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Effect of Pollutants Emitted from Thermal Power Plant on Ambient Air Quality, Soil Health and Crop Productivity

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Abstract: *An exploratory study was conducted during July to November 2013 in five different villages around the Bellary thermal power station (BTPS)inorder to assess the effect of pollutants emitted from thermal power plant on air quality, soil health and crop productivity. Various volatile and non volatile combustion products of coal were estimated in ambient atmosphere. Soil chemical propertiesand crop performance (using maize as test crop) were also monitored in these villages at varying distancesfrom BTPS,with the village farthest away from BTPS (Yelubenchi) as control. Both particulate matter and SO_2 which are good indicators of the effect of emissions from coal based power plants were found to be highest in Thimlapur village, the nearest villagelocated on the predominant down wind direction during the study period. The lowest values for particulates and SO_2 were observed in Yelubenchi, the farthest sampling site.The results from analysis ofsoil sampled revealed that, soilpH slightly increased over the growing seasonand shown an inverse relation with distance from power plant.Potassium and phosphorus contents were also higher in sampling sites near to the thermal power plant especially at Thimlapur in comparison with the control. Among the micronutrients iron and manganese content found to be influenced by the deposition of particulate matter from thermal power plant. The reduction in maize yieldwas found 21% in Thimlapuras compared to Yelubenchi (control plot)which might be due to the higher soil pH, podzzolanic effect created by fly ashcoupled with higher ambient pollutant concentration in this village.*

Keywords: *pollution, maize, nitrogen oxides, sulphur dioxide, maize*