DESIRE WB 4&5 - Workshop report

WB4&5 Workshop 3 report - held in Escola Superior Agrária de Coimbra, Portugal, September 20, 2011

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This report was written in the context of the Desire project
www.desire-project.eu
Workshop Report

Stakeholder Workshop 3
Remediating Desertification by the reduction of burned area in Mação and Góis Municipalities, Portugal

Name of the study sites: Mação and Góis, Central Region of Portugal

Date of workshop: Coimbra, Portugal, 20 September 2011

Authors: António Ferreira, Celeste Coelho, João Soares, Manuela Carreiras, Sandra Valente, Tanya Esteves and Teresa Carvalho
I General information

A) Workshop

Workshop venue: Escola Superior Agrária de Coimbra
Workshop moderator(s): António Ferreira, Celeste Coelho, João Soares, Manuela Carreiras Sandra Valente, Tanya Esteves and Teresa Carvalho

The local stakeholders invited to the workshop were:
- members from the municipality council and parishes;
- Forest Technical Office (GTF) technicians;
- Municipal Civil Protection Agencies technicians;
- farmers;
- forest associations;
- local development associations.

The external stakeholders invited to the workshop were:
- AFN – Autoridade Florestal Nacional (National Authority to Forest) technicians;
- CCDR-C – Comissão de Coordenação de Desenvolvimento Regional da Região Centro (Commission for the Coordination of Regional Development in Central Portugal) technicians;
- DRAP-C – Direcção Regional da Agricultura e Pescas do Centro (Regional Department of Agriculture and Fisheries in Central Portugal) technicians;
- national representative of the Convention to Combat Desertification;
- researchers.

List of workshop participants:

<table>
<thead>
<tr>
<th>First name, name</th>
<th>Stakeholder category / institution (e.g. land user, researcher, NGO, GO)</th>
<th>Local (L) or external (E) participant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afonso Matias</td>
<td>ZIF representative</td>
<td>L</td>
</tr>
<tr>
<td>António Louro</td>
<td>Mação City Hall</td>
<td>L</td>
</tr>
<tr>
<td>Carlos Marques</td>
<td>Grupo de Intervenção de Protecção e Socorro (Emergency and Protection Intervention Group)</td>
<td>L</td>
</tr>
<tr>
<td>Fernando Lopes</td>
<td>National Forest Authority</td>
<td>E</td>
</tr>
</tbody>
</table>
Programme:

<table>
<thead>
<tr>
<th>Time:</th>
<th>Programme</th>
<th>Facilitator</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:20 – 9:30</td>
<td>Welcome to the participants</td>
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<tr>
<td>9:30 – 9:45</td>
<td>Presentation of the DESIRE Project</td>
<td>CC</td>
</tr>
<tr>
<td>9:45 – 10:10</td>
<td>Presentation of WB4 trial results</td>
<td>CC &amp; AF</td>
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<tr>
<td>10:10 – 10:25</td>
<td>Presentation of WB5 model outputs</td>
<td>TE</td>
</tr>
<tr>
<td>10:25 – 10:45</td>
<td>Coffee break</td>
<td></td>
</tr>
<tr>
<td>10:45 – 13:00</td>
<td>Exercise 1: Multi-criteria evaluation of remediation options at study site scale</td>
<td>SV &amp; JS &amp; TC</td>
</tr>
<tr>
<td>13:00 – 14:30</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>14:30 – 17:00</td>
<td>Exercise 2: How could we facilitate the adoption of the priority remediation options that have emerged at the study site scale?</td>
<td>MC</td>
</tr>
<tr>
<td>17:00 – 17:15</td>
<td>Workshop evaluation</td>
<td>SV</td>
</tr>
<tr>
<td>17:15 – 17:30</td>
<td>Next steps…</td>
<td>CC</td>
</tr>
</tbody>
</table>

B) Background

In Portugal, forest fires are one of the major factors of land degradation processes. Affecting large areas every year, they also have serious human, socio-economic and environmental impacts. Under the DESIRE project, two Portuguese study sites were selected – Mação and Góis. Both study sites are located in Central Portugal and are frequently affected by forest fires. The main features of the study sites are:

