



Food and Agriculture
Organization of the
United Nations



MEDITERRANEAN FORESTS:

**Towards a better
recognition of the economic
and social value of goods
and services through
participative governance**



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Presentation of the main results from pilot site studies

Assessment of the socio-economic value of the goods and services provided by Mediterranean forest ecosystems

Sheet 1: Chr ea National Park, Algeria

Sheet 2: Jabal Moussa Biosphere Reserve, Lebanon

Sheet 3: Ma mora Forest, Morocco

Sheet 4: D zler ami Forest, Turkey

Improving the governance of Mediterranean woodland areas by implementing participatory approaches

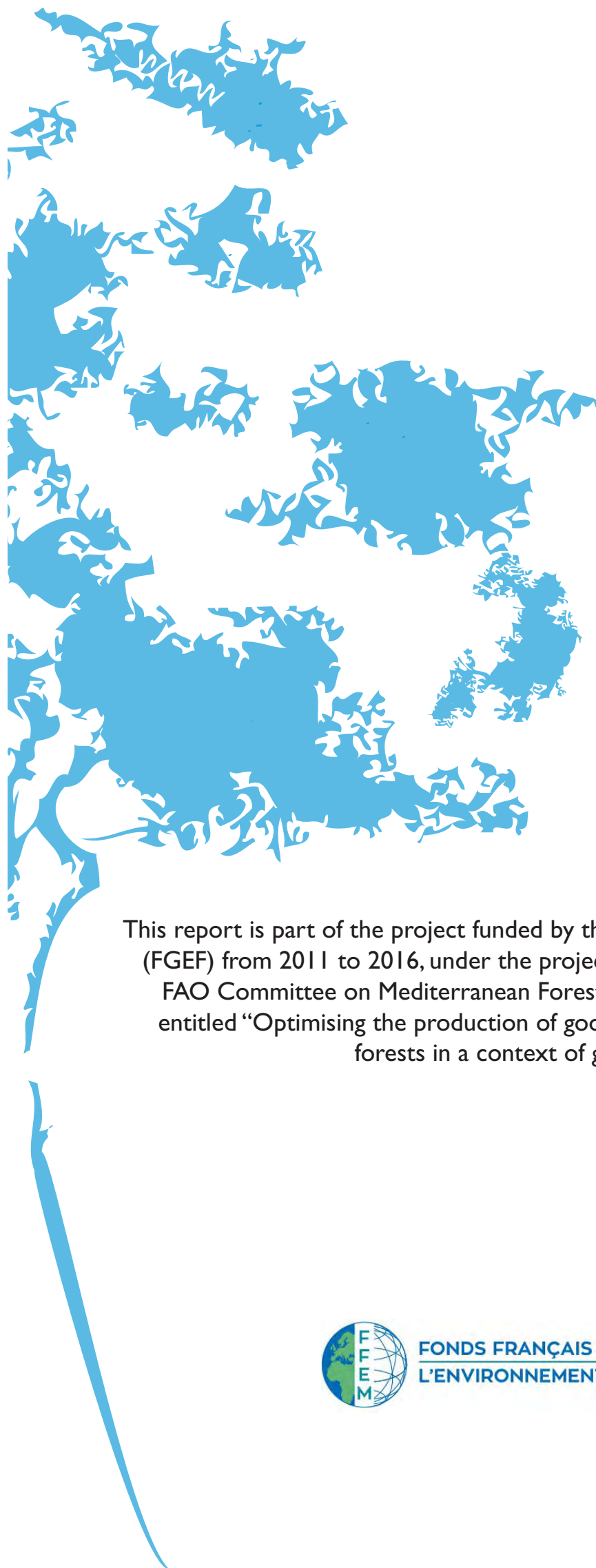
Sheet 5: Chr ea National Park, Algeria

Sheet 6: Jabal Moussa Biosphere Reserve, Lebanon

Sheet 7: Ma mora Forest, Morocco

Sheet 8: Barbara Catchment Area, Tunisia

Sheet 9: D zler ami Forest, Turkey



This report is part of the project funded by the French Global Environment Facility (FGEF) from 2011 to 2016, under the project management of Plan Bleu and the FAO Committee on Mediterranean Forestry Questions - *Silva Mediterranea*, entitled “Optimising the production of goods and services by Mediterranean forests in a context of global changes”.



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MEDITERRANEAN FORESTS:

Towards a better recognition of the economic and social value of goods and services through participative governance



Maâmora, Morocco

Authors: Magali Maire¹ et Nelly Bourlion²

This summary was compiled from all the studies and reports produced as part of this project, along with working meetings and site visits.

REGIONAL CONTEXT AND ISSUES

Mediterranean forest ecosystems are recognised as a significant source of goods (wood, cork, fodder, aromatic and medicinal plants, honey, fruit, etc.) and services (pastureland, water purification, protection against soil erosion, carbon absorption, recreation, landscapes, etc.). They also have an exceptional wealth of biodiversity and contain a unique store of forest genetic resources.

In addition, they contribute to the development of multiple activities and job creation in the rural environment thanks to their constant interaction with agriculture, livestock farming, industry, crafts, urbanism and leisure.

At the same time, these ecosystems are subject to very significant anthropogenic pressures, particularly in Southern and Eastern Mediterranean Countries (SEMC) whose populations are highly dependent on these goods and services for survival. This situation can sometimes lead to environmental degradation and worrying deforestation. These woodland areas are also facing the effects of climate change, which can already be seen through phenomena such as forest decline or parasite attacks, which further accelerate the desertification process.

The Mediterranean region in figures (2014)

- ✓ 6.5% of the global land surface
- ✓ 494 million residents, 6.8% of the world population
- ✓ 9.8% of the Gross World Product
- ✓ 313 million international tourists, 31.4% of global international tourism
- ✓ 6% of CO₂ emissions (2011)

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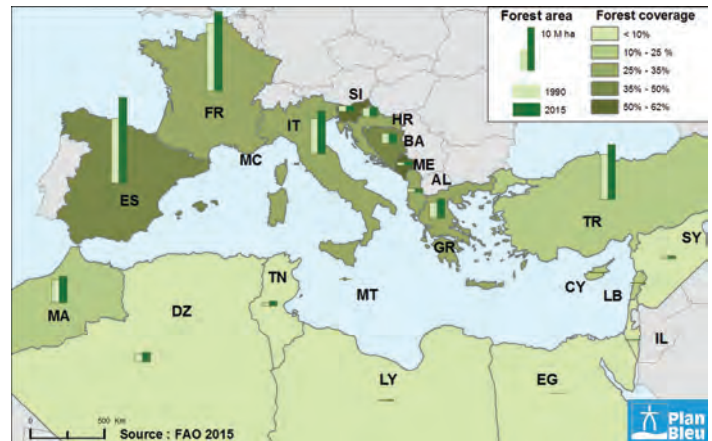
Forest area evolution in the Mediterranean countries, 1990-2015

In this context, a project called “Optimising the production of goods and services by Mediterranean forest ecosystems in a context of global change” emerged in 2011, funded by the French Global Environment Facility (FGEF) and co-funded by the German Cooperation body (GIZ), European Union (EU) and French Ministry of Agriculture, Agrifood and Forestry (MAAF) in five countries from the Collaborative Partnership on Mediterranean Forests (CPMF):

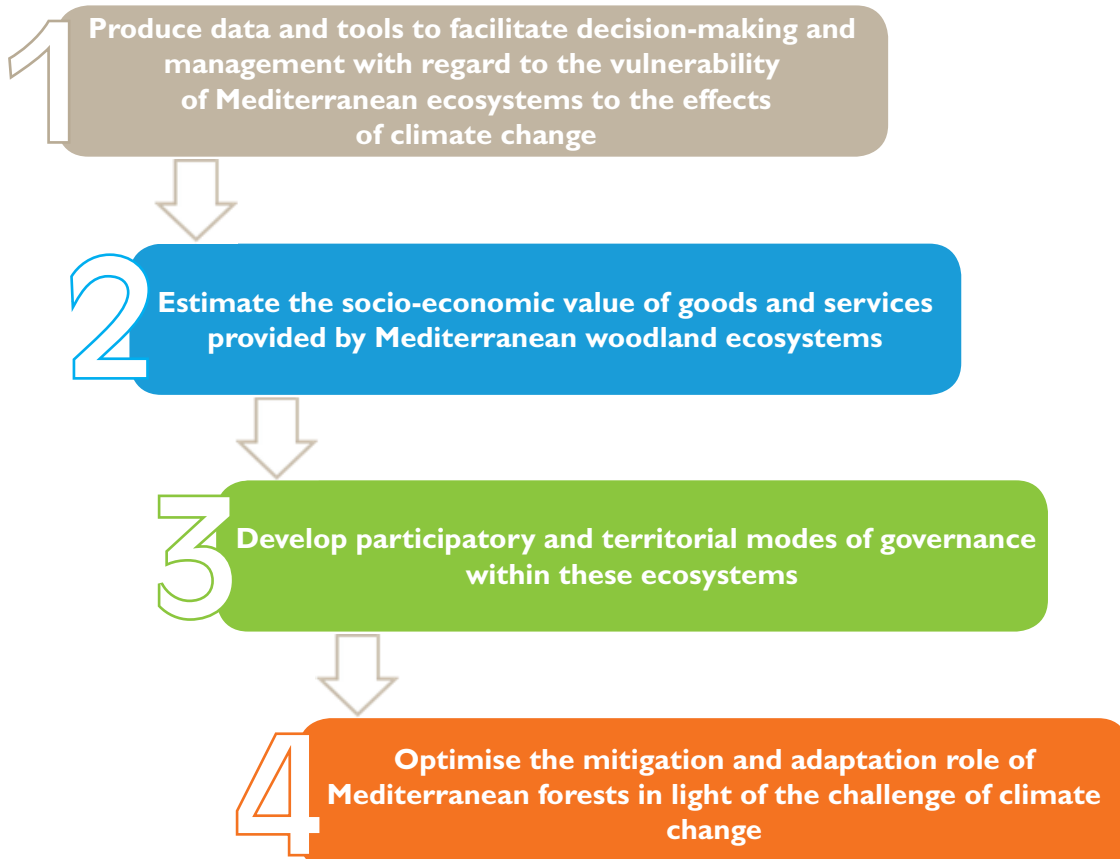
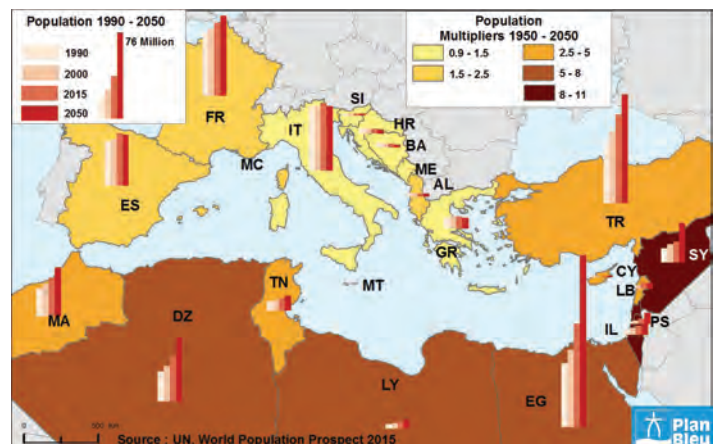
- Algeria,
- Lebanon,
- Morocco,
- Tunisia,
- Turkey.

Project ownership has been jointly entrusted to Plan Bleu (for components 2 and 3) and the Secretariat of the FAO committee *Silva Mediterranea* (for components 1 and 4).

The four main project components aim to:



Population evolution in the Mediterranean region, 1990-2050



UTILITY OF THIS TYPE OF PROJECT



Maâmora, Morocco



To varying extents, the forest policies implemented in CPMF countries already provide partial responses to the many challenges. However, these policies do not sufficiently take into account the value of the goods and services provided by woodland areas, from which other economic sectors benefit (tourism, livestock farming, water, etc.), at local, national and international levels (for instance, Mediterranean forests are not included in international REDD+ negotiations).

In particular, current challenges associated with global change can only be overcome through better understanding and recognition of this economic and social value, and through better stakeholder coordination. It is therefore vital to strengthen modes of territorial governance by better taking into account the needs and constraints of the populations using these areas.

Similarly, in a context characterised by competition over water uses between the different sectors, it is vital to encourage stakeholders to manage and restore Mediterranean woodland areas with a view to establishing sustainable water supplies.

Studies that focus on the economic assessment of ecosystems are rare in these countries, even though they are vital for guiding public policies.

This is why Components 2 and 3 of this project (studying how to optimise the production of goods and services by Mediterranean woodland ecosystems in a context of global change) provide responses and go one step further in terms of understanding and recognising the socio-economic benefits of Mediterranean woodland ecosystems by also proposing participatory modes of governance suited to the various contexts.

PURPOSE OF THIS BOOKLET



Maâmora, Morocco

The purpose of this booklet is to raise awareness of the national summary documents completed as part of Components 2 and 3 of the FGEF project. The outputs from all four project components are also presented in a dedicated booklet.

This document also presents a summary of the outputs of project Components 2 and 3 at regional level in order to highlight the utility of a regional approach and to promote the fundamental link between the two themes of these two components:

- ✓ It is vital, through economic assessment, to increase the visibility of the contribution of the goods and services produced by Mediterranean woodland areas for populations who are economically and socially dependent on these areas, but also for society as a whole. However, this can only be achieved through the active involvement of these populations in the management of these areas through participatory processes.
- ✓ Establishing a mode of governance where managers involve local stakeholders, beneficiaries and users in a participatory process to promote the rights and obligations of all, will significantly contribute to the multi-functional, integrated and sustainable management of these areas.

In a context of rapid global change, it is vital to work on these two themes by closely linking them in order to provide the tools needed to make the necessary changes to public policies, which now, more than ever, are facing many challenges.

All studies carried out under Components 2 and 3 of the FGEF project are available on the Plan Bleu and FAO websites:

<http://planbleu.org>

<http://www.fao.org>

PILOT SITES STUDIED



The studies were carried out on the various pilot sites in the 5 CPMF countries: Chréa National Park in Algeria, Jabal Moussa Biosphere Reserve and Bentael Nature Reserve in Lebanon, Maâmora Forest in Morocco, Barbara Catchment Area in Tunisia and Düzlerçami Forest in Turkey (see map above).

Characteristics of the 5 pilot sites studied

Country	Pilot site	Woodland area (ha)	Dominant forest species	Main functions	Main weaknesses
Algeria	Chréa National Park <i>State property</i>	22,673	Atlas cedar, oak	Conservation of biodiversity <i>Biosphere reserve</i> Recreation	High management costs Risk of degradation and pollution from excessive visitor numbers
Lebanon	Jabal Moussa Biosphere <i>Owned by municipalities and religious organisations</i>	5,500	Oak, Turkish pine	Conservation of biodiversity <i>Biosphere reserve</i> Recreation	Loss of earnings for locals following usage restrictions
	Bentael Nature Reserve <i>Owned by municipalities</i>	110	Oak, Turkish pine	Conservation of natural resources Eco-tourism	Human pressure on resources (quarry, charcoal production)
Morocco	Maâmora Forest <i>State property</i>	126,200	Cork oak, eucalyptus, pine, acacia	Production of wood, cork and other non-wood forest products for the local population Recreation	Weakened ecosystem from drought and human pressures
Tunisia	Barbara Catchment Area <i>State property</i>	5,065	Cork oak	Cork production Pastureland Protection of the reservoir from sedimentation	Human pressure on forest resources
Turkey	Düzlerçami Forest <i>State property</i>	17,688	Turkish pine	Wood production Protection of biodiversity Recreation	Increase in recreational demand Negative impacts from climate change

Extract from the regional summary report for Component 2 of the FGEF project, Daly Hassen H. (2016)

MAIN OUTPUTS PRESENTED AT REGIONAL LEVEL



Bentael, Lebanon

ECONOMIC AND SOCIAL ASSESSMENT OF GOODS AND SERVICES

The choice to conduct studies in varied pilot sites enabled the economic assessment of different goods and services such as fodder, Non-Wood Forest Products (NWFP), the protection of catchment areas and also carbon sequestration and recreational services, with comparison at regional level.

These studies also compared the costs and benefits of different management options in order to identify the best option from a social perspective, while stating their economic impacts (i.e. the gains and losses for all stakeholders).

Goods and services studied and methods used

Goods and services and methodologies adopted for economic assessment on each pilot site

Pilot site	Goods and services included in economic assessment					
	Provisioning goods	Assessment method	Regulating services	Assessment method	Cultural services	Assessment method
Chr�ea National Park, Algeria	Arbutus berries	Market price	Water purification	Replacement cost method	Recreation	Travel cost method
Jabal Moussa Biosphere Reserve, Lebanon	Thyme Nectar (honey) Fodder	Market price Substitute goods			Recreation	Benefit transfer method
Ma�mora Forest, Morocco	Wood Cork Other non-wood forest products (NWFP) Fodder	Market price Substitute goods			Recreation	Travel cost method
D�zler�amı Forest, Turkey	Wood	Market price	Carbon sequestration	Social cost of carbon	Recreation Protection of biodiversity	Benefit transfer method Damage costs avoided

Extract from the regional summary report for Component 2 of the FGEF project, Daly Hassen H. (2016)




Economic and social assessment of goods and services

Ranking of the main goods and services on the sites studied according to their economic value (€ per ha for the entire site)

Rank	Algeria	Lebanon	Morocco	Tunisia*	Turkey
First	Water purification (73.6)	Fodder (76.7)	Fodder (138.2)	Cork (81.7)	Carbon sequestration (58)
Second	Recreation (11.4)	Thyme (44.1)	Recreation (90.4)	Fodder (72.9)	Recreation (18.7)
Third	Arbutus berries (0.7)	Wood (17.7)	Wood (83.2)	Protection of the catchment area (19.8)	Wood (16.2)

Extract from the regional summary report for Component 2 of the FGEF project Daly Hassen H. (2016)

*The values for Tunisia are not taken from the FGEF project but they are interesting for regional comparison purposes.

	Cultural services
	Regulating services
	Provisioning goods

Values presented above only imply the countries national experts' opinion.

- ✓ Using the value per hectare for the entire site as an indicator, non-wood forest products and regulating services are the main benefits of the sites studied.
- ✓ The economic value of fodder makes it economically and significantly important (Lebanon, Morocco, Tunisia).
- ✓ Recreation has the second highest value (Algeria, Morocco, Turkey) due to the increase in the demand for eco-tourism.
- ✓ The economic value of wood, which is often the main basis for analysis when drawing up forest development plans, is ranked third (Lebanon, Morocco, Turkey) in the countries where it was studied.

STUDY LIMITATIONS

- ✓ The values per hectare need to be considered as an approximate order of magnitude as some values are often underestimated or overestimated, either due to a lack of data or the working assumptions used.
- ✓ The results cannot be compared with national averages due to the specific features of the ecosystems chosen and their functions.
- ✓ The scale of the benefits for a given site depends chiefly on the characteristics of the site and social demand.
- ✓ Economic assessments can be used as a decision-making support tool for forest management but need to be considered with the necessary caution, given the sometimes significant approximations inherent in some calculation methods and/or the limited data that is sometimes available.

PARTICIPATORY AND TERRITORIAL MODES OF GOVERNANCE

This component defined territorial participatory approaches around a shared vision of rural territorial development with and for their residents. Work carried out also helped test innovative multi-stakeholder and multi-sector governance structures (representative of a range of interests) and used both quantitative and qualitative sociological and socio-economic techniques.

Main outcomes achieved prior to development of the participatory governance structures are:

Better understanding of the sites, stakeholders and interactions:

- stakeholder mapping,
- shared expert diagnostics,
- SWOT analysis (Strengths, Weaknesses, Opportunities and Threats).

Identification of:

- development scenarios,
- management recommendations,
- proposed action to generate income,
- lists of goods and services that could be assigned economic value.

Stronger:

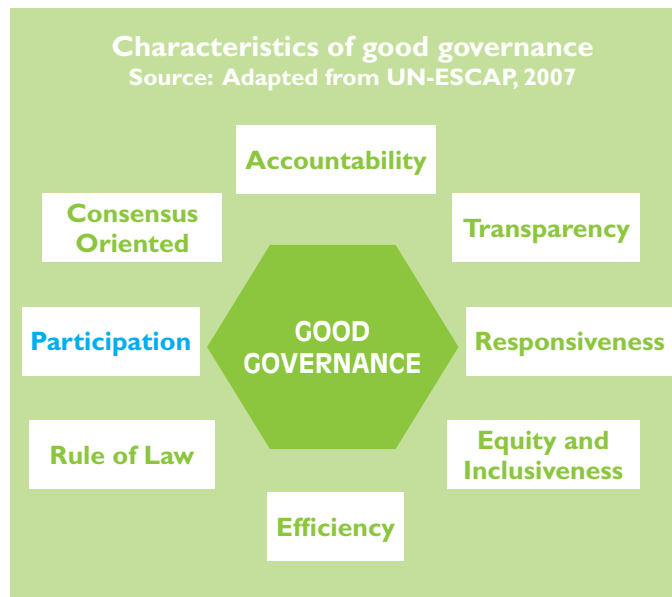
- shared vision of the current and future state of territories,
- awareness raising and involvement of stakeholders,
- organisation of stakeholders and partnerships (managers, populations and users) for the integrated management of territories and resources.



