

Chapter 21

Climate Change Mitigation: Collective Efforts and Responsibly

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ABSTRACT

Climate change caused due to our careless activities towards our nature, ecosystem, and whole earth system. We are paying and will be paying in future for our irresponsible activities in past and present. Increased concentration of Green House Gases (GHG) has caused severe global warming which will cause melting of glacier and results in sea level rise. To avoid and reduce the intensity and severity of global warming and climate change, its mitigation is essential. In this chapter we have focused on various issues related with climate change and mitigation strategies.

INTRODUCTION

Climate change is a severe problem that world is facing from last few decade as aftereffect of our past activities but we can reduce it by decreasing and changing the root causes for it. Adverse effects of these activities have already substantially ruined our sensitive earth system. Climate changes are occurring primarily due to the anthropogenic activities, which enhance the greenhouse gas concentration, particulate matter concentration, and ecological changes due to drastic change in forest area which ultimately affect the water cycle and affect O₂/CO₂ concentration in the ambient air. Emission of greenhouse gases are increasing day by day and has reached to an alarming stage where a quick and very effective strategy has to be apply

on global, regional and local scale to reduce it to a safe limits. There are several social/ economic/ environmental factors which has impact on climate change and vice versa. Efforts of reducing the emission of greenhouse gases especially CO₂ is usually termed as climate change mitigation. Mitigation is a human intrusion to reduce the source or enhance the sinks of GHG. In greenhouse gases, CO₂ is of prime concern because of its severe impact on the climate. Mitigation can be achieved in many ways like reduction in CO₂ emission, use of energy efficient equipments, renewable energy, and behavioral change towards energy consumption. Though it looks quite simple but its implication into practical life will not be that easy. For climate mitigation there are several sectors which should be considered while making mitigation policies

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and these covers the power sector deregulation, energy/oil import security, forestry, industries and rural energy. Utilization of techniques like silviculture or green agriculture in protection of natural carbon sinks as ocean and wooded area is also part of mitigation technique. Purpose of climate mitigation is to reduce harmfulness of climate change; thus has to be part of policies that includes climate impacts adaptation. World need adapt the climate changes and also an efficient strategy for the mitigation policy.

As climate change is global (IPCC 2007, <http://climate.nasa.gov/effects/>) thus efforts on all the scales i.e. global, regional and local are essential. Thus climate change mitigation policies have to essentially apply on international as well as national level also. In this chapter we will first discuss about the increasing trends of greenhouse gases. This chapter will deal with the current emission situation and future projection from various sources from the current emission scenario i.e. where we are and where we will land with present emission conditions. Various international, regional and national efforts will also we discussed in detail to understand the world approach towards this serious issue. Climate mitigation covers several topics (i.e. transportation efficiency, transport conservation, building efficiency, efficient electricity production, economic costs & benefits, energy security, health and employment, air pollution and several others) under this and we will try to explore each of these in this chapter.

WHAT IS CLIMATE MITIGATION?

Mitigation means an act which reduces the severity of a transgression and in climate mitigation context this term is used for reduction of anthropogenic activities which have spoiled the nature and as a consequence our climate. The Intergovernmental Panel on Climate Change (IPCC 2007) defines “climate change mitigation as technological change and substitution that reduce resource inputs

and emissions per unit of output”. Although several social, economic and technological policies would produce an emission reduction, with respect to climate change, mitigation means implementing policies to reduce GHG emissions and enhance sinks. In other words mitigation is a preventive measure to reduce the GHG concentration and limiting the degree of future global warming. Mitigation is different from adaptation which defines the attempt to manage the unavoidable hit of climate change.

Climate change mitigation is an attempt or action executed to reduce the worse effect of our action which has created the danger of substantial increase in global temperature in few decades. Climate mitigation generally means the efforts for reducing the increasing concentration of GHG, especially CO₂. Another way of achieving climate mitigation is to increase the possibility of CO₂ sink which could be achieved by increasing forest and reducing the deforestation. Climate change has global impact and thus efforts should be global instead of national, institutional and individual. Various policies are functional for the climate mitigation at all the levels and collective efforts are impost to achieve this. Instead of very strong determination, there are various limits which still make it difficult to achieve. In this chapter we will be discussing the current situation of GHG concentrations, renewable energy sources, costs and various sectors important for climate mitigations.

As we have discussed earlier in chapter that whole globe should act with same strength for the substantial reduction in GHG concentration. This causes the debate in developed and developing countries as present crisis have occurred primarily because of developed countries GHG emission in the past and present too. Thus as compared to developing countries, developed countries should cut off GHG emission in major proportion. This ideology was embedded in United Nation Framework Convention on Climate Change (UNFCCC) in 1992 and also in Kyoto Protocol in 1997, which put impose on developed country for reduction

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