



BioTrade2020plus

Supporting a Sustainable European Bioenergy Trade Strategy

**Intelligent Energy Europe
IEE/13/577/SI2.675534**

Deliverable 4.3

Design of Biotrade2020plus tool

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The BioTrade2020plus Project

Objectives

The main aim of BioTrade2020plus is to provide guidelines for the development of a **European Bioenergy Trade Strategy for 2020 and beyond** ensuring that imported biomass feedstock is sustainably sourced and used in an efficient way, while avoiding distortion of other (non-energy) markets. This will be accomplished by analyzing the potentials (technical, economical and sustainable) and assessing key sustainability risks of current and future lignocellulosic biomass and bioenergy carriers. Focus will be placed on wood chips, pellets, torrefied biomass and pyrolysis oil from current and potential future major sourcing regions of the world (Canada, US, Russia, Ukraine, Latin America, Asia and Sub-Saharan Africa).

BioTrade2020plus will thus provide support to the use of stable, sustainable, competitively priced and resource-efficient flows of imported biomass feedstock to the EU – a necessary pre-requisite for the development of the bio-based economy in Europe.

In order to achieve this objective close cooperation will be ensured with current international initiatives such as IEA Bioenergy Task 40 on “Sustainable International Bioenergy Trade - Securing Supply and Demand” and European projects such as Biomass Policies, S2BIOM, Biomass Trade Centers, DIA-CORE, and PELLCERT.

Activities

The following main activities are implemented in the framework of the BioTrade2020plus project:

- Assessment of **sustainable potentials of lignocellulosic biomass** in the main sourcing regions outside the EU
- Definition and application of sustainability criteria and indicators
- Analysis of the **main economic and market issues of biomass/bioenergy imports** to the EU from the target regions
- Development of a dedicated and **user friendly web-based GIS-tool** on lignocellulosic biomass resources from target regions
- **Information to European industries** to identify, quantify and mobilize sustainable lignocellulosic biomass resources from export regions
- **Policy advice on long-term strategies** to include sustainable biomass imports in European bioenergy markets
- **Involvement of stakeholders** through consultations and dedicated workshops

More information is available at the BioTrade2020plus website:
www.biotrade2020plus.eu

About this document

This report corresponds to D4.3 – Design of Biotrade2020plus tool. It has been prepared by: Sticing DLO.

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Authors	Berien Elbersen, Igor Staritsky & Gert-Jan Nabuurs
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1. Introduction

WP4 aims at the elaboration of a web-based easy to use interactive tool. The tool should be a “dedicated and user friendly interactive tool based on GIS and an integrated user interface, accessible through a website, compiling all the relevant information and knowledge (e.g. biomass supply, demand and quality requirements, and policies within the EU and elsewhere) compiled in the different work packages of the project.

For the design of this tool the starting points are:

- 1) An evaluation of existing tools for exploring or assessing issues in bioenergy and biomass (see Deliverable 4.1). This evaluation identifies useful elements in functionality and data presentation. Moreover, it helps to determine added value and unique qualities of the BioTrade2020plus tool in comparison to the other tools.
- 2) The results of a user requirements analysis based on interviews held with 50 stakeholders at the 22nd Biomass conference in Hamburg in June 2014(see Deliverable 4.2)
- 3) Specifications from WP 2, 3 & 5 in Biotrade2020plus on methodologies used, data to be collected and requirements for presentation of output data and knowledge in the tool. More particularly input will be required from:
 - a. WP2 on the guidelines to evaluate the biomass resource potentials and their sustainability translated further to the 6 case study regions and the SWOT analysis approach
 - b. WP3 on the output of the analysis of current and future potential and local consumption volumes of (exportable) biomass per case study, identification of on-going and possible future trade routes and delivery cost for the selected biomass potentials at the European port locations. This WP will also provide the costing specification for the biomass up to the main European port locations further specified in road side cost, pre-treatment, short and long distance transport.
 - c. WP 5 which will provide a database with information on policies implemented in and outside the EU in the case study countries affecting the biomass imports into the EU (e.g. export subsidies, export tariffs, import quota, etc.) including specifications on how to present this information in the tool.

This document presents the tool design and how the 3 aspects mentioned above have been taken into account for the design.

2. Design of the BioTrade2020plus tool: requirements analysis

The overall objective of WP4 is to elaborate a web-based easy to use interactive tool that is based on existing biomass supply tools and fully adapted to the main end-user requirements. The interactive tool's main goal is to provide detailed spatially explicit cost-supply information on biomass sources, to assist in the identification of sustainable origins of imported lignocellulosic biomass from the targeted sourcing regions.

