

Buy a chair and restrain the increasing CO₂ menace

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Development of science and technology, especially in communication, transit, industrial and agricultural sectors, paved the way for rapid societal changes in the 20th century. The synergistic impact of these changes, in association with the rise in world human population, has led to accentuated increase in energy consumption (mainly from burning of fossil fuels) from the beginning of the 20th century to date. This immense increase in energy use is changing the constitution of gaseous layer around the earth's atmosphere, which in turn controls global climate. CO₂ is one of the radiatively important gases present in the atmosphere and plays a critical role in maintaining the temperature on the earth. Current reports say that there is a 26% increase in the atmospheric CO₂ concentration during the past 150 years¹. The increase in CO₂ concentration is largely because of (i) the burning of fossil fuels and (ii) deforestation and other vegetation changes associated with land use. The contribution of these two factors to total CO₂ increase is estimated to be 65% and 35%, respectively¹. If the present rate of emission of greenhouse gases continues, the atmospheric CO₂ concentration will be doubled by the year 2010 and tripled by 2100¹. This will affect the global climate, biodiversity and bring perturbations in natural ecosystems.

Forests play an important role in global carbon cycle. Atmospheric CO₂ sequestering through rapid afforestation is well documented². Fast-growing N₂-fixing tree plantations play a significant role among a variety of measures taken to ameliorate the increasing CO₂ menace. These plantations, resulting in increase of biomass production, would act as effective CO₂

traps, possibly cancelling out the global warming effects. Computation reports say that 'by raising about 500 million ha of high wood yielding forests, it may be possible to sequester into forest biomass all the carbon released by mankind to the atmosphere during the last 100–200 years'³.

This part of the story is really encouraging, but now we should look at another side of the picture. When the plantations are young and of aggrading nature, the rate of CO₂ fixation is high. As the plantations begin to mature, the process of CO₂ fixation becomes slower. This is a well-known fact and is documented from time to time. If we desire that these plantations would act as effective CO₂ traps, these old forests must be replaced by new ones. Of course, in the process of replacement, proper management practices must be taken into consideration, e.g. a particular piece of land or area should not be completely denuded at a time, so that the damage to the ecosystem will be the least.

By replacing the old forests, twofold benefit may be achieved. (i) an aggrading plantation forest with better CO₂ fixation capacity and (ii) wood and timber from the harvested trees. A part of this wood may be used as fire wood. Biomass burning will also be less pollutive with respect to SO₂. But the major part of the wood should be utilized for construction of ménage furniture, e.g. chairs and tables, as building material and in pulp and paper industries. The use of such wooden products must be emphasized and strengthened. Wood processing industries should come forward for the sake of global environment and earth. It might

be possible that there will be overproduction and less demand for furniture in the market. To avoid such situations, governments should make use of such products compulsory (by rule). This action will definitely be in favour of global climate. Regular replacement and planting of forest will definitely ameliorate the increasing level of CO₂. Mass media may play an important role in generating an awareness among the people about the problem and its solution. The appreciation of such policies by common man is desired. He must be acquainted with the cause, effect and solution of the increased atmospheric CO₂ threat. The idea must be intercepted in his mind that only by adapting and appreciating these policies would it be possible to restore a healthy environment and maintain a sound ecological balance in the years to come. Another important and arduous role has to be played by ecologists and foresters by developing suitable management strategies for replacing the mature forests by new ones. The slogan 'Buy a chair and restrain the increasing CO₂ menace' will then be much more justified.

1. Houghton, J., Jenkins, G. and Ephraums, J. (eds), *Climate Change: The IPCC Scientific Assessment*, 1990, Cambridge University Press, Cambridge, p. 365.
2. Prentice, K. C. and Fung, I. Y., *Nature*, 1990, **346**, 48.
3. Marland, G., 1988, US Department of Energy, DOE/MBB, 0082

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