



Monitoring the environmental law compliance with the help of Geographic Information Systems (GIS): The case of the Environmental Law Observatories in Crete



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Introduction:
Environmental Law and Policy call for constant adjustments in order to ensure their effectiveness in on-going environmental problems, global or local. However, such constant adjustments require the constant collection and assessment of reliable data, regarding the Environmental Law compliance.

Research Question:
Are public agencies encouraged to monitor the Environmental Law compliance with the help of monitoring technologies such as Geographic Information Systems (GIS) or actors outside the bureaucracy are necessary?

Methodology:

- Two Environmental Law Observatories have been established in Crete, Greece (one for West and one for East Crete) since 2016. They are run by Chania and Heraklion Bar Associations respectively in the frames of LIFE NATURA THEMIS project; they record and analyze Penal Environmental Court Cases and the imposed Administrative Fines, regarding the respective regions with emphasis on NATURA 2000 sites. They import constantly all collected data in a Geo-informatics (GIS) map, accessible to the public through the project's website <http://www.lifethemis.eu>, with respect to personal data protection.
- Public agencies with preliminary investigation or administrative powers are constantly addressed (*Coastguards, Fire Services, Environmental Departments of Prefectural Unities, Courts of 1st Instance, Court of Appeal*). None of the public agencies keeps systematically electronic data regarding environmental law compliance except for the Fire Services. None uses GIS for the collection and assessment of data. The action of the Association Bars has been proven necessary.

Obstacles:

- The collection of imported data is extremely time-consuming in order to ensure they are reliable (lack of official electronic data, lack of staff and IT services in the relevant public agencies, reluctance of the authorities to provide the data). Extract of the necessary information manually among thousands of irrelevant other files!
- Special license from Data Protection Authority necessary (for court files)!

Innovation/Advantages of developed GIS map:

- It is easy for everybody to extract information about the recorded offences as well how the respective public agencies tackled each one of them. Transparency is achieved with respect to personal data protection!
- Direct monitoring of the efficiency of the relevant public agency is enabled, "hotspots" of criminal activity and environmental degradation are targeted.
- Public agencies easier realize their individual responsibility for preventing and remedying environmental damage.
- Further spatial analysis of imported data will conclude to guides for prefectural strategies against environmental offences.

Uses of GIS map

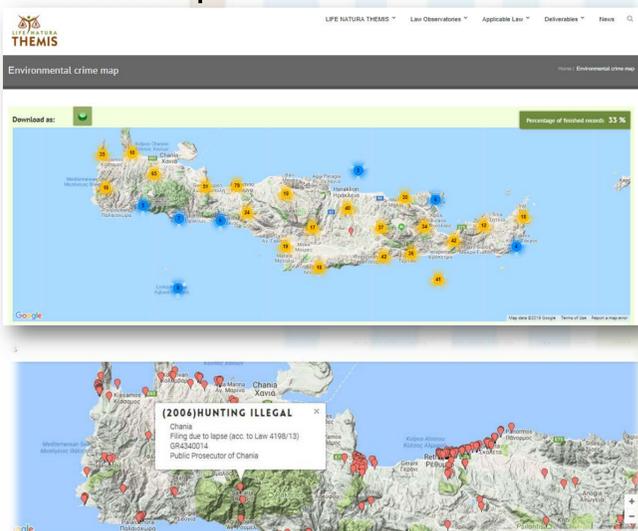


Fig.2. Spatial distribution of recorded offences

Fig.1. LIFE NATURA THEMIS' GIS MAP

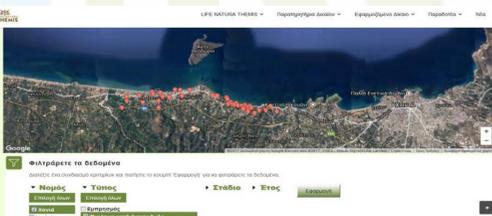


Fig. 3 The example of violation of *Caretta-Caretta* protection rules in Chania region.

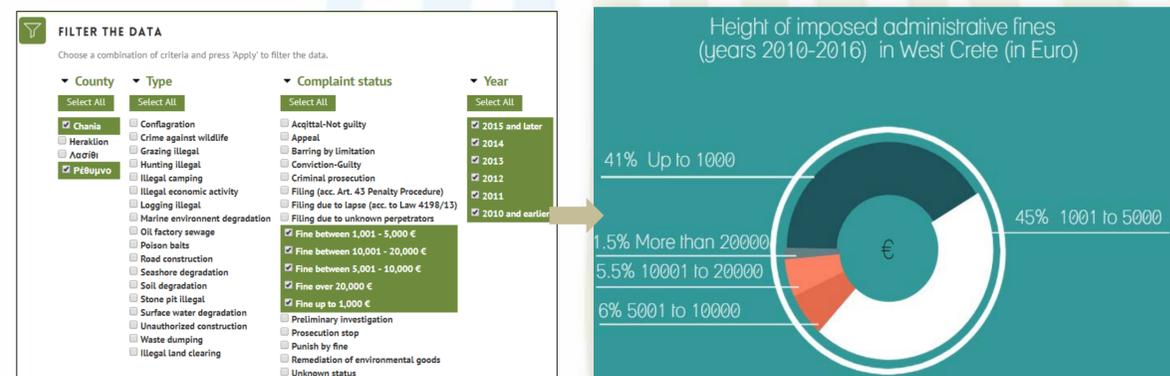


Fig.4. Application of LIFE NATURA THEMIS' GIS MAP search filters and corresponding conclusions extracted.

Research findings:

- 1) It would be better if Public Agencies were encouraged to keep electronic data regarding environmental law compliance, so as to extract all relevant data electronically.
- 2) The percentage of the criminals accused of environmental crimes that are not finally judged guilty and the percentage of the cases that archived due to expiry of time-limit for prosecuting an offence cover almost 80% of the judged environmental cases!
- 3) Unauthorized construction and illegal land clearing/illegal logging cover around 60% of the environmental crimes committed. Advantageous laws for the legalization of illegal buildings play a major role for not finally judging guilty the criminals accused of unauthorized construction.
- 4) The average duration between committing a crime and the final court judgment was found to be around 5 years. This also seems to be an important factor that helps criminality to maintain. The huge numbers of cases as well as the large percentage of postponements constitute the main reasons for this long duration.
- 5) Penalties imposed by the Courts could be described as "medium".
- 6) Imposed administrative fines are extremely low, and this is probably not only due to the fact that there is no objective way to calculate them according to existing provisions, but also due to pressure exerted by the offenders.
- 7) The profile of the offenders is strongly related with the local economies (tourism, oil factories etc).
- 8) There is no actual effective strategy to protect endangered species, such as *Caretta-caretta*, due to the fact that key factors of the local economies, such tourism, will be affected.

Conclusions:
This on-going project demonstrates how Geographic Information Systems (GIS) can be used as a tool **to monitor the Environmental Law compliance, to highlight major systematic gaps** that make room to potential Environmental Law offenders, to **provide environmental information to the public** and finally **to boost the adequate Environmental Law and Policy adjustments.**

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