The requirements for the tool, which are necessary for the design, are derived from three sources as mentioned already in Chapter 1 and summarised as follows:

1. Evaluation of existing tools (D4.1)
2. Interviews with prospective users of the tool (D 4.2);
3. The project outputs from the different WPs: all project results should be accessible through the tool (Description of Work (DOW) of Biotrade2020plus and the ongoing work in WP2, 3 and 5);

2.1. Requirements specified in the DOW

Already in the description of work (Annex 1 of the Grant Agreement) an initial list of requirements for the tool was specified which will be covered for sure in its development. These requirements include the following:

1. Web-based access via the main user interface;
2. Display of data and information in map and tabular format for a pre-selected territorial area, reference year, current and future scenario situations;
3. Provision of selection and conversion functionality to choose and switch units/currencies, select desired biomass feedstocks, zoom desired areas and perform simple user-weighted analyses of the sustainability of the quantities shown (e.g., tonnes dry mass, tonnes/ha, kJ, in €/tonne d.m., €/GJ);
4. Allow for regional searches, i.e. in the case of selecting the area needed to supply a certain amount of feedstock or determine the amount of feedstock within a defined region or with a seasonal availability. Restricting the search to selected feedstock should be possible. If the data permits competition for feedstock with current use should be accounted for;
5. A download option for selected data in a selectable format for further analysis;
6. The tool will be readily adaptable to future developments, by allowing additional and new data to be added to the system;
7. For expert users functionality to allow for manipulation of basic calculations, enabling these users to address the assumptions underlying the presented data for example in relation to scenario specifications.

2.2. Requirements based on the project outputs

The information collected and the evaluations performed will be done for the six areas outside EU-28 selected under the scope of BioTrade2020plus. These case studies to be covered and for which the tool should facilitate the presentation and interactive use of results by stakeholders are:

- North America: Southeast USA (focus on forest residues)
- South America: Brazil, and Colombia (focus on agricultural residues and dedicated cropping)
- South East Asia: Indonesia (oil palm residues and dedicated crops on marginal lands)
- Eastern Europe: Ukraine (agricultural and forestry residues and dedicated crops);
- Eastern Africa: Kenia (agricultural and forestry residues)

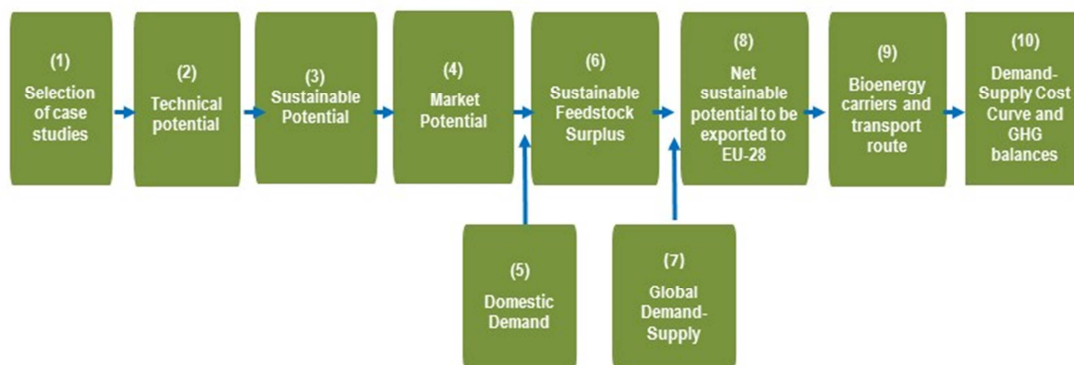
The information elaborated for each case region in WP2, 3 and 5 will also be integrated into the tool. See Table 1 for an overview of what will be included.

