



Global Warming and Climate Change – Is Forestry Part of the Problem or Part of the Solution?

It seems that climate change and global warming are being talked about by everyone these days. There is no doubt that, these issues are very important, not just for us but also for future generations.

Some environmental groups suggest that forestry is one of the causes of climate change, arguing that when a forest is harvested the carbon stored in that forest is released into the atmosphere. This article points out that far from being part of the problem, sustainable forestry as practised in Australia is part of the solution.

The United Nations Intergovernmental Panel on Climate Change has found that.

“In the long term, a sustainable forest management strategy aimed at maintaining or increasing forest carbon stocks, while producing an annual sustained yield of timber, fibre or energy from the forest, will generate the largest sustained mitigation benefit[1].” Page 543

The author of this article is a forester who worked for over 20 years in the Commonwealth Department of Agriculture, Fisheries and Forestry.

What is climate change?

Climate change is a natural process that has been going on since the world began. Records show that the world has periodically experienced fluctuations in temperature and rainfall leading to several ice ages in the past as well as periods of extreme heat.

But weather records suggest that the rate of climate change over the past few decades has been much faster than would be expected from natural variations. There is mounting evidence that recent increased amounts of carbon dioxide in the atmosphere are a major factor in the current rapid climate change. Although carbon dioxide has always been part of the atmosphere, the significant increase in the last few decades has almost certainly been

caused by the rate at which we burn fossil fuels such as coal, oil and gas. Fossil fuels have taken millions of years to form and we are burning them at a far greater rate than they are formed. As we burn them the carbon which they contain is released into the atmosphere as carbon dioxide.

The carbon dioxide and other gases act as a blanket over the earth, trapping the heat which reaches the earth from the sun. This is known as the greenhouse effect and it is essential for life on earth. However, it is likely that the increased concentration of carbon dioxide in the atmosphere is enhancing the greenhouse effect by trapping more of the sun's heat on earth. This is causing a significant warming of the earth.

What are the likely consequences of climate change?

While there is some debate about the exact consequences of the current rate of climate change, there could be some very serious impacts. Some of impacts are mentioned below.

Rising sea levels

Sea levels are expected to rise as a result of the warming of sea water and melting of the polar ice caps. Some Pacific island nations could disappear as sea levels rise, and some low-lying coastal areas in other countries are also at risk.

Extreme weather events

Rising ocean temperatures are likely to lead to more extreme weather events such as thunderstorms, cyclones, high temperatures and dry periods. This in turn could lead to more severe floods and more intense wildfires.

Vanishing ice

As the earth warms, snow cover and ice will decrease. The white surfaces of the polar ice caps and glaciers reflect sunlight back into space. As the ice is replaced by darker surfaces, the sunlight is absorbed rather than reflected. This accelerates the melting process.

Extinction of species

Changes in climate will lead to changes in habitats for many species. For example, rises in temperatures in Australia are likely to lead to less snow, with species dependent on seasonal snow cover becoming at risk of extinction. The retreat of polar ice caps could threaten species such as polar bears.

Loss of agricultural production

Changes to weather patterns, such as more intense floods and more serious droughts, will affect the quantity and quality of agricultural production. Some areas may experience better conditions for agriculture but other areas will become less productive.

What can we do to minimise climate change?

There are two ways in which we can lower the amount of carbon dioxide in the atmosphere – we can reduce the amount of carbon we emit or we can take carbon out of the atmosphere.

Driving our cars less, using public transport whenever possible and reducing the amount of energy we use in our houses can reduce our carbon emissions. And there have been a number of high-technology proposals (such as storing carbon dioxide underground) to remove carbon from the atmosphere.

But there is a very well-known product which can both reduce our carbon emissions and also absorb carbon from the atmosphere. That product is wood.

What role do forests and wood play in climate change?

As they grow, plants convert carbon dioxide and water, with the help of sunlight and chlorophyll, into energy-rich carbohydrates and oxygen. In trees, some of the carbon is stored as wood. Thus wood is essentially stored carbon removed from the atmosphere.

But the good news doesn't stop there. When a tree is harvested, the carbon is not immediately released back into the atmosphere. If the wood from the forest is converted into house frames, flooring, furniture, paper or other long-lived products, the carbon remains stored in those products for many years or even centuries. The production of alternative products, such as steel and aluminium and concrete, requires a lot of energy and results in the emissions of large amounts of carbon into the atmosphere.

Some parts of the tree, such as small or damaged branches, may have no current commercial value. But with modern technology we can use this wood as fuel for industry and houses, thereby replacing the use of fossil fuels.

Of course some carbon is emitted during the harvesting, transport and processing of timber and the treatment of the forest for regeneration. But these emissions are more than offset by the regrowing forest which can be harvested again in the future. The whole process then starts again.

What is the difference between forestry and deforestation?

Some critics of forestry confuse sustainable forestry with deforestation.

Sustainable forestry involves harvesting the forest at the same rate, or a lower rate, than it grows, and re-establishing the forest after it has been harvested. Sustainable forestry also involves protecting the other values of the forest, such as other plants, animals, water quality, soil and recreational opportunities.

Deforestation, on the other hand, involves removing the forest permanently and converting the land to other uses such as agriculture or cities.

Deforestation can be a significant contributor to climate change, whereas sustainable forestry, as practised in Australia, can play a significant role in overcoming the problem.

Want more information?

The Bureau of Meteorology's website (www.bom.gov.au) provides more information on Australia's climate.

You can get more information on the causes of climate change and how we can respond to it from the website of the Department of Climate Change (www.climatechange.gov.au) and the Australian Greenhouse Office (www.greenhouse.gov.au).

Dr Patrick Moore, one of the founders of the environmental group Greenpeace, is a strong advocate of the use of wood to reduce our impact on the environment. In his book *Green Spirit – Trees are the Answer* (published in 2000 by Greenspirit Enterprises Pty Ltd of Vancouver, Canada) he argues that wood is the most renewable material available to us and is far better for the environment than alternative products such as steel, aluminium, concrete and plastic. Dr Moore also has an interesting website – www.greenspirit.com.

The website www.cei-bois.org/prowood also provides excellent information on the role of wood tackling climate change.

Forest and Wood products Australia, formerly known as the Forest and Wood Products Research and Development Association, has produced an excellent publication titled *Wood and Australia's Carbon Balance*. It is available on the website www.fwprdc.org.au.

Charles Body
Canberra Branch
Timber Communities Australia

April 2008