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CELISE Mid-Term meeting

WP2: Social business model tools

*Alberto Coz, alberto.coz@unican.es
Universidad de Cantabria – UC*

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Index

- Objectives
- Tasks and secondments done
- Deliverables, Milestones and deadlines
- Future work



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Objectives

- Transfer of knowledge about
 - (i) stakeholder needs and smart territories in rural and SMEs in relation to biomass processing
 - (ii) use of mathematical tools for modelling and simulating small biorefineries
 - (iii) design of intelligent communities and automisation of biomass processing in rural areas and SMEs
 - (iv) life cycle assessment tool for making decision about new business models in biorefinery.
- Create knowledge about
 - (i) new algorithms in smart communities for using biorefineries in rural areas
 - (ii) new business models of biorefineries and new portable pieces of equipment in rural areas
 - (iii) and new mathematical models by artificial neural network analysis in biorefinery.
- Skill development for choosing the best processing steps in biorefinery.



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Tasks and secondments done

- **Task 2.1. Stakeholder needs, business model creation and automisation. (Leading by UCC) M10-M23**

Secondments related to this task:

Juliana Benavides from UCC to UC

Carlos Burgos from UNACH to UC

Kim Standfield from VoCATE to UCC



Summary of tasks:

- To contribute in the development of best business models in the rural and vulnerable areas taking into account the results in rural and vulnerable communities worldview. In this case, the contribution was by the study of the producers and business models in rural areas, considering coffee and cocoa products and residues.
- Multi-Criteria Analysis tools to take into account the techno-economic, environmental and social issues in rural areas
- Skills of a rural business micro-company (Besarte Fibre Natural)
- 2 papers in collaboration



Tasks and secondments done

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- Task 2.2. Simulation and optimisation of the processes (Leading by UC) **M13-M35**

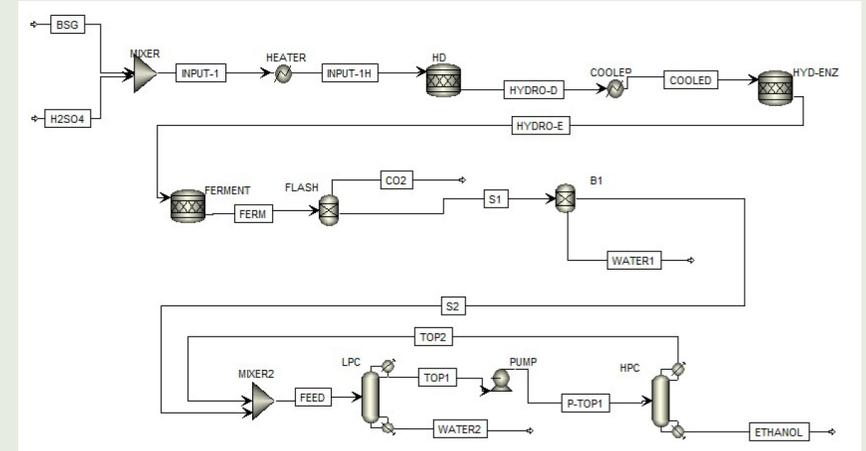
Secondments related to this task:

Rodrigo Leonardi from FICH-UNL to UC

Tamara Llano from UC to FICH-UNL

Summary of tasks:

- Simulation of the production of bioethanol from spent brewery by Aspen Plus
- Simulation of the use of soya residues by Aspen Plus
- 2 papers in collaboration





