



Project Proposal for Ph.D.

Project Details	
Project Title	A Framework for Advancing Waterways Logistics: A Path to Sustainable Transportation using Technology and Policy Interventions
Project Summary (Minimum 500 and maximum 2000 characters)	The transportation sector worldwide faces great sustainability and efficiency challenges, which is why alternative modes such as waterway transportation are being explored. In India, this is a new field where coastal and inland waterways are being developed and promoted as a sustainable mode of transportation for passengers and cargo. Integrated coastal and inland waterways logistics in India are still in their early stages compared to other countries and modes of transportation. Although there has been substantial growth in cargo in recent years, the potential of 14,000 km of navigable inland waterways and 7,500 km of coastline still needs to be explored as an alternative, economically viable, and sustainable means of transportation. Currently, only 8% of transportation in India is done through waterways, significantly lower than road (~60%) and rail transportation (~26%). This results in congestion and pollution on key land-based trade routes. However, significant research is required to create a coherent strategy for promoting integrated coastal and inland waterways logistics in India. Developing an integrated coastal and inland waterways logistics ecosystem in India requires collaboration between Central and State Governments, demand-supply market forces, and international maritime policies to work in tandem. This PhD research aims to explore the necessary policy frameworks to leverage technological interventions for optimizing waterways logistics, thus promoting sustainable transportation practices. Research objectives include understanding challenges in waterways logistics including environmental impact assessment, understanding technological interventions, building policy framework involving stakeholder engagement, incentive mechanisms, and funding strategies. Research is likely to support enhanced Centre-State regulatory clarity and coherence, reducing barriers to public-private partnerships and technological adoption, suitable case-studies for leveraging Remote Sensing, GIS (Geographic Information System), AI (Artificial Intelligence), and IoT (Internet of Things) technologies, stimulate investment in sustainable infrastructure and technology development, foster international collaboration and knowledge-sharing to address shared challenges, and promote inclusive economic growth. Significant development of coastal and inland waterways transportation infrastructure, technology, and policy will be vital in achieving India’s commitment to a net-zero emissions target by 2070. This interdisciplinary project will look at engineering aspects of waterways as well as policy aspects from a techno-management perspective.

Ph.D. Supervisors			
Role	Name of Faculty	Academic Unit in IITD/Institute/University	Email ID (Official)
Supervisor 1	Manabendra Saharia	Department of Civil Engineering	msaharia@iitd.ac.in
Supervisor 2	Agam Gupta	Department of Management Studies	agam@iitd.ac.in

Project requirements (Student qualifications, experience required, etc)
*The candidate will be shortlisted based on common shortlisting criteria decided by ScRC (SIRe)

- M.A. or equivalent
- 70% marks or 7.00 CGPA on a 10-point scale

Source of fellowship/funding (CSIR/UGC/DBT/ICMR/ICAR/NEET-PG/DST-INSPIRE/IRD/FITT Project details, if any)
IRD Project Fellowship - RP04574G

Role of Faculty Members involved:	
Supervisor-1	Mentoring in Water resources and waterway management from the engineering perspective.
Supervisor-2	Mentoring in technology interventions from the policy and management perspective.