Green Case Study

Botnia Pilots Carbon Footprint Measurement Tool

Finland-based Botnia, a leading forest products company and IFC client, has a better handle on the carbon footprint of its Uruguay pulp mill and where it should focus future greening efforts, thanks to calculations using an innovative, do-it-yourself measurement tool, called FICAT. The result of a collaboration between IFC and NCASI, a forest products industry research group, FICAT helps companies identify energy inefficiencies and calculates the extent of their carbon emissions —and the amount of carbon they have succeeded in sequestering—across their entire operation.

What Botnia Learned

Botnia used a beta-version of FICAT—Forest Industries Carbon Assessment Tool—to assess the entire lifecycle of its new one-million-ton eucalyptus pulp mill in Fray Bentos, Western Uruguay, including forestry activities, manufacturing and products. The wood used at the mill comes from the company's newly established eucalyptus plantations.

- Electricity-related emissions at the Uruguay mill are low: Direct emissions and emissions associated with the mill's electricity purchases comprise a small part of the mill's overall footprint, because the company makes use of leading edge, green processes and technologies that produce significantly lower amounts of carbon dioxide than traditional pulping methods. The mill's technologically advanced processes also result in exceedingly high energy efficiencies—and generation of excess bio-energy, which is used in the on-site production of the company's bleaching chemicals.
- The paper-making value chain can be a sustainable business: FICAT calculations revealed a positive CO_2 eq./yr impact across the entire life cycle at the Fray Bentos site, including forestry, pulping, transportation, paper-making and end-of-use, with a sequestration factor of 0.5 tons CO_2 eq./yr per 1 ton of paper produced.
- Tree-planting works: The company's tree planting strategy—on fallow grassland—is making a difference. The yearly amount of CO_2 eq./yr removed from the atmosphere because of the plantations—an estimated 730,000 tons of CO_2 eq./yr—greatly exceeds Botnia's direct emissions and electricity-associated emissions combined, an annual total of 216,000 tons of CO_2 eq./yr. Plantations also avoided 200,000 tons CO_2 eq./yr in emissions of methane from cattle.
- Discarded paper products should not go to landfills: FICAT results reveal that paper products containing Botnia's market pulp can be significant sources of methane if disposed of in landfills. Although it is difficult to know precisely how these products will be disposed, FICAT estimates that these methane emissions could be one million tons CO_2 eq./yr, elevating the importance of continued efforts to keep such materials out of landfills.
- Additional improvements offer strong returns on investment: Potential improvements include improving mill efficiencies, working with transportation providers to find ways to reduce these emissions, and planting more trees.

Why Botnia Participated

"Botnia was interested in evaluating the model to help prioritize development activities in the field of decreasing the CO_2 emissions of pulp production," says company spokesperson Raili Koponen.

Among the unique features of the model, according to Koponen: the capability to assess forestry operations, such as the role of tree planting in sequestering carbon, and the emissions reduction benefit from turning cattle pastures into plantations. Other emissions measurement models lack this capability.

"The results validate a lot of what we have been doing, and will help demonstrate our commitment to environmental stewardship. We plan to use the findings in our marketing, in our strategic decision-making and as we learn more about avoided emissions and the impacts of forestry," Koponen says.

About FICAT

- Easy-to-use, downloadable tool that lets users assess energy efficiency, as well as greenhouse gas and carbon emissions of forest products sector projects, to compare their efforts to those of other companies and to identify potential opportunities for improvements
- Unique model spans the entire life cycle, from forest beginnings through product end-of-life
- Assessment measures emissions and estimates avoided emissions associated with ten separate aspects of operations

IFC and Botnia Partnership

- IFC's $170 million in financing supported construction of the new pulp mill in Uruguay
- The plant meets or exceeds IFC's stringent environmental and social standards in all aspects of operations
- The project represents the largest foreign investment in Uruguay's history
- The mill and related tree plantations bring strong benefits and positive development impact to Uruguay: creating jobs, generating revenues and diversifying the economy

Lessons from Botnia's Experience: Use the Tool

Botnia officials urge other forest products firm to give the tool a try. There are environmental and bottom-line benefits that can result from a FICAT assessment. Participation also contributes to the broader knowledge base on sources of greenhouse gasses and carbon emissions, and on ways to improve energy efficiency and reduce waste.

Download the tool at www.ficatmodel.org

For more information about Forest Industries Carbon Assessment Tools (FICAT), please contact:
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