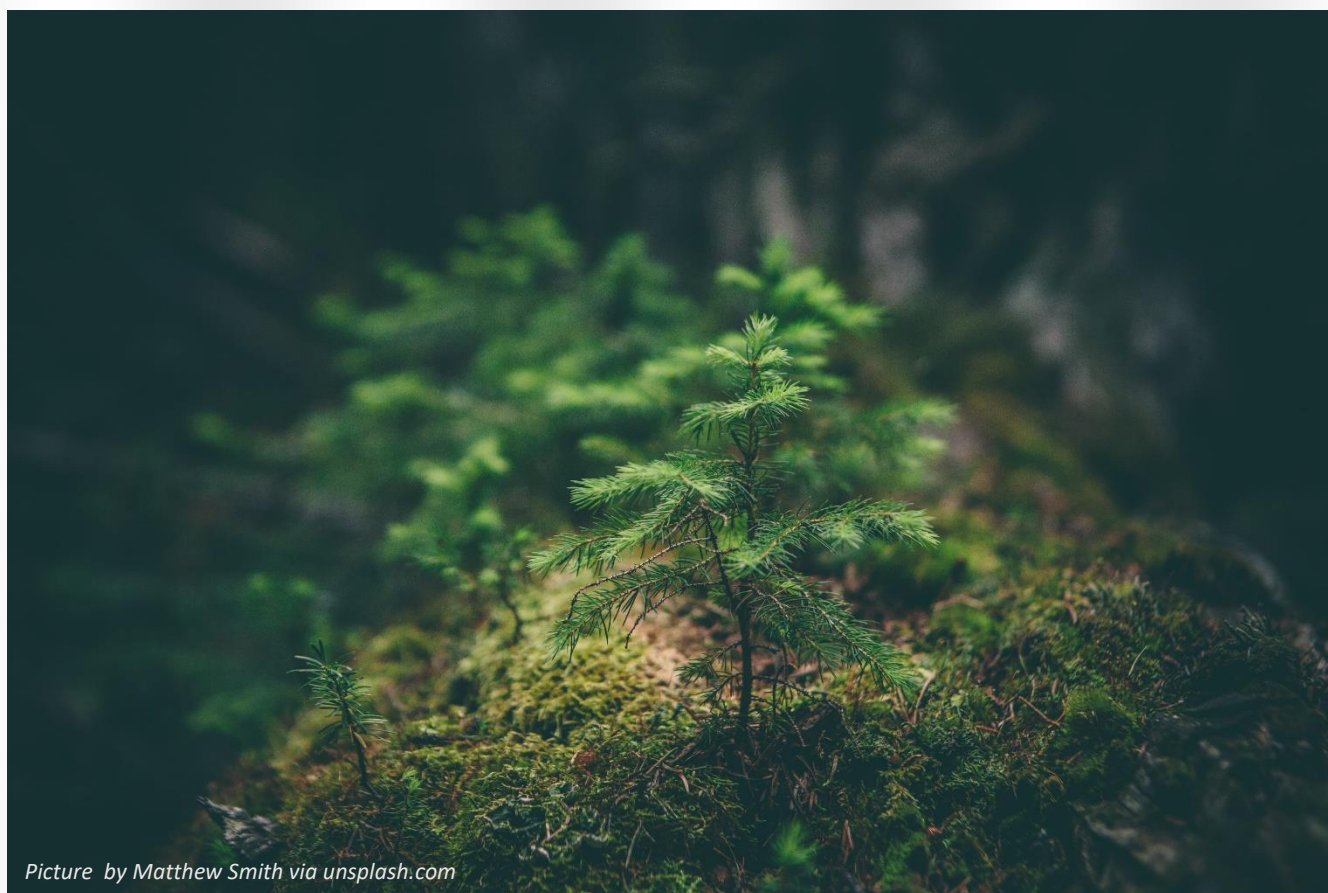


NEWSLETTER #8

NOVEMBER 2021



Picture by Matthew Smith via unsplash.com

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GREETINGS FROM COORDINATOR

Dear ForestValue Friends,

in the previous newsletter I was writing that the 1st phase of the 2nd ForestValue Joint Call for Research Proposals was completed and 47 proposals were selected for the 2nd and final phase. During the summer, we now had a large group of distinguished international experts evaluating the proposals. As the final result of the evaluation process we have now eight (8) new transnational projects to produce knowledge to promote the best possible use of forests and forest resources for the benefit of society on its way to a climate-neutral circular economy and sustainable society. For more information, please see our [website](#).

Our call showed that indeed we still have many important topics where we need further international research. There were a number of good proposals that we unfortunately - due to funding limitations - could not select for funding. I really hope that there will be some other funding possibilities to allow the project consortia behind these new ideas to proceed with their plans that would certainly be a benefit to us all.

Besides the above-mentioned call issue, in the last newsletter I explained that the transnational projects running under our previous Joint Call (JC2017) had suffered from the pandemic restrictions and their proper implementation would need a project extension. Now, during last summer we were able to negotiate with the European Commission a new end date of 31 March 2023 for the [ForestValue project](#) (originally 30 Sept 2022) which should now also allow the JC2017 transnational projects to come up with the expected results. Hopefully the projects can present their results in a live final event next year, further news of the dates etc. will follow.

As you might recall, in the [new EU Forest Strategy](#) there is the following statement: *“In order to strengthen EU cooperation, a research and innovation partnership on forestry will be proposed to overcome the fragmentation of public research efforts in the EU and to reinforce work on research priorities that call for a stronger coordination”*. Now, we are actually working towards this aim on two fronts. First, the Strategic Working Group on Forests and Forestry Research and Innovation of the Standing Committee on Agricultural Research ([SCAR FOREST](#)) has been working to collect a fiche document describing a possible European Partnership on Forestry and this document will be submitted to the European Commission now in November for further discussions.

Second, currently we are preparing a Horizon Europe proposal with the lead of the European Forest Institute and our ministry MMM for the call '[HORIZON-CL6-2022-CIRCBIO-01-06: Strengthening the European forest-based research and innovation ecosystem](#)', the proposal submission deadline is 15 February 2022. Among other things, a proposal under this topic is expected *“to develop an R&I roadmap at EU-level and prepare for a possible European partnership or other appropriate comprehensive actions under Horizon Europe”*. This is why the proposal aims to bring about a European Partnership in forest-based sector, which is a body of public and private actors that contribute to reducing the fragmentation of the research and innovation landscape in the EU and contribute significantly to achieving the EU's political priorities. We have a mixed group of experts (representing all sides of the quadruple helix: academia, industry, governments and civil society) from different parts of Europe working on the proposal and hope that the work will eventually lead to a positive proposal evaluation result and we can then get you all involved in the planned collaborative processes. Surely, nothing is guaranteed yet but if we would be successful in our effort, the project should get started in the autumn 2022.

