1. Record Nr. UNINA9910830618503321 Wetlands conservation: current challenges and future strategies // Titolo edited by Sanjeev Sharma, Pardeep Singh Pubbl/distr/stampa Hoboken, New Jersey:,: Wiley Blackwell,, [2022] ©2022 **ISBN** 1-119-69266-0 1-119-69262-8 1-119-69632-1 Descrizione fisica 1 online resource (317 pages) Disciplina 333.918 Soggetti Wetland conservation Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Nota di bibliografia Includes bibliographical references and index. Nota di contenuto Cover -- Title Page -- Copyright Page -- Contents -- Preface -- List of Contributors -- Chapter 1 Global Wetlands: Categorization, Distribution and Global Scenario -- 1.1 Wetlands Definition, Categorization and Classification Criteria -- 1.1.1 Wetlands-Categorization and Classification -- 1.1.2 Human- Made Wetlands --1.2 Importance of Wetland Ecosystem -- 1.3 Spatial Distribution and Potential of Global Wetlands -- 1.4 Status and Impacts on the Wetlands Ecosystem -- 1.4.1 Conservation Measures and Future Strategies -- 1.4.2 Conclusion and Recommendation --Acknowledgements -- References -- Chapter 2 Ramsar Convention: History, Structure, Operations, and Relevance -- 2.1 Background -- 2.2 The Ramsar Convention -- 2.3 The Convention Text -- 2.4 Wetland Definition and Classification -- 2.5 Mission of the Convention -- 2.6 Structural Framework of the Convention -- 2.7 Operational Framework of the Convention -- 2.7.1 Convention Membership -- 2.7.2 Ramsar Regions -- 2.7.3 National Ramsar Committees -- 2.7.4 The Montreux Record -- 2.7.5 Ramsar Strategic Plan -- 2.7.6 Three Pillars of Ramsar Convention -- 2.7.7 The Convention Budget -- 2.8 External Partnerships and Synergies -- 2.9 Education and Outreach -- 2.9.1 Communication, Education, Participation, and Awareness (CEPA) --

2.9.2 World Wetlands Day -- 2.10 Legal Status -- 2.11 Effectiveness

of the Convention -- References -- Chapter 3 Ecological Importance of Wetland Systems -- 3.1 Introduction -- 3.2 Importance of Wetlands in Flood Control -- 3.3 Role of Wetlands in Groundwater Replenishment -- 3.4 Role of Wetlands in Stabilization and Storm Protection of Shorelines -- 3.5 Role of Wetlands in Sediment and Nutrient Retention -- 3.6 Role of Wetlands in Water Purification --3.7 Biodiversity of Wetlands -- 3.8 Wetland Products -- 3.9 Sociocultural Values of Wetlands. 3.10 Wetlands in Relation to Recreation and Tourism -- 3.11 Wetland and Climate Change -- 3.12 Summary -- Acknowledgments --References -- Chapter 4 Ecological and Societal Importance of Wetlands: A Case Study of North Bihar (India) -- 4.1 Introduction -- 4.2 Geographical and District-Wise Distribution of Wetlands in North Bihar -- 4.2.1 Kabartal -- 4.2.2 Baraila Jheel -- 4.2.3 Kusheshwar Asthan --4.2.4 Jagatpur Wetland -- 4.2.5 Moti Jheel -- 4.2.6 