STUDY OF GREENHOUSE GAS EMISSIONS DUE TO AN ALCOHOL DISTILLATION PLANT IN SRI LANKA

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The alcohol manufacturing process produces solid, gas, and liquid pollutants. This work will provide an estimate of gaseous pollutants under the category of greenhouse gases (GHG) from the Sevanagala sugar distilleries Ltd. from the data of commencement of the distillation at Sevanagala to year 2000.

The purpose of this study is to obtain a GHG database with some industry specific factors for alcohol distillation process associated with sugar manufacturing. The work will include theoretical estimates as well as experimental evaluations. Theoretical estimation will be based on the guidelines given by the Inter-governmental Panel on Climate Change (IPCC). The 1996 IPCC guidelines are applicable only in general terms and provide a generalized form of GHG emissions. The IPCC default emission factors will be used mainly for the estimation of GHGs from the prescribed process because Sri Lanka does not have country specific (CS) emission factors for this sector.

The experimental portion of the study will use a two stage anaerobic digestion system for separating the two phases of the digestion and supplement the estimation process. The factors used in this study, like maximum methane producing capacity (Bo), degradable fraction of wastewater (DF) and methane emission factor will be described with the help of the experiments in a pilot scale unit consisting of two columns designed to achieve acidogenasis and methonogenasis processes separately.

This work will compare the two values based on the IPCC default emission factors and based on the CS emission factors. The differences between the GHG emissions and deviations from the IPCC and CS emission factors will be examined.