



Guide to drafting mitigating forest management projects

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Forest management promotion for climate change mitigation through the design of a local market of climatic credits

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To implement climate change mitigation and adaptation measures on a landscape scale, it is necessary to draw up and implement a forestry project for mitigation and adaptation to climate change (PROMACC), based on a coherent proposal involving groups in the area working together. This guide sets out the content of a PROMACC and stages for implementing it, including an annex containing the measures to be taken into account concerning the project's impact on carbon, water and biodiversity.

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1. What is a PROMACC?

Forestry projects for mitigation and adaptation to climate change (PROMACC) are operational projects carried out by a group of forestry owners who commit to carrying out treatments that contribute to adapting the area to climate change and help mitigate it.

PROMACC projects:

- programme forestry management and restoration treatments¹ designed to maximise the role of forests in strategies for mitigating and adapting to climate change;
- are generated on a community basis within the affected area, seeking consensus among the main actors involved, adapted to the local context and capitalising on existing initiatives;
- ensure that all the planned treatments are climate-friendly, aiming for a positive overall balance between the three key processes for adaptation and mitigation: carbon, water and biodiversity;
- contribute to raising the status and appreciation of the role of the agro-forestry sector in the climate emergency.

PROMACCs work via a **climate credit market** to give businesses and institutions in many sectors the opportunity to fund a multifunctional forest management project aimed at producing **forest landscapes that are more resilient to climate change**.

PROMACCs put into practice the 6 principles of forest and landscape restoration, as they:

- are landscape focused;
- restore multiple functions to generate a range of benefits;
- involve stakeholders and contribute to participatory governance;
- maintain and improve landscapes' natural ecosystems;
- adapt to the local context using various approaches;
- are managed adaptively to ensure long-term resilience.

2. Contents and drafting of a PROMACC

¹ *Ecological restoration* is defined as measures that “generate a functional ecosystem that will be durable over time with minimum maintenance, with indigenous biological communities, and which is capable of producing ecosystem goods and services with an impact on the quality of life of the societies involved” (*Guía Práctica de Restauración Ecológica*, MITECO, 2021).

2.1. The PROMACC promoter

The promoter of a PROMACC may be a legally constituted association, management company or foundation. It takes on the role of encouraging and coordinating the participating owners and acting as an interlocutor between all the actors involved.

The main functions of the entity are to:

- Promote and coordinate the PROMACC.
- Coordinate the cooperation agreement with the owners. This is a required legal instrument that regulates the parties' rights and obligations.
- Help seek funding from the buyers of Climate Credits.
- Manage contracting and payments for the tasks associated with the implementation of the PROMACC.
- Take part in publicity and awareness raising actions.

2.2. The target landscape

The purpose of PROMACCs is to help generate landscapes that are resilient to the effects, certain and uncertain, of climate change. Different successive PROMACCs may be drawn up for a single landscape.

The selection of a target landscape must be consistent in bio-geographical, socio-economic and administrative terms, so that the chosen landscape has common cultural, landscape, environmental or economic features.

The area selected may correspond to the area covered by an association, or be defined by the boundaries of a range of hills, a water basin, a large municipality or group of municipalities, a park or area of natural interest.

2.3. Strategic framework: consensus and coherence with local strategic planning

The measures programmed in a PROMACC must address the strategic challenges of that specific landscape, with maximum consensus. The proposed starting point is a landscape scale participatory planning process which will help to identify priorities based on mitigation/adaptation criteria and synergies with local goals (bio-economic, tourism, conservation, etc.). It is necessary, therefore, to:

- Identify existing planning instruments affecting the surface and forestry management of the selected landscape or which establish strategic or tactical targets related to mitigation/adaptation to climate change (joint technical forestry management and improvement plans, municipal green infrastructure plans, management directives or instruments for habitats in the Natura 2000 network, strategic plans for areas of natural interest, urban master plans, rural development plans, etc.)

