

STATEMENT OF PURPOSE

Joint PhD IIT Kharagpur-University of Manchester AY 2021-22

I graduated from St. Dominic Savio College in Lucknow with an aggregate of 80 percent in high school and 75 percent in intermediate (ICSE/ISC Board). I completed my undergraduate degree in B.Tech-Civil Engineering at Integral University, which is affiliated with the University Grants Commission of India.

I once went on a tour of Kanpur during my final days of graduation, and it was like an offensive blend of dark grey specks of dust from the smoke, with tonnes of garbage dumped on land and effluents from the leather manufacturing factories being discharged into the water. The scene struck a chord with me and reminded me that our world is rapidly approaching a point of no return unless we take action. It would be too late, and this has inspired me to shift my career goals to one that is more environmentally friendly.

With this newfound motivation and attitude, I decided to take a year off and prepare for the entrance exams of various reputable institutes for higher education, specifically in Environmental Engineering, and after putting in a lot of effort, I was able to qualify the All India entrance examination of the prestigious Indian Institute of Technology (Indian School of Mines) Dhanbad with an AIR 07.

Encouraged by the soil remediation techniques followed by Bharat Coking Coal Limited for restoration of barren mined out lands, I have worked on a thesis titled "Removal of multiple metals from tannery industries contaminated soil by beneficial plant-microbe interaction" whereby the Plant growth-promoting Rhizo-bacterial strains, a type of bacterial community, were cultivated in the lab by isolation from the soil earlier and later the bacterial inoculum containing the same bacterial community was added to the soil along with hyperaccumulator plants like lemongrass to transform hexavalent chromium to less toxic forms by the interaction between the plant and the bacteria which produces chemical enzymes that transform the biochemical compounds and make them non-toxic. I have published a review paper and a technical paper on my thesis problem in a journal.

On the M.tech dissertation project, I consider myself fortunate to have worked under the supervision of highly qualified faculty. These projects sparked my interest in science while also providing me with an opportunity to put all of my theoretical experience to use. Only a strong educational base will support a successful research career.

My immediate goal is to work toward a Ph.D. in Earth & Environmental Science, which is my long-term goal. Water problems are the focus of my investigation. I want to pursue a Ph.D. so that I can work as a faculty member or in a Research & Development area with a reputable organization. I think my interest in this area stems from the fact that environmental problems such as freshwater scarcity are becoming more prevalent across the world every day.

Uncontrolled population growth and the resulting additional demands have resulted in the pollution of natural resources and the extinction of thousands of species' natural habitats.

There are two reasons why I believe graduate study in a reputable department, such as the Department of Biotechnology, IIT Kharagpur & Department of Earth, and the Environmental Sciences University of Manchester, is important for a scholar pursuing a career in science. To begin with, working on a thesis under the supervision of experts from these reputed two institutes whose work can be used as a guide is the most effective way of molding a student into a self-sufficient researcher who makes significant original contributions. Second, focusing more research on an extensive and independent study in a specialized area is an excellent way to prepare a student to quickly advance to the frontiers of expertise in a subfield while staying abreast with current events.

In short, I believe that a good graduate program is critical to achieving my professional goal of becoming a qualified researcher. I also assume that I have the drive, intelligence, and training necessary to succeed in a rigorous Ph.D. program designed by the committee of the joint doctoral program.