

An Assessment of Green House Gas (GHG) Saving Potential of Transport Related Operations: A Case Study at Brandix Lingerie (Pvt) Ltd, Wathupitiwala

L. D. P. Liyanage¹, W. M. P. S. B. Wahala^{2a} & R. Wellagiriya^{2b}

Department of Tourism Management, Faculty of management Studies
Sabaragamuwa University of Sri Lanka.^{1, 2a}

Engineering Department, Brandix lingerie (Pvt) Ltd, Wathupitiwala^{2b}
sampathwahala@yahoo.co.uk^{2a}

The global warming caused by the Green House Gas (GHG) is a hot topic in recent year in the world. Transportation activities generate GHG and contribute to the global warming. This assessment was conducted to calculate the total GHG accumulation from transport related operations at Brandix Lingerie (Pvt) Ltd, Wathupitiwala for the year of 2015. The employee transport network was mapped using Google earth program to estimate passenger kilometers between each get – in and get-down locations. Upstream and downstream goods transportation was mapped to estimate ton – kilometers of goods transportation using existing transport management data. Transport related GHG emission was calculated using internationally recognized fuel based emission factors and tone kilometer based emission factors where applicable. The findings indicate that the amount of organizational GHG emission of transportation was 609.04 tons CO₂e per year. Worker transportation has contributed 47.26% to total GHG emission and it was 287.85 tons CO₂e. Business purposes transportation covered 14.96% and it was about 91.12 tons of GHG emission. The upstream transportation (external vehicles that come to stores) contributes 178.37 tons of CO₂e emissions and it was estimated as 29.29% from total GHG emission in 2015. The downstream transportation (shipments) contributes the 51.7 tons CO₂e and it is estimated as 8.49% from total. Per product GHG emission from worker transportation was 0.0129 KgCO₂e, business purposes transportation was 0.0041 kgCO₂e. The upstream transportation Key Performance Index (KPI) was estimated as 0.0080 KgCO₂e and per product GHG emission of downstream transportation was estimated as 0.0023 KgCO₂e for the year 2015. Estimated GHG saving potential with improved Transport Demand Management system (TDM) is 89.71 tons CO₂e.

Keywords: GHG Emission; Upstream and Downstream Transportation; KPI