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Increasing Environmental Stewardship through Education

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Abstract

This article aims to point out the need for change and outline actions that can be taken through the educational system to improve environmental conditions in the present quickly and set India on a sustainable path for the future.

As educators, we teach our students to be responsible citizens and understand how their actions affect society and the environment.

Keywords: *Environmental Stewardship, sustainable path, Education etc-*

Introduction

India and the rest of the world face significant environmental challenges now and in the years to come. Effective action needs to be taken by individuals through cultural and educational changes in concert with environmental regulations.

Purpose

This article aims to point out the need for change and outline actions that can be taken through the educational system to improve environmental conditions in the present quickly and set India on a sustainable path for the future.

As educators, we teach our students to be responsible citizens and understand how their actions affect society and the environment.

Personal Motivation

I was prompted to write this article as a result of a recent visit I had to India. I have lived for many years in the United States. The United States has a firm culture of personal accountability in general, along with a strong environmental ethic. People, many times, in making decisions take into account how those decisions will affect others and the environment. Activities like recycling and reforestation are taken very seriously and passed on to children. For instance, my husband and I once worked with our daughter's Girl Scout troop to reforest an area with native trees. The native trees help with global warming and provide

food and habitat to the native animals. We have often worked with our school and the students on beach clean-up projects. The understanding of environmental issues and ethics to take action on them is engrained in children through the culture at home, school, and extracurricular activities.

On my visit to India, I was struck by a different attitude toward environmental stewardship. Litter was rampant. Most surprising to me was the attitude of people in India toward trees. Trees are revered in the United States for their ascetics, reduction of carbon in the atmosphere, and habitat creation. For instance, my neighborhood in the United States requires that we plant two oak trees in our yard. Oak and pecan trees are native to Texas. It's not just our street; other neighborhoods also promote native trees. See Figure 1 of a street lined with trees. To my surprise, in India, trees were seen as a nuisance. The leaves of trees in India are perceived as litter, creating a mess. On the contrary, a tree's roots pull nutrients deep in the soil, benefiting the topsoil and ecosystem. This is not to mention a tree's ability to remove carbon from the atmosphere to negate the effect of climate change. Trees are heavy, and remember that almost the entire weight of a tree is from carbon removed from the atmosphere. Not just my visit to India this year (2023) but in previous year, too. In 1989 I lived in India for one year and worked as a teacher at a school. On the way to school, there was a crepe myrtle tree in our neighborhood that cows used to sit under for shade.

One day when I returned from school, the people in the neighborhood had cut the tree down. When I asked the people in the neighborhood, they said the tree was shedding leaves. I was very disheartened that such a beautiful tree was cut down. Moreover, I could not imagine cows being holy, that they would disrespect cows and take away the shade. It has become a part of the culture to think that leaves create pollution. Cultural change is needed to realize the environmental benefit of trees and their leaves.

Case for Change

Climate change is going on around us and increasing at an alarming rate. Changes need to be made before the earth hits a tipping point. We all have one planet to live on, and we are responsible for taking care of it. See Figure 2 showing the temperature rise. If the trend continues large parts of India will become uninhabitable.

Global Warming / Climate Change

In India, many people have heard about global warming but do not understand what it means. When I talked to some adults and students about what they think "Global Warming" means, they said that we need to reduce pollution and plastic. There was not a practical understanding of what it means and its impact. The actual meaning of global warming is "A process that causes the earth's temperature to increase. This increase in temperature causes the climate to change and become more severe. Greenhouse gases like carbon dioxide, methane, and water vapor are responsible for trapping heat on Earth.

Greenhouses are used extensively in agriculture to extend growing seasons, in cooler climates, by increasing the temperature of the plants in the greenhouse. Greenhouses are made of glass or other transparent-to-light material, see Figure 3.

The transparent-to-light panes of the greenhouse allow light to enter the greenhouse. When it shines on things inside the greenhouse, that light gets converted to heat, much like when you stand in the sun and feel its warmth—the light energy changes to heat energy. The material used to build the greenhouse is transparent to light but not heat. So, once converted to heat, the light energy stays in the greenhouse, increasing the temperature.

The earth's atmosphere has gasses referred to as greenhouse gases. Greenhouse gases include carbon dioxide, methane, and water vapor. They are referred to as greenhouse gases because they allow the light from the sun to pass through but trap the resulting heat, raising the earth's temperature.

