

Climate Change: A Burning Problem in Agriculture

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Climate change refers to the long-term alteration of Earth's weather patterns due to the accumulation of greenhouse gases in the atmosphere. This phenomenon, primarily caused by human activities such as burning fossil fuels and deforestation, leads to global warming and has far-reaching consequences. Key impacts include rising temperatures, melting ice and glaciers, sea level rise, more frequent extreme weather events, ocean acidification, disruptions to ecosystems, threats to agriculture and food security, and adverse effects on human health and economies.

Important national and international organizations

1. Ministry of Environment, Forest and Climate Change (MoEFCC): Indian Meteorological Department (IMD)

2. Indian Council of Agricultural Research (ICAR)

3. Indian Space Research Organization (ISRO)

4. Intergovernmental Panel on Climate Change (IPCC)

5. World Meteorological Organization (WMO)

6. United Nations Framework Convention on Climate Change (UNFCCC)

Effect of climate change on Agriculture

Climate change affects farming in various ways.

It can mess up the usual

seasons for growing crops and make it harder to plant and harvest at the right times. High temperatures can stress plants and animals, like cows and chickens, which can hurt crop yields and make livestock sick. Changes in rainfall can lead to water shortages, making it tough to water crops and give animals enough to drink. Droughts can cause crops to die and leave less



food for animals to eat. Climate change can also bring more bugs and diseases that harm plants and animals. Some places might grow more crops because of longer growing seasons and extra carbon dioxide, but others could lose crops due to heat, drought, or pests. The changing weather can also affect how good the food tastes and how healthy it is. It can make it harder to keep the soil healthy, which affects crop growth. All these problems can make it tough to have enough food in places that really need it.

Causes of Climate Change

Climate change happens mainly because of things people do that put gases into the air. The biggest cause is when we burn fossil fuels like coal, oil, and natural gas to make energy. This makes a lot of greenhouse gases, which trap heat in the Earth's atmosphere. Power plants, cars, trucks, airplanes, and factories are big sources of these gases. Also, when we cut down trees and change the way we use land, it's bad for the climate. Trees help by taking in a gas called carbon dioxide, but when we get rid of forests, all that carbon comes back into the air. Farming, especially raising animals and growing rice, makes another gas called methane, which is very strong at trapping heat. Using certain kinds of fertilizers in farming also makes a gas called nitrous oxide, which is bad for the climate. Some industries, like making cement, release carbon dioxide right into the air. Refrigerants used in air conditioning and cooling can also be a problem. Big cities and changes in how we use land can make things hotter and mess up the weather. Even our garbage in landfills makes methane. Transportation, like cars and planes, is a big source of carbon dioxide. When we use energy in buildings and appliances poorly, it means more energy

and more greenhouse gases. The main gases we're worried about are carbon dioxide, methane, and nitrous oxide. People have made these gases increase a lot, which is making the Earth get warmer.

Remediation of Climate Change

Mitigation means doing things to stop or lessen the gases that make the Earth hotter. We can use clean energy sources like the sun, wind, and water instead of dirty ones like coal and oil. We can also use less energy by making our homes, factories, and cars work better. Some places even catch the gas CO₂ from factories and bury it in the ground. Planting trees and taking care of forests is like nature's vacuum cleaner because they suck up CO₂. We can also farm in better ways that make less methane and use fewer chemicals. Less food waste and better trash handling can help too, as rotting stuff makes methane. Instead of using our cars all the time, we can share rides, bike, or walk. Electric cars and more efficient vehicles also help. Factories and businesses can be cleaner and waste less energy. Landfills make methane, so we can be smarter about waste. We can switch to better coolants in air conditioners too. Managing our land thoughtfully, adopting more sustainable daily habits like conserving energy and reducing meat consumption, can be beneficial in addressing the issue of climate change. We can make companies and people pay for the pollution they make. And by working with other countries, we can set goals to reduce pollution worldwide. We should also keep trying new ideas and inventions to stop pollution.

Farmer Perspectives: Living on the Frontlines of Climate-Driven Agricultural Changes

In the world of farming, things are getting trickier because of changes in the weather caused by climate change. Farmers are right at the front, dealing with unpredictable weather, like unexpected rain or heat. These changes mess up the usual plans for planting and harvesting crops. And it's not just about the weather being a bit off. There are more serious things like floods, droughts, and wildfires that can damage crops and even harm the animals on the farm. Fixing all this damage costs a lot of money and can be really tough emotionally for the farmers. Water is becoming a problem too. Sometimes, there's not enough, so farmers have to figure out new ways to water their crops and choose plants that can handle not having a lot of water. But despite these challenges, farmers are finding smart ways to deal with the changes. They're trying out new farming methods that are good for the environment, and they're speaking up for rules that help farms cope better with these changes. Farmers are not facing these challenges alone. They're part of a community, helping and supporting each other through

References

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the tough times. By sharing ideas and working together, they're finding ways to handle the challenges that come with a changing climate. So, when we hear from farmers, it's not just about the difficulties they face, but also about the important role they play in making sure farming stays strong and resilient, no matter what the weather throws at them.

Conclusion

In the fields where farmers toil, the specter of climate change looms large, presenting an urgent challenge to agriculture. As temperatures rise, weather patterns shift, and ecosystems are disrupted, the resilience of our food systems is tested. Addressing this burning problem demands immediate action, innovative solutions, and global cooperation. By prioritizing sustainable practices, supporting resilient farming communities, and advocating for climate-conscious policies, we can cultivate a future where agriculture thrives despite the flames of climate change.

"Awaken to climate change, together let's amend,
Our duty to save nature, let's earnestly defend."