**Mação municipality** (Figure 1) - coordinates: 39º33'19.17''N 7º59'59.88''W:
- located on the northern bank of the Tejo River System (central Portugal);
- integrated in a climatic transitional zone between Atlantic and Mediterranean;
- altitude between 28 and 640 m;
- has rainfall from 1000 mm in the North to less than 600 mm per year in the South;
- soils very shallow and stony / Humic cambisols;
- steep slopes (> 20º);
- schist and metamorphic rocks;
- agro-silvo-pasture systems in the middle 20th century/ at the present forestry of *Pinus pinaster* and *Eucalyptus globulus* and shrubland;
- 7419 inhabitants / population density of 18,5 inhab/km² (2006);
- birth-rate of 6,3‰ (2006);
- death-rate of 23,1‰ (2006);
- negative growth rate (-2,2% in 2006);
- 16% of the population works on the primary sector;
- ageing index of 379 (pop >65 years old / pop <15 years old *100).

**Góis municipality** (Figure 2) - coordinates: 40º06'26.28"N 8º06'57.19"W:
- located on the northern bank of Lousã Mountain (central Portugal);
- altitude between 600 and 730 m;
- rainfall about 1200 mm, concentrated during winter season;
- soils very shallow and stony / Lithosols;
- steep slopes (≈ 20º);
- major land uses are dense shrubland and forestry, with small ruminants;
- some experience in prescribed fire;
- 4499 inhabitants / population density of 17,1 inhab/km² (2006);
- birth-rate of 7,3‰ (2006);
- death-rate of 19,0‰ (2006);
- negative growth rate (-1,17% in 2006);
- 15% of the population works on the primary sector;
- ageing index of 288.

Figure 1 – Mação municipality – a) Land degradation; b) Human depopulation; c) Forest fires (2003); d) Forest fires directly affecting human lives.

Figure 2 – Góis municipality – a) Human depopulation; b) Pinus pinaster forest with tracks c) prescribed burning.
In 2008 the first stakeholder workshop was held in Mação municipality and the main aims were: to develop a mutual learning process between local and external stakeholders around land degradation and conservation processes; to identify the ones already applied and the potential strategies to mitigate the desertification processes; and finally to select the best technologies and approaches to be documented in WOCAT database.

One year later, the objectives of the second stakeholder workshop held in Góis were to: jointly select one or two options (mitigation strategies) from the WOCAT database to be implemented/field-tested in the selected study site in the context of DESIRE WB4; and to strengthen trust and collaboration among concerned stakeholders. During the workshop there was a proposal for conducting a third workshop to verify the implementation of selected technologies.

**Remediation strategies that were tested in WB4:**

- **Primary Strip Network System for Fuel Management**
  The Primary Strip Network System for Fuel Management aims to redesign the landscape, through the establishment of discontinuities in the vegetation, in forest areas and in the rural landscape (for example using water bodies, agricultural land, pastures, rocky outcrops, shrubland and valuable forest stands).
  These primary strips are ≥ 125 metres width and preferably between 500 and 10,000 ha in surface area. The tree cover should be less than 50% of the area and the base of the tree canopy should not be lower than 3 metres.
  The main objectives of this technology are: to decrease the area affected by large fires; to enable the direct intervention of fire brigades; to reduce fire effects and protect roads, infrastructures and social equipment, urban areas and forest areas of special value; and to isolate potential fire ignition sources.

![Figure 3 – Technical specifications, dimensions and spacing for the Primary Strip Network System for Fuel Management.](image)

- **Prescribed Fire**
  The use of prescribed fire (or 'controlled burn') aims to reduce the fuel load in form of the live and dead plant material and thus, to prevent the likelihood of more damaging wildfire.
This technique is an essential management tool that applies fire to control the quantity of forest or scrubland fuels. The type of fire depends on the specific goals and on the weather conditions. In the first case it is important to consider the slope and the type of fuels to be burned. Weather conditions include temperature, wind direction and air humidity. Another important aspect is the ability to control the flame propagation velocity (Figure 4).

