

# MapServer Technology – spatial data dissemination: The Malta Case for Natura2000

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Country: Malta

Title of the application: MapServer Technology - spatial data dissemination: The Malta Case

Domain of the application: (Environmental Monitoring, Development Planning).

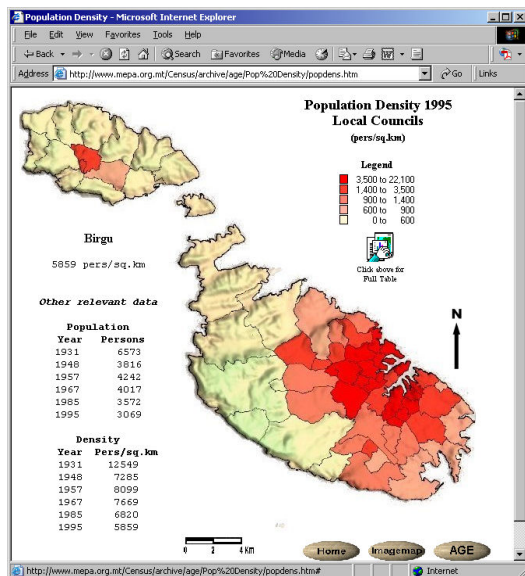
Policy application:(Urban planning, Landscape and Land Cover Assessment, Nature Protection, Mapserver technology)

Year: 2005

*'Man cannot learn without images.' St.Augustine*

## Launching the Technology

Malta's contribution to advanced data dissemination technologies has been consistent and innovative over a span of 5 years. The initial launching of a thesis-based Census<sup>1</sup> WebMap employing image-mapping (Figure 1) and GIS-Client technologies in 2000 was followed by a fully-fledged MEPA mapserver technology in 2001. Internet development of the application was carried out through the utilisation of a web-mapping frontend and an application development environment commissioned to TYDAC based on map server software MapInfo MapXtreme. Data is developed in-house and converted to the applicable formats as per use need.



MEPA's dissemination policy concentrates on the need for an open system, enhancing easy access to understandable information through graphic interfacing within a public participation scenario. Whilst its original intentions were centered around land use and development planning, this process has encompassed environmental data dissemination through an amalgamation of the Environment Protection Department and Malta Planning Authority to form MEPA in 2002. Environmental spatial habitats data was first uploaded in 2003 and has since taken up new datasets inclusive of SACs (Dec 2003) and the recent Environmental Protection Areas that include N2K locations (April 2005).

Figure 1: Census 1995 – Imagemap exercise

<sup>1</sup> <http://www.mepa.org.mt/Census/index.htm>

## Rationale

Interestingly, what started out as an exercise aimed at providing access to development information, has grown to encompass all forms of spatially referenced data. In a country where land use development exerts an ever-increasing pressure, the need for people to be informed on spatial impacts is great when not overwhelming. GI technology has helped serve as a pressure-valve where all application information is disseminated on-line in real time. This technology served as the foundation for the current push towards e-applications and e-government services. The migration to mapserver option was seen as a natural step in the dissemination evolutionary process. In the process, enacting new legislation particularly through the implementation of the Aarhus Convention has helped to ease the dissemination process.

## Technical Issues

Technical teething problems, such as the need to use a fat-server and thin-client structure, were solved through the use of the MEPA interface that enables users to view data from a common web-browser. The use structure is based on a two-tiered interpretation process: internal MEPA development and monitoring work and internet access to environmental information to the general public. The mapserver's as yet limited capacity in carrying out advanced spatial queries is to be enhanced.

## Data Types

The data types published are diverse and wide-ranging. On the planning side it includes: development applications, constraints, local plan areas, protected areas, topographic basemap, planning data, orthophotography, transport routes, levelling schemes and heritage protected zones termed scheduling. On the environment side, the data set is growing rapidly, including two distinct categories: marine and terrestrial. The former includes marine habitats and Posidonia survey maps. Terrestrial data includes elevation, Corine Land Cover 2000, habitats and environment protection areas.

