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**STRENGTH OF THE GLOBAL WARMING PHENOMENON IN
KANDY DISTRICT**

A PROJECT REPORT PRESENTED BY

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Normally, about 70% of the solar energy is radiated back in to the space. However, greenhouse gases trap some of the infrared radiation, warming the atmosphere and reflect heat back down to the earth and this manmade rise in global temperature is known as *Global Warming*.

In this study, annual average temperature data of hill capital Kandy - Sri Lanka, were analysed so as to check whether there are any possible patterns, trends that comply with the Global Warming phenomenon. In order to predict future values, statistical models were fitted and tested using time series analysis.

The non-stationary time series was converted to a stationary time series by using Box-Cox transformation. Classical transformation methods were then used to estimate the trend of the series. Linear trend fittings were found to be considerably suitable; however the residuals were not Independent and Identically Distributed (iid) series. Differencing techniques were found to be more appropriate for trend elimination. The new series obtained by differencing was then used for modelling. ACF, PACF graphs were examined to decide the order of the models. Based on the minimum AICC statistic values, several time series models such as AR, MA, ARMA were fitted. Estimated noise sequences of each of these models were tested as a diagnostic check. Two of the most appropriate models were selected by using the Maximum likelihood estimation. Selected two models were validated by comparing the values given by the models, against the actual data. Finally these models were used to forecast ambient temperature of Kandy, up to year 2006.