

I&CLC2000 Applications report

Malta Environment & Planning Authority
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Country: Malta

Title of the application: Maltese Islands Landscape Assessment

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

Policy application:(Urban planning, Landscape and Land Cover Assessment)

Abstract

Malta's contribution to CLC2000 was launched on the 2nd July 2003 (MEPA, 2003), with interpretation and verification carried out in August 2003. The project was developed through an agreement between the European Environment Agency, the Malta Environment and Planning Authority and the Umweltbundesamt-Vienna, the latter providing interpretation and implementation expert support through the Twinning Project MT2002/IB/EN-01 "Establishing Institutional Capacity in the Environmental Sector".

Product was developed over the space of a week and eventually the application was delivered on a web-based mapserver integrated with other environmental published on the web as part of the MEPA's data dissemination policy. The application can also be viewed internally within MEPA through an organisation-wide GIS system. The CLC2000 GI map is available for querying and used as background information for the process of development control and environmental monitoring. In effect, CLC2000 created a value-added source for instant notice of development within protected sites.

Introduction

Malta, is a very small state comprising 3 major islands with an area of 316.16 square kilometres, a built-up area of 23% and a population density of 1200 persons per square kilometre (Small enough to fit into one Landsat image).

GI data is created at large scales of 1:1000 and 1:2500 where EU-wide projects of scales of 1:25,000 and smaller are very rarely developed. CLC2000 provided the first-test case of small-scale photo-interpretation and a very-short term experience of small-scale interpretation. Though GI resources are small, expertise is extensive due to the intensity of different projects each professional is involved in.

At the time of presentation of the Technical Proposal, Malta opted to join the CLC project based on the delivery of CLC2000 only. As CLC90 was not produced in the earlier exercise, CLC-change database could not be implemented.

Photointerpretation (with field checking) was accomplished with the help of two UBA experts using IMAGE2000. The working period occurred over the space of 3 days including national verification.

Due to the short period envisaged for interpretation, no formal CLC2000 training was requested, considering that training would have taken longer than the actual layer development period. Six Maltese interpreters developed the layer at the small scale under supervisor by two UBA interpreters based on a rotation period of a half-day per person. Outputs were verified by both Maltese and Austrian project leaders and final verification by ETC-LC on a back-to-back mission in Vienna. Requested changes were completed and sent to CLC2000 Technical Team (GISAT).

Data dissemination issues were considered by MEPA, which was considering the extension of its planning development mapserver. Data was uploaded to the MEPA website. A further product will be developed through the use of a stand-alone CD.

Aim

The Malta CLC2000 mapserver-based application was created to provide access to additional environmental data to that uploaded to the MEPA mapserver. Uses were deemed to be based on a two-tiered interpretation process: internal MEPA development and monitoring work, internet access to environmental information to the general public.

Internal access is through diverse GIS software and viewers. Case officers use the data for development control, enforcement action and policy review. Environmental officers interpret the data for environmental protection projects and monitoring. External access is via an internet mapserver through the provision of an interactive map for general viewing purposes. The data cannot be queried to date but has main uses for both development and environmental purposes.

Methodology

The project was based on a series of integrated steps, from project initiation based on the interpretation of the Landsat TM7 scene, through data digitisation, projection and format conversions and finally dissemination measures. UBA provided the expertise in interpretation and imagery enhancement and MEPA utilised its resources through provision of such GI layers as its orthorectified imagery, ecology, agriculture and its stock of topographic base maps (the national mapping agency operates within MEPA's structure).

Main problems encountered included projection data issues, polygon size and scale. Malta's GI data coordinates have been truncated as part of its initial data storage policies; now with the EU and EEA data requirements, this induces an extra process that had to be carried out to recreate the full UTM ED50 Zone 33s. Regarding polygon size main issues covered the difficulties of many important areas disappearing in the process that would have otherwise been important in such a small state as Malta. This also relates to issues of scale as noted above.

