LIFE Eco Timber Cell

Plan After LIFE EcoTimberCell

With the contribution of the LIFE financial instrument of the European Union

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Content

Executive summary

The After-LIFE Plan is the planning document for the actions that will take place after the end of the LIFE EcoTimberCell project.

The objective of the plan is to set out the lines for the continuation of the work on LIFE EcoTimberCell to achieve sustainability, replicability and successful transferability of the project and to multiply the impact of the solutions generated in LIFE EcoTimberCell.

In addition to the above, the plan also envisages the dissemination of the project results and the progress of EcoTimberCell during the After LIFE period of 5 years.

Results and conclusions

The plan sets out how partners and associates will contribute in different aspects:

- In the dissemination and communication of project results.
- In the implementation of the project results.
- In fostering the application of the results by other entities.

It also sets out a monitoring scheme for the plan and an economic estimate of its cost.

LIFE EcoTimberCell

LIFE EcoTimberCell is a Close to market Pilot Project within the priority area Climate Change Mitigation for the reduction of greenhouse gas emissions that focuses on the EU policy priority Land Use, Land Use Change and Forestry (LULUCF).

According to Directive 2012/27/EU, action on building processes is imperative to achieve the target of reducing greenhouse gas emissions by 80% to 95% by 2050 compared to 1990. As buildings account for 40% of final energy consumption in the EU, reducing their energy consumption is seen as the most effective way to help mitigate climate change. LIFE EcoTimberCell addresses this challenge along three lines:

- Development of building products with a negative CO2 footprint from local timber.
- Promoting construction with systems based on these products, which facilitate economical envelopes and ensure low energy demand.
- Minimising the energy cost of the treatment of materials at the end of the building's useful life, reducing waste.

The construction of houses with this system will increase the demand for certified local wood, which will boost sustainable forest management and the creation of local green jobs, fixing population in rural areas.

LIFE EcoTimberCell will replace products derived from energy-intensive industries such as concrete and steel in buildings. It is an innovative solution for the manufacture of low-carbon building elements, which also involves long-term carbon sequestration with sustainable materials through EcoTimberCell (ETC) systems.

The ETC systems developed in the project are based on certified local wood, obtained from the forests of the Galicia-North Portugal Euroregion with high forestry potential.

Main achievements and results

The following is a summary of the achievements and results of the LIFE EcoTimberCell project. Further details of these and other work carried out in the project can be found on the LIFE EcoTimberCell website (life-ecotimbercell.eu).

- Creation of the EcoTimberCell and EcoTimberCell+ cell, the ETC Box, ETC Frame and ETC Home modules for sustainable timber construction. Including CE marking of products. EcoTimberCell.
    - Reduction of the use of artificial binders by up to 76% (EcoTimberCell vs. cross-laminated timber).
    - Minimal use of wood in structural elements: up to 50% reduction of wood (EcoTimberCell vs solid wood beam) with the same mechanical capacity.
    - Energy efficient envelopes
    - Application of numerical calculation methods for product development and validation of the evaluation of structural elements with non-destructive methods saving time and use of wood for product development.
    - Reduction of the CO2 footprint in construction and use of local wood from sustainable forest management.
- Valorisation of forestry waste for structural elements in building with a long useful life.
    - Improvement of the performance of Tablex ecological fibreboard and demonstration of its usability in structural elements for construction.
    - Characterisation of Tablex ecological fibreboard
- Promotion of construction with local wood.
    - Elaboration of a guide for the supply and characterisation of structural wood and characterisation of local wood for structural use.
    - Promotion of the use of durable CO2 storage products, instead of energy use, for wood with little market value.
- Promotion of sustainable forest management and the use of certified timber. Valorisation of ecosystem services of certified forest stands.
- Creation of the spin-off TimberSoul by Cándido Hermida for the manufacture and marketing of EcoTimberCell and the development of wooden buildings.

After LIFE EcoTimberCell Plan

The After-LIFE Plan is structured in 3 lines of action oriented to enhance the results of the LIFE EcoTimberCell project in the next 5 years, which is the duration established for this plan.

