

## ANNEX I:

### Mediterranean Forest Research Agenda priorities

<b>Mediterranean Forest Research Agenda</b>	
<b>Strategic Objectives</b>	<b>Research approaches</b>
<b>1. Development of innovative products for changing markets and customer needs</b>	<ul style="list-style-type: none"> <li>- evaluating and developing financing mechanisms to promote the optimal provision of non-market services (e.g., systems for payment for environmental services by the final users, by the forest managers or by public authorities);</li> <li>- new marketing instruments for the supply of forest products and services, also based on the horizontal and vertical integration of economic agents in the value chain.</li> </ul>
<b>3. Enhancing availability and use of forest biomass for products and energy</b>	<ul style="list-style-type: none"> <li>- structural and functional genomics at ecosystem level to study adaptive responses to global change in Mediterranean forest ecosystems.</li> <li>- networks of long term genetic experiments to analyze responses of plant material (provenances, families, genotypes) to changing environmental conditions.</li> <li>- modeling approaches at genotypes, tree, ecosystem and landscape level to climate change and management options; As the speed of expected changes is fast, approaches based on modeling of the demographic, ecological and genetic aspects of the communities' evolution should be developed and implemented.</li> </ul>
<b>4. Meeting the multifunctional demands on forest resources and their sustainable management</b>	<ul style="list-style-type: none"> <li>- new forest growth and yield models that can provide predictions on the provision of relevant goods and services (mushrooms, pine cones, fodder, water yield, scenic beauty) and take into account the changing climatic conditions;</li> <li>- goal-based silviculture models and adaptive approaches to optimize the provision of relevant goods and services under global change;</li> <li>- new multi-criteria, scenario analysis, and group- decision methods for analyzing stakeholders' preferences on forest management objectives and support consensus building;</li> <li>- new multi-objective forest planning models and advanced optimization techniques to solve multiple objective problems considering the economic, social and environmental functions, within a multi-scale stand-to-landscape-level approach;</li> <li>- new knowledge on the interactions and trade-offs of different types of land uses and development of integrated approaches for forest-land-use planning in the context of rural development;</li> <li>- new presentation techniques such as visualization to show the consequences of alternative management strategies to different stakeholders, thus addressing participatory planning and social sustainability concerns;</li> <li>- new decision support systems to support Mediterranean forestry decision making in a broader context of land use planning. The use of demonstration forests might be instrumental for developing, testing and disseminating the new tools;</li> <li>- long term ecosystem monitoring and experiments (<i>sites ateliers</i>) on the effects of global change and environmental stresses (climate anomalies, salinity and other soil limitations) on natural and planted forest ecosystems, with the use of forest-atmosphere flux stations, instrumented watersheds, water and nutrient cycling; different types (from extensive to intensive) of comparable monitoring sites that cover well the forest typologies, as well as the geographical and climatic diversity of the region should be established;</li> <li>- mobile sensors equipment systems to study effects of forest</li> </ul>

	<p>management, logging operations and fire regimes on carbon budget of forest and other wooded ecosystems;</p> <ul style="list-style-type: none"> <li>- ecosystem experiments on forest-atmosphere interactions with special emphasis on organic signalling (i.e. VOC) and particular attention on polluted atmospheric conditions (O<sub>3</sub> and other air pollutants) in sub-urban vs. natural environments;</li> <li>- landscape experiments on the impact of land use change and forest ecosystem management on water resources and soil erosion protection.</li> <li>- landscape experiments on the impact of land use change and forest ecosystem management on biodiversity and biogeochemical cycles at forest landscape level; special emphasis on bi- and tri-trophic interactions at foodweb level (i.e. plant-pests and plant-animal interactions);</li> <li>- large scale infrastructures for whole tree and ecosystem manipulation experiments to simulate responses to changing climatic (temp., precipitation, UV), atmospheric (CO<sub>2</sub> and other GHG, N deposition) and soil conditions.</li> </ul>
<p><b>5. The sector in a societal perspective</b></p>	<ul style="list-style-type: none"> <li>- development of environmental accounting systems for forest resources at regional and national level, also for the evaluation of the efficiency of defensive expenditure in relation to the value of the stocks and products and services delivered;</li> <li>- environmental accounting system should be associated to forecast modeling in order to evaluate the costs of inaction, as well as the cost of active policies;</li> <li>- designing innovative forest policies or measures within the framework of wider rural development strategies and using a joint territorial approach between all concerned parties;</li> <li>- developing participatory approaches for stakeholders' involvement and responsibilities sharing in local and regional development programmes based on public-private partnership (see the EU "Leader" approach in rural development policies);</li> <li>- developing valuation methods and benefit transfer methods for valuing in an integrated and comparable manner non-market forest services.</li> </ul>