Once the data layer was created and verified, the data dissemination options were covered. A decision to disseminate the data through the web was taken through the use of an already existing application that was developed for planning data GI interactivity. The webpage created an operable medium that needed little amending to take up the environmental data (<http://www.mepa.org.mt/Planning/index.htm?MapServer.htm&1>) (Images 1&2). The main aim for the future is to use this medium for all environmental data with possible new options to the mapserver such as full-querying functions. The final CLC2000 layer was uploaded to the Environmental Data – Terrestrial section under the Corine Landcover 2000 content.

Another medium that will be developed over the next weeks will include an interactive CD version of the Maltese output.

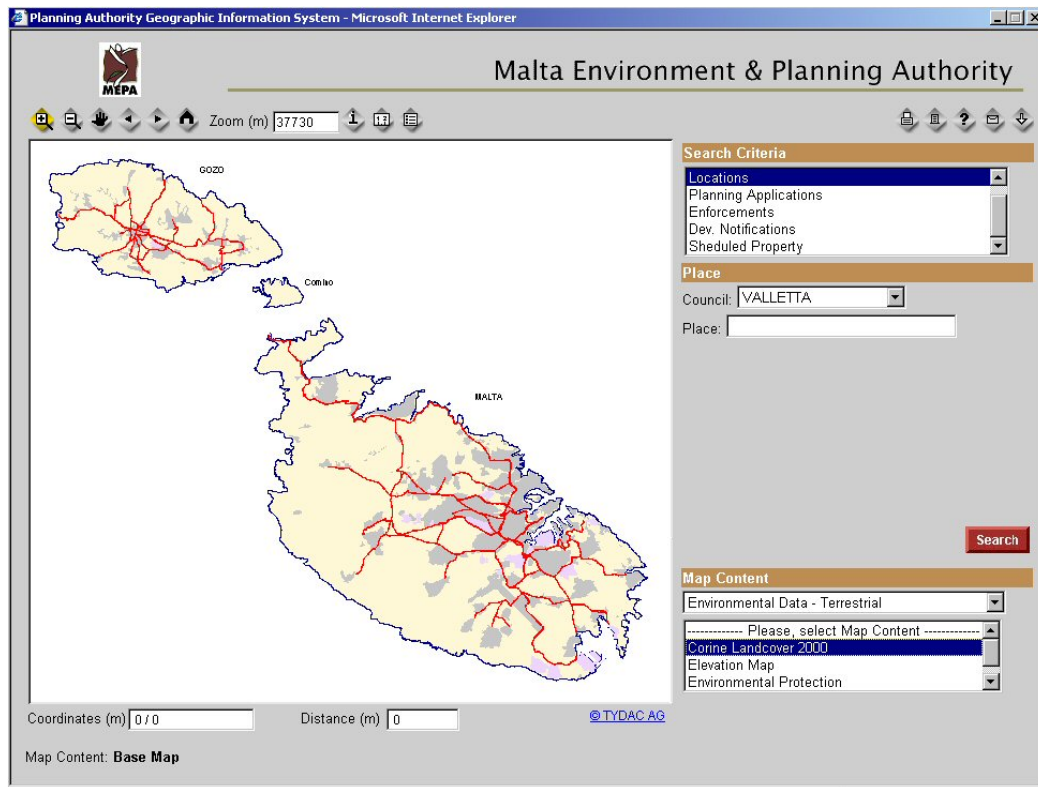


Image 1: The MEPA mapserver hosts the CLC2000 map under the Map Content section as part of the Environmental data – Terrestrial category.

