

What is sustainable? Governance of bioenergy from forest and agriculture

A policy brief from the network “Effects of bioenergy production from forests and agriculture on ecosystem services in Nordic and Baltic landscapes” (SNS-NKJ 2015-03)

Contact: Dr. Nicholas Clarke, Norwegian Institute of Bioeconomy Research, P.O. Box 115, N-1431 Ås, Norway, tel. +47-97480327, e-mail nicholas.clarke@nibio.no

Bioenergy is a major renewable source of energy in the Nordic and Baltic countries, but its extraction and use must be sustainable. Governance systems for bioenergy extraction must be perceived as justified, with broadly accepted standards, solving the concerns they were designed to address, and with efficient administrative and financial aspects.

Agriculture and forestry produce a large range of goods for the welfare of society. The main commercial products are currently food, fodder and timber, but the future importance of large scale production of biomass for bioenergy, biochemicals and biomaterials is increasingly recognised. In the Nordic and Baltic countries, bioenergy is a major renewable source of energy and has the potential to become even more important, with potential advantages including energy security and rural employment as well as climate change mitigation. Management activities associated with both traditional and newer bioproducts span over large portions of productive regions and are one of the largest human impacts on nature and the environment. As the global population and its wealth increases, the challenge to find an acceptable balance between economic activities and their impacts on climate, nature, environment and people also increases. Several of the ecosystem services potentially impacted by bioeconomic feedstock production systems, such as biodiversity and some cultural services, do not have a market value, and their protection and improvement will often depend on policies, regulation and governance.

Working with sustainability of bioenergy and the bioeconomy involves a high degree of complexity, as biomass is a dispersed resource across the landscape. Supply chains often involve a large number of actors and multiple sectors, such as forestry, agriculture, waste and biogas. In order to effectively achieve goals for ecosystem services, it is important that regulations are underpinned by the best available scientific knowledge about the effects of management and mitigation measures. Collection of statistics and monitoring and modelling of sustainability indicators may play important roles to ensure effective implementation and enforcement, as well as adaptation of the regulations to new conditions.

Bioenergy production cannot be seen in isolation but must be viewed in a larger context, as one of many products from forest and agriculture. Sustainability can be seen as an aspirational goal, which is operationalized through a process of making informed choices for continual improvements, including in regard to trust and legitimacy. As the systems we are dealing with are complex, we cannot expect to predict all consequences of harvesting for bioenergy. Due to large variation between countries and regions, pragmatic solutions are necessary, with a balance between regulation and flexibility. Local embeddedness is here important in order to provide acceptance for bioenergy production. Principles and best practices have been developed according to the best available knowledge, and should be applied following adaptive management approaches. Decision-making should be informed by transparent, replicable, science-based analyses. Governance systems

must be perceived as justified, with broadly accepted standards, effectively solving the concerns they were designed to address, and with highly efficient administrative and financial aspects.



Figure: Small-scale forest harvesting at Vindberg, Norway, with minor impacts on the landscape