

Irish Forests and Climate Change

Forests provide a range of raw materials for industry as well as services to society. One of the main services provided by forests - climate change mitigation – which works by removing and locking up carbon dioxide from the atmosphere - is strongly dependent on having young age classes to balance out harvest and other decreases in carbon stocks. In order to sustain this absorption of carbon dioxide a well balanced age structure is needed at the national forest level. In the Irish context this entails the need to continue afforestation at a level in the region of 15,000 hectares per annum for the next two decades. Achievement of this goal will not only sustain the ability of the national forest estate to remove carbon dioxide from the atmosphere, it will also provide a renewable energy resource and a sustainable raw material for construction and a range of other uses. Expansion of the national forest estate should therefore be a key component of national climate change and land use policy.

- Climate change, caused by emissions of greenhouse gases, is forecast to have devastating impacts on human society, unless emissions are checked and reversed.
- Deforestation (loss of forest cover) is one of the major contributors to climate change, and currently accounts for 17% of global greenhouse gas emissions.
- On the other hand, the forestry sector provides a range of opportunities to mitigate rises in greenhouse gas levels, including:
 - afforestation/reforestation;
 - forest management;
 - reduced deforestation (land use change from forest to non-forest);
 - increased use of wood products;
 - use of forest products for bioenergy to replace fossil fuel use.
- The total carbon reservoir or store in Irish forests currently exceeds one billion tonnes of carbon dioxide, most of which is in the soil.
- Annual removal of carbon dioxide from the atmosphere by Ireland's forests exceeds 6 million tonnes per annum, or 3.6 million tonnes net of carbon dioxide removed in roundwood harvest.
- Kyoto forests - those established since 1990 – will sequester 15 million tonnes of carbon dioxide over the 5-year period to the end of 2012, which, taking a long term view of carbon prices, is worth in the region of €220 million to the Irish Exchequer.
- Pre-1990 forests also sequester carbon, and contribute to climate change mitigation. Accounting for forest management, under the Kyoto Protocol will now be mandatory in the current commitment period. Current projections suggest that these forests will sequester about 142,000 tonnes of carbon dioxide per year, under business-as-usual harvest. Additional sequestration over this amount will result in credits, and vice versa less sequestration will result in debits.
- Maintaining the climate change benefits of Irish forests will require continuation of the national afforestation programme at a rate exceeding 15,000 hectares per annum over the next two decades.
- Deforestation at the national level needs to be controlled in order to protect the climate change mitigation benefits of Ireland's forests.
- Wood energy and wind are the most important renewable energy sources. Government policy foresees major growth in the use of wood for energy generation in the future, another reason to achieve and maintain a 15,000 hectare per annum afforestation programme.
- Forests also have an important role in helping society to adapt to existing and future climate change.

- Forests are themselves vulnerable to the impacts of climate change, and this must be considered when planning the management of future forests, for example;
 - Selection of new provenances or species for warmer climates (see the CLIMADAPT tool at http://82.165.27.141/climadapt_client/index.jsp).
 - Planting policies need to take likely changes in water availability into account. The establishment and growth of some tree species, even under current conditions, can be susceptible to water deficits.