



## ACTION C7 – Transferability and replicability strategy

**Actions for the transferability and replicability of the models defined in other Italian Regions and other European Countries**

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**LE FORESTE  
CHE RIGENERANO  
L'ECONOMIA**

## Summary

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## CHAPTER 1 – THE PURPOSE THE MANUAL

### Summary of the manual and aim of replicability

This work has the purpose to describe clearly and functionally some initiatives carried out within the LIFE CO2FES&PEF Project and, above all, to transmit the practical instruments so they can be replicated in other European geographical areas, especially in those countries where there is a stronger need to support local initiatives concerning *governance* in decision making for the protection of forests as a primary resource for sustaining the life of ecosystems.

### Description of manual targets

The main targets of the LIFE CO2PEF&PES Project are those companies working in the forestry sector and, first and foremost, those in the wood, paper and construction sectors. The companies that make use of forestry products are those primarily concerned in knowing what is the impact of the materials they use throughout their entire life cycle. Therefore, they are the target for the evaluation of the ecological footprint of their products (Product Environmental Footprint – PEF). One of the objectives of the project is to improve the productive system of the forestry supply chain, with the aim to increase the CO2 capture and storage of the forests in the pilot areas, and for the method to be then replicated in other European forestry areas.

### Summary of the project, objectives, actions and results

As acknowledged in the EU New Forest Strategy (COM (2013) 659 final), forests are a primary resource to maintain life itself on our planet and with implications on many different levels, including ecological and social aspects. The scientific community's awareness of this role and, overall, the fundamental activity of carbon sequestration management, has resulted in many studies aimed at measuring the carbon sink and carbon stock of forests.

Italy, despite its intensive production activity and high anthropogenic pressure on the land, has a high level of protection of its forestry system. Nevertheless, there is a notable weakness in the planning and management of the forestry activities. Only 19% of the national forests are subject to planning, and there is an even lower rate of forestry management - only 15.7% (Forest@, vol 15, pp. 41-50). This has serious repercussions not only on the timber felling but also on the prevention of windfall and fires, as well as the social and economic aspects. In fact, timber harvesting only makes up for 25% of the growth compared to the European average of 50%, with the consequence that 80% of the processed wood in Italy comes from abroad. This results in overlooking one of the most important sources of income for local communities, with the consequent risk of their resilience and the increase in the rate of territorial abandonment. With these conditions, the CO2 balance of the forests can no longer be entrusted to only a pure and simple natural development but requires enacting forestry management strategies that will maximise their growth while maintaining their role as a supplier of basic input in the industrial system. This strategic approach in the LIFE CO2PEF&PES Project was developed along three action lines:

- a. the measurement of the carbon stock and carbon sink in the representative areas of the national forests and a wide area of the European Union and the evaluation of additional activities allowing for increasing long-term ecosystem services (100 years);
- b. the monitoring of the resources and the environmental impacts along the wood supply chain, that directly make use of the forest as a productive input, so as to improve as far as possible the elementary incoming flows and outgoing negative impacts of the wood production system;
- c. the creation of a financing mechanism from the production system in general, that uses the forests as an indirect productive resource, so as to be able to create the financial means to carry out the additional activities as in point (a).

Subsequently, a set of additional practices scientifically validated for their effectiveness in terms of contribution to increasing the carbon stock in the country's representative areas was chosen. The ecosystem services considered come from the following practices:



1. cutting and thinning to prevent tree species competition;
2. services for fire prevention;
3. prevention of hydro-geological risks and maintenance of the minor hydrographic network.

The ecosystem services were evaluated in three areas of the Tuscan-Emilian Apennines and the Alpine Region:

1. the *Demanio Forestale Forlivese*, a forest area of the Emilia-Romagna Region of 24,000 hectares that also includes park areas.
2. the *Consorzio delle Comunale Parmensi*, a forest area in the Emilia-Romagna Region of about 8,000 hectares, 2,000 being PEFC certified.
3. the property of the *Regionale di Fusine*, a forest area of the Friuli-Venezia Giulia Autonomous Region of 2,000 hectares which is PEFC certified.

