VIETNAM INSTITUTE OF METEOROLOGY, HYDROLOGY AND CLIMATE CHANGE

SOCIALIST REPUBLIC OF VIET NAM
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# DOCTORAL THESIS INFORMATION WITH NEW SCIENTIFIC CONTRIBUTION, THEORETICAL STUDY

**1. Dissertation title:** Research on Economic Effectiveness Assessment of Various Technological Options for Greenhouse Gas Emissions Reduction in the Field of Domestic Solid Waste Treatment in Hanoi.

- ***Code***: 9440221.

- ***Major***: Climate Change.

**2. PhD Candidate**: Tran Phuong.

- ***Advisors:*** Ass. Prof. Dr. Nguyen Van Thang;

Ph.D. Do Tien Anh.

- ***Training Institution***: Viet Nam Institute of Meteorology, Hydrology and Climate Change.

**3. Introduction to the Dissertation**

Rapid change of climate has been threatening human life and environment globally. Human activities have increased the greenhouse gas concentration in the atmosphere and contribute to rapid climate change. Being aware of that situation, Vietnam Government has been proactively taking actions in order to respond to climate change. There have been many key policies issued related to climate change response in Vietnam such as National Strategy on Climate Change, National Green Growth Strategy and particularly the Resolution 24-NQ/TW dated 3 June 2016 on Active response to climate change, improvement of natural resource management and environmental protection. In addition, Vietnam has committed to carry out all obligated international treaties and agreements on climate change. In the (i)NDC submitted to UNFCCC in 2015, Vietnam voluntarily set a commitment of a 8% cut in greenhouse gas by 2030 with domestic efforts and up to 25% with international supports.

Of the five sectors having greater contribution to GHG emissions in Vietnam, waste sector has less emission. Waste sector has potential to reduce GHG emission to zero. The thesis on "Research on the economic efficiency of technological solutions on reducing greenhouse gas emission in domestic solid

waste treatment in Hanoi" aims to identify technological options for GHG emission reduction in the field of domestic solid waste treatment and find out the priority options by assessing the economic effectiveness of these options

The thesis has three objectives: (1) Developing a methodology for assessment of economic effectiveness of technological GHG emission reduction options in the field of domestic solid waste treatment. (2) Identifying technological options for GHG emission reduction in the field of domestic solid waste treatment and determining greenhouse gas emission reduction rate of each technological options; (3) Identifying economic effectiveness of technological options for GHG emission reduction in the field of domestic solid waste treatment in Hanoi.

The thesis structure includes sections of Introduction, Chapter 1-3, and Conclusion and Recommendation. Chapter 1 contains literature reviews of domestic and international research on greenhouse gas emission, assessment of economic effectiveness of technological GHG emission reduction options in the field of domestic solid waste treatment. This chapter also provides overview of current situation of domestic solid waste and greenhouse gas emission from domestic solid waste, technologies in greenhouse gas emission in domestic solid waste treatment, management policies on domestic solid waste and reducing greenhouse gas emission in Vietnam. Chapter 2 presents a methodology for assessment of economic effectiveness of technological GHG emission reduction options in the field of domestic solid waste treatment. Chapter 3 presents results of application of the methodology to assess economic effectiveness of technological options for GHG emission reduction in the field of domestic solid waste treatment in Hanoi. The appendix consists of sociological questionnaires and calculation spreadsheets.

**4. New contributions of Dissertation**

- ***Theoretical contributions:*** The thesis had developed a methodology for assessment of economic effectiveness of technological GHG emission reduction options in the field of domestic solid waste treatment by applying GHG inventory method guided by IPCC 2006 for solid waste and cost-benefit analysis (CBA). In which, economic, environmental and greenhouse gas emission aspects have been considered and monetarily quantified in determining economic effectiveness of each technological option.

- ***Practical contributions***: Economic effectiveness of technological options for GHG emission reduction in the field of domestic solid waste treatment in Hanoi were determined by applying the developed methodology.

| Research Advisors | | PhD Candidate |
|---|---|---|
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