Dissemination and communication of LIFE EcoTimberCell results

The dissemination and communication of the LIFE EcoTimberCell project and its results has been a constant throughout its duration. This dissemination aimed at different profiles identified in the project's communication plan has been relevant to form alliances, collaborations with other entities and projects, helping their replicability, transferability or improvement of the project, as well as the promotion of construction with local wood and sustainable forest management.

To this end, the following activities are formulated in this line of action of the After LIFE EcoTimberCell Plan:

Description	Participating entity
Dissemination of results at fairs, events, forums, congresses, workshops, seminars, universities, training centres, etc. in the forestry, wood and construction sectors. Reference events: BBC Construmat, Rebuild, Oviedo Urban Planning and Construction Forum, III Meeting of the Timber Sector for Sustainable Construction, Master's Degree in Construction Engineering UPV, etc.	USC, Betanzos HB, CETEMAS, ITeC, 3edata, TimberSoul by Cándido Hermida
Communication with companies in the construction sector (architectural firms, developers, professional associations, etc.).	TimberSoul by Cándido Hermida, Betanzos HB
Organising training sessions on construction and wood engineering.	USC TimberSoul by Cándido Hermida
Dissemination through the partners' media, own web networks and the LIFE EcoTimberCell project website and its social networks. Reference publications: LIFE EcoTimberCell Web, ETA EcoTimberCell and ETC Box, Certificate of Performance Record	USC, Betanzos HB, CETEMAS, ITeC, 3edata, TimberSoul by Cándido Hermida

New dissemination materials (brochures, catalogues, documentation, etc.) will be produced, as well as those already generated during the LIFE EcoTimberCell project, such as the EcoTimberCell product display model, the scale model of the construction section of an ETC Home integrated with other LIFE project products (LIFE HeroTile, LIFE Wood or LIFE Biopaint).

It is also planned to set up a stand made with ETC elements and to bring samples and models of the different EcoTimberCell solutions and information brochures on EcoTimberCell products.

The dissemination and communication of the project results will be carried out through the own resources of the different partners, providing their own staff, travel costs and registration fees for events, as well as expenses derived from the production of new materials. Likewise, the cost of maintaining the website and updating news will be carried out by the project coordinator during these 5 years.

Implementation of LIFE EcoTimberCell results

LIFE EcoTimberCell is a Close to Market project, so the line of action of the After-LIFE Plan linked to the application of the project results is very relevant. To this end, the spin-off generated in the project takes on a special role, as it is responsible for marketing and manufacturing the products of the EcoTimberCell family. However, the other participants in the project have a role to play in the application of the results, since in addition to the development of products of the EcoTimberCell family, there are other relevant project results that will continue to be applied after the end of the project.

TimberSoul by Cándido Hermida

- Become manufacturers of EcoTimberCell products and the ETC Home housing line.
    - Generate the EcoTimberCell family products factory and progressively optimise the manufacturing process.
- Commercialisation of the EcoTimberCell family of products and optimisation of the manufacturing process.
- Adapting the ETE (European Technical Assessment) of products with CE marking to the facilities and improvements generated in the new factory.
- Obtaining the Environmental Product Declaration for the products of the EcoTimberCell family, including the Life Cycle Analysis.
- Analysing the incorporation of new species in the EcoTimberCell product family
- Development and improvement of documentation and services associated with EcoTimberCell, with new digital tools.
- Generate EcoTimberCell sub-licences.

- Extension of the EcoTimberCell patent to other EU countries.

Universidade de Santiago de Compostela

Within the functions of the USC as an entity that promotes R&D and technology transfer to society:

- Support and advice to TimberSoul by Cándida Hermida in future developments linked to EcoTimberCell, such as the development of an EcoTimberCell element mixed with concrete.
- Development of structural wood products for building (wood from sustainable forest management and proximity to the end use).
    - Development of laminated poplar, poplar-pine and mixed wood-concrete beams, as part of the LIFE Wood for Future project.
    - Incorporation of poplar wood in EcoTimberCell elements.
    - Determination of the quality of wood by non-destructive methods.
- Application analysis of products of the EcoTimberCell family in use class 2 (*timber element is under cover and not exposed to weathering, but high humidity may occasionally occur*)