In each area the calculation models for Carbon Stock were applied. They also included the forestry management related to option “0” (no management), for example, CO2FIX and then a set of at least 20 hectares per area was chosen where the identified ecosystem services were to be implemented.

This had two objectives:

1. to provide information to create service certification protocols;
2. to provide data to be integrated in the analyses of the environmental footprint of the wood chain that uses the wood in these areas.

The last step was to translate the ecosystem services into “saleable products” by conferring a useful economic value to place them on the market. Currently, this is done in part for the carbon credits, while for most of the other ecosystem services the lack of valid and immediate parameters for the quantification and attribution of an economic value hinders their marketing and remuneration. Pilot projects can be found in Great Britain, and in Italy there are also some examples, such as in the *Comunale Parmensi* area with the Leroy Merlin retail chain. However, despite these experiences, a procedure has still not been established allowing for their positioning in a wider and structured market. Therefore, this was one of the project’s main objectives and there was an attempt to disseminate this type of credits on the voluntary market through an increasingly active role under an environmental profile by the Business Associations, *in primis* those of Confindustria.

Table of Partners

NAME	DESCRIPTION	ABBREVIATION
Scuola Superiore di Studi Universitari e di Perfezionamento Sant'Anna	The <i>Scuola Superiore Sant'Anna</i> is a public university – with special autonomy – that has the aim to promote, nationally and internationally, the development of culture and scientific and technological research.	SSSUP
Consorzio Comunale Parmensi	The <i>Consorzio Comunale Parmensi</i> is an entity that manages, from a technical and administrative point of view, the agricultural-forestry and pastoral assets of the Forestry Comunale and Consorzi among private activities of the Parma Apennines. The objectives are to enhance 3 large categories that involve the	CCP

	forestry management of the associated property - the environmental, social and economic roles.	
FederlegnoArredo	From 1945, FederlegnoArredo has been the Italian industrial association uniting all the companies operating nationally in the sector of the processing and converting of wood-based biomass, in the sector of furniture with a view to the circular economy.	FLA
Legambiente onlus	Legambiente is the most widespread environmental association in Italy. It conducts numerous awareness-raising and information campaigns on environmental issues. It works against environmental crimes and promotes solidarity and peace. It acts at local, national and European levels to promote sustainable development, the green economy and adaptation to climate change.	LEGAMB
Autonomous Region of Friuli-Venezia Giulia, Forestry Service and Forestry Corps	Friuli-Venezia Giulia is one of the 20 regions of Italy and among the 5 with a special status. The regional office of the agricultural, natural and forestry resources carry out activities in research, management and monitoring and preservation of the biodiversity.	RAFVG
Emilia-Romagna Region, Protected Areas Service, Forests and Mountain Development	The Protected Areas, Forests and Mountain Development (PAFMD) Service of the Emilia-Romagna Region is responsible for coordinating the regional measures supporting the conservation of the protected areas and the enhancement of the region's natural heritage. PAFMD foresees the measures for protection, management, monitoring and planning of the sites of the Natura 2000 network, the coordination and implementation of the EU Directives "Habitat" and "Birds",	RER

	as well as the public and private forestry planning.	
Union of Romagna Forlivese Municipalities – Mountain Union	<p>The Union of Romagna Forlivese Municipalities (UCRF) was set up in 2016 by the Union Forlivese Apennine Mountain Communities, by the Pianura Forlivese Association of Municipalities and the Union of Montana Acquacheta-Romagna Toscana.</p> <p>The UCRF brings together 15 municipalities and extends over about 1,262 sq km. The UCRF manages the forestry, agricultural and pastoral areas of the municipalities of the Forli-Cesena Province.</p>	UCRF
University of Milan	<p>The University of Milan, founded in 1924, is one of the leading public universities in Italy for its commitment to scientific research. It is the only Italian university belonging to the League of European Research Universities (LERU), involving 23 European universities. With about 2,200 full-time professors and almost 60,000 students, the University of Milan is the largest university in Lombardy and offers different programmes of study covering 3 macro-disciplinary areas, such as Human, Social and Juridical Sciences, Medicine and Health, and Natural Sciences.</p>	UMIL

## CHAPTER – THE REPLICABLE ACTIONS

The actions presented in the manual stand out for their innovative features, the great impact they have had and the possibility to be replicated in different contexts to the original one.

