils of aquaculture and some of the consideration were
 1. Salination in wells and agricultural farms
 2. Effect in the mangroves
 3. Paddy fields may disappear and they will be turned to fish farms
 4. The sustainable development incorporating the social equity, nutritional security, environmental protection and economic development with holistic approach is absent from the aquaculture practices in the coastal zones.

⁸⁸ NEERI report indicated that due to commercial aquaculture farming there is considerable degradation of the mangrove ecosystem. Agriculture lands and salt farms are being converted to commercial aquaculture farms. Ground water has got contaminated and the highly polluted effluents affect the land mass of the sea coast. Destruction of mangroves reduces the fish stocks and different variety of fishes. Always we could observe similar reports of destruction of these highly sensitive areas in dailies. The increasing need for the lands for the shrimp farms has added magnitude to the land prices also. After the installation of the farms villages near to this treated as highly valuable. This leads to various adverse consequences and the traditional farm lands gets automatically converted to shrimp farms.

⁸⁹ A.I.R. 2002 A.P. 256.

aquaculture and how its ill effects could be regulated⁹⁰. The Court held that, the state in exercise of its power can issue executive directions in relation to which it has legislative competence⁹¹. The Court has made a proper observation and said that if the states have legislative competency to deal with the matters it has the power to issue legislative orders or instructions for prohibiting conversion of agricultural land for any other purpose. The same cannot be said to be bad in law. It also held that such restrictions cannot be said to be violating the right to life under Art.21⁹² of the Constitution of India. Another question before the Court was whether it would amount to deprivation of right to property under Art.300-A of the Constitution. The Court answered that the purposes for which a land can be used would depend on the nature of settlement. Furthermore the owner cannot enjoy his property in the manner he likes or which is injurious to the health or otherwise hazardous. Thus the property right of the person could be limited for the public interest by state through various orders or legislations.

Building of hotels on the beach and catering to the needs of tourism was a contentious issue for a long time. To remedy the issue, Vohra Committee was appointed. It recommended the approach from case to case basis. Some of its recommendations were accepted. But the No Development Zone was not relaxed

⁹⁰ This petition contained three types of petitioners

1. Those claimed free hold rights in their land and they contended that there is no law to restrict the aquaculture operations in their lands
2. Small agriculturists contend that aquaculture in the surrounding lands renders their lands unfit for agriculture
3. The third group is the public interest litigants who demanded prohibition of aquaculture activities leading to pollution in any lands.

⁹¹ See the Constitution of India,1950, Schedule VII, List II, Entries 14,16,17 and 18.

⁹² The reason given by the Court was that no person is entitled to earn the livelihood by violating the provisions of any law.

in the CRZ. But in case of rivers, creeks and back waters it was reduced to 50 meters without assigning any reason⁹³.

It is clear that development is one of the requirements of the community. But with regard to the ecologically sensitive areas it must be designed in a wise and sustainable manner. The impact of CRZ notification on the developmental plans in Mumbai⁹⁴ was questioned in one case. The Court made a case to case approach in these three questions. It was mainly based on the public interest involved in the cases. And in another case involving an issue of license granted by the state for building in the area earmarked as CRZIII⁹⁵. The court found that the Central Government had applied its mind and taken due care in granting license to the resort. The case is significant as it points to the role of Coastal Zone Management Plans prepared by the State Government. There is a need to harmonise the development with the values of ecology and therefore the court found no justification why an environmentally benign project should be thwarted.

In *Citizen and Consumer and Civic Action Group v. Union of India*⁹⁶, the Madras High Court examined the permissions and prohibitions in the CRZ notification. The Chennai Corporation had denied the building permit for a multistoried building on the ground that it was very near to the Adayar river and whether it would come within the CRZ areas. After the study conducted by the authority it could be found that the site was outside the NDZ and it was well outside the CRZ also. The building was proposed to be towards land ward side. The builder had made a gift of open land to the corporation also. Based on the all

⁹³ See the CRZ, 1991.

⁹⁴ *Snehamandal Co-op Housing Society v. Union of India*, A.I.R. 2000 Bom. 121.

⁹⁵ *Goa Foundation v. Diksha Holding Pvt. Ltd.*, A.I.R. 2001 S.C.184.

⁹⁶ A.I.R. 2002 Mad. 298.

the above reports the building permit was granted and the court held that the demolition of construction was outside consideration.

In a celebrated decision *Association for Environment Protection v. State of Kerala*⁹⁷ Singhvi, J. had asked the government to demolish the building (Mazhavil restaurant) which was built in violation of CRZ Notification, 1991. It was built as part of the development project of Manalpuram park situated at Aluva. It is situated near to the river Periyar. The Court discussed the nature and extent of public trust doctrine. The court said,

“The state as a trustee is under a legal duty to protect the natural resources. These resources meant for public use cannot be converted into private ownership. The doctrine does not exactly prohibit the alienation of the property held as a public trust. However, when the state holds a resource that is freely available for the use of the public, it provides for a high degree of judicial scrutiny on any action of the government, no matter how consistent with the existing legislations, that attempts to restrict such free use. To properly scrutinise such actions of the government, the courts must make a distinction between the government’s general obligation to act for the public benefit, and the special, more demanding obligation which it may have as a trustee of certain public resources....⁹⁸”

The High Court was wrong in finding that there was no violation of the order⁹⁹ by the Government. The Supreme Court reversed the order and stated that

⁹⁷ (2013) 7 SCC 226.

⁹⁸ *Id.*, para. 7.

⁹⁹ On 13.1.1978, the Government of Kerala accepted the recommendations made by the State Committee on Environmental Planning and Coordination and issued an order, which was published in Official Gazette dated 7.2.1978 for review and assessment of environmental implications of various projects.

the construction of the restaurant was in clear violation of the existing order regarding this matter and the construction should be demolished. It is reported that intensity of erosion has increased rapidly in recent past and about 20 m beach has lost in last 2 years.¹⁰⁰

iv) Protection of Fisheries

Recognizing the importance of coastal wetlands and the country's reliance on these natural resources, several regulations and notifications have been promulgated by the Central and state governments¹⁰¹. General standards for discharge of wastewaters in marine coastal areas,1993 and notifications declaring certain coastal areas as a marine sanctuary or marine national park also add to this. Notification declaring coastal stretches as coastal regulatory zone and regulating the activities in the coastal regulatory zone and its subsequent amendments and Environment Impact Assessment Notification, 1994 protects the fisheries resources of coast. During the 1970s invasion into the traditional fisherman's rights took place due to mechanization of fishing industry. It was in this backdrop that the scope and possibility to safeguard the interest of traditional fishermen were recognized by the meeting of the Central Board of Fisheries in 1976. It tried to delimit the fishing areas. A model Marine Fisheries Regulations Bill was given to the coastal states. Based on this various state governments have enacted laws¹⁰² for regulation and protection of fisheries.

¹⁰⁰ A combination of beach nourishment and an offshore submerged dyke to reduce the wave energy incident on the beach can protect the natural beach front. It helps in the growth and the nourishment of beach. Therefore sand is prevented from being washed away at the time of rough weather or cyclone passage.

¹⁰¹ See the Indian Ports Act, 1963, the Wildlife (Protection) Act, 1972, the Water(Prevention and Control of Pollution) Act, 1974 and the Environment (Protection) Act,1986.

¹⁰² See the Kerala Marine Fishing Regulation Act,1980, the Goa Marine Fishing Regulation Act, 1980,the Maharashtra Marine Fishing Regulation Act 1981, the Orissa Marine Fishing Regulation Act, 1981,the Tamil Nadu Marine Fishing Regulation Rules ,1983,the Karnataka Marine FistJog Regulation Act, 1986, the Andhra Pradesh Marine Fishing Regulation Act,

Need for Integrated Coastal Zone Management

Analysis of the problems and laws relating to the coastal zone reveals that what is necessary to conserve, protect and improve the coastal wetland is an integrated approach. This should take into consideration various issues regarding conservation and permissible exploitation of resources for the community who depends only on these resources for their survival. There should be clear answer to the question why regulated development of the coast? There are many answers to this single question. It is for protection of fishery, for protection of coastal ecosystems, for protection of life and property, to maintain the scenic beauty of coast, to encourage sustainable tourism and to ensure public access to beach and equitable sharing of benefits of coastal zone. M.S.Swaminathan Committee¹⁰³ appointed to create a national coastal zone management action plan suggested that in order to attain a sustained development of coast nation has to protect with people's participation the livelihood security of the coastal fishers and others. The action plan should also protect life and property. It has to protect the ecosystems which sustain productivity of the coastal areas and promote sustainable development that contribute to nation's economy and prosperity¹⁰⁴. Thus the national coastal zone management policy should encompass within it issues due to resource overuse, degradation of ecosystems, conflicts among stakeholders, coastal hazards, livelihood security and sustainable development¹⁰⁵.

1994, the Gujarat Fisheries Act, 2003, the Andaman and Nicobar Marine Fishing Regulation Act, 2003 and the Lakshadweep Marine Fishing Regulation—Rules, 2004 are examples.

¹⁰³ See the report of M.S. Swaminathan in http://www.iczmpwb.org/main/pdf/ebooks/swaminathan_Report.pdf visited on 08-10-2014.

¹⁰⁴ *Id.*, p. 28.

¹⁰⁵ “Managing ASEAN’s Coastal Resources for Sustainable Development: Roles of Policymakers, Scientists, Donors, Media and Communities”, ICLARM Conference Proceedings, Manila, ICLARM(1991).

If the coastal wetlands are to remain productive, the management should be holistic and comprehensive. Integrated coastal zone management is a planning and coordinating process¹⁰⁶. It deals with development and management of coastal resources and focused on land and water interface. One of such approach can be seen in the Coastal Zone Management Act, 1972¹⁰⁷ in U.S. It declares to preserve, protect, develop and where possible to restore and enhance resources of the nation coastal zone for the present and succeeding generations and envisages programmes for the wise use of lands and resources. It considers ecological, cultural, historic and esthetic values as well as the needs of economic development. Thus the legislation is impregnated with the ideas of sustainable development.

The process of Integrated Coastal Zone Management provides opportunity to allow policy orientation. It helps in development of management strategies to address the issue of resource use conflicts. It tries to address human impact on environment¹⁰⁸. It also provides institutional and legal framework and focuses on environmental planning and management. Various agencies involved in this area are coordinated to work together towards a common objective. Sectoral planning and management is still essential. But the most important is their co ordination.

It is very difficult to manage a single resource alone as all these resources are linked together. To ensure best and sustained use integrated approach is highly necessary. It incorporates modern principles in planning and resource

¹⁰⁶ Biliana Cicin-Sain and Robert W. Knecht, *Integrated Coastal and Ocean Management- Concepts and Practices*, Island Press, Centre for Resource Economics, Washington (1998), p.17.

¹⁰⁷ See the land use regulations of coastal area under the CZMA, 1972 (U.S.) in, http://coast.noaa.gov/czm/media/CZMA_10_11_06.pdf visited on 28-08-2012.

¹⁰⁸ See the Integrated Coastal Zone Management in, [http://www.marbef.org/wiki/The_Integrated_Approach_to_Coastal_Zone_Management_\(ICZM\)](http://www.marbef.org/wiki/The_Integrated_Approach_to_Coastal_Zone_Management_(ICZM)) visited on 29-08-2012.

management¹⁰⁹. Full involvement of various stakeholders and various government departments should be there. Moreover the gravity of the problem faced by coast suggest for integrated approach.

This integrated approach and mechanism could help to overcome previous constraints and avoid the mistakes that are currently being faced. However it must be remembered that planning strategies are designed to be long term proactive approaches¹¹⁰. Their ability to respond rapidly to the problems that may come in is also important.

The desirable principles of Integrated Coastal Zone Management are a long term view, a broad holistic approach and adaptive management, working with natural processes, support and involvement of all. Use of a combination of instruments and participatory planning¹¹¹ are good approach. The objectives shall be to strengthen sectoral management by improving training, legislation and staffing. Another objective is to preserve the biological diversity of the coastal ecosystems by preventing habitat destruction, pollution and over exploitation. It has to promote the rational development and sustainable use of coastal resources¹¹².

All key institutions which is involved in the management of coastal issues have adopted this concept. Now all the nations are trying to reach towards this mainstream. It requires long term consensus process to discern the methods necessary for attaining sustainable development. Locally acceptable

¹⁰⁹ Cicin and B. Sain, "Sustainable Development and Integrated Coastal Management", 21*Journal of Ocean and Coastal Management*(1993), pp. 11-44.

¹¹⁰ The Coastal Zone Action Plan, "Improving the State of the Coastal Areas", Paper presented in Coastal zone Asia Pacific conference, Bangkok, Thailand, , Thailand Coastal Development Institute(2002).

¹¹¹ J.R. Clark, *Coastal Zone Management Handbook.*, CRC Lewis Publishers. New York (1996), p.465.

¹¹² B. Cicin-Sain and R.W. Knecht, *Integrated Coastal Zone and Ocean Management Concepts and Practices*, Island Press, Washington DC (1998).

implementable planning is a must¹¹³. Thus it involves mainly five stages in implementation. They are issue identification, programme preparation, implementation, formal adoption and funding and evaluation.

Role of Legislations in ICZM

Laws can play different functions. The most familiar role played by law is command and control. It commands people to do and refrain from doing and also puts controlling measures¹¹⁴. It also constitutes and structures societies and institutions. Law can also play very important role in changing the attitude and conduct of members of the society.

There are certain principles which can help the nation in shaping ICM legislation. It is important not to overlook potentially useful legal principles that existed previously or unwritten customary law. Legal system of the country should recognize that coastal areas to have a special status. It is typical form of common public property. This means coastal wetlands or areas connected to it cannot be sold. General public has a right to use this area for certain purposes e.g. for fishing and recreation. Also has a limited right to traverse adjacent private property to gain access to or to move along the sea shore. Reasserting the public character of the coastal areas in legally enforceable form is often the cornerstone of ICM initiatives. This provides the rationale for introducing variety of other important legal mechanisms to support. It provides justification for common good over private interest, conservation for future generation, using the funds generated from coast to protect and enhance the coast as a public asset. This principle can be regarded as the application of idea that natural resources should be rationally utilized.

¹¹³ J.R. Clark, "Integrated Management of Coastal Zones", FAO Fisheries Technical Paper No. 327. Rome, FAO (1992), P. 162.

¹¹⁴ W. Salmons and S. Ramachandran, "Perspectives on Integrated Coastal Zone Management", 12 *Environmental Science* (1999), pp.57-65.

Most crucial aspect of all efforts in integrated coastal approach is need for good communications among the participating agencies and the public¹¹⁵. Consensus building, information transfer and public education are therefore important ingredients for the success of any coastal zone programme.

¹¹⁵ R.R.Krishnamurty, Bruce C. Glavovic, and Andrews Kannen, “*Integrated Coastal Zone Management*”, Research Publishing Services, Singapore (2008).

COASTAL ZONES: PORTS AND HARBOURS

India has a long coastline and is a major maritime nation. Ports and natural harbours are necessary for maritime trade and commerce. Port and harbours are surrounded wetlands that provide tranquil conditions¹. These coastal lands nurture various flora and fauna. Globalisation, competition and technological development increased world trade activities. Due to this ports and harbours are facing various environmental problems. Because of this wetlands near to the port are facing severe threats of destruction.

Development of trade and commerce requires environmental friendly port facilities. But how can this be achieved without compromising the wetlands and allied ecosystems is a major problem faced by the authorities. If construction of new ports or developmental activities in port takes place, this affects the most important sandy beaches surrounding the port. Beaches are peculiar ecosystems which is vulnerable to many pressures due to development. Due to construction activities beach erosion will take place at higher level. Anything built on the beach to protect the coast, stops the movement of sand which occurs through natural process and destroys the beach. Winds and waves in this place play the role of brining sand to the beach and removing. This recharges the ground water. This ecosystem service is completely lost and ground water becomes deteriorated in quality. This leads to destruction of fragile flora and fauna in coastal area².

¹ Clarence Maloney, “The Beginnings of Civilization in South India”, 29 *Journal of Asian Studies* (1970), pp. 603-616.

² Jeremy Firestone and James Corbett, “Maritime Transportation: A Third Way for Port and Environmental Security”, 9 *Widener Law Symposium Journal* (2003), p.423.

Another major threat evolving from the port development is pollution. Pollution of ports and harbours occurs due to different factors. Port activities such as ship based operations, ship building, repairing, cargo handling, loading and unloading of noxious and hazardous substances near port and sometimes their storage leads to port pollution. Ship recycling activities are another threat. Oil pollution from ships, activities such as cleaning, bunkering, sewage disposal and ballast water disposal leads to pollution of ocean. All these cumulatively affect the rocky areas, sandy beaches, coral reefs, mangroves, estuaries, lakes and lagoons near the ports and harbours.

Pollution in one place affects the entire ocean current. World community was aware of this danger. Maritime nations have jointly carved out various restrictions and conservation measures regarding the use of port and harbours as well as the ship related activities³. India is signatory to many of them. Apart from this, there is plethora of Indian legislations to protect marine wetlands environment⁴. Still the pollution is increasing and it devastates the ecology of coastal wetlands. It is highly necessary to adopt a sustained port management to conserve and preserve the sensitive ecosystems associated with the coastal zones. Analysis of various legislations for port management and maintenance of clean environment in port is necessary in this context. Along with this the present status of its implementation also need study. It is necessary to rationalize the measures for adoption of sustainable development of trade without destroying the resource base.

³ CBD, *Global Biodiversity Outlook 3*, Secretariat of the Convention on Biological Diversity, Montréal (2010). See also A.D. Rogers and D.Laffoley, “International Earth System Expert Workshop on Ocean Stresses and Impacts”, Summary Report, IPSO, Oxford(2011), p.18.

⁴ The Environment (Protection) Act, 1986, the Water(Prevention and Control of Pollution) Act, 1974, the Air Act, 1981, and the Biodiversity Act,2002.

Overview of Indian Ports and Harbours

The Indian Port sector is broadly divided into two categories, major and minor. There are 13 major ports and 189 minor ports in India. Major ports come under the Ministry of Shipping. Major ports require environmental clearance from the Ministry of Environment and Forests. These are governed by the Major Ports Trust Act, 1963⁵. These Port Trusts are administered by a Board of Trustees⁶. The minor ports are governed by the Indian Ports Act, 1908 and come under the jurisdiction of different state governments⁷.

Sea trade in India shows an intensive increase through years⁸. Shipping ministry is processing various programmes for the port development. These include Sagar Mala⁹ a project which envisaged the setting up of new ports along the coastline¹⁰. In 2005, the national maritime development programme¹¹ was formulated by the ministry of shipping¹². But later a new plan was announced to

⁵ The Indian Constitution, 1950, Schedule VII, List I.

⁶ The representation comprises members from government, labour and industry. The Chairman of the Board is usually a member of the Indian Administrative Service. All the minor ports do not function throughout the year.

⁷ The Constitution of India, 1950, Schedule VII, List III.

⁸ Seas trade intensity of India's GDP is reportedly below 30%. Maritime transport accounts for 90% by volume and 70% by value of the country's international trade. The total volume of traffic handled by all the Indian Ports during 2009-10 was 849.9 million tones. The growth in cargo handled at Major and minor Ports have shown an increase.

⁹ "Sagar Mala" is a strategic, customer oriented initiative of the Government of India to evolve a model of port led development whereby India's long coastline will become the gateway of India's prosperity. It envisages transforming the existing Ports into modern world class Ports on the one hand and developing new world class Ports, based on the requirement, on the other hand. Sagar Mala aims to develop Ports, hinterland and efficient evacuation systems through road, rail, inland and coastal waterways resulting in ports becoming the drivers of economic activity in coastal areas.

¹⁰ P. Manoj, "The Sagar Mala Project", 27 *Frontline* (August 2012).

¹¹ Herein after referred to as NMDP.

¹² The National Maritime Development Programme formulated Sethusamudram Ship Channel Project.

replace the National Maritime Development Programme¹³. This new plan is still under implementation¹⁴.

Ecological Sensitivity of Ports and Harbours

Major wetlands near port and harbours are mangroves, mudflats, salt marshes, coral reefs, sea grass beds and lagoons. These are highly productive. They support extensive fisheries and associated livelihoods. Among this, commercially important fin fish, shellfish, corals, larger reptiles and mammals have been found¹⁵. These ecosystems act as nesting ground for migratory birds. Many ports are located in or near creeks which may have environmental location near turtle nesting sites, leading to creek diversion or closure. It may also have social issues of proximity to fishing hamlets and fishing grounds¹⁶. Physical alteration and destruction of habitats, especially of mangroves and mudflats, is a major threat to biodiversity¹⁷ rich coastal wetlands.

Major Threats to Costal Ecosystems from Port

i) Break Waters and Dredging

Port has a natural harbour. But the preference for larger ships has resulted in the extension of the harbour seawards by building requisite protective structures like breakwaters¹⁸. These structures are often built without full understanding of the long shore current patterns. This has resulted in changes in the adjacent

¹³ The Ministry of Shipping, *Maritime Agenda 2010-2020*, Government of India (2011).

¹⁴ *Ibid.*

¹⁵ See for ecological sensitivity of ports and harbours, http://drs.nio.org/drs/bitstream/2264/350/1/Curr_Sci_91_530.pdf accessed on 01-07-2015.

¹⁶ See the Marine and Coastal Biodiversity in <http://www.cbd.int/idb/2012/?ttl1#ttl1> accessed 1-08-2012.

¹⁷ P.Chandramohan , B.K. Jena. and V. S. Kumar, "Littoral Drift Sources and Sinks Along the Indian Coast", 81 *Curr. Sci.* (2001), pp. 292–297.

¹⁸ See the UNEP Global Environment Outlook GEO-4 in [http://www.unep.org/geo/geo4/media/\(2007\).](http://www.unep.org/geo/geo4/media/(2007).)

shoreline through erosion. Simultaneously, the water spread of ports as well as their increased depths has enabled ships of larger capacity to berth. This means that dredging to maintain channel depths is an absolute necessity. Capital dredging and maintenance dredging is carried out to ensure the requisite depth of port and harbours. This requires the removal of large quantities of sediment and relocating them. These sediments are used to reclaim land which could be used for port activities. These activities interfere with the long-shore littoral drift¹⁹. The main impact of the port development on the physical environment of the coast is accumulation on the up drift side of the long shore drift but more importantly, erosion of the down-drift side of the coast²⁰. The impact is most prominent and severe on coastlines having high rate of long-shore sediment transport²¹. Two major sources of impacts of port development in the marine environment specifically related to the littoral zone and littoral transport²² are due to breakwaters and related coastal structures and dredging. Activities in ports take place on both the landward side and in the water area. Breakwaters, groynes and other coastal structures are constructed in the offshore area to create serene conditions²³.

ii) Removal of Sand for Construction Activities

Sand is extensively used in the construction industry. It may be mined from river beds, resulting in reduction in sand quantities reaching the river mouth and promoting erosion. Mining sand also can promote saline intrusion into

¹⁹ See “The Top-10 Port Environmental Issues”, ESPO Survey (2004).

²⁰ B. K. Jena, *Studies on Littoral Drift Sources and Sinks Along the Indian Coast*, Ph D thesis, Berhampur University, 1997, p. 204.

²¹ P. Chandramohan, *Longshore Sediment Transport Model with Particular Reference to Indian Coast*, Ph.D thesis, IIT Madras(1988), p. 210.

²² B.Sylte, T. McGuire and D. Calkins, *Environmental Impacts of International Shipping: A Case Study of the Ports of Los Angeles and Long Beach*, OECD, Paris (2010).

²³ OSPAR Commission, Assessment of the Impact of Coastal Defense Structures (2009).

freshwater aquifers. Beach sand is also mined for minerals²⁴, leaving large wastelands, polluted shores and eroded beaches. Illegal beach sand mining is mainly for supply to the construction industry. There have been shoreline changes in the form of erosion that have had serious implication on livelihoods and settlements as well as mangrove cover and mudflats²⁵.

iii) Wastes from Port

Wastes may be generated due to ship-related factors, cargo-related factors and land transport activities. It may also come from shrimp or prone cultivation. Dumping of waste at sea is another cause of pollution of port and harbours. It covers deliberate disposal of waste or other matters from vessels, ports, harbours, platforms or other manmade structures at sea. The increase in shipping activities at port add higher concentration of sewage to the harbour and shipping routes²⁶. This sewage input changes the ecosystems of coastal area. This increases the nutrient concentration of the outfall area. This may destruct the particular ecosystem²⁷.

iv) Bunkering

Bunkering is defined as the action or process of supplying a ship with fuel. This operation is also known as refueling. This is a very normal activity taking place in ports and can cause oil spills over there. This kind of pollution and its fate and distribution can create potential harmful effects on the environment such as water quality and sediments quality. It can also affect health of both human and wildlife

²⁴ J.Corbett, “Managing the Environmental Impacts of Globalisation on Transport, Environmental Impacts of Ocean Shipping”, OECD, Paris (2006).

²⁵ N.Bray (ed.), “Environmental Aspects of Dredging”, Taylor and Francis, London (2008).

²⁶ See the Global Program of Action for the Protection of the Marine Environment from Land Based Activities. See www.gpa.unep.org visited on 20-07-2014.

²⁷ EC Regulation on Shipment of Waste, the European Parliament and of the Council (14th June 2006).

fisheries and recreational pursuits²⁸. The persistent toxic constituents of fuel²⁹, such as heavy metals, can become stored in the sediments and taken up into the food chain affecting the whole ecosystem.

v) **Ship Scraping and Recycling**

The death of ship leaves no option to owner but to dispose it through recycling. This industry poses another threat to marine ecosystem. Due to this large amount of non degradable wastes are disposed into the sea. This pollutes the marine environment. Ship scrapping is hazardous. But recycling is considered as the basic principle of sustainable development³⁰. Majority of these industries are located near the coastal areas and thus add momentum to pollution. The polluting materials disposed by this industry are materials like iron, copper, steel and plastics. Ships also contain other hazardous wastes such as lead, cadmium, arsenic, zinc, chromium, sealants, various types of asbestos and several thousand litters of oil. These are all categorised as hazardous waste under the Basal Convention, 1989. These industries are increasing alarmingly in Indian coastal areas. Thus the ministry has given special emphasis to ship recycling industries in the proposed maritime policy. Asia's largest ship breaking industry is located in Sourashtra region of Gujarat. According to Gujarat Maritime Board a total of 415 ships were dismantled at the Alang facility. A lot of guidelines under the Hong Kong Convention, guide the ship recycling industries³¹.

²⁸ J.Corbett, and V. Eyring, *Comparing Fuel Consumption, CO2 and other Emissions from International Shipping and Aircraft: A Summary of Recent Research Findings*, Institute of Atmospheric Physics, Oberpfaffenhofen, Germany (2007).

²⁹ ENTEC Service Contract on Ship Emissions: Assignment, Abatement and Market-based Instruments, Final Report for the European Commission(2005).

³⁰ The Calculation of Recycling Capacity for Meeting the Entry into Force Requirements of the Hong Kong Convention, IMO Document MEPC 62/INF.13.

³¹ Dr Nikos Mikelis, "Ship Recycling – Will The Burden Be Shared Equitably?", Paper presented in the Trade winds Ship Recycling Forum , Singapore(12 and 13 March 2012).

vi) Socio- Economic Impacts of Ports

Ports also cause high socio-economic impacts. On the top displacement of the local population³² i.e. displacement of fishers living on common property without proper land rights or subsistence and agriculturists takes place³³. They may be moved to inland and may lose their lands or access to the sea. Restriction of access to fishing boats inside a port area and ship traffic are some important problems. Losses of beaches occur due to positioning of breakwaters. That results in shoreline erosion. Seawalls and groynes placed to protect the shoreline may result in restriction of access to beaches³⁴. Many ports also promise provision of a fishing harbour. This can result in traditional craft having to compete with trawlers and mechanized vessels. The preferred location of ports is creeks and estuary mouths³⁵. They are often located near important fish breeding areas.

vii) Ballast Water Pollution

Ballast water system helps in the safe operation of ships³⁶. The ballast water discharge after the voyage of the ship creates negative impact up on marine

³² “Coastal Population and Shoreline Degradation” See http://grida.no/graphicslib/detail/coastal-population-and-altered-coastal-zones_d9f0# accessed 20 July 2012.

³³ M.Wackernagel, “Ecological Footprint and Appropriated Carrying Capacity: A Tool for Planning Towards Sustainability”, Ph.D. Thesis, School of Community and Regional Planning, The University of British Columbia. Vancouver, Canada(1994).

³⁴ International Chamber of Shipping, *Shipping and the Environment – A Code of Practice*, International Chamber of Shipping, London (2008).

³⁵ L. Mee, “Between the Devil and the Deep Blue Sea: The Coastal Zone in an Era of Globalisation. Estuarine”, 96 *Coastal and Shelf Science* (2012), pp.1-8.

³⁶ Loading and discharging of ballast water is fundamental to maintaining safe operation under different conditions of load. This system allows a ship to pump water in and out of very large tanks to compensate for a change in cargo load, shallow draft conditions or weather. This allows the ship to carry light and heavy load while maintaining ideal buoyancy and handling conditions in all situations. Physical components of the system includes raw water intakes, large and small strainers, pumps, distribution pipes, ballast water tanks, treatment system, discharge system and all the valves, sensors and controls to run the equipments.

environment. It affects the existence of living things in the coastal wetlands³⁷. However large vessels require large tons of ballast water and discharge of this can damage the whole marine environment of the area of discharge. Thus effective management of ballast water is very important. In 1991 the International Maritime Organisation³⁸'s marine environment protection committee³⁹ made the 'frame work regulations' resolution was also adopted⁴⁰. Generally the aim of all parties subject to ballast water convention is "to prevent, minimize and ultimately eliminate the transfer of harmful aquatic organisms and pathogens through the control and management of ships ballast water and sediments"⁴¹. All vessels must have an approved plan for managing ballast water. It must specify the description of actions to be taken to comply with the ballast convention. Vessel owners and crews have a duty to protect and preserve the marine environment from pollution and port authority has control over all these activities.

viii) Sewage Disposal from the Ships

Sewage from ships include drainage and other waste from any form of toilets, w c scuppers, drainage from medical premises, such as dispensary, sick bays, via wash basins, wash tubs and scuppers located in such premises, drainage from spaces containing living animals or other waste waters when mixed with drainages⁴².

³⁷ This discharge typically contains a variety of biological materials including plants, animals, viruses and bacteria. These materials often include non-native, exotic species that can cause extensive ecological and economic damage to aquatic ecosystem.

³⁸ Hereinafter referred as IMO.

³⁹ Hereinafter referred as MEPC.

⁴⁰ The resolution known as A.868(20). These are "guidelines for the control and management of ships ballast water to minimize the transfer of harmful aquatic organisms and pathogens". Finally the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 was adopted by IMO.

⁴¹ *Ibid.*

⁴² MARPOL 73/78, annex IV Reg.1(3).

These sewages disposed in port area contaminate the port. It contains harmful bacteria, pathogens, viruses, intestinal parasites and harmful nutrients. If these are disposed of without treatment it can affect fisheries, shell fish beds and produce risk to public health. It may also lead to algal blooms which reduce the oxygen content in water and kill fishes and destructs other aquatic life⁴³.

To control the environmental impacts caused by sewage from ships MARPOL IV was brought into force in 2003. It strictly limited untreated waste discharge. Modern cruise ships are most commonly installed with a membrane bio reactor type treatment plant for all black water and grey water. It produces near drinkable quality effluent to be reused in the machinery spaces as technical water. So the government of each state should undertake the required steps to provide reception facilities for the discharge of sewage from ships at its ports and terminals to meet the needs of ship.

ix) Pollution by Garbage from Ships

Garbage form ships can be deadly to marine life as oil or chemicals. MARPOL prohibits any disposal of garbage into the sea including all plastics, synthetic ropes, synthetic fishing nets and plastic garbage bags. These types of garbage are mostly non bio degradable substances⁴⁴. It can cause suffocation and drowning to marine life and resources. Greatest danger comes from plastics and it can float for years. Each state should take proper care in implementing the norms and punishing the violators.⁴⁵ Ship oil spills of different types causes special environmental damage.

⁴³ Ocean Conservancy, “Cruise Control, A Report on How Cruise Ships Affect the Marine Environment” (2002), p.13.

⁴⁴ Seba B. Sheavly, “Marine Debris- an Overview of a Critical Issue for Our Oceans”, Sixth Meeting of the UN Open Ended Informal Consultative Process on Oceans and Law of the Sea (2005).

⁴⁵ B. B. Ghose, P.Ray and Gopalakrishnan, “Survey and Characterization of Waste Waters Discharged into the Hooghly Estuary”, *J. Inland Fisheries Soc.*, India (1973), p 82-101.

x) Air Pollution from Ports

Increased traffic at the ports gives rise to increase in the chain of related activities. Shipping activities such as towing, mooring, berthing, piloting, marine survey and sea patrolling involves use of harbour crafts such as tug boats and launches; bunkering and trans- shipment or lighterage operations. In addition, cargo handling, vehicular traffic, movement of cargo to and from ports through heavy duty trucks and rails, deployment of dredgers to deepen the drafts⁴⁶ also result in environmental pollution the ports in the form of air emission. The World Ports Climate Initiative⁴⁷ initiated by the International Association of Ports and Harbours⁴⁸ with the objective of reducing greenhouse gas emissions developed a GHG⁴⁹ emissions inventory. They have developed a collaborative approach towards collecting information, estimating emissions and developing plans to reduce the footprint of port operations.

IMO convened a Convention to Control Air Pollution⁵⁰ by ships consideration of the growing concern toward air pollution triggered by marine industry⁵¹.

xi) Oil Pollution from Ships and Port

Substantial amount of oil is discharged into port waters during tank washings. Washing of ships cargo tank before going for next loading also creates the problem of oil mixing. This washing is done to avoid sludge formation. The

⁴⁶ V.A. Kulkarni, V.S. Naidu and T.G. Jagtap. "Marine Ecological Habitat. A Case Study On Projected Thermal Power Plant Around Dharmantar Creek, India", 32 *J. Environ. Biol.* (2011).

⁴⁷ Hereinafter called as WPCI.

⁴⁸ Hereinafter called as IAPH.

⁴⁹ Green House Gases.

⁵⁰ MARPOL73/78 Annex VI.

⁵¹ MARPOL73/78 Annex VI recommends control of -(i) SOx and PM emission through fuel oil and combustion equipments. It also defines the Emission Control Areas (ECA) and specifies the sulphur content of fuel oil to be used inside and outside the area. Sample of the fuel oil is required to be maintained on board the ship to know the fuel quality.

un- authorized discharge of this dirty water into the ports may cause serious environmental pollution.

Engine residues may also cause serious damage to the port environment. Emptying of bilge⁵² water is a routine process. Oil from machine spaces and usual leakages gets mixed up with the bilge water. The bilge water of oil tankers is typically contaminated with oil that leaks out of the cargo tanks.

The release of fuel oil during bunkering may pollute the ports. Bunkering is identified as a crucial operation under the International Safety Management Code⁵³. Bunker fuel commonly escapes through the air outlets of the bunker, tanks breaches, the save-all's and plugged scuppers. With the adoption and entry into force of the International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001⁵⁴, the ship owners will have to face even more stringent regulations fixing their liability compensation against oil spills during bunkering operations. Cargo spills occur during routine operations in ports, especially when loading and unloading. Handling of hazardous noxious substances imposes due diligence and strict liability⁵⁵.

⁵² Merriam Webster Dictionary defines bilge as “that part of the underwater body of a ship between the flat of the bottom and the vertical topsides.”

⁵³ The International Convention for the Safety of Life at Sea, 1974 (SOLAS), Annex, ch. IX, herein after to be referred to as the ISM Code.

⁵⁴ The International Convention on Civil Liability for Bunker Oil Pollution Damage, 2001 was adopted by IMO following a diplomatic conference held in March 2001. The Convention establishes a liability and compensation regime for spills of bunker oil. Ships over 1,000 gross tonnage registered in a State Party to the Convention will be required to carry on board a certificate certifying that the ship has insurance or other financial security, such as the guarantee of a bank or similar financial institution, to cover the liability of the registered owner for pollution damage to an amount equal to the limits of liability under the applicable national or international limitation regime. In all cases, this amount should not exceed an amount calculated in accordance with the Convention on Limitation of Liability for Maritime Claims, 1976, as amended, i.e. 1996 LLMC Protocol.

⁵⁵ Accidental Water Pollution (Cedre) on HNS transportation accidents and the risks of chemical spills at sea for the period 1910-2009, Report of the (France) Centre of Documentation Research and Experimentation, See, <http://docs.imo.org/download.aspx?did=66722>, last accessed in November 2013.

The ports and harbours in India face so many threats as stated above. They are under the control of various legal mechanisms. No operation can be conducted without some damage to the environment. But the dilemma is how far the concept of sustainable development can be brought in through legislations.

Measures for Sustainable Development of Maritime Ports: India

Post liberalisation opened the economy and trade became more flexible. Competition among ports and technological changes also added momentum to this situation. Moreover, Indian ports clearly are not yet ready for this changing environment in all sense. Therefore the government felt the urgent need to restructure the port environment to compete globally. This change is highly necessary to improve, conserve and preserve the coastal wetlands.

A major promotional initiative of the Ministry is the National Maritime Development Programme to develop the maritime sector. The policy lists measures for enhancing private investment, improving service quality and promoting competitiveness to meet medium- and long-term objectives. With this objective, the department of shipping has finalised the list of projects to be taken up in major ports under the National Maritime Development Programme up to 2012. The National Maritime Agenda 2010-20 and the Draft Port Regulatory Authority Bill, 2011 are two distinguished regulatory and policy initiatives to ensure the holistic development of the Indian port sector. All ports in India are undergoing massive expansion and development programmes and this brings in more revenue but results in drastic pollution effects. Port development and conservation of coastal wetlands should go hand in hand. Both must build a symbiotic relationship⁵⁶.

⁵⁶ Edith Brown Weiss, John Howard Jackson and Nathalie Bernasconi-Osterwalder, *Reconciling Environment and Trade*, Transnational Publishers, New York (2001).

Therefore, the new maritime policy⁵⁷ of India aims for sustainable development of ports. India has announced “green ports” mission by 2020⁵⁸. It incorporates within it emission control areas, particularly sensitive areas, complete prohibition of ship sourced waste discharge in territorial sea, better ballast water treatment, port biological base line and risk assessment. It also promotes best ship building technologies. The agenda envisages a cumulative implementation through three phases. The Draft Port Regulatory Authority Bill, 2011, provides for the establishment of a regulatory authority to regulate rates for facilities and services provided at the ports and to monitor the performance standards of port facilities and services⁵⁹. The regulatory authority will be tasked with the job of framing guidelines for port authorities and private operators in various operations of port. Further, the authority will also lay down performance norms and quality standards to be met by port authorities and private operators, besides monitoring their performance.

Judiciary is also active in implementing sustainable development in port activities while interpreting various issues associated with port. In *Research Foundation for Science and Technology and National Resources Policy v. Union of India*⁶⁰. The Supreme Court had made recommendations to deal with ship recycling. The issue was related to the recycling of a French warship named "Blue Lady" at Alang, Gujarat. At the time of phase out it contains 130tonnes of asbestos and other toxic wastes. The vessel was not in compliance with the Basel Convention. Ship was denied entry into many ports of other countries. The vessel left for braking in 2003 towards India. The Supreme Court ordered not to enter

⁵⁷ Rahul Roy Chaudhury, *India's Maritime Security*, IDSA and Knowledge World (2000).

⁵⁸ Ministry of Shipping, Government of India, Maritime Agenda 2010-20(2011).

⁵⁹ Port of Visakhapatnam is accredited with ISO Certification (ISO 14001) by the Indian Register of Quality Systems for the Environmental Management System standards in all its activities including related support services.

⁶⁰ (2007)8 S.C.C. 853.

into the port without submitting the recycling plan. The Court mentioned the need of precautionary principle. The Court while pronouncing the judgment said that there should be a balance between environment and development. The concept of balance under the principle of proportionality applicable in the case of sustainable development is lucidly explained by Pasayat, J. in *T.N. Godavarman Thirumalpad v. Union of India*. It states

"It cannot be disputed that no development is possible without some adverse effect on the ecology and environment, and the projects of public utility cannot be abandoned and it is necessary to adjust the interest of the people as well as the necessity to maintain the environment. A balance has to be struck between the two interests. Where the commercial venture or enterprise would bring in results which are far more useful for the people, difficulty of a small number of people has to be bypassed. The comparative hardships have to be balanced and the convenience and benefit to a larger section of the people has to get primacy over comparatively lesser hardship."

This indicates that while applying the concept of "sustainable development" one has to keep in mind the "principle of proportionality". It is an exercise in which one has to balance the priorities of development on one hand and environmental protection on the other hand.

In *Research Foundation for Science and Natural Resources Policy v. Union of India* court examined, whether the ship breaking industry located at Alang, Gujrath had technological sophistication for safe ship dismantling. High level expert committee was appointed by the apex court reported that the industry does not comply with norms. Thus sustainable development of port cannot take place by operating such industry. However, the Court has held that the activity needs to be strictly and properly regulated.

i) Sustainable Development through International Conventions

Before 1960, there was little concern with pollution of the sea⁶¹. All major international conventions on protection and pollution control arose after tanker accidents. The sinking of the *Titanic* in 1912 resulted in taking up of the first Safety of Life at Sea Convention, 1914⁶². The Intervention Convention, 1969 was enacted due to the *Torrey Canyon*⁶³ casualty. The Civil Liability Convention, 1969, the Fund Convention, 1971 and the 1969 and amendments to OILPOL 54 came in the wake of various such incidents⁶⁴.

The MARPOL 73/78 was another major attempt in this field. The object of this convention was to achieve the complete elimination of international pollution of marine environment by oil and other harmful substances and minimization of accidental discharge of such substances⁶⁵. The convention concentrates on a particular source of pollution with extensive regulations on ship reporting systems and requirements, including guidelines for reporting incidents involving discharge of oil, dangerous goods, harmful substances and marine pollutants. Annex 1 deal with the regulation of prevention of pollution by oil. It contains measures to be taken in such instances. This applies to ships including oil tankers⁶⁶. Providing reception facilities is the duty of contracting states. They should have capacities at all ports, terminals, repair ports, oil loading terminals and all ports that handle

⁶¹ R.R.Churchill and A.V.Lowe, *the Law of the Sea*, Manchester University Press, U.K. (1999), p. 328.

⁶² SOLAS Convention. This convention even though adopted in 1914, entered into force only in 1929 due to the First World War.

⁶³ J. Edward Cowan, "Oil and Water: The Torrey Canyon Disaster", *55 American Bar Association Journal* (1969), p. 1067.

⁶⁴ International Maritime Organisation, "International Convention on Civil Liability for Oil Pollution Damage, 1969", available in www.imo.org/Conventions/contents.asp?doc_id=660&topic_id=256 accessed on 12-04-2010.

⁶⁵ MARPOL 73, Preamble, para. 4.

⁶⁶ *Id.*, Annex 1 regulation 2.

ships⁶⁷. The relevant vessel should have segregated ballast tanks, dedicated clean ballast tanks and crude oil washing requirements. It also contains provision to regulate sewage from ships⁶⁸. The Convention defines sewage, and mention conditions for disposal of sewage into sea. During the voyage ship is required to be fitted with a sewage plant that meets operational needs as determined by IMO standards⁶⁹. It also provides provisions relating to the garbage disposal in the regulation⁷⁰. The term garbage⁷¹ is defined in the regulation. The convention prohibits disposal of garbage into the sea including all plastics, synthetic ropes, synthetic fishing nets, and plastic garbage bags. The convention makes it an offence for a ship to discharge any oil or oily substances, any harmful or noxious substances or effluents containing such substances in violation of the provisions contained therein. The discharge of ballast waters, tank washings and residues, sewage and garbage within the prescribed areas are offences under MARPOL. In addition failure to report any discharge, failure to carry on board International Oil Pollution Prevention Certificate and ship board oil pollution emergency plan are violations under the convention. Each contracting state is given responsibility for ensuring enforcement of the convention.

The Paris memorandum of understanding on Port State Control, 1982 was another major development in this area. It came in the aftermath of the *Amoco Cadiz*⁷² incident in 1978. Major inclusions of provisions for the control of vessel

⁶⁷ *Ibid.*, regulation 12.

⁶⁸ *Ibid.*, Annex IV.

⁶⁹ *Id.*, Regulation 3.

⁷⁰ *Id.*, Annex V.

⁷¹ Garbage is defined as “all kinds of victual, domestic and operational waste excluding fresh fish and parts thereof, generated during the normal operation of the ship and liable to be disposed of continuously or periodically”.

⁷² See for details on *Amoco Cadiz* Incident, <http://www.oilpollutionliability.com/the-amoco-cadiz/> visited on 17-7-2014

sourced pollution in the third Law of the Sea Convention, 1982 also is a leap in this regard.

The law of the sea convention and conventions on international organizations concerned with merchant shipping⁷³ covers provisions to control ship based pollution to port and the allied ecosystems. Scientific and operational conventions such as SOLAS, 74, LOADLINES, 66 and COLREG, 72 deal with safety of navigation, pollution free shipping operations, tonnage measurements, traffic separation schemes and unification of private maritime laws. The third Law of the Sea Convention, 1982 acts as an umbrella convention. It deals with jurisdiction and competency of states over different maritime zones. The OILPOL 54 established a prohibition zone where the discharge by oil tankers above the prescribed level was illegal⁷⁴. This is mainly done to protect the marine environment intact. The flag state primacy was retained under the OILPOL,⁷⁵. The first and second Law of the Sea Conferences was convened in 1958 and 1960 respectively. The coastal states were given limited jurisdictional powers for sanitation purposes within the contiguous zone that extended up to 12 nm from the shore and it included marine pollution control⁷⁶. To make additional requirements of safety, a conference was held in 1967 to amend the OILPOL54. Establishment of total prohibition zone was the achievement of the conference⁷⁷. Again the *Torrey Canyon* incident resulted in amendment to OILPOL in 1969.

⁷³ Sathish Chandra, "The U.N. Chronology of the Law of the sea", 20 *Civil and Military Journal* (1984), p.159.

⁷⁴ The International Convention for the Prevention of the Sea by Oil, 1954, Art. VIII.

⁷⁵ *Id.*, Art. X.

