Deliverable Nº 26

REPORT ON IMPACT OF DEMONSTRATION ACTIONS AT LOCAL LEVEL AND GUIDELINES ON REPLICATION

UPV

10/31/2022

Report on impact of demonstration actions at local level and guidelines on replication

ACTION D.1: Project results monitoring

INDEX

Deliverable 26; name: *Report on impact of demonstration actions at local level and guidelines on replication*

Beneficiary responsible: UPV

Action D 1: *Project results monitoring*

From month 9 – month 48

Name of the Deliverable	Number of associated action	Deadline
Report on impact of demonstration actions at local level and guidelines on replication	Project results monitoring	01/2022

1. Demonstration actions

The demonstration actions aim to validate the DSS and also to prove its usefulness. In this sense, the project has virtually applied the DSS tool at the 3 pilot areas (Spain, Germany and Portugal) and validated the results with field and satellite information, the results of this validation are reported in the Report of the project Performance Indicators. Likewise, the project has developed demonstration actions by implementing the forest management obtained with the DSS in Spain.

The demonstration in the local area of Serra has leaded to a real implementation of forest management. After the Forest Management Plan was improved (Deliverable n 8) by using the earliest version of the DSS tool, Serra's authorities applied forest management to 3 of the Forest Working Units (FWU): 28a, 29b and 4a (see figure 1), and also to some Wildland Urban Interface areas in order to prevent against wildfire. The forest management developed in the FWUs corresponded to sanitary thinning, where FWU 28a and 29b where completely managed while 4a has only been partially managed.
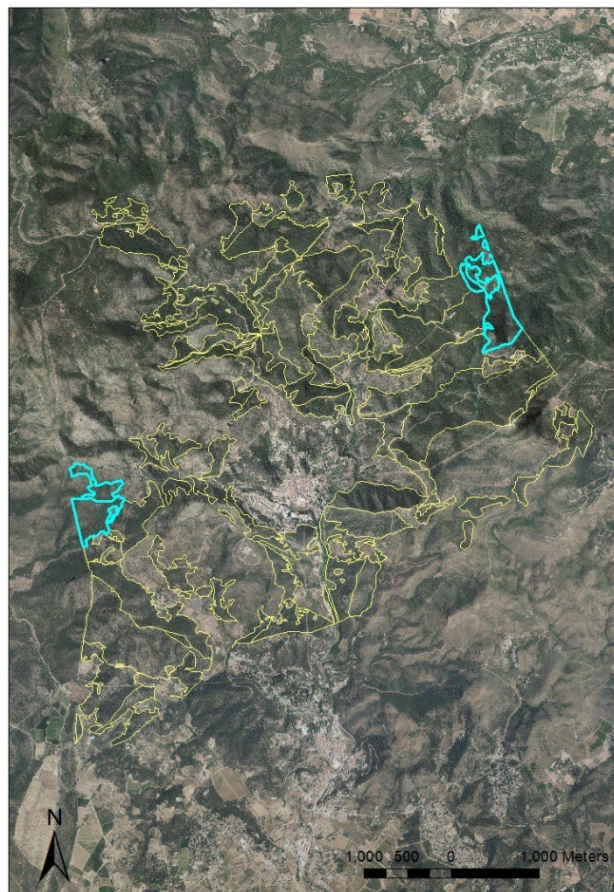

Figure 1: Forest Working Units of Serra. In blue are highlighted the ones where the demonstration actions have been implemented.

The FWU 4a has an area 29.92 of ha, 54 % slope and 51 % forest cover. The main species in this FWU are *Pinus halepensis* and *Pinus pinaster*, with an averaged LAI of 1.4 and a Potential Biodiversity Index (PBI) of 10. The proposed management was first sanitary thinning (see figure 2) and then regular thinning to promote the tree renovation. By now Serra is developing the sanitary thinning, which has a positive impact on fire risk and also on pest outbursts (Tomicus sp). The managed area by now only covers 10 ha, but the municipality is still working here.

Figure 2: Dead trees of 4a FWU.

FWU 28a has an area of 9.62 ha, 31 % slope and a forest cover of 75 % (40 % trees). The main species is *Pinus halepnesis*, with an averaged LAI of 1.1 and a PBI of 7. Like in the case of 4a the first management corresponds to sanitary thinning, which has been applied to the totality of the FWU. The impacts of this demonstration action also go in the line of reducing fire risk by changing and lightening the fuel model and also by removing possible *Tomicus* infection focus.

Figure 53: Managed forest stands in Serra. Left 28a and right 29a.

FWU 29a has an area of 9.16 ha, 52 % slope and a forest cover of 80 % (40 % trees). The main species is *Pinus halepnesis*, with an averaged LAI of 1.1 and a PBI of 7. Like in the case of 4a and

28a, the first management corresponds to sanitary thinning, which has been applied to the totality of the FWU. The impacts of this demonstration action also go in the line of reducing fire risk by changing and lightening the fuel model and also by removing possible *Tomicus* infection focus.

The demonstration actions in Serra have several positive impacts. From the **environmental point of view**, the application has significantly reduced the fire risk and pest outbursts, which increases the forest resilience against climate change. We have not registered any impact on water provisioning as the applied management focused on dead and unhealthy trees, which do not play a significant role in the hydrological cycling.

From the **economic point of view**, this management resulted in increasing the biomass availability to produce and consume pellets. In this sense, the **pellet production has increased** 60 Mg/year to 175 Mg/yr (see Table 1). At the same time, increasing the pellet production implied increasing the people working both in the forest and in the plant itself.

