

GI AND WATERSHED MANAGEMENT: Discussing GI relevance Towards monitoring EU Legal Framework

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INSPIRE CONFERENCE 2012
ISTAMBUL**

Summary

1. Water management – main concerns related to Water Framework Directive
– WFD: implementation deadlines
2. Information and knowledge management – IKM - in shared environments:
 - INSPIRE: contributions for WFD implementation
3. Water and land management within IKM environments:
 - BRISEIDE - Bridging Services and Information for Europe : the Environmental quality
 - TER-ÁGUA – A Collaborative SDI example: planning and managing land and water use
4. Conclusion – Future proposals

1. Water management main concerns- Water Framework Directive

- Water Management – the new paradigm: managing demand
- Achieve and maintain good water status until 2015
 - Prevent water quality deterioration;
 - Protect and restore all surface water bodies and ground waters;
 - Promote sustainable water use (through effective pricing of water services, and complete cost recovery);
 - Progressively reduce discharges of priority substances and cease or phase discharges of priority hazardous substances for surface waters;
 - Progressive reduction of pollution of groundwater;
 - Mitigate the effects of floods and droughts;
 - Ensure sufficient supply of water;
 - Protect the marine environment.

1. Water management main concerns- Water Framework Directive

■ Main deadlines for the Common Implementation Strategy of the WFD

Year	Timetable for Implementing the Water Framework Directive
2000	WFD comes into force
2001	Common Implementation Strategy published
2003	Transposition into national legislation Designation of river basin districts and competent authorities
2004	For each river basin: <ul style="list-style-type: none">- Analysis of the natural characteristics, pressures and human impacts- Economic analysis of water use- Register of areas needing special protection
2006	Operational water monitoring programmes
2008	Public consultation on proposed river basin management plans
2009	River basin management plans with programmes of measures finalised
2009-15	Implementation of programmes of measures
2010	Water pricing policies in place to promote sustainable use of water
2015	Achievement of good status for all surface waters and ground waters

2. Information and knowledge management

- **INSPIRE - building an European Spatial Data Infrastructure**
 - Enable sharing environmental spatial information among organizations and promote public access to spatial information across Europe –europe govenance
- **INSPIRE - common principles:**
 - Data should be collected only once and kept where it can be maintained most effectively.
 - It should be possible to combine seamless spatial information from different sources across Europe and share it with many users and applications.
 - It should be possible for information collected at one level/scale to be shared with all levels/scales;
 - Geographic information needed for good governance at all levels should be readily and transparently available.

3. Water and land management within IKM environments

The water management problem ... and landuse planning

Different water uses

1. Drinking Water Supply
2. Energy production
3. Urban Supply
4. Recreation
5. Industry
6. Animal production
7. Agriculture
8. Forestry
9. External supply