⁷⁶ Y. Dinstein, "Oil Pollution by Ships and Freedom of the High Seas", 3 *Journal of Maritime Law and Commerce*(1971), pp. 363-374.

⁷⁷ Alan Khee Jin-Tan, *Vessel- Source Marine Pollution the Law and Politics of International Regulation*, Cambridge University Press, Cambridge (2006), p.221.

In 1972, the United Nations Conference on Environment was convened in Sweden, which adopted the Stockholm Declaration on Human Environment⁷⁸. This necessitated the need for comprehensive approach towards the environment. Marine ecosystems deserved special consideration under the convention. Consequent to this the combined International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 was adopted. The law on control of vessel sourced pollution achieved a major milestone with the adoption of the third United Nations Conference on Law of the Sea, 1982⁷⁹. The dialogue during the conference witnessed the emergence of the new concept of ‘port state jurisdiction’⁸⁰. The right of a state to exercise jurisdiction over vessels entering the ports and to deny access is known as port state jurisdiction⁸¹. Power of inspection and detention in case of non compliance to the adopted standard is adhered to under the conference. Other enforcement measures against vessels for violation of these standards, when the vessel is at its port⁸² is also part of the measures for protection of port and ecosystems associated with it. The UNCLOS III is generally regarded as the grundnorm on matters relating to pollution of the sea. It defines pollution of marine environment⁸³. The sources of pollution include

⁷⁸ L.B. Sohn, “The Stockholm Declaration on Human Environment”, 14 *Harvard International Law Journal*(1973), p.423.

⁷⁹ UNCLOS III.

⁸⁰ Tatjana Keselj, “Port State Jurisdiction in Respect of Pollution from Ships: The 1982 United Nations Convention on the Law of the Sea and the Memoranda of Understanding”, 30 *Ocean Development and International Law* (1999), p.127.

⁸¹ UNCLOS III, Art. 211(3). The port state can deny access on certain conditions. Some of them are, if the visiting vessel is not complying with the requirements on construction, design, manning and equipment in the ports.

⁸² *Id.*, Art.218.

⁸³ *Id.*, Art. 1(4) defines marine pollution as “the introduction by man directly or indirectly, of substances of energy into the marine environment, including estuaries, which results or likely to result in such deleterious effects as harm to the living resources and marine life, hazards to human health, hindrance to marine activities, hindrance to marine activities including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of sea amenities”.

the pollution from offshore installations⁸⁴, installations used for exploitation of natural resources from sub-soil and sea bed, pollution from vessels and release of toxic and harmful substances from land based source through dumping or the atmosphere. This conference got implemented in India under the Merchant Shipping Act, 1958. The Merchant Shipping (Amendment) Act, 2003 and the allied rules and port regulations incorporates this convention.

The Port State Jurisdiction on the territorial waters and the exclusive economic zone and contiguous zone was established under the Third United Nations Conference on Law of the Sea, 1982. Even a foreign ship entering voluntarily into a port is under the temporary allegiance to the territorial sovereignty of the coastal state⁸⁵. The foreign ship is to comply with customs, health, safety, navigation and environmental laws of the port state under the sovereignty principle. The UNCLOS states,

“...states may establish particular requirements for the prevention, reduction, and control of pollution of the marine environment as a condition for the entry of foreign vessels into their ports or internal waters or for calls at their offshore terminals”⁸⁶.

Based on this provision, port states are given powers to enact national laws in conformity with the international rules and standards for the prevention of marine pollution. The port states can detain a vessel violating applicable international rules and standards, which is a threat to marine environment⁸⁷.

⁸⁴ *Id.*, Art. 194(3). See also M.V.M.Wafar, “Carrying Capacity of Coral Reefs”, paper presented in the Regional Workshop on the Conservation and Sustainable Management of Coral Reefs, M.S. Swaminathan Res. Found., Chennai, India (2012).

⁸⁵ Lagoni, “Internal Waters, Seagoing Vessels”, 11 *EPIL* (1989), p.156.

⁸⁶ UNCLOS III, Art. 211(3).

⁸⁷ *Id.*,Art.219.

The concept of Memorandum of Understanding⁸⁸ for maintenance of standards is another development to control pollution to the marine environment. The purpose of this is to get rid of poor quality and unseaworthy vessels. Therefore this attempts to protect the marine environment. The Port State Control Officers enter on board of the vessel in the port and will check all documents and conditions as per international rules and standards on seaworthiness. In the Hague⁸⁹ first MOU was adopted in 1978. A study shows the member states carried out 5051 assessment in 2012. India had done 634 inspections. Out of this 518 inspections were identified with deficiencies. The total number of detentions was just 119⁹⁰.

Newer and advanced versions of pollution in marine environment have given birth to stringent international norms to control it. The Ballast water convention, the bunker convention, antifouling convention, ship recycling convention and the latest amendments to the International Convention on Standards of Training, Certification and Watch keeping for Seafarers are all depictions of nation's concerns over various types of marine pollution. Under these international regulations, shipping is being operated in ports under special scrutiny of the port authorities. External control is exerted by port administrations in the form of manning requirements, pilotage, vessel traffic surveilling and policing⁹¹.

International Maritime Organization is formulating and elaborating international rules and standards for preservation of marine environment. IMO has produced several conventions and regulations including the Convention on Safety of Life at Sea, 1974.

⁸⁸ Hereinafter referred to as MOU.

⁸⁹ The Memorandum of Understanding between Certain Maritime Authorities in the Maintenance of Standards on Merchant Ships, Hague MOU(1978).

⁹⁰ The IMOU Annual Report for the Year 2012, Retrieved from [www.imou.org.](http://www.imou.org/), visited in March 2014.

⁹¹ George C. Kasoulides, "Jurisdiction of the Coastal State and Regulation of Shipping", 45 *Revised Human Development Index* (1992), p.33.

ii) Sustainable Development through Indian Legislations

The Indian Ports Act, 1908 contains provisions relating to the prevention of pollution during port operations. The pollution caused from port operations should be controlled and regulated by the port authorities⁹². The power to make rules for regulating vessels regarding all matters is contained in various provisions of the Act. After getting independence, the Parliament had passed a consolidated law to govern maritime operations. The Merchant Shipping Act, 1958 was the first attempt. The Amendment in 1966 to the Act incorporated the provisions of SOLAS 1960. The Amendment in 1983 incorporated the provisions of the International Convention on Control and Prevention of Pollution of Sea by ships and Oil Pollution damage⁹³. The 1988 amendment inserted the provisions of the International Convention on Civil Liability for Oil Pollution Damage, 1969 and the 1976 Protocol⁹⁴. The Indian coast guard is also given powers to mitigate marine pollution damage under the Indian Coast Guard Act, 1978. The duties and functions of the coast guard include the protections by measures it deem fit for maritime and other national interest. Such measures include taking necessary preventive steps to preserve and protect the maritime environment, and prevent and control marine pollution⁹⁵. In addition to these legislations, many other legislation⁹⁶ have application on the control of vessel sourced pollution in ports. No vessel shall discharge, throw, allow or leak or flow, or allow falling from

⁹² See for pollution controls in ports, <http://shipping.nic.in/writereaddata/linkimages/Indian%20Ports%20act%201908%20232...> Visited on 10/12/2010.

⁹³ See the Merchant Shipping Act, 1983, Part XB.

⁹⁴ See the Merchant Shipping (Amendment) Act, 1983, inserted Part X C.

⁹⁵ See the Indian Coast Guard Act, 1978, s. 14(c).

⁹⁶ The Environment (Protection) Act, 1986, and the Water (Prevention and Control of Pollution) Act, 1974, the bye laws under the Bio-Diversity Act, 2002, the fisheries conservation laws, the Hazardous Wastes (Management, Handling and Trans-boundary Movement) Rules, 2008, the Batteries (Management and Handling) Rules, 2001 and the Gujarat Ship Recycling Regulations, 2006 and the Major Ports (Prevention and Control of Pollution) Rules, 1991 regulate pollution in port areas.

quay, jetty or pier materials within the limits of major ports. The vessels are restrained from discharging ballast or oil mixtures within the port limits⁹⁷. Where there are simultaneous loading of oils and deballasting these are to be carried by the master of the vessel only when he or she is satisfied that the loading pipelines have efficiently separated and the operation is conducted without polluting any waters⁹⁸. No vessel should discharge or allow the escape of oil bilge water or any mixture of bilge water with chemicals or noxious substance within the limits of major ports, without written permission of the port authorities⁹⁹. The precautions prescribed in the Manual of Prevention of Oil Pollution and International Safety Guide should be strictly followed while loading, discharging or transporting bunker ballast or deballast in port limits¹⁰⁰. The sea valves connected to oil cargo pipelines are to be tightly closed during the stay at the port¹⁰¹. The master of the vessel and its terminal representative should jointly ensure that the cargo and bunker house to be connected to the vessel are to be approved type and quality, possessing valid certificate for use. The master is responsible for any pollution caused due to bursting of cargo bunker house. The statutory provisions of the Merchant Shipping Act, 1958 are inadequate to solve many issues of port pollution. India is a party to all major international conventions on shipping. India needs a consolidated admiralty law comparable with the international system and to meet the dynamic requirements of the maritime law comprehensively¹⁰².

The Admiralty Bill was amended in Parliament in 2005. The Bill was introduced to consolidate the admiralty law in India, to confer civil jurisdiction

⁹⁷ *Id.*, rule 3.

⁹⁸ *Id.*, rule 5.

⁹⁹ *Id.*, rule 9.

¹⁰⁰ *Id.*, rule 11.

¹⁰¹ *Id.*, rule 12.

¹⁰² *Id.*, rule 14.

with the High Court regarding admiralty jurisdiction¹⁰³. The bill confers jurisdiction on Admiralty courts to adjudicate any claim for damage caused by the ship including civil liability for damage caused by oil pollution covered under the Merchant Shipping Act 1958¹⁰⁴. The Bill is still pending. Unless the Admiralty Act is enacted, there cannot be efficient adjudication of maritime claims in India. The evils of forum shopping will continue to happen.

Similarly, the Indian Ports Bill, 2011 is also under consideration of the Parliament¹⁰⁵. The Shipping Ministry in India had appointed a committee in 1997 to review the Indian Ports Act, 1908 and the Major Port Trust Act, 1963. The New bill consolidates the provisions of both the Acts. Unless, the Indian Ports Act, 1908 is amended to incorporate the sweeping changes made in most countries on the enforcement of maritime claims the Indian law will not be contributing to the IMO vision of clean ports.

iii) Legislations to Protect Biodiversity of Coastal Wetlands

The Wildlife (Protection) Act, 1972 provides protection to wildlife habitats in protected areas. Wildlife species listed in its six schedules are protected depending upon their conservation status. In India there are four legal categories of Protected Areas. They are National Park, Wildlife Sanctuary, Conservation Reserve and Community Reserve. Highest level of legal protection is given to National parks. It prohibits any consumptive utilization of land or natural resources. In a wildlife sanctuary some form of resource utilization may be permitted. This permission is given to meet the needs of local people in a manner that is compatible with conservation of its biological values. Marine protected areas in India comprise national parks and wildlife sanctuaries and cover coastal

¹⁰³ See the Admiralty Bill, 2005.

¹⁰⁴ *Id.*, s. 5(2) (f).

¹⁰⁵ See the Indian Ports Bill, 2010.

wetlands, especially mangroves, coral reefs and lagoons. They have been notified under the Wildlife (Protection) Act, 1972. Fifteen Category I areas are located on the mainland in the states of Gujarat, Maharashtra, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal¹⁰⁶. Protected Areas on mainland have terrestrial or freshwater ecosystems which constitute boundaries with seawater or partly contain marine environment but are not listed as Marine Protected Areas as per criteria. Ten Ecologically Sensitive Areas have been identified and notified by the Ministry of Environment and Forests since 1989 under the Environment (Protection) Act, 1986. Two such coastal areas have been notified¹⁰⁷.

Under the Coastal Regulation Zone Notification, 1991 and the 2011 Amendment Notification issued under the Environment (Protection) Act, 1986 coastal regulation zone -I includes ecologically sensitive areas such as mangroves, corals and coral reefs and associated biodiversity, sand dunes, mudflats which are biologically active, national parks, marine parks, sanctuaries, reserve forests, wildlife habitats and other protected areas¹⁰⁸ including biosphere reserves, salt marshes, turtle nesting grounds, horseshoe crabs habitats, seagrass beds and nesting ground of birds. No new construction should be permitted in these areas. In addition, CRZ Notification 2011 envisages critically vulnerable coastal areas identified under the Environment (Protection) Act, 1986 to be managed with the involvement of coastal communities including fishermen¹⁰⁹.

¹⁰⁶ H.S.Singh, "Marine Protected Areas in India", 32 *Indian J. Marine Sciences* (2003), pp. 226-233.

¹⁰⁷ M. Kapoor, K. Kohli and M. Menon, "*India's Notified Ecologically Sensitive Areas : the Story so Far*", Kalpvriksh, WWF-India, New Delhi(2009).

¹⁰⁸ See the provisions of Wild Life (Protection) Act, 1972, the Forest (Conservation) Act, 1980 and the Environment (Protection) Act, 1986.

¹⁰⁹ Such areas include the entire Sunderbans mangrove area and other identified ecologically important areas such as Gulf of Khambat and Gulf of Kutchchh in Gujarat, Malvan, Achra-Ratnagiri in Maharashtra, Karwar and Coondapur in Karnataka, Vembanad in Kerala, Gulf of Mannar in Tamil Nadu, Bhaitarkanika in Odisha, Coringa, East Godavari and Krishna in Andhra Pradesh.

Environment Protection Act, 1986 and Attempts to Regulate Port and Harbours

The Environment (Protection) Act, 1986 empowers the Central Government to establish authorities¹¹⁰ charged with the mandate of preventing environmental pollution in all forms. This provision tries to tackle specific environmental problems that are peculiar to different parts of the country. The concern to preserve and conserve the coast was initiated in nineteen eighties. The first attempt was issuing of the Coastal Zone Regulation Notification in 1991. This notification defined the prohibited, permitted and regulated activities in a 500 metre stretch from the high tide line. These prohibitions are enlisted after classifying the coast into four zones. Broadly they are categorized as ecologically sensitive areas, built up areas, rural areas and islands. In the subsequent decades, CRZ, 1991 was amended over 25 times. In 2005, a committee chaired by Prof. M. S. Swaminathan brought out a report recommending a move towards integrated coastal zone management and the replacement of the CRZ notification with the Coastal Management Zone Notification¹¹¹. The draft CMZ Notification resulted in extensive protests by coastal communities, especially the fishing communities, across the country. They apprehended that this would result in the rampant development of the coast and the complete loss of livelihoods of the fishing community. In 2009, a committee once again chaired by Prof. Swaminathan brought out another report called the Final Frontier¹¹². This report recommended the lapse of the draft CMZ Notification and suggested that keeping the CRZ 1991 Notification as the basic framework, suitable changes be incorporated to take into

¹¹⁰ The Environment (Protection) Act, 1986 s.(3).

¹¹¹ Report of the Expert Committee to Review the Coastal Regulation Zone Notification, 1991 MoEF(2005). This committee was chaired by Prof M.S. Swaminathan.

¹¹² “Agenda to protect the ecosystem and habitat of India’s coast for conservation and livelihood security”, Final Frontier, MoEF(2009).

account the needs of coastal communities. It also incorporated the growing pressure of population and development activities on coastal resources. The committee pointed out that testimonies from fishermen had described their struggle against the large development activities such as ports which had displaced their livelihoods and homes. In the “Future Agenda”, the Committee recommended that there is a need to introduce regulations to manage the proliferation of ports along the coasts, with possible impacts on the coastline, by considering cumulative impacts of these developments. The Committee contended that currently, the shoreline of the country is undergoing a major change because of a large number of port and harbour projects. These projects involve large quantities of dredging, shore protection works, breakwaters and reclamation. The problem is that there is little information of the cumulative impacts of these projects on the coastline though it was clear that such developments have led to serious threats to the coast, with beaches facing severe erosion and shorelines changing’. The Committee opined that the government should study the cumulative impacts of projects on the coastline. Until the study there should be a moratorium on port projects.

The Moratorium on Ports

A temporary moratorium was imposed on the ports by MoEF. They directed the Ministry of Earth Sciences to do a study of the state of the impact of port structures on the coastline. They made an extensive study and submitted their report with the recommendations to MoEF¹¹³. The study suggested avoiding port structures at least 5 km on either side of eroding locations. Further, location of Ports should be avoided around 10 km on either side of ecologically sensitive areas such as estuaries and lagoons. If this is done due to accretion and erosion

¹¹³ M S Swaminathan Report of the Expert Committee on the Draft Coastal Management Zone Notification, The Ministry of Environment and Forest (2009).

may change the particular ecosystems and reduce the tidal water flow in the water body. For other locations especially for the locations selected to construct ports and harbours the status of erosion should be verified in consultation with state government. If they are found prone to erosion, those areas are to be avoided. Fishing jetties and embarkation facilities for local communities could be set-up with Environment Impact Assessment. The EIA should be cumulative. It should have sufficient ground data through public discussion.

The EIA 2006 Notification

The Environmental Impact Assessment Notification (2006) was issued under the Environment (Protection) Act, 1986¹¹⁴. It outlines the required procedure for the prior environmental clearance of development projects listed in the schedule of the notification. There are two categories of projects; Category A requires clearance from the MoEF while the Category B projects can be cleared at the State level. In the case of ports, the notification is clear¹¹⁵ regarding the EIA model to be undertaken by the ports.

Conclusion

Ports open the way to international trade. If proper conservation measures are not taken the economy of India would have to suffer. The Indian Constitution casts a duty on the Centre as well as state government's to safeguard the interest of the nation. It also considers the importance of international norms. There should be a proper balance between environment and development. The coastal wetlands are invaluable. To achieve this objective India should have strong legal provisions. Enforcement, measures should be strengthened. For better trade, clean

¹¹⁴ The Coastal Regulation Zone Notification, 2011, MoEF, Government of India (2011).

¹¹⁵ *Id.*, Table: 7.1 Project categories for clearances from MoEF (A) or State Government (B).

environment is a necessary element. India should have a clear admiralty law. Indian admiralty law is far behind the developing trade relation and shipping transport.

In India, provisions to ensure sustainable shipping lay scattered in a number of legislation. It is difficult to co-ordinate the enforcement of their laws under a single agency. The Coast Guard Act, 1978 authorizes the Indian Coast Guard, to ensure the security of maritime zones of India, which includes control of marine pollution. The Coast Guard has the responsibility to prevent and protect the marine environment of the country and to ensure safety in territorial waters.

Under the provisions of the Indian Ports Act, 1908 and the Major Port Trust Act, 1963, the port trust through the conservator of ports has to ensure safety and pollution control within the Port area. The conservator, deputy conservator and harbour master are to enforce rules framed under the Act. The Act empowers the above mentioned officers to deny port clearance unless the charges for violation of these rules are levied. Therefore, the above mentioned authorities can prescribe port entry conditions and refuse to grant port clearance for transgressing vessels. In addition to these measures, criminal prosecution can be made against master and owner of the vessel for violations of port rules.

At present the ICG is exercising its functional responsibilities such as surveillance, combating oil spills, central co-ordination of the National Oil Spill Disaster Contingency Plan, inspection of vessels to ensure seaworthiness and detention of violators of anti-pollution provisions beyond the port limits. The Port conservator should get sufficient information from the ICG before taking any action against the violators. Unless this process is well co-ordinate and fast, timely detentions and control measures may not be effective. The Ministry of Environment and Forest also has functional responsibility to monitor and take remedial action in the event of marine pollution along the coast.

By clearly defining the role and hierarchy of enforcement agencies and by streamlining their activities under a central agency, namely the ICG, the enforcement regime could be made more efficient. The Indian Coast Guard Act should confer definite powers to ICG as the nodal agency to monitor, survey, enforce and punish the offenders contributing to pollution in the Indian waters instead of demarcating the same under different laws upon a handful of bureaucratic agencies

PADDY LAND CONSERVATION

Paddy is the most important crop of Kerala. Paddy lands in Kerala are typical wetlands¹. In India and in Kerala most of the paddy fields remain submerged in water. Waterless paddy fields are less. The *Ramsar* definition of wetlands brings within it paddy fields. But both under the Central legislation² and under the State legislation³ regarding wetlands, paddy land is treated differently from wetlands⁴. Under the State legislation⁵ paddy lands are treated with utmost importance. Their protection and conservation is comprehensively covered under the provisions of the Act. Combined reading of all these can give paddy lands a better protection like wetlands.

Till the recent past, land under paddy cultivation was tried to be protected mainly for food security of the country and to meet the food requirement of the region. After the independence all agrarian legislations enacted by the Centre

¹ Water, soil, and organisms are the main ingredients necessary to classify a land form as ‘wetland’.

² The Wetland (Management and Conservation) Rules,2010.

³ The Kerala Conservation of Paddy Land and Wetland Act,2008.

⁴ See the Wetland (Management and Conservation) Rules, 2010 rule 2(g). Also see A. Ramachandran, B. Enserinkb and A.N. Balchand, “Coastal Regulation Zone Rules in Coastal Panchayath (Villages) of Kerala, India Vis-a'-Vis Socio-Economic Impacts from the Recently Introduced Peoples’ Participatory Program for Local Self-Governance and Sustainable Development”,48 *Journal of Ocean and Coastal Management* (2005) , pp. 632–653.

The reason stated is that paddy fields are covered under separate provisions of the Coastal Regulation Notification, 1991.

⁵ The Kerala Conservation of Paddy Land and Wetland Act,2008.

and states were directed towards this common goal of food security⁶. These legislations exerted various controls over the use and conversion of paddy fields. Their objects reflected the needs of the community for the time being and ecological or environmental considerations were not part of the community consciousness at that time. However these legislations led to an indirect protection of paddy fields and promoted protection of environment. But these legislations failed miserably in preventing the conversion of paddy lands. There was mass conversion of the paddy lands for many purposes⁷. Only in 2008 legislation with specific reference to protection of environment and ecology⁸ got enacted by the Kerala legislature. Now the ecological importance of the paddy fields is realized by both the community and government. Even after the 2008 Act conversion of paddy fields takes its toll. In this context it is necessary to analyse the state of the use of agricultural lands specially paddy fields in Kerala. It is also pertinent to examine the changes brought about by the Kerala Conservation of Paddy Land and Wetland Act, 2008. Confusions regarding the implementation of the Act are analyzed in the light of judicial decisions. An attempt is made to examine whether the land use regulations exercised over the paddy lands are adequate for sustainable development.

Need for Regulation of Paddy Fields

India is primarily an agricultural society. There is a strong linkage between land and social status of an individual. The facts reveal that, close to 70 % of the

⁶ The Land Reforms Act, 1963 aimed at boosting agriculture and thereby ensuring food security. The Land Utilization Order, 1967 issued under the Essential Commodities Act, 1955, was a central order to boost the production of food crops in every region. The Land Development Act, 1964 and the Land Development Corporation Act, 1974, tried to boost the paddy cultivation by the joint attempt of farmers groups. Along with this the Travancore Fisheries Act, 1951 controlled the use of agricultural fields for the prone cultivation.

⁷ P.B. Sahasranaman, “Buffering Paddy Field”, Kerala Calling Cover Story (October, 2007).

⁸ The Kerala Conservation of Paddy Land and Wetland Act, 2008, preamble.

population is dependent on land in myriad ways⁹. Therefore it is crucial to address the issue of land from quadrilateral angles that it provides livelihood, dignity, food security and ecology to millions of Indians¹⁰. India has the largest number of rural poor as well as landless in the world. Landlessness is a strong indicator of rural poverty in the country. Land is the most valuable, imperishable possession from which people derive their economic independence, social status and a modest and permanent means of livelihood. In addition to that, land also assures them identity and dignity and creates condition and opportunities for realizing social equality and social justice¹¹. Among the many issues, conservation of paddy land for preservation of ecology is an important problem that could be redressed only through land use controls. Even though Indian agriculture claims to be self sufficient from the records¹², the position of Kerala is different. Kerala depends on other states for food grains and vegetables. During 1950 production rate of paddy was 50% and now it is not enough to suffice even 15% of the population. The area under paddy cultivation shows a steep decline¹³. This has in turn affected the environment and the ecology of Kerala.

Land owners economic gain is the main dispute surrounding the land to conversion. But the loss of ecosystem is invaluable. The present rate of conversion shows that it may result in total disappearance of paddy fields in the near future. These areas would shrink to information which can be collected from internet or history books.

⁹ N.A.Majumdar and Uma Kapila, *Indian Agriculture in the New Millennium Changing Perceptions and Development Policy* , Academic Foundation Publication (2006),p.42.

¹⁰ *Id.*, p. 76.

¹¹ See the Draft National Land Reforms Policy, Department of Land Resources, Ministry of Rural development, Government of India (2013).

¹² See the Draft Agricultural Policy of Kerala (2013).

¹³ See the statement of objects and reasons of the Kerala Conservation of Paddy Land and Wetland Act,2008. Also see George Johnson and Dominic Johnson, *Laws on Land in Kerala*, Law book Centre, Ernakulam (2012-2013), p.514.

Not only that, most part of the state, which receives an annual rainfall of about 3000mm and having 41 west flowing rivers, numerous backwaters and lakes, experience acute drinking water scarcity for about six months a year¹⁴. When paddy land gets converted there occurs an abandoning of highly developed and complex wetland agro ecosystems. Irreversible transformation of the ecosystem takes place. The conversion benefits go exclusively to private owners but the suffering is of the whole community. Resource base for the future generation also gets destroyed¹⁵. Legislations and enforcement machinery need to be activated with new weapons at least to conserve the remaining paddy fields. Judicial attitude also should attune to the legislative intent so that these laws get proper enforcement.

Ecological Functions of Paddy Field

Paddy lands perform a number of ecological functions. They functions as feeders of water aquifers and retain the ground water level of the area. They are the water reservoirs of the state. Destruction and permanent conversion of this ecosystem will threaten the water security. Another function of paddy field is from offering food security and biodiversity conservation. Paddy fields provide goods and services. These functions depend on their location, adjacent environment, water source and quality, its biological diversity and other characteristics. They maintain fertility and productivity¹⁶. They undertake hydrological function. They provide habitat to plants, predators and microorganisms. Numerous economic services are also done by these paddy lands. Even though privately owned, this open access property is used for

¹⁴ V.A. Haseena, “Extent of Water Crisis and Women in Kerala”, *1Asia Pacific Journal of Research*(2014), p.159.

¹⁵ Dipak Kumar Dash, “22 of India's 32 Big Cities Face Water Crisis”, *The Times of India*, Mumbai Edn. (September 9, 2013), p.7, Col.5.

¹⁶ Jae Ok Kim , Seung Heon Lee and Kyu Sang Jang, “Efforts to improve biodiversity in paddy field ecosystem of South Korea”, *1 Journal of Agriculture* (2011), pp.25-30.

collecting grass, fodder, catching fish, gathering medicinal plants and collecting wild vegetables, materials for housing and handicrafts. The cost benefit of functions performed by paddy fields cannot be calculated with mathematic nicety.

Status of Indian Agriculture and its Impact on Paddy Lands

Indian agriculture has made tremendous swiftness since independence. Earlier country had repeated food shortages. It depended on food imports. But now India is self-sufficient and a net exporter of food grains¹⁷. Improved production systems changed the goal of agriculture from sustenance to commercial. Since the inception of five year plans agricultural production has shown steep improvements. The statistics show that growth rate of food production has been well above population growth rate. This transformation in Indian agriculture has been made possible by technological development, adoption of improved policies, hard work of farmers, and by the support of governmental measures through various laws for observation in agriculture and allied activities. Agricultural legislations in the country were the legacy of British. But real efforts commenced only after 1947 to alter the economic condition of farmers and status of farming through legislative measures. The democratic governments of both state and Centre removed the unhealthy practices that existed to the progress of the agrarian sector. But governments could not attain objective of retaining the agricultural lands under the same status. In spite of all these positive changes in production, area under cultivation has shown sharp decline¹⁸.

¹⁷ See "FAOSTAT, 2010 data" in Faostat.fao.org. visited on 17-09-2012. Also see the preface of the Agricultural Policy of Kerala, 2013 , p.33.

¹⁸ An analysis of the following data, provided by the Directorate of Economics and Statistics, the Ministry of Agricultural, India, indicates two disturbing trends. Both the net area sown (Table 1) and the availability of grains (Table 2) have been diminishing.

This adversely affected environment as a whole and particularly drinking water and breeding of many rare species of animals and reptiles.

Impact of Agricultural Legislation on Land Use

Earlier legislations after independence relating to agriculture improvements could be labeled into four groups. They are legislations to abolish intermediaries, tenancy reforms, ceiling of land holdings and laws relating land contribution to the land less people¹⁹. All these were closely connected to various land use controls over the holder of land. The abolition of Zamindari and similar measures helped actual cultivators. Situations in some north Indian state are examples. In these states Zamindars had large acres of holdings. But in Kerala holdings were comparatively small. Land reform measures fragmented small holdings of agricultural lands. Just after the reforms, production in agriculture had shown a sign of improvement. But country had to face severe famine immediately. This urgency led to the issue of the Central orders to state governments to cultivate land within its bounty. This order aimed to boost the production of food crops mentioned it. But the working of the order was a failure which could be observed from the later developments.

Similarly, to achieve the constitutional aim of social justice redistribution of land was felt as a necessity. Legislations were passed in almost all states to

Year	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Area Sown in Million Hectares	141.36	140.73	132.47	140.76	141.17	141.49	139.95	140.86
Index	100	99.55	93.71	99.58	99.87	100.09	99.00	99.64

Table above shows that compared to 2000-01, every year the agricultural land use has been reduced, with the exception of a slight increase in 2005-06 when 141.49 million hectares (349.62 million acres) were sown. Furthermore, when an average of index-row is computed and converted it into an equivalent of base year 2000-01, the results are 139.85. This means that the net area sown has been reduced from 141.36 to 139.85 millions of hectares in eight years or 188,750 hectares (466,400 acres) every year.

¹⁹ The Kerala Land Reforms Act, 1963, the Land Acquisition Act, 1894, the Kerala Government Land Assignment Act, 1960, the Land Conservancy Act, 1957, the Kerala Land Development Act, 1964 and many other related legislations. For more details see P. Parameswaran Moothath, *Kerala Land Laws Manual*, Shukla Law Agencies, Ernakulum(1998).

restrict the size of agricultural holdings. More than 1 million hectares of agricultural land was declared surplus which the government can distribute.²⁰ To achieve this purpose, these legislations were included in the Ninth Schedule²¹ of the Constitution of India. This was the most important land use control measure exerted by state on the private land owners. This was for the common good of the society. In addition to these, the Bhoojan movement, collected land donated voluntarily by land owners for distribution among the landless²². This attempt was subsequently supported by legislatures. This movement obtained sanction and approval by states through legislations and rules. This still continues through many action plans designed by states.

Another attempt in this stream was the Land Development Act, 1964, which tried to define the waste land and to bring these lands under various developmental schemes. This Act also tried to form the union of paddy fields²³ to bring in the concept of collective management and administration of committees formulated to achieve the aim of food security. But how far these legislations could achieve their aim could be observed from the pathetic condition of paddy fields in Kerala. Along with this some other legislations such as the Travancore Fisheries Act, 1951 also contains prohibitions against conversion of paddy fields

²⁰ *ibid.*

²¹ The Ninth Schedule which has relevance to Art.31 B has been added to the constitution by the (Ist Amendment) Act, 1951. It contains the enactments made by the legislature, the validity of which cannot be questioned in any court of law. By now it contains as many as 284 enactments included therein from time to time since the commencement of the Constitution.

²² J. Drèze and A. Sen, *Indian Development: Selected Regional Perspectives*, Oxford University Press, Delhi(1997), p. 203.

²³ The Land Development Act, 1964, s. 7 A. See also A. Ramachandran *et.al.*, *op. cit.*, at p.542.

for prawn cultivation. A license from the fisheries department is required for filtration and cultivation of prawns in agricultural fields²⁴.

The prestigious position occupied by ‘Nilams’²⁵, were lost in the wake of time. Now there is an alarming increase in the number of pending application for title change of land holdings from ‘Nilam’ to ‘purayidam’²⁶ before various revenue authorities and even before the High Court of Kerala. All the legislative attempts for land use controls on paddy fields had good aims but there was poor enforcement. This legislation created various authorities for monitoring and regulating the activities in paddy fields. Apart from the increase in food grain production, none of them tried to protect the land under agriculture. Number of other legislative measures had also been made to facilitate land use and management.

The land-reforms measures attempted to rationalize the agrarian structure and the land-man relationship. Such a dynamic approach towards the reorganization of agricultural operations was essential for agricultural progress. This takes to the conclusion that some amount of property in any form is necessary for the self satisfaction and expression of individual. The legal measures adopted reflect this philosophy of property. It is, in this context, the agricultural legislations are viewed as an evolutionary process based on experiences of the past, difficulties of the present and a better vision for the future. But vision for future will be successful only on the wholesome development of agriculture. This not only means the rate in output increase but the improvement of the land and ecology related to agriculture.

²⁴ M. K. Menon, “On the Paddy Field Prawn Fishery of Travancore-Cochin and an Experiment in Prawn Culture”, Reprinted from Session II of Proceedings of Indo-Pacific Fisheries Council, Dloces Press, Madras (1954), p.4.

²⁵ They could be bought by paying highest amount rather than the purayidams.

²⁶ *Sheriff v. The State Of Kerala* decided on 22 October, 2008. *Firose v. Revenue Divisional Officer*, 11K.L.C.,3896. *Kaipadath Property Development Company (P) Ltd v. State of Kerala* (2011(1) K.L.T. 526.

The green revolution is the best example. Only a sustained growth will exist in the community for long. Immediate gain will be futile if in the long run it exerts such damage to the whole community and future generation. Now contribution of agriculture to the GDP²⁷ of India has declined to 13.7 %.²⁸ This is largely because of the rapid economic growth in services, industrial output and non-agricultural sectors in India since 2000.

Thus agricultural legislations aimed only for boosting agricultural production from land and had no direct objective of protecting the ecology of the area. But they served the purpose of protection of environment indirectly. But due to the failure in implementation later operations in the paddy fields exerted malady on the whole society. Position of Kerala requires a special mention. Kerala has changed its priority from agriculture to service. Analysis of agricultural legislations since independence shows the dismal state of Kerala's agriculture. These earlier legislations which aimed to boost the production failed to go hand in hand with the land use controls exerted on the paddy fields. Exploration of land legislations in India shows that until the Stockholm Declaration, 1972, India was quite unaware of protection of environment. In the context of regulations on land use, the Land Utilization Order, 1967 deserves a thorough analysis through the judicial interpretations regarding its enforcement.

²⁷ Gross Domestic Product.

²⁸ As per latest estimates released by Central Statistics Office (CSO) the share of agricultural products/Agriculture and Allied Sectors in Gross Domestic Product (GDP) of the country was 51.9 per cent in 1950-51, which has now come down to 13.7 per cent in 2012-13 at 2004-05 prices. See "Agriculture's share in GDP declines to 13.7% in 2012-13", *the Economic Times* (Aug 30, 2013), p.1, col.3.

The Kerala Land Utilization Order, 1967: An Analysis

The Kerala Land Utilisation Order, 1967²⁹ was issued by the Kerala state government under the powers of the Essential Commodities Act, 1955³⁰. The order had two main objectives such as to bring occupied waste or arable lands likely to be left fallow during a cultivation season with paddy or other food crops and to prevent the conversion of any land cultivated with food crops for other purpose. Exception to grant permission for conversion is vested with the District Collector³¹ or the Revenue Divisional Officers. It must be a written permission.

The State Government could direct every holder of land shall grow over such portion of his land food crops such as paddy, fish, sugarcane, vegetables, tapioca, yarn, tea, coffee, cardamom, pepper, ground-nut, cocoa and banana³². It is in addition to any crop holder had grown over such land³³. The Collector is empowered to issue notice to the holder of paddy land to cultivate his land with paddy or other food crops within such period specified in the notice. If the holder doesn't comply with the notice, Collector may, by order, direct and arrange for the sale by public auction of holders right to cultivate the land in question for a specified period. This period is ordinarily for three years³⁴. Order specifically provided that lands under cultivation of paddy shall not be utilised for fish culture permanently. Clause 7 of the order empowers the Collector to call up on any

²⁹ Hereinafter referred to as KLUO.

³⁰ Sub-section (1) and clause (2) of sub-section (2) of section 3 the Essential Commodities Act, 1955.

³¹ Revenue Divisional officer or Collector is vested with the power to consider the applications for conversion. This shall be in accordance with the KLUO and the standing instructions by the government. While approving the application they have to ensure the location and ecology of the nearby lands, irrigation facilities, scope of large scale conversions and the need of farmer for his home purposes.

³² See the Land Utilisation Order ,1967, clauses 3 and 4.

³³ *Id.*, clause 2(4).

³⁴ *Id.*, clause 5.

person who appears to him contravening the provisions of KLUO to cultivate the land with such food crops and within such period as may be specified in the notice. If the notice is not complied with within the time specified, the Collector may, by order direct and arrange for the sale by public auction. The Collector can arrange for cultivation³⁵ in certain other circumstances.

Penalties for contravention of any order made under section 3 of the Essential Commodities Act, 1955 makes the KLUO much attractive³⁶. Any person who contravenes any of the provisions in the KLUO is punishable with imprisonment for a term which shall not be less than three months but which may extend to seven years and shall also be liable to fine³⁷. If a person is again convicted of the offence he shall be punishable with imprisonment for the second and every subsequent offence for a term which shall not be less than six months but which may extend to 7 years and shall also be liable to fine. In this context section 8 of the Act is also relevant which provides that any person who attempts to contravene, or abets the contravention of any order made under section 3 shall be deemed to have contravened that order. The Act provides for constitution of Special Courts³⁸ by the State Government for the purpose of providing speedy trial of the offences under this Act. The Special Court consists of a Single judge who shall be appointed by the High Court.

Most of the measures adopted under the KLUO is purely related to land use controls such as taking away the right to use and enjoyment of the property sometimes even without considering the grievance of the land owner. This made negative impact in the minds of the people regarding the KLUO. There was a

³⁵ *Id.* clause 9.

³⁶ The Essential Commodities Act, 1955, s. 7.

³⁷ *Id.*, 7(1) (a).

³⁸ *Id.*, s. 12 A.

popular ill feeling existed in the minds of people against the KLUO. Another reason of hatred against the KLUO was the implementation of land reforms and the wounds implemented due to this. People were worried that whether they would be parted forcefully from their property. The available ground for conversion of cultivated lands was only for residential purpose. There were no provisions about the means to boost the cultivation or the grant or aid from the government to help the farmers.

It is evident from the provisions of the Essential Commodities Act, 1955 and the KLUO, 1967 the Government is empowered to take action for bringing under cultivation any waste land or arable land for growing thereon of food crops including paddy. A District Collector or a Revenue Divisional Officer can direct any holder of paddy field to cultivate the field with paddy. In the circumstances, all the District Collectors were instructed to enforce the provisions of the KLUO strictly and to take stringent measures according to the Essential Commodities Act, 1955 against those people who contravene the KLUO. The Collectors are also requested to furnish a list of pending cases filed in various courts regarding violation of KLUO. But the machinery adopted to implement the order was vested with wide variety of duties and they were not in a position to curb the menace or prevent the massive conversion of paddy fields. Not only that the societal consciousness towards the protection of environment was scant in those times. The ecological functions of the paddy fields were not at all realised. All these cumulatively resulted in the steep decline of paddy fields under cultivation.

Judiciary on Enforcement of Land Utilization Order, 1967

Enormous numbers of writ petitions were pending before the High Court of Kerala, for conversion of agricultural land. At the inception of the KLUO, 1967 the total cultivated area of paddy field was estimated to be 8 lakh hectares. But

when the bill on Paddy Land and Wetland Conservation, 2007 was presented it was estimated that the land area left back is 2.8 lakh hectares.

i) Object of Land Utilization Order

The High Court of Kerala had the occasion to discuss the object of the KLUO,1967 in *Reliance Industries Ltd. v. The Commissioner of Land Revenue*³⁹. The Court held that the paramount object sought to be achieved by the order was to ensure agricultural operations and cultivations. These are made compulsory by the KLUO,1967 and are carried out through the provisions to ensure availability of essential commodities.

ii) Concept of Sustainable Development

While deciding the case of *Kairali Swayam SahayaSangham v. State of Kerala*, the Kerala High Court tried to bring in the concept of sustainable development by allowing the removal of clay from the paddy fields⁴⁰. The court ordered that immediately after the period of license for removal of clay the authority concerned should ensure that the paddy field is made cultivable and brought back to the original position. Therefore any permission to remove clay from the paddy field should not be dealt with casually.

iii) Matters to be Taken in Account on Conversion

In *Jayakrishnan v. District Collector*⁴¹ the Court considered the matters to be considered while disposing an application under the KLUO. The Court held that while considering the application for conversion not only the status of the land in question but the status of the neighbouring properties should also be considered. Possible detrimental effect of conversion of one property forming part

³⁹ *Reliance Industries Ltd. v. The Commissioner of Land Revenue*, 2007(2) K.L.T. 850.

⁴⁰ *Kairali Swayam SahayaSangham v. State of Kerala*, 2009 (2) K.H.C. 312.

⁴¹ *Jayakrishnan v. District Collector*, 2008(4) K.H.C. 514.

of a larger cluster lands and the attendant ecological factors are to be taken into consideration by the competent authority.

In most of the cases claim for conversion is made due to lack of agricultural operations for more than 20 years. The nature of the petition itself shows that there is absence of implementation of KLUO by the government. After the enactment of legislation it was necessary to see whether it is properly implemented. There should be some mechanism to ensure the proper implementation⁴². The Court discussed the issue of land lying without agricultural operation for more than 20 years. The Court said that while considering an application under the KLUO for conversion the authority should give due consideration to the provisions of the enactment. This was a subordinate legislation and meant to be implemented with seriousness. The Court reminded that these applications are not to be dealt casually.

iv) Legality of Land Utilization Order after the Commencement of the Kerala Paddy Land and Wetland Act, 2008

Whether the provisions of the KLUO are valid after the enactment of the Kerala Paddy Land and Wetland Act, 2008 was considered by the Court in *Praveen K v. Land Revenue Commissioner*⁴³. The Court held that apart from the paddy land and wetland, the provisions contained in the KLUO still survives in respect of other food crops. Restrictions imposed under KLUO in respect of the food crops and conversion of such lands will be continued to be governed by the provisions contained in the KLUO. Now the procedure ordinarily followed by the

⁴² *Ibid.*

⁴³ 2010(2) K.H.C. 499.

authorities is that the application will have to pass through both KLUO and under the 2008 Act⁴⁴.

Thus it could be observed that since the time of inception the KLUO was challenged and severally violated. This is due to the lack of acceptance by the society and various impediments in the process of implementation. This leads to the analysis whether there is a tilting of property right to environment protection. Can the Doctrine of Public Trust⁴⁵ come to the rescue of paddy lands? The judicial activism which India witnessed in 1980's for the protection of environment has not operated with the same vigor in protecting the paddy lands and wetlands. Very often judiciary protected the violation of the KLUO. An active support from judiciary is highly necessary to protect paddy land in Kerala.

Emergence of Legislation Bearing on Ecology

After the realisation of the actual causes for the slow agricultural progress⁴⁶ in India, government understood that second land reforms measures are necessary to protect the agriculture. Steep decline of paddy land did not occur as a consequence of some natural calamity. Different governments which ruled the State for sixty five years are responsible for the steady decline in paddy fields. They did not consider it important to prevent land conversion or foresee the

⁴⁴ The Kerala Land Utilisation Order, 1967, clause 5.

⁴⁵ For the meaning of the term "Public Trust Doctrine", see *MP Ramababu v. Divisional Forest Officer*, A.I.R. 2002 A.P. 256, *M.C. Mehta v. Kamalnath*, (1997) 1 S.C.C. 288, *Heaven v. Mortimer*, (1968) 20 EG 767, *Jones v. Llanrwst Urban Council*, (1911) 1 Ch. 393, *Rohtas Industries Ltd. v. Rohtas Industries Staff Union*, A.I.R. 1976 S.C. 425, *Shri Anadi Mukta Sadguru S MVSJMS Trust v. VR Rudani*, A.I.R. 1989 S.C. 1607.

⁴⁶ The low productivity in India is the result of the following factors: The average size of land holdings is very small (less than 2 hectares) and is subject to fragmentation due to Land Ceiling Acts, and in some cases, family disputes. Such small holdings are often over-manned, resulting in disguised unemployment and low productivity of labour. Overregulation of agriculture has increased costs, price risks and uncertainty. Government intervenes in labour, land, and credit markets. India has inadequate infrastructure and services. Irrigation facilities are inadequate, as revealed by the fact that only 52.6% of the land was irrigated in 2003–04, which result in farmers still being dependent on rainfall, specifically the Monsoon season.

consequences. Government policies were not suitably directed⁴⁷. The policies adopted by governments were the main reason for the disappearance of paddy fields. More over consciousness about the sustainable development and environment were absent in earlier policies. In 2008 the Kerala Government has enacted a new legislation for complete prohibition on conversion of paddy lands and wetlands. The judicial trend also seems to be in tune with the legislature to achieve the objective of sustainable development.

Back ground of the Kerala Conservation of Paddy Land and Wetland Act, 2008

Drastic social transformation took place in Kerala since 1960⁴⁸. When there is a conflict between economics and environment, in a state like Kerala having more literacy rate, the balance always tilts in favor of the economics. But the state being the custodian of all property and protector of community interest may go with environment. The economic rationale of the private owners of paddy fields suggests the paddy fields to be converted for non-agricultural purposes⁴⁹. But no one is aware of the real long term impact of ecological and environmental imbalances that may result due to transformation of the paddy wetlands. The receding paddy land and the vanishing wetland in the state is a matter of serious

⁴⁷ For example see the unnecessary burdens put on the farmers, through the Land Utilisation Order, 1967.

⁴⁸ During the middle of 60's there was opening up of employment opportunities in the Gulf region ,the emergence of educated class and the increase in the salary and living conditions, the reluctance on the part of the Central and state governments in generating new employment opportunities relating to agriculture, developments in construction industry and emergence of land mafia. And similarly rail and road transport expansion which the people of the State keenly demand also need land. These reasons are not an exhaustive list of decline of paddy fields.