Gogabeel Pakshi Vihar -- 4.3 Wetlands: Promoters of Sustainable Livelihood and Services -- 4.4 North Bihar Wetland Biodiversity: Status and Role -- 4.5 Urbanization, Pollution, and Climate Change Impacts -- 4.6 Legal Framework, Policies, and Challenges -- 4.7 Conclusion --Acknowledgments -- References -- Chapter 5 Recognizing Economic Values of Wetland Ecosystem Services: A Study of Emerging Role of Monetary Evaluation of Chandubi Ecosystem and Biodiversity -- 5.1 Introduction -- 5.2 Methodology of Ecosystem Valuation -- 5.2.1 Market Prices - Revealed Willingness to Pay -- 5.2.2 Circumstantial Evidence - Imputed Willingness to Pay -- 5.2.2.1 Damage Cost Avoided, Replacement Cost, and Substitute Cost Methods -- 5.2.3 Surveys - Expressed Willingness to Pay -- 5.2.3.1 Contingent Valuation Method -- 5.2.3.2 Contingent Choice Method -- 5.3 Ecosystem Services of Wetland -- 5.4 Chandubi Wetland: Introduction, Impact, and Introspection -- 5.5 Scaling up Wetland Conservation, Wise Use, and Restoration for Achieving Sustainable Development Goals -- 5.6 Wetlands' Role in Achieving SDGs -- 5.7 Conclusion --Acknowledgments -- References -- Chapter 6 Ecosystem Services of Lagoon Wetlands System in India -- 6.1 Introduction -- 6.2 Chilika Lagoon -- 6.3 Ecosystem Services Provided by Chilika Lagoon -- 6.3.1 Provisioning Services -- 6.3.2 Regulating Services -- 6.3.3 Cultural Services -- 6.3.4 Supporting Services. 6.4 Threats and Management of Chilika Lagoon -- 6.5 Pulicat Lagoon -- 6.6 Ecosystem Services Provided by Pulicat Lagoon -- 6.6.1 Provisioning Services -- 6.6.2 Aguatic Flora and Fauna of Pulicat --6.6.3 Regulatory Services Provided by Pulicat Lagoon -- 6.6.4 Historical and Cultural Importance of Pulicat Lagoon -- 6.6.5 Supporting Services Provided by Pulicat Lagoon -- 6.6.6 Threats and Management of Pulicat Lagoon -- 6.7 Conclusion -- Acknowledgments -- References --Chapter 7 Sustainable Practices for Conservation of Wetland Ecosystem -- 7.1 Introduction -- 7.2 Role of Wetlands in the Ecosystem -- 7.3 Challenges to Conserve Wetlands -- 7.4 Wetland Management and Sustainable Development -- 7.5 Future Strategies for Wetland Conservation -- 7.6 Development of the Legal Framework -- 7.7 Technology Intervention with Baseline Data for Wetland Conservation -- 7.8 Development of National Action Plans -- 7.9 Promotion of Research for Conservation Setup -- 7.10 Conclusion -- References -- Chapter 8 Assessing the Benefits, Threats and Conservation of Reservoir-Based Wetlands in the Eastern Himalayan River Basin -- 8.1 Introduction -- 8.1.1 RBWs' Significance and Ignorance -- 8.1.2 RBWs in India -- 8.1.3 The RBWs in the Eastern Himalayas -- 8.2 The RBWs in the Tista Basin -- 8.3 Benefits of Reservoirs as Wetland -- 8.3.1 Ecosystem Services Provided by the RBWs -- 8.4 Assessment

