THE BIGGEST CHALLENGE FACING NATION STATES IN THE 21ST CENTURY IS CLIMATE CHANGE

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Date

Table of Contents

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Impact of Climate Change on Australian Forestry

With every passing year, the intensity of the impact of climate change on the Australian forestry deepens. Activities undertaken by humans such as land use, production of fertilizers and use, and fossil fuel combustion contribute to the increasing concentrations of carbon dioxide in the atmosphere, alongside several other greenhouse gases (Australian Treasury , 2008). Our basic living conditions are significantly determined by our climate. Climate is the primary regulator of the growth of forest and other agricultural crops that form the basic suppliers of fiber and food. Climate is the key determinant of energy required for the purpose of heating and cooling. Besides, the potency or strength of pollutants in water and air are mainly influenced by the climate (Ajani, 2007).

Minor climatic changes substantially contribute to the changes in forests, and therefore, to the society. A strong influence of climate change is exerted over the ecological functions. These functions include the productivity of plants and the use of water. Forests tend to use a lot of water during the longer growing seasons (Australian Government , 2008). Evaporation is also increased when the winters are warmer. The use of water in greater quantities ensures the the length and occurrence of droughts prolongs. Besides, the summertime soil moisture is also reduced when the water is use massively. The productivity of forests is reduced with the increasing occurrences and lengths of droughts in Australia. Therefore, the trees become vulnerable to diseases, pests and insects. This, in turn, influence the wood supply, fall foliage, and various other resources found in the economy (Australian Bureau of Agricultural and Resource Economics and Sciences, 2012).

When the climate becomes hotter, the increase in temperature is likely to cause an increase in the diversity of species alongside the productivity of forest. Diversity of species and forest productivity also rely on the availability of nutrients in the soil and the level of precipitation. However, the tolerance capacity of species is likely to differ (Das, 2004). Changes in climate also tend to cast drastic effects on the dynamics of the ecosystem and forestry as a whole. Climate changes also affect biogeochemical processes. These include nutrient uptake, plant productivity, fine root dynamics, methane emission, denitrification, nitrification, nitrogen mineralization, litter decomposition, and soil respiration.

When the climate changes and temperatures elevate, the impact on Australian forestry is likely to vary throughout the year. This is particularly because global warming may increase plant stress when the periods turn hotter. On the contrary, the plant stress may be relieved when the periods turn colder. Changes in precipitation and climate tend to influence the availability of moisture in Australian forests. When the temperatures get warmer, the water losses increase due to evapotranspiration and evaporation. In this manner, the water use efficiency of the trees and plans in Australian forestry greatly reduce (Mortsch, 2006).

In addition, these effects are enhanced and intensified during the prolonged, hotter growing seasons. As a result, drought and moisture stress are likely to hit the Australian forestry. In these conditions, the health and growth of trees may decline. However, how severe these impacts turn out to be mainly rely on the characteristics of the forests, soil type and depth, and the age-class structure.

Climate Change Policies

The Former Labor Government's Carbon Tax

The Gillard Labor Government introduced the "carbon tax," also referred to as the Australian carbon pricing scheme back in 2011. The carbon tax was introduced as the Clean Energy Act 2011 with effect from the 1st of July' 2012 (Maher, 2012). The carbon tax was implemented for a very brief period of time, repealed by the actions of Tony Abbott, the Opposition leader. He manipulated the organizations to cajole them into making little or no investment for the purpose of the reduction of emissions. The Abbott Government repealed the scheme within two years on the 17th of July' 2014. Carbon price was not incurred by the businesses and households that used light vehicles. However, there were certain changes proposed to the fuel tax regime in effect so that the carbon tax could be imposed effectively on the gaseous and liquid fuel emissions of the businesses.

The Clean Energy Futures Plan was an energy reform package with the carbon tax being one of its primary components. The purpose of this carbon tax was to cut down on the emissions of greenhouse gases in Australia by a staggering 5% below 2000 levels within a timeframe of 8 years (towards the end of 2020). The carbon tax also proposes the reduction of greenhouse gas emissions by 80% below 2000 levels towards the end of 2050. This plan was then implemented to accomplish its goals by motivating the largest emitters of Australia to enhance energy efficiency. Besides, these emitters were also encouraged to make generous investments in sustainable energy. The Clean Energy Regulator administered the entire scheme (Foschia, 2012).

The Direct Action Plan

The Direct Action Plan is funded by the Emissions Reduction Fund (ERF). It is a policy of climate change that aimed to cut down on the greenhouse gas emissions in Australia released

by 2010. This was the time when the Coalition was in opposition. According to the Direct Action Plan, a scheme is needed in Australia that will ensure that firms are provided with sufficient incentives to cut down on their carbon emissions. In addition to that, the Direct Action Plan also ensures that firms are given the incentives to minimize the additional costs incurred by the sector or industry, and also by the overall economy of Australia (Intergovernmental Panel on Climate Change, 2013).