⁴⁹ G.Gopikuttan and K.N. Parameswara Kurup , “*Paddy land Conversion in Kerala, An inquiry into Ecological and Economic aspects in a Midland Watershed Region*”, Final Report of the Kerala Research Programme on Local Level Development, Centre for Development Studies, Thiruvananthapuram (2004).

concern for the citizens. This made the state to come out with stringent measures⁵⁰ and rules for protection of the community interest. About two thirds of the population does not have access to safe drinking water. More over the cost-benefit analysis is absent when the question of conversion is considered.

In this context, the Kerala legislature decided to enact a comprehensive legislation to protect and manage paddy lands and wetlands in 2007. This is done in tune with earlier agricultural legislations with more restrictions on the land use. The Act prohibits conversion of paddy fields and wetlands. But from the inception of the bill, rampant conversions and filling of paddy fields were reported. Even though there were criticisms⁵¹ against the legislation the law was enacted in 2008⁵². Preamble of the Act reveals the need for enacting this specific legislation⁵³.

Objectives of the Law for Conservation of Paddy Lands

The twin objectives mentioned in the preamble are sustainable development and food security of state. Another new objective is protection of

⁵⁰ See Malayala Manorama news report dated 29-04-2014 Aluva, which says that the vehicles used for filling the paddy lands unauthorisedly will be seized and an amount equal to the value of vehicle will be charged from the owner of the vehicle for involving in such illegal activity.

⁵¹ The Kerala Conservation of Paddy Land and Wetland Act, 2008 was introduced with loadable objectives such as conservation of paddy land wetland in the state. But the problems at the inception are i) non constitution of implementing agencies ii) conferment of wide exemption power on the government to be exercised as discretion without laying down parameters and conditions for its exercise iii) provision for entrusting fallow paddy land to self groups chosen without any determining criteria for cultivation iv) penalty provision not preventive or deterrent v) non-inclusion of provisions relating to subsidy and incentives for encouraging farmers to cultivate fallow land vi) absence of provision casting responsibility on the state to make the land suitable for cultivation by providing the basic infrastructure facilities like irrigation, measures to prevent the entry of saline water by putting up bunds.

⁵² Received the assent of the Governor on 11/08/2008. Published under notification number 19661/Leg.A1/2007/Law dt. 12/08/2008, in K.G.Ext.No.1790 dt. 12/08/2008(w.e.f. 12/08/2008). The Act contains 30 sections.

⁵³ The Kerala Conservation of Paddy Land and Wetland Act, 2008. Its preamble reads as ‘an Act to conserve the paddy land and wetland and to restrict the conversion or reclamation thereof, in order to promote growth in the agricultural sector and to sustain the ecological system in the state of Kerala.

the ecology of the state⁵⁴. The Act defines paddy land⁵⁵ and wetland⁵⁶. If an important question whether the property sought to be converted is paddy land under the Act. In a case the Kerala High court, held that the answer should be based on actual fact situation and not depending on the description of property as (Nilam) paddy field or wetland in the revenue records. It is difficult to assume that land cannot be used for any purpose other than as paddy field or wetland⁵⁷. To understand the real fact situation the data bank preparation was made a bounden duty on the part of the committee constituted under the Act⁵⁸.

The provision of the Act confines its operation to paddy lands and wetlands. Conversion or reclamation and removal of sand from those areas are prohibited⁵⁹ except in accordance with the provisions of the Act⁶⁰. In *Shahanaz Shukkoor v. Chelannur Grama Panchayat*⁶¹, dispute related to land which could not be used for any purpose other than for which a paddy field or wetland could be used. It was held that statute operates on the basis of the facts as they existed on ground realities and not on any quality or type of land, depending on its

⁵⁴ *Ibid.*

⁵⁵ *Id.*, s. 2(xii) reads “paddy land means all types of land situated in the State where paddy is cultivated at least once in a year or suitable for paddy, cultivation but uncultivated and left fallow, and includes its allied constructions like bunds, drainage channels, ponds and canals”.

⁵⁶ *Id.*, s. 2 (xviii) reads “Wetland’ means land lying between terrestrial and aquatic systems, where the water table is usually at or near the surface or which is covered by shallow water or characterized by the presence of sluggishly moving or standing water, saturating the soil with water and includes backwaters, estuary, fens, lagoon, mangroves, marshes, salt marsh and swamp forests but does not include paddy lands and rivers”.

⁵⁷ *Praveen K v. Land Revenue Commissioner*, 2010(2) K.L.T. 617(DB).

⁵⁸ See the Kerala Conservation of Paddy Land and Wetland Rules, 2008, rule 4.

⁵⁹ The Kerala Conservation of Paddy Land and Wetland Act,2008, s.3, *Prohibition on conversion or reclamation of paddy land*.-(1) On and from the date of commencement of this Act, the owner, occupier or the person in custody of any paddy land shall not undertake any activity for the conversion or reclamation of such paddy land except in accordance with the provisions of this Act.

⁶⁰ *Id.*, s. 3 (2) reads , “Nothing contained in sub-section (1) shall apply to the cultivation of any intermediary crops that are cultivated without changing the ecological nature of that paddy land or the strengthening of the outer bunds for protecting the cultivation”.

⁶¹ (2009) 3K.L.T.899.

description in the title document. The definition of the terms 'paddy field' and 'wetland' in the Act is sufficient material to hold that the said statute operates on the basis of the facts as they exist on ground realities. It was shown that the land in question was surrounded by lands on which buildings were being constructed. A part of the land in question also had another building, with the approval of Panchayath. The Court found that there was no reason to hold that the petitioner had to obtain decision of committee under the Act to put the land to use for the purpose of constructing a building.

In *Poyil Sulaiman v. Peravoor Grama Panchayat*⁶² the dictum in the Shahnaz case was followed and said that the ground realities should be assessed by the authorities concerned. The mere description in the title deed cannot lead to rejection of the application for building permit.

Protection of Farmers

Government has realized the difficulty faced by farmers in paddy cultivation. This was one of the reasons why the earlier legislations were a failure. In the new legislation government promises to undertake suitable measures⁶³ from time to time to assist the farmers to augment the production of paddy in the state. It is made a bounden duty of government to assist the farmers.

Mechanism for Protection of Paddy Fields and Wetlands

Societal acceptance is an important requirement for a legislation to survive. Laws which do not promote the happiness people are liable to be rejected. One of the mechanisms to overcome this threat is to make a participatory approach in the

⁶² W.P.(C) No. 34619 of 2009-V.

⁶³ The Kerala Conservation of Paddy Land and Wetland Act,2008. s.4 reads , Incentives for paddy cultivation.- The Government shall take suitable measures from time to time, in order to assist the farmers to augment the production of paddy in the State.

implementation of the legislation. This method is attempted in the present legislation. The unique mechanism adopted under the Act is that three tier committees⁶⁴ are set up. Every activity is done with the involvement of public.

The committee designed is vested with enough powers⁶⁵. They are invested with the power to participate, prepare data bank, inspect the lands, and find the reason why lands are not cultivated, inquire the violations or non compliance, accept the complaints from the public regarding the violation and suggest measures to revive the culture of cultivation. They may recommend conversion⁶⁶. But this power is also limited⁶⁷. The members of the committee do important functions under the Act. Apart from this, the local committee is also entrusted with the duty of finding out the data of paddy land reclaimed in contravention of the provisions of any law for the time being in force. All these reports are to be submitted to the Revenue Divisional Officer of the area. The data banks prepared in relation to this Act is a public document and it can be inspected by the interested public. Thus the local level monitoring committee monitor the implementation of the provisions of the Act. Any willful omission to take action under the Act is deemed to be an offence.⁶⁸

The question raised in *Firose v. Revenue Divisional Officer*⁶⁹, was whether in the absence of notification contemplated under Sec.5(4)(i) of the Kerala Conservation of Paddy Land and Wetland Act, 2008 a person who converts paddy land or wetland could be prosecuted under the Act. A penal

⁶⁴ The Kerala Conservation of Paddy Land and Wetland Act, 2008, S.5 reads “Constitution of Local level Monitoring Committee”.

⁶⁵ *Ibid.*, S. 5.

⁶⁶ *Ibid.*, s.5(3)

⁶⁷ *Ibid.*

⁶⁸ *Id.*, s.23.

⁶⁹ (2011)11 K.L.C.3896.

consequence for conversion of paddy land or wet land would arise only if such land had been notified in the manner prescribed. The local committee has to prepare the data bank with details of cultivable paddy land and wet land within the area of its jurisdiction. Then it is notified by the concerned local authority for the information of the public.

The environmental jurisprudence and the principles of sustainable development are reflected in the Act. The state level committee while dealing with the applications recommended by the local level monitoring committee examines whether any alternate land other than paddy land is available in that area. Along with this it has to assess the ecological changes that may occur due to such filling up of paddy land and a report regarding the same is to be submitted to the government⁷⁰.

A district level committee to take decisions on the application for reclamation of paddy land is also constituted under the Act. An appeal from the order of district committee is heard by the collector and his decision would be final⁷¹.

Conversion for Public Purpose

Public purpose is given utmost importance under the Act. The power to make the decisions of reclamation for public purpose lies with the Government. But there are certain checks and balances in the exercise of this power. Before the exercise of the power the Government should be satisfied that there is non availability of alternate land and such conversion will not affect the adjoining

⁷⁰ The Kerala Conservation of Paddy Land and Wetland Act,2008, s. 8.

⁷¹ *Ibid*,

paddy fields and the ecological conditions in that area⁷². The area which can be reclaimed is paddy land only.

A total prohibition on reclamation of wetland is another feature of the legislation⁷³. Severe draught and problems relating to the drinking water is reported from many parts of the state of Kerala. The solution to this problem is maintaining the available wetlands.

An authorized officer is appointed⁷⁴ to report on the violation of this Act and to take actions He is vested with the powers necessary to exercise the functions under this Act. He is deemed to be a public servant. Another important feature is that if he fails to report or take action, he will be punished⁷⁵. The collector can reclaim or reconvert the land already converted in violation of the provisions of the Act. This is one of the most important powers under this Act⁷⁶.

⁷² The Kerala Conservation Paddy Land and Wetland Act, 2008, s.10 deals with the Power of Government to grant exemption if such conversion or reclamation is essential for any public purpose. But the exemption shall be granted by the Government, unless the Local Level Monitoring Committee has recommended the conversion or reclamation and the Government are satisfied on the basis of the report submitted by the State Level Committee, that no alternate land is available and such conversion or reclamation shall not adversely affect the cultivation of paddy in the adjoining paddy land and also the ecological conditions in that areas.

⁷³ *Id.*, s. 11, Prohibition on reclamation of wetland on and from the date of commencement of this Act, the wetlands of the State shall be maintained as such and there shall be a total prohibition on reclamation of such wetland and removal of sand there from. Provided that nothing contained in this section shall affect the removal of slurry and mud to maintain the ecological condition of such wetland.

⁷⁴ *Id.*, s. 12 Appointment of Authorized Officers are officers of the Revenue Department not below the rank of a Revenue Divisional Officer.

⁷⁵ *Id.*, S.23.

⁷⁶ *Id.*, s.12 (2) reads “The Authorized Officer may inspect the premises to see the violation or prevent the violation of the provisions of the Act, He has the power to enter any premises or any place connected therewith. He can also require any person to stop any act in contravention of section 3 or section 11. He can require any person to furnish such information as he may consider necessary. He can collect evidence regarding the commission of the offence and sent a report to the Court of competent jurisdiction in order to prosecute the accused. Any person required to produce any document is legally bound to produce the same. If an officer authorized under this Act fails to take action on the basis of the report regarding the violation of the Act submitted by the reporting officer under section 7, he shall be deemed to have committed an offence punishable under section 23”.

In *Praveen v. Land Revenue Commissioner*⁷⁷, the petitioner filed an application for permission to convert a piece of wet land under provisions of Kerala Land Utilization Order, 1967. The question was whether, after commencement of Kerala Conservation of Paddy Land and Wetland Act, 2008 an application filed by Petitioner for constructing a residential building was maintainable. On a combined reading of the provisions⁷⁸ it was held that the application of the Act is confined to paddy land and wet land alone. The owner or occupier or the person in custody of any paddy land should not undertake any activity for conversion or reclamation of such paddy land, after coming into force of the Act. But there is a total prohibition of reclamation of wet land and removal of sand there from after the commencement of the Act except the removal of slurry and mud to maintain the ecological condition of wetland. There is also a provision for making application for permission for reclamation of the paddy land for construction of residential building to the owner of the paddy land. Such application has to be considered by the District Level Authorised Committee on the recommendation of the Local Level Monitoring Committee. If the reclamation should not adversely affect the ecological condition and cultivation in the adjoining paddy land. The owner of the paddy land should not have suitable land in the district. The construction is proposed for own purpose and such paddy land is not situated surrounded by other paddy lands. The Government has also freedom to grant exemption subject to some conditions. The Act totally prohibits conversion or reclamation of wet land and removal of sand there from. There is a total prohibition of reclamation of wet land on and from the date of

Section 13 of the Act governs power on the District Collector. “The Collector may take such action, as he deems fit, without prejudice to the prosecution proceedings taken under the Act, to restore the original position of any paddy land reclaimed violating the provisions of this Act, and realize the cost incurred in this regard from the holder or occupier of the said paddy land, as the case may be, so reclaimed after giving him a reasonable opportunity of being heard.”

⁷⁷ 2010 K.L.T. 617(DB).

⁷⁸ The Kerala Conservation Paddy Land and Wetland Act, 2008, ss. 1, 2, 4 and 5.

commencement of the Act. It was held that the land in question was a *paramba* and not a paddy field as defined in the Act, 2008. It was not a property as defined under the KLUO, 1967. Therefore, there was no need or necessity to seek any permission either under KLUO, 1967 or under the Kerala Paddy Land and Wet Land Act, 2008. The Government may grant exemption from the provisions of this Act, if such conversion or reclamation is essential for any public purpose. The Local Level Monitoring Committee has to recommend the conversion or reclamation and the Government should be satisfied on the basis of the report submitted by the State Level Committee, that no alternate land is available and such conversion or reclamation would not adversely affect the cultivation of paddy in the adjoining paddy land and also the ecological conditions in that area. Though there is a total prohibition on reclamation of wetland and removal of sand there from, removal of slurry and mud can be undertaken to maintain the ecological condition of such wetland.

In *C.V.Lalu v. The Director of Mining and Geology*⁷⁹ the question was whether mining sand from paddy lands is prohibited. It was held that the Act does not bring about a complete prohibition of mining sand from paddy fields. It cannot be done except on the strength of a specific permission granted in that behalf by the competent authority. An enquiry was ordered to be conducted by the Revenue Divisional Officer as to whether there is removal of sand from the paddy land or wet land , within his jurisdiction. If he finds that sand is being removed from wet land he should proceed to take action as contemplated by the Act. He should also take action to see that no sand is removed from paddy land except with authority granted on that behalf by an officer not below the rank of the Revenue Divisional Officer.

⁷⁹ WP(C).No. 8452 of 2009(B).

Community Involvement in Protection of Paddy Lands

Community involvement in cultivation of fallow paddy land could be seen under the Act. If the holders of are unable to cultivate the paddy land, it could be entrusted to Padasekhara Samithi, self help groups, or kudumbasree units in those areas⁸⁰. This is one of the restrictions on the owner of land by state. It is reiterating the provision of the Land Utilisation Order, 1967. But there is wide gap between the provisions. Earlier there was practical difficulty in entrusting the land to another person who is interested in cultivation. The authority was conferred on the collector. He is always over burdened and the practical implementation of cultivation of fallow lands would be of great difficulty. This is overcome by the insertion of interested groups. In today's society these groups play an important role in many functions. Thus this seems to be a possible solution to remedy the difficulty existed under the earlier enactments. Cultivation of other intermediate crops other than the paddy is left to the discretion of the holder of land⁸¹. By this discretion the owner is allowed to retain the power of ownership over his land. The sustainable development principle is thus incorporated in the legislation. This would bring consensus among the holders of land regarding the acceptance of the legislation. The absolute ownership is with the holder himself. His right to sell the property is retained with him even when it is under cultivation as per the provisions of the Act. Thus for the greater community interest the individual is deprived of his one aspect of property rights for a period of time. This is for larger community interest. But there is a balance and his permanent enjoyment and disposal rights are retained. Thus the Act tries to strike a balance between individual interest with those of community interest. The entrusted person has only the right to cultivate and he will be evicted after the period of time. Thus it

⁸⁰ The Kerala Conservation Paddy Land and Wetland Act, 2008, s.16 (5).

⁸¹ See the Kerala Conservation Paddy Land and Wetland Rules,2008, rule (vi).

tries to remove the fear of permanent deprivation exerted by the Land Reforms Act, 1963. This was one of the reasons for the failure of many legislation which imposed restrictions on the uses of land.

Collector is given the power for the proper implementation of the provisions. The Act has enabled the authorities to take up cases of reclamation and deal with them appropriately. District collectors have initiated action against use of tipper lorries and earthmovers for paddy-field conversion. The administration had imposed fines on the owners of the vehicles for their involvement in reclamation.

The question in *Kaipadath Property Development v. State of Kerala*⁸², was whether section 13 confers wide and unrestricted power on the District Collector to order restoration of reclaimed paddy land and wet land. The court also considered whether he can exercise the power in the absence of notifying paddy lands and wet lands and whether he is exercising an unguided power. Evidently, if the property is a wetland, the District Collector is not having any jurisdiction.

Restoration of wet land is not mentioned anywhere in the Act even though there is total prohibition of its conversion. This is a lacuna in the Act. Wet land used for any paddy cultivation is not included in the definition of either paddy land or wet land. Paddy lands and rivers are specifically excluded from the definition of wetland. Evidently, no attempt was made by the District Collector to resolve this issue before the order was passed. He had proceeded as if the property is wet land, based on the fact that kol land is included in the list declared as *Ramsar sites* and by relying on certain other details. Consequently the power was invoked under describing it as wet land. He is not conferred with any jurisdiction as regards restoration to the original position of a wet land itself. It is pointed out that unless and until a notification is there, the District Collector is not able to proceed.

⁸² WP(C).No. 10248 of 2010(E).

Therefore it cannot be assumed that the District Collector can exercise such a power to direct reconversion and restoration of the property to its original position. It was pointed out that the non obstante clause contained will not help the District Collector to exercise such a power. The power given to the District Collector is evidently to restore to its original position as paddy land in case of violation of the provisions of the Act. After the data bank is prepared and notified the District Collector can find out whether there is any violation in respect of a paddy land. In the absence of any rules framed for exercising the powers the only conclusion possible is that he will have to rely upon such a notification to find out whether the area under dispute is a cultivable paddy land or wet land or a converted land. No other machinery have been provided to the District Collector to have any other source of information on these vital aspects to exercise the power.

The Kerala Conservation of Paddy Land and Wetland Act, 2008: A Critical Evaluation

The Kerala conservation of Paddy land and wetland Act, 2008 contain many provisions giving powers to beurocratic authorities. The Act is to a great extend is weak on institutions and institution building. The provision of the Act prohibits conversion or reclamation of paddy land except in accordance with the Act. The grounds mentioned for the reclamation of paddy land, are public purpose and for construction of residential building for the owner of the paddy land. The Committee cannot recommend filling of paddy land of more than ten cents in a Panchayath or five cents in a Municipality or Corporation, for the construction of residential building for the owner. The Government also acts as an advisor to the farmers while there is no platform for knowledge base of farmers benefiting the farming community. Local level monitoring committee is constituted at Panchayath and Municipality level but the farmer participation is limited to 3

members. No local authority can grant any license or permit for carrying out any activity or construction in a paddy land or a wetland converted or reclaimed in contravention of the provisions of this Act. Access to an uncultivated paddy land or wet land could be given by the owner of the land or the government to a new farmer if existing owner doesn't not cultivate. The penalty for the violation of the Act is imprisonment for a term which may extend to two years. Minimum punishment is six months. Fine up to one lakh rupees can also be imposed.

The major objective of creating a resource management policy would be sustainability of resources and livelihood protection of stakeholders. The Act is defined on those lines. However there is a gap on the hope and reality. The focus of the Act is to bring more government control over resources. The Act completely disregards the existing community arrangements which would have been created for sustainability of resources and livelihood security. This is evident as the Act explains more on the roles and responsibilities of government officials and their constitution of committees for execution of the Act rather than policies for strengthening institutional arrangement which will ensure resource sustainability. It could be found that the stake holder's of these common properties hardly have any role in resource management and the implementation of the Act. They are mere takers and there is no platform for expressing their concerns as their participation is limited to the committees which control and command the resources. The question is whether this act as an incentive for farmers to depend on government machinery for livelihood protection. Does this change of personals of government machinery will help to ensure sustainability of resources? But this can hardly take place. It's a kind of division of interest on same resource pool happening out here. Logically without community participation; management and maintenance of these resources will be costly. This may end up in collapsing the control mechanisms introduced by government and

end up leaving the resources in the hands of some mafias. This Act should contribute to the idea of good governance. The good governance principles like participation, accountability, transparency and legitimacy should be promoted. From the institutional stand point, the Act centers around access and appropriation without much focus on collective action and monitoring. Even if they are minimally touched, the government machinery doesn't have the infrastructure to implement the same. Hence though access is there, it has limited concern on livelihoods of stake holders. Removing the community from resources management could lead to discarding centuries old best practices

Conclusion

There are certain questions while deciding the priority for cultivation. What are the other crops which do not affect the nature of paddy fields? It relates to environmental protection. Under the shield of seasonal crops certain *Kole lands* are being permanently converted to aquaculture areas. These result in serious ecological problems. This makes saline water intrusion into water aquifers creating drinking water shortage in the surrounding areas.

While analyzing the role of judiciary there is absence of positive activism on the part of the High Court to incorporate the principle of sustainable development, while dealing with the cases under this Act. The Court allowed some violations⁸³. This may become precedents in subsequent cases.

This Act is under operation now. But rampant violations are reported by media's every day. Even in the name of the public purpose certain violations takes place. A small state like Kerala having three international airports tries to fill large

⁸³ *Jafarkhan v. K.A. Kochumarakkar*, 2012(1) K.L.T. *Abdul Satar Babu v. State of Kerala, Adani infrastructure Developers Pvt.Ltd. v. State of Kerala, Rajesh v. Palakkad Municipality, Jayalakshmi v. State Of Kerala*, and many other cases relating to the question of conversion the decision in *Jafarkahn* is cited as precedent and seeking the regularization of violation under the Kerala Conservation of Paddy Land and Wetland Act, 2008.

extent of paddy fields for establishing a fourth one. The question is whether Kerala need a fourth one at the cost of losing a large area of wetlands and paddy lands? The land mafia plays a great role which could not be controlled even by the stringent provisions of the Act. As many other pieces of legislation, this legislation is also is not free from defects. One of the recent proposals for development of projects on reclaimed land, came up for official consideration. It was for establishment of a golf course, a hotel, and luxury resorts in the Kuttanad area of Alappuzha district. The project, if sanctioned, aims at reclamation of 180 hectares of wetland, named Methran Kayal⁸⁴. What are the developmental priorities deserves consideration. Even Kuttanad, the granary of Kerala is not spared. The area under paddy in this region has shrunk to around 37,000 hectares from around 55,000 ha. The Kayals are being reclaimed for converting them into resorts, townships and golf courses. The “Rani kayal” included in the Rs1,860-crore Kuttanad package created by M.S. Swaminathan Research Foundation, in order to bring it back to paddy cultivation, has gone into the hands of a major private group engaged in financial and tourism business. Thus the provisions are not implemented in its letter and spirit. There are no provisions under this Act to make the whole community aware of the need for conservation⁸⁵. But there are certain hopes. It shows that people are becoming more and more vigilant in protecting and bringing up a life style in tune with the nature or bringing back the traditional life style.

Before implementing a legislation of controlling land use or exercising control over property rights, mass awareness is to be created. Environmental

⁸⁴ R. Ramabhadran Pliai, “The Land Question: Paddy Fields or a Place to Live?”, *Times of India*, Thrissur edn. (January 14, 2012), p.7, col.4.

⁸⁵ Conservation of paddy lands is necessary because of the various ecological functions of paddy fields. This cannot be performed by any other area of land. For more details see G.K. Nair, “No Food, no Water in Lush Kerala”, *Times of India*, Ernakulum edn. (March 7, 2013), p.4, col.5.

awareness and the need to protect ecology should be given utmost importance. Creation of farming culture in the society is necessary. Farmers should be given respectable position in the society. The youth should be made aware of the ecology. Only by the community awareness and acceptance such legislation could survive. National policies should be more farmer oriented. Agricultural subsidies and the promotional measures for the farmers are to be made clear. Every type of assistance, technical and scientific should be given to them. Unsustainability in agriculture should be removed. Price escalation and the market forces must be controlled to help farmers. Farmers should not be put to a loss at any cost. All round prosperity of the farmers are to be ensured. They should be given more infrastructure facilities to fulfill the entire community aspirations. More over the governments should have the will to strictly implement the provisions⁸⁶ of the Acts. Agricultural services are to be strengthened to protect the farming community and paddy fields.

⁸⁶ The principle of cost- effect analysis and impact study are to be made mandatory duty of the committees involved in taking decision regarding conversion.

LEGAL CONTROLS ON USE OF INLAND WETLANDS

Inland wetland ecosystems are cradles of biological diversity. They provide water and primary productivity. Countless species of plants and animals depend for their survival in these areas¹. Inland wetland includes different types of land situated between marine wetlands and forest wetlands. A comprehensive definition of inland wetland is lacking. Analysis of *Ramsar* definition and the Wetland (Conservation and Management) Rules, 2010² gives a picture of the areas covered under the term. Understanding of the term ‘inland wetland’ is highly necessary to make a proper study and evaluation. Improper use or abuse of inland wetlands leads to a number of disasters to the ecosystem and environment. Causes of deterioration are to be analysed to devise a mechanism for control of wetland degradation. There are some central and state legislation bearing on conservation and protection of inland wetlands. Certain provisions under those legislations help to protect these areas. There is a need to identify the legislative measures to prevent the threats and to upgrade these areas. Specifically protection of rivers, river beds, river banks and lakes are assuming great importance as primary source of drinking water to the increasing population. Sand mining has become a major problem. In spite of strong controls this menace still continues. Administrative and legislative measures bearing on the inland wetlands need analysis. Various enforcement mechanisms

¹ Sushanta Mahapatra and Sudip Mitra, “Managing Land and Water under Changing Climatic Conditions in India: A Critical Perspective”, 3 *Journal of Environmental Protection* (2012), pp.1054-1062.

² The Wetland (Conservation and Management) Rules, 2010.

adopted under these legislations also need a critical study. Contributions of judiciary to these attempts are also examined.

Land cover changes, deforestation, habitat fragmentation, pollution and indiscriminate disposal of liquid and solid wastes are issues related to economic productivity and ecological security of inland wetlands. All these have led to the degradation of inland wetlands. Structural changes are brought in the inland wetlands due to land use changes. This has influenced the functional aspects such as hydrology, bio-geo chemical and nutrient cycle³. These changes are evident in many regions. Conversions changed recurrent streams to seasonal and sometimes have led to disappearance of water bodies. This makes serious water crisis. Changes are also brought in the biological diversity of the areas. Hydrological changes could bring in climate change⁴ too. Due to this snowmelt and evaporation rates increases. Droughts, storms and floods intensify. Much of the hydrological changes will be reflected in changes in freshwater ecosystems including most of the inland wetland areas. These cumulatively affect the biodiversity and habitat of various organisms⁵ in these areas. Conservation of natural resources through sustainable ecosystem management and development is the key to a secured future. Formulation and implementation of action plans that best conserve inland wetland resources require an understanding of issues, concerns and threats to water resources.

³ Natural Resource Defence Council, "Annual Report 2007", Natural Resource Defence Council, Sanfranisco(2007).

⁴ F. Soltau, "Climate Change and Sustainable Development: Understanding the Linkages", 30 *Natural Resources Forum* (2006), pp. 253-255.

⁵ World Bank, "Climate Change Impacts in Drought and Flood Affected Areas: Case Studies in India", Report No. 43946, Social Environment and Water Resources Management Unit, India Country Management Unit (South Asia Region), New Delhi (2008).

As per the *Ramsar* definition⁶ wetlands are “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 salty including areas of marine water, the depth of which at low tide does not exceed 6 meters.” It may also incorporate riparian and coastal zones adjacent to the wetlands and islands or bodies of marine water deeper than 6 meters at low tide lying within the wetlands. From this definition it is clear that wetland originally indicates the areas of intermediate character. It means a character between deep water and terrestrial habitats. This is transitional in nature. The flora and fauna of these areas are adapted to such shallow flooding and water logging of ground. Thus these can include riparian⁷ areas, flood plains of rivers, river banks and shoreline beds of rivers, fresh water lakes, fresh water swamps, reservoirs and large ponds. These types of wetlands are classified as inland wetlands. They are defined by soil type. The soil types of wetlands are poorly drained, very poorly drained, alluvial and floodplain⁸. These wetlands may not always appear wet. These inland wetlands are very precious and their economic value is very high⁹. But in India these areas experience high pressures from various fields. Thus their protection is in dilemma. Centre and states had enacted various legislations for the same. But this could not bring any remedy to the existing situation. Thus it is necessary to address the issues relating to inland wetlands in India.

⁶ See the *Ramsar Convention*, 1971, Art.1.1.

⁷ Wetlands that are present along the rivers and streams are called riverine or riparian wetlands. Their water supply depends on the precipitation in upstream areas and ground water inflow to the stream.

⁸ J. Disano, “Climate Change and Sustainable Development”, 30 *Natural Resources Forum* (2006), pp. 251- 252.

⁹ G. H. Brundtland, “Development and International Economic Co-operation: Environment”, Report of the World Commission on Environment and Development, Tokyo (1987).

Types of Inland Wetlands in India

As per the definition under the *Ramsar* convention¹⁰ inland wetlands fall under number of categories. A wetland protection guide given by the Dover conservation commission¹¹ defined inland wetlands to include bodies of water such as lakes, streams and rivers, land always covered with water such as marshes and swamps and land that is covered by water for part of the year such as vernal pools¹². Based on the above inland wetlands available in India can be categorized as follows

i) Rivers and Allied Ecosystems

The river¹³ channels and riparian vegetations, flood plains and river mouths associated with river provides diverse habitat for a variety of aquatic and terrestrial species and also provide important ecological services. Wetlands of river occur in estuaries also. River valleys, river basins, river beds and banks are the most productive and biologically diverse inland wetlands¹⁴. Drainage basin of river acts like a funnel collecting all the water within the area covered by the basin

¹⁰ The categories of inland wetlands are **permanent inland deltas** and **permanent rivers**, includes waterfalls, **permanent freshwater lakes**, **saline marshes pools**, **permanent freshwater marshes or pools**; ponds, marshes and swamps on inorganic soils; with emergent vegetation water-logged for at least most of the growing season, **non-forested peat lands**; includes shrub or open bogs, swamps, fens etc. for more details see <http://www.environment.gov.au/water/wetlands/ramsar/wetland-type-classification> accessed on 2 March 2013.

¹¹ For more details on Dover Conservation Commission to assess the wetland management in Dover Massachusetts see <http://www.state.ma.us/dep> see also <http://doverma.org/codes.html> visited on 07-07-2015.

¹² T.N.Narasimhan, “Water Law for India: Science and Philosophy Perspectives”, in R.Ramaswamy Iyer (edt.) *Water and the Laws in India*, Sage Publications India Pvt. Ltd., New Delhi India (2009), p.537.

¹³ A river is a natural watercourse. Usually fresh water is available in this area. It flows towards the ocean, a lake, a sea, or another river. In a few cases river flows into the ground and vanishes from the surface.

¹⁴ The Mint Newspaper “*Threat to Rivers*”, June 5, 2010.

and channelling it into a waterway¹⁵. Thus this area also forms part of inland wetlands. The mouth of a river is a good place for fishing. In this place along with the alluvium, a river swills out many different species into the lake or sea. Thus it forms a peculiar ecosystem supporting the activities of various types¹⁶.

ii) Lakes

Lakes are another ecosystem which comes under inland wetlands¹⁷. According to the little oxford dictionary 'lake' means large body of water surrounded by water¹⁸. In India Ministry of Environment and Forest has defined lake under the National Lake Conservation programme¹⁹.

Lakes are “standing water bodies which have a minimum water depth of 3m, generally cover a water spread of more than ten hectares and have no or very little aquatic vegetation”.

Based on the Geographical location they are categorised as Himalayan lakes, peninsular lakes and coastal lakes. According to limnological criteria, lakes are categorised as fresh water lakes and brackish water lakes. Ephemeral lakes such as lakes of Ganga-Brahmaputra basin such as Beels and Jheels are also present in India. Their functional criteria can also be one of the methods of classification. Along with lakes certain ecosystems covered under the regions nearby the lakes

¹⁵ Michael, J.Wiley and W.Paul, *An Introduction to Rivers — the Conceptual Basis for the Michigan Rivers Inventory Project*, Seelbach Publication (1997), p. 7.

¹⁶ Sushanta Mahapatra and Sudip Mitra, 3 *Journal of Environmental Protection* (2012), pp.1054-106.

¹⁷ R. Manivanan, *Water Quality Modeling: Rivers, Streams and Estuaries*, New India Publishing (2008), p. 114.

¹⁸ The little oxford dictionary of current English(7th edn., 1994).

¹⁹ Here in after referred to as NLCP.

also fall with the term inland wetlands. They are i) shallow lakes and ponds such as vernal ponds, spring pools, salt lakes and volcanic crater lakes²⁰.

ii) bogs are waterlogged peat lands. They are nutrient poor and acidic in conditions. They have developed their own unique flora²¹. Thus they offer an undisturbed habitat for a wide range of species²².

iii) Marshes and Swamps known as palustrine wetlands²³ also form part of inland wetlands in India. These marshes, swamps and fens account for half of all wetlands throughout the world. But these water bodies are polluted heavily and their restoration is very difficult to be achieved²⁴.

Threats to Inland Wetlands

More than half of the wetland areas disappeared due to human oriented activities in wetlands²⁵. These include direct extensive and intensive users, exploiters who dredge sediments or exploit mineral resources, agricultural producers who drain and convert wetlands to agricultural land, water abstractors who use wetland as source of drinking or irrigation water, human settlements expansion and indirect users who benefit from flood control use of the wetland²⁶.

²⁰ Ghassemi and Fereidoun, *Inter-Basin Water Transfer*, Cambridge University Press, Cambridge (2007).

²¹ E. Gorham, "The Development of Peat Land", 32*Quarterly Review of Biology* (1957), pp. 145–66.

²² A.I. Solomeshch , The West Siberian Lowland, in *The World's Largest Wetlands: Ecology and Conservation*, L.H. Fraser and P.A. Keddy (eds.), Cambridge University Press, Cambridge, UK (2005),pp. 11-62.

²³ P.A.Keddy, *Wetland Ecology: Principles and Conservation*, Cambridge University Press, Cambridge, UK (2010), p.497.

²⁴ L.H. Fraser and P.A. Keddy (eds.), *The World's Largest Wetlands: Ecology and Conservation*, Cambridge University Press, Cambridge, UK (2005).

²⁵ A. Vaidyanathan, "Interlinking of Rivers I", *The Hindu*, 26 March 2003. See also A. Vaidyanathan, "Interlinking of Rivers II", *The Hindu*, 27 March 2003.

²⁶ R. R. Iyer, *Water Perspectives: Issues, Concerns*, Sage Publications of India Pvt. Ltd., New Delhi (2003), p.32.

Rivers are indeed facing numerous environmental problems. Most of the rivers are polluted and are unsuitable for basic community needs such as fishing and swimming²⁷. Pollution of drinking water and fresh water of rivers and lakes are top two environmental concerns²⁸. Along with industries non-point sources of pollution also causes great threat to rivers²⁹. Thus the inland wetlands face multifaceted problems³⁰.

Watershed degradation, deterioration in water quality, alteration in hydrology and shoreline modifications are other problems faced by inland wetlands³¹. Man alters the hydrology and shoreline of the inland wetlands through land fill, beautification and intensive aquaculture. Increase in aquatic crops cultivation and uses for religious and recreational purposes³² add to these threats.

Sand mining exceeding the capacity of river basins and consequent degradation of river is another major threat. Despite many measures adopted through legislation, administrative measures and judicial decisions this menace continues unabatedly all over India. For the last two decades, inland wetlands have been victims of unplanned urbanization in India. This results in pollution, encroachment, eutrophication, illegal mining activities, ungoverned tourist

²⁷ K.L. Rao, *India's Water Wealth: Its assessment, Uses and Projections*, Orient Blackswan Universities Press, New Delhi (1979), p 54.

²⁸ B. R. Sharma and V. U. Smakhtin, "Water Harvesting as a Strategic Tool for Drought Mitigation in Southwest Asia", *Proceedings of 55th International Meeting of the International Commission on Irrigation and Drainage*, FAO/ICID International Workshop on Water Harvesting and Sustainable Agriculture, Moscow(2004).

²⁹ Central Pollution Control Board, "Water Quality in India: Status and Trends 1990-2001" (2002).

³⁰ V. R. Krishna Iyer, "Nature's Gifts: A Case for Safeguarding Rivers, Sand and Other Natural Resources" In: S. Yadav(Ed.), *Water Problem and Its Management*, Hope India Publications, Haryana (2004), p.178.

³¹ J. Bandyopadhyaya, "Water Management in the Ganges- Brahmaputra Basin: Emerging Challenges for the 21st Century", 11 *Water Resources Development* (1995), pp. 411-442

³² Resolution from the Indian National Workshop on "Environment Flows", New Delhi (2005).

activities and cultural misuse of these precious ecological systems³³. Thus the major threats to inland wetlands can be categorised under the following heads.

i) Pollution: Population explosion took place in the last three decades. But there was no consequent increase in civic facilities and waste disposal mechanisms. More and more migration to cities takes place. The urban civic services are unable to meet this increase³⁴. This consequently affects the inland wetlands. Now most of them are used for disposing untreated local sewage and solid waste. In many cases the water bodies have been ultimately turned into landfills.

ii) Encroachment: Encroachment is another major threat to inland wetlands. This is more particular in urban areas. Migration to cities affects the scarce land resources. Land has turned to be most precious and speculative commodity rather than a common resource. Hence the ecosystem services gave way for real estate mafia. Both for the government and the private builders make use of this situation to encroach the wetlands³⁵.

iii) Deforestation:- Land use changes and conversion of watershed area has altered the hydrological regime. It enhanced the silt movement and lowered water yield in the catchment. It also affected the groundwater recharge. Large-scale deforestation in the Western Ghats and introduction of plantation crops in highlands replaced the natural vegetation³⁶. It reduced the storage capacity of soil

³³ United Nations, “World Water Development Report: Water for Life, Water for People”, UNESCO (2003), p. 544

³⁴ V. Paranjpye, “The Value and Politics of Water in India”, S. Kothari, I. Ahmad and H. Rifled (Eds.), *The Value of Nature—Ecological Politics in India*, Konrad Adenauer Stiftung, Rainbow Publishers Ltd., New Delhi(2003), pp. 55-62.

³⁵ Charkoplake in Maharashtra, Ousteri Lake in Puducherry and Deeper Beel in Guwahati are well known examples of encroachment.

³⁶ Raghavendra Rao, “Floristic Diversity in Western Ghats: Documentation, Conservation and Bioprospection- A Priority Agenda for Action”, Western Ghats Biodiversity Information System, Bangalore(2013).

and resulted in surface soil erosion in watersheds and sedimentation in rivers³⁷. This has affected summer flow in rivers. Some perennial rivers have become seasonal in the last few decades due to large scale land cover changes.

iv) Eutrophication: Most of the inland wetlands are closed water bodies. A large part of the substances that enter the lakes become a permanent part of the system. Only a part of this can be removed depending on the water exchange system. The entries of nutrients through raw sewage become the part of lake system. It causes various destructive changes in the wetlands such as prolific growth of aquatic weeds in lakes and ponds that ultimately disturb and kill the ecology of the water body³⁸. All rivers in India are highly polluted due to inflow of untreated domestic and industrial wastes and agriculture runoff. Most of the industries are near the thickly populated riversides, often near cities and towns. There is no efficient water treatment system in industries and city municipalities. Pollution level in some of the sites is far above permissible limits.

v) Illegal Mining Activities: Illegal mining for building material such as sand and stones both on the catchment and on the bed of the wetlands extremely damages wetlands³⁹.

Sand quarrying in rivers and watersheds are killing the rivers⁴⁰. Such activities lead to river bank erosion, lowering of water table and create a number

³⁷ V. R. Devi , Miranda and P. K. Azis., “Deterioration of Water Quality- An overview on the Pollution Problems of the Ashtamudi Estuary”, 15 *Pollution Research Journal* (1996) , pp. 367-370

³⁸ Bheels of Assam, water hyacinth are well known examples of exotic species introduced to lakes.

³⁹ Basamand Lake in Jodhpur, once the only source of drinking water for the city of Jodhpur, has been suffering from illegal mining for the last 20 years despite the court's order to stop mining in 1999. Surajkund lake in Haryana is another example of illegal mining activities that have destroyed the lake. For more details see Baisali Adak, “Surajkund through History”, *Deccan Herald* (6th October, 2015), p.3, col.4.

⁴⁰ See The National Green Tribunal order dated Aug 05 2013 New Delhi. Also see the order of Supreme Court in *Deepak Kumar v. State of Haryana*, A.I.R.2012 S.C.1386 apex court said

of environmental problems⁴¹. Ground water level in some of the watersheds has gone down by nearly one meter in the last two decades⁴². Agricultural practices in the riverbanks and also inside the dry riverbeds during non-rainy months also add to bank erosion and sedimentation in rivers⁴³.

vi) Unplanned Tourism Activities: Inland tourism has acquired greater momentum today. Activities without systematic planning and regulation proved to be another major threat to urban water bodies. Disturbance of wildlife, pollution, changes in local lifestyles and loss of cultural heritage are some of the impacts of tourism on the local environment. In the absence of garbage disposal facilities, the practice of dumping garbage into nearby water bodies has become quite common in recent years and has contributed to the degradation of many inland wetlands. Dal Lake in Srinagar, Tso Morari and Pongsho Lakes in Ladakh where the unplanned and unregulated tourism has posed long-term negative impacts both on biodiversity of the area.

vii) Land Reclamation and Construction: Sand filling of ponds, lakes and other inland wetlands affects natural water flow and groundwater recharge. Construction of new roads and buildings has blocked many canals, which were important for navigation and freshwater. Vast areas of inland wetlands have been converted into settlement and industrial areas in recent times⁴⁴.

that “sand mining is one of the causes for environmental degradation and a threat to biodiversity”

⁴¹ See the environmental problems on sand mining <http://www.downtoearth.org.in/content/swami-and-sand-mafia> visited on 10-10-2014.

⁴² G.K. Nair, "Indiscriminate Sand Mining Creates Water Shortage in Kerala", *The Hindu Business Line* (1st Feb. 2011).

⁴³ B. Viju, "Raiding the River", *The Times of India*, New Delhi (19th June 2011), p.10, col.2.

⁴⁴ D.F Whigham, D.Dykjova and S.Hejny(eds.), Vol.1 *Wetlands of the World, Inventory, Ecology and Management*, Kluwer Academic Publishing Co., Dordrechr (1993), p. 583.

viii) **Cultural Misuse:** Adding to the sorry state of urban water bodies local communities misuse these water bodies for their cultural or religious festivals. These activities are a source of serious pollution of lakes.

Legislative Measures for Protection of Inland Wetlands in India

Traditionally Indian society shared collective responsibility for protecting the water bodies. After the independence government took the duty of protecting these bodies. Constitutional provisions and mandate of public trust doctrine upheld by judiciary cast on them the duty to protect and preserve them⁴⁵. This shift from community ownership to government ownership proved to be detrimental to the very existence of wetland areas. Several legislations operate in the field of conservation of wetlands bodies. Quite a few government departments with conflicting interest also operate for this purpose. Department of public health, irrigation, water supply, urban development, tourism, environment and forest are some among them.

The National Water Policy

Various policy measures were adopted by national and state governments to protect the wholesomeness of water. The National Water Policy, 1987⁴⁶ was one of such attempt. It was an orderly document and its structure and contents were vast. It covered the aspects of water as a limited and valuable national resource to human environment and ecology. After the adoption of the National Water policy an official-level body was constituted by government of India. This was named as the National Water Board and its duty is to find ways of implementation of Indian water policy. A revised version of the same was

⁴⁵ *M.C.Mehta v. Kamal Nath*, (1997)1 S.C.C. 388.

⁴⁶ See the National Water Policy, 1987, Ministry of Water Resources(1987).

announced in 2002⁴⁷. It recognized private sector participation and the need for a standard shift from resource development to efficient utilization of the developed resources. Earlier policy was a wholly informal government exercise, with no consultations with people and institutions outside. Two reasons for failure of the 2002 water policy were in relation to water harvesting and community management of water. Important controversies such as those relating to water as “commodity” versus water as “commons” or a “basic right” and the desirability of water markets were ignored⁴⁸.

The new water Policy was adopted in 2012⁴⁹. Under this due consideration is given to the holistic approach needed for the sustainable development of water resource. There is a realisation that rather than treating water as a single unit, an ecological approach is the need of the hour. It says that all the elements of water cycle namely evapo-transpiration, precipitation, runoff, river, lakes, soil moisture, and ground water and sea are interdependent and the basic hydrological unit is the river basin, which should be considered as the basic unit for planning⁵⁰. It also stresses the need for river basin authorities for the holistic approach towards development.

Water Policy of Kerala, 2008

The existing water policy of Kerala was formulated before the new National Water Policy 2012. The Kerala water policy was formulated in 2008⁵¹. The water policy of Kerala tries to address various problems emerging from the

⁴⁷ See the National Water Policy, 2002, Ministry of water Resources, Government of India(2002).

⁴⁸ Ramaswamy R.Iyyer, “Approach to a New National Water Policy”, *The Hindu* (October 9, 2010), p.5, col.7.

⁴⁹ See the National Water Policy 2012, the Ministry of water Resources, Government of India (2012).

