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**DETERMINANTS OF GREENHOUSE GAS EMANATION
IN SELECTED SOUTH ASIAN COUNTRIES: PANEL DATA
APPROACH**

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DECLARATION

I declare that this is my own work and this Dissertation does not incorporate without acknowledgment any material previously submitted for a degree or Diploma in any other University or Institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgment is made in the text. I retain the right to use this content in whole or part in future works (such as articles or books).

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The above candidate has carried out research for the Name of the Degree Dissertation under my supervision. I confirm that the declaration made above by the student is true and correct.

Name of Supervisor: Dr. H. A. S. G. Dharmarathne

Signature of the Supervisor:

Date: 2025.02.07

DEDICATION

This dissertation is dedicated to My Husband, My Parents, and all those who supported me in the completion of this study.

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ABSTRACT

Environmental degradation has become a severe concern across South Asia; hence it is imperative to model the determinants of environmental quality across the region. Under such circumstances, the current study explores the dynamic effect of energy consumption, economic growth, and foreign direct investment on environmental degradation as measured by greenhouse gas emission in four selected South Asian countries namely Bangladesh, India, Pakistan, and Sri Lanka in the period 1972 to 2022, employing a panel data analysis approach. The study uses the Panel ARDL model utilizing a Pooled Mean Group. Mean Group and Dynamic Fixed Effect estimators, while first generation unit root confirms that the variables are stationary at the order $I(0)$ and $I(1)$, with none of integrated at $I(2)$. Data were sourced from World Development Indicators. The study applies both the Environment Kuznets Curve Hypothesis and the Pollution Haven Hypothesis simultaneously. The findings reveal that the panel ARDL model with PMG estimator is the most appropriate, as determined by the Hausman test. Energy consumption and GDP exhibit a significant positive impact on greenhouse gas emanation in the short run. While in the long run, Energy consumption and FDI have a positive significant impact whereas GDP exerts a negative significant impact. The results validate both the Environmental Kuznets Curve and Pollution Haven Hypothesis for the panel of economies studied. Furthermore, based on these findings, several environmental welfare improvements relate policies are recommendations are suggested, including promoting green investment, monitor and regulate foreign direct investment, fostering sustainable economic growth, and encouraging economic diversification. In addition, consideration of sector specific impacts and exploring alternative economic indicators are encouraged for future research works.

Keywords: Environmental Degradation, Environmental Kuznets Curve, Panel Autoregressive Distributed Lag, Pollution Haven Hypothesis

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LIST OF ABBREVIATIONS

Abbreviation	Description
ARDL	Auto Distributed Lag Model
CO2	Carbon Dioxide
DFE	Dynamic Fixed Effect
EC	Energy Consumption
ECT	Error Correction Term
EKC	Environment Kuznets Curve
FDI	Foreign Direct Investment
GDP	Gross Domestic Production
GHG	Greenhouse Gas
MG	Mean Group
PHH	Pollution Heaven Hypothesis
PMG	Pooled Mean Group
SDG	Sustainable Development Goals
WDI	World Development Indicator

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