Below are some activities developed in the following actions:

ACTION	PARTNER	AIM	ACTIVITY
Action C2	SSSUP	To develop an analysis of the wood industry life cycle in the study area in line with EU Rec. 2013/179, and to create a complete PEFCR and draw up a plan to improve the companies participating in the pilot study	Governance for the creation of the PEFCR: Steering Committee (SC), Technical Secretariat (TS) PEF screening PEF studies to support the PEFCR for 3 companies Definition of the improvement plan on the identified environmental impacts Verification and dissemination of the PEFCR at local level; training of local operators; creation of a SME toolkit and communications actions
Action C3	FLA	To evaluate the carbon reserves in the wood products, especially those used in construction, that last for more than 100 years	<ul style="list-style-type: none"> <li>• Evaluation methods for carbon stock in wood products</li> <li>• Development of an accounting system for the wood species</li> <li>• Evaluation of the benefits for stakeholders</li> </ul>
Action C4	CCP	To establish an ecosystem services certification standard	<ul style="list-style-type: none"> <li>• Creation of a standardisation system that quantifies the ecosystem credits from sustainable forestry management</li> <li>• Definition of the criteria for assigning the monetary value to the ecosystem credits</li> </ul>

			<ul style="list-style-type: none"> <li>• Application of the standardised rules to the project areas</li> </ul>
Action C5	SSSUP	To evaluate how the ecosystem services can be modified in monetary terms and establish procedures and rules necessary to activate the EESP mechanism (ecosystem and environmental services payment) which can enter the market directly for the companies (with the mediation of the representative associations) or as an added component of the green bond	<ul style="list-style-type: none"> <li>• Development of a voluntary market for the greenhouse emission credits</li> <li>• Setting the criteria to avoid greenwashing</li> <li>• Establishment of the criteria for ecosystem credit compliance with the European green bond standard</li> </ul>
Action C6	RER	To establish, by creating a dataset, the support instruments for the regional forestry policies of the partners involved in the project	<ul style="list-style-type: none"> <li>• Establishment of the dataset</li> <li>• Promotion of the cascading use of wood</li> </ul>



## Example of replicable action card

### **ACTION DESCRIPTION**

What has been done, what is the aim, how, what have been the results attained and the actors involved.

### **WHY IS IT INTERESTING**

What has made this action suitable to be replicated.

### **IMPACTS ATTAINED**

Impacts attained by the action.

### **ELEMENTS OF SUCCESS**

What are the elements that have guaranteed the success of the action and without which the outcomes would not have been attained.

### **POSSIBLE PROBLEMS**

What are the problems for those wishing to develop a similar initiative must be considered, and what are the strategies to adopt to deal with these problems.

### **IN WHICH CONTEXTS IS IT REPLICABLE**

What are the features that an area must have so that the action can be replicated. Concrete indications of possible areas where the activities may be replicated.

### **IMAGES**

One or two images showing the action.

### **LINK**

Possible video/website links for more detail.

### **REFERENCES**

References to be contacted.

## Actions

### **ACTION C2**

#### **ACTION DESCRIPTION**

Action C2, managed by the SSSUP, allowed for establishing the PEFCR (PEF *Category Rules*) – that is, the category rules to carry out the PEF in the wood sector – based on three project pilot areas considered representative of the Italian wood supply chain. After having individuated the companies working in the sector and interested in the study on the environmental impact of their products, based on the PEFCR, a study was conducted using the PEF methodology on three types of wood – fuelwood (2 companies), pallets (1 company) and wooden beams (1 company). The PEF analysis on these four products studied their impact throughout their life cycle, following the LCA (Life Cycle Assessment), therefore, identifying the categories of the most significant environmental footprint. For the more important impact categories, “hot spots” were individuated for these companies and, subsequently, improvement plans were drawn up with actions that the companies should have had to follow to improve the environmental impact of the products analysed. The final part of this action concerned a second PEF study, after the implementation of the improvement actions, to compare the environmental impact of the products before and after. At the same time, a toolkit was created which the SMEs could use for a self-analysis of the environmental impact of their products. Finally, the action concluded with the training of professionals and companies working in the forestry sector and forestry workers on the themes of the PEF, Sustainable Forestry Management to increase the CO<sub>2</sub> storage and on the standard for the ecosystem credits developed in the project.

