Chapter 1

INTRODUCTION TO SUSTAINABLE UTILISATION OF FOREST ENERGY

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1.1 Introduction

There are several reasons for enhancing the use of forest biomass for energy in Europe. Global considerations of climate change play an important role, together with also European and national considerations. Forest biomass is considered to be a sustainable source of energy, since the CO\textsubscript{2} released during combustion is later taken up from the atmosphere by the vegetation to produce new biomass. Furthermore, release of CO\textsubscript{2} to the atmosphere would alternatively take place as a part of the mineralisation. Biomass is also a domestic and distributed fuel, meaning increased local security of energy supplies, increased activity, income and employment in rural areas and a possible reduction of costs for agricultural overproduction in Europe. However, these views need a more detailed examination as many
forest biomass production systems also needs inputs from fossil energy, and it has also been questioned if negative impacts on e.g. biodiversity and long-term soil fertility more than counteract the positive effect of this CO$_2$-neutral energy source.

Forest bioenergy utilisation is closely related to issues of pronounced political importance such as energy policies and the international processes for sustainable development, especially climate change and sustainable forest management.

1.2 Energy policy

Energy policy is a very important policy field in all European countries. The energy crises in the 1970s demonstrated the connection between energy prices and economic growth, and this gave a very strong argument for national energy policies. Increased domestic use of bioenergy was seen as a means to reduce dependency on imported fossil fuels and reduce the uncertainty and fluctuations in energy prices. Later, the use of bioenergy also became an important measure to reduce emissions of greenhouse gases (GHG). The EU has committed itself to reducing greenhouse gas emissions in the first commitment period of the Kyoto Protocol (2008-2012) by 8% compared to the reference year 1990 (EC 2004a). It has furthermore decided to make an independent commitment that EU countries will reduce their emissions by at least 20% in 2020 compared to the reference year 1990. If a larger, global agreement should be signed, and other developed countries commit themselves to reduce their emissions with comparable amounts, EU countries are willing to reduce their GHG emissions by as much as 30% by 2020 (EC 2007a).

The target of the European Union is to increase the share of renewable energy in energy consumption to 12% by 2010. Progress has been made, but the 12% target will not be met (EC 2007b, EC 2004b). Nevertheless, in the Commission’s roadmap, the target is 20% of energy consumption by 2020. In regards to the increased use of biomass, the EU’s Biomass Action Plan suggests that the use of biomass should increase by 80 Mtoe by the year 2010 (EC 2005). Specifically, the target share of biologically based fuels for transport is 5.75% by 2010 as compared to 10% by 2020 in the Commission’s