These and many other interesting things are ongoing, so make sure to keep an eye to our social media channels.

And since Christmas is only 7 weeks away, let's be nice out there, the elves are watching... 😊

All the best,

Mika



Picture by Mika Kallio

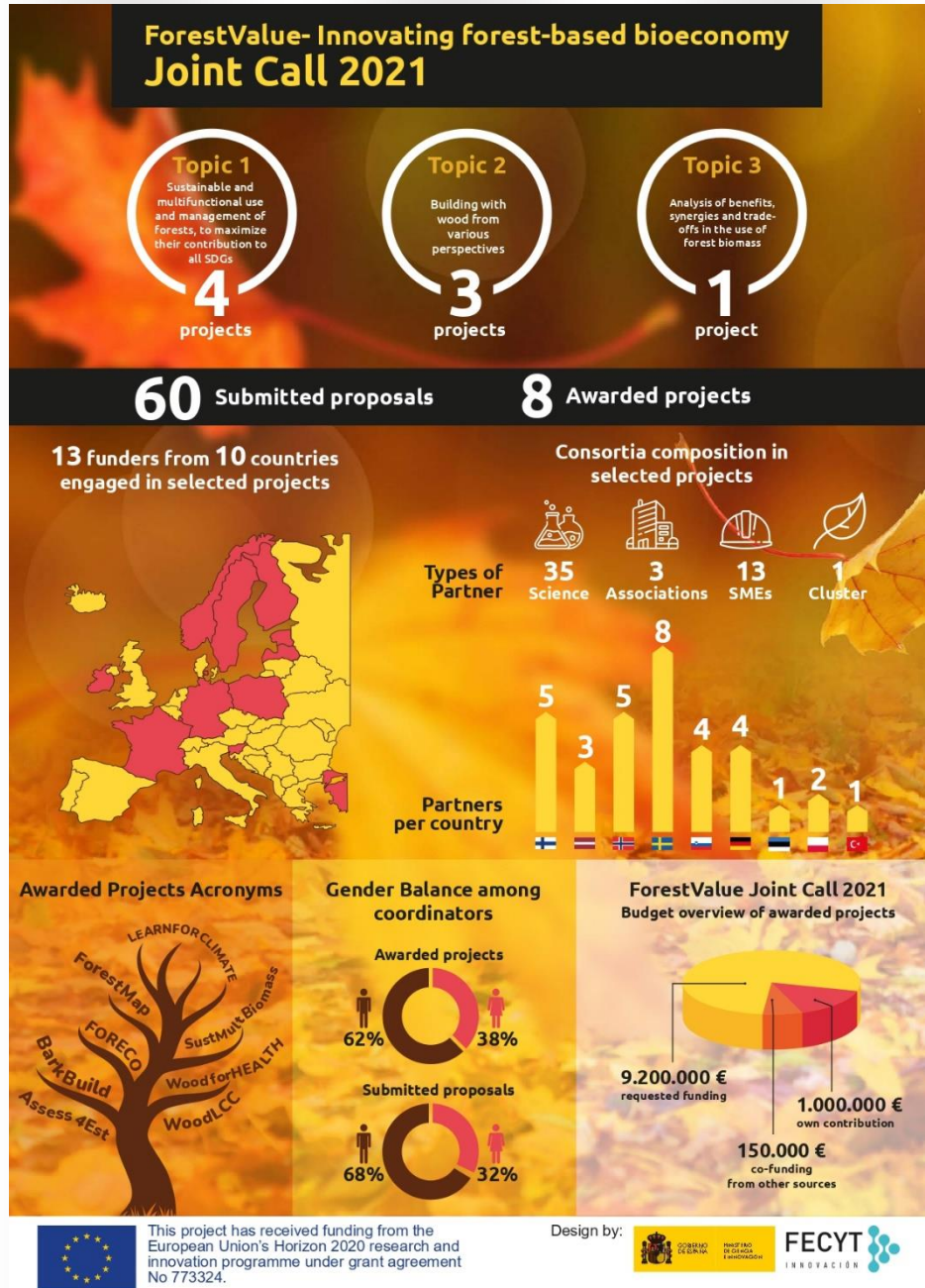
FORESTVALUE JOINT CALL IN 2021

In January 2021 ForestValue launched a transnational call for proposals for research, development and innovation in the forest-based sector. This Joint Call was a self-sustained call i.e. the funding to the call comes from the participating 15 funders (10 countries) only, without a co-funding element from the European Commission. The overarching aim of the call was to support projects that will produce knowledge to promote the best possible use of forests and forest resources for the benefit of society on its way to a climate-neutral circular economy and sustainable society. Applicants included interdisciplinary research approaches and holistic perspectives encompassing all aspects of a subject.

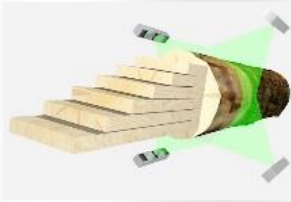
The ForestValue Joint call for proposals opened on 19 January 2021 and by the closing date on 13 April, 60 proposals were received. All of these were checked for formal correctness and national eligibility, resulting in 44 proposals to enter the phase of scientific evaluation by an International Expert Panel. Based on the ranking list by the International Expert Panel and available national funding, the Call Steering Committee of the ForestValue Joint Call 2021 decided in its meeting on 15 September 2021 to select eight projects to be recommended for funding.

The projects are expected to start late 2021/ early 2022 (project duration of 36 months).

The joint selection list as well as other information is published under <https://forestvalue.org/joint-call-2021/>



FORESTVALUE JC 2017 – PROJECT UPDATES



ReadiStrength - Resource-Efficient And Data-driven integrated log and board Strength grading

The project READiStrength wants to evaluate whether information from timber at the roundwood stage can be used to improve strength grading of the sawn timber at the end of the sawmill process. In Sweden, some sawmills have recently installed X-ray computed tomography (CT) scanners before the sawing line to optimise the sawing. Among other approaches, a vision of the project was to use CT data of timber to create high-fidelity finite element (FE) models to predict the mechanical properties of the final product.

A new method was developed to generate FE models of CT scans of timber. At first, CT scans of dried sawn timber were investigated. CT data contains density information which can be regarded as greyscale images. Using 3D image analysis, the fibre orientation in the scanned material was calculated, including the deviations around knots. The material stiffness was modelled in dependence of the local density, and additionally, as a function of eigenfrequency. The fibre information and the material stiffness were then used to generate both 3D and 1D FE models. The models could predict the stiffness, strength and initial crack location of the sawn timber in four-point bending tests. The method could be adapted for round timber in the future.

