

STUDY ON AIR POLLUTION FROM CONGESTED ROAD TRAFFIC

DISEDIAKAN OLEH :

**SHAHREENA MELATI RHASBUDIN SHAH
SURYAEFIZA KARJANTO**

NOVEMBER 2009



UNIVERSITI TEKNOLOGI MARA

Institut Penyelidikan, Pembangunan dan
Pengkomersilan (IRDC)

*Institute of Research, Development and
Commercialisation (IRDC)*

(Sebelum ini dikenali sebagai Biro Penyelidikan dan Perundingan)

40450 Shah Alam, Malaysia

Website : [http // : www.irdc.uitm.edu.my](http://www.irdc.uitm.edu.my)

Tarikh : 7 Mei 2008
Surat Kami : 600-IRDC/ST/.5/3/Rst(20/2008)

Pn. Shahreena Melati Binti Rhasbudin Shah
Ketua Projek
UiTM Pulau Pinang
Jalan Permatang Pauh
13500 Permatang Pauh
PULAU PINANG

Pn. Suryaefiza Karjanto
Ahli Projek
UiTM Pulau Pinang
Jalan Permatang Pauh
13500 Permatang Pauh
PULAU PINANG

Tuan/Puan,

DAFTAR PROJEK PENYELIDIKAN : STUDY ON AIR POLLUTION FROM CONGESTED ROAD TRAFFIC

Dengan segala hormatnya perkara di atas adalah dirujuk.

Sukacita dimaklumkan bahawa pihak IRDC meluluskan permohonan tuan/puan untuk mendaftarkan projek penyelidikan tuan/puan bertajuk seperti di atas yang sedang dijalankan dengan menggunakan **pembiayaan sendiri**.

Oleh itu, pihak kami berharap agar tuan/puan dapat menghantar dua (2) naskah laporan akhir mengikut format yang telah ditetapkan setelah menamatkan projek penyelidikan tersebut.

Sekian, harap maklum. Terima kasih

Yang benar,


PROF. DR. AZNI ZAIN AHMED
Penolong Naib Canselor (Penyelidikan)

- s.k.
1. Pengarah Kampus
UiTM Cawangan Pulau Pinang
 2. Prof. Madya Dr Mohd Hanafiah Abidin
Ketua Penyelidikan (Sains & Teknologi)

HM/la

PENYELIDIKAN, PEMBANGUNAN DAN PENGKOMERSILAN LANDASAN KEWIBAWAAN DAN KECEMERLANGAN

Telefon :
Penolong Naib Canselor (Penyelidikan) : 03-5544 2094/5
Penyelidikan (Sains Sosial dan Pengurusan) : 03-5544 2097
Penyelidikan (Sains dan Teknologi) : 03-5544 2091
Penyelidikan (Kewangan) : 03-5544 2753
Ketua INFOREC : 03-5544 3097
Ketua Perundingan : 03-5544 2100
Ketua Pengkomersilan : 03-5544 2750
Penolong Pendaftar : 03-5544 2090
Pegawai Sains : 03-5544 2098
Pejabat Am : 03-5544 2093/2101/2057
Fax : 03-5544 2096/2767
Unit Kewangan Zon 17 : 03-5544 3440



Tarikh : 09 November 2009
No. Fail Projek : 600-IRDC/ST/5/3/Rst(20/2008)

Penolong Naib Canselor (Penyelidikan)
Institut Pengurusan Penyelidikan (RMI)
UiTM, Shah Alam

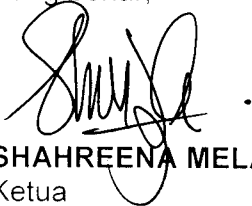
Puan,

**LAPORAN AKHIR PENYELIDIKAN “STUDY ON AIR POLLUTION FROM
CONGESTED ROAD TRAFFIC”**

Merujuk kepada perkara di atas, bersama-sama ini disertakan 4 (empat) naskah Laporan Akhir Penyelidikan bertajuk “Study On Air Pollution From Congested Road Traffic” .

Sekian, terima kasih.

Yang benar,



SHAHREENA MELATI RHASBUDIN SHAH
Ketua
Projek Penyelidikan

KUMPULAN PENYELIDIK

SHAHREENA MELATI RHASBUDIN SHAH
KETUA PROJEK



Tandatangan

SURYAEFIZA KARJANTO
Ahli



Tandatangan

ABSTRACT

Juru, located at the south of Seberang Perai, Pulau Pinang is known for high congestion problem occurs especially during peak hours. The vehicles plying along the roads emit pollutions that may be harmful to nearby residence. Congestion problems at the road due to rapid growth in traffic volume are reflected by increasing urbanisation and the changing land use pattern from industrial to residential areas. The report presents the results of roadside pollutant concentration results from traffic and influence by meteorological conditions from congested road in Juru, Seberang Perai, Pulau Pinang. Data is gathered by means of traffic stream parameters (volume and speed), monitoring of carbon monoxide (CO), nitrogen dioxide (NO₂) and sulphur dioxide (SO₂) concentrations and recording of air temperature simultaneously. The pollutants were monitored during congested and free flow conditions throughout the day, so that the emission contribution of vehicles to pollutions levels could be distinguished. Mathematical models are developed for CO, SO₂ and NO₂, expressing pollution concentrations as functions of traffic movement and air temperature. The findings indicate that the pollutants level were three times higher when the road in the congested state. It also shows that the average air pollutant concentrations in the morning and evening are noticeably higher than in the afternoon due to the influence of higher traffic density and lower air temperature. The average weekday roadside concentrations of CO and SO₂ were two times higher than the weekend concentrations while NO₂ concentration shows no major difference. Based on the study, it can be concluded that there is a strong positive relationship between traffic parameters and air pollution.