Maâmora, Morocco

The participatory approach implemented on the pilot sites resulted in:

- Identifying the preferences, individual and collective expectations and the dynamics at play between stakeholders
- Involving stakeholders in shared diagnostics by identifying the territorial challenges and raising awareness of the importance of stakeholder participation in natural resource management and conservation
- Reducing the “disconnect” between users and managers
- Promoting multi-stakeholder and multi-sector cooperation at various scales
- Encouraging the organisation and cooperation of local communities to boost sustainable collective activities for the exploitation of income-generating goods and services
- Uncovering existing latent conflicts between stakeholders and seeking to resolve them through discussion and mediation techniques
- Increasing the confidence of users and local stakeholders in general with regard to institutions and on-the-ground projects.



Düzlerçami, Turkey

Table summarising the various methods and tools used in the five countries and qualitative assessment of their objectivity, representativeness, effectiveness and ease of replication:

Indicators	Chr�ea National Park, Algeria	Bentael Nature Reserve, Lebanon
METHODS	Accelerated Method of Participatory Research, Diagnostics, SWOT analysis, participatory planning	Targeted approach to defining actions
TOOLS	Meetings / Forums / Site Visits / Expert diagnostics / Surveys / Interviews / Thematic Workshops	Meetings / Site visits / Focus groups / SWOT workshop (women) / Training (young people)
SCALE	Nature Park	Nature reserve
SIMPLICITY OF THE APPROACH	Simple quantitative and qualitative methods	Qualitative approach
REPRESENTATION OF THE VARIOUS STAKEHOLDERS AND INTERESTS	Fairly broad range of stakeholders	Narrow range of stakeholders – activities targeted at women/young people
PARTICIPATION OF WOMEN	Participation of women (administrative officers, members of associations, forest users, Park managers, etc.)	Women and young people were targeted by the training and income-generation workshops
CROSS-SECTOR APPROACH	Ministry of Agriculture, Rural Development and Fisheries; Ministry of Water Resources and the Environment; Ministry of Territorial Development, Tourism and Handicraft	Ministry of Agriculture; Ministry of Environment
OBJECTIVITY (strength of analysis and representation of stakeholders and interests)	Fairly broad range of stakeholders; qualitative and quantitative approach; relatively simple statistical analysis	Narrow range of stakeholders and qualitative analysis only
EFFECTIVENESS (in meeting the objectives set)	In-depth approach that met the objectives set	Highly targeted and quick approach that met the objectives set
EASE OF REPLICATION	Relatively easy as the method is well-known and frequently used and the statistics are simple	Simple as the method is well-known and frequently used

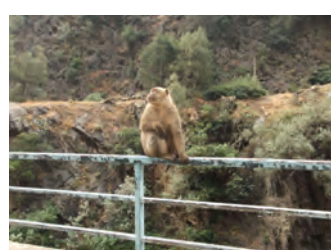
Extract from the regional summary report for Component C3 of the FGEF project. Gouriveau F. (2016)

Illustration of some significant challenges facing the Mediterranean forests
(overgrazing, overexploitation of non-wood forest products, wildfires, excessive visitor numbers, etc.)



Maâmora Forest, Morocco	Barbara Catchment Area, Tunisia	Düzlerçamı Forest, Turkey
Diagnosics, issues, stakeholder dynamics using the MACTOR method, analysis of the key sustainable development variables, scenarios: Approach using the MICMAC method	Shared diagnostics, participatory planning	SWOT analysis / Ranking / + AHP (MCDM) + Anova (Assessment)
Meetings / Forums / Site Visits / Expert diagnostics / Surveys / Discussion Groups / Workshops / Statistics	Meetings / Site visits / Expert diagnostics / Interviews / Workshops	Meetings / Forum / Site visits / Expert diagnostics / Interviews / Workshops / Statistics
Grazing parks	Part of the Catchment Area	Forest division
Relatively complex quantitative and qualitative methods	Qualitative approach	More complex due to the statistical complexity
Very broad range of stakeholders	Fairly narrow range of stakeholders	Fairly broad range of stakeholders
Women gathering wood were surveyed	Involvement of women in the participatory development plans	The cultural barrier made it difficult to create a connection between the female users and the managers
Ministry of Agriculture and Maritime Fishing; Ministry of Energy, Mines, Water and the Environment; Ministry of the Interior; Ministry of Tourism; Ministry of Housing, Urbanism and City Policy	Ministry of Agriculture, Water Resources and Fisheries; Ministry of the Environment	Ministry of Agriculture; Ministry of Environment
Very broad range of stakeholders; qualitative and quantitative approach; in-depth statistical analysis	Fairly narrow range of stakeholders; fairly in-depth qualitative analysis	Fairly broad range of stakeholders; qualitative and quantitative approach; very in-depth statistical analysis
Very in-depth approach that met the objectives set	Less in-depth approach, but which still met the objectives set	Focused approach that met the objectives set
Moderately easy as the method requires staff to be well trained in sociology and socio-economics	Relatively simple as the approach is primarily qualitative	Relatively difficult as the approach requires staff to be well trained in statistics

Illustration of the opportunities offered by Mediterranean forests (wood, non-wood forest products, biodiversity, high-quality water, etc.)



Proposed participatory governance structures

One of the key outcomes of this component is the development of participatory governance structures that best fit the challenges and local and institutional context: the governance structures proposed by each country are presented on the country summary sheets in this booklet.

The table below presents an analysis of the participatory governance structures in terms of their institutional foundation, durability, functionality and representativeness.

Analysis of the participatory governance structures proposed in the five countries

Indicators	Chr�ea National Park (CNP), Algeria	Bentael Nature Reserve, Lebanon
COMPOSITION OF THE GOVERNANCE STRUCTURE	Advisory Board + Steering Committee Scientific council Extended Communal Rural Management Cell (CARC) Stakeholder Committee Local Governance Committee (CLG) Leader: CNP + possibly a coordinator Thematic working groups	Management Committee Stakeholder Committee MoA/Forest rangers Al Hourouf association Scientific Committee Working groups
PLANNED OR EXISTING GOVERNANCE STRUCTURE (GST)	GSt tested and under formation	GSt tested
INSTITUTIONAL FOUNDATION	Status to be defined (association or other)	Status to be defined
REPRESENTATIVENESS	Broad range of stakeholders, sectors and interests	Broad range of stakeholders, sectors and interests
DURABILITY OF THE WORKING GROUPS	Possible thanks to institutionalisation	Dependent on the facilitators and the ability to generate objectives to work towards
PRESENCE OF WOMEN AND YOUNG PEOPLE	Needs promoting	Needs promoting
EXPLICIT DECISION-MAKING MECHANISMS	Participation and decision-making rules clearly established	Participation and decision-making rules clearly established
REAL INFLUENCE OF USERS ON MANAGEMENT PLANS	Influence still limited, but will be strengthened in the future following this experiment (extended governance, consultation for management, socio-economic development actions)	Influence still limited. Needs to be strengthened in the future following this experiment (extended governance, socio-economic development actions)
FUNCTIONALITY, EFFECTIVENESS	GSt functional when the planned mechanisms are applied	GSt functional when the planned mechanisms are applied
INTEGRATED SCIENTIFIC AND TECHNICAL SKILLS	Scientific council	Scientific Committee

Extract from the regional summary report for Component C3 of the FGEF project. Gouriveau F. (2016)



Düzlerçami, Turkey

Maâmora Forest, Morocco	Barbara Catchment Area, Tunisia	Düzlerçami Forest, Turkey
Central Advisory Board Leader: Regional Coordination and Implementation Committee Provincial Stakeholder Forum Regional working groups Observers	Steering Committee Leader (DGF/CRDA) Regional Consultation and Coordination Committee Local Stakeholder Committee Consultative Technical Committee	Steering Committee Support structure + Facilitator Stakeholder Committee/Forum Scientific Committee
GSt tested Monitoring St = planned	GSt tested	GSt tested
Status to be defined	Not permanent	Not permanent
Broad range of stakeholders, sectors and interests	Broad range of stakeholders, sectors and interests	Broad range of stakeholders, sectors and interests
To be replaced by local performance and monitoring committees	NA	NA
Needs promoting	Needs promoting	Needs promoting
Participation and decision-making rules clearly established	Participation and decision-making rules clearly established	Participation and decision-making rules clearly established
Influence still limited, but will be strengthened in the future following this experiment (extended governance and socio-economic development models)	Influence still limited, but will be strengthened in the future following this experiment (extended governance, new terms of reference for revision of development plans, socio-economic development actions)	Influence still limited, but will be strengthened in the future following this experiment (extended governance, socio-economic development actions)
GSt functional when the planned mechanisms are applied	GSt functional when the planned mechanisms are applied	GSt functional when the planned mechanisms are applied
Supervision / experts, observers	Consultative Technical Committee	Scientific Committee

CONTRIBUTION OF THE OUTCOMES FOR OPTIMISING THE MANAGEMENT OF WOODLAND AREAS



Barbara, Tunisia

COST-EFFECTIVENESS OF THE VARIOUS MANAGEMENT OPTIONS

One of the outcomes of this study is identifying the most useful management options in terms of the supply of goods and services and/or reducing the damage costs in forests.

The cost-benefit analysis method was used, which shows whether or not an operation is cost-effective and determines the most cost-effective operation. It assesses the impact of an operation (or a combination of operations) in financial terms via the Net Present Value (NPV).

The NPV is the difference between additional benefits and net additional costs with respect to the reference scenario.

The option is considered of economic interest if the NPV is positive, i.e. the discounted benefits are greater than the discounted costs.

Net Present Value (NPV) of the various management options

	Scenarios (management options identified on the pilot sites)	NPV			
		Period (years)	Discount rate	Value	Stakeholders generating gains
Algeria	(A1) Managing visitors using nature guides (A2) Operating a new recreation area (A3) Farm-out agreement – exclusive right to harvest arbutus berries in return for monitoring the territory during the summer	10	8.5%	+€16 per ha -€164 per ha +€151 per ha	A1: State (€11 per ha), visitors (€1 per ha), nature guide (€4 per ha) A3: State (€32 per ha), local pickers (€119 per ha)
Lebanon	(L1) Development of recreation and regulated exploitation of NWFP, together with income-generating activities	10	7,3%	+€37 per ha	Association, visitors, local population
Morocco	((M1) Development Plan (2016-2035): regeneration, reforestation, infrastructure maintenance, offsetting mechanisms	10	10%	+€2,337 per ha*	All stakeholders
Tunisia	(T1) Acacia plantations along the banks of ravines (T2) Artificial regeneration of cork oak	20	10%	+€138 per ha -€2,510 per ha	T1: National company (€116 per ha), community as a whole (€22 per ha)
Turkey	(T1) Development of a new recreation area (T2) Climate change to the ecosystem	29	5%	+€260 per ha -€114 per ha	T1: State (€7 per ha), visitors (€233 per ha), Private sector (€19 per ha) T2: State (-€24 per ha), population (-€90 per ha)

Extract from the regional summary report for Component 2 Daly Hassen H. (2016)

* The calculation was made assuming an increase in the production of all goods and services provided by the forest (acorns, recreation, fodder, etc.) as a result of the development and extension of afforestation, which explains a high value.

The values presented above are the sole responsibility of the authors (national experts of the countries).

- ✓ The economic assessment identified management options that are of economic interest for society (positive NPV).
- ✓ These management options do not necessarily correspond to traditional development choices, such as wood production, but are aimed at improving recreational or environmental services.
- ✓ Analysis has also shown the extent of damage caused by the effects of climate change in Turkey and therefore the utility of looking at adaptation options.
- ✓ In Tunisia, analysis has shown that planting acacia is economically beneficial, but that planting cork oak is not profitable considering a discount rate of 10%, particularly due to the long production cycle, with high initial costs and late benefits.
- ✓ Also, when forest managers took into account the expectations of the local population, it resulted in significant gains for the various stakeholders.

In Algeria, the option of managing visitors using nature guides is of economic interest, which is not true of the second option of developing a recreational area. The first option benefits both the public-sector management body (reduced monitoring costs) and visitors. However, the option of a new recreational area does not cover the costs involved.

In Turkey, the development of a new recreational area is economically beneficial for all parties.

In Lebanon, the benefits for society of developing recreation are greater than the costs associated with opening new paths and operational costs.

STUDY LIMITATIONS

- ✓ Applying this method for the pilot sites raises some data-related limitations, including the problem of properly anticipating the dynamics of physical and biological phenomena, and ultimately, the production of goods and services in the future.
- ✓ Morocco: it is assumed that there will be an increase in the production of goods and services (acorns, recreation, fodder, cork) from the first year of plantation despite the fact that the forest stand will still be young and access will be prohibited. In addition, new plantations actually generate losses in the short term, particularly in terms of grazing benefits. Finally, the value of recreation is difficult to predict. It is assumed to be proportional to the reforestation area.
- ✓ Turkey: the value of recreation is assumed to rise progressively over 5 years to reach double the current recreational value. Analysis of the “Climate Change” scenario in Turkey is simply based on an assumption of a decrease in annual wood growth and therefore a 1% decrease in carbon sequestration.
- ✓ Algeria, Lebanon and Turkey: Several assumptions have been made concerning the initial investment cost.
- ✓ Algeria: it is assumed that forest fire surveillance costs will be halved and that the value of arbutus berries will increase significantly for the local population following the application of a farm-out agreement.
- ✓ In addition, the analysis period must cover the investment period. For forest species, the costs and benefits need to be analysed throughout the entire production cycle.





Aromatic plants

Other outcomes from the two components:

1. A stronger common understanding of the rationale behind the management of natural resources and the socio-economic and environmental impacts on woodland areas (Tunisia),
2. Collective identification of the issues and strategies for rational natural resource management (Algeria, Morocco, Tunisia, Turkey),
3. Development and prioritisation of socio-economic models that use the goods and services produced (Morocco),
4. Collective work on economic opportunities for communities (Lebanon).
5. Greater dialogue and cross-sector collaboration (Algeria),
6. Greater participation in drawing up and implementing the management plan (Algeria, Morocco).

STRENGTHENING PARTICIPATORY APPROACHES FOR DEVELOPING AND IMPLEMENTING (current or future) FOREST DEVELOPMENT PLANS

Algeria - Chréa National Park

Emergence of a potentially viable innovative participatory and consensus-based management structure that could be rolled out at local level. The various scenarios presented to reduce visitor numbers to the park could be useful in planning park management actions.

Lebanon - Bental Nature Reserve

No direct influence on the plan content given the short duration of work on site, however, the new form of governance promoted is based on greater involvement of the relevant stakeholders (in particular local communities) in management decisions and on the distribution of responsibilities. This should help territorial management to adapt better to current and future environmental and socio-economic challenges.

Morocco - Maâmora Forest

Identification of management plan actions that could be considered and implemented as part of a participatory approach.

Recommendation of the implementation of seven types of eco-socio-economic development models with the aim of providing effective conditions and resources for the success of the technical actions planned by the Forest Development Plan in 2015 (which is limited to technical actions and measures).

Substantial studies that have fed into practical guides for use in Maâmora Forest and North African countries in order to implement participatory and sustainable management based on several socio-economic models, with the implementation of win-win contracts with local population.

Tunisia - Barbara Catchment Area

Consolidation of current initiatives by strengthening the engagement and cooperation of stakeholders in the management of woodland areas by incorporating “socio-economic development” into management actions and taking into account the interests of resource users via a co-management approach, on the basis of clearly identified socio-territorial units and sectors.

Turkey - Düzlerçami Forest

Development of an innovative governance structure, which is more representative of the diverse range of stakeholders on the site and their interests than what is proposed under the current development plan.

LESSONS LEARNED



The implementation of studies and work conducted under these two components uncovered a certain number of strengths and areas for improvement that it is important to note and capitalise on as lessons learned for optimising future processes.

MAIN STRENGTHS

Significantly improved knowledge of the pilot sites in both economic and social terms, with new data generated by the studies carried out.

Interesting results for steering public policies.

Highlighting goods and services valuation potential as well as the usefulness of economic assessment for decision-making aid with regard to options for managing woodland areas, and more generally, for steering public policies.

- ✓ The studies conducted showed that the development of recreational activities and the production of non-wood forest products are beneficial for improving the contribution of forest ecosystems to the well-being of local communities and national populations, thereby reducing damage to ecosystems.
- ✓ Focusing on the value of the ecosystem services that improve the social well-being of local communities and national populations is a way of justifying investments in the conservation, exploitation and development of forest ecosystems.
- ✓ Economic assessments can also be a tool for supporting the development of offsetting systems and mechanisms for payment for ecosystem services. They can serve as a basis for negotiating and reaching agreements between stakeholders.

Concrete foundations for integrated and participatory development and implementation of management plans

- ✓ The methodologies and tools used and the outcomes achieved in terms of participatory governance provide a baseline reference for best practice in governance and sustainable development for the entire Mediterranean region.
- ✓ This joint approach can also be used to uncover solutions in the form of agreements or to implement co-management agreements in order to resolve conflict situations: the development of income-generating activities for local populations in order to limit grazing in Lebanon, the plantation of pastureland species in order to reduce over-grazing in Tunisia, the creation of a recreational area in Tunisia, which is beneficial for the State, the municipality, private companies and visitors, the implementation of win-win co-management agreements between the management body and local populations in Morocco.

AREAS FOR IMPROVEMENT

Have sufficient economic and environmental data for studies that provide maximum credibility:

- ✓ The choice of study site must be made accordingly.
- ✓ Lack of data:
 - explains why the economic assessments of the conservation of biodiversity and landscapes were little discussed in studies.
 - often leads to assumptions that need to be clarified in the economic assessments.

Use recognised methodologies and follow them to the letter:

- ✓ The weaknesses of some economic studies carried out under Component 2 are sometimes linked to the application of methods
- ✓ Similarly, the rigour of analysis under the participatory approaches varied according to the methods used in each country.

Determine the time and period required to carry out the studies:

- ✓ The assessment of some services (recreation, protection of biodiversity) requires surveys (visitor numbers, etc.) over short periods and modelling, which was not possible in some instances.

Select a broad range of representative stakeholders and justify these choices:

- ✓ For participatory approaches, it is key to ensure that a sufficient number of stakeholders are involved, with a range that represents the interests at stake (involvement of women, young people and other vulnerable groups), and to explain the participant selection criteria.
- ✓ Finally, the specific features of sites (different ecosystems, extent of resource use by the local population) makes it difficult to compare the results.



Maâmora, Morocco

MAIN RECOMMENDATIONS



The future and continuation of the actions carried out in this project are highly dependent on capitalising on the results and integrating the socio-economic assessments and participatory approaches into public policies and operational processes for territorial development.

To this end:

Institutional and legal frameworks need to be adapted in order to:

- ✓ Create cross-sector ecosystem approaches: forests, agriculture, social issues, housing, tourism, energy, etc.
- ✓ Strengthen cross-ministry and cross-sector cooperation for territorial planning, especially forest planning, and communication, cooperation and synergies between local technical departments of State, authorities, elected officials and local management bodies.
- ✓ Prioritise the vital needs of the population (nutrition, healthcare, transport infrastructure, education, etc.). If the primary needs of poor populations are not met, their priority will not be commitment to co-management and the conservation of resources.

Capacity building needs to be provided for forest managers and executives as part of their initial and continuous professional development

- ✓ On the topic of participatory management and socio-economic analyses (including damage costs) in order to develop and implement multifunctional and participatory forest development plans.

Participatory approaches and socio-economic analyses need to be integrated into woodland development plans

- ✓ By redefining the terms of reference for forest development plans in order to strengthen their integrated, multifunctional and participatory approach.
- ✓ By promoting the development of co-management on the basis of sound socio-economic studies with “win-win” bilateral or multilateral partnerships that benefit local populations and users while dealing with the challenges facing managers.

Knowledge of Mediterranean woodland areas is currently insufficient and needs to be strengthened

- ✓ By creating a databank (including a Geographic Information System (GIS) to enhance knowledge required for decision-making):
 - socio-economic, silvicultural, genetic, environmental, social data, etc.,
 - data concerning adaptation and mitigation to global change,
 - Mediterranean forest experts and institutions could offer support.



Düzlerçami, Turkey

The organisation of local stakeholders and sectors needs to be strengthened

- ✓ In order to facilitate collective consultation and management and to promote a sector-based approach (associations, cooperatives, economic interest groupings, etc.).
- ✓ With the aim of distributing benefits and added value across the value chain (with significant returns for co-managing populations, who then play a conservation role for forests).

Funding capacities in the forestry sector need to be strengthened

- ✓ By working on sourcing national and international funding by facilitating access by countries of Collaborative Partnership Mediterranean Forests to climate funding (e.g. Green Climate Fund).
- ✓ By developing innovative mechanisms with public-private partnerships (green economy, eco-tourism) and mechanisms for payment for ecosystem services involving users, including off-site beneficiaries.
- ✓ By launching a regional technical cooperation project on the National Forest Funds (NFF) in particular by carrying out a feasibility study in each country's context and strengthening communication towards target users on NFFs and their use (cross-sector, private sector).
- ✓ By linking funding to indicators concerning objectives, methods and results in order to assess the effectiveness and efficiency of projects/actions.

It would be useful to study these recommendations in the context of ongoing policies, programmes and strategies, for example:

- Agricultural and rural renewal policy in Algeria,
- National Afforestation/Reforestation Programme in Lebanon,
- Ten-year Forest Plan (2015-2024) in Morocco,
- National strategy for sustainable development of forests and rangelands in Tunisia (2015-2024),
- National Forest Programme (2004 - 2023) in Turkey.

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Maâmora, Morocco

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CHREA NATIONAL PARK, ALGERIA

Nadia OUADAH

WHAT IS THE PROBLEM?

In Algeria, the policy of preserving natural resources through the creation of protected areas fully financed by the State is facing major difficulties on the ground, such as: usage conflicts between the various sectors, with development projects often taking precedence over the protection of habitats; management costs that are increasingly difficult for the administrations responsible for these areas to bear; additional costs caused by the degradation of ecosystems providing goods and services; and increased pressure from local populations, whose increase in number and uncontrolled access complicates and aggravates this degradation.