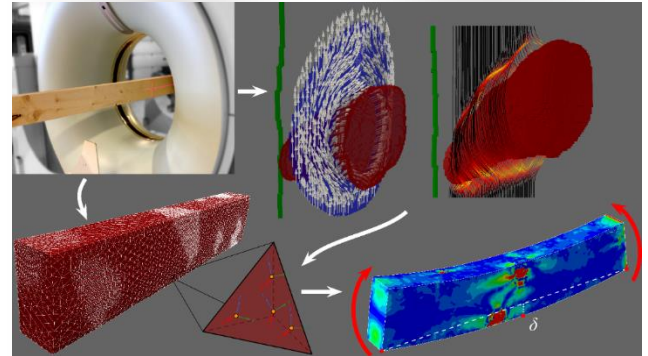
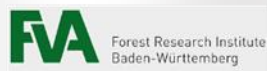


Figure 1. Numerical models from CT scans © Johannes Huber, LTU

If you are interested about the method please contact Johannes.huber@ltu.se or the project coordinators: SE (LTU) Olof.broman@ltu.se; AT (HFA) A.Weidenhiller@holzforchung.at; DE (FVA) Franka.bruechert@forst.bwl.de



FIRENWOOD – Improved fire design of engineered wood systems in buildings

Different experimental tests are planned in FIRENWOOD to find possible correlations between tests made in different conditions and sizes with the same 11 types of adhesives from 5 adhesive producers. The aim is to select an easy-to-use test method for adhesive classification for engineered wood exposed to fire.

Tension at elevated temperature tests, small scale cone heater tests with specimens made of CLT, GLT and finger jointed, and thermal creep tests were carried out recently. A good correlation between the results from different test methods on a small scale was noticed from the performed tests. Based on the test results at different scales in fire and at elevated temperatures, the classification model for wood adhesives is proposed for Eurocode 5, consisting of a loaded cone heater method of finger jointed specimens. Further development of an even more simple classification method at elevated temperatures is ongoing.

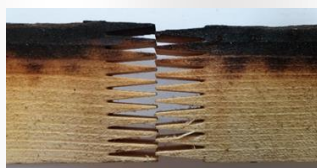


Figure 2. Failure of glued-in rod specimen © FIRENWOOD



Figure 3. Adhesive failure in finger jointed specimen © FIRENWOOD

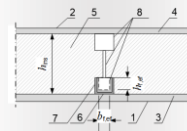
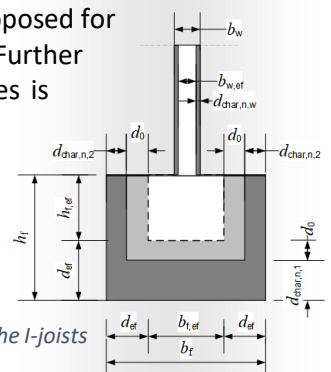


Figure 4. Design model for the I-joists © FIRENWOOD



FORESTVALUE JC 2017 – PROJECT UPDATES



InnoCrossLam - Innovative Solutions for Cross Laminated Timber Structures

A main focus of the project InnoCrossLam is to support experimental test series of cross laminated timber elements through numerical simulations. As opposed to performing physical experiments, virtual simulations on the computer have the following advantages: (1) They provide a lot of information about the component to be examined (deformation, stress and strain states in each material point), (2) extensive parameter studies are easily possible, which may also serve as a basis for the further development of technical regulations and standards, and (3) lower costs, especially for large building elements and complex loads.

Examples of simulation models are shown in the figure below: **(a) a shear connection detail between two CLT wall elements, (b) a CLT wall-ceiling connection without steel fasteners, (c) a point-supported CLT ceiling element and (d) a wood-concrete composite ceiling element with notches as a shear connection.**

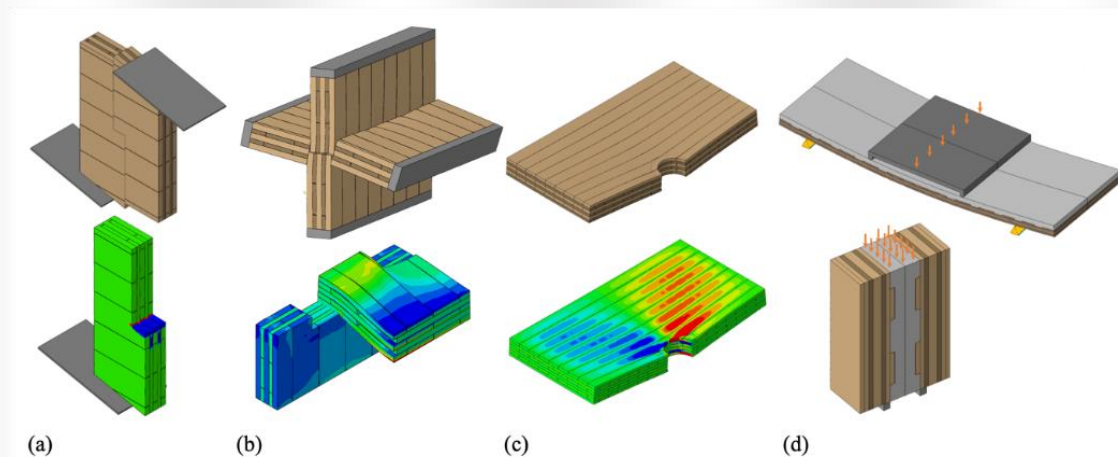


Figure 5. Examples of simulation models (© Vienna University of Technology, Markus Lukacevic and Josef Füssl)

In order to increase confidence in such simulations, however, a validation by means of physical experiments is required, which can/should never be completely replaced. We

will further improve existing simulation methods to describe mechanical processes in CLT realistically and to allow for, in combination with physical experiments, an efficient targeted product development.

Upcoming events, organized by members of the InnoCrossLam project:

- **July 31st to August 5th 2022 - Advanced computational modelling of wood, wood-based products, and timber structures;** Minisymposium at the WCCM-APCOM in Yokohama 2022 (hybrid format, www.wccm2022.org), entitled: 1609
- **June 5th to 9th 2022 - Mechanics of wood and biocomposites in engineering;** Minisymposium at the ECCOMAS Congress 2022 in Oslo (www.eccomas2022.org), entitled: MS21

hardwood_joint

hardwood_joint - Innovative joints in hardwoods

hardwood_joint wants to foster high-performance hardwood structures in the European building sector by developing economic, reliable and innovative joint technologies for hardwood members and the design thereof. The objective is to pave the way for using more hardwood products in the building industry by giving added value to hardwood species which are currently mainly used as fuelwood.