Table 1 Overview of input from different WPs to be integrated into the tool

Input from	Description
WP 2 & 5	A general description of the wider political and socio-economic context, overall status of the main sources of non-food biomass present and based on that the key biomass sources selected for further evaluation in Biotrade2020plus.
WP 2 & 3	Quantified overview of the technical and sustainable biomass potential of the most promising biomass resources in every case study countries
WP 2	An overview of local uses of the different biomass flows in focus per case study country and an estimation of the unused biomass flows potentially available for exports to the EU.
WP 2	Sustainability risks per biomass type following a key set of sustainability indicators specific for the case study regions and international sustainability standards specified in international certification schemes applicable to biomass to be used for reaching the Renewable energy targets in different EU countries .
WP 2	A SWOT evaluation method applied to all biomass resources evaluated in every case study country in relation to their suitability to be transported to the EU to be used for reaching the renewable energy targets and for general use in the Bioeconomy sector.
WP 2	Details of the sustainability schemes in place, the criteria covered in the schemes and the biomass trade flows covered by a scheme ;
WP 5	Overview of the regulatory framework implemented in and outside the EU, i.e. in the case study countries, affecting biomass imports into the EU
WP 3	Current and future international trade patterns and market segments of biomass resources and competing uses for non-energy applications and for local uses
WP 3	Key characteristics of the traded biomass particularly in relation to suitability for different conversion/pre-treatment pathways;
WP 3	Support for matching cost-supply of biomass to price-demand patterns. Particularly this involves a detailed specification of the cost of collecting, pre-treating and transporting of the biomass from the case study countries to the large harbours in the EU (Rotterdam, Antwerp and Hamburg). The cost calculation results are to be integrated into the tool as a final result to be presented in cost-supply curves but cost calculation tools used for the calculation of the cost are also to be made accessible through the tool in order to let future users calculate the different types of cost allowing the use of their own input data .

A central approach structuring the work being developed in WP2 and 3 and thus the tool design is visualised in Figure 1. The scheme has been elaborated in WP2 and 3 and specifies the different evaluation steps to be implemented in every case study area to identify the different types of biomass potentials in every region. This includes the sustainable and the exportable biomass potential for which the biomass cost-supply assessment is to be done for the current situation, for 2020 and 2030 taking into account a baseline and an alternative scenario situation

Figure 1 General methodology to assess cost-supply curves of sustainable biomass in selected countries



Source: UU, IINAS, IC (2014)

2.3. Requirements analysis using the results from the interviews with prospective users of the tool

At the 22nd European Biomass Conference held in Hamburg in June 2014, 50 prospective users were interviewed on their information needs and expectations of an online interactive tool. The results of these interviews and conclusions on the requirements for the tool are described in Deliverable 4.2.

A summary of the main outcomes is shown below:

- The main information needs of the interviewees concern biomass resources availability and related topics such as markets, policies, and sustainability; and different types of conversion technologies. Choosing from a number of options, most interviewees expect a tool to offer “detailed spatially explicit cost-supply on biomass sources”. Information on cost-supply was most often wanted by interviewees involved in biomass conversion, collection and other related industry. The focus of the interviewees was on agricultural residues; on Europe (but half of the respondents also need information about other parts of the world) and on information on current and the next 10 to 20 years.
- In general the interviewees said that data must be accurate, up-to-date and maintained after the project time span; data must be well documented and traceable (including assumptions behind them, references, and the methodological approach); and the interface must be user-friendly. Examples of expectations of a tool, expressed by the interviewees are: “Up-to-date information on biomass cost-supply at local level”; “Biomass availability, characteristics, prices, exact location. Accurate enough to build a business case with”; “Detailed company information

related to the technologies the companies work with and the markets they operate in”; and “Sustainability criteria, biomass policy on EU level”.

Only few interviewees at the moment use online interactive tools for their information needs on biomass which implies that the tool developed in Biotrade2020plus needs to be promoted well in wider fora and the use of the tool should be made attractive and simple.

