# Web GIS-based application for agricultural areas management – the case of pistachio cultivation

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The LIFE11 ENV/GR/951 project entitled "Sustainable strategies for the improvement of seriously degraded agricultural areas-The example of *Pistachia vera* L. (AgroStrat)", http://www.agrostrat.gr/, is an ambitious project, which foresees the development of an *Integrated Management System* for the sustainable management of intensively, cultivated Mediterranean areas, using as example the cultivation of Pistachia vera L. trees which are intensively cultivated in Aegina Island, Greece for the last 150 years.

Since soil is a crucial factor in evaluating the environmental sensitivity of an ecosystem, especially in arid, semi-arid and dry sub-humid zones, preservation and monitoring of soil and water quality in these areas are basic targets of the project, as well as, the development of monitoring tools which will be available to end-users (farmers, agricultural associations and local or regional authorities) and will allow continuous monitoring of cultivated areas assisting thus planning and implementation of local/regional authorities' policy.
Towards this direction Agrostrat foresees a series of innovative actions, where the main one discussed here is the development of a software monitoring tool for the sustainable management of intensively cultivated Mediterranean areas, using as an example the cultivation of P.vera L. in Aegina island, Greece.

The tool utilizes the "client-server" model architecture, that is, the client components - a desktop application, used by individual farmers, landowners and authorities-provide measurement data (chemical analysis), along with user specific requests about their cultivation fields, to the server component - a web GIS-based application, namely, Central Management & Monitoring Tool (CMMT) system - which collects data and provide "client" users with continuous feedback and updated information regarding guidelines that they have to take in account for sustainable cultivation of pistachio trees. Thus, through this bidirectional communication, farmers and local and regional authorities/other stakeholders will have the opportunity to screen cultivated areas rapidly, identify potential risky conditions and proceed to detailed monitoring, if necessary, implement resources monitoring at field and municipal scale allowing, thus, continuous monitoring of the cultivated areas. The application provides essential monitoring features, such as temporal evaluation of the cultivated areas through comprehensive charts, statistical data analysis on a spatial scale analysis, the potential to visualize the analysis results and produce local/regional maps and also allows individual users to communicate with the responsible local/regional authority and request directives and guidance about their cultivated fields or waste discharge areas.

At local and regional level, authorities have to play a very significant role in the management of agricultural areas. Decision making tools and web GIS-based applications may significantly assist authorities and individuals to make the correct decision. Therefore, the tool supports the establishment of a Management Centre, which could be located, for example, at the premises of a Regional Service/Agency or of a Municipality, and can undertake the continuous monitoring of cultivated areas and the scientific and consultative supporting of local farmers.