

# Forest Industry Carbon Assessment Tool

GLOBAL VALUE tool showcase



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 613295

## Introduction

# The GLOBAL VALUE tool showcase series

### **GLOBAL VALUE tool showcases: your guides to using tools**

Understanding a company's impact on sustainable development, and finding ways to manage it best, is not an easy task. With so many tools available, choosing one to invest time in is even more difficult. GLOBAL VALUE tool showcases will make this task easier.

We selected and tested 15 leading tools in different categories to help understand how each of them can help you achieve your assessment goals. Our tool showcases are meant to support you in deciding which tool best fits your company's needs. The tools were tested in collaboration with multinational companies from different sectors to give you practical tips on how to get the most from using each of the showcased tools.

### **Tools for managing impact on the Sustainable Development Goals**

The Sustainable Development Goals (SDGs) are the north star for global development for the next 15 years. Adopted by the United Nations in September 2015, these Goals have been developed in extensive consultation with the business community. For companies across the globe, the SDGs are both a challenge and an opportunity to serve global populations in a manner that is sustainable in the long-term. Each tested tool has also been screened for how many and which SDGs it may help companies tackle.

Find more tool showcases on the [GLOBAL VALUE Toolkit](#).

### **Tool selection**

The tool showcases feature [15 tools](#) that were selected from over 200 tools collected during three years of research in the context of the [GLOBAL VALUE project](#). These tools were shortlisted through an iterative consultation with GLOBAL VALUE consortium experts, who evaluated the strengths and weaknesses, feasibility and usability, methodology and added value of different tools in order to narrow down the list of tools to 15 for testing in an actual company setting.

FICAT was selected for testing, because it offers a sector-specific impact assessment tool for the forest industry.

### **Tool testing process**

The tool showcases are based on the experiences of three GLOBAL VALUE tool testers, who have implemented these tools in collaboration with [three multinational companies](#). The tools were tested with a specific focus on their operations in developing countries, in order to understand how each of them can help companies measure and manage their impacts on global sustainable development. The tool testing assessed each tool's feasibility and usability, user friendliness, content and context, methodology, data required and results provided.

This showcase will guide you through the main benefits and limitations, ease of use, tool adaptability to different geographical and company contexts, scope of value chain and SDG coverage, methodology for assessing impact, and the usefulness of output or results that the tool provides.

An introduction to the

# Forest Industry Carbon Assessment Tool

The Forest Industry Carbon Assessment Tool (FICAT) is a tool for **assessing the carbon footprint of forest-based products or projects over their lifetime**. The carbon footprint is intended to give information on the impacts on climate change of products and production systems over their life cycle. The tool builds on the IPCC (International Panel on Climate Change) and other research on carbon emissions and sequestration in forestry and forest based industries. It is a very **detailed Life Cycle Assessment (LCA) calculation system** for carbon in forestry and forest land, products, manufacturing, transport and other related activities.

FICAT is designed to analyze a "project", which could be the founding of a plantation for wood production, the development of a new product, building new production facilities, etc. The **project is analyzed over its lifetime**, i.e. the running time of manufacturing equipment or the growth cycle of a plantation. The definition of a lifetime is in many cases somewhat arbitrary. The tool assesses the situation before the project and after it. Both these end points are ideal steady state situations.

## At a glance

Web: <http://www.ficatmodel.org/landing/index.html>

Developer: National Council of Air and Stream Improvement (NCASI) in cooperation with the International Finance Corporation (IFC)

NCASI is an independent and non-profit research institute. Its work focuses on environmental and sustainability issues related to forest management and the manufacturing of forest products. The IFC is part of the World Bank Group and is the largest global development institution. Its work exclusively concerns the private sector in developing countries.

Use the FICAT assessment when you want to:

- **assess the carbon footprint of** your company or your products
- use a detailed **Life Cycle Assessment** calculation system for forest based products
- analyse a project over its lifetime

## Features

## What you need to know about the FICAT

This section gives you an overview of the key features of the FICAT. All important information that can help you decide on whether this is the tool for your needs is presented in a condensed format in the table below. For more elaborate information on the [icons](#) and to explore other tools please visit the [GLOBAL VALUE tool navigator](#).

Purpose	Scope	Output	Requirements	Access
 <p>The main purpose of the tool is to support <b>product and process development</b> and to help forest-based companies <b>learn more</b> about their carbon footprint.</p>	 <p>The <b>whole value chain</b> is assessed, including manufacturing emissions, carbon storage impacts, upstream emissions, and end of life effects.</p>	 <p>Results are presented as a table, including the direct and indirect carbon dioxide emissions for each stage of the life cycle.</p>	 <p>Thorough knowledge of the processes and supply chain are required.</p>	 <p>The tool is <b>free</b> to use and is available online after registration.</p>

### What the tool testers say - Overall experience

FICAT is a tool based on rigorous carbon footprint methodology for forest based industries. The impact of carbon flows in forest land, wood, products, waste treatment and recycling are seriously addressed. However, overall, the tool is quite complicated and users need to be experts in the sector.

