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Chapter I

Environmental Issues Today

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Abstract: Environmental degradation is one of the most pressing issues today, and this chapter by Dr. Govind Singh delves into various aspects of this crisis. Reflecting on his personal journey into environmental studies, the author emphasizes the importance of interdisciplinary learning to address global environmental challenges. The chapter highlights the critical role of education and awareness, particularly the impact of judicial mandates like the Supreme Court's directive for environmental education in India. Climate change, global warming, and biodiversity loss are discussed, stressing the urgency of action. The increasing concentration of CO2 and the alarming rate of species extinction underscore the need for collective responsibility. The author also touches on climate refugees and environmental degradation's socioeconomic impact, calling for immediate, sustained efforts to reverse environmental damage.

Keywords: Environmental degradation, Climate change, Biodiversity loss, Environmental education, Sustainability

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To begin, let me share my personal journey into the field of environmental studies. It has always been a subject that fascinated me—one that has deeply concerned me since childhood. My initial love for ecology naturally led me toward the broader subject of environmental studies. This interest solidified during my schooling years, specifically when I was in Class 10, about 20-25 years ago.

At the time, I had to make a crucial decision about the subjects I would study in Class 11. In India, students are typically forced into rigid academic silos: science, commerce, or humanities. I carefully evaluated the CBSE system and realized that I had to select five subjects, one of which had to be a language—English, in my case. So, I had four subject choices to make. After much deliberation and research, I chose biology, economics, history, and geography. These were subjects I was passionate about—biology connected me to ecology, and economics, history, and geography intrigued me in different ways.

However, this interdisciplinary mix of subjects was met with resistance. My teachers were baffled, and I was eventually brought to the principal's office. Despite CBSE rules allowing such combinations, I was told it didn't make sense in societal convention. My parents were called in to convince me, and I eventually had to comply by taking a more conventional science route, focusing on biology.

When it was time to pursue my undergraduate studies, I remained captivated by environmental studies. Unfortunately, at that time, there were no colleges in North India offering undergraduate programs in environmental studies. After much searching, I ended up pursuing botany, which I saw as the closest alternative because it included a significant portion of ecology. This experience only reinforced my belief in the need for interdisciplinary understanding, particularly in addressing environmental issues.

distribute funds to these clubs for activities, as everything had shifted online. After reading about this dilemma in a newspaper article, I reached out to contacts within the government, eventually connecting with the Member Secretary overseeing the ECO Club scheme. In our discussions, I proposed creating online programs to allow schools to continue receiving ECO Club funds. Initially, the Member Secretary was surprised by my involvement, given my position as an associate professor of environmental studies. When asked why I cared about school programs, I explained that I was an alumnus of several ECO Clubs—having led ECO Clubs in school, in my master's program (Gaia), and later establishing one at the college I first taught at, the Cluster Innovation Center (Vasundhara). This experience shaped my identity and fueled my desire to ensure the continuation of the ECO Club scheme, knowing that many future environmentalists might emerge from such platforms.

I firmly believe that awareness of environmental issues, cultivated through initiatives like ECO Clubs, is crucial for fostering future generations of environmental leaders. Without such schemes, many would never consider entering this field, and that would be a significant loss for the planet. As my career progressed, I became even more involved in environmental education. In 2013, I joined the Cluster Innovation Center, which I believe made me one of the first professors at Delhi University hired specifically to teach environmental studies to undergraduates. A year later, in 2014, Delhi University made a historic decision—every first-year student across all colleges would be required to take a one-semester course on environmental studies. This decision impacted tens of thousands of students and helped create awareness about environmental issues across the university.

However, the origin of this decision is a fascinating story in itself. Many people might assume it came from the university's Vice-Chancellor or the Ministry of Education, but it was, in fact, a result of an order from the Supreme Court of India. In 1999, the court issued a directive that all universities must teach environmental studies, but it took Delhi University 15 years to implement this order. This decision came about through a public interest litigation (PIL) filed by renowned environmental lawyer M.C. Mehta. Mehta argued that teaching young people about the environment was crucial for addressing the environmental crises facing the country. The Supreme Court agreed, stating that environmental degradation was so severe that it would be unjust to future generations if action were not taken. This ruling was not just a suggestion but a binding legal order. It remains a powerful example of how the judicial system can step in to protect the interests of future generations when bureaucratic systems fail.