#### **WHY IS IT INTERESTING**

This action is interesting in that it shows the utility of the PEF methodology and of its application in the wood sector to quantify the products’ environmental impacts and, successively, make the improvement actions aimed at reducing the wood product environmental impact possible. Finally, the creation of the self-analysis toolkit was fundamental as SMEs that may have difficulties in contacting consultancy institutes regarding environmental impact issues, can carry out an in-house study, even if not in-depth, of their own impact and improve. The training was essential to increase the knowledge on CO<sub>2</sub> stock in wood and on the use of the PEF for those working in the wood sector.

#### **IMPACTS ATTAINED**

The companies became more aware of the wood product life cycle and, therefore, of the environmental impact, and able to identify concrete improvement actions which they put into place.

#### **ELEMENTS OF SUCCESS**

The companies displayed enthusiasm in being made aware of the usefulness of the PEF as an instrument to achieve the maximum sustainability for their wood products and processing.

#### **POSSIBLE PROBLEMS**

It is possible that some companies are unwilling to calculate the environmental impact of their processing and products, making it more difficult to verify an improvement in their environmental performance.

#### **IN WHICH CONTEXTS IS IT REPLICABLE**

Thanks to the creation of the PEFCR for wood products, the PEF study can be replicated for any type of wood product, as long as the data provided is precise and complete regarding the consumption necessary to produce them.

## IMAGES



## LINKS

<https://lifeco2pefandpes.eu/pef/>

[https://www.lifeprefer.it/Portals/0/Downloads/raccomandazione\\_commissione\\_2013\\_179\\_UE.pdf](https://www.lifeprefer.it/Portals/0/Downloads/raccomandazione_commissione_2013_179_UE.pdf)

[https://green-business.ec.europa.eu/environmental-footprint-methods\\_en](https://green-business.ec.europa.eu/environmental-footprint-methods_en)

[https://green-business.ec.europa.eu/environmental-footprint-methods\\_en](https://green-business.ec.europa.eu/environmental-footprint-methods_en)

## REFERENCES

[Sara.tessitore@santannapisa.it](mailto:Sara.tessitore@santannapisa.it)

[Roberta.croce@santannapisa.it](mailto:Roberta.croce@santannapisa.it)

## **ACTION C3**

### **ACTION DESCRIPTION**

Action C3, managed by FederlegnoArredo (FLA), allowed for developing a methodology to evaluate the carbon stock in harvested wood products (HWP). In particular, the focus was on quantifying the carbon stock throughout the entire wood product life cycle, from the forest to the sawmill to the final destination.

At the same time as establishing a specific calculation method for each wood species, this action developed a web-based interactive tool - "Carbon Tool" - thanks to which it is possible to calculate the net carbon stock in sawn wood, in relation to the different wood species typical of Italian and European forests used in wood working (e.g., *Populus spp.*, *Pinus sylvestris*, *Abies spp.*, *Castanea sativa*, *Picea abies*, *Pseudotsuga menziesii*, *Larix decidua*).

The calculation takes into account the carbon footprint of the sawn wood production (data from the Ecoinvent database) and the net carbon stock of each different tree species. The calculation parameters considered are:

- a. the wood species
- b. 1 KG/MC considered

After doing the calculation, the user can download a pdf document containing the results of the net carbon stock, that also includes Chain of Custody certification (PEFC/FSC).

### **WHY IS IT INTERESTING**

This action is interesting in that it allows for showing, simply, the carbon stock value in long-term wood products, differentiating taxonomically between the specific sawn wood categories and drawing a comparison with the reference values established in the IPCC reports.

The possibility for the single operator (user) to memorise in the calculation system all the operations considered, even for different times, allows for a complete periodic calculation of the carbon stock generated.