Tasks and secondments done

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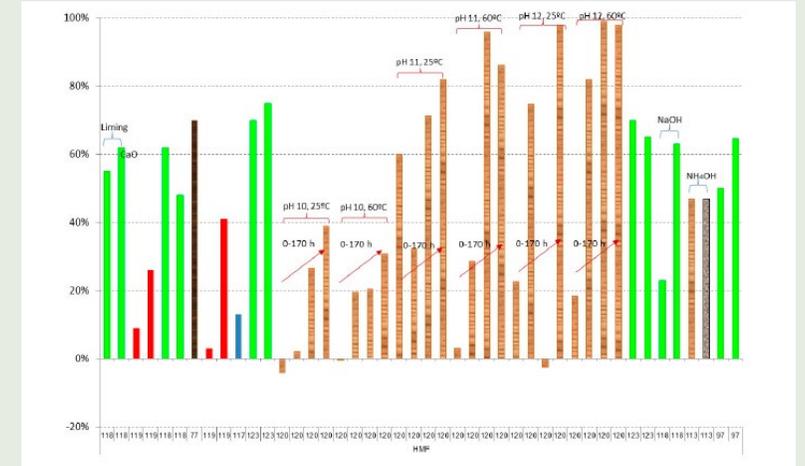
- Task 2.3. Artificial neural network (Leading by UPM) M15-M37

Secondments related to this task:

Rodrigo Leonardi from FICH-UNL to UPM

Summary of tasks:

- Artificial Neural Network tools for woody materials
- Artificial Neural Network tools for selecting the best pre-treatment and detoxification processes for fermenting purposes (with the collaboration of UC)
- 1 paper in collaboration





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Tasks and secondments done

- **Task 2.4. Life Cycle Assessment (Leading by NIBIO) M21-M41**

Secondments related to this task:

Oskars Bikovens from LS-IWC at UCC

Summary of tasks:

- Discussion with Paola Acevedo and training about LCA (Aspen+) using in UCC
 - AUTH is working in LCA. Use of life cycle assessment methodology using SimaPro in small biorefineries. Case (previous) Study: Lignin (catalytic) fast pyrolysis for the production of High-Value Added Chemicals
-
- **Task 2.5. Smart territories information management (Leading by UCC) M22-M44**
 - Tasks related to the use of pyrolysis processes for cocoa residues in rural areas (UCC, TWI and other institutions)
 - **Task 2.6. Design of portable pieces of equipment (Leading by TWI) M41-M46**
 - TWI is really interested in starting the ideas of this task



Deliverables, Milestones and deadlines

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Number	Title	Beneficiary	Type	Dissemination level	Deadline
D2.1	Business models and needs for SMEs and rural areas in cellulose-based products	UC	Report	Public	M23
D2.2	Mathematical tools in small biorefineries: artificial neural network models, simulation and optimisation, and LCA	NIBIO	Report	Public	M41
D2.3	Smart systems in small biorefineries	UC	Report	Public	M44

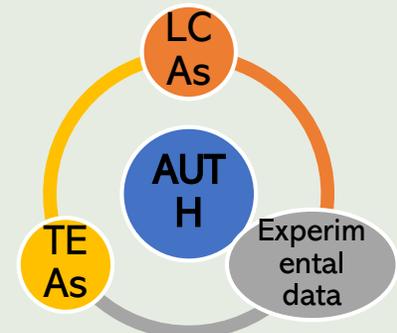
Number	Title	Beneficiary	Deadline
MS2	Best business models in SMEs and rural areas	UC	M41
MS3	Preliminary design of portable pieces of equipment for biomass processing	TWI	M46



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Future work

- Completion of deliverable D1.2. Business models and needs for SMEs and rural areas in cellulose-based products
- Working on the simulation and optimization of the processes (Leading by UC)
- Smart territories information management (Leading by UCC)
- Design of portable pieces of equipment (Leading by TWI) – **steps and decide what kind of equipment**
- Working on the LCA analysis (Leading by AUTH)
 - Taking into account the experimental data of the rest of partners and the techno-economic results.
- Increase the open access publications for next year





Future work

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- **Next secondments in this WP:**
 - UC to Ecoresources, UNACH, and VoCATE
 - UPM to Latitud and UNACH
 - LSIWC to UCC
 - WUT to Ecoresources
 - BANGOR to UCC
 - AUTH to UCC
 - Ecoresources to UC
 - UCC to WUT and UC
 - FICH-UNL to UC