The author wishes to record his deep sense of gratitude to Prof. J.H. Dave, whose inspiration and guidance he received in abundance during the course of this work. His affectionate and understanding disposition towards the author not only helped him grasp the intricacies of the subject better but also evoked a deep sense of respect for him. But for the personal interest evinced by him in the progress of this work, it would not have been possible for the author to complete this thesis in time.

The author is grateful to Prof. B. Padmanabha Murthy whose excellent exposition of the subject of Diffusion and Transport of Air Pollution and Urban Air Quality Modeling as part of the course work, helped the candidate grasp the complex nature of the subject. The author is equally indebted to Dr. D.K. Banerjee for his lucid introduction to the subject of Air Pollution.

The author also wishes to place on record the interest shown by the successive Deans of the School of Environmental Sciences, viz. Prof. Anjali Hookerjee and Prof. V. Asthana, in the work undertaken by the author and thank them for their support and encouragement. Thanks are also due to Prof. C.K. Varshney, for the material assistance extended.

The author feels particularly grateful to Prof. P. Khanna, Director, N.E.E.R.I., Nagpur for his spontaneous offer of research and literature search facilities at N.E.E.R.I. and for evincing keen interest in the author's work. This has contributed in no small measure to the enthusiasm of the author in pursuing his research work with vigor.

The author wishes to acknowledge with gratitude, the positive support extended by the then Acting Director,
N.E.E.R.I., Shri K.R. Bulusu to the author's academic pursuits and in granting him study leave.

It has been the author's fortune in having an experienced, understanding and encouraging person in Shri A. Raman, as Scientist and Head of N.E.E.R.I. Zonal Laboratory, Delhi, where the author is employed. His unstinted support to the cause of the author's research is gratefully acknowledged.

A study of the present kind naturally warrants some special inputs from the oil industry. The author is immensely thankful to Dr. P.K. Mukhopadhyay, Director, Research and Development Centre of the Indian Oil Corporation, Faridabad for offering analytical facilities and evincing keen interest in the author's work. The fruitful interaction the author had with Shri A.K. Mehta, Senior Research Manager, MT & TS Division, R & D Centre of IOC is sincerely acknowledged.

The non-experimental data presented in this report has become possible because of the cooperation extended by a number of organisations and individuals. Sincere acknowledgments are specifically made to Dr. M. Parabrahman, Director, Department of Environment, Dr. Dilip R. Ahuja, Fellow, Tata Energy Research Institute, Shri T. Venugopal, Senior Environmental Engineer, Central Pollution Control Board, Dr. V.C.S. Rao of Sri Venkateswara College and the Petroleum Conservation Research Association, New Delhi.

The literature assistance rendered by the following individuals is acknowledged with thanks: Shri V.S. More, Chief Manager, Shri S. Venkataraman, Manager, Shri Govind Ram, Deputy Manager and Shri A.C. Lenka, Senior Engineer, all of the Indian Oil Corporation, New Delhi and Shri S.G. Bhat, Head, Library and Documentation Division, N.E.E.R.I., Nagpur.
The fabrication facilities extended for the experimental setup by Shri V.P. Arya in the University Workshop and the assistance rendered by Shri A.H. Khan and Shri B.D. Sharma, Technical Assistants are thankfully acknowledged.

Some friends and wellwishers have helped the author during different stages of this work. Amongst them mention must be made of Shri Rama Seshu Tangirala, Shri A. Sukumar, Shri Anil Singh and Dr. Kailash Mandhan. The author wishes to thank them for their whole-hearted cooperation.

The author is also thankful to Shri Gajanan Hegde for his expert and expeditious word-processing of this thesis.

The all out support extended and the personal sacrifices made by the author's wife during the long course of the study are fondly recalled.

The broken promises and disappointments caused to the author's little son on account of the author's unavoidable late homecomings are sincerely regretted.