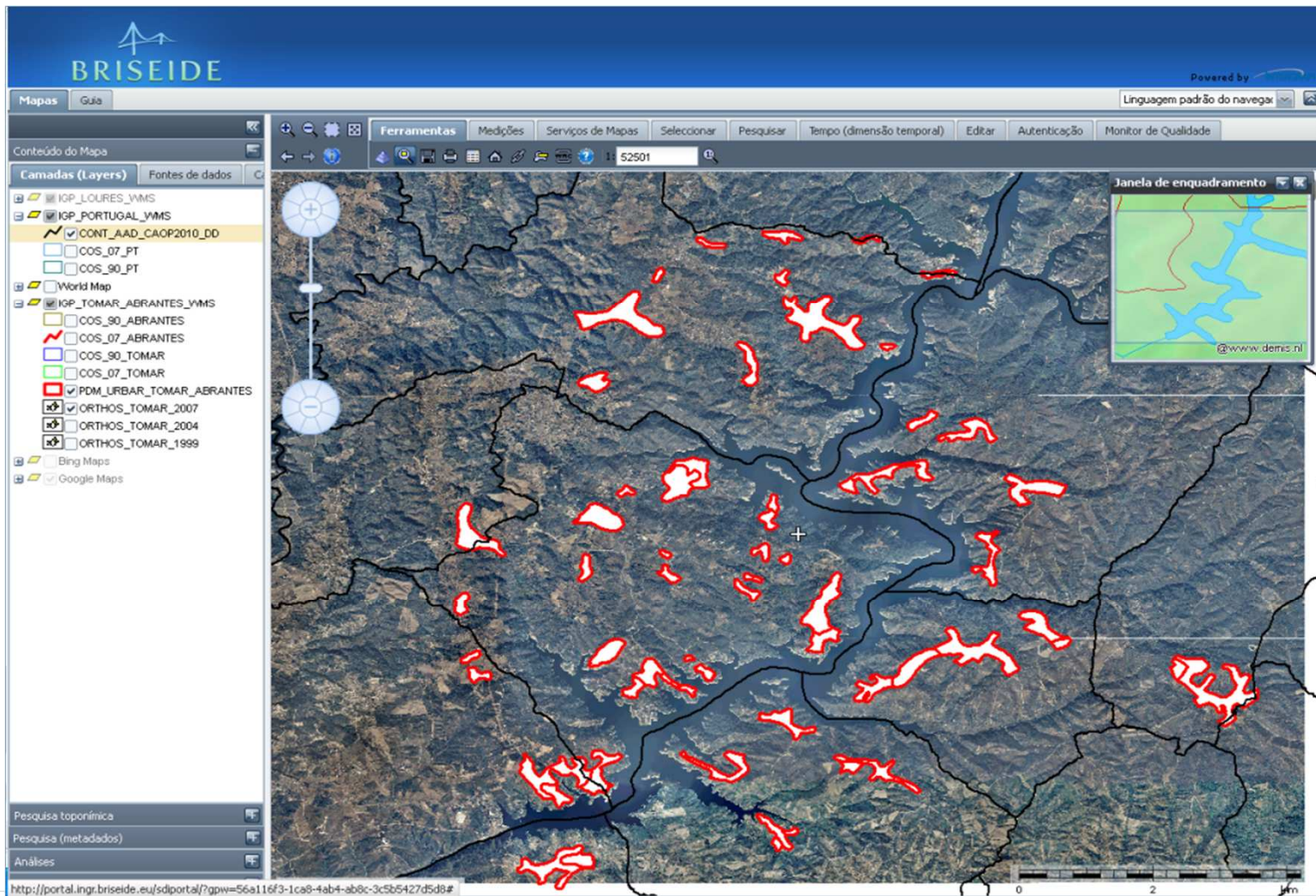


Water and land use management Schematic presentation: the relation between socioeconomic activities, geographical distribution, water catchment and water disposal within a watershed management overview. (Vale, M. J. 2009)

Monitor the effective development Information ... Data infrastructure ... Knowledge

3. Water and land management within IKM environments

BRISEIDE Project – The environmental quality indicators pilot



3. Water and land management within IKM environments

BRISEIDE Project – The environmental quality indicators pilot: water management improvements

■ **Project Aims**

- Develop web processes for geospatial application, by integrating temporal series of spatial data in open source Geographic Information Systems based applications
- Demonstrate the relevance of geographic information management to understand and improve users performance in monitoring natural or human induced hazards involving time series integration into web services
- Evaluate fitness for purpose of different available official datasets to deal with urban landscape evolution and how these different datasets evaluate the impact in water quality

3. Water and land management within IKM environments

BRISEIDE Project – The environmental quality indicators pilot

■ Datasets

- **Vector cartographic information** includes PDM (Municipality Director Plane), which allows users to monitor planning effectiveness (through the soil classification -rural and urban) towards preventing water contamination from sewage related to urban growth;
- **Portuguese land use maps** from 1990 to 2007;
- **Orthophotomaps from 1990 to 2010** which will allow users to evaluate evolution of housing in a more detailed approach;
- **Official statistics** related to housing and demographic alphanumeric series for the same time period, that evaluate housing and demography evolution associated with each municipality;
- **Official water quality data and water quality indicators**, both giving the more traditional approach to build impact evaluation indicators on environmental quality (DPSIDR Framework, EEA, (27/07/2007).