Pilot site description

Chr ea National Park is located 50 km South-West of Algiers over an area of 26,587 ha, 85% of which is woodland. It was created by Decree no. 83.461 of 27 July 1983 and classified by the UNESCO "Man and the Biosphere" programme as a Biosphere Reserve in 2002. The natural vegetation includes pure or mixed forest formations, with a variety of dominant species, including the Atlas cedar (endemic species), cork oak, evergreen oak, Algerian oak, Aleppo pine and Barbary thuja. It is also home to extensive flora and fauna biodiversity (representing 36% and 25% of national biodiversity respectively).

Users include a resident population, estimated at 6,000 inhabitants, and a non-resident population, primarily represented by tourists and second-home owners, estimated at 2 million visitors each year.

The pilot site was chosen because:

- it presents a large range of ecosystem goods and services,
- the goods and services are well conserved (protected area) and can serve as a reference and point of comparison for other more degraded sites,
- there is longstanding and ongoing collaboration with ecological researchers.

Goods and services selected for the study

The goods and services selected are representative of the environmental and socio-economic issues at a local, regional and national level. They are also directly covered by the site's management objectives and are included in the priority objectives listed in the management plans for the site and other nearby protected areas.

Three goods and services have been selected:

1. Water purification (regulation):

The supply of water for local populations to drink and for irrigating the region's farmland is heavily dependent on the pilot site's water resources and the regulation and purification role of woodland ecosystems.



2. Recreation associated with the Barbary macaque monkey (culture):

This study contributes to the implementation of an ecotourism that is organised, economically viable (possibility of self-funding) and ecologically sustainable (preservation of Barbary macaque monkey populations which have been negatively impacted by excessive visitor numbers).



3. Arbutus berry picking (supply):

Optimising and rationalising the picking of these products in government-owned forests requires better management of uses and the usage rights granted to resident communities. It is likely to alleviate usage conflicts in these areas.



A TWO-STEP ASSESSMENT: ECONOMIC VALUE AND COSTS-BENEFITS ANALYSIS

Socio-economic assessment in baseline conditions

The following economic assessment methods were used: the cost-based method for the "water purification" service, the travel-cost method and the contingent valuation method for the "recreation associated with the Barbary macaque monkey" service, and the market price method for the "arbutus berry picking" service.

Multiple data sources¹ were used for these assessments:

- Data collected from sector and territorial administrations in various forms (studies, reports and direct communication);
- Data from field surveys of visitors and arbutus berry pickers to collect information about visit frequency and the transport cost related to this visit and data on the quantities of arbutus berries collected and sold.

¹ The reference year for the economic assessment of the services described below is 2014, the year in which data was collected. Discount rates have been applied to any values not from this period.

Table 1: Results of the socio-economic assessment

Good or service	Physical quantity	Unit economic value	Total economic value (2014)	Economic value per forest ha
Water purification	Volume of water transferred from the study site to provide communities with drinking water 4,927,500 m ³ per year	Unit cost of purification avoided €0.29 per m ³	Total cost of purification avoided €1,442,990 per year	/19,600 ha €73.62 per ha per year
Recreation: Barbary macaque monkey	Average number of site visitors existing: 85,000 people 8500 planned guided visits 8500 planned visits due to the creation of a new recreation area	Consumer surplus per visitor per year: €2.63 per visit Willingness to Pay: €0,6 to €0,65 (with/without food basket) Willingness to Pay : €0,52 € per visit	Total social benefit of the visit €223,550 per year €5100 to €5500 per year €4420 per year	/1,300 ha €171.96 per ha per year
Arbutus berry picking	Quantity of arbutus berries picked in 2014 (kg per year): 4,445 kg per year	Average sales price €3.23 per kg	Revenue for pickers €13,687.14 per year	/200 ha €68.43 per ha per year

Cost-Benefit Analysis of management scenarios

I. Recreation associated with the Barbary macaque monkey:

The following scenarios were selected:

- **Business-as-usual scenario:** Current site visitor numbers with limited and sporadic operations from park officials.
- **Alternative scenario 1:** Measures to support and supervise visitors using nature guides (guided tours, surveillance, creation of marked trails and signs, brochures). It is assumed that 10% of visitors will opt for the guided tour which is 8,500 per year.
- **Alternative scenario 2:** Operation of a new recreational area to reduce the number of visitors on the existing site. The investment cost is estimated at €92,000. It is assumed that 10% of the current number of visitors will choose to visit the new site, and an increase in the number of visitors of 2% annually.



Table 2: Net present value (NPV)* of the “Recreation associated with the Barbary macaque monkey” service

Indicators	Business-as-usual scenario	Scenario 1: visitor supervision	Scenario 2: new recreational area
Costs associated with the management scenarios	€44,229	€29,401	€119,582
Net benefits (benefits - costs)	€1,674,528	€1,695,508	€1,461,588
Increase/decrease in the service value (alternative scenario - business-as-usual scenario)	/	€20,980	-€212,939

* Discount rate is 8.5% (National Office of Statistics, www.ons.dz), Time frame: 10 years

Alternative scenario 1 is the most beneficial to implement in light of the results of the CBA. The benefits created are distributed between stakeholders as follows:

- **The State (Forest Administration):** savings of €14,828 on expenses for monitoring visitors and raise public awareness, which will be provided by the nature guides;
- **Society:** increase of €689 for improved visit quality and €5,463 of revenues generated by the activity of nature guides.



The three scenarios show similar and proportional variation with regard to the change factors selected. In each instance, it is Scenario 1 that proves to be the most profitable. It can therefore be deduced that a reduction in visitor flows and the social benefit associated with visits will have little impact on the benefit of implementing the most profitable scenario.

2. Arbutus berry picking

The following scenarios were selected:

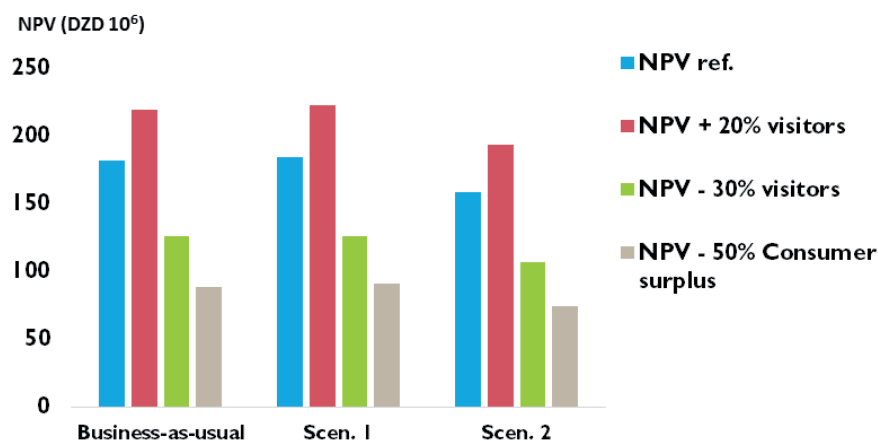
- **Business-as-usual scenario:** Uncontrolled collection carried out to the exclusive benefit of the pickers.
- **Alternative scenario 1:** A farm-out agreement where beneficiaries are given the exclusive right to pick arbutus berries within a clearly defined area, with associated incentives such as the provision of 5 hives to 4 beneficiaries². In return, pickers undertake to monitor the forest area during the wildfire season free of charge. This results by halving monitoring costs incurred by the administration during the summer season.

The alternative scenario is more beneficial than the business-as-usual situation. The benefits created are distributed as follows:

- **The State (Forest Administration):** savings of €6,367 on wildfire surveillance expenses;
- **Society represented by local pickers:** creation of €23,895 in additional profit from the sale of arbutus berry honey (new product).

The sensitivity analysis shows that current practices for the picking and sale of arbutus berries produce fairly significant profits and involve few costs to the extent that, even if revenue were to halve, it would not affect profitability, regardless of the scenario considered (business-as-usual or alternative scenario). Nevertheless, it is clear that Scenario 1 is more sensitive to a 50% drop in revenue for pickers.

Figure 1: Change in NPV for the « Recreation associated with the Barbary macaque monkey » service depending on the visitors number*



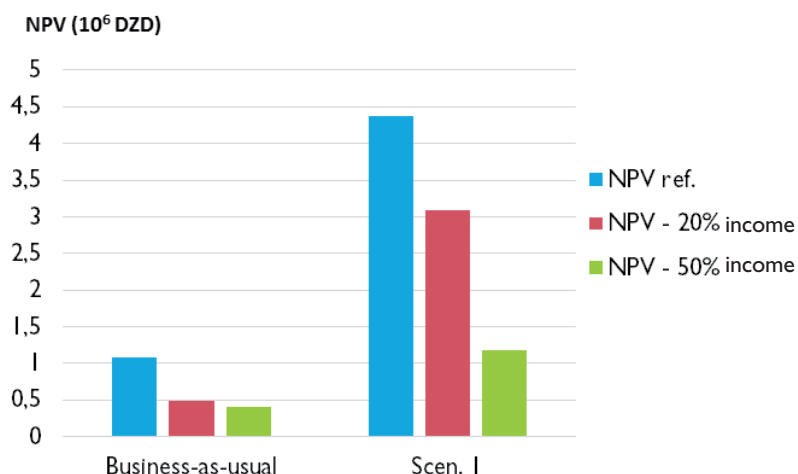
* €1 = 0.0092 Algerian Dinar (DZD)

Table 3: Net present value (NPV)* of the “arbutus berry picking” service

CBA results	Business-as-usual scenario	Scenario 1: Farm-out agreement
Costs associated with the management scenarios	€17,343	€10,976
Net benefits (benefits - costs)	€9,913	€40,175
Increase/decrease in the service value (alternative scenario - business-as-usual scenario)	/	€30,262

* Discount rate : 8.5% (National Office of Statistics, www.ons.dz) ; Time frame: 10 years

Figure 2: Change in NPV for the « arbutus berry picking » service depending on the income associated with berry picking



¹ A production of 8kg per hive is planned with a price of €32 per kg.

RECOMMENDATIONS AND MAIN LESSONS LEARNED

Study contributions and limitations

This study made a significant contribution to discussion of the cost of drinking water, which is a pressing issue for improving public service, in particular securing supply for populations in a context of increasingly difficult climatic conditions.

It also demonstrated that the recreational activity associated with visiting the pilot site, which is responsible for the excessive visitor numbers that have a negative impact on wild fauna, provides a major social benefit. This should encourage the main beneficiaries to contribute to paying for this service, with a view to better organising the activity, which needs to reconcile the right to recreation with the respect of wild fauna.

Finally, this study gave relevant answers to the issue of maintaining the right to enjoy forest products for resident communities and the need to regulate any over-exploitation, by: i)- proposing co-management as a means of participatory management and; ii)- revising the sale prices of non-wood forest products.

The limitations of the study are due to:

- Lack of data (water purification);
- Lack of precision for other data (number of visitors);
- Some approaches were not integrated (price approach only for water);
- Snapshot perspective (assessment over one year).

How economic assessment of goods and services could impact decision-making and public policies?

The socio-economic assessment of the value of the ecosystem goods and services selected for this project was a new approach that succeeded in promoting these goods and services in terms of their economic worth as for other more widely-known resources (timber production, agricultural produce, mining resources, etc.) and shed new light on them, in order to make them easier for the various stakeholders to take into account. The major consequence is the opportunity for the managers of this protected area to present decision-makers at various levels with management (or co-management) actions for the protection and/or sustainable use of these areas, not as budget-consuming actions, but as actions capable of improving local and national population well-being.

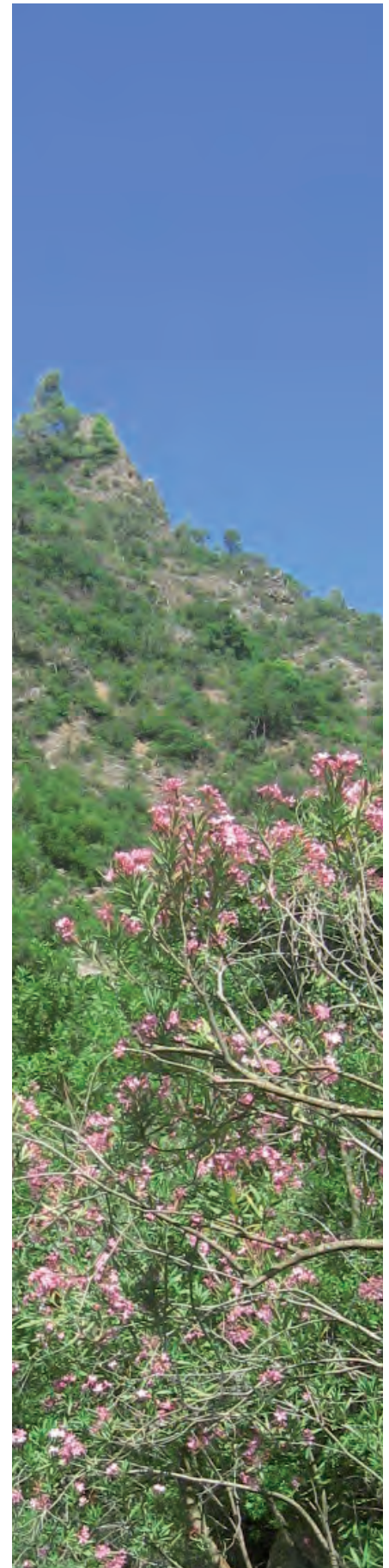
It will now be easier to defend the preservation of the ecosystems that provide these goods and services, and the need to pay (at least in part) for these goods and services is supported by objective and tangible arguments.

Finally, payment for ecosystem goods and services will help promote them and generate environmental solidarity between the various users/beneficiaries (populations, planners, economic sectors, decision-makers, etc.).

For more information please see full publication:

Ouadah N. (2016). *Estimation de la valeur économique et sociale des services rendus par les écosystèmes forestiers méditerranéens - Algérie, Parc National de Chréa, Algérie*. Plan Bleu, Valbonne.

This publication is available for download from Plan Bleu website: www.planbleu.org



JABAL MOUSSA BIOSPHERE, LEBANON

Bernadette KARAM

WHAT IS THE PROBLEM?

The Mediterranean forest ecosystem is an anthropogenic area where humans and the environment interact. This ecosystem is subject to climate change and human constraints. Many of these risks are associated with the over-exploitation of forest resources for economic purposes and they contribute to the negative effects of climate change, which prevent the regeneration of the various species. Lebanese forests provide a range of goods and services. They are considered from an economic perspective by the local community who exploits these resources and as a place to be conserved and protected by managers. The recently created nature reserve, protected forest and biosphere reserve designations have generated new conservation legislation prohibiting the exploitation of these goods and services. At the same time, the pressures on Lebanese forests have led to a fall in resource productivity. However, striking a balance between the conservation and socio-economic development of forest heritage could allow for the sustainable exploitation of forest resources and strengthen the protection of these environments.

Pilot site description

The Jabal Moussa biosphere reserve is located in Keserwan District, 45 km from the capital, Beirut. It encompasses villages spread across altitudes of 350 m to 1,700 m.

The site has a surface area of 6,500 ha, including a 1,250 ha protected area, a 1,700 buffer zone and a 3,550 ha development area. It has a population of 15,000 inhabitants, including around 1,500 woodland users. The Jabal Moussa biosphere is a particularly interesting site that combines a wealth of natural and cultural heritage with remarkable biodiversity and endemic species. Its longstanding history, particularly rural activities, and the latest socio-economic developments, particularly the influence of the urbanised coastline, create an original backdrop for action, which is very interesting for the project.

The protected area and natural biosphere status imposes legislation prohibiting the exploitation of resources, particularly in the protected area. Since these restrictions, the population that benefited from these goods and services has experienced a loss in earnings. This study seeks to identify the site's different goods and services and their beneficiaries, before giving them an economic and social value. The main objective is to support decision-making processes in order to better share costs and benefits, and to strengthen actions to support the sustainable management of Mediterranean forest ecosystems.



Goods and services selected for the study

The goods and services selected for this assessment are, in order of priority: eco-tourism, honey, *Origanum syriacum*, firewood and grazing. The goods and services were prioritised according to their economic importance for the local community.

The woodland areas are managed by the municipalities, the Association for the Protection of Jabal Moussa (APJM), the Ministry of Agriculture (MoA) and the Ministry of Environment (MoE).

The main owners of these areas are the municipalities Ebre and Yahchouch and religious entities.

These goods and services are considered the most profitable and provide local users with significant revenues. However, some activities have become illegal since the new regulations and ban on the exploitation of forest resources associated with the Protected Forest and Biosphere Reserve status. These pressures on the site come in addition to climate change and human activities.

Significant pressure due to grazing was reported during the forest inventory carried out in Component I of the FGEF project, particularly due to the transhumance grazing of livestock during spring and summer. Similarly, several medicinal plants are being degraded due to increased temperatures and less rainfall.

The drop in thyme production collected by the local population is primarily the result of illegal cutting, which damages the natural regeneration of this species. Finally, logging is illegal and unorganised, which is why it is vital to implement a management and development plan that takes into account the needs of local beneficiaries in order to reduce the pressure on resources while offering alternatives for users.

Figure 1 : Socio-economic and environmental issues



A TWO-STEP ASSESSMENT: ECONOMIC VALUE AND COST-BENEFIT ANALYSIS

Socio-economic assessment in baseline conditions

Surveys were carried out with the association that manages the site (APJM) to identify the beneficiaries of the woodland areas and to physically quantify the goods and services. Maps were used to estimate the surface area of forests and other woodlands in order to calculate the value per hectare for 2014.

Various methods were used for economic assessment:

- **The market price method:** for firewood, honey, medicinal and aromatic plants (*Origanum syriacum*).

- **Firewood:** Data concerning the quantities of wood exploited and the stumpage price¹ (before transport) was taken from a socio-economic survey in 2009. Discount rates were applied to calculate the 2014 value. The value of wood for the total surface area of the forests and other woodlands in Jabal Moussa was calculated at €17.72 per hectare.

- **Honey:** A survey of beekeepers determined the total honey production and price for 2014. The total value of honey in Jabal Moussa was calculated at €11.13 per hectare.

- **Medicinal and aromatic plants (*Origanum syriacum*):** In order to determine the value of *Origanum syriacum* on the Jabal Moussa site, national data concerning the quantities collected and the national and local forest surface area were taken into account and extrapolated. The total value of *Origanum syriacum* was calculated at €44.05 per hectare.

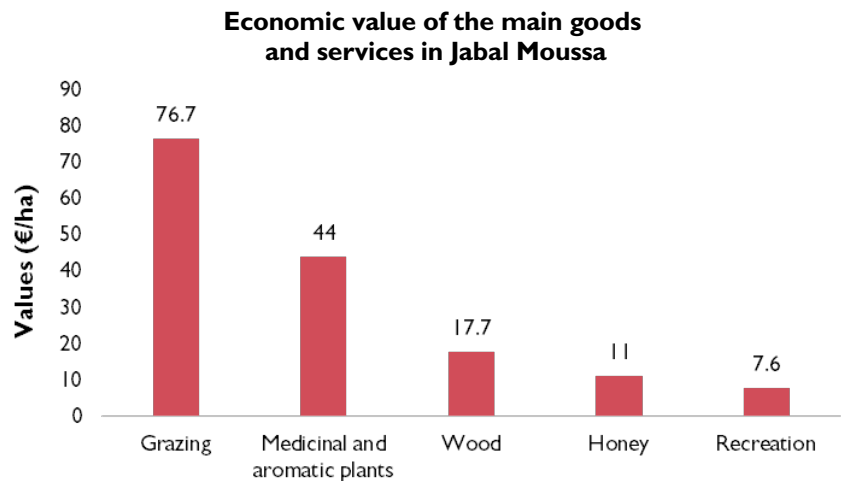
- **The substitute cost method:** to assess the value of grazing. The value of a fodder unit is calculated according to the price of barley by considering that a fodder unit is equivalent to 1 kg of barley. A goat needs 2 fodder units² per

day for 4 months each year (from June to September) when grazing in the forest. The value of grazing was calculated at €76.07 per hectare.

- **The benefit transfer method** was used to assess the value of recreation/ecotourism. The Willingness To Pay (WTP) to visit the “Shouf reserve”, a site with characteristics similar to Jabal Moussa, was assessed in 2004 and calculated at €52 per family. Annual inflation rates were used to calculate the 2014 value. The total value of recreation was calculated at €7.66 per hectare.

Good or service	Data source	Method of valuation
Ecotourism	APJM	Cost-based method/ Benefit transfer method
Honey	APJM and survey	Market price
Thyme (<i>Origanum syriacum</i>)	FAO, UNDP, MoA	Market price
Firewood	2009 socio-economic survey	Market price
Grazing	Survey	Cost substitution method (market price of substitute)

The results of the values for the goods and services prioritised by the study are expressed in Euros per hectare and detailed in the graph below:



Main goods and services in Jabal Moussa



The results given in the graph show that the benefits for the local population (medicinal and aromatic plants, grazing, wood, honey) are the largest economic values. This shows that the priority list previously drawn up by managers does not reflect the economic values obtained in this study, and explains the high level of compensatory measures that should be applied, particularly for shepherds who are losing income following the bans.

¹ The stumpage price (excluding the cost of labour and transport) is estimated at US \$100 per tonne. (Determined by the Ministry of Agriculture)

² Personal consultation with an animal production expert at the MoA. A goat needs 2 fodder units per day, and in Jabal Moussa, a goat's daily consumption from June to September is provided solely by grazing.

