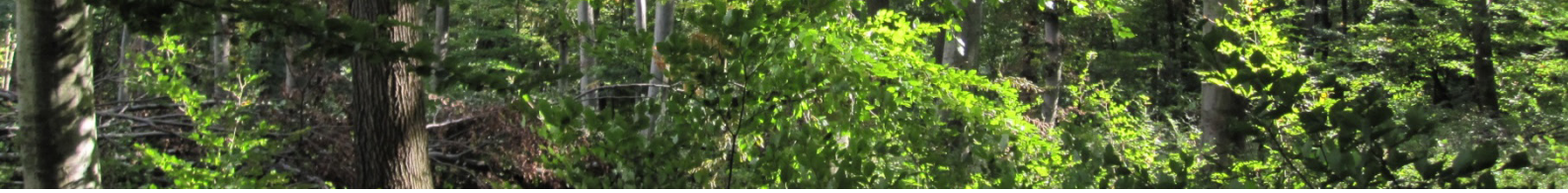

Guidelines for Sustainable Forest Biomass Production – Challenges in view of an emerging bioeconomy: Executive workshop summary

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Definition and context

Forest biomass harvesting guidelines (hereafter referred to as "guidelines") are science-based site-specific good practise recommendations or regulations (sometimes referred to as "Best-Management Practices") to be implemented during harvesting operations. These guidelines are designed to reduce negative impacts of biomass harvesting on ecosystem processes and services within the context of sustainable forest management (SFM).

Global change has led to dramatic impacts on natural ecosystems that provide the natural resources and services essential for human well-being. The rising atmospheric concentration of CO_2 from combustion of fossil fuels is an important driver behind an ongoing transition from a fossil-based economy towards a bioeconomy. Consequently, an increasing demand for biomass from forestry and agriculture implies a need for increasing intensification of ecosystem management, which increases the risk that the impacts of disturbances move in a less sustainable direction. Guidelines can be helpful tools for ensuring that the SFM objective of ecological sustainability is still being met. In general, guidelines are based on and work in concert with existing SFM regulations or recommendations, with details applicable at a management level. This may include consideration of alternative indicators if they differ among SFM regulations or specifications but are supported by the latest scientific evidence. Although new markets for bioenergy from wood have motivated the creation of guidelines, it is forest management practices and not the end-use of harvested biomass that is the important driver because a growing suite of forest products in addition to bioenergy can be derived from this same biomass feedstock.

Objectives

The objective of guidelines is therefore to provide site management recommendations based on the latest scientific knowledge and stakeholder involvement, but locally adapted so that forest operators can meet sustainability standards within their current context. In general, avoiding or minimizing negative impacts on forest ecosystems helps ensure that the same quality and quantity of monetary land value and provision of natural resources and services will continue into the future. Furthermore, careful consideration of the wider implications of guideline development can ensure that they aid

policy integration with superordinate national or transnational policies, which may be otherwise overlooked if the focus is solely on local forest management issues. An additional key objective of guidelines should therefore be the translation and simplification of complex SFM issues so that they can be applied operationally using clear, concise and practical local recommendations based on proxies that are also relevant to the intricacies of the total governance context for products made from stemwood and other biomass components. For example, a guideline recommending leaving harvesting residuals on site from a defined number of trees per unit area represents use of a simple proxy for addressing far more complex relations with biodiversity, nutrient retention, organic matter cycling and ultimately with carbon sequestration. In terms of bioeconomy development and the associated increased use of biomass, guidelines that are well-integrated with certification and national/transnational trade policies would be helpful in generating trust and promoting consumer and social acceptance of goods and services delivered through a bioeconomy framework.

Aspirations

Guidelines need to be simple, user-friendly, easily monitored, and framed within existing SFM regulations or recommendations if they are to be accepted and implemented locally by forest operators. Strategies for communicating the objectives of guidelines and the general concepts underpinning their development need to be developed carefully, for example through educational activities, so that the additional value to forest managers is highlighted. Guidelines need to acknowledge that ecological conditions change and science gaps still exist, and hence an adaptive management approach needs to be adopted to take into consideration future changes in conditions and increases in scientific and operational knowledge. In terms of vertical policy integration, guidelines must comply with superordinate regulations and it would be beneficial if they align with similar frameworks, such as certification schemes. Guideline development needs to include forest managers, policy-makers, appropriate forest authorities, scientific experts, and other stakeholders such as NGOs and relevant interest groups.

Summary

The aim of forest biomass harvesting guidelines is to provide a useful, simple and yet effective framework within existing SFM regulations or recommendations for ensuring ecologically sustainable practices at the forest management and operational level, taking into account economic conditions. Although based on the latest scientific knowledge, guidelines must be subject to ongoing revisions and updates because knowledge and experience increases over time. Guidelines are designed to avoid or reduce undesirable impacts on natural ecosystems and therefore ensure the quality and quantity of services and resources for further generations, and stable incomes for forest owners. National and transnational regulations must be considered during guideline development and translated into simple, forest practice-oriented recommendations. The implementation of guidelines can help to generate consumer awareness and trust, and therefore reduce barriers to the use of new forest products made from biomass that mitigate the effects of climate change through displacement of products made from fossil fuels.

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