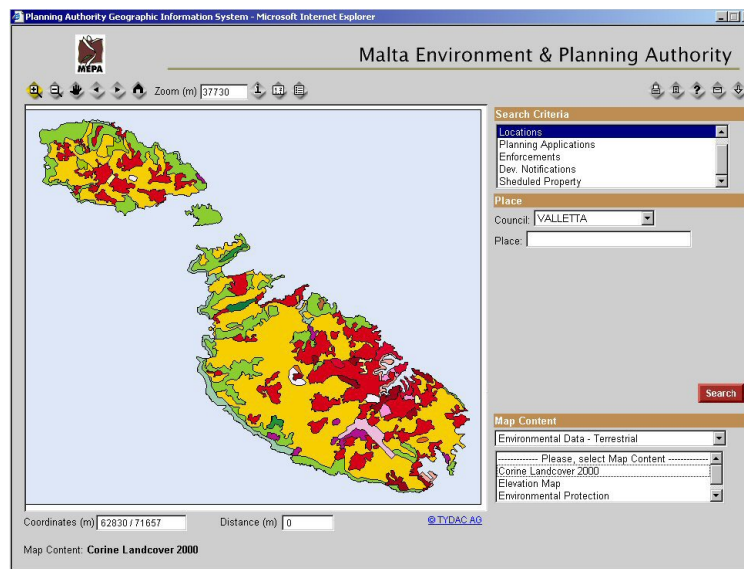


Image 2: The CLC2000 map fully covers the Maltese Territory as well as the surrounding coastal waters.

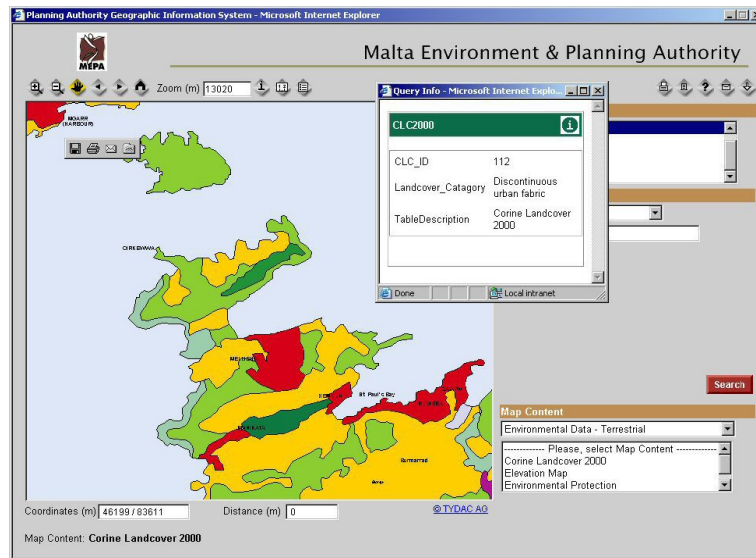


Image 3: The Zooming facility helps users to choose their preferred sites for more detailed viewing. Clicking on the information icon will activate the legend.

Development of the application

Internet development of the application was carried out through the utilisation of a web-mapping front end and application development environment developed by TYDAC based on map server software MapInfo MapXtreme. Data is developed in-house and converted to the applicable formats as per use need.

CD development is also developed in-house either as an imagemap or as an interactive application utilising distributable GIS applications/scripts. This multimedia effort is seen as the main method to allow wider data interaction that may not be available through the current web-mapping technologies.

Results

Though the real use of CLC2000 is limited in the Maltese context due to issues of scale, the results obtained were highly encouraging as the project offered the developers with a first example of interpretation at a small scale level and that it offers generalised quick-reference information for both specialists and the general public. It has offered the opportunity to launch the environmental data mapserver function and helps disseminate previously unavailable data on such areas as development application cover information, protection zone coverage, strategic assessment, environmental analysis, EIAs, educational/academic purposes and a plethora of other queries.

References

- MEPA, (2003): CLC2000 Malta Technical and Financial Proposal June 2003, Annex I.
- MEPA, (2003): CLC2000 Metadata - working unit level, Annex III.
- MEPA, (reviewed 2004), <http://www.mepa.org.mt>
- TYDAC AG, (reviewed 2004), <http://www.tydac.ch/english/index.php?menu=Webmapping>