
Defence Seminar

Seminar Title	: Essays on Paradigms of Carbon Neutrality: A Developmental Insight into the Emerging Economies
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Venue	: HS Seminar Room
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Abstract	: The expansion of economic activities and increasing population worldwide have increased the demand for energy, food, and natural resources, aggravating concerns about climate change. In this context, carbon neutrality has emerged as a key strategy for mitigating climate impacts while maintaining long-term economic growth. Several countries have set carbon neutrality objectives, leading to a growing body of literature exploring alternative solutions that enrich the environment's quality. Mitigation pathways are critical for achieving carbon neutrality, as reducing CO₂ emissions has become an urgent global issue due to the environmental difficulties posed by climate change. Identifying factors that can successfully mitigate carbon dioxide is pivotal for transitioning the global economy to a low-carbon paradigm. Nonetheless, the available literature reveals a considerable research gap, particularly in targeted carbon emission reduction approaches in emerging economies. Addressing the current challenges and major influencing factors in these circumstances is crucial. Against this backdrop, this study seeks to bridge this gap by proposing four key objectives. First, it investigates the primary drivers of carbon emissions to mitigate the adverse impacts of climate change. The analysis includes the nexus between CO₂ emissions and economic growth while identifying the decoupling trends and convergence because of decoupling patterns across emerging economies. Second, the study examines the non-linear effect of low-carbon energy transition and green growth, considering the threshold effects of government effectiveness and environmental policy stringency. Third, it estimates carbon emission efficiency and evaluates how green technology innovation, the digital economy, and political stability affect this efficiency. Finally, the study investigates the trade-offs or synergies between mitigation and adaptation, focusing on the simultaneous impacts of carbon-neutral performance and adaptive capacity, while highlighting the moderating role of a country's readiness.