Carbon Footprint of an Individual as a Key Identification Toward Maintaining a Sustainable Lifestyle: A Case Study in Faculty of Technology, University of Ruhuna

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Greenhouse gas emissions (GHGs) due to the human demand for the utilization of earth ecosystems' resources drive towards rising global warming and climate change. Therefore, identification and implementation of emission reduction strategies on anthropogenic activities is required to address the climate change. Calculating carbon footprint (CFP) is the valuable first step to quantify these emission reductions and it is one of the tools to assess emission of GHGs by individual, organizational, product or activities or events. Assessment of primary and secondary CFP of a person is important to identify GHGs emissions and reduction opportunities to promote the sustainable lifestyle by individuals. The study was carried out at the Faculty of Technology, University of Ruhuna, Sri Lanka to assess the primary and secondary CFP of a person and to identify the strategies in sustainable consumption and lifestyle of the individuals. Activity data was collected at both household and university on energy/electricity and water consumption, transportations, commuting and other activities relevant to GHG emissions through questionnaire and structured interviews of academic staff, non-academic staff, and students (total 123 people) of the faculty using stratified random sampling method. Emission Factors were obtained from data published by Sustainable Energy Authority, Sri Lanka, and DEFRA emission factor conversion data base for GHG reporting and applied standard equation for CFP to access the persons' CFP. The calculator developed by Carbon Footprint Ltd (registered in England and Wales) based on previous researches, was used to calculate the secondary footprint. The result illustrates that average primary CFP of the individual in the faculty is 5.443 tons of CO_2 equivalent (tCO_2-e)/ year and secondary CFP is 2.28 tCO_2-e)/year. The results show that awareness raising is required on energy conservation, food and beverage consumption, electronic equipment usage and pharmaceutical and recreational, cultural, and sporting activities to reduce the GHG emission and promoting sustainable lifestyle with low carbon activities.

Keywords: Carbon footprint, Climate change, GHG emissions, Global warming, Sustainable consumption