

Competitive Exams Acid Rain: Causes and Implications topics for

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In the heavily industrialized areas of North America and Europe the rainfall has become acidic due to the amount of nitrogen and sulphur entering the atmosphere especially from cars and power stations. As a result forests and lakes are dying. This is one more factor reducing the productivity of agriculture and more importantly degrading the life support systems of the planet. There will be strong pressure to increase use of fossil fuels and fertilizers in coming decades, increasing the release of acid to the atmosphere. SOIL DAMAGE All life on earth depends on the earth's fragile "life jacket" made up by the thin layer of topsoil (average depth only 30 cm) from which all living things derive their sustenance. We are treating this vital resource in a way that cannot continue for many more decades. Our agriculture is one of the most unsustainable aspects of our society. Consider the main damaging effects. For every 1 kg of food we eat, modern agriculture loses at least 5 kg of soil to erosion. Water logging and salinity in irrigated areas are destroying much land. Large areas of good farmland are continually being turned into urban settlements. In America perhaps half million ha p.a. are lost this way. Large scale use of pesticides reduces soil fertility. Much land is being lost to the spread of deserts, at a global rate of 6 million ha per annum .. Another 20 million ha became unprofitable to farm each year. Rainfall is increasingly acidic. Soil nutrients are not returned to the soil. We throw away all our food wastes, and animal and human wastes. These should all be returned to the soil. Modern agriculture is therefore well described as "soil mining". Soils are becoming more acidic due to use of artificial fertilizers.

The Greenhouse and ozone problems will have undesirable effects on agriculture in coming years. Another important reason why our agriculture is unsustainable is that it depends on large quantities of energy, especially oil. In addition to all the energy used in tractor fuel, fertilizers, irrigation and pesticides there are huge transport and packaging energy costs. We will not be able to farm as we do now when much less oil is available in a few decades time. We could not do it now if world oil output were shared equally among all the world's people. We in rich countries can use so much in our agriculture only because we take most of the world's oil production. To produce one glass of milk can take energy equal to half a glass of diesel fuel. These trends cannot continue for many more decades. We are destroying our capacity to meet

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our agricultural needs. Remember that there will probably be twice as many people to feed late next century and it is likely that there will then be much less land than there is now. To solve these problems we must move to a very different form of agriculture in which we mostly depend on small farms and gardens, tree crops, "edible landscapes" throughout cities, local self-sufficiency in food (hence little transport), recycling of nutrients and thus negligible use of ploughing, artificial fertilizers or pesticides.