Global Conventions to check pollution warns everywhere as “Air unfit for breathing”, “water unfit for drinking”, “vegetables unfit for eating” and so on.

“POLLUTE FIRST, PLAN LATER” ‘BAD PLANNING’ OR ‘NO PLANNING’ IS THE HALL MARK OF INDUSTRIAL DEVELOPMENT IN MANY DEVELOPING COUNTRIES TODAY AND INDIA IS NO EXCEPTION.

Pollution of the environment is one of the most horrible ecological crisis to which we are subjected today. We know that three basic amenities for living organisms are air, land soil and water. Sometimes in the past, these amenities were pure, virgin, undisturbed, uncontaminated and basically most hospitable for living organisms. But the situation is just the reverse today because, progress in science and technology is also leading to pollution of the environment and serious ecological imbalance, which in the long run, may prove disastrous for mankind.

“Environmental pollution is the result of urban industrial technological revolution and speedy exploitation of every bit of natural resources.” The crazy progress in agriculture, industry, transportation, and technologies taken are the general criterion for any developing Nation. Such activities of man have created adverse effects on all living organisms in the biosphere. Rapid industrialization has left with us polluted rivers, contaminated soils, depleted wild life and exhausted natural resources.
Today India, which occupies 7th place among the industrialized developing countries of the world, is provided with good industrial infrastructure in several industries like chemicals, power, nuclear energy food, petroleum, pesticides and plastics etc.

Today water resources have become the most exploited natural system since man strode the earth. Pollution of water bodies is increasing steadily due to chemical pollution of industrial practices resulting in concentrations of metals and other environmental agents that are related to environmental toxicity. “Heavy metals are in the air we breathe, the food we eat and the water we drink.” Among the 19 heavy metals, lead, cadmium and mercury do not have any biological significance or beneficial use and are known to be extremely toxic. Once dispersed in the biosphere, these metals cannot be recovered or degraded. Hence environmental effects of metal pollution tend to be permanent. These metals are cumulative poisons and affect deleteriously all the aquatic flora and fauna. The enhanced level of heavy metals is concerned because of their accumulation, creating sub lethal and chronic effects to organisms even at minute concentrations and causing carcinogenic and teratogenic effects.

Cadmium is a relatively accessible non-essential toxic metal that poses high toxicity to both humans and aquatic organisms. Though the toxic effects of cadmium compounds are extensively reviewed, the induced antioxidant defense and metallothionein for all the target organs under cadmium stress are poorly understood. The findings of the present study are presented in 4 chapters. The 1 chapter deals with the toxicity evaluation and determination of sub lethal concentration which in turn focuses on bio-accumulation.
The present study was also undertaken to examine the influence of the heavy metal Cd on the possible induction of oxidative stress in the fish *O. mossambicus* by determining super oxide radical generation, lipid peroxidation, glutathione depletion and likely alteration in behaviour of antioxidant enzymes in the second and third chapters.

As MT is known to be a free radical scavenger, under oxidative damage caused by heavy metals, the author felt relevant it to quantify the MT protein induced by Cd, which is presented in chapter four along with isolation and purification of this protein for all the selected tissues.

This work is a modest attempt by the author towards effects of CdCl₂ in different selected tissues of fish. The author remains hopeful that the present study would contribute useful information to the existing knowledge on Cd toxicity. The author remains pardonable for any error, which may have crept in due to oversight, and for any investigative lacunae, which are due to limitations in facilities and infrastructure.