Cost-Benefit Analysis of management scenarios

The proposed management options include regulated exploitation of the goods and services on the site studied, together with revenue-generating activities. These activities aim to compensate for the loss of earnings for households that collect goods in the protected area, in order to reduce the pressure on this area and ensure the sustainability of resources. Operations include support to boost thyme farming, an increased number of beehives and opening new hiking trails.

In order to assess the profitability of the proposed operations, a cost-benefit analysis (CBA) was performed. CBA seeks to help the relevant public institutions and local decision-makers make decisions about the choice of the most profitable and efficient operations for allocating resources and improving the well-being of society.

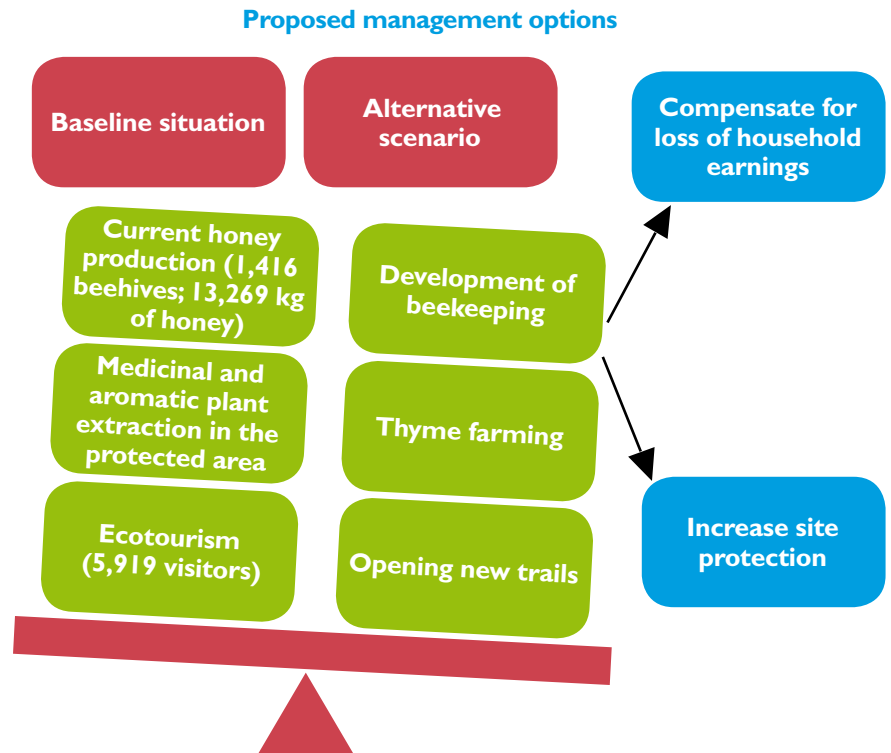
The different costs and benefits for the various management options are detailed below:

1. Development of beekeeping: the costs include investment to purchase 200 additional beehives (4 hives per family) and production costs (maintenance, packaging, medicine and transport). The benefits include increased honey production equivalent to 1,874 kg of honey each year (production of 9.4 kg per hive at 18.8 € per kg).

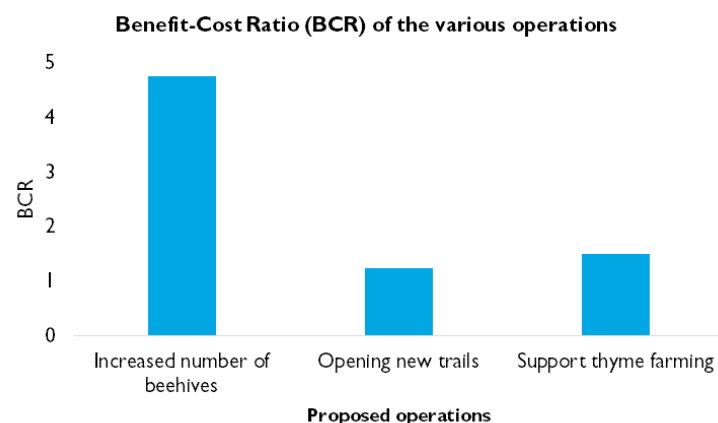
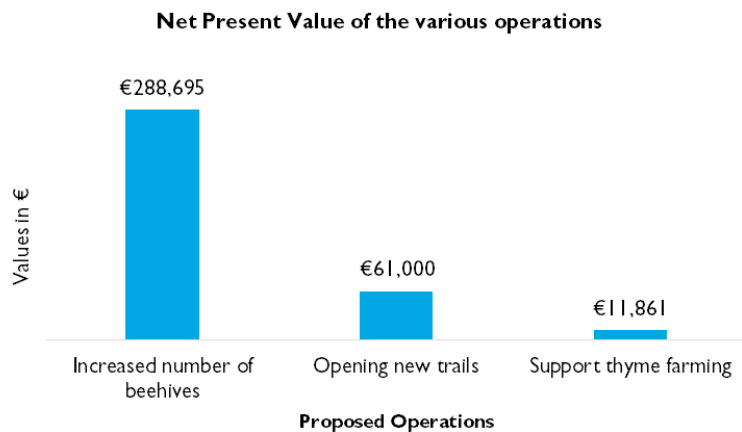
2. Development of ecotourism: the costs include investment to open 5 new trails and install signs, and production costs (wages and maintenance costs). The benefits include 1,500 additional visitors each year.

3. Thyme farming: the costs include investment in the irrigation system, purchase of plants, soil preparation and production costs (fertilisation, cultivation, harvesting). The benefits include 750 kg of production the first year, 1,125 kg the second year and 1,500 kg from the third year.

Results of the CBA show that all the activities mentioned are profitable. Developing beekeeping is the most profitable operation, and therefore should be a priority.



Profitability indicators are given in the graphs below:



The exploitation of forest products and the development of recreational activities are considered as compensatory measures for the local community which has been negatively affected by the protected area status. The implementation of these type of measures would be well received by stakeholders as a tool for conservation and development since these activities would have a positive impact on job creation and economic growth in the region and on the protection of biodiversity.

RECOMMENDATIONS AND MAIN LESSONS LEARNED

Study contributions and limitations

The study's main limitations and difficulties encountered are primarily linked to the lack of data. Data regarding the quantities produced for the various goods is non-existent due to the absence of a forest inventory in Jabal Moussa. Information associated with the impact of climate change on productivity is therefore also missing. The problem of a lack of data is particularly due to the absence of detailed mapping of the forest/wood exploitation areas, as well as the lack of studies and research on the economic value of forest resources at national and local level.

The values obtained are considered to be orders of magnitude and can be taken as an indicative starting point for a better incorporation into the decision-making process and strengthening protection of the protected area.

How economic assessment of goods and services could impact decision-making and public policies?

The results of the assessment of the economic value of goods and services are used by decision-makers as planning and management tools. Incorporating these values into territorial development policies makes it easier to take the forest



ecosystem into account in sustainable development policies and planning. These results provide decision-makers with information on the effects or consequences of management measures and decisions affecting ecosystems in order to take into account the socio-economic conditions and readjust their priorities. They also serve as a reference for the Ministry of Agriculture to introduce future development policies which can be applied to other sites.

Support to implement a participatory approach on the site could ensure the participation of the local community in the decision-making processes of stakeholders who manage the site.

These values provide political leaders and local stakeholders with information concerning the existence of non-wood forest products such as fodder resources and medicinal and aromatic plants. Detailed mapping of the forest/wood exploitation areas and the value of the forest biomass available are vital to avoid over-exploitation and to ensure the sustainability of resources.

However, in order to improve this study's assessment methods, assessing the values of resources using a sampling method is recommended, particularly for medicinal and aromatic plants and fodder resources.

The main recommendations taken from the study for managers and decision-makers are as follows:

- Review forest policies for resource exploitation in order to reach compromises or agreements of mutual benefit between forest users and the administration,
- Implement a participatory approach to decision-making in Jabal Moussa to support decision-making by site managers, while reflecting the needs of the community,
- Improve collaboration between forest stakeholders – both public (Ministry of Agriculture and Ministry of Environment) and private (APJM),
- Finance projects for the exploitation of non-wood forest products in order to support the activities of communities and provide compensation for forest users,
- Ensure technical and financial support for decision-makers for carrying out forest development plans.

For more information please see full publication:

Karam B. (2016). *Estimation de la valeur économique et sociale des services rendus par les écosystèmes forestiers méditerranéens, Biosphère de Jabal Moussa, Liban*. Plan Bleu, Valbonne.

This publication is available for download from Plan Bleu website: www.planbleu.org

MAÂMORA FOREST, MOROCCO

Abdelmohssin EL MOKADDEM

The innovative methods and the analysis and conclusions expressed in this publication do not necessarily reflect the views of the international experts involved in the project but only that of the author and the Moroccan national team that validated them during a validation meeting held in Rabat, Morocco on the 18th of February 2016.

WHAT IS THE PROBLEM?

Forests play an important economic and social role in Morocco. Their multi-functional nature means that they produce goods and services that benefit both the rural population, which is strongly dependent on the forest, and other beneficiaries such as local authorities and urban communities. The conservation and sustainable management of forests remains a major challenge. There are still lasting problems, such as collective usage rights, the non-commercial nature of most forest goods and services, the inadequacy of assessments in quantifying non-commercial goods and services and ongoing illegal, informal and unorganised exploitation, in a context where the economic exploitation of a significant number of forest goods and services is difficult.

The lack of management guided by the desire to optimise the economic yield of forests, which takes into account the main forest goods and services, leads to benefits only being partially calculated, which reduces the real benefits of work for the conservation and sustainable management of forest ecosystems.

Pilot site description

This study was carried out between 2013 and 2015 thanks to funding from the French Global Environment Facility (FGEF), in collaboration with the Moroccan High Commission for Water and Forests and Combating Desertification (HCEFLCD). Maâmora Forest was chosen as a pilot site in order to assess the economic value of forest goods and services and to illustrate the importance of management that takes into account the simultaneous production of the main goods and services in Moroccan forests. Eight forest goods and services were assessed with the aim of incorporating these results into calculations to establish the rate of return on the investments planned as part of the implementation of the future forest development plan (2016-2035). This rate of return was calculated and two analysis variants were compared, highlighting the differences between a partial calculation method and an extended calculation method covering eight forest goods and services.

Goods and services selected

The economic assessment carried out for Maâmora focused on eight goods and services that have been identified as priorities:

Goods and services	Beneficiaries
Wood	Rural population, local authorities and HCEFLCD
Cork	Local authorities and HCEFLCD
Fodder	Rural population
Recreation	Urban population of neighbouring cities
Acorns	Rural population
Truffles	Rural population
Tannins	Local authorities and HCEFLCD
Nectar (honey production)	Local beekeepers and herders

These services were selected by forest managers by setting priorities according to the economic significance of these services at a local and national level, and their sensitivity to management and operating methods and climate change.

A TWO-STEP ASSESSMENT: ECONOMIC VALUE AND COST-BENEFIT ANALYSIS

Socio-economic assessment in baseline conditions

Economic assessment was carried out by considering the economic value as a reflection of both the potential opportunities for the use and future exploitation of goods and services, and the preferences detected via the behaviour displayed by the direct beneficiaries of these goods and services.

The data used came from a number of sources, in particular: (i) preparatory studies performed as part of work to draw up the forest development plan (forest inventory, socio-economic study, etc.); (ii) the Maâmora management plan (2016-2035); (iii) data from the Ministry of Agriculture; (iv) records of wood auctions (2004-2014); (v) semi-structured interviews and direct surveys with the beneficiaries of goods and services; (vi) estimations provided by forest managers; and (vii) data from empirical research carried out in Maâmora.



- **Truffles:** Truffle production was assessed by differentiating between truffles produced around pine forest stands and truffles produced around cork oak forest stands (Baseline year: 2014).

Truffle production among pine forest stands was at 22,566 kg, with 3,915 kg among cork oak stands. The net benefit produced by Maâmora has a gross value of €165,792 after deducting the collection opportunity costs (€50,659). The net unit value of Maâmora truffles was therefore calculated at €3.80 per kg. This is the equivalent of €138 per ha for pine stands and €22.83 per ha for cork oak.

Truffles		
	Item name	Monetary value (€)
Net unit value of forest truffles	per kg	3.80
	per ha of oak trees	22.83
	per ha of pine trees	138.11



- **Wood:** the assessment differentiated between the various qualities and uses (industrial wood, timber and firewood) of different species. The mean value of auction quantities and sale prices over a period of ten years was used. The intermediary costs of silvicultural actions and operation and any taxes paid prior to wood purchase were deducted in order to assess the value of each type of wood.

The economic assessment estimated the total net value of wood in 2015, after deducting operating costs (€718,430.50) and taxes (€5.9 million), at €10.5 million. Most of this value (96%) comes from industrial wood and timber, primarily taken from eucalyptus (89%). The remainder (4%) comes from firewood produced by the various species. The silvicultural operations in each plot are very different for each species and each year. The mean value per hectare could therefore not be estimated.

- **Fodder:** fodder production was estimated on the basis of mean annual production in fodder units according to mean yield values for the ten grazing parks in Maâmora. The fact that a fodder unit is of an equivalent value to a kilogramme of barley was used to calculate the monetary value of fodder.

Fodder production in Maâmora's ten grazing parks (131,808 ha) was estimated at 39 million fodder units, resulting in a net benefit of €18 million, for a mean production value of €138.20 per ha. The contribution of the various grazing parks vary from one to another and this value fluctuates from €115 per ha in the least productive parks to €161 per ha in the most productive parks.

Fodder			
Surface area (ha)	Total production (UF)	Value (€1000)	Value (€/ha)
131,808.00	39,012,400.00	17,966.50	138.2 [115, 161]



- **Cork:** the assessment differentiated between the value of virgin cork and the value of reproduction cork. Quantities were calculated according to their estimated annual production, using the weighted mean value for productions collected at the end of each operating period (period of 27 years for virgin cork and 10 years for reproduction cork). The costs associated with storage, transport and cork auctions fees were deducted from the sales value.

A total value of approximately €138,159.70 was calculated for cork production, primarily from the exploitation of reproduction cork. The net value of virgin cork production is no more than €1,145. A net cork unit value after deducting costs and taxes, was estimated at €19.90 per stère for reproduction cork and €13.60 per stère for virgin cork.

- **Cork oak acorns:** there are no measurements for the actual quantities collected. Data was therefore estimated as follows: the volume produced and exploited for commercial purposes, or for the in situ grazing of livestock and home consumption by local communities, was based on the mean production value for a surface unit according to the mean production of a tree and the density of cork oak stands. The opportunity costs associated with the collection of acorns, estimated in human labour units, were deducted from the sales value. The prices used (price paid to collectors) were based on surveys carried out during the socio-economic study performed for drawing up the development plan.

The net benefit from cork oak acorn production in Maâmora, after deducting any costs, was calculated at €9.4 million. The collection opportunity costs were estimated at €1.1 million. The average net unit value after deducting the cost of labour is €0.37 per kg.

Acorns			
	Total net value (€)	Monetary valuation	
		€/kg	€/ha
Collection costs	1,125,694	0.04	15.95
Value of acorns	9,404,530	0.37	133.26

- **Nectar:** nectar production was calculated using analysis of two beekeeping methods (modern and traditional). The value of nectar was obtained from the market price of eucalyptus honey, which is the leading product in Maâmora (Baseline year: 2013). The economic value of nectar was calculated using the sale price, after deducting the production costs and depreciation costs of all investments for an average sized unit for each production method.

In Maâmora, the production of nectar used for honey production can generate an average annual benefit of €6 million (i.e. €25.33 per ha), which varies according to the climate conditions, with a minimum value of €4.6 million (€19.40 per ha) and a maximum value of €6.7 million (€28.40 per ha).

- **Acacia bark tannin:** the economic value of the tannin contained in acacia bark was calculated by finding the difference between the sale price of bark on the wholesale market and all intermediary costs and fees. The tannin concentration in the bark was calculated from the estimated volume of bark using an econometric model. Tannin was not really exploited during the baseline year (2015), so the quantities produced were estimated. The residual value of bark after extracting the tannin was considered zero given that there is no further exploitation.

Acacia tannin production was calculated at a total volume of 486.8 T for 2015, generating a total net benefit of €128,949. The unit value of tannin is €269.60 per T, with a value varying from €36.50 per ha to €37.90 per ha depending on the age of the trees in the various acacia plantations in Maâmora.

- **Recreation :** the three most visited sites in the forest were assessed: Sidi Amira, Saknia and Taïcha. The travel cost method was used to estimate the individual surplus and the individual surplus per visit. The total economic value of recreation was calculated using the estimated number of visitors on each site during the baseline year (2015).

Exploitation of Maâmora for recreational purposes was assessed by calculating the consumer surplus, which is at €28.60 per visit on the Sidi Amira

Item name	Values (€)		
	For the modern "Sed" method	For the modern "Trshm" method	For the traditional method
Total number of hives	4 145	461	249
Total forest surface area (Eucalyptus)	21 866		
Unit value of nectar (€ per kg of honey)			
Mean value	2,9	2,8	1,9
Minimum value	2,2	2,2	-1,1
Maximum value	3,2	3,2	5,3
Total value of nectar in Maâmora (€/year)			
Mean value	5 776 351	211 778	25 725
Minimum value	4 467 926	162 237	-14 473
Maximum value	6 430 564	236 548	71 665
Total value of nectar for the entire Maâmora forest (€ per year)			
Mean value	6 013 854		
Minimum value	4 615 690		
Maximum value	6 738 778		

site, €7 per visit on the Saknia site and €3.40 per visit on the Taïcha site. Annual visits to the three sites generate a total benefit of €120 million for Sidi Amira, €3.4 million for Saknia and €4.5 million for Taïcha.

Cost-Benefit Analysis (CBA) of management scenarios

Forest management scenarios selected

Analysis used a scenario which assumed the implementation of all planned management and development operations over a 20-year period (2016-2035). The approach used was the with and without projects approach. The profitability indicators calculated are the internal rate of return, the net present value and the ROI. Future cost-benefit ratios are also calculated to provide an idea of the future progression of these ratios. The sensitivity of the net present value depending on the choice of discount rate is suggested to calculate the potential difference between the various possible rates (3%, 5%, 6% and 10%).

Management options selected:

- Baseline scenario: progression without a development plan
- Alternative scenario: progression with development and management L'analyse des scénarios de gestion par la méthode des Coûts-Bénéfices

Cost-benefit analysis of the forest management scenarios

Cost-benefit analysis demonstrates that the planned management and development in Maâmora for the next twenty years (2016-2035) could have guaranteed profitability if all goods and services are considered.

The rate of return for a single investment can vary from 30% if only cork and wood production is taken into account, to 188% if six other goods and services are taken into account. The net discounted value of a present investment of €9.5 million increases from €11.2 million to €295 million at this same discount rate.



Calculating forest goods and services other than wood and cork also better reflects the proportionality of costs with regard to the benefits of a development project. The benefit-cost ratio falls from around 60% to 2% or 3% when the total value of goods and services is taken into account.

Cost-benefit analysis illustrated the contribution of forest management and development operations in terms of benefits and also demonstrated the benefit of calculating goods and services that are usually neglected or not quantified. The results obtained reveal that, for Maâmora, taking these goods and services into account demonstrated significant profitability.

RECOMMENDATIONS AND MAIN LESSONS LEARNED

Study contributions and limitations

Many lessons can be learned from the assessment. It showed that the net value of forest goods and services is high despite significant expenses and high operating and marketing costs. Therefore, as in the example of truffles, where declarations by collectors may be exaggerated, it is important to encourage research to improve knowledge and produce more precise and reliable data.

The choice to differentiate between types of wood (industrial wood, timber, firewood) and cork (virgin cork and reproduction cork) proved useful in making estimations more precise and in recording changes in the economic value of these ecosystem services at different stages of forest stand growth. This could lead to suggestions to substantially improve forest management with an approach that takes into account the production of benefits from the various forest goods and services.



ASSESSMENT STRENGTHS

- Study coincides with drawing up of the Maâmora Development Plan and Management Plan;
- Cooperation and availability of the various HCEFLCD departments;
- Organisation of various information-sharing and discussion meetings with other project components.

ASSESSMENT LIMITATIONS

- Relative precision of estimations in the absence of sufficiently precise data (biophysical and bioclimatic links, etc.);
- Difficulty developing a realistic scenario without development, while precisely taking into account all the details associated with development and management for a scenario with project;
- Difficulty quantifying the real consumption of some G&S due to their nature or illegal consumption.

How economic assessment of goods and services could impact decision-making and public policies?

The assessment shows us that understanding of the development and management work in Maâmora can be considerably improved by calculating the goods and services produced. The results can serve as a basis for arguing in favour of attracting the funding needed to conserve and improve the forest. Identifying the benefits and beneficiaries will also help better organise and manage the exploitation of forest products in order to strike a compromise between sustainable forest management and improved revenues for the rural population. This requires judicious development and management decisions, which assumes that operations are optimised so as to maximise the economic value of the various forest goods and services. Introducing monitoring of the production of forest goods and services, periodically updating the economic values and standardising assessment methods at a national level for the most important goods and services could open up opportunities for new, much more inclusive, forms of governance and the implementation of incentive tools for sustainable management and improved ecological conditions for forest ecosystems. Payment for Environmental Services (PES) is an example of a tool with a high chance of success.



For more information please see full publication:

El Mokaddem A. (2016). *Estimation de la valeur économique et sociale des services rendus par les écosystèmes forestiers méditerranéens, Forêt de la Maâmora, Maroc*. Plan Bleu, Valbonne.