## Natura2000

The Natura2000 sites, falling within Article 6 of the Habitats Directive will be depicted in a unique spatial layer following the same lineage as that use for the creation of the environment protection areas, considering that the latter layer has served as a base dataset for the delineation of environment-related maps. The Natura2000 map's data model is to be based on a vector data structure with possibilities for integration with such data layers as geology, morphology, further enhancing the model into 2D and 3D GIS analysis.

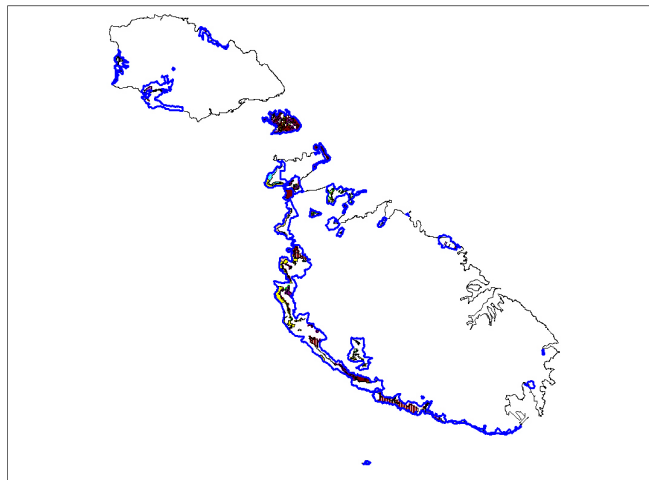


Figure 2: Spatial data layer in Mapinfo format

Figures 2 to 3 depict the initial spatial data layer as created within the GIS and the eventual transposition to map-server technology. The Natura2000 mapserver layer will contain those specific sites related to Article 6 and as shown in Figure 4, attribute data can be accessed through information point-and-click function within a zoomable area.

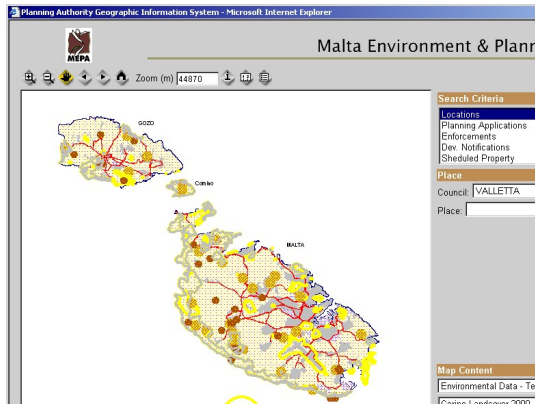


Figure 3: The MEPA mapserver hosts the Environment Protection map under the Map Content section as part of the Environmental data – Terrestrial category

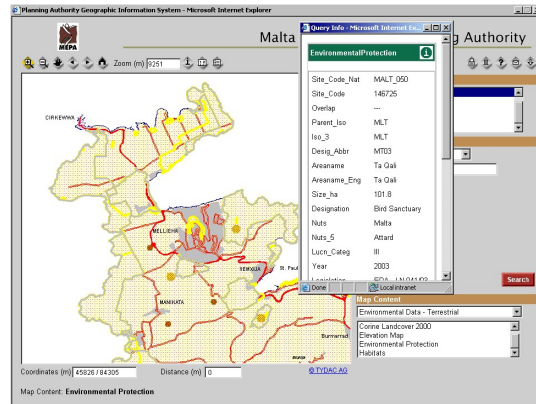


Figure 4: A Zooming facility helps users to choose their preferred sites for more detailed viewing. Clicking on the information icon will activate the legend

## Results

The project offers the scientific community and the general public a living example of large-scale environmental data. The Natura2000 data layer will offer the opportunity to launch an active environmental data mapserver function. Its helps disseminate previously unavailable spatial and attribute data on such areas as nature protection, facilitating strategic assessment, environmental analysis, EIA production, academic research and a plethora of other possibilities.

## References

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