Betanzos HB

- Promote the entry of Tablex board in the structural elements market, supported by its use in the EcoTimberCell product family.
- Continue the improvement of Tablex board in terms of resistance to humidity, fire and outdoor applications.
    - Possibility of using acetylated fibre.
- Study the use of water-repellent Tablex as an under-roof material, to be certified under the EN 14964 standard (Rigid under-roof panels for discontinuous laying roofs and decks).
- Proposal for a sandwich panel with fibre bonded with bioadhesive derived from the project work.
- Tests of wood fibre as injectable insulation derived from the search for wood-based insulation.
- Proposed use of bioadhesive for decorative panel coating and for multilayer Tablex.
- Search for ecological finishes for Tablex.
- EcoTimberCell Sublicences.
- Support to TimberSoul by Cándido Hermida through the supply and continuous improvement of Tablex.

Fundación Centro Tecnológico Forestal y de la Madera (CETEMAS)

- Application of Life Cycle Assessment in development and research projects for the manufacture of wood-based products thanks to the experience acquired during the project in this field.

- Provide support to TimberSoul by Cándido Hermida on the Life Cycle Analysis of EcoTimberCell family products and future developments, or of Betanzos HB board.
- Collaborate with Betanzos HB and TimberSoul by Cándido Hermida in the optimisation of manufacturing processes, product improvement and innovation.

Instituto de Tecnología de la Construcción (ITeC)

- Supporting TimberSoul by Cándido Hermida in the future development of products of the EcoTimberCell family and the certifications linked to them.
- Offer and provide the service for certification through the European Environmental Technologies Verification Programme (ETV) thanks to the experience acquired during the project.
- Facilitate, apply and elaborate ETA (European Technical Assessment) of future products similar to those of the EcoTimberCell family based on the knowledge acquired during the project.
- Development of new EAD (European Assessment Document) related to EcoTimberCell, as ITeC is part of EOTA (European Organisation for Technical Assessment) working groups.

3edata ingeniería ambiental

- Support in the business strategy of TimberSoul by Cándido Hermida given 3edata's experience as a spin-off of the USC.
- Application of knowledge developed in the analysis of ecosystem services in other projects.
    - Application in LIFE Wood for Future.

The actions proposed in the line of "Implementation of the results of LIFE EcoTimberCell" are fully integrated in the activity of the different project partners, so their development will be carried out with the resources of the different entities, which may be from their own or external sources (hiring, obtaining funds for the development of projects, etc.).

In each action, the necessary resources will be used depending on the needs of these, from their own personnel, travel expenses, external contracting or creation of new infrastructures, financial expenses derived from loans, etc.

Promoting the use of LIFE EcoTimberCell results by other actors

During the LIFE EcoTimberCell project, an effort has been made to generate networks with other projects and entities linked to different aspects of the project. The aim was to enhance the results of the project in three lines of action: to achieve the replicability of project solutions, to achieve effective transferability of these solutions and to integrate solutions from other projects into LIFE EcoTimberCell or to enable those implemented in LIFE EcoTimberCell to be integrated into other projects or entities. After the end of the project, these tasks will be continued.

Replicability

Description	Participating entity
Facilitating sub-licensing of products from the EcoTimberCell family in other locations	TimberSoul by Cándido Hermida
Development of structural products based on sustainably managed and proximity wood **Active application**: LIFE Wood for Future	USC
Application of numerical calculation and non-destructive testing for the development of structural timber elements **Active application**: LIFE Wood for Future	USC
Certification of timber structures or achieve products with Environmental Technology Verification (ETV) **Active application**: LIFE Wood for Future	USC, ITeC
Creation of university spin-off companies with knowledge transfer from the University to Society	USC
Promote sustainable forest management, the certification of the use of local wood and its application in structural elements **Active application**: LIFE Wood for Future and LIFE Lugo+Biodinámico	USC, Betanzos HB, CETEMAS, ITeC, 3edata, TimberSoul by Cándido Hermida
Assessment of ecosystem services **Active application**: LIFE Wood for Future	3edata, USC, CETEMAS

Transferability

Description	Participating entity
Applications of products from the EcoTimberCell family with other materials Active application: Use of wood from other species (ex. poplar - LIFE Wood for Future), use of other types of panels such as Tricoya panels from the LIFE Wood project	USC, TimberSoul by Cándido Hermida
Application of products of the EcoTimberCell family in functions other than residential construction Active application: Use in interior furnishings. Covered outdoor application (class 2) such as the different roof structures based on EcoTimberCell realised in collaboration with LIFE My Building is Green	USC, TimberSoul by Cándido Hermida

