

Allometric Models for Forest Biomass and Carbon Estimation in Bangladesh



About Arannayk Foundation

Arannayk Foundation stands at the forefront of environmental conservation in Bangladesh, leveraging two decades of expertise in forest and biodiversity conservation, sustainable livelihoods, and climate resilience.

Arannayk Foundation envisions a Bangladesh where natural ecosystems are conserved by empowered communities toward green growth. Guided by its mission to foster collaborative forest governance toward sustainable management of forests and other natural ecosystems, Arannayk Foundation collaborates with government agencies, NGOs, and the private sector to drive impactful, science-based solutions that benefit both nature and people.

Established in 2003, through a landmark bilateral agreement between the Governments of Bangladesh and the United States, Arannayk Foundation operates as a specialized, and community-centered organization dedicated to fostering collaborative forest governance and nature-based solutions.

Its strategic interventions span co-management of protected areas, wildlife habitat restoration, emission reduction initiatives, carbon credit programs and climate adaptation through locally led solutions. It also engages the private sector in conservation and strengthens institutional capacity to combat environmental crime.

Backed by a highly qualified multidisciplinary team and robust partnerships with government agencies, academia, and local communities, Arannayk Foundation remains a trusted leader in advancing sustainable development and ecological restoration in Bangladesh.

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About the author



Professor Mahmood Hossain is a forest ecologist whose primary field of specialization is mangrove ecology, with additional expertise in biomass modelling, allometric model development, and forest carbon stock assessment. His research focuses on mangrove ecosystem dynamics, forest biomass estimation, nutrient cycling, and carbon sequestration. With over two decades of experience, he has contributed significantly to advancing biomass estimation and carbon accounting in Bangladesh through extensive field-based research and methodological innovation.

He is currently Professor and Head of the Department of Environmental Studies and Sustainability and Director of the Centre for Sustainable Development at the University of Liberal Arts Bangladesh (ULAB), while on lien from Khulna University.

His academic work integrates biomass modelling with studies on litter production, decomposition, and nutrient dynamics to better understand forest ecosystem functioning. Professor Hossain has authored more than 140 scientific papers in national and international, peer-reviewed journals and has held important leadership roles in academia, including serving as the Vice-Chancellor of Khulna University.



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