The project **hardwood_joint** is progressing again after long laboratory closures in 2020. Most experimental tests are finally finished except, of course, the long-term tests, where hardwood joints are potentially loaded for months before they fail. Now, all analyses and model developments are underway, and our final goal of guidelines is approaching. Concerning meetings, very luckily, our last one was hybrid where some could meet personally whereas others participated remotely. However, at least, physical meetings can start again, which facilitates discussions tremendously. The next meeting will be the joint meeting with other ForestValue projects in Skellefteå in February 2022 and we are very much looking forward to it!

FORESTVALUE JC 2017 – PROJECT UPDATES

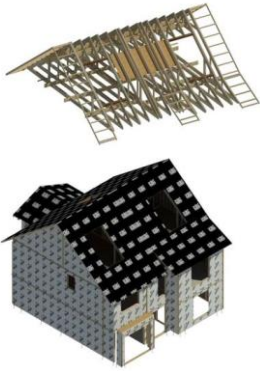


Figure 6. Structural model of the Everett Grand,
© Robertson Timber Engineering

Figure 7. Everett Grand Villa,
© Robertson Timber Engineering

InFutureWood – Innovative Design For the Future – Use & Reuse of Wood (Building) Components

Achievements in the InFuture Wood project! During our last project meeting in October 2021, three of the industrial partners have shared with the entire project team what knowledge they have gained throughout working with “Design of timber structures for the future” a work package led by Ylva Sandin, researcher at RISE, Sweden. Here are their stories:

“At **Robertson Timber Engineering**, Scotland, as a large-scale offsite timber manufacturing business, the InFuture Wood project has taught us the greater value of what we build today and how it can be circulated in future. We are reminded that timber is a renewable material, but not an endless resource. We must manufacture buildings that are adaptable and allow for deconstruction and reuse; existing buildings are material banks.

Through the InFuture Wood project we analysed a Robertson Homes house type and worked out how it could be deconstructed in 50 years’ time, and then rebuilt in a new location. 95% of the timber in this home could be reused as high value components. A model deconstruction plan was written for use as a template in future projects. By looking at the deconstruction process, we found the panelised timber framed components that go into Robertson homes could be further standardised to aid deconstruction. Standardisation will also help us now in manufacturing to reduce stock levels and optimise production processes.

As whole life carbon and a circular economy are becoming increasingly important to deliver a Net Zero Emissions future, we expect to use information developed from this project to help us reach those targets.”



Nicola Jackson – Technical Manager at Robertson Timber Engineering and Chair of Offsite Solutions Scotland

“For **Derome**, Sweden, the analysis of our technical platform for prefabricated plan elements has been useful.

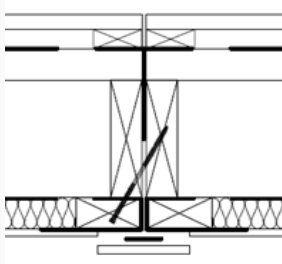


Figure 8. New design of vertical joint wall-wall for disassembly, © Derome

Figure 9. Anneberg Villa, A-Hus, © Derome

Through this work we have identified what is possible to reuse and assessed the degree of work and materials required to repair any damage that might occur. From this work on how to improve connections I want to highlight the vertical wall joint (wall meeting wall) solution: the right and left edges of the wall block are now identical, which is beneficial from a production point of view. Nevertheless, the greatest benefit of this joint shows up on the construction site: a faster assembly, which also enables a future disassembly, where the included material remains intact, so the possibility of reuse increases considerably. We are now working to ensure that this new joint can be used in our production at the end of 2022.

We can nowadays notice more interest from society on disassembly and recycling of building parts, such as the requirements in municipal initiatives, e.g. LFM30 - Local Sustainable Goals in Malmö by 2030. To meet this requirement a disassembly plan will be drawn up in 2021-2022 ahead of Derome’s building projects there in 2022. We expect that building procurements will include even more specific requirements and awards criteria for disassembly documentation within 5-8 years.”



Anders Carlsson, R&D Manager, Derome, Sweden



“From our perspective at **IsoTimber**, Sweden, the Case Study Method was an easy, and therefore useful way to analyse the deconstruction process. We gathered our team in a digital meeting together with researchers in the InFutureWood project. While looking at drawings, assembly instructions and technical details, we imagined a theoretical deconstruction process, from top down and step by step.

The major conclusion was that the IsoTimber prefabricated wall panels with connectors are already designed for reuse and no obvious need of change in design was identified. The analysis raised our awareness of important aspects to consider though. As a direct consequence we used this knowledge to establish an IsoTimber Guide for Deconstruction. The guide will be of practical value to



Figure 10. Assembly of the external wall panels (IsoTimber + CLT) and the intermediate floor panels (CLT). © Gustab AB.



Figure 11. Case study object: Villa Forshälla Sund. © Erik Persson.

customers at the time of deconstruction, but also serve as valuable marketing information to attract new customers. The overall purpose of the guide is to encourage reuse of the wall elements, in line with the company’s vision of enforcing a circular economy.”



Janina Östling, Sustainability manager, IsoTimber
© IsoTimber Holding AB

Interviewer: Carmen Cristescu, researcher at RISE, Sweden

ValoFor ForestValue

ValoFor: Small Forests – Big Players: Valorising small scale forestry for a bio-based economy

On 19 October, ValoFor organised an online workshop **“Small Forests - Big Players: Can small scale forestry build a bio-based economy?”** with more than 20 stakeholders from forest owner associations, wood and paper industry, as well as government organizations.

The outline for the first panel discussion was given by Dr. Silvio Schüler (BFW, AUT) and Prof. Dr. Kerstin (UU, SWE), who presented the ValoFor project aims and first results of the survey about the small-scale forest owners’ beliefs and perceptions across Europe. The panellists emphasised the importance of reliable forest organisations and an

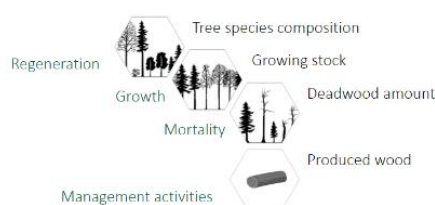
easy access to information that could boost forest owners’ engagement. The forest owners’ values reflect the values of general society, and a responsible and sustainable management can be encouraged by individualized communication and tailored support programmes.

In the second session Dr. Elena Haerle (BFW, AUT) presented how different forest management practices under certain climate scenarios could influence the future development of the forest and the ecosystem services it provides.