2.4. Requirements resulting from the evaluation of online tools on biomass

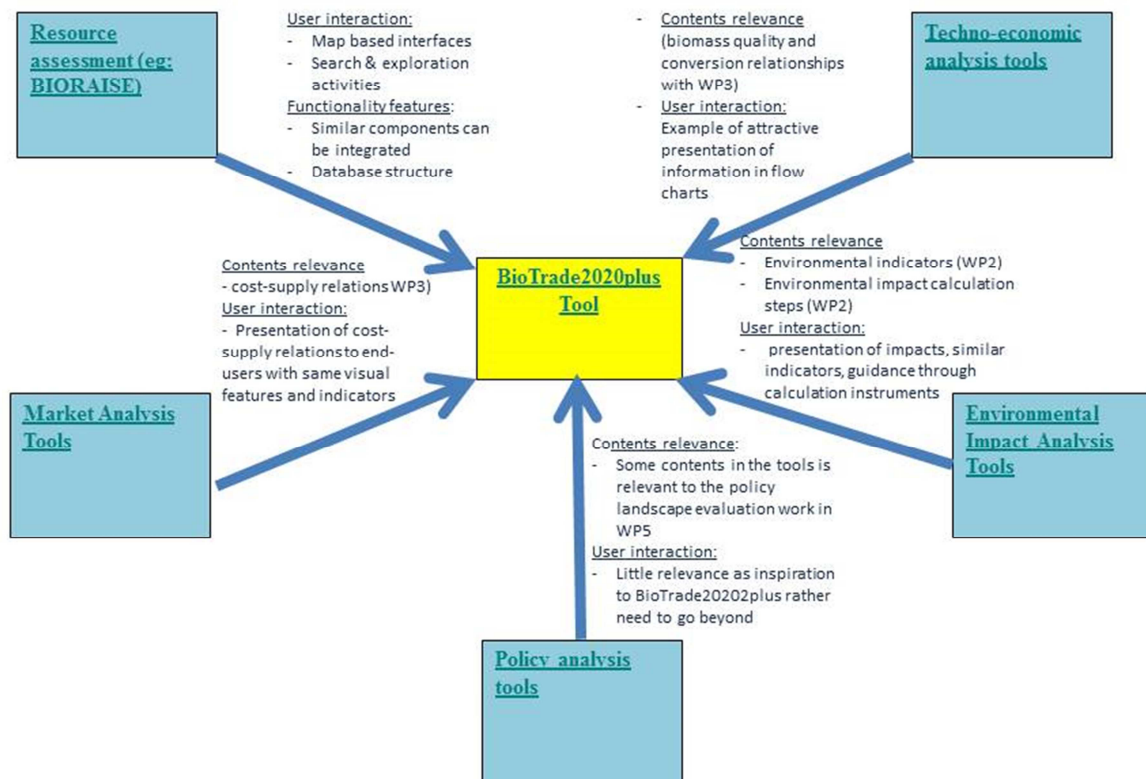
An evaluation of existing tools that make information on biomass particularly for energy purposes was done as part of the project and was presented in Deliverable 4.1.

The main outcomes of this inventory relevant for the design of the Biotrade2020plus tool are the following:

The BioTrade2020plus tool will need to offer a combination of content and functionality found in 4 categories of tools discussed in Deliverable 4.1:

1. Resource assessment tools;
2. Market analysis tools, especially
3. Environmental impact analysis tools and
4. Policy analysis tools. This is schematically specified in figure 2 and explained underneath.

Figure 2 Types of existing tools and way in which they can be used as inspiration for the development of the BioTrade2020plus tool



The resource assessment tools such as BIORAISE¹, are mostly map based, appropriate for the type of information the tools offer, and for the search and exploration activities of users. *Map based interfaces generally allow users to zoom in to and select regions, and sometimes to conduct analyses on the data for selected regions. These functionalities will also be incorporated in the Biotrade2020plus tool.*

The market analysis tools² are generally not geographically oriented but guide the users through a number of steps and provide information on each step on market relations and responses. They cover market aspects on cost-supply relations which are to be integrated into the tool, and will be elaborated in work package 3 of this project. *The main relevance of these tools for the development of the BioTrade2020plus tool is on the contents and the presentation of cost-supply relations. Extra effort will be made to make the presentation simple and interpretable for non-expert users and will be accompanied with a clear description and interpretation of the results.*

The techno-economic analysis tools evaluated are limited as few of these are already available on-line. Their focus is on the technological conversion processes for biomass. *It is exactly this part of the chain that is not addressed very deeply in BioTrade2020 plus. These tools can therefore only provide limited input on contents, except for information that focusses on the suitability of pre-treated biomass for specific conversion processes which is relevant information to be shared with end-users to support them in finding best matches between imported biomass and conversion requirements by providing clear characteristics of the imported biomass in terms of composition and cost levels at the entrance harbours of the EU (i.e. ARA (Amsterdam, Rotterdam, Antwerp)).*

The environmental impact analysis tools evaluated typically include calculation instruments so users can make an assessment of their plans in an exploratory phase; however they differ considerably in complexity and presentation. *The link between the BioTrade2020plus tool and these environmental impact analysis tools is especially on the level of the contents in relation to the environmental impact analysis and indicators. The latter are specifically addressed in WP2 of this project. WP2 of this project may use the indicators and calculation instruments of these existing tools as inspiration for the selection of indicators and calculation knowledge rules to be implemented in the BioTrade2020plus tool. However in the BioTrade2020plus tool the focus will not only be on environmental indicators but also other sustainability indicators focussing on social and economic performance. Also the way the interaction with the end-user of these environmental assessment tools in relation to presentation of environmental risk analysis and impact analysis assessments and results can be an example for the design of the BioTrade2020plus tool.*