The tool can be used for general assessment, by using the default parameters, as well as for very specific assessments, by using local input.

### Want to explore other tools?

[GLOBAL VALUE tool navigator](#) features over 220 tools that all screened for the same features as the FICAT.

# Benefits

## Key benefits and added value of the FICAT

### Key benefits you can expect

- **Thoroughness**

The tool facilitates a very thorough assessment of the carbon footprint over the life cycle of forest-based products, taking into account the processes of carbon flow in the forest land, forestry operations, industrial operations and recycling.

- **Guidance**

FICAT is a challenging tool. However, it provides a good set of default parameters for forestry and technology for a coarse assessment. However, for a detailed analysis, these can be replaced by local parameters.

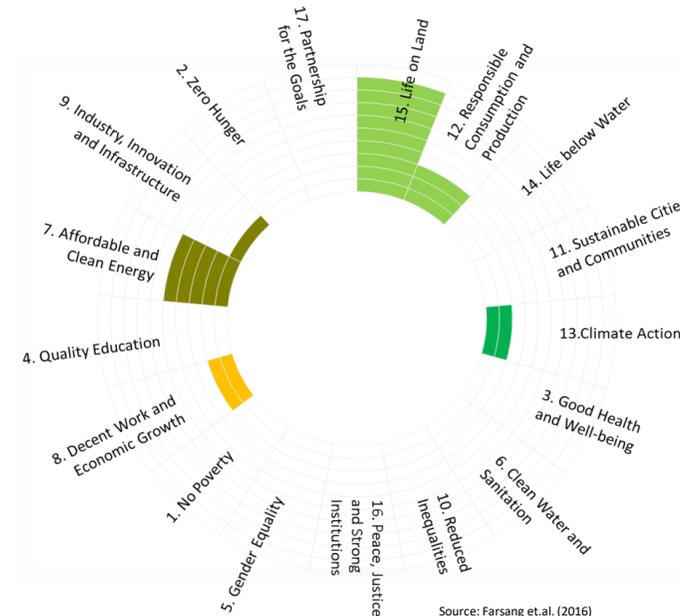
- **Ex-Ante Impact assessment**

Using the FICAT tool provides the possibility to evaluate the impacts of any product or process development, production capacity increase or change in the supply chain before making the actual investment decision.

Learn more about the SDGs and what they mean for your business on the [GLOBAL VALUE Toolkit](#).

### Sustainable Development Goal coverage

The graph below shows the extent to which FICAT addresses the different issues covered by the [Sustainable Development Goals \(SDGs\)](#). Under each SDG, there are a number of different targets that are related to the individual goal. Some SDGs have more targets, while others have fewer. During our testing, we screened the tool to determine how many of the targets the tool covers under each SDG. The graph below is normalised and can tell you not only which SDGs the tool addresses, but also to what extent. The higher the SDG's coloured column, the more targets the tool addresses (read more about the testing process [here](#)).



## How to

## Implementation steps

### **STEP 1: Define the scope of the tool implementation (the project).**

A project that can be assessed by the tools can, for example, be the founding of a forestry plantation, the building of a new production facilities, or the development of a new product. The assessment can also be made for the whole company. The level of detail needed is also a part of scoping. As for any LCA, the unit of analysis is very crucial.

### **STEP 2: Set up a team, roles and tasks.**

In addition to the actual running of the assessment, the team should include people for data collection, knowledge of the project alternatives, etc.

### **STEP 3: Collect data on the various steps of the life cycle.**

Some of the data is available internally in the company, and some of it needs to be collected from databases and various research institutions.

### **STEP 4: Fill in the data first on forestry and product-related aspects.**

The tool is exacting on the order of data input. It expects the user to first fill in the raw material and product data to define the unit of analysis.

### **STEP 5: Fill in the data related to the manufacturing of the product.**

Data required includes, for example, energy-related data of manufacturing.

### **STEP 6: Fill in the data related to distribution, use and end-of-life of the products if you have selected a “cradle-to-grave” focus for your project (instead of a cradle-to-gate focus).**

This includes, for example, transport, converting and recycling data.

### **STEP 7: Assess the reliability of the results by using the uncertainty part of the tool, as well as doing manual sensitivity analysis.**

This can be used for testing the various alternatives of the project.

## Suitability

## Tool testing insights: FICAT for MNCs

### FICAT for Multinational Corporations

FICAT allows for a forest industry company to analyse the greenhouse gas impact (not only CO<sub>2</sub>) of forest product manufacturing facilities and whole company manufacturing emissions, carbon storage impacts, upstream emissions, and end of life effects.

FICAT is suitable for multinational and multi-unit companies, but clearest and most applicable results are achieved for focused projects, as the tool suggests. The carbon footprint assessment methodology allows to broaden the scope to the whole supply chain, which can, in some cases, be located in developing countries.