### **IMPACTS ATTAINED**

The companies, becoming more aware of their products' life cycle and, therefore, their environmental impact, have an instrument available making it easier to measure the carbon stock, even at different times, also allowing for using this information in the specific communications instruments.

### **ELEMENTS OF SUCCESS**

The Tool was presented to both companies and operators in the sector, and to the stakeholders potentially interested in acquiring quantitative information on the carbon stock in an area, of a sector, of a single company, and over a defined period.

For the companies, the Tool is an intuitive instrument to quantify and measure over time the carbon stock generated, using the information for internal reporting and external communications, and exploiting eventual increases.

Moreover, it was presented to a delegation of Dutch operators (businesspeople, students and employees in training centres for the wood-furniture sector) who appreciated the efforts to offer instruments to measure the carbon stock.

### **POSSIBLE PROBLEMS**

It is possible that some companies are reluctant to use the methodology developed, using the instrument sporadically, without constantly updating it and, thus, losing its effectiveness, especially where the data use for external communications is concerned.

## IN WHICH CONTEXTS IS IT REPLICABLE

The Tool is potentially usable for companies involved in processing sawn wood (construction and pole fabrication, packaging (EPAL pallets), fruit/vegetable packaging), working in the European market, in different national situations.

## IMAGES

Type of sawn

Certifications

PEFC  FSC

✓ Carbon Stock Calculations

TOTAL 📈 Calcs: 2 🌳 kgCO<sub>2</sub>: 80,399.00 FSC 📈 Calcs: 2 🌳 kgCO<sub>2</sub>: 80,399.00 PEFC 📈 Calcs: 0 🌳 kgCO<sub>2</sub>: 0.00

Show 10

ID ↕	User	Category	Type	Quantity	kgCO <sub>2</sub>	Date	Cert.	Actions
23	FederlegnoArredo	sawn	Oak - Quercus spp	40.00 m <sup>3</sup>	48,824.00	2022-11-11 11:15:00	FSC	<input type="button" value="INFO"/> <input type="button" value="PDF"/> <input type="button" value="DEL"/>
22	FederlegnoArredo	sawn	Poplar - Populus spp	40.00 m <sup>3</sup>	31,575.00	2022-11-07 15:39:02	FSC	<input type="button" value="INFO"/> <input type="button" value="PDF"/> <input type="button" value="DEL"/>



## LINKS

<https://app.lifeco2pefandpes.eu/>

<https://lifeco2pefandpes.eu/e-online-il-tool-per-il-calcolo-dello-stock-netto-di-carbonio-nel-legno-segato/>

<https://www.federlegnoarredo.it/it/federazione/progetti/ufficio-progetti-europei/progetti-europei/co2-pes-pef-in-corso>

## REFERENCES

[chiara.terraneo@federlegnoarredo.it](mailto:chiara.terraneo@federlegnoarredo.it)

[omar.degoli@federlegnoarredo.it](mailto:omar.degoli@federlegnoarredo.it)



## **ACTION C4**

### **ACTION DESCRIPTION**

The aim of Action C4, managed by CCP, was to study a standard that would be able to quantify the carbon credits generated by the sustainable forestry management of the existing forests. Therefore, in collaboration with PEFC Italia, this standard was developed and called "*Standard di certificazione dei Servizi Ecosistemici generati da boschi e piantagioni gestiti in maniera sostenibile*" (Standard for the certification of ecosystem services from sustainably managed forests and plantations), now in Version 04, which foresees the methodologies that the certified PEFC forest owners must adopt to be able to quantify the ecosystem services generated by the sustainable management of the forests they manage. The action also provided for the standard test phase, through the creation of additionality projects that would produce actual credits. The actors involved were three operative partners in the project (Consorzio Comunalie Parmensi, Fusine and Demanio forlivese). Above all, the first partner carried out two projects generating credits that have already been sold to companies which intend to offset their emissions, demonstrating the project's validity.

### **WHY IS IT INTERESTING**

It is highly important for the forest managers to recognise for the ecosystem services that a good management "is a gift" for all. For the first time, a standard provides for sustainability credits to be sold to companies, and these are certified credits from a certification entity, Accredia. It is replicable because, already from the very beginning, other different actors (Consorzio Boschi Carnici, Parco Nazionale Tosco Emiliano, and others) adopted the standard as a model and generated certified and saleable credits on the voluntary market.

