

# Forest management tools for the Nordeste region, Portugal

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Forestry in the Northeast region of Portugal is in general poorly developed. Despite their abundance, forests do not receive much attention from owners or stakeholders. There is evidence that these forests supply a large array of ecosystem services suggesting that they are already important and that they have the potential to support the sustainable development of the region. Major constraints, such as lack of awareness of the importance of forests, lack of mobilization strategies at the regional/local scale, and ownership related issues, limit local use of forests as sources of resources and as promoters of development. Some of the key obstacles are, however, lack of information and tools for planning and management.

Considering that factors limiting mobilization in the region are multiple and of different natures and impact the sector at different scales, we developed a Decision Support System (DSS) to incorporate biophysical aspects of the Nordeste Region as well as social and economic variables, both objective and subjective, to better understand the system, to explore the effects of changes at multiple scales in terms of supply and demand of forest resources and ecosystem services, and to evaluate forest planning and management alternatives. This was preceded by a series of focus studies aiming to fill knowledge gaps and to develop tools for forest planning and management in the region.

Available tools include a forest growth and yield simulator (FlorNEXt<sup>®</sup>) and its Android version, a landscape forest management simulator (FlorNEXtPro<sup>®</sup>), a transport cost and emissions calculator (WRoute<sup>®</sup>), a land use optimizer (AppTitude<sup>®</sup>), a web growth and thinning simulator platform (ForestMTIS<sup>®</sup>), and a Java project to build simulators for Android (ApkFor<sup>®</sup>). Tools operating at the local scale (FlorNEXt<sup>®</sup> and FlorNEXtPro<sup>®</sup>) define optimal forest management practices and extractable volume from physical and biological perspectives. The remaining tools, operating at supra-local scales, define the socio-economic context of management affecting operations at the local scale through demand.



The DSS was used to integrate stakeholders perspectives and willingness into forest management at the local and regional scales and, with other measures, to involve entrepreneurs (sawmills, furniture, energy) and representatives of groups of interest related to forests in order to increase awareness and boost investment in the region. This was achieved through demonstration and training events, technical and scientific publications, public presentations, and the establishment of the “Nordeste Forest Council” and a working group on biomass for energy. Some of these measures were applied at the local scale of the ZIF Lomba whereas the remaining were applied at the regional (sometimes national) scale.

<http://florestasdonordeste.esa.ipb.pt/>



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