The panellists discussed the possibilities of different economic instruments to stimulate

Forest Models

- Model/project the future forest development
 - Natural processes: regeneration, growth and mortality
 - Management activities



Forstgraphs: Scharrer, W. (1996). Naturschutz im Wald: Qualitätsziele einer dynamischen Waldbewirtschaftung. Präfektur Naturschutz, Stuttgart (Verlag Eugen Ulmer).
LWL, ValoFor, Leika, T. (2020).

Figure 12. Presentation of Forest Models in ValoFor project (© ValoFor)

small-scale forest owners’ management and motivation. In particular, the growing demand for “payments” for ecosystem services might help to value the various benefits of sustainable forest management.

The general conclusions of two panel discussions emphasised the potential of small-scale forest owners to contribute to a bio-based economy, which might not only encompass timber markets but also the manifold other ecosystem services provided by forests.

FORESTVALUE JC 2017 – PROJECT UPDATES



MULTIFOREVER and its cooperation with Argentina – a collaboration beyond Europe

In the field of somatic embryogenesis (SE), international networking has been a key to develop mutual and expedient progress, thus far brought together in IUFRO unit 2.09.02. Through this alliance, cooperations between individual parties were established. As the EU ForestValue joint call 2017 was opened to Argentina, it was finally possible to combine forces, expertise and know-how to tackle specific bottlenecks of the systems, its application and for different species. In the end, the only Argentinian participant in the call, our colleagues from INTA, became partners in MULTIFOREVER.

INTA, the national institute of agricultural technology is a government research and extension institution that contributes to the sustainable development of the agricultural, agri-food and agro-industrial sectors. Given the importance of forest plantations in Argentina, INTA has a research program to improve the most relevant species in forest plantations.

As tree improvement is slow, with genetic gains reaching 10-20% per cycle (=20-40 years), we focus on vegetative propagation to keep the gain but shorten and stabilise the process. This strategy is the basis of next generation seed-based and thus multivarietal forestry, relying on SE. INTA began SE-related research in 2009 in the framework of breeding programs for *Pinus taeda* and hybrid pine (*Pinus elliottii* var. *elliottii* × *Pinus caribaea* var. *hondurensis*). Despite national funding barriers, MULTIFOREVER enabled INTA to also take advantage of this col-laboration, consolidating protocols and initiating pine SE cultures.



Figure 13. Impressions from the Argentinian MULTIFOREVER project partner, illustrating their work on *P. taeda*: © Maria-Elena Gauchat, INTA, Argentina

- a) Team 'somatic embryogenesis' (SE) at INTA EEA Bella Vista, from left to right: Carlos Vera Bravo, Francisco Aranda Viccini, Nuris Durán;
- b) selected tree-parents;
- c) immatures cones originating from controlled pollination;
- d) individual seed – the zygotic embryos need to be isolated to serve as explants for SE;
- e) resulting somatic embryogenic cultures;
- f) developing somatic embryos (early cotyledonary stage)

FORESTVALUE JC 2017 – PROJECT UPDATES



SMALLWOOD: “Small diameter wood utilization with innovative stand management for multifunctional forests and a growing sustainable bio-economy”

The SMALLWOOD project does R&D work on new technologies that increase efficiency of sustainable management and utilization of different types of small diameter wood. The recently published SMALLWOOD study (Tolosana et al. 2021) includes the following results:

Post-wildfire regenerated Mediterranean pine stands have a high risk of wildfire recurrence. Preventive clearings are frequently applied, being a potential source for biomass. The aim was to compare the collector-bundler BioBaler WB55 with a chain mulcher performing systematic mulching of 50% vs. 67% of stand surface over a *Pinus pinaster* stand. Time studies were combined with the weighing of each produced bale. Surface productivity was greater for both technologies when a lower percentage of the total surface was cleared, but less than theoretically predicted. The BioBaler’s economic balance, including the cost of further selective clearing and the income from biomass

selling, was costlier than that of the mulcher in the most representative strata, 475 vs. 350 EUR/ha. Under the studied conditions, BioBaler was not economically competitive with the conventional treatment, its main constraint being low collection efficiency (31% of the standing biomass in the cleared surface, 5.33 out of 17.1 fresh tonnes/ha). A better collection efficiency could make the result more favorable for the BioBaler concept.

Tolosana, E., Bados, R., Laina, R., Bacescu, N. M., & Fuente, T. (2021). Forest Biomass Collection from Systematic Mulching on Post-Fire Pine Regeneration with BioBaler WB55: Productivity, Cost and Comparison with a Conventional Treatment. *Forests*, 12(8), 979.

Please find reports from DEMO events & more information about the SMALLWOOD project at www.smallwood.eu/



Figure 14. The BioBaler unloading a bale of small diameter trees (© by Tomas Nordfjell)



MultiForest

MultiForest – Management for multifunctionality in European forests in the era of bioeconomy

Both at EU and member states levels, various policies guide forest use, but often with competing and divergent policy objectives. Incoherent policies may negatively impact the sustainable provision of forest ecosystem services, particularly under climate change. There is uncertainty among policy makers about the actual impacts of policies. The project MultiForest aims to bridge this gap between forest ecosystem research and the information required in policy-making.

In October, the members of the MultiForest project convened for the last general meeting before the closing meeting – how fast the project time went by. In the online meeting, partners were glad to see that the project is on track, even after COVID19 and all its challenges. Main discussion points thus turned around how to plan for the remaining project time. Several scientific publications are in the pipeline that will present our results to the scientific community. At the same time, we are planning to compile our most important findings for communication with a wider audience and policy makers. The dissemination strategy will be guided by our partners from Finnish Environment Institute (SYKE). One major part of the strategy will be our final national stakeholder seminars that will take place next spring, as well as a symposium within an international conference. Our official final project meeting we are planning to have physically in beautiful Bavaria next year in spring. We hope that this will be possible to celebrate with all project partners of the successful progress of the MultiForest project.

Partners: University of Jyväskylä (JYU), International Institute for Applied Systems Analysis (IIASA), Technical University of Munich (TUM), Swedish University of Agricultural Sciences (SLU), Finnish Environment Institute (SYKE), Norwegian Institute of Bioeconomy Research (NIBIO), FinnOpt Ltd.

FORESTVALUE JC 2017 – PROJECT UPDATES



NOBEL – Novel business models and mechanisms for the sustainable supply of and payment for forest ecosystem services

Through the final international conference of NOBEL and SINCERE, a comprehensive overview of the situation for Forest Ecosystem Services (FES) and related mechanisms in Europe, the associated science, practice, business, and policy considerations were compiled.

Based on the results of a survey among forest owners and managers across Europe, and a series of spatially explicit descriptors of forests, income and profitability estimates reveal a dichotomy in forest financing. In Northern and Eastern Europe forest income comes almost only from provisioning FES, while in Western and Southern Europe around a quarter of income is linked to regulating and cultural FES.