This publication is available for download from Plan Bleu website:
www.planbleu.org

DÜZLERÇAMI PILOT SITE, TURKEY

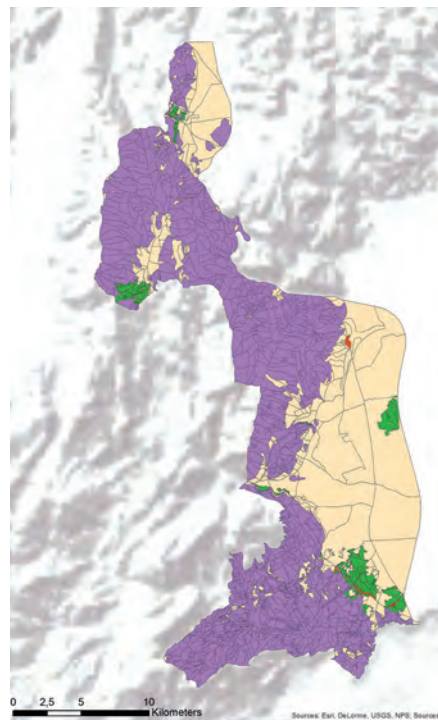
Özge BALKIZ

WHAT IS THE PROBLEM ?

Assessments towards socio-economic valuation of ecosystem goods and services are rare in Turkey, furthermore cases where assessments are incorporated into natural resources management practices and decision-making processes are even rarer. This project sets a good example, aiming at assessing the socio-economic value of goods and services provided by the forest ecosystem in the Düzlerçamı Pilot Site in Turkey, towards effective decision-making and strengthening actions to support the sustainable management of these ecosystems. Every 10 years management plans of state-owned forests are being updated. Following the approach implemented in this project, efforts can be focused on monitoring the impact of management decisions on ecosystem goods and services and accordingly preparing management plans and taking decisions towards increasing the sustainability of natural resources. This approach can thus be adopted as a model by public and private managers of forest ecosystems, and even other type of ecosystems, at national scale and at the level of the Mediterranean Region.

Pilot site description

Düzlerçamı Pilot Site is a sub-district forest unit located inside the Antalya Regional Directorate of Forestry in Turkey. Like majority of forested areas in Turkey, forests of Düzlerçamı are state owned and managed by the General Directorate of Forestry under the Ministry of Forestry and Water Affairs. The incomes generated through natural resource use in state owned forests of the area belong to the treasury. In the pilot site, there exists 11.188,5 ha of productive and 6.499,6 ha of unproductive state owned forests where wood production is carried out by the state, with a higher intensity in the productive forests. Furthermore an unforested area of 11.480,1 ha (made up of private owned agricultural lands and settlements) exists inside the pilot site. The total surface area of the pilot site is thus 29.168,2 ha. Düzlerçamı Pilot Site is located very close to Antalya Province, one of the biggest cities of Turkey and tourism hotspots of the Mediterranean Region. Different administrative levels are present in the pilot site, with Döşemealtı Municipality being the largest province in terms of surface area and there exists app. 38.000 habitants in the pilot site. One of the main reasons, which motivated the choice of this site in the project is because the forest management plan of the pilot site has recently been finalized. Every 10 years management plans of state-owned forests are being updated and the final management plan of the pilot site covers the period 2012-2021, permitting a moderate to good level of knowledge to exist about the site.



Lands functions map of the Düzlerçamı site

- Lands for environmental functions
- Lands for economic functions
- Lands for social and cultural functions
- Not yet wooded forest soils, private agricultural lands, villages, etc

Düzlerçamı Pilot Site host maquis ecosystems and one of the largest pine forests on flat land in Turkey, where the dominant species is the Turkish pine (or Calabrian pine; *Pinus brutia*). Protected areas of different types with different legal restrictions do exist inside the boundaries of the site (one wildlife reserve, 10 natural, archeological and urban SIT¹ areas).

¹ This is a type of protected area in Turkey, previously managed by Ministry of Culture and Tourism. Prohibits human activities and designated for cultural, or natural or archeological values of sites. Mainly are small area but strictly protected areas

One national park, namely Güllük Dağı-Termessos National Park (of 6.600 ha) is located at the western border of the pilot site. Inside the Düzlerçamı Wildlife Reserve, a breeding station for one of the priority wildlife elements in the site - the fallow deer (*Dama dama*) - is present. Located very close to Antalya, the Düzlerçamı pilot site is also influenced by recreation and tourism activities. Güver Cliff is one of the tourist attraction points inside the pilot site, visited regularly by both national and international tourists. Furthermore the forest itself is used by recreation purposes (more specifically for picnicking purposes) regularly with the presence of a couple of recreation spots rented to public or private bodies by the General Directorate of Forestry.

Main goods and services

Different stakeholders of the Düzlerçamı Pilot Site have identified the ecosystem goods and services present in the site related to the forest ecosystems as: wood production, biodiversity protection, fodder and forage, food products, water regulation, recreation and tourism, carbon sequestration, hunting and game products, historical and educational services and air quality regulation.

Among all the ecosystem goods and services identified, 4 were selected as priority given their importance as perceived by different stakeholders and the presence of data and information, namely:

- wood production,
- biodiversity protection,
- recreation and tourism,
- and carbon sequestration.

Düzlerçamı Pilot Site is a rather well protected forest site managed towards sustainable wood production. The future changes expected to occur in the site are mainly in line with increases in urbanization pressure and negative impacts of climate change. There also is an acknowledged increasing recreation demand (in the form of picnicking activities) in the pilot site. Even if the pilot site is actively managed towards production of wood and other products, the overall management objective of the General Directorate of Forestry in the Düzlerçamı Pilot Site remains as the sustainable management of national forest resources and thereby contributing to the wealth of the society and sustainable development of the country.

A TWO STEPS ASSESSMENT: ECONOMIC VALUE AND COSTS-BENEFITS ANALYSIS

Socio-economic assessment in baseline condition

Table 1: Goods and services studied

Ecosystem Good and Service	Methodology	Data Sources	Results (€/ha/year)
Wood Production	Market Price Method	2014 data on annual production amounts and related costs on Turkish pine (from Düzlerçamı Sub-District Forest Unit Accountancy Department and Antalya Regional Directorate of Forestry) 2014 data on Turkish pine's planted tree average sales prices (from Antalya District Forest Directorate).	16,15 €/ha/year
Biodiversity Protection	Cost Based Method	2013 data on management costs of the breeding station (from Antalya Branch Office of the General Directorate of Nature Conservation and National Parks)	4,5 €/ha/year
Recreation and Tourism	Benefit Transfer Method	2014 data on number of visitors in the Yukarıkaraman Recreation Spot (from Döşemealtı Municipality) 2010 data on Number of visitors in Güver Cliff (from Antalya Branch Office of the General Directorate of Nature Conservation and National Parks and Antalya Regional Directorate of Forestry)	18,73 €/ha/year
Carbon Sequestration	Market Price Method	2008-2013 data on Annual carbon stock changes (from General Directorate of Forestry)	58 €/ha/year

As a result of the socio-economic valuation, the most important ecosystem service was identified as carbon sequestration (58 €/ha/year) given the presence of high forest coverage in the pilot site. The recreation and tourism (18.73 €/ha/year) resulted to be the second most important service in the pilot site, followed by wood production (16.15 €/ha/year) and biodiversity protection (4,5 €/ha/year). Yet the outcomes of this approach should be seen as a minimum value of the biodiversity protection in the pilot site and more detailed assessments must be done to gain a better understanding of the biodiversity protection in the Düzlerçamı Pilot Site.

Costs-benefits analysis of management scenarios

There exists an increasing demand for recreation activities by the local community and this was identified as the management option in the pilot site leading to allocation of forest land to recreation activities. For this, we have assumed a new recreation spot opened in the pilot site with features similar to the existing Yukarıkaraman Recreation Spot². Mainly the forest stands which are mature and which would not require maintenance work are selected as good candidates for

recreation spots in the region and once a stand is chosen as recreation spot, a bidding process is carried out where management of the site is rented for 29 years to the selected public or private body. We have assumed that wood production would no longer be carried out in a surface of 20 ha in the pilot site. To assess the impact of a new recreation spot on carbon sequestration, we have assumed that in the absence of any harvest in these sites, carbon that would have been lost due to harvest, was going to remain in the ecosystem.

² It was assumed an investment cost of 75000 Euros the first year and a number of visitors corresponding to 20% the number of visitors in the existing area the same year, increasing by 20% each year for a period of 4 years.

Table 2: The outcomes of the Cost benefit analysis assessing the impact of a new recreation spot opened in the pilot site

29 YEARS	Government	Municipality (Existing)	New manager	Society	Social	Global community
Without (NPV)	-4.010.334	484.460	-	5.015.150	1.489.277	17.487.685
With (NPV)	-3.878.850	484.460	332.019	9.141.916	6.079.546	22.088.007
Gain (NPV)	131.484	0	332.019	4.126.765	4.590.269	4.600.322
Without (NPV/ha)	-227	27	-	284	84	989
With (NPV/ha)	-219	27	19	517	344	1.249
Gain (NPV/ha)	7	0	19	233	260	260

* where discount rate is 5%. NPV values (in Euros) are given as an indicator of the CBA performance. The results are presented for a time period of 29 years.

The impact of climate change was also incorporated into the analysis through its action on forest growth. In the absence of any site-specific data on this matter, a baseline hypothesis was developed towards the impact of climate change on the forest growth as a decrease in the annual increment rates of 1%. We have assumed that this decrease is translated to 1% decrease in the wood production, and would lead to 1% decrease in the carbon sequestered in the pilot site.

The Cost benefit analysis carried out demonstrates that the addition of a new recreation spot over 29 years have yielded profitable results for all of the relevant parties (Table 1). In the sensitivity analysis we have explored the impact of changes in certain parameters and discount rates on the investment towards establishing a new recreation spot. Yet, except the sensitivity analysis assessing the impact of a reduction in the expected number of the visitors coming to the new recreation spot by 65% gave – the outcomes were positive, in other words the investment remained profitable socially.

The Cost benefit analysis also highlighted the importance of the value of carbon sequestration in the pilot site, with an NPV of app. 16 million€ (904 €/ha) in the baseline scenario. Yet the impact of climate change had a drastic impact to the global community regarding this ecosystem service and others. 1% decrease in the annual increment rate have led to a cost of 90 €/ha over 29 years to the global community on carbon sequestration. It also caused a cost of 24 €/ha over 29 years for the government through the decrease in the harvest of wood products, thus generating a cost of 114 €/ha over 29 years for the global community.

RECOMMENDATIONS AND MAIN LESSONS LEARNED

Study contributions and limitations

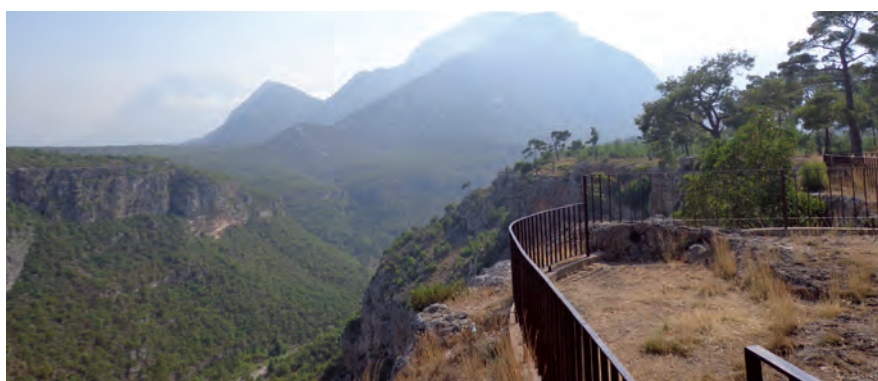
The presence of up to date information on Düzlerçamı Pilot Site was one of the strongholds of the project. Given that state forests are managed by the General Directorate of Forestry, access to the data on management issues of the pilot site was also unproblematic. Also, given the effective collaborations between different public bodies, data collection from different sources was also made possible in the framework of the project.

Methodological solutions were brought into solving majority of the problems encountered in the project, e.g. in the absence of site-specific information on the recreation activities in the Düzlerçamı Pilot Site, Benefit Transfer Method was employed, similarly in the absence of Stated Preference Methods used to value the biodiversity protection service in the pilot site. Cost Based methods were employed.

Also the external consultants who were involved in the project contributed significantly solving the technical problems and enhancing the the outcomes of the project (e.g. dealing with the absence of site-specific climate change impacts from the site on forest growth).

However, the socio-economic valuation of the biodiversity protection service had its shortcomings; Better valuation based on the willingness to pay of individuals for biodiversity protection (contingent valuation method) would have been essential for the project especially given that biodiversity protection service has been identified as one of the most - if not the most - important ecosystem service in the pilot site.

Furthermore, not all of the key ecosystem goods and services identified in the pilot site were included in the socio-economic valuation and cost benefit analysis which in turn limits our conclusions.



How economic assessment of goods and services could impact decision-making and public policies?

Forests in Turkey are managed through forest management plans, prepared and implemented by the Ministry of Forestry and Water Affairs, General Directorate of Forestry. The forest management paradigm has evolved in the last decade towards the recognition of forest as an ecosystem with complex dynamics and not only as intensive wood production sites. This change in the vision has led the General Directorate of Forestry to adopting a new planning scheme in 2004, oriented around determining, planning and managing the forest's different functions. These forest functions are: economic, ecological and social functions, and the General Directorate of Forestry is identifying practical ways to assess and integrate each of these into their forest plans.

Socio-economic valuation of ecosystem goods and services can efficiently support management of the forests in Turkey if it can be incorporated into these functional planning approaches. Therefore more studies should be carried out to identify the tools of detailed and effective integration to management plans of forests covering 10 years. For example, the information on socio-economic value of different forest ecosystem goods and services can be employed while assigning different functions to a forest stand and this information can be incorporated into the management plans.

Furthermore cost benefit analysis carried out to assess the impact of different alternatives can assist the management decisions to be made at the local and/or regional scale.

Turkish Forest Service as a corporate body of the Ministry has competent organizations at central and rural levels for sustainable forest management with special attention to the ecological functions beyond diverse goods and services of forest ecosystems. Therefore socio-economic valuation of forest ecosystems goods and services and assessing the impact of different management alternatives can feed into this process effectively as well as strengthening of support actions to the forest lands sustainable management. While identifying different management alternatives and assessing their cost and benefits, involvement of other stakeholders who are also benefiting from the forest good and services can be aimed at in the processes and they could share investment for the provision of forest ecosystem goods and services. Since the respective authorities as well as the technical staff with adequate expertise available at the General Directorate of Forestry are developed to conserve perceptions of the changing environment and priorities affecting the sustainable forest management there is no doubt that not only this approach but also new ideas can be taken into consideration.

The project carried out in the Düzlerçami Pilot Site does provide a good model, which can be replicated in different sub-district forest units districts in Turkey. Longer time periods allocated for more detailed assessments can permit gathering information for all of the ecosystem goods and services in forest ecosystems, and can permit enhancing further the methodologies used in this project. This would in turn permit presenting more accurate estimates on the impacts of different management alternatives in Turkey's forests. This model can thus serve to monitoring the management decisions in the forests in the long term and taking decisions towards increasing the sustainability of natural resources in the forests.



For more information please see full publication:

Balkiz O. (2016). *Assessment of the socio-economic values of goods and services provided by Mediterranean forest ecosystems - Düzlerçami Forest, Turkey*. Plan Bleu, Valbonne.

This publication is available for download from Plan Bleu website:
www.planbleu.org

CHRÉA NATIONAL PARK, ALGERIA

Zoubir SAHLI

WHAT IS THE PROBLEM?

This report contains diagnostics and prospective discussion of the existing state of affairs and the opportunities and risks for participatory approaches in Chréa National Park (PNC) in Algeria. This pilot site is a classified Biosphere Reserve and a sensitive area which requires the creation and application of development plans that promote coherent and participatory management. This is a real challenge as it calls for the involvement of local stakeholders to reduce visitor numbers, which are detrimental to maintaining site integrity. This site's value lies in the opportunity it offers for the exploitation of the goods and services provided by the woodland areas and the existence of a large institutional network, with many, varied players and stakeholders. Nevertheless, management and organisation have always fallen uniquely to institutional players. Although the PNC's many activities are carried out in collaboration with a variety of institutions from different sectors, which involve local authorities (Popular Communal Assemblies (APC) - town councils, Popular Wilaya Assemblies (APW), and sometimes the university sector and associations, there are no joint bodies or collective charter, making it important to implement local governance.

THE PARTICIPATORY APPROACH FOR BETTER GOVERNANCE

Methodology

Various techniques for participatory approaches were tested with information and awareness-raising sessions, field surveys and opinion surveys (on "excessive visitor numbers" and "the participatory exploitation of goods and services"), coordination meetings and programme meetings with the PNC Scientific Council and Advisory Board, site visits to an agricultural holding running a pilot organic farming experiment, along with coordination, awareness-raising and capacity-building workshops for local stakeholders.

The work carried out under this study also helped identify the roles of all players and the appropriate governance choices that need to be implemented by the main stakeholders who operate on the site.

The participatory governance tools primarily consisted of the mapping of stakeholders and their organisational systems and the implementation of suitable approaches for contacting the various players. Methods were also developed for organising, informing and raising awareness of the various risks and challenges associated with fragile woodland areas and the importance of conserving them and exploiting their resources for the good of the community.

Participatory approach phases and results

Specific objective 1. Strengthen the participatory dimension in the creation and implementation of the park's management plan by involving local stakeholders

A series of actions were implemented for this objective, with a focus on the existing state of affairs ("expert" diagnostics), activities to involve and include stakeholders who live or work inside or outside the park, and discussion of the strategic issues.

Results

- Stakeholder mapping
- Expert diagnostics report
- Shared diagnostics report / SWOT matrixes
- Report with strategic priorities and proposed actions

Proposal of a Local Governance Committee (CLG):

- **Local-level representation:** municipality or conservation sector
- **Composition:** representatives of bodies and administrations really involved in the participatory management and conservation of PNC, local authorities, members of local civil society, representatives of local rural communities, Communal Rural Management Cell (CARC) coordinators and perhaps academics.
- **Meeting frequency:** monthly.

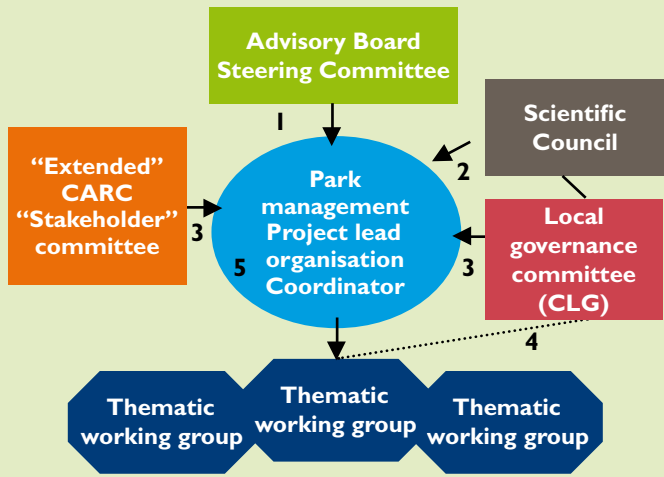
Modus operandi

- Networking, workshop on the governance and participatory approach
- Literature review
- Identification of the area's resources and issues
- Analysis by the Integrated Local Rural Development Project (PPDRI) expert, management plan, Advisory Board report
- "Strengths, Opportunities and Threats" workshop(s)
- Identification of the area's environmental, social and economic resources and issues
- Direct interviews
- Strategic choice / Action plan workshops

Associated stakeholders

- Institutions
- Operators
- "Civil society" representatives (village committees, douar committees)
- CARC members, Local authority representatives
- Expert, PNC team and resource persons

Organisational flowchart (to be implemented) for the PNC local governance committee



Relationships between stakeholders:

1 = Advisory Board/PNC Management

Recommendations and opinions on issues relating to strategy and implementation of the Action Plan, Management Plans and the drafting of PNC policies. It also approves strategy and management decisions in terms of conservation, control and development on the Park sites..

2 = Scientific Council/PNC Management

Advisory, information and awareness-raising activities for PNC: promote better knowledge of resources and natural, landscape, cultural and human heritage in the Park.

3 = “Extended” CARC/PNC Management

Consultation and support for the PDDRI projects planned and implemented in the Park municipalities.

3 = Local Governance Committee/PNC Management

Consultation, advice and support. This relationship could operate at a higher level, with observation and ecological monitoring assignments. The local governance committee is capable of carrying out monitoring and assessment activities.

4 = Local Governance Committee/Thematic groups

The thematic groups are formed from the CLG membership. They play a role in discussion, coordinating thematic workshops; technical support and perhaps project management..

5 = PNC Management/Thematic groups

No direct management. The PNC Management provides administrative and logistical support.



Specific objective 2. Analyse the strengths, opportunities and threats and look for alternative ways of regulating park visitor flows

Current park visitor numbers were measured and an inventory was produced of the risks and their impact on the levels of damage to park resources. Two types of action were carried out in the park’s three municipalities: participatory workshops were organised and participatory surveys were carried out across a broad sample of residents and local people, technical and administrative managers and park visitors.