⁵⁰ *Ibid.*

⁵¹ See the Kerala Water Policy, 2008, Water Resource Department, Kerala(2008).

use of water from the rivers. It addresses the problem of protection of river basin. But the approach is not holistic. A mention regarding the protection of this vulnerable area can be observed in the policy. Another aim of the policy is the optimum utilisation of the resources in or in relation to water bodies⁵². The real problem is how the protection and sustainable utilisation can go hand in hand meeting the aspirations of the community and the protection of environment. The policy itself suggests that in order to achieve this measure there should be a master plan regarding the resources management in each river basin and micro water basins. Then it will become the basis of development in the state regarding the integrated approach of land and water resources. Every plan relating to the resources in the rivers can be done only with environment impact assessment. It should be environment friendly and sustaining the ecology⁵³. Thus the participatory approach from the stakeholders becomes necessary. The planning envisages the involvement of various departments involved in the management of various sectors. The co-relation between the central and the state government is also necessary to meet the challenges⁵⁴.

Legislations Bearing on Land Use Controls in Inland Wetlands

Water is a state subject⁵⁵ and states have the competence to make laws, formulate and implement plans and schemes for development of water resources, for water supply, irrigation and hydropower. Several states have enacted laws relating to water. But, most of these laws do not address the present concerns in the water resources sector.

⁵² *Ibid.*

⁵³ *Ibid.*

⁵⁴ *Ibid.*

⁵⁵ See the Constitution of India, Schedule VII, List II, Entry 17 “Water, that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to the provisions of entry 56 of List I”.

The current legislations governing the protection of rivers are many⁵⁶. During British period the River Conservancy Act, 1884⁵⁷ was enacted for the protection of rivers. This was an Act to regulate the use of land within the river banks rather than the river itself. But later legislations reflected only water conservation and its management rather than the related land system associated with the river. There are clear conflicts between the existing legislations⁵⁸ and the societal outlook regarding development. If the provisions of the Acts are strictly implemented it would go against the aspirations of the society. Thus mass violations occur regarding the implementation of the law⁵⁹. The land and sand mafia has acquired greater momentum by the increase in the value of land and its allied resources. Any measures adopted by government to curb the menace of depletion of resources have resulted in loss of life of many people.

Since independence a number of attempts had been made by the Parliament to protect river beds and banks. The first attempt at river bed management was through an Act of parliament⁶⁰. It had the most comprehensive mandate⁶¹. But it failed in achieving its objectives. Consequent to that the Government enacted the Brahmaputra Board Act, 1980⁶². Its aim was comprehensive development of river

⁵⁶ See state Irrigation and Drainage Acts, the Interstate River Water Disputes Act, 1956, the River Boards Act, 1956, the Interstate Water Dispute Tribunal Awards, the 73rd and 74th Constitutional Amendment Acts and the Panchayath Extension to Schedule Areas Act, 1996.

⁵⁷ For more details see [http://demo.cgg.gov.in/apwater/downloads/acts/River%20Conservancy%20Act%20\(River%20Conservation%20Act%20\)%20.pdf](http://demo.cgg.gov.in/apwater/downloads/acts/River%20Conservancy%20Act%20(River%20Conservation%20Act%20)%20.pdf), accessed on February 12, 2010.

⁵⁸ See The Mines and Minerals (Regulation and Development) Act, 1957, the Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001 and the Kerala Protection of River Banks and Regulation of Removal of Sand Rules, 2002.

⁵⁹ Ramakar Jha, K. D. Sharm, and V. P. Singh, "Critical Appraisal of Methods for the Assessment of Environmental Flows and their Application in Two River Systems of India", *KSCE Journal of Civil Engineering* (2008) available at www.springer.com/12205 visited on 12-0-2014.

⁶⁰ The Damodar Valley Corporation Act, 1948.

⁶¹ *Id.*, s.12.

⁶² See the River Boards Act, 1956.

ecosystem⁶³. In 1976 the Betwa River Board was set up under the Betwa River Board Act. Brahmaputra Board was set up⁶⁴ under the Ministry of Water Resources. It covered the Brahmaputra and the Barak Valleys for planning, investigation and implementation of water resources projects. Thus different approaches towards different rivers were followed. In Kerala only in 2002 an Act was passed to protect the river basins and beds from the indiscriminate sand mining.

Tribunal Orders and Statutory Instruments

The Narmada Control Authority was formed following the order of the Narmada Water Disputes Tribunal Award of 1979. Similarly the Cauvery Tribunal and the Second Krishna Tribunal have recommended formation of basin authorities. Several basin management entities have been created through statutory orders. The Water Quality Assessment Authority of 2002⁶⁵ had authority wider than a single basin. These powers included ensuring water quality and environment flows in rivers. Various states also constituted various authorities⁶⁶. The order of the Supreme Court resulted in constituting the Central Ground Water Authority⁶⁷. It was constituted in the year 1996, under the Environmental Protection Act, 1986. This authority had mandate wider than a single river basin. This is also an attempt at water management over large area.

⁶³ *Id.*, ss.13 and 14.

⁶⁴ The Brahmaputra Board Act, 1980.

⁶⁵ Quality assessment of both surface and ground water through integrated management of river basin was stressed in the 2002 policy. This authority was for the implementation of the measures under the 2002 National Water Policy.

⁶⁶ The Tripartite (Centre, Andhra Pradesh and Karnataka) Tungabhadra Board (with very limited mandate) was constituted by the President of India to regulate supply of the Sutlej, Ravi and Beas and to distribute power from the Bhakra Nangal and Beas projects.

⁶⁷ The Central Ground Water Authority was constituted with a mandate to develop and disseminate technologies, and monitor and implement national policies for the scientific and sustainable development and management of India's ground water resources.

Inter-state agreements, union government orders, organisations basin level corporate entities and basin authority set up under environment clearance conditions have a role in basin management. Voluntary corporate bodies, community efforts and lessons from basin management experience are some other existing helping hands in developing a comprehensive management of river beds and basins.

Legislative Measures for Lakes Conservation

Plethora of legislations operates for the protection of lakes and allied wetland ecosystems in India.⁶⁸ It can be seen that various departments and ministries shares the responsibility of protection and upgradation of lakes in India. Ministry of water resources, Ministry of environment and forest⁶⁹, agriculture ministry and fisheries ministry are some of them. Municipal corporations, developmental authorities, tourism departments and water supply boards are the main departments which shares responsibility to protect the urban and rural lakes in India.

In 2001 a Central Government initiative was made through the National Lake Conservation Plan to protect the lakes in India. It was an ecosystem based approach. The 12th lake conference held at Jaipur made the *Jaipur Declaration*⁷⁰ for protection of lakes and wetlands associated with them. They adopted a specific strategy for protection of each lake in a holistic manner. MoEF operates at the apex for the protection of lakes. It develops the national level policies and plans for the protection and conservation of urban lakes. In order to remedy the management problem of lakes situated in various states, MoEF has directed the states to set up

⁶⁸ Legislations such as the Water(Prevention and Control of Pollution) Act, 1974 as amended up to 1988, the Environment(Protection) Act, 1986, , the Wildlife(Protection) Act, 1972 and its amendments, the Forest (Conservation) Act, 1980, the Indian Fisheries Act, 1857, Coastal Regulation Zone Notification, 1991, Municipal Solid Waste (Management and Handling) Rules, 2000, the Bio-diversity Act,2002 and the Environment Impact Assessment notified under the National Environmental Policy, 2006 are some prominent ones.

⁶⁹ Hereinafter referred to as MoEF.

⁷⁰ See the Jaipur Declaration (2008), <http://wlbd.ilec.or.jp/data/ilec/wlc12/Jaipr-decl.pdf> visited on 12-06-2012.

city level management committees. They carry out the river and lake conservation programmes. They act in co-ordination with the Centre, state and urban local bodies for carrying out the conservation measures. This mechanism if implemented will bring out holistic development of lakes. But just like any other government initiative it is not implemented properly. In order to carry out the programme effectively special purpose vehicles⁷¹ were also constituted under the programme. Along with this a number of NGO's⁷² also operate in the field of lake conservation.

The *Jaipur Declaration* adopted for the conservation of lakes adopts an integrated approach towards lakes and allied wetland ecosystems. The declaration acknowledged the importance of lake wetlands for domestic, agricultural and recreational uses. It also considered the critical contribution of lakes wetlands in providing host of major ecosystem goods and services. They stressed the wise use of lake wetlands in terms of their values and functions. The Jaipur conference expressed concern over the rapid deterioration of lakes and wetlands from developmental and anthropogenic pressures. It is clear that even though lakes are recognized for their services, their economic value is not well documented or understood. They recognized the significant role of basins in water bodies. Their quantity and quality are the determining factors of ecological health. They stressed the need for integrated lake basin management. Need for urgent action at national, regional and global level was called to prevent the degradation of lakes and wetlands. They have laid down an action plan calling upon governments to

⁷¹ Bhoj Wetland Authority for the restoration and management of Bhoj wetlands in Madhya Pradesh, Chilka Development Authority in Orissa for the Chilka Lake, the Loktak Development Authority for Loktak lake in Manipur, the Lake Development Authority Bangalore (Karnataka) for Bangalore lakes, the Jammu and Kashmir Lakes and Waterways Development Authority for Jammu and Kashmir Lakes, the Hyderabad Urban Development Authority for Hyderabad Lakes in Andhra Pradesh, East Kolkata Wetlands Management Authority for the conservation and management of a large number of water bodies in district 24 Pargana in West Bengal and the Jal Vikas Samiti in Udaipur (Rajasthan) are examples of special purpose vehicles.

⁷² For example WWF, UNEP, UNDP, ADB, World Bank, citizens groups are some of the NGO's operating in this field.

implement them with the help of community. The realisation of community involvement in conservation of valuable resources will add momentum to the measures taken.

The Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001

The Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001 tries to protect the river beds and river banks from unnecessary encroachment and removal of sand⁷³. Removal of sand affects this resource by changing its biophysical environment. Thus the preamble of the Act reflects the approach of the legislature. It is obviously towards sustainable development. It is stated in the preamble of the Act that the Kerala government had taken note of the indiscriminate and uncontrolled removal of sand from the rivers causing large scale river bank sliding and loss of property. The Government had also taken note of large scale dredging of river sand disturbing the biophysical environment system of the river. It was felt expedient to provide for regulatory measures for the protection of river banks and for removal of sand from rivers. The constitution of Kadavu committee⁷⁴ and the powers and functions assigned to them are measures for conservation of the bio physical environment⁷⁵ of river ecosystem. Regarding the removal of sand, studies⁷⁶ are to be conducted for the assessment of sand that can be removed from the particular river from time to time. This is carried out through the sand audit conducted at regular intervals. Even then, removal of sand near the river banks and bridges are completely prohibited⁷⁷. This measure is

⁷³ The Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001, preamble.

⁷⁴ *Id.*, s.3.

⁷⁵ *Id.*, s. 12.

⁷⁶ *Id.*, s.29.

⁷⁷ *Id.*, s.12 (4) and (5).

particularly for the protection of river banks. Along with this the obligations cast up on the Kadavu committee makes it clear that bio physical environment of the river can be protected only by adequate protection of river beds and banks⁷⁸. The provisions for river bank development plan and the constitution of river fund makes the Act more suited to the protection of the river banks and beds and its ecology⁷⁹. Stringent penalties⁸⁰ prescribed under the Act for the violations, makes it more deterrent towards the violators. Thus the Act clubs within it the twin needs of development and environment. Even after this enactment the encroachment for plundering the wealth of river continued unabatedly sometimes with the help of officials⁸¹. The sand mafia acquired great momentum and they were not hesitant to take up the life of anyone who comes in their way⁸². Thus the Act could not be implemented for many years. The involvement of public in this matter has changed the situation⁸³. Now the stringent prohibitions regarding the sand removal has become the order of the day⁸⁴. Construction industry is in search of the other alternatives for the sand.

⁷⁸ *Id.*, s.15 explains the obligation of Kadavu Committee: “Every Local Authority in the State having Kadavu or river bank for sand removal shall maintain such Kadavu or river bank in a safe condition and protect its bio-physical environment system by taking effective steps to control river bank sliding. Every local authority shall erect concrete pillars at the Kadavu or river bank in such a way that no vehicle shall have direct access to the bank of the river. The local authority shall establish a check post at each Kadavu or river bank and maintain proper account of the sand removed from the Kadavu. Bamboo and "Attuvanchi" may be planted on the river bank with the help of Forest Department to control river bank sliding”.

⁷⁹ *Id.*, ss.16 and 17

⁸⁰ *Id.*, ss.22-25.

⁸¹ K.S.Sudhi, “River Sand Mining may be Resumed for Six Months”, *The Hindu*, Kochi edn.(24th March 2014), p.8, col.5.

⁸² Anupam Chakrabarty, “Sand Mining Lobby Uses Tricks to Evade MoEF Scrutiny”, *Down to Earth* (13th August, 2013).

⁸³ M. Suchitra, “Mother of Three Wages Lone Battle Against Sand Mining Lobby”, *Down to Earth*(7th August, 2013).

⁸⁴ Anupam Chakrabarty, “No Sand Mining Without Environmental Clearance NGT”, *Down to Earth* (5th August, 2013). See also Press Trust of India, “Centre Asks State to furnish Details of Illegal Sand Mining”, *The Hindu Business Line* (24th November, 2013).

Role of Judiciary in Protection of Inland Wetlands

Application of Environmental Jurisprudence for Conservation of Inland Wetlands

Indian courts have been positive on the issue of protection of inland wetlands. Some remarkable principles and doctrines propounded by the Indian judiciary for protection of wholesomeness of environment are helpful in conservation of inland wetlands from various threats faced by them.

i) *Doctrine of Absolute Liability*

Doctrine of absolute liability is an available mechanism to make an enterprise which is occupied with an inherently dangerous or a hazardous activity liable for any harm to anybody by virtue of a mishap in the operation of such dangerous or unsafe activity. This can include the poisonous materials or hazardous wastes let into the inland wetlands without treating them properly. The industry or body is strictly and completely obliged to repay every individual who are affected end for damage to the environment. Such risk is not subject to any exemptions⁸⁵.

ii) *Polluter Pays Principle*

Polluter pays principle⁸⁶ does not adhere only to finding fault. Instead it supports a remedial methodology which is concerned with repairing the harm. It is a rule in international environmental law where the polluting party pays for the harm or damage done to the natural environment.

⁸⁵ *Union Carbide Corporation v. Union of India*, A.I.R. 1992 S.C. 248.

⁸⁶ *Vellore Citizen's Welfare Forum v. Union of India*, A.I.R. 1996 S.C.2718.

iii) Precautionary Principle

Precautionary principle⁸⁷ applied by judiciary developed three basic concepts. They are, environmental measures must anticipate, prevent and attack the causes of environmental degradation. Lack of scientific certainty should not be used as a reason for postponing measures. Onus of proof is on the actor to show that his action was benign.

iv) Doctrine of Public Trust

The public trust doctrine is another development for the protection of natural resources⁸⁸. It rests on the principle that certain resources like air, water, sea, and forests have such great importance to people as a whole that it would be unjustified to make them a subject of private ownership⁸⁹.

v) Principle of Sustainable Development

Finally the doctrine of sustainable development highlights the concept of sustained development. It tries to strike a balanced approach towards resource use. In *Rural Litigation and Entitlement Kendra v. State of UP*⁹⁰, the court for the first time dealt with the issue relating to the environment and development. The court held that, it is always to be remembered that resources are the permanent assets of mankind and are not intended to be exhausted in one generation. In *Vellore Citizen's Welfare Forum*⁹¹, the Supreme Court observed that sustainable

⁸⁷ *Ibid.*

⁸⁸ *M.C.Mehta v. Kamal Nath*, (1997)1 S.C.C. 388 Supreme Court made the observation that public at large is the beneficiary of the seashore, running waters, airs, forests and ecologically fragile lands. The state as a trustee is under a legal duty to protect the natural resources. These resources are meant for public use and cannot be converted into private ownership. Every generation owes a duty to all succeeding generations to develop and conserve the natural resources of the nation in the best possible way. It is in the interest of mankind. It bis in the interest of nation. Thus public trust doctrine is a part of the law of land.

⁸⁹ *Ibid.*

⁹⁰ A.I.R. 1985 S.C. 652.

⁹¹ A.I.R. 1996 S.C.2718.

development has come to be accepted as a viable concept to improve the quality of human life while living within the carrying capacity of the supporting eco-system.

All the above said measures are the creation of judiciary particularly for the protection of environment and various ecosystems. Right to water was incorporated as fundamental right through the judicial decisions. In *Narmada Bachao Andolan v. Union of India*⁹², the Supreme Court of India held ,

“Water is the basic need for the survival of human beings and is part of the right to life and human rights as enshrined in Article 21 of the Constitution of India ... and the right to healthy environment and to sustainable development are fundamental human rights implicit in the right to life”.

Balancing of Concepts of Environment and Development

In a number of decisions the Supreme Court and High Court, have observed the need for a balanced approach emphasizing the sustainable development. In *M.C. Mehta v. Union of India*⁹³, the Supreme Court dealt with ground water depletion. On 20-3-1996 the court took notice of the news item under the caption “Falling Groundwater Level Threatens City,” appearing in *the Indian Express* dated 18-3-1996. The Court issued notice to the Central Groundwater Board and the Delhi Pollution Control Committee. The news item was brought to the notice of the court by Mr. M.C. Mehta, Advocate. Pursuant to this the court issued notice to the Municipal Corporation of Delhi and the Delhi Waterworks and Sewerage Disposal Undertaking. While dealing the case the court

⁹² Vrinda Narain, “Water as a Fundamental Right : A Perspective from India”, 34 *Vermont Law Review* (2012), p.921.

⁹³ See for complete judgment, <http://indiankanoon.org/doc/69408974/>. Docu. visited on 16-07-2015.

incidentally dealt with the need for “holological” approach towards the water resource management. The Court said,

“Sustainable solutions to water-resource and land-use problems should be achieved through appropriate interventions, and supply and demand management options. Regulation on exploitation through legislation and effective administration with focus on water conservation, recycle or reuse, restrictions to ensure equitability in water availability and pragmatic land use. Management of water resources to achieve overall inspirational goal of sustainable development warrants legal interventions based on the principle of inter and intra-generational equity, the precautionary principle, conservation of natural resources and environmental protection”.

There is thus adequate reason to take recourse to the Environment (Protection) Act, 1986⁹⁴ for implementing holological approach to water resources management.

“In order to address the complex issues in water resource management it is prudent that the Central Government considers constituting an authority under the Environmental (Protection) Act, 1986 and confers on this authority all the powers necessary to deal with the situation created by the depletion of groundwater levels, dwindling surface water resources, deterioration of surface and groundwater quality and haphazard land use. The authority should be headed by a retired scientist with the expertise in the field of hydrology, hydrogeology and information technology”.

⁹⁴ The Environment (Protection) Act, 1986, ss. 3, 4 and 5.

Recommendations to be adopted for this purpose was set out by the court⁹⁵. It said,

“A Central Groundwater Resource Management Authority, with the composition as delineated . . . with mandate for coordination and implementation of all activities of planning, development, allocation, implementation, research and monitoring of all water resources need to be established to promote intra and inter-generational equity, as also to operationalise the precautionary principle in sustainable water resource management”.

All the States need to constitute similar authorities with functions in the state as of the central authority. As per the direction of the Supreme Court the mandate of the authority needs to include the following:

“Land use of river basins should act as the basis for regional planning for sustainable water resource management. To equip the nation for an integrated land use practises medium and long-term national use plans should take care of agricultural practices, human settlement patterns and industrial topology. It must be done in consultation with ministries and departments concerned based on the regional water supportive capacity. Present cropping pattern is to be assessed to lay down National Agricultural Water Use Policy to encourage judicial use of water resources. Review of groundwater levels and quality levels is a necessary thing. Entire river basin need to be protected to ensure maintenance of minimum flows in the rivers so as to full fill the riparian rights to protect the flood plains, to as also protect the vital ecological functions of the rivers. Techno-economic feasibility of

⁹⁵ *Supra n. 67.* Constitution of ground water authority.

programmes on reuse of appropriately treated sewage for agriculture, reuse of industrial waste waters as industrial process water, use of treated sewage in social forestry and public parks in municipal areas and reuse of treated wastewater in new housing complexes for non-consumptive usages is also necessary for the river basin protection. This will protect, conserve and augment natural and manmade wetlands in the country. Catchment area treatment, including construction of checkdams, contour bundling, control of river bank erosion and plantation of endemic fast-growing tree species to arrest soil and water loss in all river basins is to be ensured. All these can be achieved through ensured community participation with a view to connecting traditional knowledge at all stages in the holological approach to water resource management.”

In *M.C. Mehta* case⁹⁶ the Supreme Court considered the need for environment protection and the fundamental duty under Article 51 A(g). Highlighting the 'polluter pays principle', it was held that the natural resources like air, water and soil cannot be utilised if the utilisation results in irreversible damage to the environment. According to the Court, life, public health and ecology have priority over unemployment and loss of revenue. The principle of 'sustainable development' and the 'precautionary principle' were reiterated and explained, making it clear that development and protection of the environment are not enemies. A balance has to be struck. In case of doubt, environment concerns take precedence over economic interest.

⁹⁶ (2004) 12 S.C.C. 118.

Similar observations were made by courts on land use. *Association of Environment Protection v. State of Kerala*⁹⁷ and *Paristhithi Samrakshana Samithi v. State Of Kerala*⁹⁸.

In *M.C.Mehta v. Union of India*⁹⁹, the Supreme Court had occasion to consider the issue of sustainable development and its impact on environmental problems. The Supreme Court said,

“The development and the protection of environments are not enemies. If without degrading the environment or minimizing adverse effects thereupon by applying stringent safeguards, it is possible to carry on development activity applying the principles of sustainable development, in that eventuality, the development has to go on because one cannot lose sight of the need for development of industries, irrigation resources and power projects etc. including the need to improve employment opportunities and the generation of revenue. A balance has to be struck. We may note that to stall fast the depletion of forest, series of orders have been passed by this Court in T.N. Godavarman’s case regulating the felling of trees in all the forests in the country. Principle 15 of Rio Conference of 1992 relating to the applicability of precautionary principle which stipulates that

⁹⁷ (2013) 7 SCC 226. The Supreme Court discussed the Public Trust Doctrine its theoretical and philosophical background and the Judgement of *M.C. Mehta v. Kamal Nath*, (1997)1 SCC 388 Various other judgments such as *Illinois Central Railroad Co. v. People of the State of Illinois*, 146 U.S. 387, *Gould v. Greylock Reservation Commission*,350 Mass 410 (1966); *Sacco v. Development of Public Works*, 532 Mass 670; *Robbins v. Dept.. of Public Works* 244 N.E. 2d 577 and *National Audubon Society v. Superior Court of Alpine County* 33 Cal. 3d 419 court observed that “The State is the trustee of all natural resources which are by nature meant for public use and enjoyment. Public at large is the beneficiary of the sea-shore, running waters, airs, forests and ecologically fragile lands. The State as a trustee is under a legal duty to protect the natural resources. These resources meant for public use cannot be converted into private ownership”.

⁹⁸ See the complete judgment, *Indian Kanoon* - <http://indiankanoon.org/doc/1641803/> visited on 4-09-2014.

⁹⁹ A.I.R. 2004 S.C. 4016.

where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for proposing effective measures to prevent environmental degradation is also required to be kept in view. In such matters, many a times, the option to be adopted is not very easy or in a straight jacket. If an activity is allowed to go ahead, there may be irreparable damage to the environment and if it is stopped, there may be irreparable damage to economic interest. In case of doubt, however, protection of environment would have precedence over the economic interest. Precautionary principle requires anticipatory action to be taken to prevent harm. The harm can be prevented even on a reasonable suspicion. It is not always necessary that there should be direct evidence of harm to the environment”¹⁰⁰.

This is the complete answer to the issue regarding the use of river beds and river basins. In a conflicting situation of irreparable injury to the environment and severe damage to the economic interest, protection of environment would have precedence over the economic interest. Towards such protection, anticipatory action on precautionary principles is necessary and it is the duty of the State to take such action and direct the expert committee headed by the District Collector to ensure that there is no sand mining within the prohibited distance of bridges, river banks, bathing ghats and irrigation projects. Steps should also be taken to see that the river basin is protected. The mining could be permitted without affecting the river basin.

¹⁰⁰ In paragraph 48 of the judgment

Measures Taken by Judiciary to Combat Pollution of Inland Wetlands

Both the Supreme Court and High Courts in many occasions addressed the threats faced by the inland wetlands. They have applied the environmental principles and doctrines to remedy the situation. Water pollution has always been the serious concern of the Supreme Court in many cases. In *M.C. Mehta v. Union of India*¹⁰¹ the Supreme Court dealt with pollution of Ganga river basin. This was mainly due to the negligence of tanneries located near to it. They were reluctant in establishing the primary treatment plants for treatment of effluents. After the consideration of the issue the court directed the tanneries to set up the primary treatment plants and get it approved from the state pollution control boards. Principle of sustainable development was applied while deciding the case. Thus court tried to protect the cradles of civilization and biological security of the river Ganga. Authorities are empowered to take steps to control pollution¹⁰². It was a follow up action in the earlier Ganga pollution case. Here the municipalities and pollution control boards were directed to take immediate action against the polluters of water bodies. In *F.K. Hussain v. Union of India*¹⁰³, dispute arose regarding the administrative scheme evolved to augment the water supply by digging wells and drawing water from the existing wells to meet increasing needs. Petitioner objected the scheme on the ground that if implemented it would lead to the salinity of fresh water aquifers and would lead to the collapse of the existing water supply. The Court found that many suggestions from the authority was not satisfactory and asked them to wait until they get the nod from the Central Government.

¹⁰¹ A.I.R. 1998 S.C. 1037.

¹⁰² *M.C. Mehta v. Union of India*, A.I.R.1988 S.C, 1115.

¹⁰³ A.I.R. 1990 Ker. 320.

In *Ajay Construction v. Kakateeya Nagar Co-op Housing Society Ltd*¹⁰⁴, Ajay constructions made its multi-storeyed open flats illegally. They obtained permission to construct sewage of its building connecting to the drainage pipeline laid by the respondent society. This led to uncontrolled sewage flow to the premises of Osmania University causing tremendous water pollution¹⁰⁵. The Court pointed out that there is the “absolute liability”¹⁰⁶ on the part of those who are engaged in construction work, particularly of multi-storeyed structures, not to commit nuisance by letting out effluent from their drainage system.

In *M.C. Mehta v. State of Orissa*¹⁰⁷, the Court considered the unsanitary conditions created to the Taladanda canal due to untreated waste water from hospital and other parts of the city. This area was expected to remain dry throughout the year except on rainy season. Sewage from various parts of the city got into river. This created health problem in cities. The Court while deciding the case discussed the inactive mode of operation undertaken by the authorities concerned. The Court directed the authorities to take proper action to restore the wholesomeness of water which was supplied for human consumption.

The Court come down heavily up on the activities of authorities responsible for the protection of natural resources. More over the court applied the public trust doctrine to decide the case. In *Nature Lovers Movement v. State of Kerala*¹⁰⁸, the High Court of Kerala reiterated the principle evolved in *M.C. Mehata v. Kamalanath*. The Court said,

¹⁰⁴ A.I.R. 1991 A.P.294.

¹⁰⁵ P.Leelakrishnan, *Environmental Law Case Book*, LexisNexis, Butterworths, Delhi (2004), pp.45-50.

¹⁰⁶ *Union Carbide Corporation v. Union Of India*, A.I.R. 1992 S.C. 248

¹⁰⁷ A.I.R. 1992 Ori. 225.

¹⁰⁸ AIR 2000 Ker 131.

“Our legal system involves the Public Trust Doctrine as part of its jurisprudence. The State is the trustee of all natural resources. They are by nature meant for public use and enjoyment. Public at large is the beneficiary of the seashore, running water, air, forest and ecologically fragile lands. The State as a trustee is under a legal duty to protect the natural resources. These resources meant for public use cannot be converted into private ownership. Thus, the Public Trust Doctrine is now part of the law of the land”.

In the instant case, the Kerala State Government sought to grant approval. This and consequent proceedings for issue of Pattayams in favour of occupants of forest was challenged on the ground that there was environment degradation in de-reserving forest land or using it for non-forest purposes by occupants affecting environmental equilibrium. It was held that each occupier who prays for regularization on the basis of compensatory afforestation scheme and consequent issue of title deed in his favour shall pay reasonable of compensation to state for injury caused by him to general public. This was based on the polluters pay principle evolved by the Supreme Court in *Vellore Citizens' Welfare Forum's* case. The Court observed that ‘the polluter pays principle’ and ‘the precautionary principle’ are essential features of ‘sustainable development’. In *Indian Council for Enviro-legal Action* case, the Apex Court adopted ‘the polluter pays principle’ as a sound principle to be reckoned with and followed by all agencies, responsible for environmental pollution¹⁰⁹.

In 1995, in response to a public interest litigation by a New Delhi-based nongovernmental organization *the Research Foundation for Science, Technology, and Ecology*, the Supreme Court asked relevant agencies for information on the

¹⁰⁹ See http://shodhganga.inflibnet.ac.in/bitstream/10603/8107/13/13_chapter%208.pdf visited on 20-10-2014.

amount of hazardous waste imported and generated domestically, as well as how it was being disposed of. But the state pollution control boards were not collecting data properly, for two years and the MoEF and the Central Pollution Control Board had no authentic data to provide. So the Court convened a panel to investigate and make recommendations known as the High Powered Committee on Management of Hazardous Wastes (HPC). This panel submitted its final report in 2001. Pursuant to this the Supreme Court passed the judgment in 2003. A committee was appointed by the court to assess the creation and disposal of hazardous wastes by industries and other means of import of waste in the country. The monitoring committee found clear violation of rules by many industries like the Travancore Titanium Products. Industry was asked to be closed. But up on the writ petition made by the company the Kerala High Court interfered and granted an interim stay up to 2006. This committee approached the Supreme Court for strong directions and the court allowed it. Through this order, High Court or any other authorities were prohibited from interfering with the working of the monitoring committee. Similarly pollution caused by Hema was analysed as “deliberate poisoning of communities with toxic wastes, contaminating water, soil, and air.” They were asked to pay a fine of 3.9 US dollars. Thus the committee works with more vigour to eradicate pollution and consequent eutrophication of water bodies. This a welcoming attempt by the judiciary when the responsible authorities are inactive in their function.

i) Measures to Address the Illegal Mining of Inland Wetlands

Illegal mining and removal of earth and sand from the inland wetlands and allied regions are another threat to these wetlands. The Green Tribunal, Supreme Court and High Court are very vigilant to protect the water bodies. But most of the time their orders are disobeyed. Awareness and participation of people is

necessary to change the situation. In *Soman v. Geologist*¹¹⁰, petitioners challenged two conditions imposed by the geologist, while granting the quarrying permits to them for quarrying ordinary sand and brick clay from their properties. Quarrying permits were issued with 18 conditions, subject to which the minor mineral could be mined from their property. The petitioners were aggrieved by two condition in those permits .Those restrictions were that no quarrying shall be done within 75 meters of railway line and 50 meters of public road, water course, residential building, boundary wall of place of worship, burial grounds or burning ghats, except under and in accordance with the previous permission of the State Government or the competent authority". "No dewatering the mine pit using pump is permissible and mining has to be ceased once this becomes necessary and mining should be done manually".

The High Court of Kerala observed that any developmental activity without considering the rights of future generations is not a sustainable use of the land. Naturally, the resources cannot be extracted at a rate faster than the nature's capacity to regenerate them and it is absolutely necessary that the basic qualities of the land have to be maintained for the succeeding generations.

The National Green Tribunal through its order prohibited the sand mining from river beds across the country without environmental clearance¹¹¹. It was based on a petition submitted before the tribunal by the bar association¹¹² alleging the illegal sand mining that takes place in the river beds of Ganga, Yamuna and

¹¹⁰ 2004 (3) K.L.T. 577. See also P Nandakumaran, T. S. Anitha Shyam, Mini Chandran *et. al.* "Impact of River Sand Mining on the Groundwater Regime in Kerala-An Overview", Central Ground Water Board, Kerala Region, Thiruvananthapuram, Kerala.

¹¹¹ The National Green Tribunal on Aug 5th 2013 restrained sand mining without any license or environmental clearance from river beds across the country on a plea alleging that such activities were going on in UP with the "willful connivance" of its state machinery. See [http://www.greentribunal.gov.in/Writereaddata/Downloads/671-2013\(MApp\)_26Sep2013.pdf](http://www.greentribunal.gov.in/Writereaddata/Downloads/671-2013(MApp)_26Sep2013.pdf) visited on 20-04-2014

¹¹² *National Green Tribunal Bar Association v. Ministry of Environment and Forests, (No. 171 of 2013)*.

Hindol without getting prior Environmental Clearance. They alleged that it affects the integrity of the river basins and the entire ecology is tilted. The Supreme Court¹¹³ added to this order that any person carrying out sand mining which is less than five hectares requires clearance from the Ministry of Environment and Forests or the State Environment Impact Assessment Authority [SEIAA]. In *Himmat Singh Shekhawat v. State of Rajasthan*¹¹⁴, illegal sand mining in the Yamuna riverbed going on in violation of law, without taking prior environmental clearance. Court considered all aspects of the problem and gave number of directions. It directed the Ministry of Environment and Forest to formulate a uniform cluster policy in consultation with the states for permitting minor mineral mining activity including, its regulatory regime, in accordance with law

ii) Unplanned Tourist Activities and Cultural Misuse

Unplanned Tourist activities without monitoring and compliance with the environmental legislations always create problems. It mainly affects the inland water bodies as they are the attractions for the tourists. In *EIH Ltd. v. State of Rajasthan*¹¹⁵ the dispute was whether a hotel could be allowed to be constructed in no-construction zone near Udaipur Lake. The zone was declared to be no construction zone as per the notification in 1997. But the permission for construction was granted prior to the notification. Considering the total situation the court justified the construction. Condition of some important tourist area lakes such as Dal Lake of Kashmir is one of the important concerns of judiciary. The lake originally occupied 18 Km in the area. Later on it shrunk to 15Km. due to

¹¹³ *Deepak Kumar v. State of Haryana*, (2012) 4 SCC 629, the Court ordered that sand mining on either side of the rivers, upstream and in-stream, is one of the causes for environmental degradation and also a threat to the biodiversity. It had also ordered that mining activity even in less than 5 ha shall obtain Environment Clearance for MoEF /SEIAA.

¹¹⁴ See <http://www.indiaenvironmentportal.org.in/files/sand%20mining%20Yamuna%20NGT%2013%20Jan%202015.pdf> visited on 10-01-2015.

¹¹⁵ A.I.R.2001 Raj.236.

encroachment for tourist activities. More over the wastes generated were deposited to the lake without any treatment. This supported the growth of weeds and contaminated the whole area of lake. The Jammu Kashmir High Court prohibited the use of polythene in these areas. The Court also directed the officials to take steps against violators and report the actions.

i) Illegal Constructions

Land reclamation and construction is another threat faced by inland wetlands. Judiciary has considered this problem on many occasions and given proper directions for the same.

A public interest litigation was filed by Balwant Singh Mehta in 1982 to save the lakes of Udaipur. The High Court of Rajasthan ordered the administration of Udaipur to constitute a committee that can develop a viable plan to protect the city's lakes. Administration was also asked to provide potable water to all citizens. But these orders were disregarded by the authorities.

Jheel Sanrakshan Samithi, an Udaipur based NGO filed a public interest litigation in Supreme Court against the Rajasthan Government. They sought urgent judicial intervention to clear the lakes of Udaipur and to check the flow of pollutants into these bodies. They also sought intervention to protect the land area from illegal encroachment and construction. The Supreme Court passed the case to the Rajasthan High Court for consideration. The Court directed the Government to establish a Lake Development Authority, no construction zone, desiltation of lake on regular basis, prohibition of conversion and construction in around the lake and the catchment areas. The authority was also directed to specify the catchment areas of lakes.

In *M.C.Mehta v. Union of India*¹¹⁶, the Supreme Court recognised the need to control construction near Badhkal and Surajkund lakes. The Court emphasised the role of municipalities and development authorities in protection of the water bodies which are the precious gifts of nature.

In 2008 an environment support group approached the Karnataka High Court with a public interest litigation¹¹⁷. They sought commitment from private lease holders to maintain the status quo of lakes privatisation programme¹¹⁸. The High Court upheld the privatisation of lakes in Bangalore but subjected it to various conditions¹¹⁹. The public interest litigation also addressed the larger issue of bringing together all departments involved in lake protection and management. The task was to formulate a scheme to protect lakes for future and water security for urban population. Justice Patil committee was appointed to study the matter. The HC accepted the ecologically wise and socially sensitive guidelines proposed in the report of the committee. The Court directed the state to take immediate action to protect Bangalore lakes.

But storm water run-off, waste from religious activities, dhobi ghats, idol immersions, animal waste and washing of vehicles are polluting many of water bodies across the country. Along with this is increasing quantity of chemical fertilizers and pesticides are being washed into the river because of agricultural activity taking place on the banks. The toxic chemicals from surface run-offs could be from farmlands, nurseries, orchards, construction sites, gardens, lawns and landfills.

¹¹⁶ 1997(3) S.C.C. 715.

¹¹⁷ “HC Admits Petition on Privatisation of Lakes”, *The Hindu*, Bengaluru edn., Karnataka, (November 13, 2007), p.6, col.3.

¹¹⁸ “High Court Sets Guidelines on Lake Privatization”, *Times of India*, Bengaluru edn. Karnataka (Apr 12, 2012), p.5, col.6.

¹¹⁹ The High Court observed that issuing directions were necessary for the preservation of lakes. The court added that it was necessary to undertake a survey of lakes and tanks, demarcate boundaries and fence such water bodies.

All the above attempts show certain positive signs of improvements towards the conservation of wetlands. People should also be aware of the need for protection of these fresh water bodies.

Conclusion

Each inland wetland ecosystem is an integrated system. It must be treated holistically. India's river basins have been degraded quantitatively and qualitatively. The inland wetland water bodies have become extremely polluted due to various reasons. Village areas almost rely on ground water for drinking and irrigation. Now the ground water contamination is widespread. An alternative source for safe drinking water is a challenge before the whole community. Rain water harvesting and river interlinking programmes are treated as best available solution. The National Water Policy, 2012 demands nationwide information system. Therefore it caters to the planned development and management of river basins. Water uses are to be allocated on priority basis. Ground water harvesting is to be minimized and due regard is to be given to the maintenance of quality. To protect these inland wetlands integrated management strategies are to be designed.

The success of integrated water management strategies depends on striking a balance between human resource use and ecosystem protection. Watershed based planning and resource management is a strategy for more effective protection and restoration of aquatic ecosystems. This approach emphasizes all aspects of water quality. It includes chemical water quality, physical water quality such as temperature, flow and circulation. It includes habitat quality as stream channel morphology, substrate composition and riparian zone characteristics. Biological health and biodiversity are also part of this watershed based approach¹²⁰.

¹²⁰ N. Ahalya and T.V. Ramachandra, "Aquatic Ecosystem Conservation via Watershed Approaches", 4 *Environment Research Foundation Newsletter*, Karnataka (2002)

To deal with non point source pollution comprehensive scale of analysis and management is required. Non-point source strategies recognize that small sources of pollution are widely dispersed on the landscape and their cumulative impact on water quality and habitat are great. A whole basin approach to protect water quality has proved most effective. This includes addressing the issue of water quantity, protection of riparian areas, control of aquatic non native species, protection of water quality, protecting the integrity of permanent and intermittent seeps, streams, rivers, wetlands, riparian areas and conducting comprehensive all seasonal water quality monitoring. Watershed restoration should be an integral part of the conservation program. Most important measures among them would be control and prevention of pollution and sediment production, restoration of the condition of riparian vegetation and restoration of in stream habitat complexity. But in all environmental management activities the importance of community perspectives and values should not be overlooked. Public support, co-ordination with people and organizations will ensure long term protection of these precious areas. Along with this equitable access to these resources through transparent management and improved policy, regulatory and institutional frameworks will help in sustainable inland wetland management.

HIGH LAND WETLANDS

In India, wetland ecosystems are distributed across various topographic and climatic regimes. The wetland ecosystems in high land are fragile and their natural environment is very harsh¹. The highland wetlands are considered to be a vital part of hydrological cycle². They are mainly forest wetlands, highland lakes, catchment areas, command areas and sometimes dam sites. Among these high land wetlands, Himalayan high altitude wetlands occupy a special position under the *Ramsar convention*. Indian legislation on wetlands also give due consideration to them³. High land wetlands of western ghats are treated as the world biological reserves⁴. They ensure sustainable development of mountain regions as well as water-limited lowlands. So highland wetlands represents unique and important ecosystem where their function or dysfunction has large local, regional and global consequences.

The Central legislations⁵ along with other state legislations such as irrigation laws and command area protection measures⁶ operate to protect

¹ Guangchun Lei, “Review of the Himalayan Wetlands Conservation Initiative Asia Regional Meeting in Preparation for Ramsar COP9”, Beijing, China(2005).

² Archana Godbole , Sameer Punde and Jayant Sarnaik, “Conservation Agreements as a Strategy for Long Term Stakeholder Participation and Assured Biodiversity Conservation, in North Western Ghats”, Applied Environmental Research Foundation, Pune, India(2012).

³ Nidhi Nagabhatla1, Rohan Wickramasuriya, Narendra Prasad and C. Max Finlayson, “A Multi-Scale Geospatial Study of Wetlands Distribution A Nagricultural Zones, and the Case of India”, International Union for Conservation of Nature (IUCN), Delhi, India(2010).

⁴ Nora Mitchell, Mechtilde Rössler and Pierre-Marie Tricaud, *World Heritage Cultural Landscapes: A Handbook for Conservation and Management*, World Heritage Centre, UNESCO.

⁵ See the Forest (Conservation) Act, 1980, the Indian Forest Act, 1927, the Environment (Protection) Act, 1986, the Biological Diversity Act, 2002, the Wildlife (Protection) Act, 1972 and the wetland(Conservation and Management) Rules, 2010.

highland wetlands. But their provisions are not adequate. The present development pattern in this region and consequent natural calamities shows that pollution is increasing at an alarming rate in these areas⁷. The policies, conventions and legislations, lack will in their proper implementation towards sustainable development of this ecological hot spot. Hence the adequacy of various controls on land use exercised on these areas for their protection are analysed here. This study is necessary to find a possible way to the sustainable development and wise use concept.

Various Forms of High Land Wetlands and their Ecological Functions in India

Different forms of highland wetlands are present in India. High altitude wetlands, lakes, meadows, peat lands, forest wetlands and command areas are examples.

i) High Altitude Wetlands in Himalaya

The ‘high altitude wetlands⁸’ are located in special regions. These are water bodies like lakes, ponds and rivers, found at altitudes higher than 3,000 meters above mean sea level. They are fed by glaciers or snow from the surrounding mountains⁹. They can be defined as

“Areas of swamp, marsh, meadow, fen, peat-land or water bodies located at an altitude higher than 3000 m, above mean sea level,

⁶ Eighth Five Year Plan 1990-95: Report of the Task Force on Command Area Development (1989).

⁷ Adhikari and Gyanu. “Human Encroachment Caused Floods Disaster”. *The Hindu* (23 July 2013). See also Bose and Indrajit. “Rains in Uttarakhand: Extreme Weather Event”. *Down to Earth*(18June 2013).

⁸ Hereinafter referred to as HAW.

⁹ H. S. Baral, Avian Fauna in the High Altitude Lakes of Nepal Himalayas(2005) pp.53-58.

whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or saline¹⁰.

They are extreme ecosystems and are characterized by adverse climate and presence of a seasonal frost layer. Among the areas of HAWs, the Himalaya and the Tibetan plateau is the largest. The outflow of the lakes present in this region gives rise to great rivers. They play key role in the hydrology and ecology of rivers and acts as reservoirs for storing water in wet seasons and releases them during drier periods. They are hosting biodiversity, wildlife habitat and socioeconomic aspects.¹¹ Many endemic and rare species flora and fauna could be observed in these regions¹². They support local nomads also significant in religious aspect to the communities over there. The catchment areas of these wetlands are used for cultivation. These lakes are the *Ramsar sites* of India. Controls over the use of these regions lies with government. Certain indigenous communities inhabit these areas. The world community is keen in protecting this area¹³.

ii) Meadows

Meadows are one form of HWAs. They are rich in biodiversity. They are located at altitudes above 3000 m. from mean sea level. It is located between forest border and permanent snowline. They have great water retention capability due to permanent frost layer¹⁴. Meadows are usually located in the river source

¹⁰ S. Panigrahy, J. G. Patel and J. S. Parihar (Eds.), National Wetland Atlas : High Altitude Lakes on India, Space Applications Centre, ISRO, Ahmadabad, India, p.108.

¹¹ M. Agarwal, “Migratory Birds in India: Migratory Birds Dwindling”, 506 *Nature*(2011).

¹² W.A. Rodgers and H.S. Panwar , Planning a Protected Area Network in India, A report prepared for the MoEF, Government of India, Dehra Dun (1998),p. 608.

¹³ Pandey and Kundan, “PM’s Climate Mission Plan for Himalaya Yet to Take Off”, *Down to Earth*(2013).

¹⁴ J. D. Allan and A. S. Flecker, “Biodiversity Conservation in Running Waters”, 43 *Journal of Bioscience* (1993), pp. 32–43.

areas. These ecosystems provide a habitat for many medicinal plants that are being increasingly used for commercial purposes.

iii) Lakes and ponds

These ecosystems are usually located in river source areas. Highland lakes are very important for water availability in downstream rivers. They experience strong temperature variation during the day. The salinity in lakes and ponds varies from freshwater to salt lakes and ponds. These lakes undoubtedly provide many ecosystem goods and services¹⁵, not only locally but on national and international scales as well. These lakes are facing severe degradation due to climate change¹⁶.

iv) Peat lands (Swamps, Marshes, Bogs, and Fens)

Peat lands are wetlands in which spongy type deposit is found. This consists of plant organic matter with varying degrees. Many types of wetlands such as swamps, marshes, bogs, and fens or grasslands belong to peat lands. Among them swamps and marshes are located in the headwater regions of river basins. These ecosystems are biodiversity hotspots¹⁷. These wetlands are often exposed to overgrazing, which is the main economic activity of local people. Climate change is another threat to swamp ecosystems.

v) Wetlands of Western Ghats

Western Ghats is a wonderful depository of gene pools and reservoir of biological diversity. Apart from the rivers originating from here it also consists of

¹⁵ J. Boyd and S. Banzhaf, "What are Ecosystem Services? The Need For Standardized Environmental Accounting Units", *63Ecol. Econ.*(2007), pp. 616–626.