This is causing the earth to warm up. These gases make the atmospheric layer thicker. These gases are increasing in our atmosphere due to deforestation. Deforestation is happening due to increased population and people cutting down trees to build neighborhoods. Greenhouse gases are increasing due to pollution from factories, traffic, and even hundreds and thousands of stray animals roaming the streets.

See Figure 4 explains what the greenhouse effect is on the Earth.

Parts of India are on their way to becoming uninhabitable. If allowed to continue, it will create tens of millions of refugees who can no longer live in their current homes. The extreme heat will kill people, and it already has in Pakistan, where many people have succumbed to extreme temperatures, as reported by News Week.

Economic Impact

Trillions of dollars will be lost due to workers being unable to work in extreme conditions². This is not to mention losses from crop failures. Aside from the economic losses of crop failures, the failure will drive inflation in food prices and famine. According to the World Bank, this could diminish the living conditions of up to 800 million people.

Impact on Health

W.H.O. (World Health Organization) reported that in 2012 around 7 million people died prematurely due to indoor and outdoor air pollution, accounting for one in eight premature deaths. This confirms that air pollution is now the world's most significant single environmental health risk. Global Burden of Disease reported that India accounts for 19% of the world's premature deaths in 2013

How to Help

Long-term solutions are needed. Awareness of the situation and cultural change will be the cornerstone of a sustainable future. This begins with **Education** from elementary to adult education in India. Spread awareness about global warming.

Benefits of Trees / Reforestation

We need to teach our children that there are many advantages to planting trees. Trees provide shade. It's several degrees cooler under a tree's shade than in the sun. "Trees can reduce cooling costs and counteract the "heat island" effect in urban environments. Urban areas with little vegetation can experience temperatures up to seven degrees higher than those with tree coverings. Properly planted trees can cut cooling costs by as much as 12 percent and reduce overall power demand."

Air Quality

As mentioned earlier, the great bulk of the structure of a tree comes from pulling carbon from the air through photosynthesis to create the tree's structure. Trees reduce air pollution and help to purify the air by absorbing carbon and other pollutants. A mature tree absorbs between 120-240 pounds per year of small particles and gases, like carbon dioxide, which is released into the air by automobiles and industrial facilities.

Water Quality Benefits

Trees help anchor soil and reduce storm water runoff. A Street lined with 32-foot-tall trees can reduce water runoff by almost 327 gallons. Reducing runoff also decreases topsoil erosion and the amount of silt and other pollutants washed into streams, rivers, and lakes.

As we know, the severity and frequency of flooding increases with climate change. Trees are a line of defense.

Reduced Noise Pollution

Excessive or unwanted sound has adverse physical and psychological effects. Noise can come from many sources, especially traffic, street vendors, and stray dogs barking specially in India. Trees can play an essential role in deadening unwanted noise. Sound waves are absorbed by a tree's leaves, branches, and twigs. Studies suggest that belts of trees 100 feet wide and 45 feet long can cut neighborhood noise in half. That helps in the reduction of stress in people.

Mental Health Benefits

Trees and other vegetation can affect our mood and help relieve stress. Doctors often prescribe their patients to go to a hill station to feel better. Nature provides happy feelings and relief from everyday stress.

Call to Action

As educators, let's look at how to implement this cultural change. As Gandhi challenged us, we must "be the change we want to see in the world."

Celebrate Arbor Day (Van Mahotsav)

Arbor Day is an annual holiday in the United States focused on appreciating and planting trees. Many states celebrate it on different days in April, springtime here in the United States, to suit the best time to plant new trees in their area.

Encourage your school and community to celebrate Arbor Day. To celebrate, many people plant a tree or two. Schools celebrate Arbor Day by making craft items, planting seeds, and cleaning flower and vegetable beds. We also have a learning garden at our school. We take children outside to the learning garden to plant seeds and plants, water the garden, and weed the garden. In India, the tree planting week may be more commonly known as Van Mahotav⁴.

Plant Some Trees

Every teacher should teach students the importance of planting trees. Teachers and administrators should distribute seeds to their students to plant at home. Students could plant in small containers if there is a lack of space.

Look for opportunities in the community and at home to plant trees in your area.

Curriculum and Lesson Plans

Incorporate environmental education more aggressively into your school's science program. Create or leverage environmental curriculum and lesson plans. Resources are available from sources like LessonPlanet⁵. These include lesson plans. The United States Environmental Protection Agency also offers resources for environmental education⁶.

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