![Figure 4](image_url)

**Figure 4** – Prescribed fire implementation types and its specifications.

In order to carry out the controlled fire, a plan has to be delineated and approved and a fully-trained authorised technician must be present, in addition to the appropriate support teams (fire fighters, forest management teams). These teams (team size for about 10 ha is around 12 persons) use water or other means of combating the fire in the event of it possibly getting out of control and are in charge of the burning process.
Enhancement of grazing areas and the creation of the so-called primary network for wildfire defence (which is a national network) are set up to limit the spread of wildfire. It involves strategically burning key sites (e.g. mountain ridges) to restrict the spread of the wildfire. An analysis of weather conditions is made prior to carrying out the prescribed fire. On the day of the prescribed fire itself, safety checks are made and the specific tasks of all the team members are defined. The wind direction and strength need to be acceptable. The size of the team depends on the specific problems of the area to be treated. Prescribed fire used as a mean of improving grazing enables the local population’s needs to be addressed while taking into attention to environmental concerns. The prescribed fire also helps to protect the local population and their property by reducing the likelihood of devastating wildfires.

Thus, the aims of the third workshop were: to share and evaluate results from WBs 4 and 5 with stakeholders; and agree recommendations for agricultural extension; and national/local policy that can also be disseminated to a wider audience; to discuss whether the remediation technologies and approaches that gave positive results will be sustained into the future and identify the role of different stakeholders in doing this; and to evaluate how the project results can inform future needs and agendas.

II Results and conclusions from single steps of the Workshop 3

The workshop started with three presentations with the aim to introduce: the DESIRE project, the WB4 trial results and the WB5 model outputs.

The presentation of the DESIRE project was made by using the DESIRE film showing the Portuguese study sites, and a power-point presentation with the re-cap of the main results from the first and second workshops.

Concerning the WB4 trial results, two presentations were made by the study site coordinators. These presentations tried to integrate the main results from the field trials, but at the same time, in a simple and easy manner so stakeholders could understand.

On other hand, the WB5 presentations showed the PESERA model outputs. The model provided a multi-year cost-benefit analysis for applying the technique, using as an example the Mação municipality. Results for Góis were not yet available, it was stated that they could be sent upon request to the interested stakeholders latter on.

Participants were very interested in the presented subjects, having provided a healthy, brief Q&A period at the end of the presentations.
Exercise 1: Multi-criteria evaluation of remediation options at study sites scale

The aim of this exercise was to revisit criteria used in WB3 and re-evaluate the different technologies (primary strips network system for fuel management and prescribed fire), using the FACILITATOR software.

This exercise started highlighting the main results and conclusions of the workshops 1 and 2, either to refresh the memory of the previous participants or to inform the new ones.

As identified in workshop 1, the primary objective is the reduction of the burned area. The population abandonment and ageing that are occurring in the study areas, are closely related to forest fires occurrence; so it was mentioned that a reduction of the burned area will also demand the adoption of measures and policies to boost the local socioeconomic structure.

Under the first workshop, two technologies were identified to be documented in the WOCAT database - Primary Strip Network System for Fuel Management and Prescribed Fire.

The participants were asked if they still remembered the criteria selected in the second workshop and after that, they were invited to propose changes to the criteria (Figure 5). Just one criterion was changed, where the increase of water availability was replaced by disturbances in water cycle (Table 1).

Figure 5 – Overview of the participants and final result of the criteria per category.

It was considered important to divide the participants into three distinct groups. For the participants these two technologies are complementary. Thus, we used the FACILITATOR software, but the assessment for the technologies was done separately.
Table 1 – Revised criteria per category.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ecological</td>
<td>Soil conservation</td>
</tr>
<tr>
<td></td>
<td>Improve biodiversity</td>
</tr>
<tr>
<td></td>
<td><strong>Disturbances in water cycle</strong></td>
</tr>
<tr>
<td>Economic</td>
<td>Diversification of economic activities</td>
</tr>
<tr>
<td></td>
<td>Implementation costs</td>
</tr>
<tr>
<td></td>
<td>Maintenance costs</td>
</tr>
<tr>
<td>Socio-cultural</td>
<td>Population settlement</td>
</tr>
<tr>
<td></td>
<td>Social acceptance of the technology</td>
</tr>
<tr>
<td></td>
<td>Safety of people and goods</td>
</tr>
<tr>
<td></td>
<td>Improve landscape quality</td>
</tr>
</tbody>
</table>

In order to apply the FACILITATOR software, participants were asked to score the technologies by each criterion. This was made by using a scale from 0 to 10, where 0 means a bad option, 1 the worst option and 10 the best option (Figure 6). The score 0 means that a technology performs so poorly on that particular criterion that it is probably not viable.