Integration

Description	Participating entity
Integration with other projects or entities to apply developed climate change mitigation solutions, or promote new projects, through contacts and agreements with other entities and projects. Active application: LIFE Lugo+Biodinámico/Concello de Lugo: Use of EcoTimberCell family products in municipal constructions, support of capital contribution instruments in sustainable business initiatives, promotion of sustainable forest management and use of local wood LIFE Wood for Future: Development of structural products in local and certified poplar wood, marketing, promotion of wood construction LIFE RenaturalNZEB: Integration of EcoTimberCell systems in one of its demonstration projects for near-zero energy public housing using natural or recycled materials LIFE HeroTile y LIFE SuperHero: Innovative roofs to improve energy performance in buildings with practical application example in the ETC Home scale model structure LIFE Biopaint: Sustainable wood cladding, with example of practical application on the scale model of the ETC Home structure LIFE Wood: Use of innovative panels (Tricoya) with a long life span and outdoor application, with example of practical application on the scale model of the ETC Home structure	USC, Betanzos HB, CETEMAS, ITeC, 3edata, TimberSoul by Cándido Hermida

The costs associated with this line 'Fostering the exploitation of LIFE EcoTimberCell results by other actors' will be addressed in the same way as in the action line 'Implementation of LIFE EcoTimberCell results'.

It is worth highlighting the effective replicability of the LIFE Wood for Future project, which will give continuity to many of the results of the LIFE EcoTimberCell project in the coming years.

Follow-up of the After LIFE EcoTimberCell Plan

The After-LIFE EcoTimberCell Plan has a duration of 5 years after the end of the LIFE EcoTimberCell project, so it will be completed in 2027.

In order to monitor the project, 3 meetings will be held between the project partners to evaluate the continuation of the different lines of action and the results obtained in each one of them. Maintaining the usual communication channels between partners throughout the After LIFE EcoTimberCell Plan.

Furthermore, the After-LIFE Plan will include the evaluation of the LIFE KPI performance indicators once the After-LIFE Plan is completed, incorporating the results of the different action lines.

Meetings will be held every 20 months and minutes will be generated from each meeting describing the different results achieved and their relation to the LIFE KPIs.

Duration After-LIFE EcoTimberCell Plan	01/07/2022 30/06/2027

Calendar of follow-up meetings	
First meeting	02/2024
Second meeting	10/2025
Final meeting	06/2027

Estimated economic valuation of the implementation of the After LIFE EcoTimberCell Plan

Description	Estimated cost
Dissemination and communication of the results of LIFE EcoTimberCell	
Dissemination of results at fairs, events, forums, congresses, workshops, seminars, universities, training centres, etc. in the forestry, wood and construction sectors.	28.250 €
Communication with companies in the construction sector (architectural firms, developers, professional associations, etc.)	16.000 €
Organisation of training days on construction and wood engineering	6.750 €
Dissemination through the partners' media, own web networks and the LIFE EcoTimberCell project website and its social networks	16.500 €

Implementation of LIFE EcoTimberCell results	
TimberSoul by Cándido Hermida	-
Universidade de Santiago de Compostela	800.000 € (400.000 € grant / 400.000 € own funds)
Betanzos HB	20.000 € (own funds)
Fundación Centro Tecnológico Forestal y de la Madera (CETEMAS)	30.000 € (30.000 € external funds)
Instituto de Tecnología de la Construcción (ITeC)	205.000 €
3edata ingeniería ambiental	10.000 € (7000 € grant / 3000 € own funds)

Encouraging other actors to take advantage of the results of LIFE EcoTimberCell	
Only staff and travel costs associated with encouraging other entities or projects to take advantage of the results of LIFE EcoTimberCell are considered	15.000 €

The amounts related to the business strategy, commercialisation and exploitation of the products of the EcoTimberCell family have not been included in this economic valuation as they are confidential data related to the business development of TimberSoul by Cándido Hermida.

life-ecotimbercell.eu