Results
<ul style="list-style-type: none"> • “Expert” diagnostics report • Summary reports - “Excessive visitor numbers” • Summary reports - “Goods and Services” • Summary reports – Reports on the participatory surveys • Diagnostics report + SWOT matrix on the theme of excessive visitor numbers • Minutes from Workshop n°3 “Participatory governance and management of natural resources”
Proposed actions for regulating visitor numbers
Modus operandi
<ul style="list-style-type: none"> • “Expert” diagnostics • Survey questionnaires on “excessive visitor numbers” • Participatory diagnostics - Identification and sharing of stakeholder viewpoints and expectations • Organisation of a workshop n°3) • Organisation of 3 surveys on excessive visitor numbers • Two participatory surveys carried out into excessive visitor numbers • Participatory diagnostics: Capitalisation on the results of Workshop n°2
Associated stakeholders
<ul style="list-style-type: none"> • PNC team + expert • Institutions • Operators • “Civil society” representatives • CARC members • Local authority representatives

Specific objective 3. Promote the participatory exploitation of the Park’s goods and services

The goods and services available and possibilities for their exploitation were identified in a participatory manner. This included:

- analysing information and targeting the potential goods and services previously identified in Component 2 of the project, which required a coordination meeting with the Component 2 team;
- analysing the results of field surveys on the topic of “Exploitation of the Park’s woodland goods and services” and reports from the workshops organised with various participants (including representatives of village groupings, local associations, academics and technical officers).

Results
<ul style="list-style-type: none"> • Coordination meeting report • Workshop reports • Reports of the 3 surveys carried out in the municipalities of El Hamdania, Chr�a and Hammam M�louane on the exploitation of goods and services
Modus operandi
<ul style="list-style-type: none"> • Component 2 coordination meeting • Identification and analysis of goods and services: <ul style="list-style-type: none"> - Workshop n�4 on the exploitation of goods and services, held in Chr�a, one of the Park's municipalities - Workshop n�5 on the exploitation of goods and services in Hammam M�louane
Associated stakeholders
<ul style="list-style-type: none"> • Project Focal Point (DGF) + Component 2 and 3 Thematic Advisors • Component 2 and 3 experts • Members of El Hamdania and Hammam M�louane Municipal Councils - Members of El Hamdania CARC • Resident representatives

Participatory planning and action plan

For a realistic and coherent action plan: short-term actions

Diagnostic analysis and the results of workshops and participatory surveys led to the following proposals:

- Diagnostic analysis and the results of workshops and participatory surveys led to the following proposals:
 - **Scenario 1.** Start off-site by implementing an emergency plan for the creation of new leisure, recreational and community areas.
 - **Scenario 2.** Carry out extensive public information and awareness-raising actions that will need to be supported by popularisation and demonstration actions.
 - **Scenario 3.** Restrict visitor access to one part of the park, with better methods for organising visits and park entry fees.
- Launch a series of surveys and inventories for the Park's main plant and animal resources, to ensure better knowledge and correct information on the real status of the PNC ecosystem and on the conditions for its conservation and use by the various stakeholders.

The first Scientific Council meeting partially discussed this issue and thematic working groups or committees are therefore set to be introduced and new scientific cooperation agreements will be drawn up with laboratories and research centres. The aim is to make up for the lack of scientific knowledge in these fields.

- Launch studies into socio-economic aspects to improve understanding of the socio-economic context (which has been little studied).
- Draw up maps showing the distribution of park resources, in particular a honey map,

a map of aromatic and medicinal plants and a pasture map, which is vital for local livestock farmers who live near the park.

Promotion of the advantages and opportunities in the medium and long term

The various analyses revealed the following possibilities:

- Launching projects for the development of new tourist sites, but also, above all, generating the support of the public authorities or financial institutions for investment in the development of "popular" tourism (rural gites, hiking paths and trails, etc.).
- Exploiting plant resources and agricultural produce through processing, which requires investment in small-scale, local and rural agribusiness projects.
- Exploiting medicinal plants: proposal to help create nurseries, with awareness-raising and training, in particular for young residents and farmers' sons, and financial support for young people looking to start microenterprises.
- Drawing on the support of the public authorities to launch small associations or cooperative groups with common interests, in a family context: for this, the PPDR CARC coordinators and PNC sector managers agreed to support those looking to join this type of association or cooperative group. Support is also needed from chambers of agriculture in issuing farmer maps, and follow-up support will be required via training and popularisation activities.
- Establishing a discussion and proposals committee within the Park Advisory Board, for the public authorities (first the General Directorate of Forestry and then the Ministry of Agriculture, Rural

Development and Fisheries), with a draft law to resolve land disputes. This proposal may involve the granting of usufructs or concessions to farmers who are really settled on plots of land. At this stage, it is the Advisory Board in its classic form that can take this kind of action.

With regard to the local institutional framework, discussion will be enhanced with the most involved participants. The following frameworks are the most appropriate:

- **The Advisory Board:** This board is an official body in which various sectors and organisations are represented. It is a suitable setting for launching discussion to consolidate the local institutional framework. A proposal has already been made to include the issues of participatory management and governance in the next Board meeting.
- **The CARC:** This local committee already has regulatory guidelines and a strategy. At municipality level, periodic meetings are scheduled with its members, but to discuss and make decisions strictly relating to the implementation of PPDRs. In the future, it would be useful to extend the CARC to include other representatives of associations and local communities to discuss other issues outside of the scope of PPDRs.
- **PNC Management:** As part of the implementation of the future management plan, PNC Management will establish one or more discussion groups or will consult with members of the Scientific Council or recognised experts to confirm the establishment of the Local Governance Committee (CGL) proposed in this study.

RECOMMENDATIONS AND MAIN LESSONS LEARNED

	Strengths	Limitations – Difficulties encountered
Choice of pilot site	Better knowledge of the park, its resources and any problems	Limited availability of data (particularly data associated with institutional and economic aspects)
Methodology	New ideas and a new vision of woodland management Focus groups helped define and classify problems, expectations and needs	Difficulty drawing up and implementing a (truly) participatory park management plan. Limited options for reducing park visitor numbers
Stakeholder cooperation	The various stakeholders made themselves available to listen to and understand the participatory approach	Participatory dimension was not always understood and was often not a priority Too wide a gap between the ideas of the managers and the users and other residents. Difficulties involving local people and their representatives
Command of methods	Possibility of bringing common problems to light and any contradictions, risks and shared issues	Difficulties bringing together enough credible stakeholders (in particular representatives of park residents)
Structural advantages and limitations	Finish with a viable option for a participatory management structure which has won general consensus	Often, material conditions for project activities were less than optimal Lack of communication between the management, local authorities and populations Structural limitation (land ownership problem) Communal Rural Management Cells (CARCs) cannot set up local governance structures for the Park

Recommendations and planned improvements

- Attract the support of public authorities or international financial institutions for developing projects for the exploitation of goods and services, extending the organic fruit and vegetables production pilot experiment and for investment in the development of ecotourism.
- Promote investment in small-scale agribusiness at a local and rural level for the exploitation of plant resources and agricultural produce through processing.
- Help create nurseries, with awareness-raising and training, in particular for young residents and farmers' sons.
- Encourage the creation of small associations or cooperative groups with common interests, in a family context.
- Work in partnership with research centres and universities.
- Support the participatory approach and strengthen it with more studies and resources (particularly guides, success stories, local expertise, experience sharing between sites, regions and countries, experts, etc.)

Real or potential usefulness of the results

- Information on important issues such as participatory management and governance on an inhabited and regularly-visited site.
- Databases, technical tools and strategic approaches that can be used and/or adapted by management, updated stakeholder mapping including the identity, behaviour and strategies of stakeholders.
- Shared diagnostics reports and SWOT matrixes for drawing up useful position papers and a summary of the issues, major challenges and strategic considerations for building realistic action plans.
- Generation of ideas for projects to implement under PPDRIs.
- Proposal for a participatory and consensus-based management structure that could be rolled out at local level.

How to use this study and incorporate it in public policy?

As this is a pilot project, it is important to consider reproducing it in other regions in the country:

- by taking into account the lessons learned from difficulties on the ground and inconsistencies with regard to the engagement and involvement of local stakeholders in this type of project;
- by acting more realistically, taking into account on-the-ground difficulties;
- by placing greater importance on the scientific dimension and local expertise;
- by strengthening investigation and increasing the study timeframes;
- by increasing capacity-building for individuals and local organisations (awareness-raising, popularisation, training, studies and monitoring activities for professional organisations, cooperatives, associations and rural communities).

- Introduce real training, study, follow-up and assessment plans (especially when launching management plans).
- Make significant efforts to to:
 - solve the land ownership problem (by creating a committee to discuss and propose a law promoting the granting of concession deeds to resident farmers);
 - make the local governance committee (CLG) official;
 - launch action plans based on capacity building for local stakeholders.

For more information please see full report:

Sahli Z. (2016). *Améliorer la gouvernance des espaces boisés méditerranéens à travers la mise en œuvre de démarches participatives, Parc National de Chréa, Algérie*. Plan Bleu, Valbonne.

This publication is available for download from Plan Bleu website:

www.planbleu.org

BENTAEL NATURE RESERVE, LEBANON

Patricia R. SFEIR

WHAT IS THE PROBLEM ?

The pilot site is a natural forest, located in the Mount Lebanon, and is subject to external threats that have called for its protection and conservation from a voluntary initiative. Situated at 250 to 850 m altitude, the Bentael Nature Reserve is one of the oldest ones though relatively small in area not exceeding the 110 hectares. The reserve lies on the valley's foothills to the East of the oldest city Byblos (8 kilometers) at 38 kilometers from Beirut. Founded in 1981 for protecting the Bentael village and its surrounding ones from urbanization (4000 people/approx. population) and so called the Al-Hourouf area.

The Bentael Nature Reserve came up to protect the forest from human intrusion and pressure through quarries, wildfire and charcoal production threatening the forest sustainability. The approach of the already established governance/ management committee of the Bentael Nature Reserve is an open and engaging relationship for communities while keeping up with the existing challenges of conservation and protection from encroaching urbanization.

It is important to invest on improving the existing governance especially when there exist major challenges in engaging community members from neighboring communities in various activities. This has already been mentioned by few community members that feel themselves away of any decision making although the committee holds representatives of the locals.



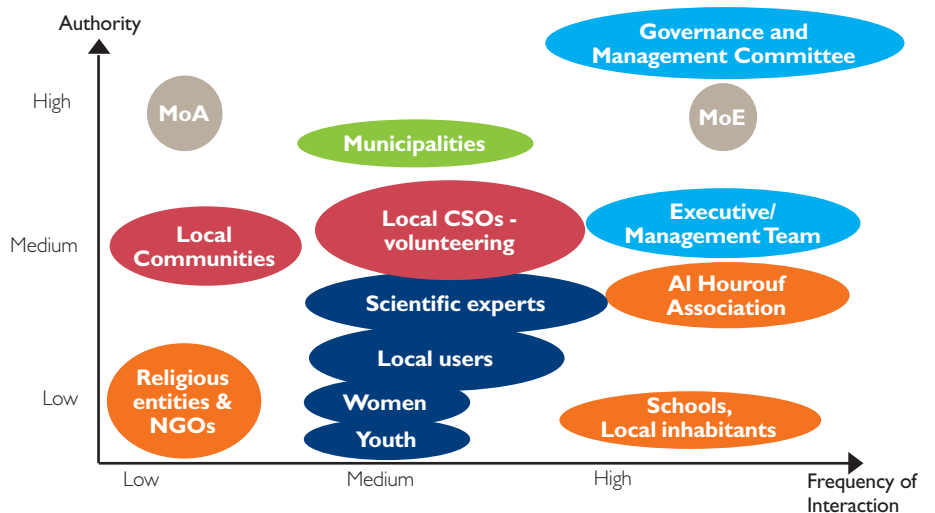
THE PARTICIPATIVE APPROACH FOR AN IMPROVED GOVERNANCE

Methodology

The proposed methodology is based on the implementation of participatory approaches to raise awareness in the management of the forest and its related goods and services. The structure highlights the necessity to involve the direct and the indirect beneficiaries based on their shared interest and irrespective of their village affiliation.

This is essential in changing in their perception of the forest from a geographical spot to a socio-economic one which would help the decision to be reached based on interest rather than based on the village involvement. The positive engagement of the community members require a strong but flexible and transparent structure to organize the management and the flow of information and knowledge.

The stakeholders have various backgrounds and have various influences on the forest resources. The present graph shows the interaction of the various stakeholders with the resources.



Main results

The existing governance/ management structure has identified gaps in the flow of information for the consultation of neighboring communities as well as at the level of the decision making process. The proposed governance structure taps into the existing structure to improve on the decision making providing additional support to engage the various stakeholders in the process.

It proposes a balanced and equitable structure able to face the prevailing political, managerial, technical and administrative burdens provided by various entities of influential or non-influential role. The proposed governance structure highlights the bottom up approach where community members elect their own representatives based on function or representation irrespective of their village affiliation.

Figure 1: Governance Structure amended by the local community

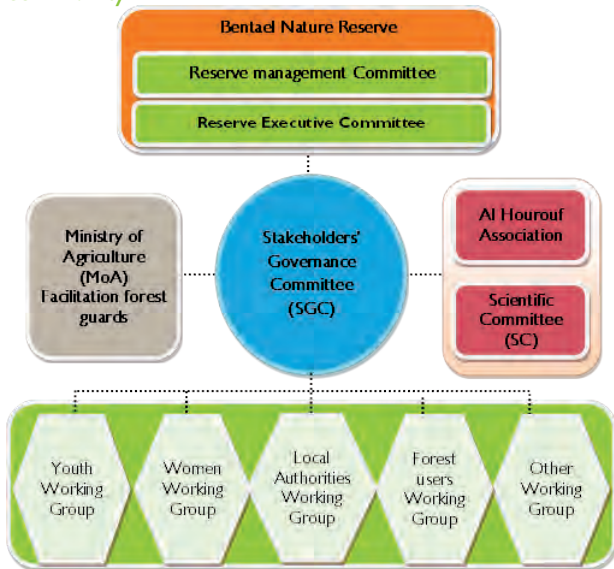
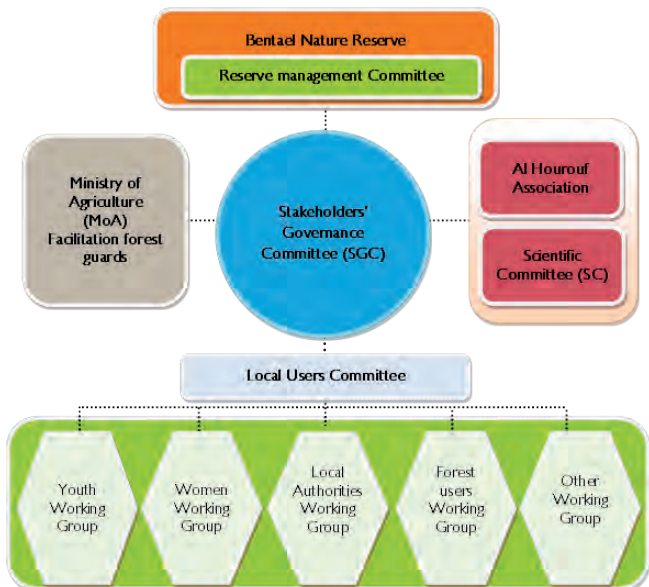


Figure 2: Governance structure proposed by the project



The two above figures illustrate the structure for the Stakeholders' Governance Committee as proposed for discussion and the final structure as amended by the local community. The roles of the AI Hourouf Association and the Scientific Committee were only advisory not to contribute to the voting process but were edited to contribute to the decision making by voting.

The proposed governance model has supported the development of two working groups of importance to the development of the Bentael Nature Reserve. The women and the youth were the main stakeholders targeted by the project. Technical managerial and capacity building support were essential to empower these underprivileged groups and engage them in the design, planning and implementation of activities aiming to raise awareness on the forest protection measures, the challenges of the forest sustainability and the coordination of the Bentael Nature Reserve governance committee.

Sustainability indicators (management, financial and socio economic indicators) are mainly related to the implementation of activities meeting the objectives and aspirations of both the governance committee and the local communities. The challenges faced within the Bentael Nature Reserve are of various level and these are mainly affected by various aspects.

The indicators are identified based on a SWOT (Strength, Weakness, Opportunity, and Threat) analysis developed for the Bentael Nature Reserve and available in the Management plan.

The project has completed the following aspects:

1. Development of the Terms of Reference for the Stakeholder Governance Committee,
2. Consultation with the Governance/Management Committee on the proposed governance structure,
3. Training youth as emerging leaders in the design, the planning and the implementation of activities,
4. Develop fundraising document for women groups on establishing an income generating project from the transformation of the forest products,
5. Implementation of two events in the Bentael Nature Reserve and through the working groups.



MAIN LESSONS LEARNED AND RECOMMANDATIONS

Study inputs and limitations

The importance of governance and its controversial issues it holds, have been a key element for changing the location of the project pilot site¹. It is important to show that governance is a key element in the management of forest resources for securing sustainability and conservation and highlight that its successful implementation requires awareness-raising at all levels.

It is important to notice that the selection of the site and the decision to work with already existing management structure is a difficult task. It means that there should be potential merging of existing structure and improving it. It also implies working on the ground to regroup the community members. For the following reasons and due to the inability to implement the component in the pilot site it has been proposed to apply the governance component to another pilot site which is the Bentaël Nature Reserve

Eventually, numerous difficulties were encountered in the new pilot Bentaël Nature Reserve site during the project implementation and these are of various aspects:

1. The inability of managing bodies to perceive the power that lies in sharing the experiences
2. The inability to convince the managing committees to test/ try the proposed methodology
3. The inability to adequately implement the methodology for time restrictions
4. The engagement of governance committee in the process is very critical as the proposed structure has been perceived as a threat to their functions appointed by the Ministry of Environment.
5. The community members have perceived the issue as a tool to abduct the terms of reference. They have foreseen the project as a tool to fight against the protections measures

Implemented participative approach's added value

Initiating the discussion with the existing governance committee is about a new participatory initiative that could initiate the change in the official states of the governance committee where the community members were grouped based on their common interest. Eventually each group selects its own representative at the Stakeholder's Governance Committee. The added value of the following relies in the ability to engage the community members/ working groups in the decision making process which means holding the responsibility of the decision taken.

The proposed structure involves more members in the decision making and the management of the Bentaël Nature Reserve. Awareness is eventually more pronounced as it covers more villages and more categories of specific interest.

The proposed participatory approach will engage the community members despite their village affiliation but based on their interests which means business or hobby orientation making the decision more sound and realistic for more comprehensive, applicable and accepted actions undertaken by the governance committee.

The present figure highlights the main divergences between the existing governance committee and the proposed structure as follows:

Governance Committee	Stakeholders Governance Committee
Structure involves the community members and scientific members	Parallel structure to existing
All appointed by the legal entities	Participatory, engaging and transparent process
Decision taking is made	Community members choose their representatives
Community members feel not represented	Community is more represented sectorially or geographically
Impression of no transfer of information from committee to the community	Engagement of members of various villages



¹ Initially the pilot site chosen for this study was the Jabal Moussa Biosphere where the other project's components were implemented. Due to various reasons the site was changed in early 2015. For more information on the difficulties encountered and the possible causes of any obstacles see appendix 2 of the regional report « Gouriveau F. (2016). Pilot participatory management approaches in woodland areas in Algeria, Lebanon, Morocco, Tunisia and Turkey: lessons learned and potential applications across the Mediterranean. Plan Bleu, Valbonne » downloadable at www.planbleu.org

How to promote this study?



The present methodology for improved governance is an important tool for improving on the management of the forest resources whether declared protected or only managed. It is important that the participatory governance ensures the engagement of the villages and communities in the vicinity of the forest which means the protection will be a shared responsibility among the public and the local communities.

Issued in 2015, The National Forest Program has officially adopted the use of participatory tools in the management of the forest resources which means the regularization of the participatory approach proposed by the project. Being proactive in the adoption of this initiative, the Ministry of Agriculture is set on the top of the neighboring countries for its good participatory governance practices adopted by the Government.

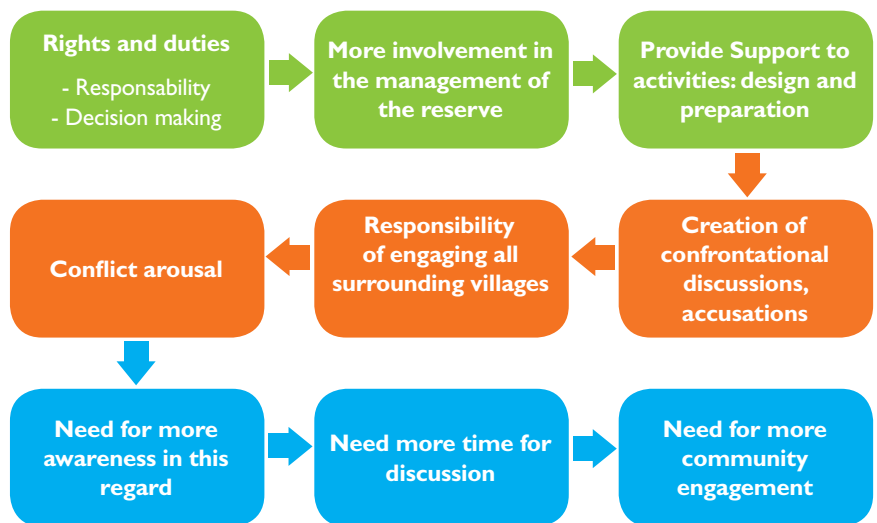
The governance approach in structure and methodology is to improve the management of the forest resources. Its replicability is foreseen as part of the governance practices set by the Ministry of Agriculture to improve on the management practices. For the following it is important to further improve on the methodology through testing it at different sites and in different management contexts.

- **Replication** is possible provided; there is no existing challenging approach and structure.
- Potential **standardization**, legalization of the process as part of the managing plans of the natural resources at national public level.
- Possibility to replicate the **governance structure** for the management of forest but to be adapted to forest context.