- Identify and involve the main agents in the forestry sector and other agents involved to arrive at a jointly agreed strategic framework for the operation of the PROMACC. These may include agents involved in drawing up the strategic instruments identified or who have been invited to meetings set up for this specific purpose.
- Complement, when necessary, the diagnosis, using other cartographic and key information on the existing state of carbon, water and biodiversity in the area being studied.

The Forest Ownership Centre (CPF) provides support and advice to promoters during this phase, which culminates in a **proposal or conceptual framework** that includes:

- The main ecosystem services to be strengthened in this landscape, based on a strategic framework that will form the basis of the various PROMACCs that may be presented for said landscape.
- Objectives of the PROMACC:
- Areas to be prioritised: zones identified as highly vulnerable or with a high concentration of ecosystem services where forestry treatments could have the greatest impact (strategic areas for preventing forest fires, zones where water filters back into aquifers, connecting zones, zones of ecological interest, zones that are vulnerable or where passive restoration is not permitted, zones of poor resilience, etc.).
- Reference ecosystems: the types of forest present in the landscape, each of which has its own climate challenges.
- Preferred forestry measures for mitigation/adaptation in this landscape, from the list of measures that may be funded via the climate credit market.

2.4. Stand inventories and description of the mitigation/adaptation forestry measures

Once the conceptual framework has been validated by the CPF, the following will be established: **the stands, by owner, the type of forest and the priority objective**, together with the forestry measures to be implemented in each of them **over a maximum period of 3 years**.

This phase includes:

- Selecting the stands to be treated and reaching agreements with their owners to form part of the project.
- Characterising each stand, with inventories to obtain expert estimates and the stand's Biodiversity Potential Index.
- Establishing priority objectives and the main ecosystem services to be provided by each stand, with the climate change mitigation/adaptation measures selected (see Annex 1).

- Establishing the management models and itineraries for each stand and the technical characteristics of the treatments to be implemented. The execution of the forestry treatments must ensure that any negative impact on the environment is minimised, especially on the forest floor, and must maximise the viability over time of the restored ecological processes.
- Obtaining the administrative permits necessary to carry out the treatment: amendment of any forestry planning instruments (IOF) applicable to the estate, or obtaining a permit.

In general, the proposed area to be treated will be **around 50 hectares**, to ensure the agility of the project, both in terms of securing funding and in performing the work. When determining the area, the following must be taken into account:

- Involving various owners.
- The size of the stands must be sufficient to ensure the processes can be restored but also appropriate for preventing risks and for learning.
- The selected stands may be in separate groups, if they are identified as priority areas for treatment, or dispersed around the landscape, if they are selected to provide a sample of the different reference ecosystems identified, or to comply with other local criteria.

2.5. Ex-ante estimate of the impact of the planned forestry treatments and of the climate credits generated

For each stand, it is necessary to measure **the impact of the mitigation/adaptation forestry treatments planned in the PROMACC over the 15 years following its implementation**. This will be done using the indicators and calculation methodology developed by the LIFE CLIMARK project (Cervera et al., 2021). An IT tool to help perform the calculations will be made available to the promoters.

The reference methodology estimates the impact of the forestry treatments compared with a control scenario of no management with regard to carbon, water and biodiversity.

2.6. Communication and awareness-raising actions

Depending on the needs identified by the PROMACC promoters or partner businesses and entities, awareness-raising activities may be organised (information sessions, panels, team-building, etc.) to increase understanding of the role of forest management and the agro-forestry sector in climate change mitigation/adaptation among various target audiences.

Those identified during the preparation of the PROMACC must be listed, bearing in mind that activities may be added to reflect new needs that arise for the local actors or partner entities.

At least the following must be planned:

- The preparation of temporary posters explaining the work, to be displayed in all the stands from the date work starts until it is completed.
- A visit to the area with local actors, with the participation of the executing company, before, during or after the work is completed.