The policy analysis tools that are currently accessible online, guide users through policy issues presenting descriptive documents. Other, more interactive techniques will be considered for enhancing the accessibility of the information on policies now collected and analyzed in work package 5. The design for this component will be developed in cooperation with WP5, but so far the tools available in this field seem to only providing access to documents and provide limited interactive exchange with the users. In that respect they are not very inspirational to the design of the BioTrade2020plus tool, but are actually useful as a benchmark for this project showing that support to policy makers can go beyond what is done so far in existing tools. *BioTrade2020plus should be able to provide more ready to use information to end-*

¹ See Deliverable 4.1 for a further explanation and reference to the BIORAISE tool

² See Deliverable 4.1 for further explanation and examples of these type of tools

users enabling to identify directly which policy stimulation measures and regulations are most relevant when importing biomass from outside the EU to the EU both in terms of opportunities and threats. The policy information gathered in WP5 will need to be linked to biomass types and full conversion pathways. The tools identified in this category so far do not provide this targeted interaction.

Finally the following general observations were made on the use, content and functionality of the analyzed tools which could be considered in the design and implementation of the Biotrade2020plus tool:

- **A recommendation for the BioTrade2020plus tool is to communicate clearly on the home page/landing page the target users for whom the tool is developed, and the type of information needs the data may meet. The tool should include a mechanism to collect data on the use of the tool, the type of users and evaluation of its effectiveness by users.**
- **The aim of the BioTrade2020plus project is to communicate research data to interested stakeholders and is not set up to deliver a participatory tool. However, a recommendation for the BioTrade2020plus tool is to consider this trend during the design and development phase and where possible allow users at least to comment on the data.**
- **A recommendation for the BioTrade2020plus tool is to indicate clearly for every data set the collection date, and the frequency of updates.**

Because most of the data provided by the tools have a geographic relation or component, the interface often includes a clickable map. Maps are easy to understand and use, and allow users to quickly find data relevant for their purpose. The maps in the tools often allow users to query the data and explore the outcomes in tables as well as on the map.

- **A map based interface will be a useful presentation technique for most of the expected users of the BioTrade2020plus tool.**

Some tools offer not only data but also calculation tools. These may help users for preliminary assessments when they consider setting up business. However, it is not always obvious how accurate and reliable the outcomes are.

- **If calculation tools are offered, users must be informed of the accuracy and reliability of the outcomes.**

Most tools offer information on specific regions but not on a global scale. The Biomass Geo-Wiki platform is an exception because it is aimed at global coverage. Also, most tools provide understanding and support in setting up biomass delivery chains by addressing and facilitating only one or a few of the many aspects that need to be taken into account (Elbersen et al., 2014).

There is a need for tools that support both 1. the design of a biomass delivery chain and 2. the assessment of the biomass delivery chain impacts in terms of environmental and economic implications on a global scale. **The BioTrade2020plus tool will address this need by providing information in one single tool on biomass availability, sustainability issues and economic aspects of the supply chain.**

3. Design of the Biotrade2020 plus integrative tool

3.1. General User Interface

The general user interface shows the menu according to which the end-users enter into the tool through the internet. It is the key organizing structure guiding the user through the tool. For the tool construction it is one of the first aspects to be designed. This design is presented underneath (Figure 3).

Figure 3 Overview of General User Interface (GUI) of Biotrade2020plus tool



Basically the GUI structure follows the logic of the key project outputs delivered by the different WPs in the project and the figure 1 in Chapter 2. When the user enters the tool through the GUI the first message that is shown is a ¼ page long explanation on:

- 1) The overall aim of the Biotrade2020plus project and the aim of the tool developed
- 2) The target users for whom the tool is developed
- 3) The type of information needs the data may meet.

Users can enter the tool components through 6 ‘buttons’ shown in Figure 3 above.