Where are we now?



What about local engagement of the community?



The way forward

Lessons learned from the very specific cases of Lebanon pilot initiatives have supported the adoption of the participatory practices in the governance of the forest resources, which is essential in designing future initiatives.

- To support the creation of the governance in newly established sites,
- Not to reinvent the wheel for Existing Management entities,
- Conflict resolution through more awareness and capacity development,
- Identify tools for long term support in the organization and the management,
- To provide funds for supporting activities for communities and working groups for more potential engagement.

For more information please see full report:

Sfeir P. (2016). *Improving Mediterranean woodland areas governance through participative approaches implementation – Bentael Reserve, Lebanon*. Plan Bleu, Valbonne.

This publication is available for download from Plan Bleu website: www.planbleu.org

MAÂMORA FOREST, MOROCCO

Pr. Mohamed QARRO

WHAT IS THE PROBLEM?

Maâmora Forest (Figure 1) was chosen as the Moroccan pilot site for this study and has long been considered to host the largest single stretch of cork oak forest in the world (132,000 ha at the start of the 19th century). However, the surface area covered by this species fell from 100,000 ha in 1951 to 65,000 in 1992, representing a 35% drop in cork oak surface area in 41 years. That is the equivalent of an annual decline of approximately 900 ha. The latest revision of the Maâmora Forest development plan has two main sections with an inventory and a socio-economic study. The second section is based on participatory diagnostics at douar level and the analysis of two types of stakeholder, Silvopasture Management Associations (AGSPs) and Economic Interest Groups (GIEs). However, these proposals were not integrated into the Maâmora development plan, which has just been approved. This development plan remains limited to technical actions and measures, which have proven ineffective in tackling the issues facing the various stakeholders in question.

The objectives of the participatory approach on the pilot site are therefore as follows:

- Build a suitable and effective participatory approach that could contribute to the development and successful implementation of the Maâmora Forest development plan following its revision. In other words, identify to what extent management plan actions could be considered and implemented as part of a participatory approach.
- Consult/negotiate with the relevant stakeholders, including the local population, to promote their involvement in the rational management of natural resources (monitoring, conservation, exploitation) and in the conservation of sensitive sites.
- Design and promote participatory socio-economic models (suggestions and methods for organising and exploiting the sectors in the area involved in the exploitation of non-wood forest products).

THE PARTICIPATORY APPROACH FOR BETTER GOVERNANCE

Methodology

The participatory approach adopted has both a socio-economic and technical dimension (development). In particular, it has resulted in: i) Mapping the stakeholders directly and indirectly affected by the Maâmora ecosystems, ii) Identifying the issues, priorities and means of action for stakeholders, iii) Assessing the objectives associated with the issues faced by the various stakeholders, iv) Analysing the power balance between stakeholders.

The 88 workshops organised as part of the participatory approach brought together a total of 543 people. They took place over more than fifteen months and focused on detailed analysis of the issues, strategies and balance of power between the various stakeholders. Women were involved in the interviews concerning wood collection and various tasks performed outside the home. It was difficult to define "normal" operation for a specific area, in light of the multiple interactions between the diverse interests of the various stakeholders concerned.

Everyone in an area agrees on the general issues for socio-economic development, such as reducing poverty, etc., but in order to have a useful impact on action, partial issues need to be identified, requiring specific actions on unique characteristics of the area. Several steps were followed to draw up scenarios and an action strategy, including: i) identification of the issues and feasible objectives, ii) prioritisation of the issues and identification of levers for action, iii) identification and analysis of areas and key variables for the sustainable management of Maâmora ecosystems, iv) analysis of the prospective assumptions of the scenarios.

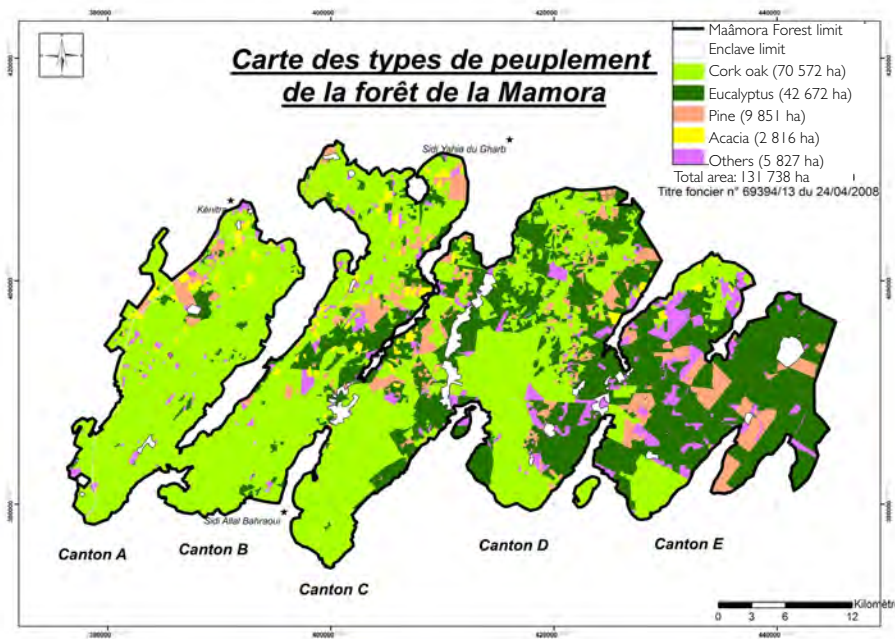
Analysis of the key variables (influence/dependency between variables) in line with the sustainable management and conservation of the site's ecosystems brought to light both influential and dependent variables.

The MICMAC method (Matrix of Crossed Impact Multiplications Applied to a Classification) is used to analyse the key variables of a system, particularly those that affect its development. It is a way of demonstrating influential and dependent variables.



The analysis revealed bridging variables which are both influential and dependant. This dual classification makes them quite unpredictable and potentially unstable as their modification changes other variables, which, in turn, subjects them to fresh modifications. This is true of the following variables: co-management; partnership with the HCEFLCD, climate, and responsibility of basic community organisations (OCBs), AGSPs with multiple missions.

Figure 1: Map of the Maâmora Forest stand types



Main results

Several methods were used to conduct the participatory approach on site, summarised as follows:

Methods	Actions	Means
Partnership for compliance with access restrictions	Compensation agreement	Organisation of users Commitment and compliance with access restrictions
Contractual agreement with cooperatives, incorporating forest surveillance	Forest product sale agreement that takes into account the services provided and surveillance of forest areas	Conversion of some of the price of the plots sold into services: surveillance, pruning, path maintenance, etc.
Surveillance agreement financed by rural municipalities	Surveillance carried out by users	Call for tenders for surveillance organised by the rural municipalities, with the requirement to hire local people

Analysis of stakeholder issues:

Stakeholders were identified on the basis of knowledge of the Maâmora site and during consultation workshops with members of the working groups. **Issues could be broken down into several objectives. Stakeholders were then expected to take a position with regard to a series of objectives and compare their projects. Their objectives could be similar or different.** The main beneficiaries of forest goods and services and those responsible for its management and conservation clearly expressed their positions with regard to the specified objectives.

They are more motivated to express their opinions clearly on the majority of the objectives associated with the issues facing Maâmora stakeholders. They are more affected by the forest than the other stakeholders. This analysis demonstrated that 44% of stakeholders tended to give a neutral answer instead of expressing clear positions for most objectives.

Objectives that focus on the development of facilitatory actions, local development and revenue-generating actions are positively assessed by most stakeholders.

Balance of power between stakeholders:

Analysis of the stakeholder influence/dependency matrix revealed the following key points:

- **Dominant stakeholders:** they have strong influence over the others, without being strongly influenced themselves: **unorganised users and de facto users.**
- **Dominated stakeholders:** strongly influenced by others with little power: **agriculture and, to a lesser extent, forest farmers.**
- **Bridging stakeholders:** both highly influential and highly dependent. This means that they have the means of action required to complete their projects, but are also influenced by the actions carried out by others. For example, the **High Commission for Water and Forests and Combating Desertification (HCEFLCD), Rural municipalities, Economic Interest Groups and cooperatives, Users organised in Silvopasture Management Associations (AGSPs) and offenders.**

Identification of key variables for sustainable development:

Analysis of the key issues and objectives helped develop the following areas (fields): 1) The overall context and integrated territorial development, 2) The expectations and needs of local communities, 3) Regulations and partnerships with stakeholders operating in the forest and 4) Concerted and empowering participatory projects for sustainable natural resource management.

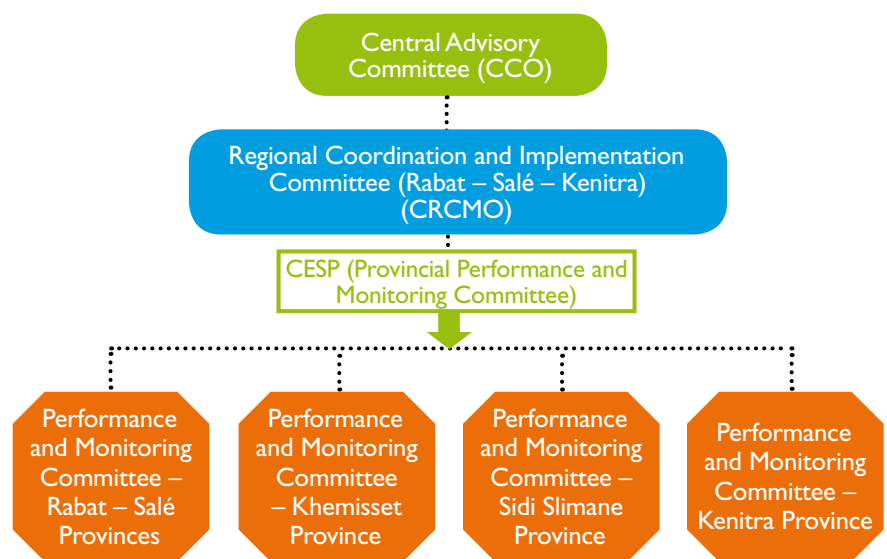
Eco-socio-economic development models:

In order to implement the provisions of the standard scenario for the “integrated and concerted development of territories” in accordance with the strategic focuses specified and taking into account the variables revealed by the MICMAC analysis as a priority, seven types of eco-socio-economic models were proposed. Their key objective was to ensure effective conditions and resources for the success of the technical actions set out under the Maâmora development plan.

- M1: Continue to create a social, political and technical environment suited the partnership-based and empowering participatory management of natural resources.
- M2: Introduce support systems to mitigate the effects of climate change and improve sources of revenue for users (livestock farming, employment).
- M3: Implement territorial integrated development plans (PDITs) for the ethnic and geographical units affected by Maâmora (park).
- M4: Improve the conditions for the success of forest stand restoration work.
- M5: Provide agroforestry management of the cork oak tree.
- M6: Dissuade unauthorised persons from exploiting pastoral resources.
- M7: Create a political, legal and technical environment suited to sustainable and partnership-based forest management.



Figure 2: Governance and monitoring structure



Organisational bodies	Missions and tasks	Members	Meetings
Central Advisory Committee (CCO)	Provide support for the action plan by establishing a suitable legal, institutional and political framework and meeting specific local requirements.	Chaired by the Secretary-General or the Head of the Planning, IT and Cooperation Department.	At least twice a year and whenever necessary. Agenda items are put forward by the Regional Coordination and Implementation Committee.
Regional Coordination & Implementation Committee (CRCMO)	Coordinate and oversee the activities of the action plan and manage problems encountered on the ground by the local implementation and monitoring committees. The role of the presidency of the Wali is essential for coordinating the various players affected by territorial actions.	Chaired by the Wali of the Wilaya of Rabat-Salé-Kenitra. The Regional Director for Water and Forests and Combating Desertification serves as its Secretary.	At least once quarterly and whenever necessary. Agenda items are put forward by the Provincial implementation and monitoring Committees.
Provincial implementation and monitoring Committee (CESP)	Provide steering and assist the implementation committee in convergence and coordination processes between the various partners. Implement actions from development models and monitor their effects and impacts.	Chaired by the Governor of the province in question. The Provincial Director for Water and Forests and Combating Desertification serves as its Secretary.	At least once a month and whenever necessary.

RECOMMENDATIONS AND MAIN LESSONS LEARNED

Contributions and limitations of the study

The main contributions of the study are:

- The process adopted is innovative, as are the results obtained and their effects on the conservation and sustainable management of Maâmora forest stands.
- The involvement of everyday stakeholders (local populations), stakeholders operating in forests (with economic and social interests) and passive stakeholders (environment, agriculture, etc.) is a key requirement for the sustainable development of natural resources in territories.
- The proposed approach offers:
 - a basis for revising the terms of reference for the socio-economic study of forest and catchment area development plans, which do not currently meet the social issues facing the territory, **which explains the failure of the technical operations carried out under management plans until now**,
 - a basic reference for developing and implementing integrated development plans and territorial projects.

The study's main limitations are as follows:

- The development models identified and described require the involvement of diverse and varied stakeholders: active stakeholders, passive stakeholders, political stakeholders, etc.
- The prevalence of a sector-based viewpoint for stakeholders representing government services.



Added value of the participatory approach implemented

The "shared diagnostics" approach:

- Creates a process for consultation and extended participation among all stakeholders directly or indirectly affected by Maâmora Forest, revealing a wealth of ideas and issues,
- Ensures the success of the revised development plan, which remains severely limited by the fact that socio-economic development measures have not been taken into account by local populations, whose main revenues come from forest ecosystems,
- Has an original approach: despite the large number of meetings, the various stakeholders greatly appreciate it.

How could this study be used?

- Carry out the eco-socio-economic development models developed,
- Support some of the proposed measures by adapting regulations to the current context,
- Create the conditions for implementation, even if forest managers are convinced by the principle of innovation discussed in some development models,
- Ensure co-management and partnerships with local organisations, a guarantee of the conservation and development of forest ecosystems¹.

Outlook

- Capacity building for forest managers in the participatory approach and analysis of stakeholder issues,
- Wider roll-out of the co-management process with user organisations,

- Actual implementation of the proposed performance and monitoring structure at all levels,
- Requirement to use Territorial Integrated Development Plans as an operational tool on the ground.

Replication on other sites is necessary, provided that:

- there is capacity building for forest managers in the participatory approach and analysis of stakeholder issues,
- the area's management units are identified and delimited, which is a prerequisite for this approach,
- the creation and representativeness of local management structures is driven by local people. Local organisations will help mitigate individual issues and lobbies encountered in some areas,
- local management structures are able to continue implementing the new approach, which depends on capacity building for all stakeholders in decentralised State organisations and local authorities,
- local managers and populations take ownership of the participatory process: plan a capacity building programme for forest managers and the offices of local organisations.

The implementation of this process in Maâmora could serve as a model for other areas at a national level, or even in the Mediterranean countries involved in this Component.

¹ In this context, two practical guides (for Maâmora and Maghreb) for the implementation of participatory management and win-win co-management agreements on the basis of socio-economic models proposed above has been developed.

For more information please see full report:

Qarro M. (2016). *Améliorer la gouvernance des espaces boisés méditerranéens à travers la mise en œuvre de démarches participatives, Forêt de la Maâmora, Maroc*. Plan Bleu, Valbonne.

This publication is available for download from Plan Bleu website: www.planbleu.org

BARBARA PILOT SITE, TUNISIA

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WHAT IS THE PROBLEM?

The chosen pilot site is part of the Barbara Wadi dam catchment area in North-Western Tunisia. It covers a total surface area of 7,330 ha, representing 45% of the Barbara Wadi catchment area (16,408 ha). The forest environment (State property) covers 2,841 ha, 39% of the total surface area). The forest belongs to the oak tree ecosystem. Vegetation consists of cork oak / Algerian oak and associated plant groups in the form of scrubland.

The site has a population of 9,625, spread across 21 locations, each with around sixty households. They manage subsistence farming systems with fairly unprofitable agriculture and livestock farming that is not particularly productive, but which guarantees a substantial source of revenue for the majority of forest users. The forest environment is a vital area for this population, who exercise a usage right by exploiting forest resources to meet their needs, but these uses are not of a commercial nature. The livestock takes most of its food from the vegetation and forest products (rangeland, scrubland, oak acorns, tree pruning). Employment on forest sites is the main source of revenue for many households.

Despite the efforts of various projects, the forest environment is still subject to increased degradation and many offences, which have increased over the post-revolution period (clearing, cutting trees, wildfires, etc.). A longstanding conflict exists between the users and their environment, primarily because of the population's limited or lack of involvement in managing forest resources, resulting in their needs and expectations being little taken into account.

The site is therefore one of the region's most vulnerable areas from a socio-economic and ecological standpoint. In addition to this project financed by the French Global Environment Facility, two other participatory projects are underway here: the Northwest Mountainous and Forested Areas Development Project and the integrated forest management project.

The future of this site's cork forest ecosystems (national heritage) is highly dependent on the outlook of socio-economic development in forest and peripheral forest areas and the good governance of these ecosystems, which has become a significant issue in the post-revolution context (security issues).

THE PARTICIPATORY APPROACH FOR BETTER GOVERNANCE

Methodology

The participatory approach practice was consolidated in this context as part of the implementation of Component 3: "Improve the governance of Mediterranean woodland areas by implementing participatory approaches."

The methodological approach was prepared by referring to the guidelines adopted during



the regional workshop on participatory approaches, held in Antalya from 25 to 27 June 2013. It was presented at the national launch meeting in Tunis on 28 and 29 October 2013 and supplemented from the outputs of this meeting.

The adopted approach seeks to:

- improve the good governance of natural resources and reconcile the forest population with their surroundings

and environment by bringing together the users of forest resources and the stakeholders who are directly or indirectly involved in managing these resources,

- systematically associate socio-economic development with actions for natural resource management, by taking into account the interests of the users of these resources as part of a co-management approach.

The design and practice of the recommended approach were based on capitalising on the various experiences and know-how obtained from previous or ongoing projects in the region and on the site, in order to:

- create the synergies needed to better promote the methods and investments and to better integrate operations so as to meet the expectations and priority needs of forest populations more quickly and efficiently;
- activate and consolidate partnership mechanisms around the implementation of concerted and integrated management of forest resources in accordance with the other natural resources and development opportunities;
- support the move from administrated sector-based management to the co-management of natural resources in woodland areas and lay the foundations for better governance of forest resources.

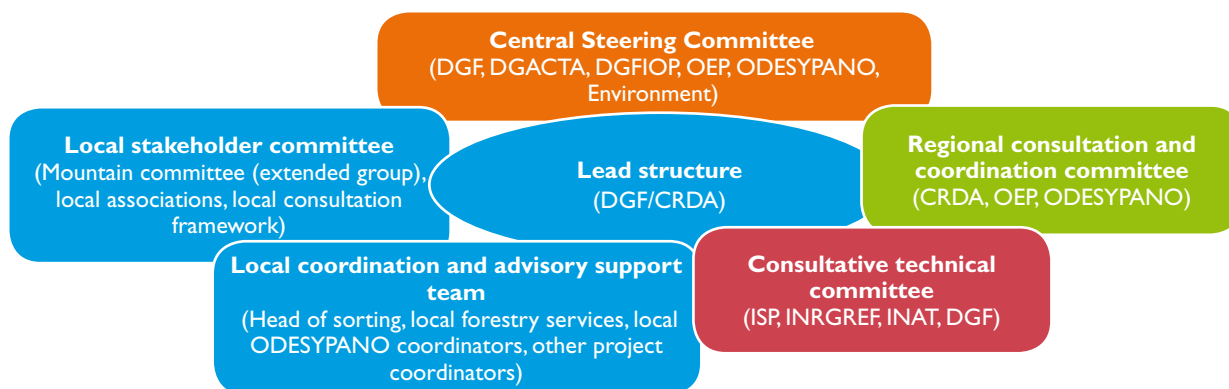
Main results

The approach adopted succeeded in:

- consolidating the participatory process launched on the site by the main operators by better taking into account forests in local planning and identifying integrated actions in a coordinated and concerted way in both forest and peripheral forest areas (influential areas),
- defining methodological aspects that will be taken into account in the process of updating and implementing the development plan, which requires understanding and characterising the socio-territorial units and socio-economic interest groups to involve in the process, a multi-resource inventory, and taking into account the complementarity between forests and peripheral forest areas,

- launching a process to restructure and revitalise local organisations with a view to implementing a (legitimate) representative structure capable of co-managing forest resources and playing an active role in the local governance of these resources. It must be representative of the social and territorial interests and of the various interest groups,
- strengthening and revitalising partnerships between the main active site operators and creating synergies around a shared vision of the integrated and concerted management of natural resources,
- better taking into account forests in participatory development plans currently being implemented as part of the Mountainous and Forested Areas Development Project,
- incorporating research to monitor the dynamics of forest ecosystems in line with the management methods adopted and offer the advice needed for better resource management.

Proposed governance structure



Components of the governance structure	Decision-making authority	Method of mobilization
Local stakeholder committee (CPC)	Develop participatory action plans, and support and monitor their implementation Participate in updating the management plan for the forest and PDC	Regular consultation as needed (monthly meeting)
Local coordination and advisory support team	Support the preparation and implementation of participatory development plans Participate in the updating of the Development Plan and PDC	Monthly consultation on intervention programs and actions to be undertaken in the framework of the implementation of PDC
Regional consultation and coordination committee	Examine the feasibility of the proposed actions, approve the action plans proposed by the PPC and monitor their implementation	Monthly meetings
Central Steering Committee	Ensure coherence and synergy between the proposed interventions and take the necessary steps to facilitate execution	Quarterly meetings
Consultative technical committee	Advisory (provide teams with the results of research and provide technical support)	Biannual meetings
Lead structure	Confirm the action plans proposed by the CPC and make the necessary arrangements to facilitate execution	Periodic meetings as required (bimonthly)



Specific actions were identified and launched around forest resource management and development operations that could help facilitate the involvement of users in the rehabilitation, exploitation, preservation and good governance of these resources. The following actions were launched and will continue to be implemented throughout 2015/2016:

- The implementation of a co-management method that seeks to improve and promote rangeland under forest cover, while developing fodder crops in clearings and peripheral forest areas in order to reduce pressure on the forest and make livestock farming more productive.