¹⁶ B.C. Bates, Z.W. Kundzewicz, S. Wu, and J.P. Palutikof (Eds.), *Climate Change and Water*, Intergovernmental Panel on Climate Change, Geneva (2008).

¹⁷ P. Chandan, A. Chatterjee and P. Gautam, *Management Planning of Himalayan High Altitude Wetlands: A Case Study of Tsomoriri and Tsokar wetlands in Ladakh, India*, M. Sengupta, R. Dalwani (Eds.), Proceedings of Taal 2007, Ministry of Environment and Forest, Government of India, New Delhi (2008).

evergreen forests¹⁸ of various types. All these wetlands harbour large variety of flora and fauna¹⁹ in this region. Due to such importance about thirty nine sights of the Western Ghats are designated as UNESCO World Heritage Sites²⁰.

vi) Command Areas

Wetlands in command areas can also be part of high land wetlands. Command area can be defined as a total area that can be irrigated by a canal system on the perception that unlimited quantity of water is available. It is the total area that may be theoretically be served by the irrigation system. It can be an area around the dam, where the benefits of the dam, such as irrigation water reach²¹. The command areas are to be protected because these areas are treated as economically benign lands to the holders of land²². Thus they are easily exploited and converted to many other uses. These are ecologically fragile areas.

vii) Forest Wetlands

Forest is located mainly in highland. It harbours many wetland ecosystems. These areas are completely under the control of government and regulated by forest legislations. Forested wetlands consist of productive ecosystems with multiple functions and ecological values. They actually differ from true swamps.

¹⁸ The Western Ghats areas include moist deciduous forest, dry deciduous forests, sholas, montane rain forests, montane grasslands and grassland eco system and myristica swamps.

¹⁹ V.S. Vijayan. "Research Needs for the Western Ghats", Ashoka Trust for Research in Ecology and the Environment (ATREE). See also in N.Myers, R.A. Mittermeier, C.G. Mittermeier and J. Kent, "Biodiversity Hotspots for Conservation Priorities", 403Nature(2000), pp.853–858.

²⁰ "UN Designates Western Ghats as World Heritage Site", *Times of India* (02-07-2012).

²¹ See for more details on Command area www.proz.com/kudoz/english/agriculture/1308588_command_area.htm/ visited on 22-06-2014.

²² N. Bassi and M.D. Kumar, "Addressing the Civic Challenges: Perspective on Institutional Change for Sustainable Urban Water Management in India", 3 *Environ. Urban. Asia* (2012), pp. 165–183.

They lack constantly standing water. But repeated flooding is common. Differences in the length of flood give rise to a variety of community types²³.

viii) Myristica Swamps

The rare freshwater wetlands found in Western Ghats with unique assemblage of floral and faunal biodiversity are myristica swamps²⁴. They are characterized by slow flowing streams. They have been recorded from Goa, Karnataka, and Kerala in India. Many of the animals found in the myristica swamps are endemic and some are on the red-list of IUCN²⁵. More importantly these wetlands also play a critical role in water storing and maintaining ground water level. These are critically endangered ecosystem in Western Ghats. The unique myristica swamps are one of the major biodiversity²⁶ of western ghats.

Various categories of highland wetland perform significant functions. These highland wetlands buffer water flows in vulnerable high mountain catchment across greater Himalayan region. They support large biodiversity and generate multiple

²³ Seasonally flooded — Characterized by surface water that is present for extended periods, especially early in growing season and is absent by the end of the season in most years but water table is often near the surface.

Intermittently flooded — Characterized by substrate that is usually exposed, but where surface water is present for variable periods without detectable season periodicity.

Temporarily flooded or saturated — Characterized by surface water that is present for brief periods during the growing season, but also by a water table that usually lies well below the soil surface for most of the season.

²⁴ A. Das, J. Krishnaswamy, K. S.Bawa and M.C.Kiran, "Prioritisation of Conservation Areas in the Western Ghats", 133 *Journal of Biological Conservation*(1993), pp.16-31.

²⁵ Claude Garcia , Delphine Marie-Vivien , Chepudira G. Kushalappa , P. G. Chengappa and K.M. Nanaya, "Geographical Indications and Biodiversity in the Western Ghats", 27*Mountain Research and Development*, India (2007), pp.206-210.

²⁶ About 53 patches of Myristica swamps have been recorded by Kerala Forest Research Institute from the Kulathupuzha, Anchal forest ranges and Shendurney wildlife sanctuary of the Kollam and Thiruvananthapuram districts of southern Kerala. A total of 63 tree species and 97 species of shrub-herb-climber combine were recorded from the Myristica swamps. Many of the plants seen here are endemic to Western Ghats. Two species of earthworms, three species of crabs, ten species of fishes, thirty four species of amphibians, thirty three species of reptiles, fifty eight species of birds and twenty one species of mammals have been recorded as present in the swamps. In addition to this annelids and arthropods are also being recorded.

goods and services that humans depend on. It ranges from clean water to fishery and flood protection. Though located in forests and high lands they faces many threats to their existence. World community is very keen in protecting this biological hotspot.

Threats to High Altitude Wetlands

It is certain that degradation of this significant ecosystem affects the ecology of the country. This also leads to irreparable consequences globally. Major threats come from reduction in the natural forest cover and conversion of forested slopes to other cultivation. This affects the total ecology of the highland wetlands. Some of the threats faced by these wetlands are:

i) Global Climate Change

Global warming has affected the Himalayan ranges badly. Temperature in the Himalayas has been much greater than the global average. The lakes and rivers in the Himalayas are very sensitive to the effects of climate change. This global climate change impacts on the physical characters of lakes and rivers. This will have a direct effect on biodiversity of the region.

This alteration increases the risk of extinction of species with narrow geographic or climatic distributions. It will lead to the disruption of existing communities. Endemic plant species are also unable to respond effectively due to the high rate of climate change. It results in invasions of weedy and exotic species from lower elevations. It will affect the migratory birds too. In general, climate change is believed to be affecting all natural ecosystems, as well as food production in agricultural systems, tourism, and mountain infrastructure.

ii) Threat to Fish Diversity

Aquaculture of cold water fish species has been trialed in several states of India. It may present a threat to some species of water birds. The importance of

the lakes for their unique flora and fauna and as staging and breeding areas for water birds need to be assessed before the fish farming. The conservation values of many important lowland lakes and wetlands have been at risk by inappropriate fish farming. Consequently, remaining ones are more valuable for conservation²⁷. This will also be the case for high land lakes if no proper controls are exercised.

iii) Increased Tourist Activities

The ecosystem balance that traditionally existed in Himalayan communities is degenerating because of unmanaged and unplanned tourist activities. Increasing tourism threaten high land wetlands²⁸. Tourist activities remain unmanaged in the area of biodiversity protection. Most areas have shown a decrease in the biodiversity value of wetlands after the inflow of tourists. There should be appropriate monitoring programmes to manage the tourism. This management should be under the strict vigilance of government departments. The authorities should be able to respond to any deleterious changes. The wise use of wetlands is to be brought in to reality by assimililation and training. But this always remains as proposal and a considerable disparity between theory and practice exists.

iv) Over Grazing

Grazing is a significant threat to ground nesting bird species. This includes wetland breeding species also. Therefore during the breeding season between March to July, breeding areas should be fenced or otherwise protected from grazing. However, carefully managed grazing can be a useful tool for the

²⁷ B.Callot, J.Harjung, J. Van De Löcht and R.Unterkofler, "Climate Change Himalayas", *Earth Sciences*, University of Iceland(2009), p.21.

²⁸ B.Guija , "WWF International's Regional Approach to Conserving High-Altitude Wetlands and Lakes in the Himalaya", *25 Mountain Research and Development*(2005), pp.76-79.

management of some lake shores, and wetland systems²⁹. Therefore, regulation of grazing in high land wetlands is important for both human communities and biodiversity.

Threats to Western Ghats wetlands

Uncontrolled human intervention leads to many problems. This results in low productivity in Western Ghats area. There may be excessive surface runoff and soil erosion due to heavy rains, the drying up of mountain streams, frequently occurring moisture stress, drought and inadequate water and land management. This results in the loss of nutrients also. Due to the soil carriage by rivers the reservoirs also lose its storage capacity every year. Even after the major attempts through the command area development programme much of the cultivated areas remain to be rain fed and it results in poor contribution to the total food production³⁰ due to its vulnerable nature.

i) Deforestation

The most important ecological damage inflicted upon the Western Ghats is deforestation. In the past century more than 50 percent of the forest vegetation of this region has been lost³¹. The remaining forests are extremely fragmented. The target ecosystems namely pinnacle plant communities engage only a small area. But these are getting rapidly degraded due to inadequate buffering and protection.

²⁹ P.S. Ramakrishnan, U.M. Chandrashekara, C .Elouard et.al., *Mountain Biodiversity, Land Use Dynamics, and Traditional Ecological Knowledge*. Oxford,U.K.(2000),p.140.

³⁰ The Environment (Protection) Act, 1986, states that Union Government can designate an area as “ecologically sensitive zone” and then Government can prohibit or regulate Development in this region.

³¹ C.J. Bibby and C. Alder (Eds.), *The Conservation Project Manual*, B P Conservation Programme, Cambridge, U.K(2003).

ii) Land Use Changes

Rapid land use changes and unstable resource management practices have undermined the capability and yield of the entire agricultural landscape. Agricultural collapse is present everywhere. It is not only an ecological crisis but also a major economic and socio-political crisis. It is adversely affecting the state's economy and the lives of millions. This in turn leads to the encroachment of the remaining natural forests. During 1960-1980 period land conversions reached its peak and it resulted in loss of 30 percent of the forest cover³². Forest communities in the higher mountains were affected badly by fragmenting forest ecosystems.

iii) River Valley Projects

Between the 1950s and the 1980s a spate of river valley projects were taken up in the ghats. Hydel dams were established in the higher reaches. Irrigation dams were established in the lower valleys. Hundreds of dam reservoirs and associated structures came up in the western ghats. Sometimes fish migration is blocked by dam walls. Thus their spawning habitat gets separated from rearing habitats. The dams trap sediments, which are very essential for the physical processes and habitats of downstream of dams. It helps in creating productive deltas, barrier islands, fertile flood plains and coastal wetlands. This changes in silt carrying affects the river flow. This results in bank erosion, flooding and many other evil consequences to river basins. These also negatively impact the natural communities of plants and animals in river³³.

Kerala has about 60 large and medium dams within forests in the Ghats. All the major evergreen forests were destroyed or badly affected by these dams. This

³² Critical Ecosystem Partnership Fund , *Western Ghats and Sri Lanka Biodiversity Hotspot: Western Ghats Region Ecosystem Profile*, Conservation International, Arlington(2007).

³³ S. Bhagwat, C.Kushalappa, P.Williams and N.Brown., “The Role of Informal Protected Areas in Maintaining Biodiversity in the Western Ghats of India”, 10 *Ecology and Society* (2005).

destroyed complete forest and allied rivers³⁴. The Periyar basin in the high lands of Kerala has a series of twelve large dams which directly and indirectly resulted in the destruction of about 4000sq.km. of rainforests and grasslands. In the adjacent State of Tamil Nadu in the Nilgiri Hills, along the western edge of the Nilgiri Plateau at an elevation of more than 2000m, a series of 7 dams came up. This wiped out the best sub-temperate shola grassland wetlands in India. In the State of Karnataka further north, the most extensive evergreen forests in that state was severely damaged by the Saravathi Hydro Electric Project³⁵. This badly affected the stability of the rivers, which depends on the catchment vegetative cover.

iv) Mining and Illegal Constructions

Issues like mining for metals and minerals and other exploitation of natural resource poses another threat to the wetlands of western ghats. The opening up of the inner forests to human activity adversely affected the forests. This included forestry operations. Along with this larger number of permanent human settlements sprang up in these high land areas. This altered the entire landscape. This has resulted in encroachments, constructions, religious activities, tourist resorts and residential constructions. All these pose serious threat and danger to the ecological balance and wetland diversity of the western ghats.

v) Increasing Human- Animal Conflict

The increased human activities in western ghats high land area lead to large scale destruction of the forests, wildlife and eco system. This block the

³⁴ Shankar Sharma, “Impact of Power Projects on Western Ghats”, WGEEP Brainstorming Session, Bengaluru(2010).

³⁵ See effects of Hydro Electric Project, http://mobilepaper.timesofindia.com/mobile.aspx?article=yes&pageid=11&s_ctid=edid=&edlabel=TOIPU&mydateHid=08-12- 2012 visited on 22-08-2013.

corridors of passage for the wild animals³⁶ from one side of the forest to another and wild life is seriously threatened. This results in chocking of animals in many areas. Several Tea, Coffee and Teak plantations in the Western Ghats lie enclosed inside reserve forests and are surrounded by thick forests on all sides. Erection of fences, electric fences, boundary walls and trenches in the estates and around them causes obstacles and hurdles for the smooth passage of mammals. Moreover further construction and development activities within the estates, increased human activities in human settlements inside the estates and on the fringes of forests, change in use pattern and construction of resorts cause substantial damage to the surrounding biodiversity and ecological balance and disturb and annoy the surrounding wild life and create an adverse ambience and atmosphere for wild life. This has resulted in creating man-animal conflict. Several instances of man eating leopards as well as elephant attacks are reported regularly from the Malakkapara–Valpara–Sholayar areas of the Western Ghats³⁷. Likewise destruction of crops in human settlements by wild elephants in several areas of the Western Ghats as a result of the shrinking and loss of natural habitats of the elephants, are quite common.

Conservation Measures for Highland Wetlands

Various provisions of the Constitution of India and legislations enacted for the sustainable development of resources operate in the field of conservation of high land wetlands. But they are generic in operation. The wetlands in highland have transboundary effects on the environment. They need technical, financial and

³⁶ See Man and Wild Life Conflict, <http://www.thehindu.com/todays-paper/tp-national/tp-tamilnadu/a-taste-of-rich-foodculture/article4177390.ece?css=print> visited on 22-08-2013.

³⁷ Sunny George, “Assessment of the Impact of Man Made Modifications on the Chalakkudy River System in Order to Develop an Integrated Action Plan for Sustainable River Management”, Limnological Association of Kerala, Chalakkudy(2001), p.64.

legislative support based on the ecosystem approach. Aim of all these attempts should be conservation and wise use of these wetlands.

International Attempts to Protect High Altitude Wetlands

In 2002 an international attempt towards this regard took place in Beijing. The government of China, and WWF International took the initiative and organized the first regional workshop known as Urumqi Workshop³⁸. This kicked off the processes to develop a regional initiative aiming at conservation and wise use of Himalayan mountain wetlands. This is known as Himalayan Initiative. This addressed various issues faced by these regions and gave guidance for the development of regional initiative in the framework of the Convention on Wetlands³⁹

They found that the only possible way to conserve the wetlands is through a joint regional project under the umbrella of regional cooperation. Therefore, the participants formulated an “Urmqi Call”⁴⁰. Urumqi was followed by the

³⁸ Guangchun Lei, “Review of the Himalayan Wetlands Conservation Initiative”, Asia Regional Meeting in preparation for Ramsar COP9, Beijing, China, (2002).

³⁹ This workshop is organized based on the measures adopted in the 8th Conference of the Ramsar Parties (Ramsar Resolution VIII 30).

⁴⁰ The Urumqi Call states that “Recognise the special need to conserve High Altitude Wetlands in the light of climate change and its impact on water crisis. Most of the important rivers in the region - Indus, Ganges, Brahmaputra - originate from these high altitude wetlands and lakes. Unless these sources are properly conserved, the water security of more than one billion people in the region could further lead to a crisis situation. Therefore, we recognise the critical role of these areas in water resources management of this region, home of more than 20 per cent of the world’s population; We have noted that High Altitude Wetlands:- have significant cultural, religious and spiritual significance. They are a source of inspiration. They sustains the biodiversity of the region and some of the most endangered species in the world and have great potential for fostering regional co-operation and promotion of peace in the region;

We have identified more than 200 sites in the region of international importance for their biodiversity and cultural significance, to become *Ramsar sites* and UNESCO world heritage sites. Furthermore, to initiate joint action, more than 15 sites have been identified for transboundary co-operation. We have agreed that there is an urgent need to initiate a “Himalayan wetlands and Lakes Forum” to conserve High Altitude Wetlands and Lakes in the region. The Forum would consist of all the countries in the region – Bhutan, China, India, Kyrgyzstan, Nepal, Pakistan – as well as local, regional, and international organisations working in there. The Forum would meet once in year in one of the countries willing to host the meeting. The Forum may have the following objectives: information exchange, technical

Kathmandu workshop⁴¹ and Sanyal workshop⁴². All these had devised various measures for the protection of HAW's. The 2004 'Evian Encounter'⁴³ meeting provided the opportunity for a valuable further step in consolidating the initiative, and to define its *modus operandi*, so as to support effective regional cooperation on the conservation and wise use of wetlands in the Himalayas' shared watersheds and river basins.

This emphasized the need for regional plans for the protection of wetlands over each place. The strategy for local action plan should take into consideration climate change impacts and adaptation responses of these wetlands. Approaches to the enforcement of legislation are another important area to be considered. The plan should encompass engagement and participatory involvement of all stakeholders. Empowerment of high-altitude wetland custodian communities through incentives and education and awareness and capacity building is another important concern. Along with this many other matters such as development of policy and management plans, inventory and assessment, cultural values of wetlands, traditional knowledge, including traditional medicine, hydrological

support, initiation of regional projects, awareness raising, fund raising, etc. We also call on other agencies in this Year of Mountains, who are working in these areas, to join hands and conserve the unique ecosystems of High Altitude Wetlands.

⁴¹ In order to implement the Urumqi Call and the Ramsar resolution VIII, WWF International, the Ramsar Bureau and the International Centre for Integrated Mountain Development jointly organized a follow-up workshop on 'Wetland Conservation and Wise Use in the Himalayan High Mountains' from August 30 to September 1, 2003, in Kathmandu.

⁴² This workshop focused on the theme "Wetland conservation and Wise Use in the Himalayan and Central Asian Highland" was held in Sanya (14-18 February 2004), in the People's Republic of China, with joint effort by the International Centre for Integrated Mountain Development WWF International, Ramsar Convention Bureau, and the Government of the People's Republic of China.

⁴³ The Evian Encounters are an important component of a *Ramsar Convention* project financed by the Group Danone, owner of the Evian Mineral Waters Society. The Encounters, of which this was the fifth since 1998, are designed to bring together high-level officials of the Convention's Contracting Parties, along with the Convention's NGO International Organisation Partners and other relevant international organizations, so as to discuss in an informal atmosphere the current approaches and challenges in the implementation of the Ramsar Convention.

aspects in management of wetlands, the role of wetlands in groundwater recharge and aquifers, the role of wetlands in poverty alleviation and wealth generation, engaging improved awareness of wetland values and services at local government level, promoting downstream and upstream linkages and addressing common issues of ecological safety such as wetlands related disasters are to be taken into.

To implement this in full strength identifying the gaps and filling up of the same are to be done at the earliest by taking into account the ongoing plans.

National Measures for Conservation of Highland Wetlands

i) *The Environment (Protection) Act, 1986*

The Environment Protection Act, 1986 shows the concern of Indian government towards the loss of vegetal cover, biological diversity and threats to life support systems⁴⁴. Concentration of power in the hands of the Central Government is the main feature of law. The relevant provision reads as “subject to the provisions of the Act, the central government shall have power to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution”⁴⁵. It could observe that there is a clubbing of constitutional commitment with the duty to protect environment. There upon the central government can create authorities, appoint officers, issue binding directions, and delegate its power to the state authorities or officers⁴⁶. The Environment Protection Rules in 1986, addresses various specific problems of environment relating to its protection and improvement. Delegation of powers

⁴⁴ The Environment (Protection) Act, 1986 was enacted with a view to implementing the decisions of the United Nations Conference on Human Environment, 1972. The statement of objects and reasons reflect the themes of the Act. See P.Leelakrishnan, *Environmental Law in India*, Lexis Nexis, Butterworths(2005), p.171.

⁴⁵ The Environment (Protection) Act, 1986, s.3 (1)

⁴⁶ *Id.*, ss.3 (3), 4, 5 and 23.

also one important feature of the EPA. An authority appointed by central government is empowered to take up such measures, exercise such powers, and perform such functions as are necessary for protecting or improving the quality of environment. This can issue directions for closure, prohibition or regulation of any type of activity in the designated area. This delegation can lead to the proper protection of environment. The authority entrusted shall have only the consideration of environmental protection. This power can be regulated by the Central Government. The Government of India has entrusted the duty to the committees to devise mechanism for protection of the high land areas. On the reports of the committees notifications regarding the prohibitions and exceptions can be made by central government. Before implementation of the same interest of all stakeholders involved need to be considered. The states concerned are under the obligation to abide by the regulations. The Draft Notification declaring Ecologically Sensitive Area in Western Ghats in the states of Gujarat, Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu⁴⁷ has been issued by the Central Government under the Environment (Protection) Act in 2014. This is still in force.

ii) The Biological Diversity Act,2002

The tradition of preserving the sacred groves and nurseries of wild life played a part in the maintenance of biological diversity. That traditional policy of conservation had minimum acceptance among the policy decisions by later governments and courts. The Convention on Biological Diversity played an important role in changing this attitude. Pursuant to this the Biological Diversity Act, 2002 was enacted. One of the objectives of the Act was to notify areas

⁴⁷ S.O. 733(E), Ministry of Environment and Forests Notification, New Delhi(10th March, 2014). The Central Government proposes to issue in exercise of the powers conferred by section 3 of the Environment (Protection) Act, 1986 under sub-rule (3) of rule 5 of the Environment (Protection) Rules, 1986.

important from the stand point of biological diversity as biological heritage sites. There is cordial relation in the working of EPA and the authorities established under the Bio Diversity Act, 2002. Thus the Act plays an important role in protecting the Western Ghats with the aim to protect and preserve the biological diversity of that area.

iii) Forest Legislations

The Central Government had in 1960 itself provided special status to the region, with a provision for the Western Ghats Development Fund and Hilly Area Development Fund⁴⁸. These two financial resources exist in planning commission's five years plan since last four decades. However, the introduction of the protected area category, community reserves under the Wild Life (Protection) Amendment Act, 2002 has introduced legislation for providing government protection to community held lands, which could include sacred groves.

Forest conservation legislations ⁴⁹ contain provisions to protect the forest resources and the ecology of the western ghats. Concepts of protected forest, reserved forest and the license requirement for the mining and protection of different varieties of trees are helpful in protection of the genetic varieties existing in the western ghats. Rights over the land and the rights to forest produce and watercourse could be exercised only subject to regulation. Judiciary also supports⁵⁰ the working of forest laws towards the conservation of forest.

⁴⁸ See for the Western Ghats Development Fund and Hilly Area Development Fund, www.teindia.nic.in/mhrd/50yrsedu/15/8P/84/8P840G01.htm visited on 20-07-2015.

⁴⁹ The Forest (Conservation) Act,1980, the Indian Forest Act, 1927, the Wildlife Protection Act, 1972, the Kerala Forest Act,1961, Kerala Private Forests (Vesting and Assignment) Act, 1971, Kerala Grants and Leases (modification of Rights) Act, 1980, the Madras Preservation of Private Forest Act,1949, the Kerala Preservation of Trees Act, 1986, the Kerala Forest (Vesting and Management of Ecologically Fragile Lands)Act,2003 and the Kannan Devan Hills (Resumption of lands) Act, 1971.

⁵⁰ A.I.R. 1987 S.C. 374. Supreme Court has added that indisputably, forests are much wanted national asset. On account of the depletion thereof ecology has been disturbed; climate has

All the component parts of western ghats fall under a number of protection regimes. They range from tiger reserves, national parks, wildlife sanctuaries, and reserved forests. All components are owned by states and are subject to stringent protection under laws⁵¹. Through these laws the western ghats components are under the control of the department of forest. The Chief Wildlife Warden is under the duty to provide legal protection to these designated areas. Forty percent of the property lies outside of the formal protected area system, mostly in reserved forests. They are protected and effectively managed⁵² under the forest legislations and the Kerala Forest (Vesting and Management of Ecologically Fragile Land) Act, 2003⁵³. Court while leaning in favour of protection of ecology said:

“Under Section 3 of the said Act it is declared that the ownership and possession of the ecologically fragile land held by any person shall stand transferred to and vested in the Government free from all encumbrances. The expression 'ecologically fragile land' is defined under Section 2(b) of the said Act. Under Section 2(b)(i) of the Kerala Forest (Vesting and Management of Ecologically Fragile Lands) Act, the same can be classified as ecologically fragile land if the same is either contiguous or encircled by reserved forest or a vested forest or any other forest land owned by the Government. Chapter III and IV of the Kerala Forest Act, 1961 deal with the regulation and protection of

undergone a major change and the rains have become scanty. These have long term adverse effects on national economy as also in the living process. At the same time we cannot lose the sight of the same fact that for industrial growth and also the provisions for the improved facility of life there is great demand in the country for energy such as electricity.....

The Godavarman cases, A.I.R. 1997S.C. 1228, made a sweeping change in the conservation of forest and forest resources.

⁵¹ See the Wildlife (Protection) Act of 1972, the Indian Forest Act of 1927, and the Forest Conservation Act, 1980.

⁵² See the Forest Conservation Act, 1980.

⁵³ *State of Kerala v. Mrs. Kumari Varma*. Available in <http://indiankanoon.org/docfragment/1557991/?formInput=ecologically%20 fragile%20land%20act> visited on 20-07-2014.

certain lands which are not notified to be reserved forest but are privately owned forest or wasteland. Though the expression 'protected forest' is not defined either under the Ecologically Fragile Lands Act or under the Forest Act, having regard to the statutory environment regulating the forest in the State of Kerala, the expression 'protected forest' occurring under Section 2(c) of the Ecologically Fragile Land Act, in our opinion, must be understood in the light of the provisions of Chapter III and IV of the Kerala Forest Act, 1961."

This is the legal regime existing for the protection of the western ghats area. But these were found inadequate in the implementation level. Thus the central government appointed a committee to study on western ghats and to prescribe the ways for the protection. The first committee headed by Shri. Madhav Gadgil submitted its report in the year 2012 and again another committee was constituted under the chairmanship of Shri. Kasturirangan. They also submitted report within a short span of time. The Ministry has accepted the second report in principle and issued notification regarding the same⁵⁴. Still the final notification is under some confusions.

Kasturirangan and Madhav Gadgil Committees and Reports: A Critical Evaluation

The MoEF had set up a committee under the chairmanship of Shri Pronab Sen in 2000 to identify parameters for designating ecologically sensitive areas in India. This committee proposed a series of species, ecosystem and geomorphology based parameters. Sen Committee's foremost criterion for identification of ESA was endemism, and the Committee proposes that the area of occurrence of every endemic species needs to be protected in its entirety. Western

⁵⁴ *Supra n. 47.*

Ghats harbours over a thousand endemic species of flowering plants, fish, frogs, birds and mammals amongst the known groups of organisms⁵⁵. Amongst themselves these would cover the entire geographical extent of the western ghats. This includes all habitats, many disturbed areas such as roadsides. The western ghats region also qualifies as an ecologically sensitive area under several other criteria proposed by the Sen committee. The conclusion that follows is that the entire western ghats tract should be considered as an ecologically sensitive area.

However, a uniform set of regulations was not a possibility under Environment (Protection)Act,1986 for this entire region. Hence the Sen Committee recommended the adoption of a graded or layered approach. It suggested that entire Western Ghats be categorised as comprising (1) Regions of highest sensitivity or ecologically sensitive zone 1, (2) regions of high sensitivity and (3) Regions of moderate sensitivity. This categorisation was based on the existing protected area network and systematic mapping. The Pronab Sen Committee did nothing for regulating the nature and extent of human activity in ecologically sensitive zones. This task was addressed later by the Ministry of Environment and Forests. The Ministry of Environment and Forest has put in place a centralized system grounded in regulating land use employing the provisions of section 5 of the Environment Protection Act 1986. Based on this system the Ministry of Environment and Forest prepares the notification and calls for responses from the public and the concerned state Government. Since land is a state subject, the state government is then asked to prepare a regional development plan. This plan is finalised after calling for public inputs. To oversee the

⁵⁵ Wikramanayake et.al. *Terrestrial Ecoregions of the Indo-Pacific: A Conservation Assessment*. Island Press, Washington (2002) pp. 284-287.

implementation, the Ministry of Environment and Forest constituted a high level monitoring committee without any local representation⁵⁶.

The constitution Ecologically Sensitive Areas has had many positive consequences and serious flaws:

- The system depends heavily on bureaucratic regulation.
- Absence of meaningful participation by local community
- Absence of bureaucratic transparency and accountability
- Corruption
- Harassment and extortion of the weaker sections

This has led to tremendous local resentment⁵⁷. Furthermore, no effective mechanisms have been developed to promote good natural resource management. Due to these flaws government decided to set up a committee to make a sustained ecological management of the region.

In 2010 MoEF created a panel named as Western Ghats Ecology Expert Panel. Its Chairman was Prof. Madhav Gadgil. The committee was appointed to study the ecological and environmental problems of Western Ghats and give recommendations regarding the same. The committee submitted its report in 2011. The committee found that the Western Ghats has thousands of endemic species of flowering plants, fish, frog, birds and mammals. Therefore committee suggested that the entire Western Ghats are to be designated as ecologically sensitive zones. He suggested dividing the entire area in to three. Areas which need highest protection are Zone 1. Zone 2 should have an intermediate

⁵⁶ Sunita Narain, “Western Ghats: Lessons in Protection”, *Down to Earth*(March 2014).

⁵⁷ People at Mahabaleshwar have complained in writing of very old roads to their villages being disrupted by trenches dug by Forest Department, and Madhav Gadgil has personally inspected some of these.

protection. Areas which need to have a moderate control and protection are Zone 3. The fourth is the already protected areas such as existing wild life sanctuaries and national parks. An authority named as Western Ghats Ecology Authority⁵⁸ should be set up to see the protection functions. Demarcation of the zones into the four categories as mentioned above should be undertaken by this authority. The WGEA will have jurisdiction over the Western Ghats districts in six states⁵⁹. The WGEA will be a statutory authority appointed by the MoEF.

The hierarchy of the authority will be WGEA in the Union and State WGEA's in six states and district ecology committee in districts. Structure of the authority is, a retired judge of the Supreme Court, preferably from the Western Ghats region as chairman. The authority will include experts from biology, law, science and sociology. Representative from tribal group and civil society representatives will be members of the committee.

The authority will have the functions such as conservation, sustainable development and eco restoration of the western ghats. Environmental impact analysis and clearance process in western ghats is also the entrusted duty of the committee. Its recommendations will be ordinarily binding. WEGA will decide location of industry and land use planning in western ghats. They are vested with power to issue directions to the state government or agencies to prevent any negative impacts on the Western Ghats. Power to levy fines and punitive measure are also vested with the authority. They are vested with the powers of civil court in inspecting documents.

Various zonal recommendations such as, banning of mining in zone 1 and 2, phasing out the existing mines in 5 years time and mining in zone 2 under strict

⁵⁸ Here in after referred to as WGEA.

⁵⁹ The six states in which Western Ghats lie are Gujarat, Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu.

vigilance and social audit. Mining in Zone 3 can be allowed only if scarce minerals are found which are not available in plains. With regard to new industries the red or orange category industries should not be allowed at any cost in the first two zones and the existing industries must switch their working to zero pollution or should be phased out from working. In the third zone the industrial operation under strict rules can be allowed. The non polluting i.e. Green category industries can be started in all the zones. But they also will have strict checks and balances in their working. The river projects or dams and power projects, transport and tourism are also falling under the recommendations of the committee. No new power projects or new high ways or railways are allowed in the zones to protect them. Tourist operations can be done under strict rules. The dams with specific heights can be allowed not above that. The committee also submitted certain general recommendation regarding agriculture, animal husbandry, fisheries and construction.

The Kasthurirangan Committee Report⁶⁰

The Kasthurirangan Committee was appointed due to the hue and cry of different vested interest and their influence in politics. This committee appointed by MoEF was asked to examine the matters such as detailed and holistic study of Gadgil Report. Next one was ecology and bio diversity protection to be viewed for the base of societal growth. It was also asked to conduct a study on the protection of interest of the tribal and the different indigenous communities in these areas. It was also aimed to study the impact of world heritage declaration of the area and how far it is going to affect the development and ecology of the area. Again it was asked to discuss the various issues relating to the development of this area with the states coming under its operation. Another important function was to

⁶⁰ Report of the High Level Working Group on Western Ghats, MoEF, 2013.

discuss the Gadgil committee report with the concerned authorities. Thus it could be seen that from the very inception the idea behind this committee was to do away with the absolute protection criteria to the development and protection criteria. But how far this can be achieved is a big question considering the nature of hazardous activities being operated in these areas.

On the submission of the report the committee emphasised that a lot of area except the 37% mentioned is under ownership of private individuals. If this areas are declared as ESZ and prohibitions are brought in this area it would bring large set back to the whole society. Thus the suggestion put forward by the committee was amicable settlement and non interference in the property rights of the individuals.

Prohibitions suggested by the committee were also similar. The whole area was categorised into cultural landscapes and natural landscapes. It recommended for the complete prohibition of activities which badly affect the ecology and climate of western ghats. Mining and allied activities were to be completely prohibited. The existing mining activities were to be phased out in five years. Existing mining leases are not to be renewed. New power plants should be prohibited except hydroelectric projects with some conditions. The wind energy mills should be brought under the Environmental Protection Act, 1986. Complete prohibition for red category industries was another feature. Floor area limit for construction activities was also determined.

After the submission of this report also there were many protestss from various sections of people. Urged by the problems in the State, the Kerala Government appointed another committee headed by Mr. Ommen. This committee made certain suggestions in the implementation of protection of western ghats.

Ommen Committee Report

The Kerala government formed this committee under the power vested to the government under the Biological Diversity Act, 2002.

The essence of Madhav Gadgil Report, was that the development and conservation can go hand-in-hand, in a totally democratic and transparent way empowering the local people to decide their development options. This has disappeared totally in the Kasturirangan Report. Economic exploitation of resources of the Western Ghats has received maximum consideration while conservation and sustainable development had been totally sidelined and neglected. The report is filled with various pretentious statements on conservation or sweet-coated words on conservation. The methodology adopted by HLWG declares this agenda unmistakably clear and loud.

According to this, only 37% of the Western Ghats, named as natural landscape, needs to be considered for conservation while the rest of the area, referred to as cultural landscape, is open for any kind of development. In other words, of the 1, 64,280 sq km of the Western Ghats, some 60,000 sq km has only been set apart for conservation and to be declared as Ecologically Sensitive Area. It is to be noted this includes National Parks, Sanctuaries, Reserve Forests, World Heritage Sites and other protected areas. Within this area itself various development activities such as diversion of forests, laying railway lines, construction of roads, construction of buildings up to but below 2,15,000 sq ft, even construction of larger dams are permitted with conditions. The most polluting ‘red’ category industries can be established outside the ESA namely 67% of the Western Ghats, while ‘yellow’ category industries can be set up anywhere in the Western Ghats. The only bar inside the ESA is for mining, quarrying and sand mining. These activities are otherwise banned in the protected

areas. In effect, HLWG report prepares the ground to open up even the protected areas for development and in a way amounts to opening up the entire Western Ghats for development. In a State like Kerala facing severe ecological problems and acute scarcity of meeting drinking water needs, such a move will destroy the remaining water storing areas of the Western Ghats with disastrous consequences. It is dangerous to accept such a report while the State Government is seeking Central assistance to mitigate drought.

Judiciary on Protection of High Land wetlands

In a plethora of decisions judiciary has shown the positive attitude towards conservation of the high land wetlands. Sometimes judiciary has gone for development considering the aspect of necessity of development.

i) Forest and Wildlife Conservation

Forest conservation and wetland protection of the high land area are inseparable. There are lots of cases bearing the name *T.N.Godavarman Thirumulpad v. Union of India*⁶¹. Through these decisions the Court has set norms for protection and conservation of forest resources of the country. The Supreme Court gave wide meaning to the definition of the term forest. The term forest was held by the Court ‘to be not only as understood in the dictionary sense but also pertaining to any area accorded as forest in the Government record’. Need for strict control on forest based industries including regulation of mining was considered by Court in these decisions. *T.N. Godavarman Thirumulpad v. Union of India*⁶² decided in 2005, the question was about conservation, preservation and protection of forests and the ecology when forest land is used for non-forest purposes. What measures are required to be taken to compensate for loss of forest

⁶¹ A.I.R.1997 S.C.1228 and A.I.R.1997 S.C.1233.

⁶² See the full text of case in <http://indiankanoon.org/doc/1026316/> visited on 13-04-2012.

land and to compensate effect on the ecology was addressed by the Court in this particular case. The point in issue was whether before diversion of forest land for non- forest purposes and consequential loss of benefits accruing from the forests, should not the user agency of such land be required to compensate for the diversion. If so, should not the user agency be required to make payment of net present value (NPV) of such diverted land so as to utilize the amounts so received for getting back in long run the benefits which are lost by such diversion? What guidelines should be issued for determination of NPV? Should guidelines apply uniformly to all? How to calculate NPV? Should some projects be exempted from payment of NPV? These were the main aspects which require examination and determination in the backdrop of various environmental legislations.

Court answered the question of what is NPV and it found that the NPV is the present value of net cash flow from a project, discounted by the cost of capital. The value of any asset is discounted by present value of the economic benefits it will generate in future years. Forest sustainability is an integral part of forest management and policy that also has a unique dominating feature and calls for forest owners and society to make a long-term commitment to manage the forest for future generation. The development has to be based on sustainability. If the forest land used for non forest purposes, the payment of NPV is to protect the ecology and bio-diversity. This has to be assessed by the economist and a special purpose vehicle⁶³ was asked to be established for carrying out the directions of the court. These decisions set the trend of protection and conservation of forest.

In another case *State Of Himachal Pradesh v. Ganesh Wood Products*⁶⁴ , registration of new katha units in the state of Himachal Pradesh was questioned. The Court observed that Himachal Pradesh is a hill State. The considerations of

⁶³ Special Purpose Vehicle.

⁶⁴ (1995) 5 S.C.C.399.

environment and ecology and preservation of forest wealth are absolutely relevant considerations which the government must keep in mind while devising its policies and programmes. A brief examination of the importance and the fundamental significance of forests in the matter of environment and ecology would be in order at this juncture. The Court expressed the necessity of sustainable development based on the availability of raw materials for the Katha industry.

Running of snack bar and hotel in the national park was challenged in *Nagarhole Budakku Hakku Sthapan Samithi v. State*⁶⁵. The Court Held that setting up of hotel violates the forest conservation laws. Similarly establishment of housing colonies⁶⁶ in forest area was held to be against the forest conservation.

Through the introduction of new concepts under environmental legislations and forest conservation laws court struck balance between environment and development.

ii) Dam Construction

In N.D. Jayal v. Union of India decided in 2003 legal action was connected to the safety and environmental aspects of Tehri Dam.

The petitioners urged the Court to issue necessary directions to conduct safety tests so as to ensure the safety of the dam. They alleged that the concerned authorities have not correspondingly complied with the conditions attached to the Environmental Clearance dated July 19, 1990 and to halt the Project till the same is complied with. They also wanted the court to look in to the rehabilitation issue. According to the petitioners the structure of the dam itself is not safe and also alleged that its existence increases the seismic vulnerability of the entire

⁶⁵ A.I.R.1997 Kant.293.

⁶⁶ *Goa Foundation v. Conservator of Forest*, A.I.R.1999 Bom. 177.

Himalayan region. While rendering a detailed decision covering all aspects of large projects like dam court opined

“The right to development cannot be treated as a mere right to economic betterment or cannot be limited to as a misnomer to simple construction activities. The right to development encompasses much more than economic well being, and includes within its definition the guarantee of fundamental human rights. The 'development' is not related only to the growth of gross national product. In the classic work - 'Development as Freedom' the Nobel prize winner Amartya Sen pointed out that 'the issue of development cannot be separated from the conceptual framework of human right'. This idea is also part of the UN Declaration on the Right to Development. The right to development includes the whole spectrum of civil, cultural, economic, political and social process, for the improvement of peoples' well being and realization of their full potential. It is an integral part of human right. Of course, construction of a dam or a mega project is definitely an attempt to achieve the goal of wholesome development. Such works could very well be treated as integral component for development. The weighty concepts like inter-generational equity *State of Himachal Pradesh v. Ganesh Wood Products*⁶⁷, public trust doctrine *M C Mehta v. Kamal Nath*, and precautionary principle (Vellore Citizens), which we declared as inseparable ingredients of our environmental jurisprudence, could only be nurtured by ensuring sustainable development. Court ordered about the main conditions that the Ministry of Environment fixes at the time of granting clearance to the Tehri Dam project is to comply with the conditions attached to the

⁶⁷ (1995) 6 S.C.C. 363.

following aspects such as catchment area treatment, command area development, flora and fauna, water quality maintenance, Bhagirathi basin management authority, disaster management and rehabilitation.”

Through the decisions relating to dam construction and related problems, court was trying to find out the proper meaning of the term ‘development’. It could be observed that development without nature conservation will not be a sustainable one was underlined by court.

iii) Controls on Mining

In *Rural Litigation and Entitlement Kendra v. Devaki Nandan Pandey*⁶⁸. In that case the Supreme Court considered the issue of quarrying operation of limestone in the Mussoorie Hills. The grant of licence to quarry was questioned on the ground that such grant would adversely affect the ecology of the area and will lead to environmental disturbances. The quarry is just at the bottom of the Himalayan range on the northern boundary of India. Considering the fact that the Himalayas are the source for perennial rivers like the Ganges, Yamuna and Brahmaputra as also several other tributaries which have joined the main rivers and the Himalayas has been the storehouse of herbs, shrubs and plants.

The Supreme Court has observed in paragraph 19 as follows:-

"Consciousness for environmental protection is of recent origin. The United Nations Conference on World Environment held in Stockholm in June 1972 and the follow-up action thereafter is spreading the awareness. Over thousands of years men had been successfully exploiting the ecological system for his sustenance but with the growth of population the demand for land has increased and forest growth has been and is being cut down and man has started

⁶⁸ 1986 (Supp) S.C.C. 517.

encroaching upon Nature at its assets. Scientific developments have made it possible and convenient for man to approach the places which were hitherto beyond his ken. The consequences of such interference with ecology and environment have now come to be realised. It is necessary that the Himalayas and the forest growth on the mountain range should be left uninterfered with so that there may be sufficient quantity of rain. The top soil may be preserved without being eroded and the natural setting of the area may remain intact. We are not oblivious of the fact that natural resources has got to be tapped for the purposes of social development but one cannot forget at the same time that tapping of resources have to be done with requisite attention and care so that ecology and environment may not be affected in any serious way; there may not be any depletion of water resources and long-term planning must be undertaken to keep up the national wealth. It has always to be remembered that these are permanent assets of mankind and are not intended to be exhausted in one generation."

The need for protection of the forest environment again came up for consideration before the Supreme Court in *Indian Council for Enviro-Legal Action v. Union of India*⁶⁹, wherein the Supreme Court has held in paragraph 31 as follows:-

"The economic development should not be allowed to take place at the cost of ecology or by causing widespread environment destruction and violation; at the same time, the necessity to preserve ecology and environment should not hamper economic and other developments. Both development and environment must go hand in hand, in other words, there should not be development at the cost of environment

⁶⁹ (1996) 5 S.C.C. 281.

and vice versa, but there should be development while taking due care and ensuring the protection of environment."

The very same issue again came up for consideration before the Supreme Court in the judgment in *M.C.Mehta v. Kamal Nath*⁷⁰, wherein the Supreme Court propounded a theory known as "Public Trust Theory". While reiterating the obligation of the State to maintain the natural resources, the Supreme Court in paragraphs 25 and 34 has held as follows:-

"The Public Trust Doctrine primarily rests on the principle that certain resources like air, sea, waters and the forests have such a great importance to the people as a whole that it would be wholly unjustified to make them a subject of private ownership. The said resources being a gift of nature, they should be made freely available to everyone irrespective of the status in life. The Doctrine enjoins upon the Government to protect the resources for the enjoyment of general public rather than to permit their use for private ownership or commercial purposes. According to Professor Sax the Public Trust Doctrine imposes the following restrictions on the Governmental authority: "Three types of restrictions on the Governmental authority are often thought to be imposed by the public trust: first, the property subject to the trust must not only be used for a public purpose, but it must be held available for use by the general public; second, the property may not be sold, even for a fair cash equivalent; and third the property must be maintained for particular types of uses"

"The State is the trustee of all natural resources which are by nature meant for public use and enjoyment. Public at large is the beneficiary

⁷⁰ (1997) 1 S.C.C. 388.

of the sea-shore, running waters, airs, forests and ecologically fragile lands. The State as a trustee is under a legal duty to protect the natural resources. These resources meant for public use cannot be converted into private ownership”.

In the judgment in *Hinch Lal Tiwari v. Kamala Devi*⁷¹, the Supreme Court has held in paragraph 13 as follows:-

"It is important to notice that the material resources of the community like forests, tanks, ponds, hillock, mountain etc., are nature's bounty. They maintain delicate ecological balance. They need to be protected for a proper and healthy environment which enables people to enjoy a quality life which is the essence of the guaranteed right under Article 21 of the Constitution. The Government, including the Revenue Authorities having noticed that a good is falling in disuse, should have bestowed their attention to develop the same which would, on one hand, have prevented ecological disaster and on the other provided better environment for the benefit of the public at large. Such vigil is the best protection against knavish attempts to seek allotment in non-abadi sites."

In *T.N.Godavarman Thirumulpad v. Union of India*⁷², the Supreme Court in paragraphs 86 & 87 has observed as follows:-

“The national development agenda must recognise the necessity of protecting the long-term ecological security. The problem area is the growing population, high degree of mechanisation and steep rise in

⁷¹ (2001) 6 S.C.C. 496.

⁷² (2006) 1 S.C.C. 1.

energy use which has led to activities that directly or indirectly affect the sustainability of the environment.

It is recognised that the sustainable use of biodiversity is fundamental to ecological sustainability. The loss of biodiversity stems from destruction of the habitat, extension of agriculture, filling up of wetlands, conversion of rich biodiversity sites for human settlement and industrial development, destruction of coastal areas and uncontrolled commercial exploitation. It is thus evident that the preservation of ecosystems, biodiversity and environment whether examined on common-law principle or statutory principle or constitutional principle, eyeing from any angle, it is clearly a national issue to be tackled at the national level. All initiatives are required to be seriously pursued.”

