Vertical Farming

Climbing Towards Sustainable Future

(An Innovative Experiment bySadhu Vaswani International School for Girls, New Delhi, India)

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In the emerging years of agricultural innovations, it has been seen that about 30% of land is degraded worldwide, and about 3.2 billion people reside in these degrading areas. Currently, 80% of the Earth's land that is suitable for agriculture is already being farmed. More land will need to be converted to farmland to support the needs of the increased population. This means more natural habitat destruction. The farmers also struggle with bridging the gap between demand and supply of crops using traditional farming methods, and more innovative and efficient cultivation techniques continue to surface. The usage of vast land for food crop production still remains a problem. To minimize these limitations, we can use vertical farming as a sustainable and viable alternative. It is an agricultural device under which crops are grown in vertically stacked layers.

Vertical farming shows great potential in addressing issues, in particular land scarcity and water usage, and ensuring food security. But as time has gone on, it has become apparent that vertical farming has certain limitations. For example, the high cost of vertical farming and the high energy consumption resulting from the use of artificial LED lighting In order to overcome these constraints, we have thought of making some modifications to the existing vertical farming project. For example, switching out the high-energy-consuming LED lights with mirrors that reflect natural light, which is good for plant growth, We have also devised ways to address the land shortage issue by practicing vertical farming in abandoned buildings or by repurposing ship containers.

In order to enable field irrigation, rainwater harvesting systems can be installed. According to a study by the National Institute of Agricultural Economics and Policy Research, the cost of setting up a vertical farm in India can range from Rs. 50 lakhs to Rs. 1 crore per acre, depending on the type of technology used. This includes the cost of setting up the vertical farm structure, the cost of lighting, irrigation systems, nutrient solutions, and other inputs required for crop growth. The cost can be cut drastically by implementing the suggested modifications.

Consequently, vertical farming is what agriculture will look like in the future. One of the main objectives of the G20 meeting, sustainable and green growth, is the subject of our study. Its goal is to turn abandoned urban areas into thriving green sanctuaries.

References

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