Figure 6 – ‘Scoring tool’.
Table 2 - Results of the scoring technologies – spades group.

<table>
<thead>
<tr>
<th></th>
<th>Ecological</th>
<th>Economic</th>
<th>Socio-cultural</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Soil</td>
<td>Improve</td>
<td>Diversification of economic activities</td>
</tr>
<tr>
<td>Primary Strips Network System for Fuel Management</td>
<td>5</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Prescribed Fire</td>
<td>8</td>
<td>8</td>
<td>7</td>
</tr>
</tbody>
</table>
Table 3 - Results of the scoring technologies – hearts group.

<table>
<thead>
<tr>
<th>Technology</th>
<th>Ecological</th>
<th>Economic</th>
<th>Socio-cultural</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<tr>
<td>Primary Strips Network System for Fuel Management</td>
<td>7</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Prescribed Fire</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Figure 8 - Overall result of the evaluation of technologies (hearts group).
Table 4 - Results of the scoring technologies – diamonds group.

<table>
<thead>
<tr>
<th>Ecological</th>
<th>Economic</th>
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</tr>
<tr>
<td>Prescribed Fire</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
The charts from the three groups clearly show that the two technologies are located above 0.5, which means that they are good options concerning sustainable development.

The final results from this workshop compared with the results from the workshop 2 were higher. This may have occurred due to the increased of the know-how of the technologies, since there are already implemented in the study sites.

- **Exercise 2:** How could we facilitate the adoption of the priority remediation options that have emerged at the study site scale?

This activity intends to prioritize the measures and implementation actions, in order to promote the adoption of the studied techniques (Primary Strip Network System for Fuel Management and Prescribed fire).

The exercise has a highly emphasized participative character, seeing that the stakeholders are the ones that define the trajectory to follow in order to promote the techniques. As a development methodology, the previously defined workgroups were maintained.

After explaining the exercise to the participants, the base question for group discussion was established: “How could we facilitate the adoption of the priority remediation options that have emerged at the study site scale?”, taking always into attention the main goal already identified in the first workshop “reduction of the burned area” (Figure 10).

After the group analysis and discussion, each workgroup named a representative to present their findings (Figure 11).
These presentations proved evidence that, essentially, the general results were very similar; although in some cases, however, distinct justifications were given, being in the local actor perspective or in the respective competent authority perspective. This early revealed the different perspectives that each stakeholder have on the subject.

After presenting the results, a global discussion of the subject at hand was promoted in order to evaluate the participant’s sensitivity to the theme, as well as to integrate the “why” of the presented solutions with the existent available mechanisms to reduce burned areas. As a main goal, it was intended to know the perspectives of the local agents and the competent organisms, in order to define if their opinions completed themselves or diverged. It was also possible to establish a categorization of the presented options (Figure 12 and Table 5, respectively).
Figure 12 – Discussion to categorize the presented options.

Table 5 – Categorization of the presented options.