In *State of Tamil Nadu v. P. Krishnamurthy*⁷³ a public interest litigation was filed in the Madras High Court, complaining about indiscriminate illicit quarrying of sand in riverbeds. A High Level Committee was constituted which submitted a report detailing the extensive damage that had occurred on account of haphazard, irregular and unscientific manner of quarrying sand by the quarry leaseholders, thereby impairing smooth flow of water and causing damage to riverbeds, river banks as also the structures and drinking water systems branching from rivers, leading to ecological imbalances. The Court upheld the exclusive right of the State Government to quarry sand.

Along with these decisions, a lot more cases dealt the issue of mining in forest area for various purposes⁷⁴. Indian judiciary has looked at the forest legislations from several angles. Its efforts to conserve and preserve the ecology and

⁷³ See the full text of case in <http://indiankanoon.org/doc/975323/> visited on 12-12-2014.

⁷⁴ P. Leelakrishnan, *Environmental Law Case Book*, Lexis Nexis, Butterworths(2004), p. 186.

the wetlands of the forest area are commendable. It may be either through laying down of new theories or emphasizing the underlying concepts of intergenerational equity or the like. It could be observed that court was always trying to strike a balance of sustainable development.

iv) Human- Wildlife Conflict

Human animal conflict is at an increase. Judiciary has tried to redress the situation considering human rights of both man and animal involved under the situation. The court has posed a relevant question that whether the laws are only for humans. In *T.N. Godavarman Thirumulpad v. Union of India* decided in 2012⁷⁵ court discussed the issues of destruction of fauna and flora which are very rare and endemic due to the illegal activities of human. Asiatic Wild Buffalo is reported to be the most impressive and magnificent animal in the world. Often it is found in the Western and Eastern Ghats of the country. Learned Amicus Curiae has moved this Court seeking a direction to the Union of India and the State of Chhattisgarh to prepare a rescue plan to save wild buffalo, an endangered species from extinction and to make available necessary funds and resources required for the said purpose and also for a direction to take immediate steps to ensure that interbreeding between the wild and domestic buffalo does not take place and the genetic purity of the wild species is maintained.

This court considered the aspect of environmental justice and the Human-wildlife conflict. In para 9 of the judgement court observed

“Human-wildlife conflict is fast becoming a critical threat to the survival of many endangered species, like wild buffalo, elephants, tiger, lion etc. such conflicts affect not only its population but also has broadened environmental impacts on ecosystem equilibrium and

⁷⁵ See the full text of the case in <http://indiankanoon.org/doc/187293069/> visited on 15-05-2015.

biodiversity conservation. Laws are man-made, hence there is likelihood of anthropocentric bias towards man, and rights of wild animals often tend to be of secondary importance but in the universe man and animal are equally placed, but human rights approach to environmental protection in case of conflict, is often based on anthropocentricity.”

The Court disposed of this application with the direction to the State of Chhattisgarh to give effect fully the centrally sponsored scheme - "the Integrated Development of Wildlife Habitats", so as to save wild buffalo from extinction.

In the same petition the court was concerned with the question whether sandalwood stated to be an endangered species, be declared as a specified plant within the meaning of Section 2(27), and be included in the Schedule VI of The Wild Life (Protection) Act, 1972. Court after a long discussion on the anthropocentrism in the approach of environmental cases found the lacunae in the legislation to fill the situation. Court accepted the principles laid down in International conventions in which India is a party . In the CITES as well as IUCN has acknowledged that red sandalwood is an endangered species. It is settled law that the provisions of the treaties and conventions which are not contrary to Municipal laws, be deemed to have been incorporated in the domestic law. *Ref. Vellore Citizens, Jolly George v. Bank of Cochin*⁷⁶. *Gramaphone Company of India v. Birendra Baldev Pandey*⁷⁷under the above mentioned circumstances, following the eco-centric principle, court gave a direction to the Central Government to take appropriate steps under Section 61 of the Act to include red sanders in Schedule-VI of the Act as requested by the State of A.P., within a period of six months from the date of this judgment. We are giving this direction,

⁷⁶ (1980) 2 S.C.C. 360.

⁷⁷ (1984) 2 S.C.C. 534.

since, it is reported that nowhere in the world, this species is seen, except in India and India owe an obligation to world, to safeguard this endangered species, for posterity. Power is also vested with the Central Government to delete from the Schedule if the situation improves, and a species is later found to be not endangered.

These decisions pose a number of questions. Is the man alone has the right to life? Does it extend to all creatures under the term environment? Judiciary has well answered this. It is clear that only by conserving them man will have a sustained future on earth.

v) **Leasing out Land to Individuals**

Leases created by revenue authorities under legislations created much ecological harm to the high land wetlands. In *C.Sankareswaran v. The Commissioner*⁷⁸ the petitioners approached the Court seeking for a direction forbearing the respondents from granting the pattas in respect of the lands in the fragile Kottagudi water shed area. Court found that major portion of the land in question is covered by thick forest commonly known as Shola forest, and only a small extent of land is left barren. In the event a barren land is put in use for any other purpose including for agricultural purpose, it would result in deforestation, which is bound to occur in the near future. Apart from that, the area is a source for continuous water flow and such water is the only source of drinking water for the BodinaiKKanur Municipality. The conservancy of forest land, though not included in the reserve forest, should be retained as open forest and in fact the State is obligated to guard against alienation of vacant land within the reach of forest growth in order to maintain the natural forest. Any new inhabitation would

⁷⁸ See the full text of the case in <http://indiankanoon.org/doc/1336179/> visited on 15-05-2015.

certainly affect the natural source of water apart from resulting in ecological imbalances. It would be also not in the interest of habitation of wild animals.

Thus the land in question cannot be either assigned or pattas could be granted to any individual and the said land, which is kept vacant for years and lies in the midst of thick reserve forest, should be kept as a forest only to maintain ecological balance.

In *Upendra Jha v. State*⁷⁹ the petitioner was granted lease of reserved forest area for 20 years to carry out clay mining. But the forest department interfered with the same. Court held that such a lease of reserved forest area without the prior approval of the Central government is not sustainable and hesitated to interfere in the matter.

In another similar case of mining in protected forest area, forest department interfered with the mining operations going to be conducted over there⁸⁰. In this case court held that grant of no objection certificate will not confer power on any lease holders to mine any forest area. The area of forest in question is the protected forest and it is necessary to obtain prior approval from the Central government to continue the mining operations.

This area requires special attention from governments. To protect the sensitive ecology of high lands there should be proper checks and balances on these systems. These leases are to be under strict vigilance.

⁷⁹ A.I.R.1988 Patna 263.

⁸⁰ A.I.R. 1987 Raj. 129.

vii) Protection of Western Ghats Ecology

*The Goa Foundation v. Union of India*⁸¹ applicants have approached the Green Tribunal for interim relief for directing the respondents not to issue any consent or environmental clearance or permission under the Environment Protection Act, 1986, the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Forest Conservation Act, 1980 or the Biological Diversity Act, 2002, within the western ghat areas, particularly in relation to those which have been demarcated as Ecological Sensitive Zone I and Ecologically Sensitive Zone II with a final prayer that the respondents should discharge their obligation by exercise of the powers conferred on them under the enactments stated in Schedule I to the National Green Tribunal Act, 2010 for preservation and protection of Western Ghats within the framework, as enunciated by the Western Ghats Ecology Expert Panel in its report dated 31st August, 2012 and further praying for issuance of such orders or directions as the Tribunal may consider just and fair in the circumstances of the case.

- (i) Whether the respondents are under an obligation to preserve and protect the Western Ghats?
- (ii) Whether the respondents are under an obligation to enforce the provisions of the enactments specified in Schedule I to the NGT Act by initiating appropriate steps under the said enactments for the preservation and protection of the Western Ghats, particularly in view of the recommendations made by the WGEEP?

⁸¹ See the full text of the case in <http://indiankanoon.org/docfragment/161378671/?formInput=protection%20of%20western> visited on 12-07-2014.

(iii) Whether the inaction of the respondents to effectively protect the Western Ghats is arbitrary and violative of Articles 14 and 21 read with Articles 48A and 51A(g) of the Constitution?

The applicant has a legal right to approach the Tribunal and pray for relief within the scheme of the NGT Act. He is neither expected to show any personal injury nor any actual damage to the environment. The applicant raises substantial question relating to environment with reference to the Western Ghats. Right to life includes right to environment within the meaning of Article 21 of the Constitution of India. To ensure that the environment is not degraded, it is the legal right of any person to raise issues arising from the Constitutional mandate and or even the provisions of the Environment Act.

In another similar case, the *Goa Foundation v. Union of India*⁸² decided on 2014 petitioner by relying upon the judgments of the Supreme Court in the cases of *T.N. Godavarman Thirumulpad V. Union of India*⁸³ and *M.C. Mehta v. Kamal Nath* the contention of the Applicant is that applying the settled principles of environmental justice like polluter pays principles, precautionary principle, equity and the public trust doctrine, it is obligatory upon the states particularly the MoEF to provide protection to the Western Ghats and ensure that activities prejudicial to the ecology and environment of the Western Ghats are not permitted to be carried on in that area.

Tribunal held that, it is not for the Tribunal to pass any anticipated orders or to provide any limitations in the exercise of statutory power vested in the ministry in terms of the Act of 1986. It is for the ministry to take all the initiatives in relation to defining the eco-sensitive areas in the Western Ghats region and take

⁸² See the full text of the case in <http://indiankanoon.org/docfragment/120646079/?formInput=protection%20of%20western> visited on 20-0-2014.

⁸³ (2012) 3 S.C.C. 277.

it to its logical end by issuing final notification. The ministry should act with utmost expeditiousness and ensure that the interests of the states, individuals, and all concerned stakeholders are not jeopardised any longer.

The Tribunal also said that the MoEF stated in the affidavit that directions under section 5 of the Act of 1986 have been issued on 13.11.2013 for providing immediate protection to the Western Ghats to maintain its environmental integrity, which is in force. It will be in the interest of all the stakeholders. These directions will operate to the entire eco-sensitive area of the Western Ghats and no fresh environmental clearance or permissions are issued by the MoEF till it issues the final notification in terms of section-3 of the Act of 1986.

Through these decisions court pointed out that protection of wetlands and their ecology is of utmost important for the existing and future generations.

Conclusion

Protection and sustainable development of high land wetlands are serious problem faced by India. While the categories of highland wetlands are given a priority by the world community, India does have a clear legislative and administrative backing to protect these areas. It comes in conflict with property rights of individual. Legislations are misused or misrepresented for lobbies. Authorities responsible are not vigilant enough. But the sustainable approach demands the conservation of natural resources at any cost. Thus the measures are to be strictly implemented under the existing legislations with vigour to protect the area. Only an integrated approach with the help of community involvement can meet the situation. A strict approach to conserve the highland area with total prohibitions is the need of time.

CONCLUSIONS AND SUGGESTIONS

The present study on land use controls identifies the need for government regulation on the use of land. Proprietary right over land was recognised since the early settlement of man. It was subjected to state's control. The sole purpose of land use control was protection of social interest. The owners should use their land in such a way that other members of the society would not be detrimentally affected by such uses. The principles like easementary rights, nuisance, negligence and servitude were developed by courts. These regulations developed by common law were enough to meet the needs of those societies. When society progressed more and more regulations became necessary. Their aim was promotion of social values. New concepts like ecology, environment and social aspects necessitated intensive and specific controls on land use. Among them land use controls over wetland uses are of recent origin. The present study has given special emphasis to the controls over wetland uses.

The study revealed that land occupies an important position in every society. It is viewed by society and individuals from various angles. It is an asset, from economic angle. It provides realisation of self and thus add to the dignity of human being. Land is a valuable resource which is a common resource though divided by political barriers. The land should be managed with utmost care for sustainable development of the society. Its dynamism and controls varies according to the political ideology followed by each country. Reconciliation of all these uses for the common good is the real problem which lies behind every land

use rule. These approaches towards land clearly spell out the necessity of land use regulations. But most of the time land use regulations create tensions in the society¹. Sometimes it results in big strikes and mass disobediences². Reasons behind these revolts are many. But the main reason is that law could not penetrate deep into human minds to gain their acceptance. More over common man is not aware of the evil consequences of the present uses. Sometimes the political play takes the role of a back door player. At the end land suffers from many pressures and sometimes burst out in the form of natural calamities. Even after such consequences man continues the process of destruction and uncontrolled development without any hesitation. Increasing number of cases before the judiciary shows the gravity of land use problems. Sometimes the responsible authorities aid law breaking. This is often reported by the media³. Even these attempts could not cure the situation. Sometimes judicial decisions become a retrograde step in the implementation of land use legislations. Conflict of property rights is the real reason underlying the disobedience towards land use regulations. This is reflected in the land use policy adopted in 2013. Every private individual values land as his exclusive right and forgets the responsibility towards society. With regard to the common property resources such as forest, water courses and coastal areas unlimited and uncontrolled use is the aim of each individual. This cannot be allowed by any society.

The study revealed that the basis for determination of land use controls is common good of the society. Land use involves the interest of various stakeholders even though the ownership is vested in one person or society or state.

¹ The Land Reforms Act, 1963 and the Land Utilisation Order, 1967 and the Kerala protection of River Banks and Regulation of Removal of sand Act, 2001 are some examples.

² The Coastal Regulation Zone Notification, 1991 and the study reports submitted by Western Ghats Ecology Expert Panel Report, 2011 and High Level working Group on Western Ghats, 2014 are examples.

³ M. Suchitra, “Kerala High Court Allows Law Violation”, *Down to Earth*, 15th March 2012. See also Media Resource Centre, “Adani Project in Mundra has Violated Environmental Norms, Rules MoEF Committee”, Centre for Science and Environment, April 18, 2013.

Equity concept and its decision in land use attract many problems. Land use controls with specific objective cannot be avoided by any society. It needs strong central policy with set objectives for the states to carry it on. Indian legislations in this field lag behind the global visions. International standard setting and evolution of model law for all countries have become the trend today. Land use controls should be addressed at the international level. Concept of environment cannot be partitioned among the various nations. Concept of sustainable development demands the preservation and wise use of all forms of wetlands, whether it has got an international recognition or not. All the three wings of the government should get united to achieve protection of wetlands. The ecological functions and environmental functions played by the wetlands are invaluable. Restoration of the functional and structural aspects of wetland is impossible once destroyed. Precautionary principle should be followed while taking decisions relating to environment.

Need for Reconsideration of Proprietary Interest

The study analysed historical evolution of land use legislations. The term land use controls referred to the 'restrictions on the use of land by the property owner for the common good'. Analysis of historical evolution revealed many important concepts relating to land use. Foremost of them is the need for reconsideration of proprietary interest over land. Absolute ownership is to be avoided. Co-operative use of land is to be promoted. Safety of community from abuse or misuse of rights is also involved. Land use changes and land filling brings irreversible changes in the surrounding ecology and environment. The principle of co-existence and use of land for the benefit of the community at large is significant.

Need to Promote Environment Protection by Land Use Legislation

Study found that man and land relationship was always dynamic. This dynamism differed according to country's economic, social and environmental perception. In the current scenario all these are interdependent. This resulted from the concept of global environment without political barriers. Therefore the conservation goals are set by international community through conventions and conferences. The primary aim is sustainable development. But flexibility is granted to each society to decide the direction to achieve the common goal. Historical analysis showed that land use controls originated and existed and accepted by society for common good. With regard to regulation of wetlands need for equitable use of land acquires importance. The common good refers not only to the particular society or country but also to the global community and even to the future generations. The study revealed that traditionally land use controls were through common law, traditions and practices of the society. This was a reactive concept and could be observed case by case and was driven by specific circumstances. Next stage in the development of land use restrictions were through legislations. This provided more formal, purposive and comprehensive approaches to the needs of the society. Traditionally legislations were mainly for planning and zoning. Sometimes it related to protection of public health from the epidemics prevalent in those times. Through these legislations land was put under various control measures⁴. Later some additions to these zones were made depending on the environmental condition of the land⁵.

This land use regulations need reorientation based on the current global needs. Comprehensive planning for land utilisation is necessary. Through these policy objectives, aims of land use could be demarcated and delineated. Under

⁴ Residential, commercial, office, public or institutional and agriculture were the major categorisation.

⁵ Later additions were open space, flood plains, steep slopes and latest as wetlands.

this policy, land use control can be adopted as valuable tool for directing and controlling growth within country. This must be made effective by introducing the elements of stability and consistency in the regulations adopted. The new changes are to be oriented towards the protection of environment taking into account the long term impact of equitable land use.

Abuse of Powers by Land Revenue Authorities

The present study reveals the need for control over the assignments and transfer of government lands. The revenue authorities are responsible for this alienation. Common property resources held by government was granted in lease or giving pattayams to individuals without clear terms of use. Those resulted in the grabbing of ownership rights from government. In Kerala, proprietary rights were granted to land encroachers in a large scale. This regularisation affected the general environment and special ecosystems of the country adversely. This was done for political gains. Legislative policy reflected the approach of politicians. Currently the vulnerable wetland areas such as river banks, forest and coastal areas are alienated or encroached by private individuals. Judiciary has tried to redress these situations by giving proper directions towards this. But this was not sufficient to meet the situation. Any restrictions on property uses are protested by people. Therefore conferment of community property for individuals should be streamlined and more consensual approach in the area of land use is necessary. Resource sharing by the community is another area of conflict. Equitable sharing of the common property is not achieved through the existing legislations.

Provision Relating to Environment in the Constitution

The Constitution does not contain a specific entry relating to 'environment'. The Central Government attempts to protect common interest through indirect methods. Environmental legislation is brought under the residuary power of the

Centre. Sometimes the power to implement obligations under international treaties and conventions are used to enact law on the subject. Request by two more states are also used to legislate on subjects relating to environment. Hence a legislation which has nationwide application is difficult. Interference by courts becomes necessary in most situations to redress the grievances. Therefore it is suggested is to make a specific enabling provision for the centre to legislate on environment. Through this power, a comprehensive, central land use policy based on scientific study and classification of land considering the long-term impacts of land use is needed. The study found that land use is a state subject and the control exerted by the centre has little effect on states. States are also involved in creation of various legislations for the land use controls. Therefore the Entry on “Environment” may be included in the concurrent List.

Comprehensive Legislation on Wetland Use

Wetlands play unmatched functions towards nature. Half of the world's wetlands have disappeared since the eighteenth century. Land use changes, conversion and pollution of wetlands pose major threat to wetlands. Protecting and preserving remaining wetlands is critical for the state's economy. Its protection is necessary for conservation of environment. Need for wetland protection is not properly understood by community. They are the most productive ecosystems⁶. They provide numerous ecological goods and services. Proper wetland management involves regulation of activities that can be conducted within, and around wetlands. The whole analysis was whether legislations existing in the field of protection, conservation and wise use of wetlands are a powerful tool in regulating its use for achieving sustainable development. It was found that legislations were not able to promote conservation

⁶ Keddy and A. Paul, *Wetland Ecology: Principles and Conservation*, Cambridge University Press, New York (2010), p. 497.

of wetlands. It was found that proper solution could come from the blending of the right holders and duty holder's.

Ecological and economical values of wetlands were not realized by the world community earlier. Even though the Ramsar was concluded in 1971 conservation of wetlands was not an important issue. Only after the evolution the concept of environment in its totality, countries began to give attention to different ecosystems. It has acquired greater momentum through the later developments in relation to conservation of global environment. India is slow⁷ in framing a national regulation for the conservation of wetlands⁸. Even the recent rules have not been properly implemented for conservation and wise use of wetlands.

Wetlands in India are unmatchingly diverse and occupy prime position in the world heritage sites. Ramsar site and biosphere reserves are other areas conserved as wetlands. Along with this various type of wetland from paddy field to Himalayan high altitude wetlands are seen in India. They are being protected under various legislations like planning and zoning legislations, coastal legislations, forest legislations, irrigation and agriculture related legislations. Above all the Environment (Protection) Act, 1986 and the Bio-Diversity Act, 2002 also tries to play a vital role. There is a need to use these legislations and multiplicity of authorities with conflicting attitude to be reconciled. These difficulties can be avoided by enacting a specific legislation on wetlands.

Comprehensive Wetland Inventory

The only way to conserve wetland is through a comprehensive legislation on wetlands. For this a comprehensive wetland inventory is to be made. This should not come from the national level but should initiate from village level. Even the smallest

⁷ Convention regarding Wetland was concluded in 1971 and India is a signatory to the Convention. But the Central rules bearing on wetlands were brought only in 2010.

⁸ The (Wetland Conservation and Management) Rules, 2010.

wetland is to be recorded. Wetlands under private ownership also should be included within the inventory. Conservation of these wetlands should be made the bounden duty of a single authority at village level. Any decision for alienation, conversion, reclamation or change in use pattern of wetlands should be with prior permission of this authority. Yearly review of the wetland inventory should be made the duty of this authority. They should be liable for the loss of wetland from the inventory. The “inventory creation” should start from grass root level and should be based on the categories of wetlands. These areas are to be ear marked as protected areas and if possible government should acquire the private wetlands and conserve them as such. If private ownership is retained, the individuals should be given incentives for the conservation and service to the community. This authority should be free from other duties and should be dedicated to the wise use and conservation of wetlands. The authority has to prepare a plan for wetlands in each village. For undertaking the conservation measures they can include interested persons. Ecological values of wetlands are to be calculated in economic terms. Thus the inventory at the village level should contain all the necessary details and should be made accessible to the public. These zones can be either brought under a land trust and their pattern of development should be decided with careful study and analysis of the community needs. There should be a vegetated buffer zone around the wetland under the inventory even though in smaller measurements, to protect the wetlands from the pollution effects and developmental activities surrounding it. If this helps in improving the health and water needs of the community they will become amenable to such conservation and join hands with the government to promote such regulations.

Co- ordination of Land Development Activities

Land acquisition, purchase of development rights and transfer of development rights are to be made to achieve the purpose of sustainability. These activities should be co-ordinated with aid at the district level, state level and the

central level authorities. The central authority should be the co-ordinating agency laying down the common policy and plans for wetlands. State, districts and the village authority should have flexibility to adopt changes according to the needs of each area. These changes are to be made known to the centre before carrying out the activity. Thus a comprehensive approach towards conservation and wise use could be built up. Certain areas declared as world heritage sites, Ramsar sites and bio-sphere reserves need to be conserved as such. These areas should be under the state's control. There should be a master plan for conservation of these areas. Clauses such as permitted activities or prohibitions and exception need to be avoided at least for a decade to regain the capacity of the polluted wetland. The proposed comprehensive national wetland law covering and earmarking different categories of wetland should be brought in place suspending all other legislations now operating in the field.

A Comprehensive Land Use Policy

The National Land Utilisation policy, 2013 treats land as a resource to be conserved⁹. According to the policy land has to satisfy social, economical, developmental and environmental needs of society. Hence it is treated as an important component of life support system. Policy speaks about the integrated planning of land. Therefore the land utilisation policy should be scientific; strategies should have participatory approach leading to sustainable development of land resources. Conflicting land use is addressed as a major concern. Policy addresses protecting lands under natural resources and ecosystem services as one of the threat faced by the land. Objectives enshrined in the policy reflect the

⁹ See the Draft National Land Utilisation policy, 2013 land to include benefits to arise out of land, and things attached to the earth or permanently fastened to anything attached to the earth. Land is the most important component of the life support system. It is the most important natural resource which embodies soil and water, and associated flora and fauna involving the ecosystem on which all man's activities are based.

approach towards environmentally important areas¹⁰. The policy provides a strong backing to the enactment of a central legislation covering all aspects of wetlands. If this is not possible at least a national policy covering integrated development of wetlands can be made¹¹.

Stakeholder Protection in Protection of Environment

The Indian Constitution guarantees fundamental right to life. This right is not only for mere existence but for the integrated human development. Along with human, the whole ecology need protection and conservation. Laws are always anthropocentric and fails to give due considerations to other living creatures of environment. The dissenting words of Justice Douglas are directive while dealing with matters of protection of environment¹². He observed,

“Inanimate objects are parties in litigation. A ship has a legal personality, a fiction found for maritime purposes... so it should as respects valleys, alpine meadows, rivers, lakes, estuaries, beaches, ridges, groves of trees, swamp lands and even air...”¹³

He further observed,

“The voice of the inanimate objects therefore should not be stilled.... Before those priceless bits... are forever lost or are so transformed as to be reduced

¹⁰ Objectives related to environmental concerns are to preserve and conserve lands under important environmental functions such as those declared as National Parks, Wild Life Sanctuaries, Reserved Forests, Eco Sensitive Zones, etc. and guide land uses around such preserved and conserved areas so as not to have land use conflicts or negative environmental impacts.

- To preserve the areas of natural environment and its resources that provide ecosystem services
- zones predominantly agriculture areas and Predominantly Ecological and Natural Resources Areas/Landscape Conservation and Tourism Areas or Heritage Areas comprises wetlands.

¹¹ Richard Mahapatra, “Land Use Policy for the Country on Anvil”, *Down to Earth* (2013).

¹² *Sierra Club v. Morton*, 405 U.S. 727(1972).

¹³ *Id.*, p.735.

to the eventful rubble of urban environment, the voice of the existing beneficiaries of these environmental wonders should be heard.”¹⁴

Reconciliation of these interests also needs to be interwoven to the wetland conservation regime. Various stake holders who hold the wetlands either as owners or users of any benefit from their uses need protection of their rights. The position of *Adivasis* who were the eyes and ears of forest needs special mention. The wetland stakeholders are to be considered as care takers and be given the incentives for the proper conservation of the wetlands. Protection of ecology as such rather than for human enjoyment is necessary because they do have some rights apart from sustaining man.

Integrated Approach to Coastal Zone Conservation

The study of the problems and laws relating to coastal zone revealed that what is necessary to conserve, protect and improve the coastal wetland is an integrated approach. This should take into consideration various issues regarding conservation and permissible exploitation of resources for the community who depends only on these resources for their survival. There should be clear answer to the question why regulated development of the coast? There are many answers to this question. It is for protection of fishery, for protection of coastal ecosystems, for protection of life and property, to maintain the scenic beauty of coast, to encourage sustainable tourism and to ensure public access to beach and equitable sharing of benefits of coastal zone. This sustained development of coast can be attained with people's participation and by securing the livelihood of the coastal fishers. The integrated action plan should protect life and property. It has to protect the ecosystems which sustain productivity of the coastal areas. Thus the national coastal zone management policy should encompass within it issues due to

¹⁴ *Id.*, p.755.

resource overuse, degradation of ecosystems, conflicts among stakeholders, coastal hazards, livelihood security and sustainable development¹⁵.

Along with this productivity of coastal wetlands should be ensured. This can be achieved only through integrated coastal zone management. This approach deals with development and management of coastal resources with focus on land and water interface. This approach alone can preserve, protect, develop and where possible to restore and enhance resources of the national coastal zone for the present and succeeding generations. It envisages programmes for the wise use of lands and resources. It considers ecological, cultural, historic and aesthetic values as well as the needs of economic development. Thus the legislation should be impregnated with the ideas of sustainable development.

The process of Integrated Coastal Zone Management provides policy orientation and management strategies. This address the issue of resource use conflicts. It provides institutional and legal framework and focuses on environmental planning and management. Various agencies involved in this area are to be coordinated to work together towards a common objective and co-ordination. Thus the gravity of the problem faced by coast suggests an integrated approach. It involves five stages in implementation. They are issue identification, programme preparation, implementation, formal adoption and funding and evaluation. Laws can play command and control in this situation. It commands people to do and refrain from doing and also puts controlling measures. It also constitutes and structures societies and institutions. Law can also play a very important role in changing the attitude and conduct of members of the society. There are certain principles which can help the nation in shaping ICM legislation. Customary law can come to the help of coastal wetlands protection. Legal system

¹⁵ "Managing ASEAN's Coastal Resources for Sustainable Development: Roles of Policymakers, Scientists, Donors, Media and Communities", ICLARM Conference Proceedings, Manila, ICLARM(1991).

of the country should recognize that coastal areas have a special status. It is a typical form of common property. This means coastal wetlands or areas connected to it cannot be sold. General public has a right to use this area for certain purposes and has a limited right to traverse to adjacent private property and to gain access to or to move along the sea shore. Reasserting the public character of the coastal areas in legally enforceable form is often the cornerstone of ICM initiatives¹⁶. This provides the rationale for introducing variety of other important legal mechanisms to support. It provides justification for common good over private interest, conservation for future generation, using the funds generated from coast to protect and enhance the coast as a public asset.

Conservation of Paddy Land and Inland Wetlands

Under the classification of wetlands, paddy land is given prominent consideration. The legislations existing for the protection of wetlands and the pathetic state of paddy lands shows that paddy lands could not be conserved through existing legislations. Various agencies are regulating the use of paddy lands. There is absence of co-ordination among them. Loopholes in the legislation are used for violation of the provisions of law. Conversion of paddy land for other crops cultivation need monitoring. Certain cultivation such as fish and prawn cultivation during the intermittent periods can have the same ecological benefits of paddy cultivation. But other vegetable cultivation will not be able to retain those ecological roles played by paddy fields. Therefore the main ecological functions such as nurturing of various flora and fauna and filling of aquifers need to be retained for the ecological conservation. Proper rethinking of the machinery for implementation of the provisions of the paddy protection legislation is necessary. Conversion of paddy fields for the developmental needs is another area

¹⁶ See Cormac Cullinan, *Integrated Coastal Management Law, Establishing and Strengthening National Legal Framework for Integrated Coastal Management*, Food and Agricultural Organisation, United Nations, Rome(2006).

which is to be reviewed under the legislation. Machinery should ensure that the conversion is for the public purpose only.

Inland wetlands such as wetlands attached to rivers and inland water resources forms the watershed area of the country. It could be found that these water bodies are contaminated and over drained for various purposes. They were converted for developmental needs also without considering its ecological value. Legislations could not help the sustainable development of these regions. Regarding sand mining, power of the local bodies should be reviewed. Sand mining could be allowed only after the ‘sand audit’¹⁷.

Total Prohibition on Use of High Land Wetlands

The highland wetlands which are located within forest and high ranges also need careful study. These are mainly water bodies and of varying characters. But they are polluted due to the impact of global climate changes and unprecedented developmental activities and encroachments. Conservation of their pristine nature is highly essential to regulate the global climate change. Hence it is necessary to avoid the assignments of wetlands and make more effective controls using people's participation.

Management Policy for Wetland

A proper management policy of the wetlands should have many aspects. Wetlands should be managed in an ecologically sustainable way with wider community participation. There should be effective and efficient institutional and legal framework is necessary for integrated management and wise use of wetlands. The policy should provide an enabling environment for the participation of all stakeholders. It should promote communication, education and public awareness

¹⁷ See the judgment in *Paristhithi Samrakshana Samithi v. State of Kerala*, W.P.(C)NO. 3128 OF 2009 (S).

among stakeholders to enhance their appreciation and participation in wetland conservation. State should establish wetlands information management system and database including tools and packages should be available to targeted groups. It should promote innovative planning and integrated management approaches towards wetlands conservation and management. There should be active participation of the community, including indigenous tribes, other private landholders, and business sector and non-government organizations in achieving the goal. Comprehensive wetland inventory, assessment and monitoring should be on the basis of district land records and it should start from the village level. Wetlands included within protected areas should be made known through the sign boards.

A management action plan for each site should be developed. Establishment of hierarchical institutional arrangement comprising wetland experts, scientists, administrative personnel, wetland users, active NGOs is necessary for achieving wetland conservation and protection. Local level Wetland Management and Appraisal Committees are to be established. It is necessary to acquire and restore degraded wetlands in the state shall be undertaken. Capacity building and training programmes through public awareness initiatives may help to develop a better understanding of the values, functions and benefits of wetlands and the consequences of continuing wetland loss. Wetland science and management and data bank creation can improve wetland conservation. Corporates can take the conservation of wetlands at the local level as a part of their Corporate Social Responsibility. The state should facilitate such activities by providing incentives like special tax deductions. Sustainable wetland linked eco-tourism for economic and community development is needed. Decision makers need to learn the importance of wetland issues and the close relationship between conservation and sustainable economic development.

An effective management attempt should be under a common platform and under common policy. This is necessary to avoid disparity in approach. In order to effectively restore and protect wetland resources, assessment of available resources is necessary. Underlying management concerns are to be defined. Wetland goals and objectives are to be developed, and a long-term monitoring and assessment strategy is to be drafted. Element of environmental protection should guide the country. This plan should increase the quantity and quality of wetlands. This should help the country's ability to identify, manage, and protect wetlands. The Plan should also explore stake holder's partnerships to effectively protect wetlands. Such partnerships should assist the government in developing monitoring and assessment programs. They should also help in restoration and protection of degraded and lost wetlands. Protection goals starts from creation of inventory, land use regulations, protection and maintenance of quality standards of wetlands along with their monitoring and assessment. 'Strategic Environment Assessment'¹⁸ can be used as a tool to safeguard the wetland assets. This should afford an opportunity on which all people depend for poverty reduction and development. Adoption of this method would improve decision making related to policies, plans and programmes, and improve development. Therefore there will be integration of environment and development. Strategic environment assessment provides a process for integration and programme improvement which will give greater confidence to the decision maker, principally where development resources are under stress.

To make wise use of wetlands, there should be clear goals, integration of the policy and planning structures, flexible and customised to the context. There should be involvement of key stakeholders and public involvement.

¹⁸ See the DAC Guidelines and Reference Series, *Applying Strategic Environmental Assessment Good Practice Guidance for Development Co-Operation*, Organisation for Economic Co-Operation and Development (2006).

BIBLIOGRAPHY

PRIMARY SOURCES

Indian Statutory Material

- Andaman and Nicobar Marine Fishing Regulation Act, 2003.
- Brahmaputra Board Act, 1980.
- Coastal Zone Regulation Notification Act, 1991.
- Command Area Development Authority Act, 1986.
- Constituents Assembly Debates, 1946.
- Damodar Valley Corporation Act, 1948.
- East Kolkata Wetlands (Conservation and Management) Act, 2006.
- Environmental (Protection) Act, 1986 .
- Forest (Conservation) Act, 1980.
- The Orissa Marine Fishing Regulation Act, 1981.
- The Indian Ports Act, 1908.
- Lakshadweep Marine Fishing Regulation—Rules, 2004.
- Land Reforms Act, 1963.
- Land Utilisation order, 1967.
- Maritime Zone of India (regulation and fishing by foreign vessels) Act, 1980.
- Maritime Zones Act, 1976.
- Mines and Minerals (Regulation and Development) Act, 1957.
- Ministry of Shipping, Government of India, Maritime Agenda, 2010-20.
- Municipal Solid Wastes (Management and Handling) Rules, 2000.

- National Conservation Strategy and Policy Statement on Environment and Development Act, 1992.
- National Maritime Development Programme formulated Sethusamudram Ship Channel Project, 1997.
- The National Policy and Macro level Action Strategy on Biodiversity Act, 1999.
- The Ozone Depleting Substances (Regulation) Rules, 2000.
- The River Boards Act, 1956.
- Territorial Water, Continental Shelf, Exclusive Economic zone and other Marine Zones Act, 1976.
- The Admiralty Bill, 2005.
- The Andhra Pradesh Marine Fishing Regulation Act, 1994.
- The Coast Guard Act, 1978.
- The Coastal Aquaculture Authority Act, 2005.
- The Constitution of India, 1950.
- The Dowry Prohibition Act, 1961.
- The Essential Commodities Act, 1955.
- The Goa Marine Fishing Regulation Act, 1980.
- The Gujarat Fisheries Act, 2003.
- The Highways Act, 1951.
- The Indian Fisheries Act, 1857.
- The Indian Forest Act, 1927.
- The Indian Ports Bill, 2010.
- The Karnataka Marine Fish Jog Regulation Act, 1986.
- The Kerala Conservation of Paddy Land and Wetland Act, 2008.
- The Kerala Government Land Assignment Act, 1960.
- The Kerala Marine Fishing Regulation Act and Rules, 1980.

- The Kerala Plants Diseases and Pests Act, 1972.
- The Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001.
- The Land Acquisition Act, 1894.
- The Land Conservancy Act, 1957.
- The Land Development Act, 1974.
- The Maharashtra Marine Fishing Regulation Act, 1981.
- The Major Ports (Prevention and Control of Pollution) Rules, 1991.
- The Major Ports Trust Act, 1963.
- The Maritime Zones of India (Regulation of fishing by foreign vessels) Act, 1981.
- The Merchant Shipping Act, 1983.
- The Merchant Shipping (Amendment) Act, 1983.
- The Orissa Marine Fishing Regulation Rules, 1983.
- The Prevention and Control of Pollution (Uniform Consent Procedure) Rules, 1999.
- The Recycled Plastics Manufacture and Usage Rules, 1999.
- The Tamil Nadu Marine Fishing Regulation Rules, 1983.
- The Town and Country Planning Act, 1908.
- The Travancore Cochin Fisheries Act, 1950.
- Water (Prevention and Control of Pollution) Act, 1974.
- Water (Prevention and Control of Pollution) Act, 1980.
- Wild Life Protection Act, 1972.
- Wildlife (protection) Amendment Act, 1991.

FOREIGN STATUTORY MATERIALS

United States of America

- The Coastal Zone Management Act, 1972.
- The Environmental Response Compensation and Liability Act, 1980.
- The Estuary Protection Act, 1968.
- Federal Water Project Recreation Act, 1965.
- The Fish and Wild life Coordination Act, 1956.
- The Migratory Birds Conservation Act, 1929.
- The National Environmental Policy Act, 1969.
- The Rivers and Harbors Act, 1938.
- The Clean Water Act, 1977.
- The Wild and Scenic River Act, 1968.
- The Wilderness Act, 1964.

Canada

- Canada Wildlife Act, 1985.
- Ontario Conservation Authorities Act, 1990.
- Ontario Conservation Land Act, 1990.
- Canadian Environmental Assessment Act, 2012.
- Federal Policy on Wetland Conservation, 1991.
- The Fish and Wildlife Conservation Act, 1997.
- The Lakes and Rivers Improvement Act, 1990.
- The Migratory Birds Convention Act, 1994.
- The Municipal Act, 2001.
- Ontario the public Health Act, 1897.
- Ontario the public Health Revised Act, 1914 and 1937.

- Ontario the Municipal Act Revised statute, 2001.
- Canadian Planning and Development Act, 1994.
- Strong Communities (Planning Amendment) Act, 2004.
- The Greenbelt Act, 2004.
- The Places to Grow Act, 2008.
- The Canada Water Resources Act, 1985.

U.K.

- U.K.County side and Rights of Ways Act, 2000.
- The Natural Environment and Rural Communities Act, 2006.
- The Nature Conservation Act, 2004.

International Legal Materials

- “Dams and Development: A New Framework for Decision-Making”, The Report of the World Commission Dams (2000).
- “Ecological Gifts: Implementing Provisions of the Income Tax Act of Canada”, Information Circular. Canadian Wildlife Service, Environment Canada. Ottawa, Ontario (1998).
- “Environment and Human Well Being: A Practical Strategy. Report of the Task Force on Environmental Stability UN Millenium Project”, UNDP Earthscan (2005).
- “Planning for Sustainable future”, in the Baker Report on Land Use Planning 2006, Government White Paper(2008).
- Attridge I.(Ed.),“Biodiversity Law and Policy In Canada: Review and Recommendations”, in Canadian Institute of Environment and Policy, Toronto, Ontario(1996).
- B. R. Sharma and P. G. Mc Cornick, “India Country Case Study on Domestic Policy Frameworks for Adaptation in the Water Sector, Working Together to Respond to Climate Change; Annex I Expert Group Seminar in Conjunction

with the OECD Global Forum on Sustainable Development”, International Water Management Institute, New Delhi(2006).

B. R. Sharma and V. U. Smakhtin, “Water Harvesting as a Strategic Tool for Drought Mitigation in Southwest Asia”, *Proceedings of 55th International Meeting of the International Commission on Irrigation and Drainage*, FAO/ICID International Workshop on Water Harvesting and Sustainable Agriculture, Moscow(2004).

The Basel convention, 1992.

Berkes .F, “Cross scale Linkages: Some promising Institutional and their Dynamics the Drama of the Commons”, Washington DC, Academy Press (2002).

Bryson and associates, “Forest and wetland attributes for highly protected Conservation areas in Canada Contract Report”, North American Wetland Conservation council (1993).

CBD, Global Biodiversity Outlook 3, Secretariat of the Convention on Biological Diversity. Montréal (2010).

A.B. Chaudhuri and Choudhury, “A. Mangroves of the Sundarbans”, Vol.1. India, The IUCN Wetlands Programme. Bangkok, Thailand, IUCN (1994).

Clark, J.R., “Integrated management of coastal zones”, FAO Fisheries Technical Paper No. 327. Rome, FAO (1992).

Conference, Bangkok, Thailand, 11–17 May, Thailand Coastal Development Institute (2002).

The Convention on Conservation of Nature in the South Pacific, 1976.

The Convention on Protection of Environment, 1974.

The Convention on Protection of Worlds Cultural and Natural Heritage, 1972.

The Convention on the Conservation of European Wildlife and Natural Habitats, 1979.

- J.Corbett and V. Eyring, “Comparing Fuel Consumption, CO2 and other Emissions from International Shipping and Aircraft: A Summary of Recent Research Findings”, Institute of Atmospheric Physics, Oberpfaffenhofen, Germany (2007).
- J.Corbett, “Managing the Environmental Impacts of Globalisation on Transport, Environmental Impacts of Ocean Shipping”, OECD, Paris (2006).
- K. W. Cox and A.Grose, “Wetlands A Celebration of Life”, Final Report of the Canadian wetland Conservation Task force on sustaining wetlands Issues Paper No. 1993- 1, North American Wetland Conservation Council, Ottawa, Ontario, Canada (1993).
- K. W. Cox and A. Grose, “Wetland Mitigation and Compensation: Proceedings of a National Workshop. Report No. 98-1”, North American Wetlands Conservation Council, Ottawa, Ontario, Canada (1998).
- CZAP, “Improving the state of the coastal areas”, in Coastal zone Asia Pacific EC Regulation on shipment of waste, No 1013/2006 of the European Parliament and of the Council, 14 June (2006).
- ENTEC Service Contract on Ship Emissions: Assignment, Abatement and Market-based Instruments”, Final report (for the European Commission (2005).
- D.Estrin and J. Swaigen, ”Environment on Trial: A Guide to Environmental Law and Policy “Canadian Institute for Environmental Law and Policy, Toronto, Ontario (1993).
- FAO, “Mangrove forests management guidelines”(1994).
- Fisheries and Oceans Canada, “Policy for the Management of Fish Habitat”, Ottawa, Ontario (1986).
- G. H. Brundtland, “Development and International Economic Co-Operation: Environment”, Report of the World Commission on Environment and Development, Tokyo (1987).
- M.Gadgil and R. Guha; *Ecology and Equity*, United Nations Research Institute for Social Development (1995).

- Government of Canada, “The Federal Policy on Wetland Conservation and Environment”, Ottawa, Ontario, Canada (1991).
- IMO document MEPC 62/INF.13, Calculation of recycling capacity for meeting the entry into force requirements of the Hong Kong Convention.
- International Chamber of Shipping, “Shipping and the Environment – A code of practice”, International Chamber of Shipping, London. (2008).
- International Convention on Civil Liability for Oil Pollution Damage, 1969.
- Lynch-Stewart, P., P. Neice, C. Rubec and I. Kessel-Taylor, “The Federal Policy on Wetland Conservation Implementation Guide for Federal Land Managers”, Canadian Wildlife Service, Environment Canada. Ottawa, Ontario, (1996).
- J.M. Lyons and S. Birosik, “Water Quality in Dominguez Channel And Los Angeles Long Beach Harbour Watershed Management Area Under the Surface Water Ambient Monitoring Programme Fiscal Year 2002 -2003”, California Regional Water Quality Control Board, Los Angelous Region(2007).
- Managing ASEAN’s Coastal Resources for Sustainable Development: Roles of Policymakers, Scientists, Donors, Media and Communities. ICLARM Conference Proceedings . Manila ICLARM. (1991).
- V.B.Mathur, “Protected Area Management in India: Issues and Challenges”, Presented at the V th Brazilian Congress on Protected Areas, Foz do Iguacu, June 17-21, 2007.
- O. Mc Shane, “Land Use Control under the Resource Management Act: A Think Piece” report commissioned by the Minister for the Environment, Ministry for the Environment, New Zealand (1998).
- National Wetlands Working Group, “Wetlands of Canada. Ecological Land Classification Series, No. 24”, Environment Canada and Poly science Publications Inc., Montreal, Quebec (1988).
- Natural Resource Defence Council, “Annual Report 2007,” Natural Resource Defense Council, Sanfranisco(2007).

- Ontario Ministry of Municipal Affairs and Housing.. “Provincial Policy Statement”, Queen's Printer. Toronto, Ontario (1997).
- A.D. Rogers and Laffoley, International Earth System Expert Workshop on Ocean Stresses and Impacts, Summary Report, IPSO Oxford.
- C. D. A. Rubec, K. W. Cox and J. H. Patterson, “NAFTA Opportunities for Conserving Continental Biodiversity” Invited Paper and Proceedings, Expert Meeting on Cooperation, Conservation and Ecosystem Protection. Commission on Environmental Cooperation, Montreal, Quebec (1995).
- C. D. A. Rubec, P. Lynch-Stewart, I. Kessel-Taylor, and G. M. Wickware, “Wetland Utilization in Canada. Chapter 10”, in Wetlands of Canada, Ecological Land Classification Series, No. 24, Environment Canada and Polyscience Publications Inc., Montreal, Quebec (1988).
- Seba B. Sheavly, “Marine Debris- an Overview of a Critical Issue for Our Oceans”, Sixth Meeting of the UN Open Ended Informal Consultative Process on Oceans & Law of the Sea (2005).
- T. M. Silver, I. C. Attridge, M. MacRae and K. W. Cox, “Canadian Legislation for Conservation Covenants, Easements and Servitudes: The Current Situation”, North American Wetlands Conservation Council Ottawa, Ontario, Canada (1995).
- T. Southam and E. A. Curran (eds.), “The Wetland keepers Handbook: a practical guide to wetland care”, Wildlife Federation and Environment, Vancouver B.C, Canada (1996).
- B. Sylte, T. McGuire and D. Calkins, “Environmental Impacts of International Shipping: A Case Study of the Ports of Los Angeles and Long Beach”, OECD, Paris (2010).
- The Bonn Convention, 1979.
- The Convention on Limitation of Liability for Maritime Claims, 1976.
- The IMO Annual Report (2012).
- The International Convention for the Prevention of Pollution of Sea by Oil, 1954.