### **IMPACTS ATTAINED**

The credits already sold were invested in the management of the forests. In practice, the companies that emit CO2 finance good management, creating ecosystem services for all.

### **ELEMENTS OF SUCCESS**

Of course, having the collaboration of an entity such as PEFC, for decades involved in the certification of sustainable forestry management, was fundamental. The test phase was then carried out by the relevant forestry consortiums and the standard study conducted together with an important working group, with UNIMI and UNIPISA and the Emilia-Romagna and Friuli Regions.

### **POSSIBLE PROBLEMS**

The standard was studied to render the planning as virtuous as possible. The forests must be PEFC certified, therefore, they must have a management plan approved by the Region, and only then can they carry out an additionality project which generates credits. The problem, which is also a stimulus, is to have forests managed in an active and certified way and have large surface areas.

### **IN WHICH CONTEXTS IS IT REPLICABLE**

Every forest manager can develop these projects and generate credits.

They must be of a certain surface area because, if not, the additionality projects, which require work and time, will not generate sufficient credits. The Consorzio Comunalie has a lot of credits available to sell.

## IMAGES



## LINKS

<https://lifeco2pefandpes.eu/deliverables/>

## REFERENCES

Antonio Mortali, Director of Consorzio Comunalie Parmensi, Via Nazionale 90 Borgo Val di Taro (PR) Tel. 339. 7843072

## **ACTION C5**

### **ACTION DESCRIPTION**

Action C5 of the project, managed by SSSUP, had the aim to develop a system of registration and exchange of ecosystem credits (generated in Action C4) to make the interaction between their supply and demand easier. This system of the PES (Payment of Ecosystem Services), that is of ecosystem services supplied by the forests to which an economic value is assigned, according to the standard developed by the project and presented in the previous actions. In this action, a carbon credit exchange platform, Eco2Care, was individuated, and where the credits generated by the pilot forests, following the project standard, were uploaded. Therefore, all the actions can be found, based on the standard, that resulted in the generation of these credits, and which are the future basis for their continued generation. Finally, a report was drawn up that includes the ecosystem credits as a “green” added value in investment projects financed by green bonds.

### **WHY IS IT INTERESTING**

This action is interesting in that it makes the usefulness of the project standard perceivable in evaluating the actions that contribute to increasing stock in the forests through generating ecosystem credits, which can be exchanged on the voluntary carbon market and which, consequently, also make the actions of Sustainable Forestry Management economically sustainable. Where replication is concerned, the standard developed by the project can be applied to other forests, both in Italy and Europe, to generate carbon credits to be exchanged on the voluntary carbon market.

### **IMPACTS ATTAINED**

The main impact is the listing of credits generated by the pilot forests on a carbon credit exchange platform.

### **ELEMENTS OF SUCCESS**

Many companies turn to buying carbon credits for their decarbonisation actions, and this is an incentive to move on to all the actions that result in the generation of ecosystem credits by forestry managers/owners, as they can use this method for their own self-financing.

### **POSSIBLE PROBLEMS**

To be able to effectively exchange carbon credits on a voluntary market platform, the certification by a third party certifier is needed and which, then, requires further interventions in the forest. These can be costly and difficult to achieve, and so, the owner may not have the incentive to carry out the actions to generate ecosystem credits.

### **IN WHICH CONTEXTS IS IT REPLICABLE**

It can be replicated in any forest context that has applied the project standard and generated carbon credits that can be exchanged on the Eco2Care platform or other platforms with the same role.