Learn more about how to use tools for managing your impact on the SDGs on the [GLOBAL VALUE toolkit](#)!

### Ease of use

Usually, the tool implementation requires up to one month. However, if exact local data is generated, more time is needed. The programme can appear a bit complicated, since it is not very self-explanatory. To help users implement it, an offline, as well as an online, guide is available and highly necessary.

Consultants are generally not needed for the implementation of the tool, especially if the default values for forestry can be used. If, however, the data has to be localized, it may be useful to employ a forestry and forest soil expert in the work. The manufacturing part is best known by company-internal experts. Substantial knowledge of forest based industry supply chain conditions and a carbon footprint calculation is required, in order to find and evaluate the data used for the tool.

The FICAT Life Cycle Assessment approach gives a holistic picture of the impacts of products and processes. However, the tool is not always reliable, as the programme crashes easily. Also, the tool is not updated and does not run on Windows 10. It also lacks transparency during the process, for example, it does not always properly show if defaults are entered or which dimensions are used (e.g. is not clear if time is measured in days, months etc.).

## Review

# The FICAT approach to measuring and managing impact

### Managing for global value

All the tools GLOBAL VALUE tested exhibit a different approach to managing a company's impact on sustainable development. Tested approaches include tools that assess a company's management system, monetize sustainability impacts or map impacts and build strategies for mitigating negative impacts and enhancing positive impacts.

In order to capture these differences, and what each of these approaches brings to a company wanting to measure and manage its impacts, each of the tools tested were evaluated against a set of criteria developed by the GLOBAL VALUE consortium. Find out more about the criteria we used [here](#). An online [Expert Crowd](#) of more than 260 experts from a variety of organisations and stakeholder groups globally has also been involved in developing the criteria to ensure that the most important concerns of science, businesses, civil society and policymakers are reflected.

This section will provide insights into the underlying assumptions of how FICAT evaluates the impact of a company using the tool, and the usefulness of the results that the FICAT provides for managing business impacts on sustainable development.

### FICAT approach

FICAT is specifically designed for forest based industries and is targeted for calculations on a single indicator – greenhouse gas emissions. It measures the carbon footprint over the life cycle of forest based products, i.e. it measures the impact of the supply chain (including forestry) and manufacturing on the impact of the company's products to climate change. The tool assesses "a project", i.e. a change in the situation in forest based industries. This can be e.g. starting or stopping certain production, or founding a forest plantation.

The methodology of FICAT is that of a Life Cycle Assessment for greenhouse gas emissions, so called carbon footprint. It takes very seriously the complicated processes happening in forestry operations, including the processes of carbon storage and release in forest soil. In addition, it takes seriously the significant recycling processes of wood fiber based products, the various technologies of landfilling, and their impacts on disposal of organic material, and the eventual storage of carbon in products with long life times such as wood in buildings and furniture.

### FICAT output

The results are given in a summary table and divided for: 1) each stage; 2) direct and indirect carbon impact; and 3) scope 1 (direct), 2 (emissions of purchased electricity), and 3 (other indirect) carbon emissions. Also the CO<sub>2</sub>-emissions derived from biomass combustion are given separately.

## Resources

## Further resources

- FICAT: <http://www.ficatmodel.org/landing/index.html>
- International Finance Corporation (IFC): <http://www.ifc.org/>
- National Council of Air and Stream Improvement (NCASI): <http://www.ncasi.org/>
- Sustainable Development Goals (SDGs): <https://sustainabledevelopment.un.org>
- GLOBAL VALUE Project: <http://www.global-value.eu/toolkit/project/>
- GLOBAL VALUE Toolkit: [www.global-value.eu/toolkit](http://www.global-value.eu/toolkit)
- GLOBAL VALUE Tool Navigator: [www.global-value.eu/navigator](http://www.global-value.eu/navigator)
- GLOBAL VALUE Expert Crowd: [www.global-value.eu/toolkit/expert-crowd](http://www.global-value.eu/toolkit/expert-crowd)
- Farsang, A.; Reisch, L. A.; Temmes, A.; Wiman, A.; Munrat, S. H. A.; Jenkins, A.; Schönherr, N.; Martinuzzi, A. (2016) GLOBAL VALUE Deliverable 4.03. Final Comparative Assessment Report.



Coordinated by



In collaboration with



## Authors

Armi Temmes, Adele Wiman, Andrea Farsang, Norma Schönherr, and Lucia Reisch

Institute for Managing Sustainability  
Vienna University of Economics and Business  
[www.sustainability.eu](http://www.sustainability.eu)

## Impressum & Disclaimer

GLOBAL VALUE is co-funded by the European Union Seventh Framework Programme under grant agreement no 613295. Sole responsibility for the project lies with the participating organisations. The European Commission is not responsible for use that may be made of any material arising from this project.