- The International Convention for the Safety of Life at Sea, 1974.
- The Memorandum of Understanding between Certain Maritime Authorities in the Maintenance of Standards on Merchant Ships (Hague MOU), 1978.
- The Ramsar Convention Manual: A guide to the Convention on Wetlands Ramsar, Iran, 1971, Ramsar convention Secretariat, Gland , Switzerland, (6th edn.2013).
- The Ramsar Convention, 1971.
- The South African Constitution,1996.
- The Venezuelan Constitution, 1811.
- The White House on “Protecting America's wetlands-A fair, flexible, and effective approach” Office of Environmental Policy.
- UNEP Global Environment Outlook GEO-4.<http://www.unep.org/geo/> geo4/media(2007).
- B. G. Warner and C. D. A. Rubec (eds.), “The Canadian Wetland Classification System”, National Wetlands Working Group, Wetlands Research Centre, University of Waterloo. Waterloo, Ontario(1997).
- Water Framework Directive EC water directive (2000/60/EEC).
- World Bank, “Climate Change Impacts in Drought and Flood Affected Areas: Case Studies in India” Social, Environment and Water Resources Management Unit, India Country Management Unit (South Asia Region), New Delhi, Report No. 43946-IN(2008).

SECONDARY SOURCES

Books

- “Property and Power in the Early Middle Ages”, Davies, W, and Fouracre, P, (ed), Cambridge University Press, Great Britain(1995).
- A.V. Dicey, *The Law of the Constitution* (10th edn. 1959).
- A.W.B. Simpson, *A History Of The Land Law*, Oxford (1986).

- L.Ahmad, “Coastal Geomorphology of India”. Orient Longmans Ltd., New Delhi (1972).
- B.H.Baden Powell, *The Land Systems of British India.*, Clarendon Press ,Oxford(3 vol.1892).
- J.H.Baker, *Introduction to English Legal History*, Butterworths, Sydney (1979).
- Benjamin N. Cardozo, *The Nature of the Judicial Process*(1921).
- Bradbrooke, Maccallum and Moore, *Australian Property Law: Cases and Materials*, LBC Casebooks, Sydney (1996).
- N.Bray(ed.), *Environmental Aspects of Dredging*, Taylor and Francis, London (2008).
- B.Cicin-Sain and R.W. Knecht, “Integrated coastal zone and ocean management concepts and practices”, Washington DC, Island Press(1998).
- J.R.Clark, *Coastal Zone Management Handbook.*, CRC Lewis Publishers. New York(1996).
- Constituent assembly debates, Official report , New Delhi, Third Reprint (1999).
- D.D. Kosambi, *The Culture and Civilization of Ancient India in Historical Outline* ,Vikas Publishing House, New Delhi(7th edn.1982).
- Dias, *Jurisprudence*, Butterworths,London(5thedn. 1985).
- Dnzil Millichap, *Law, Myth and Community: a Reinterpretation of Planning Justification and Rationale Ten Planning Perspectives*, Cambridge University Press.
- Dr. N. Maheswaraswamy, *Land Laws under the constitution of India*, ,Asia Law House, Hyderabad(1st edn 2005).
- Edith Brown Weiss, John Howard Jackson and Nathalie Bernasconi-Osterwalder, *Reconciling Environment and Trade*, Transnational Publishers, New York (2001).
- Fritze, H.Ronald and William B. Robison, *Historical Dictionary of Late Medieval England*, Greenwood Press (1272-1485).

- M.Gadgil and R.Guha , *The Fissured Land*, Oxford University Press(1992).
- George Johnson and Dominic Johnson, *Laws on Land in Kerala*, Law book Centre, Ernakulam (2012-2013).
- Ghassemi and Fereidoun, *Inter-basin water transfer*, Cambridge University Press, Cambridge (2007).
- B. Gopal and K.Krishnamurthy, “Wetlands of the World “ ,D.F. Whigham, *et al.* (eds.).Kluver Academic Publishers, Netherlands (1993).
- Grotius, *War and Peace Book II*.
- Guha and Ramachandra, *Environmentalism: A Global History*, Oxford University Press(2000).
- Guha and Ramachandra; *The Unquiet Woods: Ecological Change and Peasant Resistance in the Himalayas*; Oxford University Press(1989).
- Hegel, *Metaphysical Basis of PropertyRational Basis of Legal Institutions*, The Modern Legal Philosophy series, New York (Vol. XIV).
- Henry Sumner Maine, *Ancient Law*, Oxford university Press, London(1959).
- Herbert Cowell's, *History and Constitution of Courts and Legislative Authorities in India*, Dr.Tapas Kumar Banerjee(Ed.), R Cambray and Co. Pvt. Ltd. (7thEdn. 2008).
- I.H. Qureshi, *Administration of Sultanate of Delhi*, Allahabad Publications, Allahabad (2ndedn., 1948).
- J. Drèze and A. Sen, *Indian development: Selected regional perspectives*, Oxford University Press, Delhi (1997).
- Jagdish Swarup, *Constitution of India*, Dr. L.M. Singhvi, (Ed.), Modern Law publications (Vol3, 2nd edn. 1967).
- John F. Hart, *Land Use Law in the Early Republic and the Original Meaning of the Takings Clause*, Zoning And Planning Law Handbook, Cha. 3 (2000).
- K.M.Ashraf, *Life and conditions of the people of Hinduism*, Eastern Book Company, Lucknow(1988).

- K.Kathiresan and S.Z. Quasim, “Biodiversity of Mangrove Ecosystem”, Hindusthan Publishing Corporation, New Delhi (2005).
- Keddy and A Paul, *Wetland Ecology: Principles and Conservation*, Cambridge University Press, New York (2nd edn. 2010).
- P.A.Keddy, *Wetland Ecology: Principles and Conservation*, Cambridge University Press, Cambridge, UK (2nd edn., 2010).
- C.Kenneth, M.C. Guffie and P.V.Gray, *British Shipping Law, Admiralty Practice*, Stevens and sons, London, Vol.1(1964).
- M.Kramer, *John Locke and the Origins of Private Property*, Cambridge University Press, Cambridge (1997).
- L.H. Fraser and P.A. Keddy (eds.), *The World's Largest Wetlands: Ecology and Conservation*, Cambridge University Press, Cambridge, UK (2005).
- Locke John, “Two Treatises of Government”, in Peter Laslett CUP(ed.), Cambridge Texts in the History of Political Thought , Cambridge, (1997).
- M.Hidayathulla, *Right to Property and Indian Constitution*, Arnold Heinemann publication, New Delhi (1983).
- Maine,A.S. Diamond, *Primitive Law Past& Present*, Methuen& Co., London (1971).
- Megarry and Wade, *The Law of Real Property*, Stevens & Sons Ltd, London (5th edn. 1984).
- Michael J. Wiley and Paul W., *An Introduction to Rivers - the Conceptual Basis for the Michigan Rivers Inventory Project*, Seelbach publication (1997).
- N.N. Sastry, Rameswary Varma, *Habitat Asia Issues and Responses*, R.P.Misra and B.S. Bhooshan(Ed.), Naturang Rai Concept Publishing Co., New Delhi (1979).
- O.V.Nandimath,*Handbook of Environmental Decision Making in India: An EIA Mode*, Oxford University Press(2009).
- K.R. Naskar and R.N.Mandal, *Ecology and biodiversity of Indian mangroves.*, Milton Book Company. Dehradun, India(1999).

- P. Leelakrishnan, *Environmental Law in India*, LexixNexis, (2nd edn., 2005).
- P. Parameswaran Moothath, *Kerala Land Laws Manual*, Shukla Law Agencies, Ernakulam(1998).
- G.D. Patel, *The Land Problem of Reorganized Bombay State*, N.M.Tripathi Pvt. Ltd., Bombay(1957).
- Percival Griffiths, *The British Impact on India*, Cambridge University Press, London (1952).
- PriyaNath Sen, *General principles of Hindu Jurisprudence*, Allahabad Law Agency, Allahabad (1984).
- R. S. Bhalla, *The Institution of Property: Legally, Historically and Philosophically Regarded*, Eastern Book Company (1984).
- R. Iyer, *Water Perspectives, Issues, Concerns*, Sage Publications of India Pvt. Ltd., New Delhi (2003).
- R. Manivanan, *Water Quality Modeling: Rivers, Streams, and Estuaries*, New India Publishing (2008).
- R. R. Iyer, *Water Perspectives, Issues, Concerns*, Sage Publications of India Pvt. Ltd., New Delhi (2003).
- R.R.Churchill and A.V.Lowe, *The Law of the Sea*, Manchester University Press, U.K. (1999).
- Rama Jois, *Seeds of Modern Public Law in Ancient Indian Jurisprudence*, Eastern book Company, Lucknow (1990).
- Rutherford H. Platt, *Land Use and society: Geography, Law and Public Policy*, Island Press (1996).
- S. Rao, *The Framing of India's Constitution*, 4 Select Documents (1968).
- Shyam Divan and Armin Rosencranz, *Environmetal Law and Policy in India*, Oxford University Press (2005).
- S.R. Simpson, *Land Law and Registration*, Cambridge University Press (1976).

- A.I.Solomeshch, The West Siberian Lowland, in L.H. Fraser and P.A. Keddy (eds.), *The World's Largest Wetlands: Ecology and Conservation*, Cambridge University Press, Cambridge, UK (2005).
- Srivastava, *Commentaries on Forest Law*, Law publishers Pvt. Ltd, Allahabad (1st edn. 1998).
- States of the American Union*, Boston, Little, Brown and Co. (5th ed. 1883).
- Stephen Thomas and Robert Turrell Clarke, *Contaminated Land*, Sweet and Maxwell, London (2008).
- Sundararaj Iyangar, *Land Tenures in Madras Presidency*, Modern Printing Works, Madras (1916).
- T.N.Narasimhan, “Water Law for India: Science and Philosophy Perspectives”, in R.Ramaswamy Iyer (edt.) *Water and the Laws in India*, Sage Publications India Pvt.Ltd., New Delhi India (2009).
- The American Heritage Dictionary of the English Language*, Houghton Mifflin Company. (4th edn., 2000, updated in 2009).
- The Fight for Survival: Peoples Action for the Environment”, Agarwal, Anil, Darryl D’ Monte, et. Al (Eds.), Centre for Science and Environment, New Delhi (1987)
- The History of Law*, Tudor Puli Co., New York (1946),
- The Little Oxford Dictionary of Current English (7th edn., 1994).
- Thomas Hobbes, *Leviathan*, Oxford University Press (1929).
- V. Paranjpye, “The Value and Politics of Water in India”, In: S. Kothari, I. Ahmad and H. Reifeld (Eds.), *The Value of Nature-Ecological Politics in India*, Konrad Adenauer Stiftung, Rainbow Publishers Ltd., New Delhi (2003).
- V. R. Krishna Iyer, “Nature’s Gifts: A Case for Safeguarding Rivers, Sand and Other Natural Resources” In: S. Yadav(Ed.), *Water Problem and Its Management*, Hope India Publications, Haryana(2004).

Whigham, D., Dykyjova, D. and Hejny, S, *Wetlands of the world, I: Inventory, ecology and management*, Handbook of vegetation science, Kluwer Academic Publishers (1993).

Yusuf Husain, *Glimpses of Medieval Indian Culture*, Vikas Publications, New Delhi (1993).

L. Ting, I.P. Williamson, J.R. Parker, and D.Grant, “The German Ideology”, Arthur, CJ et al, (ed), , Lawrence and Wishart, London(1974).

P.S. Ramakrishnan, U.M. Chandrashekara, C .Elouard et.al., *Mountain Biodiversity, Land Use Dynamics, and Traditional Ecological Knowledge*. Oxford, U.K. (2000).

C.J. Bibby and C. Alder (Eds.), *The Conservation Project Manual*, B P Conservation Programme, Cambridge, U.K(2003).

Critical Ecosystem Partnership Fund, *Western Ghats and Sri Lanka Biodiversity Hotspot: Western Ghats Region Ecosystem Profile*, Conservation International, Arlington (2007).

Wikramanayake et.al. *Terrestrial Ecoregions of the Indo-Pacific: A Conservation Assessment*. Island Press; Washington (2002).

Articles

Sreeja Chandran, “Agricultural Land Conversions: Issues of Justice and Economics- part I”, Mind Text a Center for Public Policy Research Initiative.

N.Ahalya and T.V.Ramachandra, “Aquatic Ecosystem Conservation via Watershed Approaches”, 4 Karnataka Environment Research Foundation Newsletter (2002).

Anupam Chakrabarty, “No sand mining without environmental clearance NGT”, *Down to Earth* (2013).

Anupam Chakrabarty, “Sand Mining Lobby Uses Tricks to Evade MoEF Scrutiny”, *Down to Earth* (2013).

C.Anupama and M.Sivadasan, “Mangroves of Kerala”, India, Rheeda (2003).

- T.Buntin, P.Filion and H.Priston, “Density Gradients in Canadian Metropolitan Regions, 1971-96: Differential Patterns of Central Area and Suburban Growth and Change”, *Urban Studies* (2002).
- S. Bhagwat, C.Kushalappa, P.Williams and N.Brown., “The Role of Informal Protected Areas in Maintaining Biodiversity in the Western Ghats of India”, 10 *Ecology and Society* (2005).
- C.Burda, “Getting Tough on Urban Sprawl - Solutions to meet Ontario climate change targets”, The Pembina Institute, Toronto (2008).
- Carol M. Rose, “Possession as the Origin of Property”, 52 Uni. Chi. L. Rev. (1985).
- Sunita Narain, “Western Ghats: Lessons in Protection”, *Down to Earth*(March 2014
- P.Chandramohan, B. K. Jena and V. S.Kumar, “Littoral Drift Sources and Sinks Along the Indian Coast”, *Curr. Sci.* (2001).
- P. Chandramohan, *Longshore sediment transport model with particular reference to Indian coast*, Ph.D thesis, IIT Madras
- Clarence Maloney, “The Beginnings of Civilization in South India”, 29 *Journal of Asian Studies*3 (1970).
- David E. Dowell, “Benefit of Minimal Land Use Regulations In Developing Countries”, 12 *Cato Journal* (1992).
- V.R.Devi, Miranda and P. K. A. Azis, “Deterioration of water quality- An overview on the Pollution Problems of the Ashtamudi Estuary”, 15 *Poll. Res. Journal* (1996).
- F. Soltau, “Climate Change and Sustainable Development: Understanding the Linkages”, 30 *Natural Resources Forum* (2006).
- S. Foote Lee, Pandey, N. Krogman, “Processes of wetland loss in India”, 23 *Journal of Environmental Conservation* (1996).
- G.K. Nair, “No Food, no Water in Lush Kerala”, Times of India, ,reported on March 7, 2013.

- George C. Kasoulides, “Jurisdiction of the Coastal State and Regulation of Shipping”, 45 *RHDI* (1992).
- Ger Schultint, Martha Finnemore and Kathryn Sikkink , “Global Property Rights and Eminent Domain, 9 International norm Dynamics and Political Change”, 52 *Journal of International organization* (1988).
- E.Gorham, “The development of Peat land”, 32 *Quarterly Review of Biology* (1957).
- Govindan Parayil and T. T. Sreekumar, “Kerala’s Experience of Development and change”, 33 *Journal of Contemporary Asia* (2003).
- Hegel, *Metaphysical Basis of Property Rational Basis of Legal Institutions*, The Modern Legal Philosophy series, New York .
- H.M. Cassidy, “The Emergence of the Free Labor Contract in England” 18 *American Economic Review* (1928)
- J. Bandyopadhyaya, “Water Management in the Ganges- Brahmaputra Basin: Emerging Challenges for the 21st Century”, 11 *Water Resources Development* (1995).
- J. Disano, “Climate Change and Sustainable Development”, 30 *Natural Resources Forum* (2006).
- J.D. Chanski , “Public Health and Conservation of Human Resources”, in The origins of Urban Land use Planning in Canada (1900-1946).
- J.F.N. Abowei and E.N. Ezekiel, “A Review of Some Water Systems and the Fish Pond Ecosystem”, 3 *Research Journal of Applied Sciences, Engineering and Technology* (2011).
- B. K.Jena, *Studies on littoral drift sources and sinks along the Indian coast*, Ph D thesis, Berhampur University(1997).
- Jeremy Firestone and James Corbett, “Maritime Transportation: A Third Way for Port and Environmental Security”, 9 *Widener Law Symposium Journal* (2003).

- K Saradamoni, “Food Security in Kerala: The Issues are Much Bigger”, 40 *Mainstream* (2001).
- K.S.Sudhi, “River Sand Mining may be Resumed for Six Months”, The Hindu, Kochi(2014).
- Kapoor, M., K. Kohli and M. Menon, “India’s Notified Ecologically Sensitive Areas (ESAs): the story so far”, Kalpvriksh, New Delhi and WWF-India, New Delhi (2009).
- K.Kathiresan, “A Review of Studies on Pichavaram Mangroves Southeast Coast of India”, *Hydrobiologica* (2000),
- K.Kathiresan, “Why are Mangroves, Degrading?”, 83 *Current Science*(2002).
- V.A.Kulkarni, V.S. Naidu and T.G. Jagtap. “Marine Ecological Habitat. A case study on projected thermal power plant around Dharmantar creek, India”, 32 J. Environ. Biol. (2011).
- L.B. Sohn, “The Stockholm Declaration on Human Environment”, 14 *Harvard International Law Journal* (1973).
- M. Roy, “Managing the Village-Level Open-Access Water Resources in a Region Facing Rapidly Declining Water Availability”, 12 *Environment, Development and Sustainability* (2010).
- M. Suchitra, Mother of three wages lone battle against sand mining lobby, *Down to Earth* (2013).
- W.Maresch and M. R. Walbridge, “Enhancing Conservation on Agricultural Landscapes: a New Direction for the Conservation Effects Assessment Project”, 63 *Journal of soil and Water Conservation*(2008).
- Mumtaz, Rifaz, “Technical Evaluation of the EIA for the Captive Minor Port of POSCO – India Private Limited”, CSE, New Delhi (2010).
- N.D. Jayal, *Eliminating poverty: An Ecological Response* (1986) Ocean Conservancy, “Cruise Control, A Report on How Cruise Ships Affect the Marine Environment” (2002).

- P. Nandakumaran, T. S. Anitha Shyam, Mini Chandran, V. R.Rani, G. Srinath and A. D. Anil Chand, “Impact of River Sand Mining on the Groundwater Regime in Kerala—an Overview”, 17*Journal of Environmental Law* (2011).
- Patricia W. Birnie and Alan Boyle, *Basic Documents on International Law and Environment*, (1995).
- Paul Stokes, “Getting the Real EIA”, 15 *Journal of Environmental Law* (2008).
- A.G. Prasad, G.V. Venkataramana, M.Thomas, “Fish diversity and its conservation in major wetlands of Mysore”, 30 *Journal of Environmental Biology* (2009).
- S.N. Prasad, T.V. Ramchandra, N.Ahalya , T.Sengupta, A. Kumar, A.K. Tiwari, *et al.* “Conservation of Wetlands of India - a Review”, 43 *Journal of Tropical Ecology*(2002).
- R. Mahesh, “Causes and Consequences of Change in Cropping Pattern: A Location-specific Study”, Kerala Research Programme on Local Level Development Centre for Development Studies, Thiruvananthapuram.
- R.R.Krishnamurty, Bruce C. Glavovic, and Andrews Kannen *et. al.*, “Integrated Coastal Zone Management”, Research Publishing Services, Singapore (2008).
- V. Ramachandran, 2 “Report on the measures to be taken for Democratic Decentralisation at the District and Lower Levels”, Government press, Thiruvananthapuram (1988).
- P.Robinson, “Beyond a Technical Response: New Growth-management Experiments in Canada”, in S. Davoudi, J. Crawford and A. Mehmood (Eds.), *Planning For Climate Change: Strategies for Mitigation and Adaptation for Spatial Planners London*, Earthscan, UK (2002).
- Rodgers and Christopher, “Environmental Management of Common Land: Towards the New Legal framework?”, 11 *Journal of Environmental Law* (1999).
- W.Salmons and S.Ramachandran, “Perspectives on Integrated Coastal Zone Management”, *Environmental Science* (1999).

- Sathish Chandra, “The U.N. Chronology of the “Law of the sea”, 20 *Civil and Military Journal* (1984).
- Singh, H.S., “Marine Protected Areas in India”, 32 *Indian J. Marine Sciences* (2003).
- Sushanta Mahapatra and Sudip Mitra, “Managing Land and Water under Changing Climatic Conditions in India: A Critical Perspective”, 3 *Journal of Environmental Protection* (2012).
- Tatjana Keselj, “Port State Jurisdiction in Respect of Pollution from Ships: The 1982 United Nations Convention on the Law of the Sea and the Memoranda of Understanding”, 30 *Ocean Development and International Law* (1999).
- Todd H. Votteler, “Wetland Management and Research Wetland Protection Legislation, National Water Summary on Wetland Resources” ,*United States Geological Survey Water Supply Paper 2425*, University of Texas.
- V.P. Upadhyay, R. Ranjan and J.S. Singh, “Human–mangrove Conflicts: The Way Out”, *Current Science* (2002).
- B.B.Ghose, P.Ray and Gopalakrishnan, “Survey and Characterization of Waste Waters Discharged into the Hooghly Estuary”, J. Inland Fisheries Soc., India, (1973).
- K.Venkataraman, “Natural Aquatic Ecosystems of India”, National Biodiversity Strategy Action Plan, *Zoological Survey of India* (2003).
- B.Viju, "Raiding the River", The Times of India, New Delhi(2011).
- M.Wackernagel, “Ecological Footprint and Appropriated Carrying Capacity: A Tool for Planning Toward Sustainability”, Ph.D. Thesis, School of Community and Regional Planning, The University of British Columbia. Vancouver, Canada (1994).
- Walton H. Hamilton, ‘Property According to Locke’, 41 *Yale L.J.* (1932).
- Y. Dinstein, “Oil Pollution by Ships and Freedom of the High Seas”, 3 *Journal of Maritime Law and Commerce* (2000).

Claude Garcia , Delphine Marie-Vivien , Chepudira G. Kushalappa , P. G. Chengappa and K.M. Nanaya, “Geographical Indications and Biodiversity in the Western Ghats”, *27 Mountain Research and Development*, India (2007).

A. Das, J. Krishnaswamy, K. S., Bawa and M.C.Kiran, “Prioritisation of Conservation Areas in the Western Ghats”, *133 Journal of Biological Conservation* (1993).

B. Callot, J. Harjung, J. Van De Löcht and R. Unterkofer, “Climate Change Himalayas”, *Earth Sciences*, University of Iceland(2009).

Reports of Statutory and Government Organization

“Status of Water Quality in India- 2007-CPCB” (2008).

12th Lake Conference held at Jaipur (2007).

Draft Agricultural Policy of Kerala (2013).

Dugan R, “Wetland Conservation. A Review of Current Issues and Required Action”, IUCN, Gland, Switzerland (1990).

G.Gopikuttan and K.N. Parameswarkurup , “Paddy land Conversion in Kerala, An inquiry into Ecological and Economic aspects in a Midland Watershed Region”, Final Report undertaken by Kerala Research Programme on Local Level Development Centre for Development Studies, Thiruvananthapuram (2004).

Government of India, Ministry of the Environment, State of the Environment (2009).

Government of India, “Mangroves in India – Status report”, Ministry of Environment and Forests, New Delhi (1987),

“National Environment Policy, 2006”, Government of India, Ministry of Environment and Forests.

“Towards Faster and More Inclusive Growth: An Approach to the 11th Five Year Plan” see also Government of India, Ministry of Environment and Forests, “State of Environment Report India 2009”, Government of India, Planning Commission (2009).

Government of India, “The State of Forest Report. Forest Survey of India”, New Delhi, Ministry of Environment and Forests (1997).

The State of Forest Report, Forest Survey of India, Ministry of Environment and Forests, New Delhi (1997).

Government of Kerala, “Report of the Administrative Reforms Committee”, Government Press, Thiruvananthapuram (1958).

Report of the Expert Committee Chaired by Prof M.S. Swaminathan to review the Coastal Regulation Zone Notification 1991, MoEF(2005).

Final Frontier. Agenda to protect the ecosystem and habitat of India’s coast for conservation and livelihood security, MoEF(2009).

Coastal Regulation Zone Notification 2011, MoEF, Government of India (2011).

Environmental and Social Assessment Final Report, MoEF-ICZM Project.

National Wetland Inventory of India and Assessment, Space Application Research Centre, Ahmedabad, MoEF(2011).

Notification issued under s.(1) and (2) (v) of Environmental Protection Act, 1986 and rule 5(3) (d) of Environmental Protection Rules, 1986 declaring coastal stretches as CRZ and regulating activities in the CRZ. For details see The Gazette of India, Extraordinary, Part II s.3(ii) MoEF, Notification, New Delhi (1991).

Report of the Expert Committee on the draft Coastal Management Zone (CMZ) Notification, Ministry of Environment and Forests.

The Conservation Foundation on “Protecting America's wetlands-An action agenda”, Washington D.C., Environmental Law Institute on, “National wetland mitigation banking study”, IWR Report 94, Washington, D.C.

The Gazette of India Extra Ordinary, part II section 3 Sub Section (I) Published by Authority, Ministry of Health and Family Welfare (Dept. of Health), 29th September 2003 G.S.R 769(E).

The Gazette of India Extra Ordinary, part II section 3 Sub Section (I) Published by Authority, Ministry of Health and Family Welfare(Dept. of Health), 29th September 2003 G.S.R 769(E).

Webliography

“Coastal Population and Shoreline Degradation” http://grida.no/graphicslib/detail/coastal-population-and-altered-coastal-zones_d9f0#

21 PTI, 10-year maritime development programme on anvil: Govt. <http://www.business-standard.com/india/news/10-year-maritime-development-programmeanvil-govt/98869/>

Anonymous.“Wetland Ecosystem Conservation: A Review” from: <http://www.holisticthoughts.com/holistic-ecology/wetland-ecosystemconservation-a-review/> 2010

Barber J, McGuinty fires a warning shot at developers - just in time, (2004, May 15). Retrieved March 25, 2011, from The Globe and Mail: <http://www cope-nomph.org/news/news>

Dharma Kumar,Tapar Raychaudhuri,Irfan Habib and Meghnad Desai, *The Cambridge Economic History of India*,Vol.2, Books Google.co.in

Government of India, 2010, Ministry of Agriculture ,’Agricultural statistics at a glance’ in 1948. For further reference visit www.eands.dacnet.nic.in/Advance_Estimate-2010.htm

GPA-LBA Global Program of Action for the Protection of the Marine Environment from Land Based Activities. www.gpa.unep.org

H.A. Mac Dougal, *The Genesis of Public Health Reform in Toronto*, The Pembina Institute (1869-1890)

<http://www./coastal%20wetlands%201/ESTUARY%20-20A%20SIGNIFICANT%20 wetland% 20-%20%20 mangalore. htm> visited on 28-06-2015

<http:// www.state.ma.us./dep> see also <http:// doverma.org/codes.shtml>

<http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>

[http://demo.cgg.gov.in/apwater/downloads/acts/River%20Conservancy%20Act \(River%20Conservation%20Act%20%20\).pdf](http://demo.cgg.gov.in/apwater/downloads/acts/River%20Conservancy%20Act (River%20Conservation%20Act%20%20).pdf)

http://drs.nio.org/drs/bitstream/2264/350/1/Curr_Sci_91_530.pdf

- http://dx.doi.org/10.4236/jep.2012.39123 Published Online September 2012
(<http://www.SciRP.org/journal/jep>)
- [http://moef.nic.in/downloads/public information/guidelines%20revised NWCP](http://moef.nic.in/downloads/public%20information/guidelines%20revised%20NWCP.pdf)
- http://urbanindia.nic.in/theministry/ministry_page.htm
- <http://www.downtoearth.org.in/content/swami-and-sand-mafia>
- <http://www.legislation.gov.uk/browse>
- [http://www.livemint.com/Politics/lor7YfKMp389ZqAWzFU9IM/Green-tribunal - bans-sand-mining-without-clearance.html?utm_source=copy](http://www.livemint.com/Politics/lor7YfKMp389ZqAWzFU9IM/Green-tribunal-bans-sand-mining-without-clearance.html?utm_source=copy) visited on 18-12-2013
- [http://www.ramsar.org/about_infopack_7e.htm.](http://www.ramsar.org/about_infopack_7e.htm) (as on May 2009).
- [http://www.un.org/depts/los/consultative_process/documents/ 6_sheavly.pdf,](http://www.un.org/depts/los/consultative_process/documents/6_sheavly.pdf)
- IMO, *International Convention for the Control and Management of Ships' Ballast Water and Sediments*, IMO, London. (2003), Available at www.imo.org.
- Information Sheet on Ramsar Wetlands, Ramsar Convention on Wetlands, accessed on 2 March 2013
- J.Barry Cullingworth, *The political culture of planning, American land use planning in comparative perspective*, Taylor & Francis, e-Library, Chapter 2, (2006),
- Kala seetharam “Sridhar, Impact of land use regulations:Evidence from Indian Cities” ,0042098009353813vL 47/7/1541 published on February8, 2010
- L.Ting, “Survey Review Understanding the Evolution of Land Administration Systems in Some Common Law Countries” Department of Geomatics, The University of Melbourne Victoria, Australia available in <http://www.sli.unimelb.edu.au/research/publications/IPW/wolfdcdb.htm>.
- Manoj,P, The Sagar Mala Project. Frontline vol. 27 [http:// www. Frontline connect.com./f12107/stories/20040403009800.htm](http://www.Frontlineconnect.com./f12107/stories/20040403009800.htm) Accessed on 6August 2012
- Marine and Coastal Biodiversity.<http://www.cbd.int/idb/2012/?ttl1#ttl1>

Mee, L. "Between the Devil and the Deep Blue Sea: The Coastal Zone in an Era of Globalisation. Estuarine", *Coastal and Shelf Science* 96(1):1–8. doi:10.1016/j.ecss.2010.02.013(2012)

Port. <http://en.wikipedia.org/wiki/Port> accessed 3 August 2012

Property, Encyclopædia Britannica, 2010 in Encyclopædia Britannica Online. <http://www.britannica.com/EBchecked/topic/479008/property> visited on 03 Dec. 2010

Ramakar Jha, K. D. Sharm, and V. P. Singh, "Critical Appraisal of Methods for the Assessment of Environmental Flows and their Application in Two River Systems of India", *KSCE Journal of Civil Engineering* (2008) available at www.springer.com/12205

The Reform: Simplification Of Legal And Procedural Framework For Conversion Of Agricultural Land To Non-Agricultural Purposes, Optional Reform under JNNURM, www.google.serach

Toynbee A, "Lectures on the Industrial Revolution in England", ChIII: "England in 1760:Agriculture" (1884), [htto://www.berkeleycentral.com/ DrPseudocrytonym/TOYNBEE_Industrial Revolution.html](http://www.berkeleycentral.com/DrPseudocrytonym/TOYNBEE_Industrial%20Revolution.html)

Wafar, M.V.M.. "Carrying capacity of coral reefs" Regional Workshop on the Conservation and Sustainable Management of Coral Reefs, M.S. Swaminathan Res. Found., Chennai (India). <http://drs.nio.org/drs/handle/2264/1995>

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STATES CONTROL OVER LAND USE : RECONCILING THE CONFLICTING NEEDS

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Introduction

Theoretically speaking property has been looked upon as an extension of the individuals personality¹. In other words property is a means to satisfy the needs of the individual. This is necessary to maintain the stability that is expected through the property. Otherwise it will result in uncontrollable changes in the society. The individuals will be in collision with one another. This is for the each ones bid to promote his security and stability. Otherwise this would be injurious to the society. Public harm will ensue from private acts. Thus to reconcile the needs of the individual with societal needs what is a possible framework for property relations? What is the position of land as property apart from other property rights, because of its prime importance? What is the solution in this era of increased state controls over the land?

Land² is universally accepted basis for the production of wealth. Considered from the stand point of ownership and its use rights over the land were of prime importance. Two parallel practises were found in this respect. They were absolute state ownership and on the other hand private or individual ownership³. The latter refers here the

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¹ R.Noyes, The Institution Of Property, A.Kocoureh, Jural Relations, (2nd Edn.) p.334

² "At common law, the term "land" when used in relation to a particular parcel meant the surface of the Earth, the soil beneath the surface to the centre of the Earth and the column of air above the surface. It included all things growing on or affixed to the soil, such as trees, crops and buildings. It also included all the minerals in the soil excepting gold and silver, which at law belonged to the Crown as royal metals" (Hallmann 1994, 9.1).

Baalmann, John, *Outline of Law in Australia*, edited by G A Flick, The Law Book Company Australia. 4th edition 1979

Burke, J 1976, *Osborn's Concise Law Dictionary*, Sweet and Maxwell London.

Collins English Dictionary, *Collins Dictionary of the English Language* (2001), Wm. Collins Publishers Pty. Ltd. Sydney Australia. 1979,

³ Public finance in ancient India, K.R.Sarkar



private ownership in its entirety. This covers the right to sale, gift and mortgage. Another common feature was limited ownership of the tiller over the land or over the use of land⁴. To reconcile the harm of absolute private ownership the theorists⁵ say that land is to be held by the individual for the “common good” of the society. Thus the holding acquires the characteristics of “public interest”. Within the frame work of this theory individual is allowed to hold some property to satisfy his needs. How much is to be allowed to satisfy the needs is qualified by the phrase that it would depend on “all attending fact” at that particular time.

The fundamentals of land ownership date back to the very roots of nation. Matters relating to possession and ownership of land are well recognized in historical records. Indeed, the territorial control of land has been a fundamental issue in the rise and fall of empires throughout history. This has been the cause of a great number of the world’s wars since civilisation began.

In the centuries BC, the importance of land ownership was focussed on arable lands used for productive agriculture. Even in those times there were issues associated with occupation and boundaries. There are evidences of state actions to separate the land of the state from that of private persons, because private land owners had slowly expanded their boundaries into public lands⁶.

⁴ Marshali, P.JLaurence Freedman, Paul Hayes and Robert O'Neill, ed. *War, Strategy, and International Politics: Essays in Honour of Sir Michael Howard*. Oxford: Clarendon Press,1992, pp. 57–74. ISBN 9780198222927.

Refer also Mill, James; Wilson, Horace Hayman, *The history of British India, Volume 5*, 1858 London:
OCLC 3019507.

⁵ Hegel, Philosophy of Right, pp.51-55, See also Hegel “Metaphysical Basis of Property” Rational Basis of Legal Institutions, The Modern Legal Philosophy series, New York, Vol. XIV p.201.
Locke John, *Two Treatises of Government.*, Cambridge Texts in the History of Political Thought. Ed. Peter Laslett. CUP: Cambridge, 1997. pp.285-287

⁶ In 173 BC Lucius Postumius Albinus, a statesman of the Roman Republic, was sent to Campania (a region in Southern Italy) reference from *Lucius Postumius Albinus (Consul 173 BC)* wiki 2011



Biblical references to the Land of Israel, and its boundaries, can be found in various books⁷. In fact, the boundaries of the Middle Eastern States have changed regularly throughout history.

In India the above mentioned divergent practices relating to ownership of land were followed and statutes were framed governing the relation between the individual and the state. State is the ultimate owner of the land in its domain. The absolute or limited rights of enjoyment and ownership were granted to certain classes who satisfied the needs of the state⁸. State also held the property under its direct control and was engaged in various trades and production. Thus it is clear that there existed a mixed economy in India based on the ownership and production from land.

Land Use Controls by The State: Analysis

There were various modes of controls exercised by the state over the individual owners. But all these were directed to common goal of societal needs. Some of them were state controls for the protection of the rights of the tenants against the landlords. There were positive and negative rules concerning the user of land. There were also expropriation for community purpose. Rights were also given to public utilities to acquire easements. They were drainage, telephone poles, electric distribution systems and where it is necessary to transmit high voltages on steel towers. Sometimes this leads to the conflict between the preservation of amenities of the landscapes and the cheap electricity. Another control is breaking up of large estates to small. Also the taxes imposed on the owners for the use of land is another type of control exercised by the state. Thus the state could exercise myriad and varied varieties of controls over the land use. But all these were directed towards the protection of public interest. ancient land use

⁷ Genesis 15; Exodus 23; Numbers 34; and Ezekiel 47 (*Land of Israel wiki* 2012)

⁸ They were the affluent classes in the society and they were called Jemmis. Certain government servants were assigned with lands apart from the wages received by them. These lands were inalienable by these servants.

van Hattem, Peter 1997, *Demystifying Native Title*, Murdoch University Electronic Journal of Law, Perth Western Australia, viewed 4 February 2012
<http://www.murdoch.edu.au/elaw/issues/v4n3/vanh43.txt>



restrictions as stated above were mainly to protect the public health, safety, morals and general welfare of society. Hence land use regulations always involves a balance and often conflicts both between private and public property rights and among private rights itself. The questions to be answered in this context are, How far the restrictions imposed on land use is feasible? What is the most acceptable mechanism to be evolved for this purpose? What are the most relevant concerns to be satisfied for the maintenance of maximum happiness of maximum number of people without doing much harm to the resource base of the individual countries? Therefore the satisfaction of the concept of "sustainable development" in all realms of life specially with reference to land use became the need of the hour.

Various theories of property⁹ argue for the protection of individual property rights. But these are subject to the public interest. But during this creation and transformation of private ownership over land it was put under the rule of law. Thus the state as well as the arbitrary power exercised by the private owners was put under the rule of law. The real question before the modern world is how far the rule of law could reconcile the private property rights enjoyed by the owner with the land use controls exercised by the state over their rights.

According to Locke political power is the power that every man in the state of nature possess but which is given over to the society that they form. It is entrusted to the government set up to create an established and known set of laws to arbitrate in disputes and preserve the life and property of its members. Locke's vision is of minimal state interference whose justification can only be that of consent. The state must not possess arbitrary, absolute powers over the lives and property of the civilians. Yet its mandate must seek the public good and be democratic applying the majority rule.

⁹ Labour theory, personality theory, private property as the creation of the state after the long struggle between state and the society, the functional theory which caste a duty on the owner that he serves a social function.....

For further reference read H Rashdall, *Property its Duties and Rights*, p.68



Even as a strong supporter of private property Locke explains that in the state of nature , everything is commonly owned, but god gave man senses and reason to use for his preservation and reproduction that which he removes from the common¹⁰.

According to him land is the chief matter of property. A man who appropriates and cultivates land does not lessen its but increases the common stock of mankind. The reason for this claim is that one acre of enclosed land yields support of human life than an acre of equal richness' lying waste in the common. From this Locke draws somewhat specious conclusion that a man who encloses and cultivates ten acres may truly be said to give ninety acres to mankind. As well as in justifying the appropriation of land in terms of mixing ones labour with it , Locke also seeks to justify its appropriation on the ground that doing so serves to advance the common good in maximising the utility of land. This is a reason Pufendorf too asserts in favour of private ownership of land.

Locke's second Treatise of Government "of property" consist of theory of appropriation¹¹, labour theory of value. In this he explains that during the first ages of the world the state of nature prevailed. Both land and natural products of the soil were available in excess of men's needs. This may be called the age of abundance. Such condition prevailed in some part of the world. For the rest the age of abundance had come to an end when money had been introduced and communities had been formed. The following period may be called age of scarcity. Locke's theory of appropriation in the age of abundance is his account of origin of private property.

In the account of Grotius and Pufendorf the origin of private property started from the tenet that God at creation had given the earth with all plants and animals to mankind¹². This was the reason why men could own anything. The donation was to all men in common.

¹⁰ J.R.Milton, Lockes moral, political and Legal Philosophy, Ashgate Publications Ltd, Dartmouth, England, 1999 p.284

¹¹ Supra note 5

¹² Genesis I 29-30 and IX 2



To begin with people lived in the state of communism. But after a time this was found inconvenient. People then agreed to divide certain things and tracts of land, leaving the rest free to occupation. In this way private right of property, dominium was introduced

According to Grotius, during the era before the introduction of dominium it was permitted for everybody to take from the common such things as were needed for the support of life. What a man took for his use and could consume became his own. Pufendorf disagreed on this point. It would be incuria against all others to take anything from the common without their consent. A general agreement allowing the appropriation of things required for the support of his life must therefore have been concluded. From another point of view it was also necessary. He said that people at every time had made a compact to the effect that each was entitled to collect as much of the fruits of the earth as was needed for his existence. The dominium was introduced in a limited extent. The substance of the thing remained common property. The fruits became the property of those who collected them. Thus there was a mixture of private and common property during the first era.

Industrial revolution and technological development which took place in the later centuries brought in drastic changes to the life style pursued by the communities or individuals¹³. This in turn led to the rethinking of property relations. Most important change was the change of community holding to the individual¹⁴. Along with this the states power also underwent a number of changes. The concept of State as "Leviathan" which was created solely for the protection of life and liberty of individual¹⁵ changed to the concept of welfare state. Along with this the functions of the state also became more complex. Everyone expected the state to be more powerful than the Leviathan in the state of nature¹⁶. Thus protection of property acquired more

¹³ R S Bhalla , *The Institution of property*, p.64

¹⁴ id at p.90

¹⁵ property." Encyclopædia Britannica. 2010. Encyclopædia Britannica Online. 03 Dec. 2010 <http://www.britannica.com/EBchecked/topic/479008/property>

¹⁶ Thomas Hobbes, *Leviathan*, Oxford University Press, 1929, p.230.



individual colours than social. As the powers of state increased the duty of the state to ensure the social interest at par with individual interest made the state to make more and more controls over the individualistic property rights. It continued through centuries and still exists. The extent of controls exerted by every state depends on the political philosophy followed by the concerned state. This can be gathered from the basic law of the land¹⁷. Property is of course an economic asset. But only a secure property right provides a sense of identity and belonging that goes far beyond and underpins the values of democracy and human freedom. Historically, however, land rights evolved to give incentives for maintaining soil fertility. But making land-related investments and managing natural resources sustainable are the creation of modern state. Therefore, property rights are well managed in modern economies.

During industrial revolution property began to be recognised in terms of the economic value¹⁸. This brought in changes in the mental attitude of man also. He became greedy and began to amaze wealth for luxury and the concept of property lost its original notion. The original notion of property was in tune with the nature. Man had respect and love for the nature and the resources¹⁹. From there onwards another notion of property began to attract significance ie. the legal concept of property as including the ownership and its component elements, like exclusiveness, possession and thing. It became an independent institution free from the communal or societal control.

Some theorist like Hegel argues for protection of individual property rights and says that some amount of property is essential for

¹⁷ For every recognized territory is having a recognized constitution and that will specify the property relations recognized and enforced by the state. eg. Constitution of India art.31

¹⁸ David E Dowell, *Benefit of Minimal Land Use Regulations In Developing Countries*, Cato Journal, Vol. 12, No. 2, 1992.

¹⁹ The original notion of institution of property was: property as an expression of self to control and use to fulfil the needs of individual got completely changed. Greek philosopher Aristotle observed "It would be ideal; for property ought to be generally and in the main private, but common in one respect ie. in use. The renowned natural law theorist, Grotius relying on Justinian observed that private property originated in a kind of agreement among men to respect the right of occupations at the time of agreement.



the development of personality²⁰. He says that it is the control of property which makes a person free. He is an exponent of private property. He classified the gradual development of community holding of property to individual. He also says that community should give each members opportunity to toil, within his powers, acquire such property as is necessary for the true self realization²¹. What is that extent of true self realization is not made clear by him. It can ordinarily be the attribute the societal control or states control for the protection of social interest.

Land Use Controls in India

Indian administration was complex one due to invasion of various cultures. Therefore the land use controls varied from time to time according to the needs of society. In India land tenure the relationships between the land holder and the State. The absolute ownership of land rests with the Government. Government gives proprietary rights to individuals or communities. Thus, a land owner, is the proprietor of that land and he has to pay revenue for that²². In India the concept of proprietary right in land gets its origin from Manu's Occupation Theory²³. It is the counter part of the Roman Doctrine of Occupation. According to them in order to convert the cultivator of the land to the owner, permission of the state is not needed.

Under Hindu period the land was considered to be the property of society. King had only the right to protect and do well to the community interest. The state was entitled to the tax. During this period the cultivated land was not considered as common land. But the waste land was considered to be common. The right of the first person who makes the beneficial use of the land was recognised in many cases

²⁰ H. Rasdall, *Property Its Duties and Rights*, p.68

²¹ Dias, *Jurisprudence*, Butterworths, London, 5th edn. 1985 pp.274-275

²² Naresh Chandra Sen Gupta, *Evolution of Law*; 1962, p.85

²³ Manusmriti, IX-44



invade the rights of the individual unless it be for the most urgent and important reasons".

The above approach was also reflected in the constitution³¹. While at the presentation of the draft article, Nehru commented that the article was a just compromise and it does justice and equity not only to the individual but to the community³². Thus the original of the constitution guaranteed deprivation of property by law alone. It also guaranteed the payment of compensation as fixed by the legislature.

Legislative power over land vests with the state³³ government even though the obligations to implement international conventions³⁴ lies with the Centre. The 74th amendment³⁵ of the constitution also provides for delegation of more powers to the state in relation to the land and constructions and developmental activities over the land. But it is not an absolute freedom. It is to be interpreted in tune with the policy laid down by the Centre and five year planning policy adopted by the government in accordance with the needs of each area. Because the ultimate obligation is towards the people of India and as a whole the holistic development of environment of India. Thus due consideration of individual, community and above all the sustainable development principle is the need of hour.

³¹ Art.31

³² Ibid. at 1193

³³ list II item 18

³⁴ Art.258

³⁵ http://urbanindia.nic.in/theministry/ministry_page.htm visited on 09-04-2012

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PADDY LANDS PROTECTION: AFTER THE KERALA CONSERVATION OF PADDY LAND AND WETLAND ACT, 2008

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Abstract: Kerala which receives an annual rainfall about 3010 centimeters of rainfall annually, and there large number of lakes and rivers all over Kerala experiences acute drinking water shortage for the six months. About two thirds of the population does not have access to safe drinking water. The cost benefit analysis study which is absent from the part of both government and the land owners when the question of conversion comes in to.