Research on innovations in the European forest sector shows the major factors and challenges: different attention of forest holdings to different ecosystem services; limited marketability of non-timber FES; the focus of sectoral innovation systems on timber; a challenge to connect rural knowledge and traditions with new urban demands. The best approach for supporting innovations in FES is sketched as “top-down support for bottom-up innovations”. In order to evaluate the effect of forest management interventions, a framework is provided based on the ecosystem service cascade model. This is a new way of classifying and interpreting rural innovation projects and forest management at different spatial and temporal levels, which facilitates their feasibility and sustainability assessment.

FES business models were presented from SINCERE and NOBEL on four key aspects: demand for FES; income streams for FES; financing for FES; and FES business models. As a result, the issues and implications for successful business models for FES were raised. The key challenges for both forest policy and management in the EU were discussed as follows: balancing the provision of multiple forest ecosystem services and its member states given diverging societal demands. Therefore, a future European forest policy framework needs to support multiple forest ecosystem services in Europe.

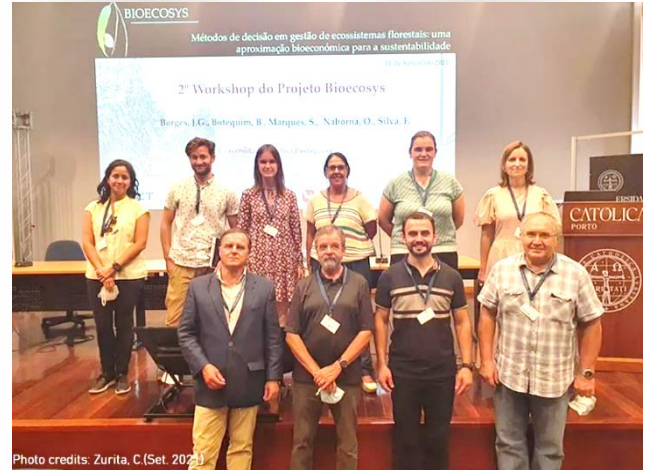


Figure 15. NOBEL Consortium (© by Zurita, C.)

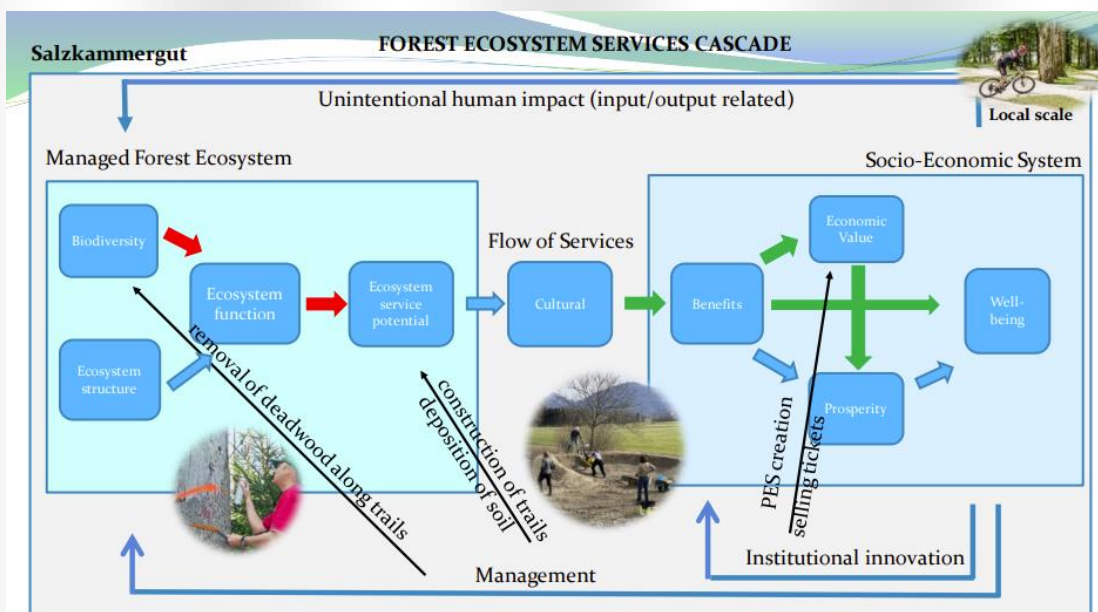


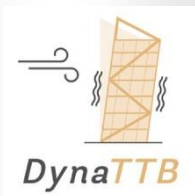
Figure 16 Forest Ecosystem Services Cascade (© Vacik & Muys 2021)

The web-based Auctioning Platform of NOBEL (ECOSOL) is an approach that attempts to shift the task of making trade-offs between multiple ecosystem services (ES) from the auctioneer to stakeholders who can “bid” their willingness to pay for their preferred combination of ES; bids for each alternative are pooled; and the best-

funded alternative is implemented. The ECOSEL platform was discussed at a workshop on September 11th in collaboration with the Portuguese Catholic University (UCP) team in the Bioecosys Project and Modfire project. The participants selected baskets of ES considering trade-offs between biodiversity, soil erosion, carbon stock and wildfire resistance using the Pareto Frontier simulator. The basket comprising of maximizing wildfire resistance obtained the highest reserve price. Stakeholders assessed the “Ecosel” platform conceived with the objective of conducting online auctions of baskets of ES at Vale de Sousa forest - baskets that include environmental services without a market, an alternative to the “standard” basket (Business as usual) with services/ products that generate revenue (e.g., maximization of wood production).

- Summary of SINCERE & NOBEL Final Conference on incentives for FES <https://sincereforests.eu/creating-innovative-mechanisms-for-forest-ecosystem-services-what-does-science-tell-us/>
- Workshop reports of the BIOECOSYS Project www.bioecosys.com/events-and-news-eventos-e-noticias
- Further project activities on our homepage <https://nobel.boku.ac.at/>

DynaTTB – Dynamic response of Tall Timber Buildings under Service Loads



With loosened travel restrictions in Europe after the Covid-19 epidemic it has now been possible to perform most of the planned in-situ measurements of acceleration levels in Tall Timber buildings using forced vibration tests. In total, tests have been performed in eight buildings, see Figure 1. In some cases, tests have been performed at several stages during the construction of the building to study the effect of non-load bearing elements. Some of the buildings have also been provided with equipment for long-term monitoring of movements due to wind loads.



Figure 17. Buildings tested with full-scale forced vibrations within the project (© Marie Johansson; DynaTTB Project)

The results, so far, show data for eigenfrequency of the buildings in range with what would be expected from the FE-models. The data for damping shows that there is large variation in damping depending on building and that it is possible to see some non-linear tendencies. The results from the FE-models show that it is important to include the effect of non-loadbearing elements in the calculations of the behavior under service loads.