3. Water and land management within IKM environments

Ter-Água – A collaborative SDI example (copyright@mvale)

- **Project aims**

- Support integrated water management and land use planning in order to achieve sustainable development;
- Understand and improve current legal framework related to water management and space;
- Understand and improve current legal framework related to land use
- Understand the rationality of the cost-benefit approach related to water management – pricing water;
- Growing continually in knowledge - look for the optimal solution;
- Protect water supplies ensuring economic growth and efficiency in public governance.

3. Water and land management within IKM environments

Ter-Água – A collaborative SDI example (copyright@mvale)

- **Main components**

- Several dynamic datasets study related to data providers;
- Several collaborative tools to explore, analyse and improve these datasets;
- Search engines;
- Information management tools: GIS and SPSS;
- Metadata catalogues: to understand datasets available and be aware of their content and quality;
- Discussion Forum to promote knowledge based discussion – information quality;
-



Ter-água: Planeamento Integrado

Elaboração de planos: Elaboração/avaliação do POACBE
Fase da execução do trabalho: Consulta de diagnósticos

Ter-água: planeamento Integrado

Diagnósticos Seleccionados

1991/2000
1.1 Ocupação do solo
1.2 Ocupação solo/PDM/POACBE
1.3 Evolução qualidade/quantidade
RH 1991/2000

