



Formation, Recherche
et Environnement
dans la Tshopo



Internship opportunity: Environmental impacts of bioenergy wood production from short rotation forestry

Place: Yangambi, Democratic Republic of the Congo

Research rationale:

Fossil fuels combustion and deforestation are the main contributors to global warming and climate change. With the increase of energy demand and production, the use of biomass for energy presents a major opportunity to address climate change by reducing fossil carbon dioxide emissions and by temporally sequestering carbon in biomass. However, the bioenergy development may potentially cause serious environmental alterations, such as acidification, eutrophication, or land use change. Identifying the main processes causing environmental impacts in the whole production chain of bioenergy production is thus essential to improve management practices and promote the sustainable development of bioenergy systems.

Life-cycle assessment (LCA) is one of the most used techniques to assess environmental impacts associated with all the stages of a product's life. Because LCA is a multistage approach, which covers the full life cycle of a system (i.e.: seedling, site preparation, planting, harvest, transport, heat and power generation, etc.), this method is one of the most promising approaches for evaluating the sustainability of bioenergy systems. In the context of the FORETS project and the future cogeneration power plant installation in Yangambi, an LCA study would identify the main processes causing environmental impacts in the whole production chain. It could also suggest mitigation and compensation measures to prevent, reduce, compensate or remove negative environmental impacts of the project and thereby improve the sustainability of the system.

Research objective: to assess and quantify the potential environmental impacts of bioenergy wood production from short rotation forestry in Yangambi.

Types of activities to be conducted:

(1) bibliographic synthesis; (2) visit of the whole production chain (tree nursery, plantation, infrastructure, future site of implantation, etc.); (3) interview with project experts; (4) system data collection and data analysis; (5) writing and defense of the master thesis.

Facilities: on-site wood laboratory (FORETS project)

Constraints: airplane ticket (Brussels – Kisangani) to be paid by the student (but possibility of financing by applying for an ARES scholarship)

Supervision: Dr. N. Bourland (RMCA/CIFOR/R&SD), Dr. H. Beeckman (RMCA), Prof. W. Achten (ULB)

Complementary scientific support: Ir. M Rousseau (RMCA), Ir. M. Van Hulle (R&SD)

Orientation: Applied research

Insertion into an existing project: FORETS project