<table>
<thead>
<tr>
<th>Final Result</th>
<th>Categories</th>
<th>Main actions</th>
</tr>
</thead>
</table>
|              | Regulation | - Legislation reformulation  
|              |            | - Simplified cadastral survey  
|              |            | - Bureaucracy simplification / Law clarification  |
|              | Forest Intervention Areas | - Promotion of association membership  
|              |            | - Forest Intervention Areas as a vehicle for sensitization to certify of the process implementation  |
|              | Funding    | - Incentives  
|              |            | - Financial mechanisms  
|              |            | - Economic valorisation of forest residues (proceeding from the management of the Primary Strip Network System for Fuel Management)  |
|              | Awareness  | - Forest sectorial entities dynamics  
|              |            | - Society sensitization at the regional, local and interested associations level  
|              |            | - Installation of the demonstration areas  
|              |            | - Presentation of real cases in order to demonstrate the success of implementation of the Primary Strip Network System for Fuel Management  
|              |            | - Forest operational actions  
|              |            | - Forest Technical Offices actions (namely, to fulfil what is established in Law 20/2009)  
|              |            | - Rural population sensitization to the advantages of using prescribed fire as a fuel management technique (relationship with agroforestry)  |
Categorizing the results was fairly easy, being unanimous beyond the participants the key intervention areas to promote the techniques. In general, it was consensual that the sensitization and the Forest Intervention Areas were an important vehicle to promote the sustainable use of the forest, but also in what refers to the application of the Primary Strip Network System for Fuel Management and Prescribed fire techniques. The need to clarify legislation and enhance the incentives are measures pointed out by the stakeholders. Stakeholders which are challenged by the AFN representative, who refers that, the public that uses these available tools need to be self-sufficient so that the measures/techniques can be accounted for.

As a final phase to fulfil the exercise, the presented solutions were hierarchized, having now as base the defined characterization as to express the main future action lines to promote the studied techniques. This hierarchizing was discussed together with the workshop participants (score 0 to 10, being 0 the lowest and 10 the highest scores), having achieved the result presented in Figures 13 and 14.

By defining the hierarchy of the actions, a consensus was reached in the sensitization and Forest Intervention Areas actions, and disagreement came with the legislation and financing topics, having on one side the local actor’s interest and, on the other, the competent management entity (AFN).
In summary, local actors have difficulty in perceiving the legislation and how to implement it, namely in what refers to the financing concession. This results, from the absence among the local actors of consensus between the goals and the management options that are available for their forest areas. This comes as a consequence from the individual ownership structure, which hampers the creation of a scaling effect to implement the techniques and take into account the individual interests of each landowner. In this aspect, the AFN representative considered that it is a problem that resides in the management structure (that doesn’t exist) and, in this respect, the competent management entity can’t really help. This stakeholder also refers that the supporting mechanisms are created, accessible and available, and that the local actors are the ones that don’t seek them (once they require a management structure with a scale that doesn’t exist). Because of this, the AFN representative considers this a problem of the local actors and not of AFN’s availability. This is really the focal point of disagreement between the entities. However, it was considered that, with the sensitization and Forest Intervention Areas, the local actors can develop their knowledge of the techniques, being used as a driving force to change the way the forest properties are managed. It was reckoned that a simplification/clarification of the legislation is an important step so that the techniques are adopted again, in detriment to application for financing. This was deemed important, in line with the previously presented actions. The valorization of the biomass residues (resulting from management operations of the Primary Network, for example) was proposed as a vector to achieve self-sufficiency in forest management. This
aspect has been unanimous between the different participants. Nevertheless, this valorization will only be achieved with a scale effect that is permitted by the interested associations, being an increase in economic value in forest management.

It is also important to refer that the participative character of this exercise greatly contributed for the perception of the relationships and difficulties between the local actors and the public entities with responsibilities in managing forest areas.

III Evaluation of the workshop

• By participants (local and external)

The evaluation of the workshop was made using the sticky dots (Figure 15). Six parameters were written in a flip-chart paper, the scale for the evaluation was ☺ - good, ☺ - medium and ☹ - bad.

![Figure 15 – Results from the workshop evaluation.](image)

Participants gave a good to the role performed by researchers, to the DESIRE project and to the atmosphere generated between all participants. However, the participants were divided between good and medium, concerning the DESIRE workshop 3, the participatory methodology and the scientific results generate by the project.

• By the moderator(s)

The workshop was performed in a central point for the two study sites making easier the participation of the local stakeholders. Half of the participants in workshop 3 were new, which justified the satisfaction concerning the participatory methodology.
IV Next steps...

- All participants will receive the workshop report as well as further publications of DESIRE.

- New research projects are on-going and will maintain contacts with local stakeholders and, hopefully, follow up DESIRE field activities.

- Agreed actions to disseminate.