Enviar

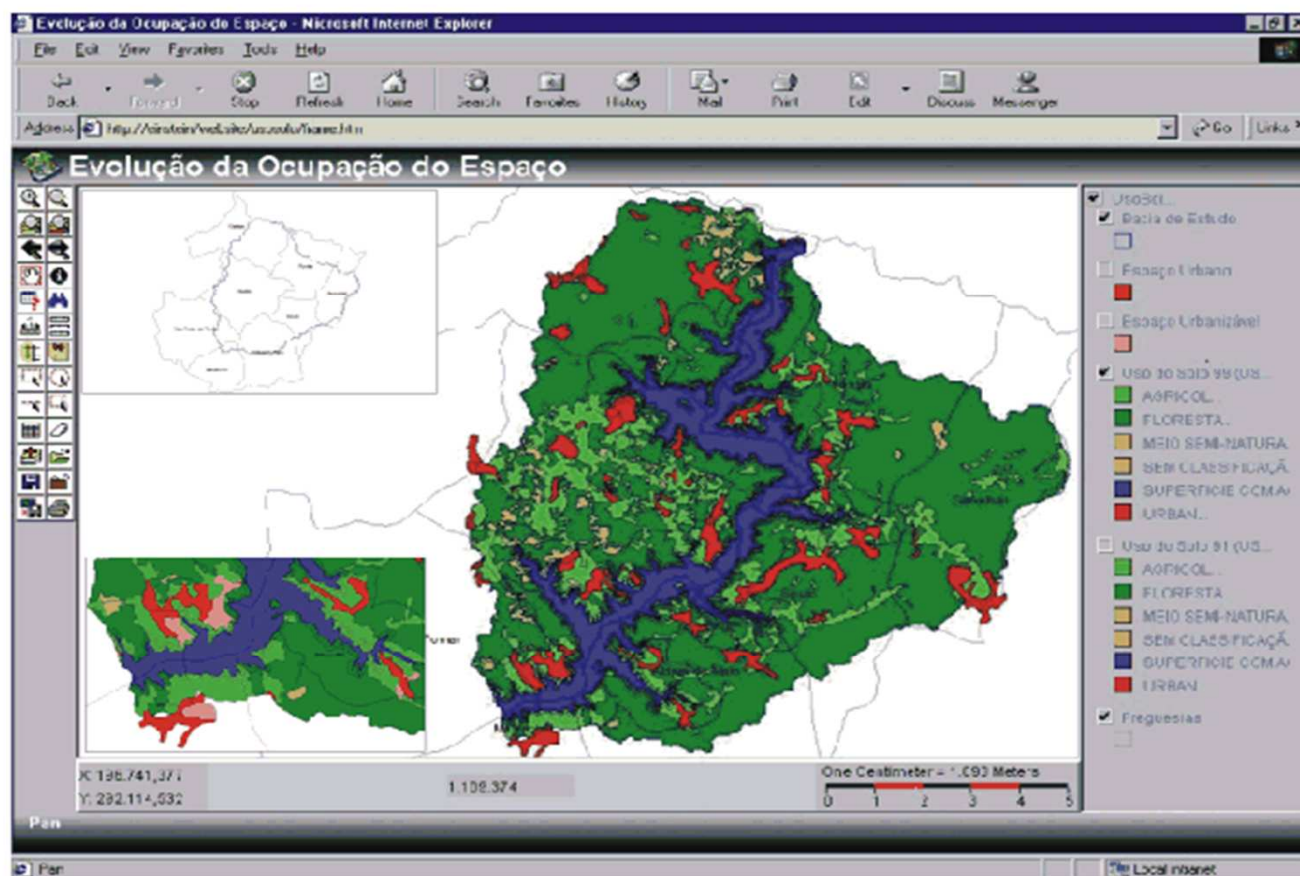
Novo diagnóstico

Diagnósticos disponíveis

Árvore de decisão

Metainformação

Pesquisa de Informação



Forum diagnósticos

Entidades envolvidas

Árvores de decisão



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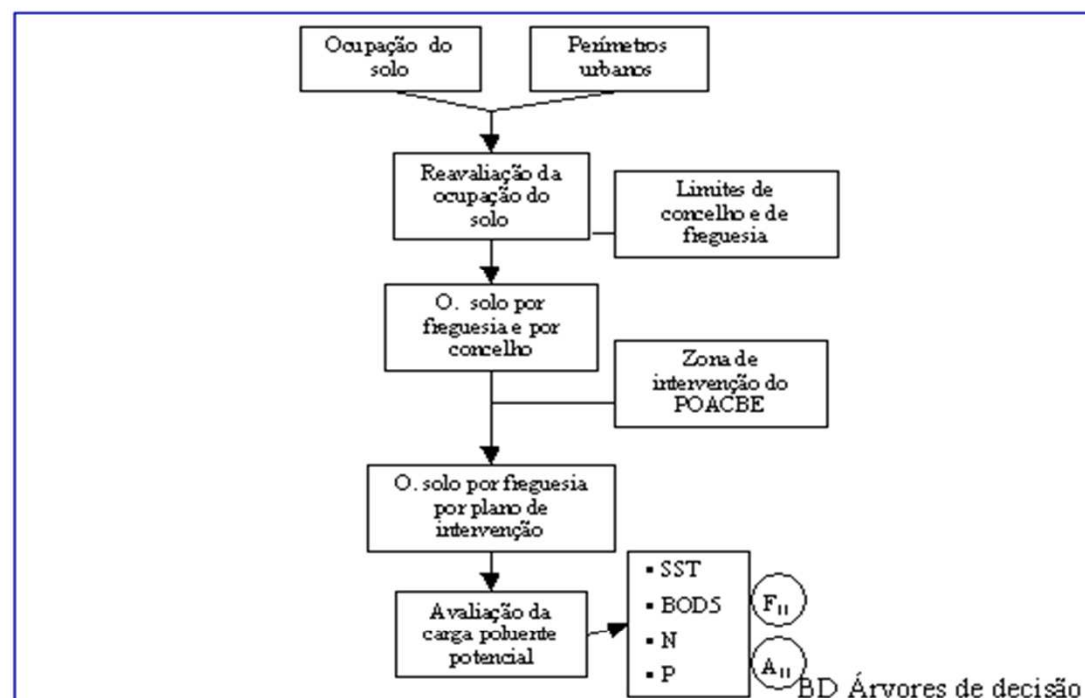
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MENU