Fortunately, we have young people, like all of you and many more, who are at least aware of what these problems are, what these issues are, and have some solutions—some sort of motivation to address these problems. Imagine if these problems arose today and there were no young people who had no idea about the environment. If there was a call for doing an internship where the environment would be the focus, and nobody joined? Then what would have happened? I'm not saying that because we have aware students today, the problem is solved. But at least we have taken the first step. Thanks to the ruling that ensured all young people today are at least aware of what is happening to the environment. You walk outside and understand air pollution, you know what AQI is, you understand which air to breathe, and you understand PM 2.5 because you've undergone courses and have some understanding of environmental issues. You know the importance of tigers, lions, and you know that when climate change happens, there will be sea-level rise, and it will be difficult to live in coastal cities. You understand that these things are already beginning to happen.

Now, we don't have to teach you because you already know. What we have to do now is work with you to ensure we can reverse those changes. Imagine the importance of just one Supreme Court ruling. Within just one judgment, it created awareness in all the young people. That's where we are now. All of you are already aware, you already know the issues, and you already have some understanding. The Supreme Court at that time said that in the near future, 20 to 30 years down the line, there would be a lot of problems. Other agencies said the same, but some people still didn't believe it would happen to them. Unfortunately, the news is, it's already begun.

I can share a few points. One issue, which I'm sure all of you know from newspapers, YouTube, and everywhere else, is global warming and climate change. When I finished my bachelor's, I was told it would happen 100 years down the line—that glaciers would melt, ice caps would melt, and sea levels would rise. Two years later, when I finished my master's, I was told it would happen in 50 years. In just two years, the projection changed from 100 years to 50, and suddenly, it seemed all of us would face these problems sooner. When I finished my PhD, I was told the changes would happen in 30 years. That's just 30 years. I spent six years on my PhD, and in that time, the projections were updated again. Now they said the changes would happen in 30 years. At that point, I got scared and decided not to pursue further degrees. I thought if I finished another degree, they'd say the problem was coming next year. So, I decided that a PhD was enough, and I got into teaching.

To highlight a few alarming points about climate change and global warming: In 2013, the global carbon dioxide concentration in the atmosphere crossed 400 PPM. Let me explain. Carbon dioxide is the gas we exhale, and plants sometimes take it in and give us oxygen in return. The concentration of carbon dioxide in the atmosphere is linked to the heating of the planet. The more CO2 we have, the hotter the planet will be, and that's why it's called a greenhouse gas. Before the Industrial Revolution, the concentration of CO2 in the atmosphere was 280 parts per million (PPM). During my school years, science textbooks said the concentration was 0.03%. Today, that figure has crossed the 400 PPM mark. I think it's 412 PPM now. Essentially, we need to rewrite science textbooks because the concentration of carbon dioxide in the atmosphere is now 0.04%, not 0.03%. Now, what does this mean? It sounds like a small change, but at the global scale, it has huge implications. Excessive carbon dioxide in the atmosphere is causing problems like global warming and climate change. The more fossil fuels we burn, the worse the problem becomes.

In my bachelor's, I was told that climate change would cause harm 100 years down the line. Then it was 50 years. Then it was 30. Today, we are told that if we don't act by 2030, we will face a huge crisis. Unfortunately, the crisis has already begun. Just last month, a large chunk of ice shelf separated from mainland Antarctica and is now floating in the sea. This has happened before, but the size of the ice chunk this time is alarming—three times the size of Delhi. As it floats toward warmer parts of the world, it will start melting. When it does, low-lying coastal areas will start going underwater. Imagine cities like Mumbai and Chennai, where millions of people live, being affected. When these people are forced to move inland, think of the social, environmental, and economic costs. This isn't a far-fetched scenario—it's already happening. Indonesia has taken the decision to move its capital inland because parts of Jakarta are sinking. If sea levels rise, you won't see a sudden tsunami-like wave. The water will gradually come in and stay there. Imagine living in Delhi or Mumbai with two or three feet of water under you at all times. It won't be possible, and people will have to move. When they do, they'll be called climate refugees or environmental refugees. That's where we are today.

If we talk about biodiversity, it's equally concerning. In 1901, India had close to 80,000 tigers. Today, we have only around 2,000 left. There's also the Asiatic lion, which is critically endangered. Only about 600 remain, and they all live in one small part of Gujarat. Imagine the risk if something happens to that region—flood, disease, or epidemic—the entire species could be wiped out. The white rhinoceros has already gone extinct in our lifetime, and there's only one male left in Africa, guarded by soldiers with shoot-on-sight orders to prevent poaching.

These are the harsh realities we face. This is the state of the environment today. I've shared where we stand in terms of air pollution, biodiversity, and climate change. Unfortunately, that's the situation we're in, and it's not something we can ignore anymore.

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