### **LINKS**

[https://www.eco2care.org/Progetti\\_Menu.aspx?dimostrativo=true](https://www.eco2care.org/Progetti_Menu.aspx?dimostrativo=true)

## REFERENCES

[Sara.tessitore@santannapisa.it](mailto:Sara.tessitore@santannapisa.it)

[Roberta.croce@santannapisa.it](mailto:Roberta.croce@santannapisa.it)

## **ACTION C6**

### **ACTION DESCRIPTION**

Action C6, managed by the Emilia-Romagna Region, Protected Areas Sector, Forests and Mountain Zone Development, aimed at transforming the information and activities gathered during the previous actions into a "Dataset to support the regional policies for forests and related elements". The aim of the "Forest Policy Dataset" was achieved, thanks to the approval of the Resolution of the Regional Council 1629 of 28/09/2022 *"Filiere foresta - legno: buone pratiche atte a ridurre le emissioni di CO<sub>2</sub> nel ciclo produttivo, ad incrementarne lo stoccaggio nell'ecosistema foresta e nel prodotto legno"* (The Wood Supply Chain: Good Practices to reduce CO<sub>2</sub> emissions in the productive cycle and increase carbon stock in the forest ecosystem and wood product). With this act, the Emilia-Romagna Region lay the foundations to "address" its actions towards supporting all those activities involving the forest-wood supply chain and that affect the CO<sub>2</sub> storage of the regional forests.

This must occur through the promotion of active forestry management methods able to obtain an increase in the accumulation of CO<sub>2</sub> as well as increasing resilience before a continuously growing number of more evident climate changes that affect the forests and are not always sustainable.

Moreover, with Resolution 1629/2022, the intention is to allocate the available resources of the region by supporting the forestry companies that intend to carry out a transition to a new form of forestry management. As well, the guidelines in the resolution will have to also allow for impacting the larger scale planning activities and the possible drawing up and consequent implementation of a new Regional Forestry Plan. The action has allowed for a continuous and profitable exchange in the working group which has thus led to formulating the guidelines and minimum common criteria at national level.

The Forest Policy Dataset was created to promote useful activities to increase the capacity of the forests to store carbon. Specifically, for:

- the conservation of "islands of ageing forest" – nuclei or areas of vegetation not entirely used in the forest zone to be felled;
- actions to increase the biomass in the high forest - the planning of the entire forest to establish a balanced spatial distribution of the chronological classes within the whole forest and a balanced diametric distribution in the multi-plan and uneven-aged forest stands;
- activities to reduce CO<sub>2</sub> emissions into the atmosphere – forestry projects to limit the spread and intensity of fires by reducing the excessive accumulation of dry biomass and by interrupting the vertical continuity of the combustible potential from the ground to the upper canopy stratum;
- projects to guarantee the forest ecosystem's integrity, the protection of the habitat and biodiversity such as leaving dead trunks standing or on the ground and/or tree species to be marked for natural ageing for ecological and landscape reasons, chosen from among the seed-producing plants of larger diameters, with preference for shrubs, ageing plants or those with hollows;
- activities to increase other ecosystem services such as projects to directly improve protecting the forest from human encroachment, and from property and infrastructure damage caused by natural dangers such as avalanches, rockfalls, landslides, mud flows, etc.

### **WHY IS IT INTERESTING**

The activities proposed allowed for providing the region with guidelines to promote future forestry projects and good practices aimed at the sector operators.

The aim was to be able to recognise, also economically, the capacity to improve the regional forests from both a productive and protective point of view, as well as increasing their intrinsic value linked to the actual multi-functionality of the forest, as clearly described in the Ecosystem Payments.



## IMPACTS ATTAINED

- Support for the national working group to revise the Carbon Forestry Code of which the Emilia-Romagna Region is a member.
- Competence of the Regional Sector interested in implementing PSN “*SRA27 - Pagamento per impegni silvoambientali e impegni in materia di clima* (Payment for forestry and climate commitments)” card to support the companies involved in the forestry-wood chain in their ecological transition.

## ELEMENTS OF SUCCESS

The project, and specifically the action, has allowed for changing the general awareness of the importance that the forests hold in the regional area. The approval of the resolution, which came about after a heated confrontation within the regional government and with the members of the working group, allowed for tackling the issues previously dealt with marginally bringing them into the limelight, regionally and, thanks to different meetings effectively disseminating the issues, nationally.

The different papers drawn up have been essential instruments for implementing the new forestry management policies which had not been previously evaluated adequately.