of Ecosystem Services in the Tista Basin Provided by the RBWs -- 8.5 Adverse Impact of RBWs -- 8.5.1 Construction and Function of RBWs Across the World -- 8.5.2 Adverse Impact of RBWs in the Eastern Himalayas -- 8.6 Assessment of Impact on the Tista Basin -- 8.7 Potential Challenges and Threats to RBW -- 8.7.1 Anthropogenic Activities -- 8.7.2 Variations in Water Level -- 8.8 Climate Change -- 8.9 Management and Conservation of RBWs -- 8.10 Conclusion -- References

References. Chapter 9 Spatiotemporal Evaluation of Causes and Consequences of Wetland Degradation -- 9.1 Introduction -- 9.2 Classification of Wetlands -- 9.3 Causes of and Consequence of Wetland Degradation -- 9.3.1 Natural Causes -- 9.3.1.2 Disintegration of Barrier Islands --9.3.1.3 Flooding and Salinization -- 9.3.1.4 Herbivory -- 9.3.1.5 Climate Change -- 9.3.1.6 Major Shifts in a River's Course -- 9.3.2 Anthropogenic Causes of Wetland Loss -- 9.3.2.1 Infrastructure Development -- 9.3.2.2 Land Conversion -- 9.3.2.3 Water Withdrawal -- 9.3.2.4 Eutrophication and Pollution -- 9.3.2.5 Overharvesting and Overexploitation -- 9.3.2.6 Introduction of Invasive Species --9.3.2.7 Others -- 9.4 Consequences of Wetland Loss -- 9.4.1 Loss of Biodiversity -- 9.4.2 Decrease in Water Level -- 9.4.3 Loss of Habitat -- 9.4.4 Climate Change -- 9.4.5 Emission of Greenhouse Gases --9.4.6 Erosion of River Delta -- References -- Chapter 10 The Status of Current Knowledge, Distribution, and Conservation Challenges of Wetland Ecosystems in Kashmir Himalaya, India -- 10.1 Introduction --10.2 Wetlands Over North-Western Kashmir Himalaya -- 10.2.1 Current Status -- 10.2.2 Wetland Classification -- 10.2.3 Wetland Distribution and Extent in Kashmir Himalaya -- 10.3 Wetland Functions and Values -- 10.3.1 Regulatory functions -- 10.3.2 Provisioning Functions -- 10.3.3 Cultural Functions -- 10.3.4 Supporting Functions -- 10.3.5 Economic Values -- 10.4 Drivers of Wetland Degradation --10.4.1 Land System Changes -- 10.4.2 Pollution -- 10.4.3 Floating Agriculture -- 10.4.4 Siltation -- 10.4.5 Roads and Railways -- 10.4.6 Plantations -- 10.4.7 Overexploitation -- 10.4.8 Weed Infestation --10.4.9 Hunting and Poaching -- 10.4.10 Land Reclamation -- 10.5 Wetland Conservation in Kashmir Himalaya -- 10.5.1 Legal Framework -- 10.5.2 Conservation Challenges -- 10.5.3 Conservation Strategies. 10.5.4 Knowledge Gaps -- 10.6 Conclusion -- Acknowledgments --References -- Chapter 11 Heavy Metal Pollution in Coastal Environment and Its Remediation Using Mangroves: An Eco-sustainable Approach --11.1 Introduction -- 11.2 Pollution in Mangrove Habitats: A Global Concern -- 11.3 Heavy Metal Cycling in the Mangrove Ecosystem --11.4 Heavy Metal Transport, Uptake, and Release -- 11.5 Bioavailability and Concentration of Heavy Metals in the Sediments -- 11.6 Factors Affecting Heavy Metals in the Sediment -- 11.7 Heavy Metal Accumulation in Mangrove Plants -- 11.8 Heavy Metal Remediation Potential of Mangroves -- 11.9 Distribution of Heavy Metals in Different Plant Tissues of Mangrove Species -- 11.10 Application of Phytoremediation to Coastal Pollution Remediation -- 11.10.1 Phytoremediation Using Constructed Wetlands (CWs) Technology --11.10.2 Phytoremediation Using Constructed Floating Bed -- 11.11 Eco-remediation Technologies as Sustainable Natural Treatment Systems for Waste Water Treatment -- 11.12 Conclusion and Future Prospects -- References -- Chapter 12 Mangrove Forests: Distribution, Species Diversity, Roles, Threats and Conservation Strategies -- 12.1 Introduction -- 12.2 Mangrove Species Diversity -- 12.3 Geographical Distribution of Mangroves Across the Globe and India -- 12.4 Important Roles of Mangroves -- 12.4.1 Mangrove Forests are the Richest and Most Biodiverse Ecosystems on Earth -- 12.4.2

Aquaculture: Shrimp and Fish Cultivation -- 12.4.3 Protection from Natural Disasters: Mangroves Act as Natural Bioshields Against Natural Disasters -- 12.4.4 Medicinal Value of Mangroves -- 12.5 Threats to Mangroves -- 12.5.1 Human Settlements and Other Developmental Activities -- 12.5.2 Excessive Extraction of Wood -- 12.5.3 Conversion of Mangrove Forests for Farming and Related Activities.

12.5.4 Conversion of Mangrove Forests for Aquaculture.

## Sommario/riassunto

"The Wetlands are a crucial part of the ecological system and the storehouse of numerous ecosystem services that provide humanity's well-being and preserve the natural ecological system. Wetlands manage the hydrological process and track the ecological environment. These wetland systems are classified differently at the global level based on their origin, use, hydrology, composition, water level, wetland physical and chemical characteristics. These wetland systems are important for the survival and environmental stability of humans. Since the beginning of human civilization on this planet Earth, wetlands have become the lifeline of civilizations. Often along and in the outskirts of wetlands, cultures have grown. This precious wetland environment's economic interests are not yet recognised at the global and regional level by policymakers and decision-makers. These wetlands are distributed in all climate zones in the geographical and climatic setting, from the tropics to the tundra regions. It is the World's most efficient and important ecosystem. As recorded by Davidson et al., the largest wetland areas in 2018 are Asia (32% of the global area), North America (27%) and Latin America and the Caribbean (16%), Europe's wetland areas (13%), Africa (10%) and Oceania (10%). At present, 2414 wetland sites of international significance covering 254543972 ha are internationally important at the country and humanity level. Many wetlands have been destroyed and impaired by rapid agriculture and urbanisation in North America and Europe, including the extinction of most floodplain areas. Increasing pressure on water supplies is also a very dominant factor responsible for wetland destruction in various regions at global and local levels due to population pressure, land use cover changes, global warming and climate change, and lack of legislation and governance. The current section of the book highlights global wetlands, categorization and status. Threats and mitigation initiatives are also proposed for wetland habitat conservation in this chapter."--