The results will be summarized in guidelines for Design of serviceability of Tall Timber Buildings. Project results are also presented on www.dynattb.com.

FORESTVALUE JC 2017 – PROJECT UPDATES



CLICKdesign – Delivering fingertip knowledge to enable service life performance specification of wood

The CLICKdesign team is underway with our pilot of the **decay module** with our industry group and wider network. Data analysis and capture is on-going concerning approaches deployed to fill identified gaps in existing models the so-called missing features. These include microclimate, transformation to ground contact, vegetation and splashwater.

A combination of exposure and beam cross section linked to experimental data for mass loss due to decay guide the **integrity module** - structural strength of a wooden element. The approaches being investigated by VTT are a strength reduction method and a cross section reduction method. The most promising approach will integrate the exposure dose later this year.



Figure 18. Microclimate studies including the influence of vegetation on performance and splashwater impacts data capture continues (Images © Göttingen University)

An important component of performance associated with exterior wood is the change in appearance. The **aesthetics module** has been developed including an available dataset for 120 materials and details the progress of weathering for 2 years as a surface and as a simple building archetype. A proof of principle tool “dynamic LCA” software tool for simulation of environmental impact of the building façade during the use phase considering maintenance activities has been progressed and a software solution for visualisation of aesthetical changes integrated with BIM.

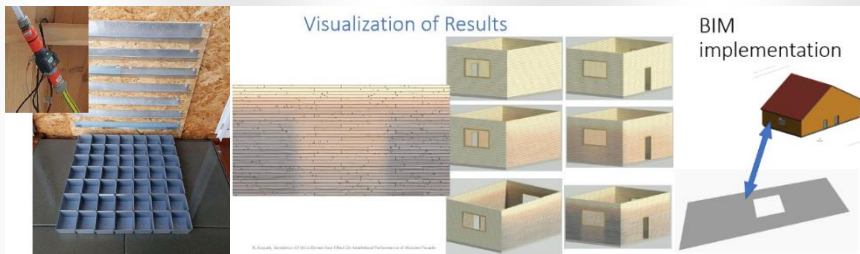
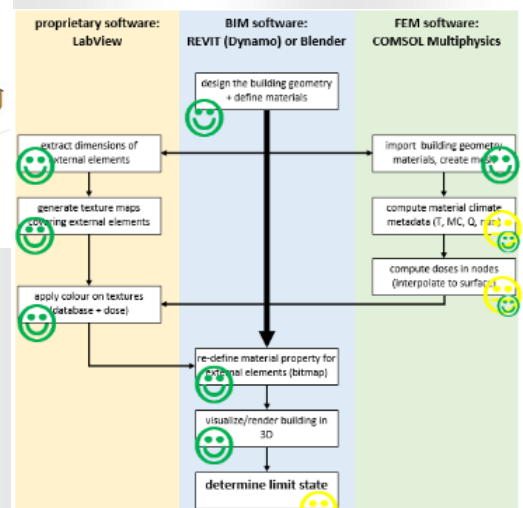


Figure 19. Examples of visualisations and BIM implementation (Images © InnoRenew)

At our next meeting we will conclude on the **termite and insect module performance measure** based on a probability of occurrence, materials insight and preventive measures. Significant new test data has been gathered this year in the laboratory informing on testing scenarios which will help standardisation work in this area.

As we move toward 2022 we look forward to face to face meetings to discuss and refine the tool and its supporting educational package (EDUPAK). We also request support from industry and wider partners including:

- The validation of aesthetics models – such as images of cladding and exterior timber (colour calibrated) at different time intervals
- The validation of the decay models – test data including material age, conditions, substrates
- Images of wooden buildings that are performing well (not new build!)
- Feedback on the CLICKdesign performance tool – let us know if you’d like to pilot the tool!



FORESTVALUE JC 2017 – PROJECT UPDATES



I-MAESTRO – Innovative forest MAnagEment STRategies for a resilient bioecOnomy under climate change and disturbances

Forest recovery after large and severe disturbances in Slovenia



Figure 20 „Windthrow“; © by Gal Fidej

After seeing thousands of hectares of spruce forest die after disturbances all over Europe in the past years, it seems like spruce is our problem child – at least in Central and Eastern Europe. Spruce died in monocultures, but was also more affected than other species by e.g. storm and bark beetle damages in mixed forest stands. This had and still has both significant ecological as well as financial impacts because spruce is an economically important species.

When looking at the future – and the increased forest disturbances we can expect due to climate change – it is crucial to find out how forests recover after being damaged. This is one of the project objectives of [I-Maestro](#), short for “Innovative forest management strategies for a resilient bioeconomy under climate change and disturbances”. Looking at different forest areas in Slovenia hit by severe disturbances, a group of researchers from the Department for Forestry and Renewable Forest Resources at University of Ljubljana focused on the following questions: How do mixed forests with varying share of spruce recover after ice storms, bark beetle damage, and windthrow? Which regeneration characteristics are useful to assess the forest recovery? And how does forest management influence both the impact of disturbances as well as the regeneration process? If you like to learn more about the preliminary results of this study check out [our blogpost on the Resilience blog](#).



Figure 21. "Ice storm"; (C) by Matteo Cerioni

NEWS FROM FUNDING AGENCIES

IRELAND: Bioeconomy Ireland Week

Bioeconomy Ireland Week is an annual week-long event held each October to highlight and raise awareness of Ireland's rapidly growing bioeconomy. The celebration was a collaboration of events involving industry, local communities, producers, researchers and students throughout Ireland. This year it was all about what is natural, circular and sustainable – and asking ourselves, what do these words really mean?

The Irish Bioeconomy Network offered an exciting programme of hands-on workshops, networking events, insightful discussions and interactive activities. The programme of activities and events were open to community groups, school children, producers, researchers, artists, industry and policy-makers.

www.irishbioeconomy.ie/

ARGENTINA: Management strategies for silvopastoral system in native forests

PABLO L. PERI; Coordinador Nacional del Programa Forestal del INTA

Most of the native forests in Argentina (60% of a total of 48 million ha) are used for livestock production with little sustainable silvopastoral management at farm level. Silvopastoral systems are an approach to land-use and technologies where woody perennials (trees, shrubs), which are deliberately used on the same land management unit as livestock with different spatial arrangements or temporal sequences. In silvopastoral systems, there are ecological and economic interactions between the different components, which can generate synergies and trade-offs with other ecosystem services (ES), biodiversity or ecosystem functions. The benefits that provide silvopastoral systems are based on the premise that these systems can be more productive, profitable and sustainable than crops, forestry or animal production monocultures based on exotic species. In Argentina, articulation of public policies for silvopastoral management has been developed in a joint Institutional Agreement between the Ministry of Agriculture, Livestock and Fisheries (MAGyP) and the Ministry of Environment and Sustainable Development (MAYDS), and the National Agricultural Institute (INTA). This general agreement named "*Forest Management with Integrated Livestock (MBGI)*" aims mainly to: (i) contribute to sustainable use of native forests as a tool of development and according to sustainability criteria and minimum standards established by Law No. 26,331, (ii) strengthen the provinces by promoting capacity building for implementing MBGI plans, and (iii) establish a monitoring system. The conceptual framework of MBGI technical agreement is based on the provision of forests ecosystem services, and on an adaptive management scheme to define the interventions.

