An AHP Study on Prioritization of the Implementation of GHGs Reduction Strategies in Vietnam

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ABSTRACT

Climate change has many negative effects in almost of aspects of human life (agriculture, biodiversity, human health…). Final result affects on economic development of some countries and human life, especially poor countries, countries located in coastal regions will be the most onerous effect. According to World Bank ’ s report, Vietnam is one of ten developing countries that will be the most severely impacted by sea level rise. About 10.8% of Vietnam ’ s population would be impacted by 1m sea level rise; if sea level rises 5m this ratio would reach 35%. The impacts of sea level rise on Vietnam ’ s GDP (about 36%) and urban extent (about 41%) closely follow the impact on its population. This study addresses the above issue by applying Analytic Hierarchy Process (AHP) method that was developed by Saaty. AHP provides a methodology for calculating prioritization in decision making. We apply AHP for making solution to reduce GHGs in Vietnam. We recommend four sectors such as energy, industry, transportation and other and each sector has three activities (Energy sector has reduce coal consumption, increase renewable energy and carbon tax mechanism. Industry has stringent emission and efficiency standard, control the growth of traditional industries and energy conservation. Below transportation is upgrade mass transportation system, setting up new emission standard and increase bio-fuel consumption. And other sector has setting up goal of forestry coverage, water management in rice fields and build up comprehensive waste management system) and two alternatives (A – BAU and B-ARM). The results show that industry has been consider as the first sector to reduce GHGs with 36.9% , the second importance is transportation sector (30.7%), energy sector is the third with 23.9% and other sector has importance as the lowest (8.5%). This result is completing suitable for actual conditions in Vietnam, now, because industry sector consumes more than 40% of energy. Stringent emission and efficiency standard and upgrade mass transportation have similar priority with 18.4%, they are the two best activities to mitigate GHGs in Vietnam. The following activities is the reduce coal consumption; it has amount 12.8% of all. Nine remained activities share of remained 50.4%. And the lowest important activity is water management in rice fields that is under other sector; it only holds 1.4% of priority scale. Scenario B (Active Reduction Mechanism - ARM), that includes activities to reduce GHGs emission is considered with 84.4% of all priority. Scenario A (Business As Usual) holds remained 15.6%. It has different percent or differential prioritization between A and B, because all of the asked people are environmental expert. Thus prioritization leans towards alternative B, this is easy to understand.

Keywords : Greenhouse gases (GHGs), Climate Change, Analytic Hierarchy Process (AHP), Vietnam

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