In the menu button ‘**Country profiles**’ access is given to two main issues:

- 1) Per case study country information on the wider political and socio-economic context, overall status of the main sources of non-food biomass present and based on that the key biomass sources selected for further evaluation under the ‘potentials’ item. Most information provided is elaborated in WP2 and is included in country reports, that are accessible and downloadable under this item, but more importantly the user will also be presented with a one table (covering one page) summary overview per case study country presented the key issues influencing biomass availability, accessibility and sustainability.
- 2) For all case study countries an excel based tool will provide information on the regulatory framework influencing the production, harvesting, use and export of biomass, but also the regulations from the EU countries regulating imports to the EU and the main standardization and certification schemes adopted in every country per type of biomass. The regulatory framework data included will cover all relevant laws and also strategies accessible by the user of the tool from different perspectives, e.g. per sector, per country, per type of biomass, stimulation measure, or legally binding regulation, certification scheme etc. The database will provide the user to make user defined queries and download information from.

The **scenario information** button in the menu (see Figure 3) gives informative information on the scenarios and their parameterization details guiding the analysis of the exportable biomass cost supply for three timelines: current situation (2015), short term (2020) and medium term (2030). Two scenarios will be applied in the project to assess the exportable potential and the related biomass cost supply. Underneath the scenarios are described in general terms but in the tool the translation of these scenarios in parameters is presented that directly influence on the biomass supply and cost.

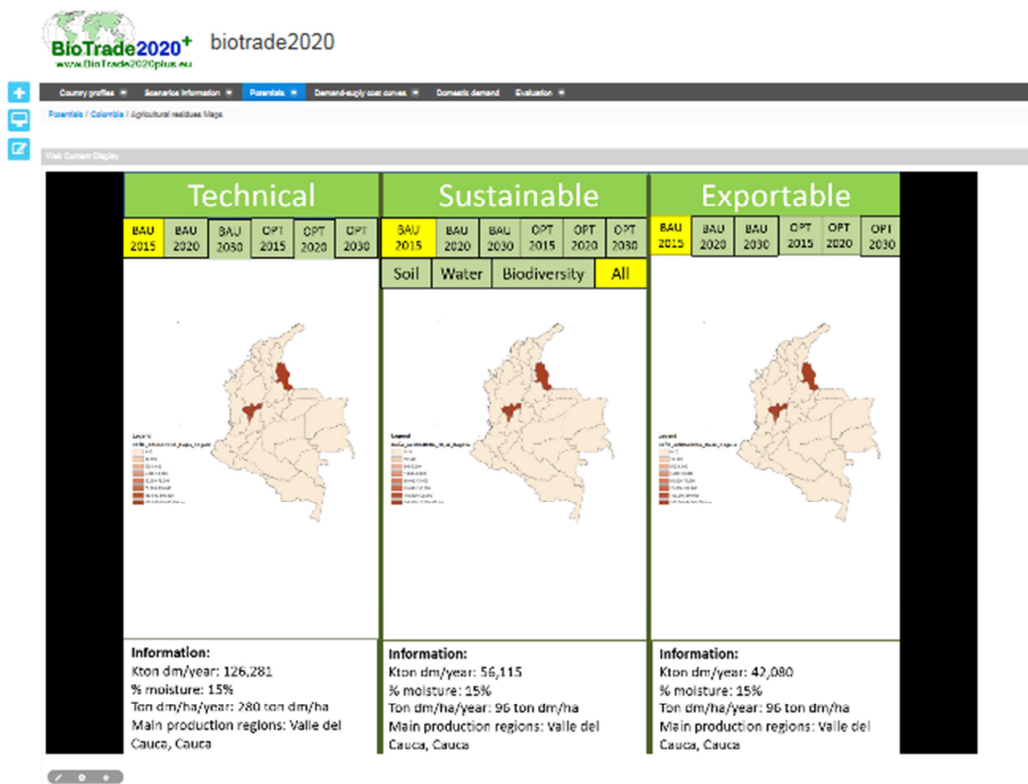
Scenarios	Outline
BAU	The business-as-usual scenario reflects biomass production and consumption at national levels at current pace and builds on current and expected policies which are already come into effect in the EU, the sourcing regions and possible other world regions on e.g. energy, climate and environmental targets
Optimistic Scenario	The Optimistic Scenario will explore options under which larger volumes of sustainably produced biomass might become available for export. These may include an assessment of the possibilities to increase the yield of both dedicated biomass production for energy and agricultural yields in general, effective land management and subsequent additional land availability for biomass production; it also envisages more vigorous policy developments in energy, climate and environment sectors. The optimistic scenario will build amongst other inputs on a scenario presented in the World Energy Outlook 2012 and 2013 that sets out an energy pathway consistent with the goal of limiting the global increase in temperature to 2°C by limiting concentration of greenhouse gases in the atmosphere to around 450 parts per million of CO ₂ . This optimistic scenario considers that pathway and describes ambitious targets of both supply and demand regions in their related policies.