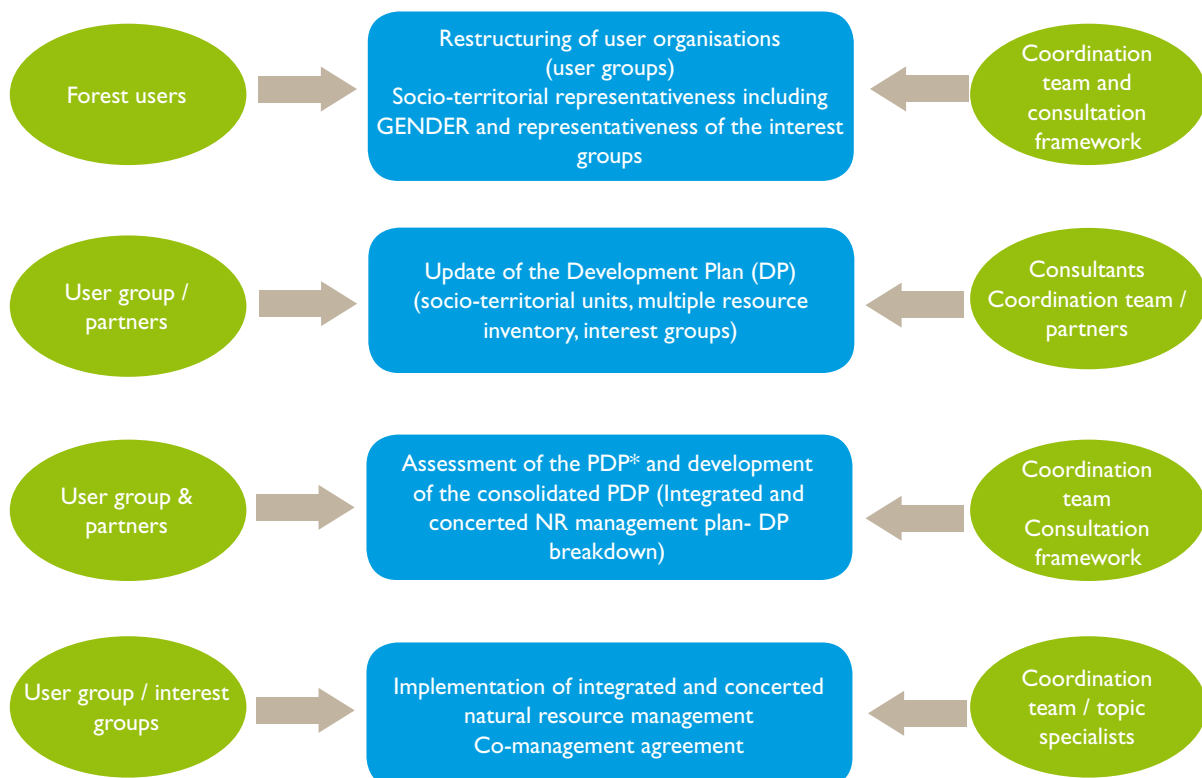
- Consultation with stakeholders to draw up a template for an agreement between the forest administration and user group to implement the co-management of cork and cork parks.

The adopted approach was designed to update the forest development plan and use it as a guidance and planning framework by breaking it down into integrated and concerted natural resource management plans. This has not been possible, given that the development plan has not been updated (restriction associated with the security situation in forest areas). Therefore, aspects associated with the management of forest resources were not discussed with users while drawing up participatory development plans as part of the site projects (cited above). This weakened the integration of actions and deprived the population of opportunities to help improve their socio-economic conditions and facilitate their participation in the better governance of natural resources in woodland areas.

The development plan will be updated in 2016 by adopting the improvements proposed as part of this study, including: (i) carrying out a multiple resource inventory to understand the opportunities, (ii) identifying the resources to exploit under co-management with the relevant users, (iii) identifying socio-territorial co-management units where local organisations (user groups) will be set up to represent users and become a contact point for the forest administration and for others involved in the process of developing and implementing development plans.

These user groups need to be a key player in this process and in the local governance system for natural resources in the forest environment. The following diagram summarises the main aspects of this process, which will supplement the outputs of the study.

Schedule and Participatory Planning



MAIN LESSONS LEARNED AND RECOMMENDATIONS

Contributions and limitations of the study

For the governance structure component, the existing systems and institutional structures responsible for coordinating natural resource management and development projects in woodland areas can play an important role in improving the good governance of these resources. The concept and implementation of the participatory approach has been almost unanimously adopted by the various stakeholders.

The challenge is now to make the necessary improvements to the participatory approach practice in accordance with the principles and targets (participation, involvement, partnership), before institutionalising the participatory approach practice and incorporating it into an overall process for the good governance of rural territories, including woodland areas. The various development operators are now demanding for the approach to be institutionalised in order to promote local development based on good participatory governance of natural resource management.

In order to meet this objective, a communication strategy must be drawn up and implemented on all levels, based on capitalising on the different experiments carried out under the various participatory projects. This is about promoting the relevance and added value of the participatory approach practice as a key operating method for the good governance of natural resources and their sustainable management within an integrated local development process.

In the current context, there is not yet a vision for restructuring the rural environment and setting up local authorities that could manage local development in accordance with the principles of decentralisation adopted by the new constitution.

A variety of options are being considered, particularly within the various projects for rural development and the management of natural resources in mountainous and forested areas, supported by diverse financial institutions. Consideration of these options will mainly continue by implementing the new strategy for the sustainable development of forests and rangelands in Tunisia (2015-2024).

In order to best found the participatory approach practice in woodland areas on the mechanism for planning and scheduling actions for development and the integrated and concerted management of resources, the following improvements are required:

- Quickly update the forest development plans according to the participatory and integrated approach by incorporating the influential peripheral forest area and taking into account the following aspects:
 - Identify and characterise the socio-territorial units in accordance with usage rights (identifying the relevant communities and interest groups and their geographical location),
 - Identify the sectors that exploit forest resources and could be co-managed, and the potential target groups in question.
- Set out the forest development plan in the form of a plan for the integrated and concerted management of natural resources (for a 3 to 5-year period), which will serve as a planning tool and the benchmark for negotiated and contractual planning with the user group.

From a strategic standpoint, the good governance of natural resources in woodland areas requires:

- institutionalising the participatory approach practice as an operating method for all those involved in the management of natural resources in woodland areas,
- adapting the methods and status of local forest ecosystem user organisations in accordance with their role and responsibility in a process for the co-management of forest resources in partnership with the forest administration and other operators,

- adapting the legal framework that regulates access to natural resources in woodland environments in order to facilitate the implementation of methods for the co-management of natural resources in these ecosystems,
- implementing protocols for monitoring changes to forest ecosystems under the impact of the management methods applied.

How could this study be used?

This study is part of the implementation of the new national strategy for the sustainable management of forests and rangelands (2015-2024), adopted in 2015. In this strategy, the participatory and integrated approach practice is accepted as an essential operating method for the management of forest and rangeland ecosystems (development and implementation of development plans). The implementation of methods for the co-management of forest and rangeland resources is one of the founding principles of this strategy. Adapting the legal, institutional and socio-institutional framework is one of the priority measures for its implementation. These focuses will be realised in two new projects under preparation: (i) the "Integrated and Sustainable Development of Forest Ecosystems in Tunisia" project (supported by the World Bank), and (ii) the Management of Vulnerable Rural Territories project (supported by the AFD and FGEF).

GLOSSARY

CRDA: Regional Commissioner for Agricultural Development
DGACTA: General Direction of planning and farmland conservation
DGF: General Direction of Forests
DGFIOF: General Direction of Financing, Investment and Professional Bodies
GD: Development Group
INAT: National Agronomic Institute of Tunisia
INRGREF: National Institute of Research in Rural Engineering, Water and Forestry
ISP: Sylvopastoral Institute
ODESYPANO: Northwest Sylvopastoral Development Office
OEP: Office of Livestock and Pasture

For more information please see full report:

Ben Boubaker A. (2016). *Améliorer la gouvernance des espaces boisés méditerranéens à travers la mise en œuvre de démarches participatives, Bassin Versant de Barbara, Tunisie*. Plan Bleu, Valbonne.

This publication is available for download from Plan Bleu website: www.planbleu.org

DÜZLERÇAMI FOREST, TURKEY

Dr. Yusuf GÜNES, Dr. Ersin YILMAZ

WHAT IS THE PROBLEM?

Forest resources are essential for Turkish society as they provide a considerable number of goods and services that support the country's rural development. Participatory management of these resources is increasingly being considered as a democratic right that is being more widely used by pressure and environmental interest groups. Forest management policies have therefore moved over to a management approach that focuses on people and continuous output of different benefits. To do so, authorities have made participatory forest programmes a priority, encouraging locals to play a voluntary role in managing resources, with the aim of protecting, managing and developing the forest in a sustainable manner.

The overall management and development objectives for the pilot site are as follows: adapt forest management and forest ecosystems to climate change; improve the prevention of risks and damage related to forest fires; reduce anthropogenic pressure on ecosystems; improve the provision of ecosystem goods and services for residents (all users: locals, visitors, catchment area users), reduce poverty and encourage rural development.

The purpose of this study is to develop and test « tools » (from general initiatives to specific techniques) aimed at improving the development and planning of prospective forest resource management for the pilot site which can be applied to the entire range of Mediterranean contexts and which involve all stakeholders. This pilot site was chosen based on the urgent need to protect its natural resources. It has characteristics that are typical of the Mediterranean region in biological, physical, ecological, social, economic, cultural, management and policy terms.

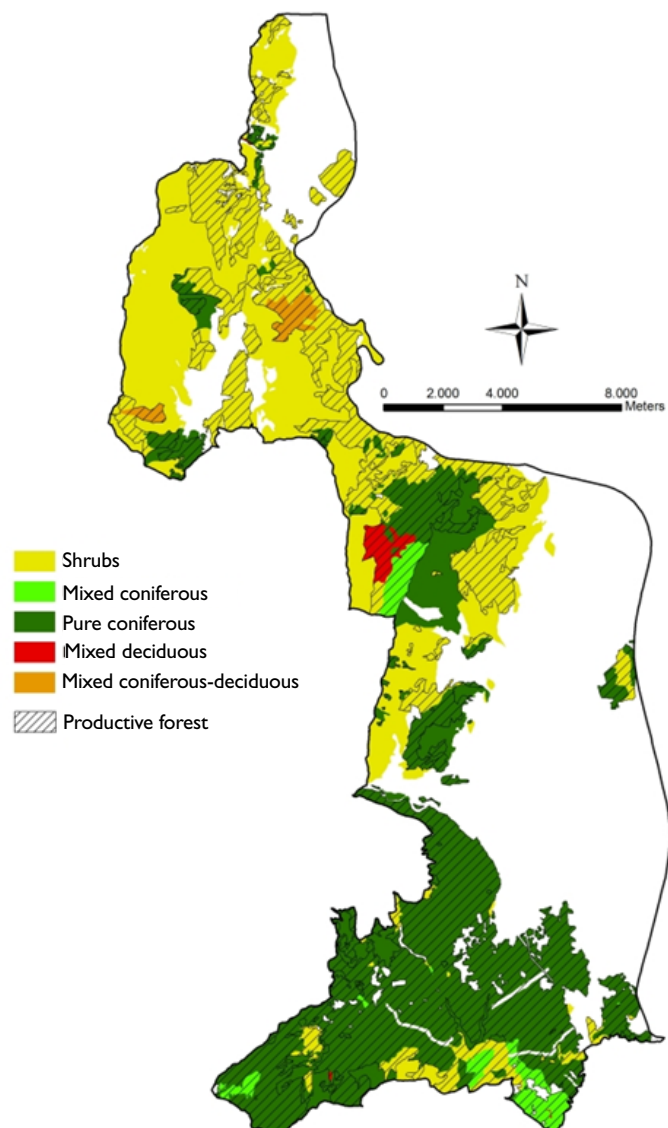
PARTICIPATIVE APPROACH FOR AN IMPROVED GOVERNANCE

Methodology

To implement the participatory approach on the Düzlerçami pilot site, a governance structure was created. It includes five components, as shown in Figure 2 below.

The stakeholders can be individuals, groups, organisations, members or systems with an interest in the pilot site, whether in terms of protection, development, use or management of natural resources.

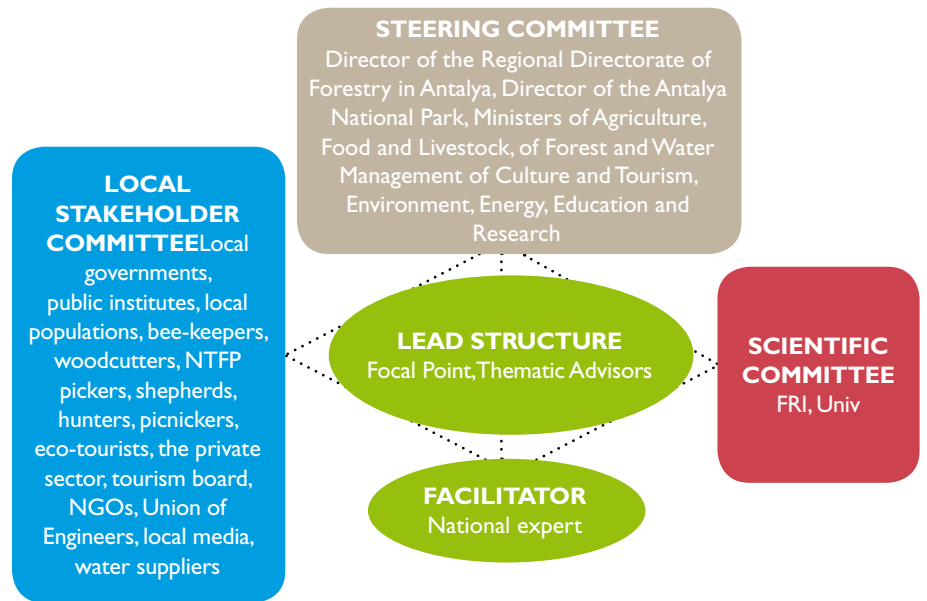
Figure 1: Forest species distribution in Düzlerçami forest



Five categories of stakeholders are involved in the participatory process:

1. Local administrative authorities: Regional Directorate of Forestry, Regional Directorate of National Parks, local governments, other general directorates, research institutes, universities,
2. Local users (living on the site): residents, shepherds, hunters, woodcutters, non-timber forest product pickers, bee-keepers,
3. Professional interests: Labour and civil service unions, Trade unions (UCTEA), NGOs,
4. Economic interests: forestry co-ops, private sector, tourism board,
5. Catchment area users (external users): eco-tourists, picnickers.

Figure 2: Governance structure created for the Düzlerçami pilot site



MAIN RESULTS

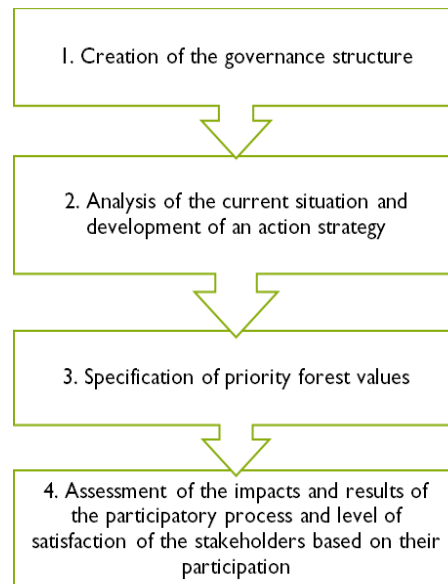
Multi-criteria decision-making techniques can create a more participatory approach at each level of the modelling process. Stakeholders or decision-makers can participate and play an active role in modelling: from identifying model elements to developing relationships and all the other components of the model, including the decision-making process itself. This requires a more transparent, simple and easy-to-access paradigm and modelling process.

Modus operandi

The participatory approach established within the Düzlerçami site used the following tools: questionnaires, excursions to the site, meetings between components, stakeholder information meetings, participatory workshops, informal interviews, direct observation, etc.

These tools were used to improve dialogue and coordination, share experience, and exchange information between all the participants.

Phases of the participatory approach



Results of the approach

The first phase led to the governance structure proposed in Figure 2.

The second phase consisted of SWOT analyses carried out for each group of stakeholders identified. This phase resulted in a prioritised list of factors. For instance, the threat perceived as the most important in terms of forest resource management for the Düzlerçami site is « the threat to natural resources caused by global warming, forest fires, insects, fungus, viruses, drought, uncontrolled grazing, illegal hunting, etc. »

The third phase showed that the value of timber production is considered the least important, while the value of environmental services is considered as the most important for all the stakeholders (these results correlate with those of Component 2 of the project).

Finally, the last phase of the process led to the classification of statements with which participants agreed the most.



The results from the study show that all the participants provided clear suggestions related to the participatory management of natural resources, with the aim of improving their joint work. They expressed the need for greater communication and better dialogue.

The interviews and answers from open surveys underlined the fact that natural resource management players need greater support and to focus more on the economic and social needs of all stakeholders.

These results highlighted the need to build local natural resource management capacities within the pilot site.

Lessons learned

In practice, applying the results from this type of study (from the creation of the governance structure to the evaluation of the results of the participatory process) to management planning for the Düzlerçami Forest or another site is not an easy task.

- It is relatively simple to create a governance structure and the members are always happy to participate. However, the decision-making process and reaching a well thought-out decision are difficult tasks due to the sheer number of stakeholders, their conflicts of interest, and their chief obligations within their own institutions.
- Forest management planning has been delegated by law to experts at the General Directorate of Forestry. They are much quicker in terms of planning, which is updated every 10 years for the Düzlerçami site. Duplicating this type of participatory approach within another site would therefore be time-consuming, less flexible and potentially more expensive than replicating current planning methods.
- To overcome this problem, the method developed here must be replicated in a region with similar conditions, by creating a governance structure whose main task would be forest management planning.



RECOMMENDATIONS AND MAIN LESSONS

Study inputs and limitations

The results of the study could be more reliable if there was a higher number of participants from diverse backgrounds (for instance, experts from different sectors, rural entrepreneurs, citizens). It would also be interesting to examine the differences in opinion between participants.

There was limited participation of women in this study and the problem would likely have been resolved in part had men AND women been involved in the national team.

Once the project is over and the external financial and technical backing has been cut off, the post-project situations in terms of forest resource management for the pilot sites must be monitored and assessed using the selected results variables. For example, changes to the state of forest resources, benefits from forest resources, demands, needs and expectations of the various stakeholders, and their management efficiency, the efficiency of institutions in terms of participatory management, successes, and the short- and long-term effects of the project, etc.

Added value of the participatory approach

The greatest contribution of this study was to involve stakeholders in a forest management participatory decision-making process. It should also be underlined that the expectations of the stakeholders were also identified via this approach.

In addition, the project had the added value of defining a new methodology and assumptions and testing them. The study therefore describes the exploratory phase that was conducted to this effect and presents some multi-criteria decision-making methods that have a high potential for improving the participatory planning process.

To help natural resource managers implement the powerful combined tool of participatory planning and a multi-criteria decision-making model, other studies should be carried out to assess the application of this approach in real situations, particularly in Mediterranean countries. Studies that describe and assess the process as a whole would also need to be conducted. As shown by the assessment of this study, increased emphasis on the participatory aspect could be helpful in better achieving the social objectives and revealing the full potential of this tool.

How could this study be used?

For all natural resource planning situations, a planning approach with several criteria-goals-objectives-alternatives-attributes-phases should be used by implementing a participatory approach that involves all interest groups and major stakeholders.

These multi-criteria decision-making methods could be used to manage natural resources. They offer approaches that are suitable for numerous situations, such as participatory decision-making processes, which require simple, clear-cut methods. However, there is no one multi-criteria decision-making method that is the best for all participatory decision-making processes. The method to be used must be chosen by taking into account the support required.

The framework of the participatory approach for this case study should be applied to other cases to further explore the practical aspects on a wider range of conditions. These studies could cover different sites in the Mediterranean region with diverse conditions and involve as many groups of stakeholders as possible, different types of land ownership structures, different technologies, different political levels, etc.

Considering the use of technology (photo-surveys, geographic information systems and Internet-based technologies, e.g. emails and chat groups, video conferencing, publication of web pages, etc.) by forestry bodies in the public participatory process would also be necessary, with regard to the effects on the perceptions of participants.

Finally, the approach can be based on the following suggestions for managers:

- Clearly define the scope and content of everyone's work,
- Allow stakeholders to participate in the decision-making processes,
- Methodically identify the expectations based on your management tasks,
- Do not apply the methodology used in this study as is, but rather adapt it to new situations,
- Do not try to meet all expectations but give priority to sustainable resource preservations.



For more information, please see full report:

Günes Y. (2016). *Improving Mediterranean woodland areas governance through participative approaches implementation – Düzlerçami Forest, Turkey*. Plan Bleu, Valbonne.

This publication can be downloaded from the Plan Bleu website: www.planbleu.org