## POSSIBLE PROBLEMS

As always, the problem of application as established by the project lies in the awareness and knowledge of those who work along the forest-wood supply chain. To overcome this problem it is necessary, as was attempted during the implementation phases of the project, to spread the results attained making each productive phase along the chain economically sustainable.

## IN WHICH CONTEXTS IS IT REPLICABLE

In all areas where the forest surface areas are of a sufficient size and, therefore, able to give life to a forest-wood supply chain.

## IMAGES







## LINKS

<https://ambiente.regione.emilia-romagna.it/it/parchi-natura2000/consultazione/progetti-europei/life-foreste/lifeco2pes-pef-le-foreste-che-rigenerano-l2019economia>

## REFERENCES

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## CHAPTER 3 – CONCLUSIONS

The LIFECO2PES&PEF Project was set up to promote and support forestry systems in CO<sub>2</sub> storage and in the prevention of the risks of fire and windfall, caused by added CO<sub>2</sub> emissions. This aim was achieved through the creation of a methodology that allows for identifying a set of ecosystem services (PES), supplied by the forests, and the assessment of their benefits, the improvement of the wood productive system and the creation of ecosystem credits to finance the services themselves.

The project, therefore, focused on the environmental and socio-economic impacts contributing to improving the forestry management in the experimental areas. Thanks to the project's actions, it was possible to demonstrate that a well-conducted forestry management can increase the forestry ecosystem services, above all the carbon stock, and thus all the productive system that makes use of these services can contribute to maintaining them.

Through these actions aimed at an analysis of the Product Environmental Footprint of the wood industries operating in the experimental areas and through the actions to improve the hot spots, there was an attempt to reduce the CO<sub>2</sub> emissions in cutting, sawing and carpentry, and as well in the energy and water consumption. Moreover, the use of wood was encouraged, being a material of renewable origins, if correctly managed, instead of using more polluting primary materials, thus, highlighting savings in terms of the environmental impact arising from the proposed substitution.

The project then saw the creation of a toolkit for the companies working in the wood industry, for the forestry sector technicians and the policy makers, local, national and European. This instrument allowed for calculating their ecological footprint and identifying the area best suited for the actions.

Other important activities included the study of the legislation, the organisational and management procedures to insert the ecosystem credits into the green bonds, the drawing up of the guidelines for the policies of the regions involved and the increase in the monitoring of the forestry activities, of the certification activities and the management of the ecosystem credits, as well as the financial activities related to the green bonds and eco-sustainable tourism.

To draw up this manual, the activities held to be more significant were taken from the project in order to replicate and/or transfer the results, other than the project itself, to other areas, other regions and in other countries.

Indeed, evaluating the carbon reserves in wood products, setting a certification standard for the ecosystem services, determining how the ecosystem services can be modified in monetary terms, deciding on the procedures and rules necessary to activate the EESP mechanism (Embedding Ecosystem Services into Policy), individuating, through establishing a dataset, the support instruments for forestry policies, developing an analysis of the life cycle of the wood industry in line with EU Rec. 2013/179 and, finally, creating a complete PEFCR and an improvement plan for the companies, are all the key elements of the project and demonstrate its possible replicability.

The aim of the Kyoto Protocol is to reduce, in industrialised countries, CO<sub>2</sub> emissions caused by the combustion of fossil-based composite materials. The periodic updating of the carbon balance over vast surface areas of the country offers an instrument that allows for a long-term and more efficient identifying and monitoring of the human impact on environmental and climate systems. A positive and much welcomed development, as the wide-scale deforestation and over-exploitation of the forests are, as occurs in developing countries, responsible for a fifth of the CO<sub>2</sub> emissions contributing markedly to climate imbalances. In the future, any kind of forest impoverishment will have to be avoided, while the sustainable management and use of the world's forest resources will have to be promoted.

The aspect that will play a long-term key role will have to be, however, a sustainable management of our forest heritage. This is a choice that involves the promotion of the use of wood as a source of energy and

material for construction, perfectly compatible with the needs of protecting the climate. The LIFECO2PES&PEF Project has shown that it is possible to identify and monitor, long-term and more effectively, the human impact on our environmental and climate systems.