2.7. Economic assessment of the implementation of the mitigation/adaptation measures

The forestry service company or companies that will be responsible for carrying out the planned treatments must be specified. This will include the forestry work companies that will carry out the work and the companies or bodies that will supervise it to ensure the project is correctly implemented, including tagging the trees to be removed or left and the ongoing monitoring of the work to be done. It will also be necessary to set up training for the work team with the company assigned to supervise the work. This may be supported by the Forest Ownership Centre.

A budget must be prepared for all the measures and tasks to be carried out for each stand identified, and for the PROMACC project as a whole. This must include, at least, the cost of the forestry works and supervision, and the training needed to ensure the work is performed correctly. Where planting is to take place, the cost of subsequent maintenance must be included, for at least one year post-treatment.

The cost of communication activities may be taken into account when calculating the final price of the climate credit, together with the costs of marketing the PROMACC.

2.8. Assessment of the climate credits

Once the total impact of the project has been quantified, this is used to calculate the **value of the environmental and economic impact of each climate credit in the PROMACC, which is equivalent to one hectare of resilient landscape**. This process establishes the total number of climate credits, the value of the impact of each credit in terms of tonnes of CO₂ sequestered or avoided, cubic metres of blue water supplied and the percentage improvement in biodiversity hosting capacity, based on a weighted average of the selected stands. Finally, on the basis of the budget set for the whole PROMACC, the **economic value of each credit** is calculated.

3. Implementation stages of a PROMACC

The following phases are necessary to ensure a PROMACC is correctly implemented:

1. Approval of the conceptual framework and the PROMACC proposal by the forestry authority and its subsequent listing in the Registry. It is important to first validate the conceptual framework, the appropriateness of the measures selected for climate change mitigation/adaptation in accordance with the type of landscape, and the main ecosystem services to be provided. The project can then be approved in

accordance with the criteria established in the conceptual framework and the rules on drawing up a project.

2. Providing or establishing the mechanisms for securing minimum funding to begin the forestry tasks, i.e. defining the strategy for seeking funding before registering the project.
3. Signing of contracts between the funding entity and the PROMACC promoter.
4. Work supervision and training of the forestry work team, as established in the project document.
5. Awareness-raising actions, in line with the guidelines established above.
6. Certification of the work by the forestry authority: the CPF will carry out a partial validation process at the start, during and at the end of the work to ensure the project is correctly implemented, and will issue a final certification of the carbon, water and biodiversity ecosystem services generated.
7. Certification by the climate authority of the climate credits generated: the forestry certification issued will be the basis for a certificate that will determine the number of climate credits for each buyer and the total impact of all the credits allocated.
8. Registration of the climate credits sold and the credit reserve.
9. Post-treatment monitoring.

Annex 1. Forestry measures for climate change mitigation/adaptation

For a forestry project to generate climate credits, it must include treatments that are adapted to the local context. They must have a positive impact on **mitigating climate change** but also on **adapting to it**, in line with the Climate-Smart Forestry concept.

In Catalonia, and throughout the Mediterranean in general, there are three key vectors related to climate change on which forestry management can have a positive impact: the **carbon balance** (mitigation), the **water balance** (adaptation) and the conservation of **biodiversity** (mitigation/adaptation).

The list presented here sets out, for each of these 3 vectors, which **forestry treatments could have a positive impact**, specifying in each case the process by which this benefit is generated.

A new feature of this list, compared with the measures included in other forestry initiatives for offsetting carbon, is that in addition to **planting trees**, it includes the management of existing forests, with a **wide range of tree thinning or felling options**.

