

**Assessment of carbon pools and profiles of a forested wetland in  
semiarid region of India**

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**Kundan**



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## CERTIFICATE

This is to certify that the research work embodied in this thesis entitled '**Assessment of carbon pools and profiles of a forested wetland in semiarid region of India**' is submitted to Jawaharlal Nehru University for the award of the degree of Doctor of Philosophy. The work is original and has not been submitted in part or in full for any other degree or diploma to any other University/Institution.

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## LIST OF ABBREVIATIONS

|                 |   |
|-----------------|---|
| AGB             | Above Ground Biomass                                  |
| ANN             | Artificial Neural Network                             |
| AR5             | Fifth Assessment Report                               |
| BD              | Bulk Density  |
| BGB             | Below Ground Biomass                                  |
| BHNS            | Bombay Natural History Society                        |
| CDM             | Clean Development Mechanism                           |
| CO <sub>2</sub> | Carbon Dioxide  |
| CONTIG          | Contiguity Index                                      |
| CSM             | Carbon Stock Management                               |
| DVI             | Difference Vegetation Index                           |
| DW              | Deadwood  |
| FLAASH          | Fast Line-of-sight Atmospheric Analysis of Hypercubes |
| GIS             | Geographical Information System                       |
| GlobeLand30     | Global Land Cover Product                             |
| EDC             | Eco Development Committee                             |
| FAO             | Food and Agriculture Organization                     |
| FSI             | Forest Survey of India                                |
| GHG             | Greenhouse Gases                                      |
| GPS             | Global Positioning System                             |
| GS              | Gram-Schmidt  |
| IMD             | Indian Metrological Department                        |
| IPCC            | Intergovernmental Panel on Climate Change             |
| IRS             | Indian Remote Sensing Satellites                      |
| ISRO            | Indian Space Research Organization                    |
| JFM             | Joint Forest Management                               |
| KNP             | Keoladeo National Park                                |
| LST             | Land Surface Temperature                              |
| LULC            | Land Use Land Cover                                   |
| Mg              | Mega Grams  |
| MODIS           | Moderate Resolution Imaging Spectroradiometer         |

|        |   |
|--------|---|
| MXL    | Maximum Likelihood  |
| NDVI   | Normalized Difference Vegetation Index                      |
| NDWI   | Normalized Difference Water Index                           |
| NEE    | Net Ecosystem Exchange                                      |
| NIR    | Near Infrared   |
| PCA    | Principal Component Analysis                                |
| REDD+  | Reducing Emission from Deforestation and Forest Degradation |
| RESAVI | Red-edge Soil Adjusted Vegetation Index                     |
| SACON  | Salim Ali Centre for Ornithology and Natural History        |
| SAVI   | Soil-Adjusted Vegetation Index                              |
| SOC    | Soil Organic Carbon   |
| SOM    | Soil Organic Matter   |
| STN    | Soil Total Nitrogen   |
| SVM    | Support Vector Machine                                      |
| TAR    | Third Assessment Report                                     |
| TOF    | Trees Outside the Forest                                    |
| TM     | Thematic Mapper   |
| UNEP   | United Nations Environment Programme                        |
| UNFCCC | United Nations Framework Convention on Climate Change       |
| USGS   | United States Geological Survey                             |
| VHR    | Very High Resolution  |
| WV-2   | Worldview-2   |
| VT/LC  | Vegetation Type/Land Cover                                  |
| VFPMC  | Village Forest Protection and Management Committee          |
| WII    | Wildlife Institute of India                                 |
| WMO    | World Metrological Organization                             |



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The complete thesis can be obtained from Prof P K Joshi ([pkjoshi27@hotmail.com](mailto:pkjoshi27@hotmail.com) or [pkjoshi@mail.jnu.ac.in](mailto:pkjoshi@mail.jnu.ac.in)).