Under the '**Potentials**' button the users will be able to choose their focus region and for that region obtain information on the different types of potentials, selected by the user, for the key biomass sources identified in the case regions (see example in Figure 4). It provides a map based view, but users can also shift to a table format view. Different types of biomass potentials data generated in the project are to be viewed in the viewing tool which enables easy viewing and further analysis capabilities for data on biomass supply at different spatial resolution levels (regional scales), between different types of potentials and time periods.

For the exportable biomass potentials the user can also obtain the cost-supply information for the selected biomass quantities available in a selected time period and scenario situation below a certain price level. The tool will enable viewing and also downloading data on supply making sub-selections in terms of specific price/cost ranges and a combination of biomass categories. Simple analysis for selecting specific biomass potentials within a selection of regions should also be made possible.

Taking over the recommendation of the stakeholder analysis is very important in this respect as the tool will provide with every map view and table data view a clear meta information describing exactly the source data used, the key parameters determining the potential and a reference to a Biotrade2020plus report from where all assessment details and source data can be obtained. This report should also be available through the tool and downloadable under the button '**Country reports**'.

Figure 4 Biomass potentials map based viewer and downloading tool



Under the button ‘**Demand supply cost curves**’ the data generated in WP3 is interactively presented in cost-supply curves for different types of biomass, pretreated bioenergy carriers (e.g. different types of pellets, pyrolysis oil) and for different scenarios. The data is presented in cost curves, but can also be accessed in table format which can also be downloaded.

An additional functionality is also to be built-in and made accessible under this button and that is the access to the excel based calculation tools for the costing of the biomass. The cost calculation is to be made in 3 different steps:

- 1) A model for the cost of production, harvesting and forwarding of the biomass to the road side or farm gate of the location where it is produced. In the case of residues the production cost are set on 0.
- 2) A model for the calculation of local pre-treatment and short distance transport cost.
- 3) A model for the calculation of the long distance cost to bring the pre-treated biomass to the harbour location from where it can be shipped to Europe.
- 4) A model for long distance shipping of the biomass to Europe.

The user can evaluate the calculation steps in the models made in de project. The user should also be able to use the models for making his/her own calculations using own input data.

Under the button ‘**Domestic demand**’ the user obtains a qualitative and quantitative overview of the local biomass chains and uses for the current situation and for the future for the 2 scenario situations central in the project. The effect of the different levels of the domestic demand is shown on the exportable biomass potential.

Under the final button ‘**Evaluation**’ the evaluation of the different exportable biomass potentials identified in every case study country is made accessible. There are 3 types of evaluation activities the user can enter and derive information on interactively:

- 1) Sustainability evaluation of the exportable potentials according to the evaluation framework designed in WP2. The users are able to obtain a full overview of the application of the framework to the different biomass delivery chains from production and/or harvest to delivery in one of the large ports of Europe. The results of the evaluation will be presented per indicator per chain pre-selected by the user. A reference is given to the report (section) from where the background information on the evaluation can be downloaded per indicator and per chain. The option will also be built in to compare the evaluation of different chains for all indicators or a selection of indicators
- 2) A strength, weakness, opportunity and threat analysis (SWOT) is made accessible for the user per chain pre-selected by the user. The user gets direct access to the default SWOT analysis results per chains elaborated in the project, but the user also gets the option to further elaborate the SWOT analysis with his/her own information. If the user wants this he is guided in making a further SWOT analysis. The user defined analysis can then be downloaded but will not remain accessible for other users.

3.2. SWOT analysis

The users of the tool are provided with the possibility to add arguments to the SWOT analysis if preferred in order to allow for new or changed viewpoints.

The starting point for the SWOT is as follows:

- A SWOT is to be done per feedstock-case study combination.
- Scenarios to be developed in the project guide the SWOT. This implies that the Business as Usual scenario application to the case study (BAU) is guiding especially for the formulation of the strength and weaknesses and the alternative (optimistic) scenario helps to formulate the opportunities and threats.
- The SWOT should be defined from the EU perspective mainly as the focus in the project is on finding sustainably available biomass potentials from overseas to source the EU for reaching bioenergy targets and other bioeconomy ambitions.

