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EFFECT OF URBAN AREA DEVELOPMENT IN NEGERI SEMBILAN TO THE AIR POLLUTION INDEX FROM 2012 TO 2014.

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ABSTRACT

Air pollution Index (API) in Malaysia is used to determine the air quality in the surrounding. Based on the Malaysian Department of the Environment (DOE), five parameter that been used for API are particulate matter <10μm (PM_{10}), ozone (O_3), carbon monoxide (CO), Sulphur dioxide (SO_2), and nitrogen dioxide (NO_2). A study of the API parameter in Negeri Sembilan from 2012 to 2104 was performed to know the trend of air quality in Negeri Sembilan. Two district representative the air quality in Negeri Sembilan which are Nilai and Ampangan. Studied area of these two selected district and analysed the trend of the parameter from data of DOE were applied for this study. The result for the highest value for each parameter in Ampangan from 2012 to 2014 for concentration of SO_2, NO_2, O_3, CO and PM_{10} were at value 0.007 ppm, 0.029 ppm, 0.096 ppm, 2.56 ppm and 177 $\mu g/m^3$ respectively. Meanwhile in Nilai, the highest value for each parameter concentration of SO_2, NO_2, O_3, CO and PM_{10} resulting at value 0.012 ppm, 0.045 ppm, 0.076 ppm, 2.19 ppm and 202 $\mu g/m^3$ respectively. The trend show that SO_2, NO_2 and PM_{10} concentration in Nilai has higher than in Ampangan. Meanwhile, concentration O_3 and CO in ambient air in Ampangan was higher than air in Nilai. This happened due to the increasing of population in Ampangan and the number of industry in Nilai within the three years. Besides, haze episode from Kalimantan, Indonesia and peatland fires in Peninsular Malaysia also resulted unhealthy level of air quality in Negeri Sembilan on 2013 and 2014.

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CHAPTER ONE

`INTRODUCTION

This chapter provide the background and rationale for the study. It also accounts for the significant issues and problems that were encountered during the course of this research.

1.1. Background study

Since 1950 the world population has adding as the global number of cars has enhanced by multiply of 10. At the same time, the population of people that lived in urban areas has enhanced by a factor of 4 [1]. In Malaysia, development can be label as economic source but some of the citizen may critic the effect of this development in our country. To archive a successful country, some places were pushed to be an urban area. Along development to be an urban area, environment that effected the most is air and lead to air pollution. Air pollution happen as clean air is contaminated with natural and anthropogenic pollutants. Anthropogenic pollutants usually come from human consumption and production activity [2].

The problem of air pollution and the adverse health impacts have been bothered because of the increasing industrial and other developmental activities [3]. The state of air pollution is often expressed as Air Quality (AQ). Air quality is used as measurement for gaseous pollutants concentration and number of particulate matter involved [4]. Plus, air quality index (AQI) or air pollution index (API) can be determined by the calculation that has been monitored the concentration of air pollution in industrial areas and resident areas. The monitoring data are summed all and converted to a single index or a value by variety of techniques of calculation [3].

The status indicator of API was divided into a few categories. For instance, good, moderate, unhealthy, very unhealthy, hazardous, and emergency. Basically it is categorized based on the highest values from five main air pollutants index values which are particulate matter which less than 10μm (PM_{10}), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2) and sulphur dioxide (SO_2), for period of time. SO_2 and PM_{10} hourly value are averaged over a 24-hour running period, CO is averaged over an eight-hour period, and O_3 and NOx are hourly read