Meanwhile, as well as contributing mainly to the 3 objectives, any treatment funded using climate credits must guarantee that it will not harm (and will ideally improve) other climate change mitigation/adaptation aspects, both with regard to the forest and the products it generates, and the aquatic environments that the forest influences. For this reason, the concept of **climate integrity** has been included as a vital requisite of the climate credits. In practice, this means that any treatment must be planned and executed taking into account the following criteria:

- Biodiversity conservation and improvement
- Conservation of carbon stocks in the soil
- Enhancing resistance to forest fires
- Enhancing resistance to drought and plague
- Enhancing biodiversity

List of forestry treatments with an impact on climate change and their effects:

a) Mitigation measures aimed at maintaining, enhancing or restoring carbon stocks

1. Maintenance/enhancement of the CO ₂ sequestration capacity	
Treatments that enhance CO ₂ sequestration capacity at individual tree scale (and maintain or enhance it in the medium term at forestry stand scale)	Sapling thinning Thinning
Treatments that enhance the CO ₂ sequestration capacity of a <u>forest area</u>	Enrichment planting Reforestation (post-disturbance) Cutting to encourage regrowth
Treatments that enhance the CO ₂ sequestration capacity of an <u>agricultural area</u>	Agro-forestry planting Forestation

2. Conservation of carbon stocks/reducing emissions of CO₂	
Treatments that reduce the risk of CO ₂ emissions due to mortality (= enhancing vitality) or fires	Thinning in or outside strategic management points (PEG) Sapling thinning Selective undergrowth thinning
Treatments that maintain carbon stocks in woody vegetation for longer periods	Extending felling rotation periods Keeping seed trees (or groups) in place throughout rotations
Treatments that conserve or enhance carbon stocks in the soil	Post-fire conservation measures No construction of roads or breaks in high carbon stock areas Leaving dead wood in place (including felling waste) – treatment? Agro-forestry planting and/or mycorrhizae planting
3. Substituting materials/fossil fuels	
Production of long-life wood products	Extending felling rotation periods Tree-focused agro-forestry to produce quality wood (switch to timber production) Thinning Sapling thinning
Production of biomass and cork (for fuel or as a substitute for synthetic materials)	Sapling thinning Thinning Cork harvesting

b) Measures for adapting water resources to climate change

4. Improving the quantity of water and/or using it more efficiently	
Treatments that enhance filtration and run-off capacity (<u>blue water</u>)	Pasture transformation (meadow recovery) Clearing for grazing Thinning (especially conifers?) Sapling thinning Selective undergrowth thinning Cutting to encourage regrowth (seasonally)
Treatments that enhance the efficient use of water (<u>blue water</u>)	Sapling thinning Thinning
5. Maintaining or enhancing water quality	

Treatments that conserve or enhance the surface area with tree cover and the forestry soil <u>in basins where water is extracted</u> (= restoration of forest surface or enhancing the vitality of existing masses and/or reducing the risk of fire)	Reforestation (post-disturbance) Enrichment planting Agro-forestry planting Forestation Promoting of mixed forests with leafy species Sapling thinning Thinning (in and outside PEGs) and selective undergrowth thinning Lower impact deforestation methods No construction of roads or breaks in areas where water is captured
Treatments to limit increases in water temperature	Maintenance of riverside forests
6. Regulation of strongly flowing watercourses	
Conservation of forest cover at headwaters	The same as point 5.1

c) Measures (mitigation/adaptation) to conserve/enhance biodiversity

7. Prioritising conservation objectives	
Treatments that bring the forest closer to maturity, with a natural range of species in different silvogenetic phases	Treatments to introduce natural dynamics Extending felling rotation periods Thinning
8. Integration of conservation criteria in forests managed for production	
Increasing structural complexity to improve capacity for adaptation and resilience: encouraging diversity in terms of genetics, species and forest strata	Promoting mixed forest with a range of ages Encouraging seeded trees Selective undergrowth thinning Enrichment planting
Conservation of old or large trees or those with unique features (MH) to encourage maximum taxonomic diversity	Keeping seed trees (or groups) in place Maintenance of sporadic species and key MH
Generation of large pieces of dead wood, standing or fallen, to encourage saproxylic organisms	No cutting or removal of large pieces of dead wood Ringing trees with a diameter of >20 cm Felling, leaving a certain number of tall stumps Felling and leaving a certain number of large logs on the ground
Treatments that encourage the growth of flowering species to attract butterflies and pollinators	Concentrating felling in certain places (opening clearings) to encourage light to enter Undergrowth thinning next to tracks