Acknowledgement

My thesis would be incomplete if I do not mention a few words of gratitude towards all who helped me in my endeavours. I am deeply indebted to my research supervisor Prof. P.S. Khillare, for his valuable guidance, excellent supervision and constructive suggestions which helped me a lot to pursue this research work smoothly. I learnt independent, professional and target oriented way of working under his guidance. He patiently reviewed all the drafts and his uncompromising attention has helped me enormously in the preparation of this thesis. His understanding, personal guidance and disciplined approach to research have provided a good basis for the present thesis. Working under his guidance was a fine training which I would cherish all my life.

I extend my thanks to Prof. K.G. Saxena, Dean, School of Environmental Sciences for providing me the necessary facilities to carry out my research work.

I would like to thank Prof. Al. Ramanthan for extending his lab facilities and Prof. R.K. Kaley, ex-Dean, School of Life Sciences for providing me SLS CIF facilities.

I would like to thank all the faculty members and staff members of SES for their kind support during the academic period. I especially thank Mr. S.D.S. Rawat for being very co-operative throughout my stay in this school. I would also thank Dr. P.D. Gaikwad, Mr. B.D. Sharma and Mr. Ramesh Bhardwaj for helping in CIF. I am thankful to Hoshiar Singh and Naveen Kumar for being very cooperative.

The Rajiv Gandhi Fellowship granted by UGC for the academic period is sincerely acknowledged.

I would like to thank all my lab-mates for their constant support and help during my Ph.D. I would like to thank Dr. Tripti Agarwal and Dr. Vijay Shridhar for their support. I would like to thank Sayantan, Darpa, Amreen and Musarrat for helping me during my sampling, analyses and thesis compilation. I would like to thank Amreen for her constant support and encouragement throughout the period. I would extend my thanks to Darpa for his energetic and over enthusiastic nature which made the lab hours less tedious and monotonous. I take this opportunity to especially thank Sayantan for his reliable nature, mature behaviour, positive attitude and innovative ideas in tackling problems in the most organized manner. Words are not enough to express thanks to my lab-mates, Sayantan, Darpa and Amreen for constantly supporting and encouraging me, especially during the last phase of Ph.D.
I take this opportunity to thank my friends and seniors, Dr. Oinam Jayalakshmi, Dr. Rita Chauhan, Shruti Ma'am and Sadaf for their moral support. I would like to thank Dr. Anurag Linda for helping me with Surfer to make maps. I would like to thank Gurmeet Sir for his out of the way help with statistical analyses, thesis formatting and his constant positive advices which kept me going, especially during the most difficult phases of life.

My heartfelt thanks to my batchmates, Akanksha, Deepak Chaudhuri, Shibaji, Pradip, Vishwamohan, Rajesh, Aditya Pathak, Shashi, Sanyogita, Kushagra, Parijat, Rakesh Khatri and Vijay Pal for their support.

I would like to especially thank my hostel friends, Swati, Ketaki, Arpana and Rupa for their encouragement and for lifting my spirits when things went wrong.

I would like to thank my friends Daipayan, Kajari, Dolon, Niladri, Pranjay and SB for their long distance calls and constant moral support and encouragement.

I take this opportunity to especially thank Vijay for his strong support and for standing by my side during the ups and downs of the period, especially during the most critical junctures of my life. No written acknowledgement can express my thanks to Rajesh for his support, tolerating my mood swings, providing novel academic inputs, constant advices and his crisis management skills during the crucial phases of Ph.D.

Words might not suffice to express my thanks to my family, especially, Baba, Ma, Didi and Gourda for their sacrifices, having faith in my abilities, constant encouragement and moral support to pursue higher studies. Lastly, I would like to mention Molly, whose naughty innocence inspired me throughout the academic period.

Sharmila Ray