

SIA: a GIS for the treatment of the environmental information connected to the electric power plant management

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SIA provides synthetic environmental information about ENEL (Italian Electricity Board) power plants over the whole national territory. Moreover it deals with environmental entities interacting with the power plants (i.e. parks) or connected to them (monitoring units).

The system aims at being a tool for the study of environmental problems by means of different information sources.

It has been developed according the following criteria:

- individuation of possible interferences between the different power plant types and the environmental compartments;
- analysis of the data to be acquired to evaluate the environmental status in the proximity of the plants;
- data collection either from ENEL or from specific studies.

The land use map near every thermoelectric power plant (about 50) has been carried out and a meteo data base has been acquired.

As far as concerns the hydroelectric power plants (about 600), a particular attention has been paid to the problems connected with the water reservoirs, performing the environmental analysis of the catchment basins.

Two types of cartographic data (vector, Scale 1:250.000 and 1:100.000, and raster, Scale:1:250.000 and 1:50.000) are the reference system for the representation of environmental entities, according to different levels of details.

Moreover, a series of problem oriented applications, based on a DBMS, allow the user to handle data relevant to the power plants or to entities which are spread on the whole national territory: parks (about 1200) and meteo monitoring units (about 3200).

The system can be installed either on a workstation connected to a PC network or on a stand alone Personal Computer.

One of the most interesting features of the system is the possibility of customizing the interface of the Geographical Information System and the data to be considered according to the user requirements: in this way, the system can be released, in different versions, to local nodes devoted to regional data handling or to the processing of data relevant to particular thematics. Every node works collecting specific local data and transferring them to the central node, which performs high level functions.

Finally the system is provided with different features which allow the user to generate thematic maps and sensitivity maps in order to get a specific environmental analysis for every power plant.