Key Words: Paddy, Food Security, Community Acceptance.

Introduction:

Drastic social transformation took place in Kerala since 1960. The earlier Legislations¹ enacted by the Kerala Legislature for the protection of paddy fields, makes it clear that conservation and protection of paddy lands was a malady. The attempts made by judiciary was also worthless. More over in the conflicts of the Economics v. Environmental consideration, in a state like Kerala having more literacy rate, the balance always tilts in favor of the economics from the part of land owners perspective. But the state being the custodian of all property and protection of community interest may go with environment. Therefore economic rationale of the private owners of paddy fields suggests the paddy fields to convert for non-agricultural purposes². But it is clear that majority of farmers or as of now the land mafia ruling most of the farm lands in Kerala are not aware of the real long term impact of ecological and environmental imbalances that may result due to transformation of the paddy land agro-ecosystems. This made the state to come out with the stringent measures and we could observe more and more additions³ to the rules for the protection of the community interest. The academicians are doubtful about the sustainability of development model adopted by the government of Kerala. More over the loss of sustainability raises doubt about the livelihood of marginalized sections in the society.

At this critical juncture, Kerala legislature decided to enact a legislation to comprehensively protect and manage the paddy lands and wetlands in 2007. At the inception of the bill itself rampant conversions and filling of paddy fields were reported by media. Even though there

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¹ The Land Utilisation Order, 1967, Land Reforms act, 1963, The land Development Act, 1964

² Paddy land Conversion in Kerala, An inquiry into Ecological and Economic aspects in a Midland Watershed

Region, G.Gopikuttan and K.N. Parameswarkurup, Final Report undertaken by Kerala Research Programme on Local Level Development Centre for Development Studies, Thiruvananthapuram, August 2004

³ Malayala Manorama daily news paper on 29-04-2014 Aluva edn. Says that the vehicles used for filling the paddy lands unauthorisedly will be seized and an amount equal to the value of vehicle will be charged from the owner of the vehicle for involving in such illegal activity.

2014]

PADDY LANDS PROTECTION

51

were criticisms and problems the assembly enacted the legislation in 2008⁴. Preamble of the Act itself makes it clear the will of legislature in enacting this specific legislation⁵.

Preamble:

The twin objectives mentioned in the preamble revolves round the principle of sustainable development. The most important objective still being the food security of state⁶. The second one being the protection of the ecology of the state⁷. The Act seems and tries to find out the problems of existing enactments. It also brings out certain compromises for achieving the above objectives.

Defines the operational areas clearly:

The Act defines paddy land⁸ and wetland⁹. Here the important question arises as to when the problem of conversion is faced how to judge whether the property is paddy land under the Act. In a case decided by the Kerala High court, the honorable court held that the judgment is to be based on the actual fact situation and not depending on the description of property as (Nilam) paddy field or wetland in the revenue records is insufficient to assume that land cannot be used for any purpose other than those for which a paddy field or wetland can be used¹⁰. To understand the real fact situation the data bank preparation was made a bounden duty on the part of the committee constituted under the Act¹¹.

By this definition the Act confines its operation to paddy lands and wetlands alone. Conversion or reclamation and removal of sand from those areas are prohibited¹² except in accordance with the provisions of the Act¹³.

⁴ Received the assent of the Governor on 11/08/2008. Published under notification number 19661/Leg.A1/2007/Law dt. 12/08/2008, in K.G.Ext.No.1790 dt. 12/08/2008(w.e.f. 12/08/2008). The Act contains 30 sections.

⁵ The preamble of The Kerala Conservation of Paddy Land and Wetland Act,2008 reads as ‘an Act to conserve the paddy land and wetland and to restrict the conversion or reclamation thereof, in order to promote growth in the agricultural sector and to sustain the ecological system in the state of Kerala.

⁶ Ibid.

⁷ Supra note 3

⁸ See section 2(xii) of The Kerala Conservation of Paddy Land and Wetland Act,2008, paddy land means all types of land situated in the State where paddy is cultivated at least once in a year or suitable for paddy, cultivation but uncultivated and left fallow, and includes its allied constructions like bunds, drainage channels, ponds and canals;

⁹ See section 2 (xviii) of The Kerala Conservation of Paddy Land and Wetland Act,2008,'Wetland' means land lying between terrestrial and aquatic systems, where the water table is usually at or near the surface or which is covered by shallow water or characterized by the presence of sluggishly moving or standing water, saturating the soil with water and includes backwaters, estuary, fens, lagoon, mangroves, marshes, salt marsh and swamp forests but does not include paddy lands and rivers;

¹⁰ *Praveen K v. Land Revenue Commissioner, Thiruvananthapuram and others*, 2010(2) KHC 499, 2010(2) KLT 617(DB)

¹¹ See The Kerala Conservation of Paddy Land and Wetland Rules, 2008, rule 4

¹² See Section 3 of The Kerala Conservation of Paddy Land and Wetland Act,2008, *Prohibition on conversion or reclamation of paddy land*.-(1) On and from the date of commencement of this Act, the owner, occupier or the person in custody of any paddy land shall not undertake any activity for the conversion or reclamation of such paddy land except in accordance with the provisions of this Act.

¹³ See section 3 (2) of The Kerala Conservation of Paddy Land and Wetland Act,2008 :Nothing contained in sub-section (1) shall apply to the cultivation of any intermediary crops that are cultivated without changing the ecological nature of that paddy land or the strengthening of the outer bunds for protecting the cultivation.

Farmers protection:

Government has realized the difficulty faced by the farmer while doing the paddy cultivation. This was one of the main reason why the earlier enactments were a failure. Thus through the provisions of the Act government promises to undertake suitable measures¹⁴ from time to time in order to assist the farmers to augment the production of paddy in the state.

Community Involvement:

Societal acceptance or community acceptance is another important need of a legislation to survive. Most of the laws which do not augment the happiness of greatest number of people is liable to be rejected¹⁵. One of the mechanism to overcome this threat as we faced in the earlier legislation is to make a participatory approach in the implementation of the legislation. This method is attempted in the present legislation. The unique mechanism adopted under the Act is that three tier committees¹⁶ are setup under the Act. Every activities is done with the involvement of public.

¹⁴ See section 4 of The Kerala Conservation of Paddy Land and Wetland Act,2008: Incentives for paddy cultivation.- The Government shall take suitable measures from time to time, in order to assist the farmers to augment the production of paddy in the State

¹⁵ Bentham's theory of greatest happiness of greatest number.

¹⁶ See section 5. Constitution of Local level Monitoring Committee.- (1) There shall be a Local Level Monitoring Committee in each Panchayat or Municipality, consisting of the members specified in sub-section (2), for the purpose of monitoring the implementation of the provisions of this Act. (2) The composition of the Committee shall be as follows:-

- | | |
|---|------------------|
| (i) The President or Chairperson /Mayor of the Grama Panchayat or the Municipality
or the Corporation, as the case may be | : Chairman |
| (ii) The Agricultural Officer/Officers having jurisdiction in the Grama Panchayat or
Municipality/Corporation | : Member/Members |
| (iii) Village Officer/Officers having jurisdiction in the said area | : Member/Members |
| (iv) Three representatives of farmers in the Panchayat/Municipality/Corporation to be
nominated in such manner, as may be prescribed | : Members |

The Agricultural Officer shall be the convener of the Committee.

And see section 9. Constitution of District Level Authorised Committee.- (1) Notwithstanding anything contained in section 3,each Collector shall constitute in the District, District Level Authorised Committee for considering the applications for reclamation of paddy land for the construction of residential building to the owner of paddy land and for taking suitable decision: Provided that the District Level Authorised Committee shall not take any decision granting permission for the filling up of paddy land for the construction of residential building exceeding ten cents in a panchayat and five cents in a Municipality/Corporation, as the case may be.

(2) The District Level Authorized Committee shall consists of the Revenue Divisional Officer, Principal Agricultural Officer and three paddy cultivators to be nominated by the Collector and the Revenue Divisional Officer shall be its Chairman and the Principal Agricultural Officer shall be its Convenor : Provided that where there are more than one Revenue Divisional Officer in a District, the Collector shall nominate one among them to the District Level Authorised Committee.

(3) The term of office of the nominated members shall be three years from the date of their assuming charge in the office. But after the expiry of the term they may continue in office till the succeeding members are nominated.

(4) Nominated members may resign from the Committee at any time by giving letter under his hand to the Collector.

(5) The District Level Authorized Committee shall take decision on the recommendations made available to it within one month..

(6) Any person aggrieved by the decision of the District Level Authorized Committee, may prefer an appeal before the Collector within thirty days from the receipt of the decision, in such manner as may be

Three Tier Mechanism:

The committee designed and designated is vested with grass root powers¹⁷. They are invested with the power to participate, prepare data bank , inspect the lands, and find the reason if the lands are not cultivated, inquire the violations or non compliance, accept the complaints from the public regarding the violation and suggest the measures to come back to the culture of cultivation. They are also vested with the power of recommending to allow conversion¹⁸. But

prescribed.

(7) The Collector shall take a decision thereon within one month from the date of receipt of appeal and the decision of the Collector shall be final.

And see section 8. Constitution of the State Level Committee.- (1) The Government shall, constitute a State Level Committee for furnishing report to Government after the detailed scrutiny of the applications recommended by the Committee regarding the filling of paddy land for public purposes. (2) The Agricultural Production Commissioner, the Commissioner of Land Revenue and an expert in the field of environment and a Scientist in the field of paddy cultivation, to be nominated by the Government, shall be the members of the State Level Committee and the Agricultural Production Commissioner shall be its Convener.

¹⁷ Ibid at section 5

¹⁸ See section 5(3) of the The Kerala Conservation of Paddy Land and Wetland Act,2008 Local level Monitoring Committee shall have the following powers, namely:- (i) Subject to the provisions of this Act, to recommend to the State Level Committee or District Level Authorized Committee, as the case may be, for the reclamation of paddy land for public purpose or for construction of residential building for the owner of the paddy land:

Provided that the Committee shall not recommend for filling of paddy land of more than ten cents in a Panchayat or five cents in a Municipality/Corporation, as the case may be, for the construction of residential building for the owner of the paddy land;

(ii) to inspect the paddy land situate within the jurisdiction of the Committee to monitor whether the provisions of this Act are being complied with and to report to the Revenue Divisional officer regarding violations, if any of the provisions of this Act;

(iii) to examine the complaints received from the public regarding the attempts to violate the provisions of this Act and to intervene in the issue to prevent such violation;

(iv) to examine the reason for keeping the paddy land fallow and to suggest remedial measures so as to persuade the holder of paddy land to cultivate it with paddy or any intermediary crops;

(4) The Committee shall perform the following functions, namely:- (i) to prepare the data-bank with the details of the cultivable paddy land and wetland, within the area of jurisdiction of the Committee with the help of the map prepared by the State Land Use Board or any Central-State Science and Technology Institutions on the basis of satellite pictures by incorporating the survey numbers and extent in the data-bank and get it notified by the concerned Panchayat/Municipality/Corporation, in such manner as may be prescribed, and exhibit the same for the information of the public in the respective Panchayat/Municipality/Corporation Office and in the Village office/Offices.

(ii) to make alternate arrangements under section 16 where a paddy is left fallow without taking steps in spite of the instructions given by the Committee under item (iv) of sub-section (3); (iii) to prepare detailed guidelines for the protection of the paddy lands / wetlands in the areas under the jurisdiction of the Committee; (iv) to collect the details of the paddy land within the area of jurisdiction of the Committee, reclaimed in contravention of the provision of any law for the time being in force, before the date of commencement of this Act and to give the report to the Revenue Divisional Officer; (v) to perform such other functions, as may be prescribed from time to time.

(5) The quorum for a meeting of the Committee shall be three and it shall meet as and when required and the venue for the meeting shall be the respective Panchayat Office and the time of meeting shall be fixed by the Chairman.

(6) The Committee may decide the procedure for its meetings and the concerned Agricultural Officer shall keep proper minutes of the meeting signed by every person attended.

this power is also limited¹⁹. Thus the legislation beautifully blends the power with reasonable restrictions. Therefore the members of the committee becomes the guardians of the Act. Apart from this analysis of the working of the present Act, the local committee is also entrusted with the duty of finding out the data of paddy land reclaimed in contravention of the provisions of any law for the time being in force. All these reports are to be submitted to both Revenue Divisional Officer of the area. The data banks prepared in relation n to this Act shall be maintained as public document and it can be inspected by the interested public. Thus the local level monitoring committee is to monitor the implementation of the provisions of the Act. Any willful omission to take action under the Act is deemed to be an offence under the section 23²⁰ of the Act.

The environmental jurisprudence and different principles²¹ adopted in the sustainable development is reflected in the other provisions of the Act. The state level committee while dealing with the applications recommended by the local level monitoring committee shall examine in detail whether any alternate land other than paddy land is available in that area. Along with this it has to assess the ecological changes that may occur due to such filling up of paddy land. a report regarding the same is to be submitted to the government²².

Apart from the committees a district level committee to take decisions on the application for reclamation of paddy land is constituted under this Act. An appeal from the order of district committee is dealt by collector and his decision shall be final on those matters²³.

Public Purpose and Conversion:

Public purpose is given utmost importance under the Act. The power to make the decisions of reclamation for public purpose lies with the government. But there are certain checks and balances in the exercise of power. Before the exercise of the power government should be satisfied that there is non availability of alternate land and such conversion will not affect the adjoining paddy fields and also the ecological conditions in that area²⁴. Even though the Act

¹⁹ Ibid.

²⁰ Section 23 of The Kerala Conservation of Paddy Land and Wetland Act,2008 deals with Penalty: Any person who, in violation of the provisions of this Act converts or reclaims any paddy land or wet land notified under sub-section (4) of section 5, shall on conviction, be punishable with imprisonment for a term which may extend to two years but shall not be less than six months and with fine which may extend to one lakh rupees but shall not be less than fifty thousand rupees.

²¹ Precautionary principle, public trust doctrine, polluter pay principle and sustainable development are the core principles and the deciding authority based on these principles makes the impact assessment on the conversion application and makes a reasoned decision

²² See section8 (3) The Kerala Conservation of Paddy Land and Wetland Act,2008, The State Level Committee shall scrutinize each application recommended by the Local Level Monitoring Committee for filling up or reclamation of paddy land for public purpose and shall examine in detail whether any alternate land, other than paddy land, is available in that area and the ecological changes that may occur due to such filling up of paddy land and submit a report to Government.

²³ Supra note15

²⁴ See section 10 The Kerala Conservation of Paddy Land and Wetland Act,2008 deals with the Power of Government to grant exemption. - (1) Notwithstanding anything contained in section 3, the Government may grant exemption from the provisions of this Act, if such conversion or reclamation is essential for any public purpose.

(2) No exemption under sub-section (1) shall be granted by the Government, unless the Local Level Monitoring Committee has recommended the conversion or reclamation and the Government are satisfied on the basis of the report submitted by the State Level Committee, that no alternate land is available and such conversion or reclamation shall not adversely affect the cultivation of paddy in the adjoining paddy land and also the ecological conditions in that area.

2014]

PADDY LANDS PROTECTION

55

covers both paddy land and wetland, the area which can be reclaimed under this Act for public purpose is paddy land.

Protection of Wetlands:

Complete prohibition on reclamation of wetland is another bold attempt from the legislature²⁵. This is at the wake of Ramsar convention., 1971. We could observe that the severe draught and many other problems relating to the drinking water is reported from many parts of Kerala. The solution to this problem can be achieved by maintaining the available wetlands in the original condition.

Authorized Officers:

To report on the violation of this Act and to take actions here under, an authorized officer is appointed²⁶. He is vested with the powers which necessary to exercise the functions under this Act. He is deemed to be a public servant. Another important feature is that if he fails to report or to take action under this Act, he will be punished as per section 23 of the Act. Again to strengthen the arms of implementation collector can reclaim or reconvert the land already converted in violation of the provisions of the Act. This is one of the most important power under this Act²⁷.

²⁵ See section 11 The Kerala Conservation of Paddy Land and Wetland Act,2008, Prohibition on reclamation of wetland On and from the date of commencement of this Act, the wetlands of the State shall be maintained as such and there shall be a total prohibition on reclamation of such wetland and removal of sand there from:

Provided that nothing contained in this section shall affect the removal of slurry and mud to maintain the ecological condition of such wetland

²⁶ section 12 The Kerala Conservation of Paddy Land and Wetland Act,2008 Appointment of Authorized Officers and their powers.- (1) The Government may by notification in the official Gazette, appoint such officers of the Revenue Department not below the rank of a Revenue Divisional Officer, as authorized officers and may determine the area of jurisdiction within which they shall exercise their powers under this Act.

²⁷ See sections 12 (2) The Kerala Conservation of Paddy Land and Wetland Act,2008 The Authorized Officer may, for the purpose of inspecting whether any of the provisions of this Act have been violated, or to prevent the commission of any of the offences under the Act, -

(a) enter any premises or any place connected therewith with such preparation as he thinks necessary for the inspection or investigation into the alleged offence under this Act;
(b) require any person to stop any act in contravention of section 3 or section 11;
(c) seize any vessel, vehicle or other conveyance or any implements used or purported to be used in contravention of the provisions of this Act and sent a report to the District Collector for initiating proceedings for their confiscation;
(d) require any person to furnish such information as he may consider necessary;
(e) take photographs, make inventories or do other things necessary for collecting evidence regarding the commission of the offence and sent a report to the Court of competent jurisdiction in order to prosecute the accused.

(3) Any person required to produce any document or thing or to give any information to an authorized officer under this section shall be legally bound to do so within the meaning of section 175 and 176 of the Indian Penal Code, 1860 (Central Act 45 of 1860).

(4).Every authorized officer appointed under this section shall be deemed to be a public servant within the meaning of section 21 of the Indian Penal Code (Central Act 45 of 1860).

(5).If an officer authorized under sub-section (1), fails to take action on the basis of the report regarding the violation of the Act submitted by the reporting officer under section 7, he shall be deemed to have committed an offence punishable under section 23; and also note section 13. Power of the District Collector. - Notwithstanding anything contained in this Act, the Collector may take such action, as he deems fit, without prejudice to the prosecution proceedings taken under the Act, to restore the original

Community Involvement in Protection of Paddy Lands:

Community involvement in fallow paddy land cultivation could be seen under this Act. If the holders of the paddy land are unable to cultivate the paddy land, it shall be entrusted to Padasekhara Samithi, self help groups, or kudumbasree units in those areas²⁸. This is one of the restriction exercised compulsorily on the owner of land by state. This seems to be the reiterating provision of The Land Utilisation Order,1967. But there is wide gulf between the provisions. Earlier there was practical difficulty in entrusting the land to another person who is interested in cultivation. The authority entrusted was the collector and he is always over burdened and the practical implementation of cultivation of fallow lands would be of great difficulty. This is overcome by the insertion of interested groups. In today's society these groups play an important role in many functions. Thus this seems to be a possible solution to remedy the malady existed under the earlier enactments. Other intermediate crops which can be allowed other than the paddy is left to the discretion of the holder of land²⁹. by this discretion the owner is allowed to retain the power of ownership over his land and here we could observe the sustainable development principle incorporated by the legislature. This would bring much more consensus among the holders of land regarding the acceptance of the legislation. The absolute ownership is with the holder himself. His right to sell the property even when it is under cultivation as per the provisions of the Act. Thus for the greater community interest the individual is deprived of his one element of property rights for a period of time. This for the larger community interest. But there is a balance and his permanent enjoyment and disposal rights are retained. Thus the Act tries to strike a balance between individual interest with those of community interest. The entrusted person has only the right to cultivate and he will be evicted after the period of time. Thus it tries to curb the deep wounds and fear of permanent deprivation exerted by the Land Reforms Act,1963. This was one of the reason for the failure of many legislations which imposed restrictions on the various uses of land. thus the Act tries to strike the balance through the provisions.

Collector is given the power to do such acts for the proper implementation of the provisions. The Act has enabled the authorities to take up cases of reclamation and deal with them appropriately. The district collectors had initiated action against use of tipper lorries and earthmovers for paddy-field conversion. The administration had imposed fines on the owners of the vehicles for their involvement in reclamation. Thus it is only will on the part of officials and people to perform the functions entrusted is necessary. This Act is under operation now. But rampant violations are reported by media's every day. Even in the name of the public purpose certain violations takes place unnecessarily. A small state like Kerala having three international airports tries to fill the larger extent of paddy fields fort establishing a fourth one. The question is does we need a fourth one at the cost of losing a large area of wetlands and paddy lands? The land mafia plays a great role which could not be controlled even by the stringent provisions of this Act . As many other pieces of legislation, the law to protect wetlands and paddy fields have not been foolproof. One of the recent proposals for

position of any paddy land reclaimed violating the provisions of this Act, and realize the cost incurred in this regard from the holder or occupier of the said paddy land, as the case may be, so reclaimed after giving him a reasonable opportunity of being heard.

²⁸ Refer Section 16 (5) of The Kerala Conservation of Paddy Land and Wetland Act,2008 While entrusting the right to cultivate such paddy land under sub-section (4) the following order of priority shall be followed, namely:- (i) Padasekhara Samithis or Joint Farmers Societies; (ii) Self Help Groups; (iii) the Kudumbasree Units functioning in the Grama Panchayat/Municipality where the paddy land is situated.

²⁹ See The Kerala Conservation Paddy Land and Wetland Rules,2008, rule (vi)

2014]

PADDY LANDS PROTECTION

57

development of projects on reclaimed land, which has reportedly come up for official consideration, was for establishment of a golf course, a hotel, and luxury resorts in the Kuttanad area of Alappuzha district. The project, if sanctioned, aims at reclamation of 180 hectares of wetland, named Methran Kayal³⁰. What are our developmental priorities deserves to be considered. Even Kuttanad, the granary of Kerala is not spared, he said. The area under paddy in this region has shrunk to around 37,000 hectares from around 55,000 ha. The Kayals are allegedly being reclaimed rapaciously for converting into resorts, townships with golf courses. The “Rani kayal” (lake) included in the Rs1,860-crore Kuttanad package created by M.S. Swaminathan Research Foundation in order to bring it back to paddy cultivation, has gone into the hands of a major private group engaged in financial and tourism business. Thus the provisions are not implemented in its letter and spirit.

There are not any provisions under this Act to make the whole community aware of the need for conservation³¹. But there are certain hopes from here and there, which shows that people are becoming more and more vigilant in protecting and bringing up a life style in tune with the nature or bringing back our traditional life style.

There are certain questions which comes to our mind while deciding the priority for cultivation. What are the other crops which can be allowed other than paddy which do not affect the nature of paddy fields both in nature and quality. It mainly relates to its environmental protection. Under the shield of seasonal crops certain Cole paddy lands are being permanently converted to aquaculture areas. These results in serious ecological problems. This makes saline water intrusion into water aquifers creating drinking water shortage in the surrounding areas.

While analyzing the role of judiciary it is sad to notice the absence of positive activism from the part of High Court to incorporate the principle of sustainable development, while dealing with the cases under this Act. It allowed certain violations³² and it becomes a precedent in the subsequent cases to follow.

Thus, before implementing any legislation of this type i.e. controlling land use or exercising control over property rights mass awareness is to be created. Environmental awareness and the need to protect ecology should be given utmost importance or else we will face severe

³⁰ R Ramabhadran Pliai, The land question: paddy fields or a place to live? Times of India, reported on January 14, 2012

³¹ Conservation of paddy lands are necessary because of the various ecological functions of paddy fields which cannot be done by any other area of land and they can be summarized as Maintenance of fertility and productivity such as Biogeochemical cycling, Biosphere stability, Primary production, Biodiversity, Hydrological function, Ground water recharge, Ground water discharge, Absorption and control of floodwater. Another function is water purification function, Habitat of plants, predators and micro-organisms, Economic services to human utilization, Production of fish, Medicinal plants, Grass and green leaves for livestock population, Recreation facilities etc. Though the environmental resources are under private control, several stakeholders are involved in their use. People in the locality consider them an open access property for collecting grass/fodder, catching fish, gathering medicinal plants and collecting wild vegetables for consumption and materials (like reed, cane and wild grass) for housing and handicrafts and also see G.K. Nair, *No Food, no Water in Lush Kerala*, Times of India, ,reported on March 7, 2013

³² Jafarkhan v. K.A. Kochumakkar and others 2012(1)KHC 523, 2012(1) KLT 491, 2012(1) KLJ 607, ILR 2012(1) Ker.535 (DB), Abdul Satar Babu v. State of Kerala, Adani infrastructure & Developers Pvt.Ltd. v. State of Kerala, Rajesh v. Palakkad Municipality, Jayalakshmi v. State Of Kerala, and many other cases relating to the question of conversion the decision in Jafarkahn is cited as precedent and seeking the regularization of violation under the Kerala Conservation of Paddy Land and Wetland act, 2008.

consequences for the coming generations. Creation of farming culture in the society is necessary. Farmers should be given respectable position in the society. The youth should be made aware of the ecology. Thus only by the community awareness and acceptance such a legislation could survive in our community. National policies should be more farmer oriented. Agricultural subsidies and the promotional measures for the farmers are to be made clear every year through medias and every type of assistance both technical and scientific are to be given to them.

Unsustainability in agriculture should be removed. Price escalation and the market forces must be controlled to the favour of farmer. Farmers should not be put to a loss at any cost. All round prosperity of the farmers are to be ensured. They should be given more infrastructure facilities to fulfill the entire communities' aspirations by the farming community. Moreover the governments should have the will to strictly implement the provisions³³ of the Acts passed for the protection of such ecological reserve for future generation. Agricultural services are to be strengthened to protect the farming community and paddy fields.

³³ The principle of cost- effect analysis and impact study are to be made the bounden duty of the committees involved in taking decision regarding conversion. They should not be mere stumps acting on the basis of the evidence produced by the intended applicant. This would add momentum to the implementation.

Land Use Controls in Kerala with Special Reference to Ecologically Fragile Areas

Dayana M. K.

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Abstract: Land is a prime resource- it vests ultimately in the government-but the immediate ownership of vast areas are with the private individual- lower cost of agricultural produce and unscientific and uncontrolled developmental measures exerted great pressure on land- most of agricultural lands got converted to garden lands, laterites removed from other places collected for filling this area, sand, rock and many other land resources' exhausted- water table decline, food security is effected-total ecology is tilted, wetlands, estuaries, river basins , command areas, paddy fields, coastal zones and finally the western Ghats(ecologically and environmentally fragile areas) are effected- societal revolt against all these menace can be seen-laws are many but not working and unenforceable-stage has reached that for sustenance of life effective land use controls necessary-question is how to achieve a better standard of management- the major question to be answered is " how the sustainable development can be achieved through the land use legislations".

Keywords: Land use controls- sustainable development- ecologically fragile areas- private land use

1. Introduction

Land remains to be the prime resource gifted to man by the creator of earth. Each living thing had equal right towards everything on earth. But due to the reasoning capacity of man he dominated the whole world and remains to be the supreme creature of earth. Earlier the use of land and its resources were not restricted by any norms rather than self regulations and there was no awareness about the concept of environment until the 1950's. The call from the Rachel Carson through her "Silent Spring" made certain changes in the whole world regarding the need for the protection of the environment. But the knowledge or the concept of protection of environment was not enough to control the degradation of environment during that time. The degradation continued unabatedly. The whole resources of earth got polluted and there remains nothing in the world with its pristine purity. The land is no exception to it. It was mainly affected by the unscientific use of it. This is mainly due to the lack of proper planning and co-ordination between the authorities.

Land is one of the scarce resource and sometimes can be said to be non renewable if it has lost its characteristics. Land comes within the sovereignty of each nation and therefore the nature and extent of land possessed by each nation determines to a certain extent the development of the nation. The policy regarding the land is determined by the political ideology followed by each nation. Here we are concerned about the land of India and especially Land of Kerala. When we consider the land of Kerala we have to consider the land of India because the policy of land ownership is laid down in the Constitution of India. The perusal of the Constitutional debates shows that the policy which India wanted to follow was a socialistic one rather than giving protection of Individual ownership considering the needs of the society as a whole. But this does not allow the state to take away the ownership rights of individual unreasonably. The concept of public purpose and eminent domain continues to be most debated while dealing with the taking away the property rights of

individuals. The real question who is the ultimate owner of land? Is it individual or the State? To what extent the state can interfere in the bundle of ownership of individual? What is the scale for determining the balancing of rights? etc. still remains in our mind without a clear answer. But who is responsible to propagate and practice the principle of sustainable development? The answer is that the responsibility lies with the state. If it is so the above questions to be answered giving more importance to the sides of the state. This is because the state is responsible for the development of the individual and the society as a whole. In such circumstance the state should be given certain prominence in taking the decisions regarding the land use. The topic is one of the most debated and arouses curiosity from the whole population including the local people.

2. Literature Survey

Legislative power on land use is vested in state governments and central government have a little power on the subject. Improper and unscientific land use has given rise to various problems like draught, floods and water shortage. Imprudent land use leads to adverse impact on the environment and ecosystem. This emphasis the need for a systematic land use. There is a general feeling that the existing Land Use Board in Kerala has not been able to work out proper schemes for scientific land use. The studies conducted by National and International agencies show that land use management in Kerala is in a dismal state. In Kerala there is large scale shifting from food crops to cash crops and conversion of agricultural land for non-agricultural purposes. Even environmentally fragile areas like wet lands, paddy fields, command areas and mangroves are also destroyed. This has led to the decrease in quality and availability of fresh water. It is believed that lack of a comprehensive land use policy is the major cause for this situation. The present study is an attempt for a critical and systematic analysis of the land use patterns followed in Kerala.

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1371

It is also proposed to examine whether the legal system has helped in formulating a comprehensive, eco-friendly and economically viable land use management in Kerala.

Study aims at identifying the Kerala laws and regulations bearing on land use controls. Various schemes and practices evolved for this purpose from time to time will be collected and examined. The problem of dichotomy of control over land use and multiplicity of authorities exercising these powers will be examined. The powers of central and state governments and municipal authorities will be evaluated. For this purpose the international obligations undertaken by India in its implementation in the National level will be studied. The practices followed by different countries of the world in this regard will be collected and analysed. The laws in other states in India and its implementation will also be the subject matter of the study.

The thrust of land use laws will be examined to find out whether it is adequate to protect environmentally fragile areas like command areas, wet lands, paddy fields and mangroves. The data on adverse impact on improper land use in these areas will be collected and analysed. Land use policies formulated in Kerala and other state of India will be collected and studied. The land development, land zoning, land conservation laws will be given special attention. Decisions of higher courts relating to land development and planning will be studied to see whether they are capable of promoting environment friendly land use pattern. Statistical data relating to land use pattern will be collected.

This work will analyze the legislations and the attitude of judiciary towards controlling the use of land by the individuals. For this purpose similar situations in other countries also will be perused. The land remains the hottest topic because of the increasing density of populations. This calls for the most proper sudden and long term action from the part of the state to put into practice the principle of sustainable development. The existing legislations to protect the ecologically fragile areas is inadequate. Society also is not aware of this situation and its long term consequences. Mass action both from the state and the society can bring adequate changes and this can be facilitated through a strong legislative policy exclusively dealing with land use and its implementation without any hesitation.

3. Research Methodology

The Researcher has proposed to adopt the socio legal method of research in this work. The primary sources are Legislations, Committee Reports, and Foreign and National case-laws. The secondary sources are Articles, Books, Web Sites, News Papers and Magazines. To assess the implementation of the legislations a field study is also to be undertaken.

4. Results

The extent to which the state can control the individual right to property. How this problem is addressed by

different legal systems. Indian constitutional scheme provides that land is a state subject and the obligation to implement the international conventions lies with the centre. There are many conflicting areas how is this resolved. Use of fragile areas deserves special attention and protection. It has high economic value and another aspect of environmental protection and assuring food security. An effective rule covering all aspects of land use and environmental protection under the umbrella legislation of Environmental Protection Act, 1986 would be the best outcome of this research.

5. Conclusion and Future Scope

Land use is becoming restricted day by day. This has raised hue and cry from all sections of community. As all components of environment is interlinked so comes the land use. In ancient days use of certain lands were prohibited. The scope of land use controls were very limited because the land was vast and the pressure of population was limited and therefore the need of restriction was only for protection of divinity or sanctity of certain areas. Another purpose of land use controls was encouraging cultivation to the best possible extent. People had enough reverence for the environment and they had a symbiotic relation with the environment. Therefore depending on the social needs those restrictions were sufficient. But the ownership of the whole land was considered to be vested in the king who gave protection of life and liberty of people. The use of land (individual ownership) was considered as a grant issued by state. For that they paid tax to the state for the produce of land and in most cases it was restricted to 1/6 of the produce of land. This concept could be observed from the writings of Manu, Jimutavahana and the four principles of Hinduism. But the individual ownership was restricted based on the use of land for cultivation and promotion of cultivation was one of the aims of every kingdom. Because they believed that the sustenance of the kingdom depended on the agriculture. The earlier wars were mainly fought for land and the resources of land. Even during the medieval dynasties also we could observe the similar pattern of limited restrictions. Certain areas of special importance and special protection were unavailable for the individual ownership. Other areas could be used by the individuals for their agricultural purpose. But the ultimate ownership of land remained with the king.

The advent of British rule changed the property relations in India to a great extent. They were not concerned with the welfare of the people. Their only aim was the augmentation of exchequer and for that they exercised all possible controls over the lands. They collected revenue in excess rates. They also introduced the permanent settlement of land revenue. The collection of revenue was entrusted with certain influential middle men, who had no actual connection with the land and they were not the owners of land but later they were turned as owners of land. This was really a reproduction of feudal system followed in Britain. The legislations concerning the acquisition and forest and planning and zoning enacted. The outlook of the Acts reflected a resource protection approach but the ultimate aim was plundering the wealth

Author Profile

Mrs. Dayana M.K., Assistant Professor of Law Government law College Thrissur, having more than nine years of teaching experience. Her career as a teacher began in 2006 at M.S. Ramaiah College of Law Bangalore, thereafter continued to School of Legal Studies, CUSAT, Cochin and thereafter joined the Government service in 2011. She has got 4 national publications and various paper presentations in National Seminars across India. Shortly submitting research thesis on "LAND USE CONTROLS IN KERALA: WITH SPECIAL REFERENCE TO ECOLOGICALLY FRAGILE AREAS" under the guidance of Dr. A. M. Varkey.

of India without any hindrance under the pretence of ecology and development. There were restrictions on the use of land but those changes were not at all catering to the protection or up gradation of environment.

Before the independence it there was voice against the existing system of property relations. Therefore during the constitutional debates there were two sided arguments for the change in property relations. Individualistic arguments showed that property to be vested with the individual and the state shall have no control over it. But the opposite arguments were mainly for the societal protection. Therefore they argued that the property is to be ultimately vested with the state even though the ownership can be enjoyed by individuals. Their rights can be restricted for a social need. They also argued that the principle of equity while deciding the matter of compensation shall apply to the society and not to the individual. It was also decided to rearrange the property relations by introducing the concept of land reforms based on the principle of land to the tiller. But the intended aims could not be achieved as envisaged and this paved the way for constant conflict of legislature and the judiciary. The judiciary was not able to understand the noble intention of the framers of the constitution and always stood for the intention of the feudal lords. Therefore the balancing approach of the constitution of right to property as fundamental rights and the needs of the society as directive principles of state policy was tilted. It abrogated the property rights to simply a legal right.

The perusal of these periods shows that the philosophy justified the use and enjoyment and possession of land. But the absolute right to property was not recognized and protected anywhere. The right to enjoyment of land allowed to the extent that the fruits of the soil are not spoiled. Once it was proved to be against this policy it could revert back to the common pool and can be possessed or enjoyed by any one. The community ownership of land in turn gave way to individual holding of land by the industrial revolution. This brought in changes not only in the property relations but in the mental setup of man itself. He became greedier and the value of money acquired much more importance rather than it was before. Therefore the aim of man from the individual satisfaction or societal satisfaction changed to greediness. It led to amassing of wealth for generations and acquisition of landed property for near and dear ones. From there onwards the legal concept of ownership as a bundle of rights with great complexities arose. Planning, Zoning and restrictions over the use of lands were found to be necessary and the state emerged as an entity with the responsibility for the protection of individual and society arose. Therefore the conflict of individual v. society also arose as a necessary evil. This situation still continues with more intensity now also. No comprehensive studies covering the sustainable and environmental aspects of land use is undertaken in Kerala till this day. The topic has a great future because all conflicts start from the property concept and continues in the property concept and it shall remain to be so. This is to conclude with the land remains the most important element of property.

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1373

RESUME

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Career Objective

Being a devoted person, want to be part of legendary organisation to contribute towards the growth of the organisation, based on my expertise and to further my personal capabilities by learning from the new exposure within the structured framework of the organisation

Key skills and Management

Proven leadership and Management skills

Goal oriented

Managing change

Motivating and developing

Seeking Challenging assignment's in an organisation of high repute

OVERVIEW

- Qualified L.L.M (Masters in Law) Post Graduate from the famous Cochin University of Science and Technology, Kerala, India and L.L.B (Degree in Law), B.A.L (Bachelor of Academic Laws) from reputed Mahatma Gandhi University, Kerala India.
- Specialised in Intellectual Property Rights, Environmental Law and sub specialisation in Human rights Law.
- Second rank holder from M.G. University for L.L.B in 2002
- Submitting Ph.D. October 2015[Land Use Controls in India with special Reference to Wetlands] in School of Legal Studies, Cochin University of Science and Technology
- Qualified University Grants Commissions Test for teaching in Law colleges and Universities.
- Submitted thesis in [Antarctica a common concern of mankind] as a part of dissertation for Master's Degree.

- Experienced in teaching Intellectual Property Laws, Environmental Laws, Land Laws, Company And Other Corporate Laws, Land Utilisation Laws, Tort Laws, Professional Ethics And Arbitration Laws, Administrative Laws, Criminal Laws
- Instrumental in chalking out strategies for student career developing and day to day operations.
- Expertise in study material preparation, conducting exams, seminars, moot courts and group discussions.
- Skilled in MS office.
- Possess superior working knowledge, skilled in teaching, administration, organisational and time management capabilities.

CAREER CONTOUR

Current work Experience

Organisation : Government Law College, Thrissur

Duration : June 2011 onwards

Designation : Assistant Professor Law

Location : Ayyanthole, Thrissur , Kerala

Transferred as per government order to Government Law College, Ernakulam, on July 25th onwards.

Position and duties remain the same.

Job Profile

- Handling classes on Bachelor and Master students of Law in various law subjects
- Conducts exams, seminars, workshop and group discussions.
- Conducts National trial advocacy
- Joint co-ordinator in National Seminar
- Conducts interclass moot court competitions
- Handles class moots and drafting of various legal documents
- Handles class charges and various social activities for students
- Handles internship coordination for students by adopting them to various governmental and nongovernmental organisations.
- Responsible for handling paper works.

Previous Assignments

- 1) Organisation : School of Legal Studies, CUSAT
Duration : 2007 October onwards
Designation : Lecturer in Law
Location : CUSAT, Cochin 22

Job Profile

- Handling classes on Bachelor and Master students of Law in various law subjects
- Conducts exams, seminars, and workshop and group discussions.
- Conducts National seminars
- Conducts interclass moot court competitions
- Handles class moots and drafting of various legal documents
- Handles class charges and various social activities for students
- Handles internship coordination for students by adopting them to various governmental and nongovernmental organisations.
- Undertakes editing of CULR
- Responsible for handling paper works.

- 2) Organisation : School of Legal Studies, CUSAT
Duration : 2006 September onwards
Designation : Guest Faculty of Law
Location : CUSAT, Cochin 22

Job Profile

- Handling classes on Bachelor and Master students of Law in various law subjects
 - Conducts exams, seminars, and workshop and group discussions.
 - Handles class moots and drafting of various legal documents
- 3) Organisation : M.S. Ramaiah College of Law, Bangalore
Duration : 2005 October onwards

Designation : Lecturer in Law
Location : Madivala, Mattikkara, Bangalore

Job Profile

- Handling classes on Bachelor and Master students of Law in various law subjects
- Conducts exams, seminars, and workshop and group discussions.
- Handles class moots and drafting of various legal documents

Professional Experience

- Enrolled as an advocate on the roll of Bar Council of Kerala in 2003.
- Practiced as a Junior to R.R. Nair since the passing of LLB

Job Profile

- Practice in various civil and criminal cases.
- Experience in drafting legal documents
- Handling various legal problems and suggesting the settlement for various problems

Awards

Second Rank Holder in L.L.B. from M.G. University

Publications

- 1 "E-commerce and Taxation" published in Chartered Accountants Practice Journal 2009.
- 2 "Cyber Crimes and Criminal Procedure System: Cyber Defamation" published in Complete Kerala High Court cases2009
- 3 Book review on Lectures on Intellectual Property Laws by Jayanatha Lahiri, in CULR, sep-Dec 2009 p.463
- 4 Book review on Herbert Cowell's History and Constitution of the Courts and legislative authorities in India, by Tapas Kumar Banerjee, in CULR Sep-Dec 2008 p.490
- 5 Paddy lands protection : after the Kerala Conservation of Paddy Land and Wetland Act, 2008 in IV: 1 (2014) TLA pp. 50-58 – The Legal Analyst ISSN 2231-5594
- 6 States control over Land Use : Reconciling the Conflicting Needs in Indian Journal of Legal Philosophy pp37-48 ISSN 2347-4963

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Achievements

Acted as key speaker in International Lecture Series 1 under the Auspices of Barrister M.K. Nambiar Chair organized by School of Legal studies, Kannur University on September 2014.

- 1 Religious and Ethical Objections to New medical technologies: A Human Right Analysis.-In UGC sponsored National Seminar on human Rights, SLS
- 2 Scope of Regulation Over admission to self-Financing Professional Colleges.-In national Conference on self financing Professional educational institutions: Role of State, SLS
- 3 Cyber crimes and Criminal procedure System :Cyber defamation.-In UGC Sponsored national Seminar on human Rights (Human Rights and criminal Justice administration) ,SLS
- 4 E-Commerce and taxation -In UGC Refresher course ILI Delhi
- 5 Data Protection Laws and Right to Privacy (India)-In UGC sponsored National Seminar on Trips and Globalization :Legal Frame work and Challenges ,GLC EKM
- 6 Change in Land Use in Kerala :The Neo Colonial Trends.- In National seminar on Conservation of Paddy Lands and Wet Lands in Kerala :The Socio –Legal Perspectives, SLS
- 7 Whether Clinical Legal Education Effective or Not?-In National Seminar on Reforms in Legal Education :The Global Challenges or National Demands, SLS
- 8 Dignity of Women through various legislations - In National seminar on Human Rights of the Socially Excluded, GLC, Thrissur
- 9 Concept of Safe food and Eco Mark in India- in National Seminar on Food Safety: emerging Trends in India, SLS, CUSAT

Workshops and seminars

- 1 Attended public law lectures on Right to life and Capital Punishment conducted by School of Legal studies in 2010
- 2 Attended two day National Seminar on Right to Health Care held at School of Legal Studies in 2010
- 3 Participated in interdisciplinary national workshop on woman and law at GLC Ernakulum in 2011

- 4 Attended the interdisciplinary National Workshop on Child Abuse: Medico Legal Perspectives held at GLC, Thrissur in 2012
- 5 Acted as moderator in National workshop on Law, Democracy and Social Justice: Critical Perspectives held at GLC Thrissur 2012.
- 6 Participated in the training programme for Law Teachers on Curriculum Reforms in Law held at SLS, CUSAT in 2012
- 7 Participated in one day national workshop on Depreciation of Indian Currency: reasons and counter measures held at GLC, Thrissur, 2013
- 8 Participated in one day National workshop on River Sand Mining: the role of law in balancing interests held at NUALS, Kochi in 2014.

Coordinator

- 1 Functioned as academic faculty in All Kerala Trial Advocacy and Moot Court Competition for Justice T. Ramachandran Memorial Ever Rolling Trophy in March 2013
- 2 Acted as Joint co-ordinator in two day National seminar on Access to Medicine and patent laws held at GLC, thrissur in 2013
- 3 Acted as coordinator of National Trial advocacy and Moot Court Competition for Justice T. Ramachandran Memorial Ever Rolling Trophy in February 2014
- 4 Acted as coordinator of Interclass Moot Court competition held at GLC, Thrissur in 2011.
- 5 Acted as joint coordinator of National Trial advocacy and Moot Court Competition for Justice T. Ramachandran Memorial Ever Rolling Trophy in September 2014
- 6 Acted as coordinator of National seminar on Conservation of Paddy Lands and Wet Lands in Kerala :The Socio –Legal Perspectives, SLS.
- 7 Acted as person in charge of handling internship programme for L.L.B students and placement cell in GLC, Thrissur
- 8 Examinership in Natioanl university of Advanced Legal Studies since 2007
- 9 Question paper setter of Arunachal University Rono Hills, Itanagar in 2009
- 10 Question paper setter for Cochin University of Science and Technology from 2012 in various law subjects.
- 11 Passing Board Member in Kannur university and Cochin University in various exams.
- 12 Examinership in Cochin University of Science and Technology and Kannur University.
- 13 Examinership of Calicut University since 2011.

14 Examinership in M.G. University from 2015.

Refresher Course

Participated in the refresher course organized by Indian Law Institute New Delhi, on "Cyber Laws" in 2008 with an A grade.

Educational Qualifications

Degree	Subjects/ Specialization	Institution/University	Year	Class/Rank
Ph.D under evaluation	Environmental law and land laws	Cochin university of Science and Technology	2015	-
LL.M	Jurisprudence, Intellectual Property Law, Environmental Law	School of Legal Studies, Cochin University of Science and Technology	2005	1 st class CGPA 7.04
LL.B	All Compulsory Subjects	Govt. Law College, Ernakulam Mahatma Gandhi University	2002	1 st Class, 71% 2 nd Rank
Plus II	Science	Fathima Girls Hr S.School, Nilgiris	1997	Distinction,89%
S.S.L.C	Language, Science, Maths, Social science.	St.Francis Girls High School, Aluva	1994	Distinction,88%

PERSONAL INFORMATION

Name : Dayana M.K.
Name of Father : Mr. M.T. Kunjachan
Age : 35yrs
Date of Birth : 14/01/1979
Gender : Female
Marital Status : Married.
Language Proficiency : English, Hindi, Tamil, Malayalam, Arabic (to read and write only)
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I hereby declare that all the information furnished above are true to the best of my knowledge and belief.

Aluva

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