AUSTRIA: The Austrian Wood Initiative

One cubic metre of wood grows in Austria's forests every second, which means that 250 kg of carbon or around 1 ton of CO₂ is stored every second. The use of wood has enormous economic and social significance, but is also ecologically advantageous. The renewable raw material wood can substitute materials with higher life-cycle emissions and fossil energy sources. New products in line with the bioeconomy and the circular economy, technical solutions, processes or services will contribute significantly to the resource and energy transition, at the same time increase the competitiveness of enterprises, and secure jobs in the regions.

With the Government Programme 2020-2024, the Austrian Federal Government established the groundwork for Austrian Forest Fund and the Austrian Wood Initiative. The goal of the Austrian Wood Initiative is to strengthen and develop the forest-based value chain. The Austrian Wood Initiative comprises a wide range of specific measures within thematic modules to enhance the use of wood as a material and energy source. These measures range from governance, construction with wood, innovation, research, education and training, communication to the energetic use of wood.

Please find more information here: [Holzinitiative als Leuchtturm der Bioökonomie](#) and here [Holzinitiative Massnahme 9](#)

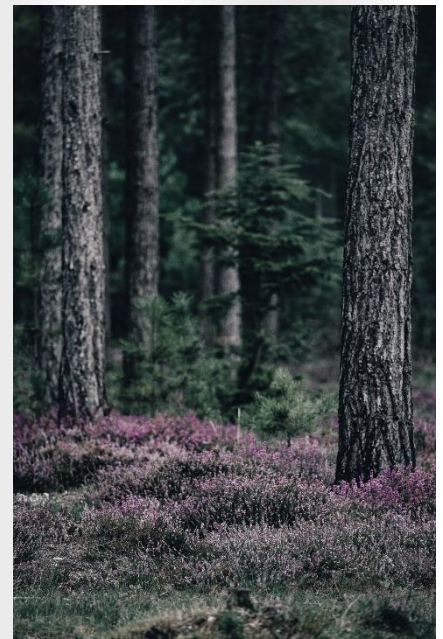
FINLAND: Catch the Carbon R&I programme

The aim of the Hiilestä kiinni – Catch the carbon research and innovation programme is to produce information that anticipates changes in the operating environment on how agriculture, forestry and other land use can be targeted in a more climate-smart manner, both in the short and long term. The aim is also to strengthen the sustainable use of renewable natural resources and comprehensive sustainability. The programme was prepared in cooperation with the scientific community and stakeholders.

The funding decisions for the Catch the Carbon research and innovation programme's first round of applications were taken in January 2021 by the Ministry of Agriculture and Forestry. A total of EUR 10.7 million was granted to ten research and innovation projects. This funding is part of the government programme's climate action package for the land use sector.

The new programme is expected to significantly strengthen the research related to agriculture, forestry and other land use and provide excellent opportunities to researchers from different fields of science to deepen and diversify the knowledge and competence.

<https://mmm.fi/en/climate-plan-for-the-land-use-sector/research-and-innovation-programme>



Picture by Annie Spratt via unsplash.com



HORIZON BOOSTER RESULTS MODULE A

ForestValue ERA-Net Cofund successfully applied for the services fully supported and offered by the European Commission for using

the Horizon Results Booster. HRB is a new package of specialised services for maximising the impact of R&I public investment and further amplify the added value of the Framework Programmes (FP7, H2020, HE). It helps to bring a continual stream of innovation to the market and beyond. The services provided by HRB experts were tailor-made designed to build the ForestValue ERA-Net Cofund group of funded research projects and the capacity for disseminating research results. Beside ForestValue ERA-Net Cofund itself, 17 co-funded projects under the ForestValue Joint call 2017 engaged in this group activity under the Module A, which aimed to identify and create the portfolio of R&I project results.

AVATAR, CLICKdesign, DynaTTB, FIREWOOD, FunEnzFibres, GreenLane, hardwood_joint, I-MAESTRO, InFutUReWood, InnoCrossLam, MultiForest, MULTIFOREVER, NOBEL, READiStrength, SMALLWOOD, StrongComposite and ValoFor are co-funded research projects, which already form a group within the scopes of the ForestValue Joint Call 2017. The projects focus on areas of (1) Innovative sustainable management of multifunctional forests as well as (2) Innovative industrial production and processing technologies, product concepts and services in the field of innovating forest-based bioeconomy.

In joint efforts of all research project representatives and ForestValue ERA-Net representatives, HRB supported the whole group by analysing and identifying commonalities between their work in their research field. Aiming to transfer and communicate research and innovation project results to policy makers, industry and society, HRB supported the project group in its positioning, stakeholder analysis, stakeholder and dissemination networks mapping and issued recommendations for further group collaboration.

Therefore, most of the participants decided to continue with their joint efforts and applied together with the ForestValue ERA-Net Cofund project for HRB service Module B, which aims to help projects from the portfolio to design and execute a portfolio dissemination plan. The service provided by HRB experts will offer direct support to the project group to carry out joint dissemination activities by leveraging each other's research results, networking to increase impact and open possibilities for further collaboration.

Stay tuned for the upcoming **FORESTVALUE FINAL CONFERENCE** in Madrid!

We are glad to announce ForestValue's Final Conference, to take place in Madrid (Spain) during spring, 2022. We are still working to arrange all details, format and agenda and will soon come back to you with further information.

Apart from selected key-notes, networking and other side-activities, the event will bring together JC2017 project coordinators to present their outcomes and results. We will also take



Crystal Palace. Retiro Park (Madrid) Picture by Juan Lufer via Pixabay.com

advantage to kick-off and learn from the objectives and planned activities of the granted Projects in the JC2021 call.

We look forward to welcome you in Madrid next spring, so stay tuned!

More information on ForestValue:

- www.forestvalue.org
- <https://twitter.com/ForestValue2017>
- www.linkedin.com/groups/12110816/

Imprint

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