

## AIR POLLUTION CONTROL OF AHWAZ CITY BY IMPROVING ENERGY EFFICIENCY

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### INTRODUCTION

IRAN is the [eighteenth largest country](#) in the world. Its area roughly equals that of the United Kingdom, France, Spain, and Germany combined, or slightly less than the state of Alaska. Its borders are: [Azerbaijan](#) and Armenia to the north west; the [Caspian Sea](#) to the north; [Turkmenistan](#) to the north-east; [Pakistan](#) and [Afghanistan](#) to the east; [Turkey](#) and Iraq to the west; and finally the waters of the [Persian Gulf](#) and the [Gulf of Oman](#) to the south. Iran's area is 1,648,000 km<sup>2</sup> (approximately 636,300 [sq mi](#)).

Country: Iran, province: Khouzestan, capital city: Ahwaz, Elevation: 17m (52ft), Population: 1,338,126 (2006). Air pollution in urban area is a problem.

Iran has eight polluted cities: Tehran, Karaj, Tabriz, Mashhad, Arak, Esfahan, AHWAZ and Shiraz. AHWAZ is one of them. City's hot and humid climate, cause to experience air pollution throughout the year. Petrochemical factories, burning fossil fuels by industries and vehicles, play a major role in polluting the city.

Nowaday, the the most percentage of the air pollution of cities, especially in the crowded parts are because of the gas or diesel vehicles, which is one of most important factor of the environmental pollution. some expertise guess, that kind of pollution is about 50% of the total air pollution of the cities. For example for only a 100 km of a car travel the Oxygen consumption is equal to the oxygen consumption of a person for a whole year.

Being in the intersection of main roads, existing of some of the most important ports close to Ahwaz, core of the country's rail roads and the most important the Oil and Petrochemical, steel, piping carbon and ..... factories, makes the Ahwaz city to be one of the most polluted city in the Khouzestan province.

According to the Ahwaz Police Department, average daily journeys of all kinds of vehicles in Ahwaz are about 2,847,726,

### OBJECTIVES:

The purpose of this study is:

- To determine and quantify the sources of pollution,
- To search, recognize causes and determine proper ways to control air pollution of Ahwaz city to get close to the national and international standards of air quality.
- To analyze and predict the amount of CO in the Ahwaz city, by using MM5-CMAQ modeling method.

## **RESEARCH METHODOLOGY**

### **RESEARCH DESIGN:**

Since this research will systematically investigate the existing situation and relationship between variables(Ary et al,2006),so, deductive research method will be used.

**POPULATION:** Statistical populations are Ahwaz Environmental officials and expertise and also the doctors who are specialist in the same area.

**SAMPLING:** Statistical samples will be selected randomly through Ahwaz Environmental officials and expertise and also the doctors who are specialist in the same area.

**INSTRUMENTATIONS:** It will be two kinds of instrumentations to collect data:

1-library studies such as books and web sites,

2-field studies, such as questionnaire and MM5-CMAQ modeling method.

**DATA COLLECTION:** After distributing the questionnaires between the samples to answer the questions, they will be collected to be analyzed.

And CO, which causes the air to be more polluted, will be analyzed by the modeling method.

### **DATA ANALYSIS:**

When the required data were collected, they should be analyzed. Analysing the data, requires activities such as grouping, coding, tabling and statistical deduction, which in this research the statistical package for social science (SPSS), Descriptive , Deductive and the modeling method will be used.

### **RESULT AND DISCUSION:**

Since the research is on the data collecting stage, so the result and discussion will be postponed to the future.

### **SIGNIFICANCE OF THE STUDY:**

The expected results of the research will be to get close to zero emission.

The factors and sources which cause the air pollution will be identified and introduced to the officials to control and reduce them.

When the research is done , the officials will be inform about the results to arrange some programs (monitoring, observation,....) to control and reduce the air pollution.

Due to reduction and air pollution control, by doing this research, the energy efficiency improvement will occur.