Table 1: Yearly pellet production and sales at Serra.

Year	Pellet production (t)	Sales (nº of pellet bags)
2019	150	664
2020	170	1199
2021	175	1101
2022	175	1081
2023 (until March)	Not available yet	372

From the **social point of view** the demonstration actions together with the project participative workshop and dissemination activities has raised the interest in forest management and biomass production not just locally but also in the villages nearby. Thanks to the demonstration actions, **Serra's citizens** have seen the need of forest management in the area, and it has already been approved the **continuation with the Forest Management Plan** application during 2024. The fact that forest management is being applied has also brought the possibility of recovering the grazing activities in the area, as foreseen in the Forest Management Plan, and a public tender for grazing in the area has been resolved with a livestock of 160 head.

Likewise, nearby villages such as Olocau, Lliria or Gilet have already showed their interest in replicating the Serra's pilot case.

2. Replication guidelines

Replicating this project means on the one hand being able to transfer the positive impact of sustainable forest management, and on the other hand, using the DSS tool along the process. In other words, this project is not just about developing and implementing a DSS tool, but it is also about showing, with high accuracy, the potential impacts of forest management on the forest Goods and Services provisioning and on increasing its climatic resilience. In this sense, the first step is mapping target users and strategic stakeholders. So far, forest is public or private space, so stakeholders must be involved from the very beginning of the process. Stakeholder Analysis (SA) is a widely used decision-support tool (Bendtsen et al., 2021) which start by a clear definition to what "stakeholders" (hereafter, SH) means and which guidelines follow to perform the analysis, including identification, determination of interests, power, influence and how to document and report findings (Bendtsen et al., 2021). In the SA, individuals or groups of individuals who are directly or indirectly affected by a project or organization, have interest in or can affect a decision, are identified and their roles, relations and/or interests are systematically analysed.

In this context, the first step in the SA is the needs to clearly define what the term "stakeholder" includes. The Stakeholder Theory (ST) stress the interconnected relationships between an organization or projects, and its customers, suppliers, employees, investors, communities, social entities and others agents who have a stake in the organization or projects (Jones et al., 2017). Accordingly, organizations or projects deal with a multitude of constituent groups and a deep analysis of what these relationships mean is needed. Freeman (1984) developed a comprehensive and integrated understanding of the stakeholder concept. More in detail, as for the stakeholder definition he/she is who has specific knowledge or direct or indirect relation about the studied idea, project or initiative. The stakeholders have a relation and are motivated by the specific project or initiative aiming at influencing on its

implementation. The stakeholder approach seeks to broaden management's vision beyond profit maximization. Particularly, ST deals with the nature of the relationships between the organization and its various stakeholders especially in terms of the processes and outcomes for the organization/project and the stakeholders.

The stakeholders' mapping consists of the following main three phases:

•   Identification: listing the potential stakeholders

•   Analysis: evaluating the potential stakeholders

•   Prioritizing: ranking the potential stakeholders

The first task of stakeholders' mapping is the preliminary identification of the stakeholders. Clarifying the description of the project or the initiative will help the implementation of this task. These goals will contribute to the effective depiction of the required characteristics of the stakeholders and the identification of which types/categories of stakeholders are required. In the same way, it is important to realize that stakeholders must have specific roles during their engagement. Therefore, a prioritization exercise is needed to clearly identify their roles and to analyse their level of involvement. The identification of their role is crucial because some stakeholders' roles are more influential and significant than others.

For the **identification** of the Stakeholders, an initial stakeholder screening is used as a top-down approach since it is less time- and resource-consuming. This initial approach is based on literature review and previous conducted studies to collect data on potential related stakeholders to the project. In a second step, a bottom-up approach is usually used by means of a snowball-sampling where researchers ask stakeholders (from the top-down identified list) to nominate other stakeholders as potential interested in the project (Clausen et al., 2020). This approach requires more experience and time and can be based on deep interviews and participatory qualitative methods such as Focus Groups, World Cafè discussions, Nominal Groups Discussions to analyse stakeholders' opinions and interests.

After the step of the stakeholders' identification, characteristics and profiles, stakeholders should be **analysed**. It is important to have in mind that different stakeholders may have completely different levels of interest and influence towards the project. Nevertheless, the stakeholders should represent a mix of perspectives, experiences and roles relative to the project.

Once the criteria are analysed, the next step of the stakeholders' mapping is the **prioritization** process which aims at the scoring (prioritization) of the identified stakeholders that should lead to identify between 12-16 stakeholders.

Once the stakeholders mapping is complete, the next phase is **identifying socioeconomic and social needs dependent on the forest ecosystem and its indicators at subcatchment level**. Despite the information that could be found about environmental and socioeconomic conditions in each site (catchment and sub catchment) and its surrounding area, local people's knowledge about the relevance of ecosystem services provided by the forest is needed. They can analyse how Ecosystem Services provision conditioning or influence socioeconomic activities currently developed in their territorial area.

With the indicators obtained in the previous phase, now is time to provide the stakeholders the results from the DSS that show the additionality of forest management in those indicators.

Finally, the internal constrains about the use of the DSS and the external limitations to implement the forest management scenarios proposed with the tool are analysed with the stakeholders. Likewise, political frameworks and/or instruments to allow or encourage the forest management approach are also analysed with the aim to find the way to implement the obtained forest management.