

Zone specific adapted management schemes for multi-objective planning of ecosystem services

Xiaoqian XU, University of Eastern Finland, School of Forest Sciences, Finland

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Biomass based on forest and agriculture is playing a key role in the energy market, and many countries have already made energy plans and tackle with climate change, particularly in Northern Europe. At the same time, forest and agriculture are expected to provide fibre, food and bioenergy products while avoiding as far as possible negative impacts on soils, water, biodiversity and climate. Forest and agriculture are expected to provide other benefits such as ecosystem services, employment opportunities and values associated with a varied cultural landscape as well. Society expects that emerging bioenergy systems should reduce impacts caused by the existing primarily fossil energy systems, and that policies are developed to address risks associated with bioenergy implementation and to promote environmentally friendly outcomes.

To develop adapted management schemes for biomass production, the modelling approaches of this research aim to isolate the different effects on biomass production due to e.g. the location, from the differences in management. Therefore, a mixed model approach is proposed, which is a powerful modelling approach that allows the treatment of factors acting at different level. The research includes the potential local environmental effects of the management in a given location. The flexibility of the boosted regression approach allows for this implementation.

The result will deliver a double assessment: a quantitative analysis resulting in a set of efficient alternatives for each zone, and a qualitative analysis resulting in an assessment of each of the selected alternatives by stakeholders. The results will provide with a solid basis for the policy makers to consider actions in the most appropriate areas and scenarios, as well as the local actors and farmers, to evaluate the probability of success of their investments. The research results will be presented into one paper titled “Zone specific adapted management schemes for multi-objective planning of ecosystem services”.

The visit will be supervised by the Assoc Prof. Ioannis Dimitriou, at Swedish University of Agricultural Sciences, Sweden. The whole visit will last 15 working days (excl. travel days) which including assignments of new methodology learning, data retrieving, research ideas discussion, manuscript structure discussion, forests and plantations visits. After the visit, one scientific paper will be written and the Short Term Mobility Grant will be acknowledged in the paper.