Every SWOT will cover the following items:

- 1) Biomass availability/amount. Absolute quantities of biomass making it worthwhile to be shipped to Europe should be large enough to put the positive effects of economies of scale in place.
- 2) Biomass mobilization and security of supply. A crucial aspect to be covered well in the SWOT is the aspect of likeliness that the biomass can be mobilized and that secure of biomass can be guaranteed to be available for exports over a longer period of time.
- 3) Cost of biomass in the European harbour. The interest of parties to import biomass to the EU will depend strongly on the cost to be made and the related price at which it can be sourced in one of the larger harbours in Europe. This cost-price will need to be lower than the price of EU biomass of similar quality³, otherwise there is no reason to import it.

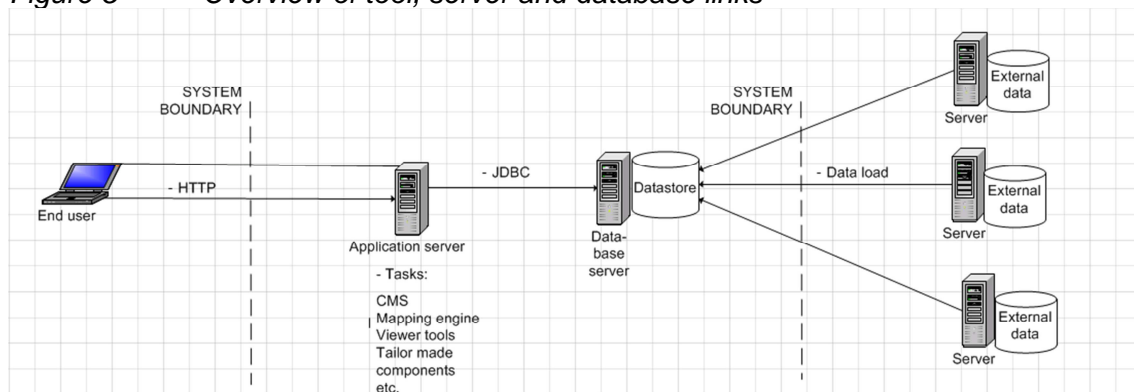
³ Imported wood pellet are more expensive than local wood chips, but wood chips cannot be co-fired as easily as pellets..

- 4) Environmental sustainability
- 5) Social sustainability
- 6) Governance and regulatory framework
- 7) Integration: evaluation over the whole line of relevant SWOTs.

3.3. Technical implementation

The technical implementation of the tool is technically organized according to the scheme presented in Figure 5.

Figure 5 Overview of tool, server and database links



The tool is developed for a windows operating system.

The database containing all data generated by the project to be integrated into the tool is designed with PostgreSQL and PostGIS. The application server will run on Tomcat software. The CMS (Content Management System) will run on Liferay software. Finally the mapping software in the tool to be used is GeoServer.

4 Implementation of the tool development

The development phase consists of a frequent iteration of development and feedback allowing the stakeholders and consortium to steer product development, and do practical tests. A software development team at Alterra has started the tool development already.

In month 4, a first stakeholder requirement analysis was done for the tool of which the results are presented in D4.2 and have been taken into account in the design of the tool.

During the development of the tool there will be further moments of collection of feedback from end-users. This feedback is organised in WP6. These consultations will be organised in such a way that the end-users first test the tool via an internet application. After the testing they are presented with a list of questions to collect their feedback. In addition all users of the tool will always be presented with an evaluation form to be filled in before they end their use session.

In this way an evaluation of the tool will be continuous.

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6 BioTrade2020plus Consortium

CENER – National Renewable Energy Centre, Biomass Department, Spain

Project Coordinator BioTrade2020plus

Contact persons: David Sánchez González & Inés del Campo Colmenar

Imperial – Imperial College London, Centre for Environmental Policy, United Kingdom

Contact persons: Dr Rocio Diaz-Chavez

DLO – Alterra, Wageningen University and Research, The Netherlands

Contact persons: Dr Gert-Jan Nabuurs & Dr Berien Elbersen & Dr Wolter Elbersen

IINAS – International Institute for Sustainability Analysis and Strategy GmbH, Germany

Contact person: Leire Iriarte & Uwe Fritsche

VITO - Flemish Institute for Technological Research, Belgium

Contact persons: Luc Pelkmans

UU - Utrecht University, Faculty of Geosciences, Energy & Resources, Copernicus Institute of Sustainable Development, The Netherlands

Contact persons: Dr Martin Junginger & Thuy Mai-Moulin

WIP- WIP Renewable Energies, Germany

Contact persons: Dr Rainer Janssen & Dominik Rutz