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1998-05/2001 MAPA



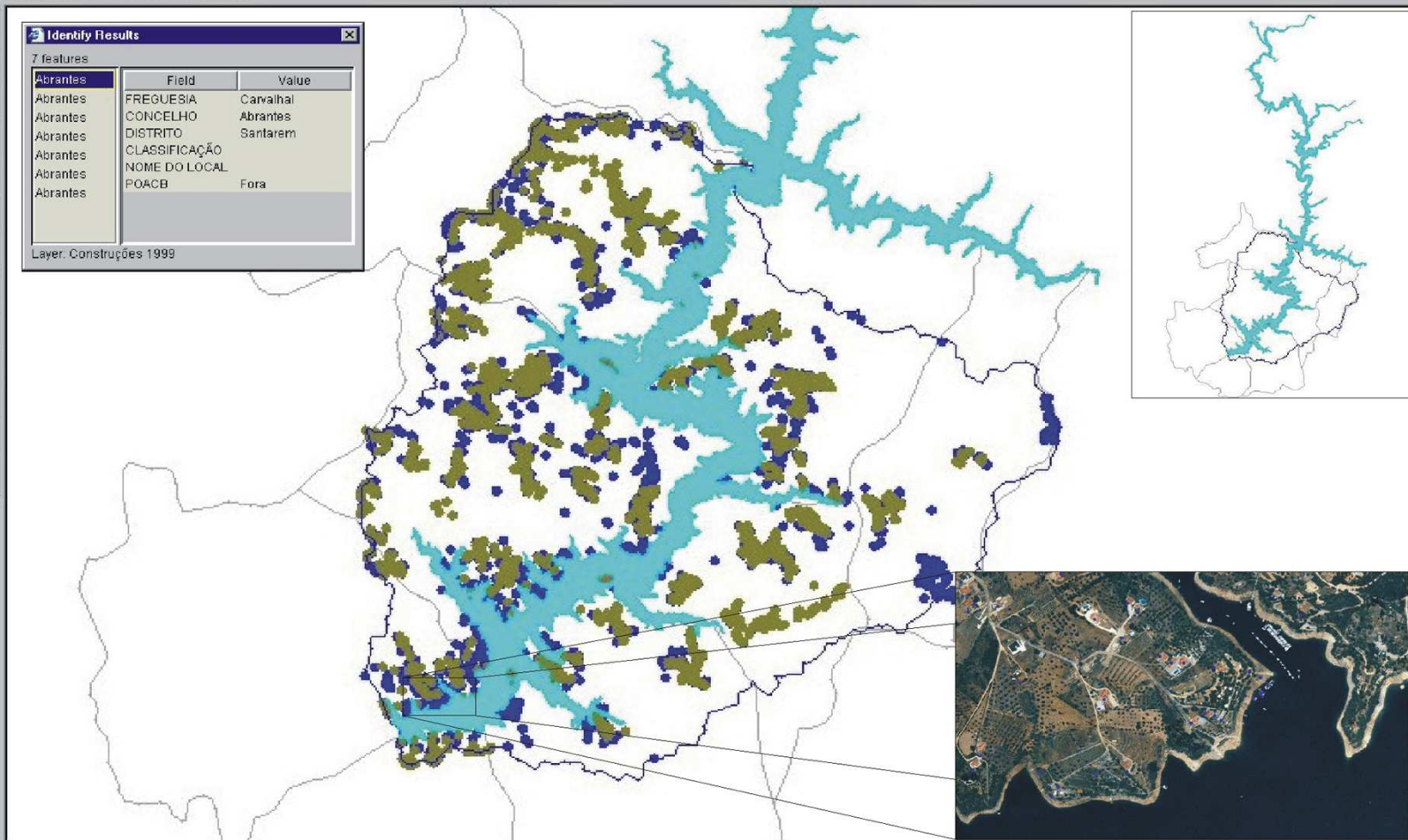
Construcoes

Identify Results

7 features

Field	Value
FREGUESIA	Carvalhal
CONCELHO	Abrantes
DISTRITO	Santarem
CLASSIFICAÇÃO	
NOME DO LOCAL	
POACB	Fora

Layer: Construções 1999



X: 202.055,922

Y: 289.259,951

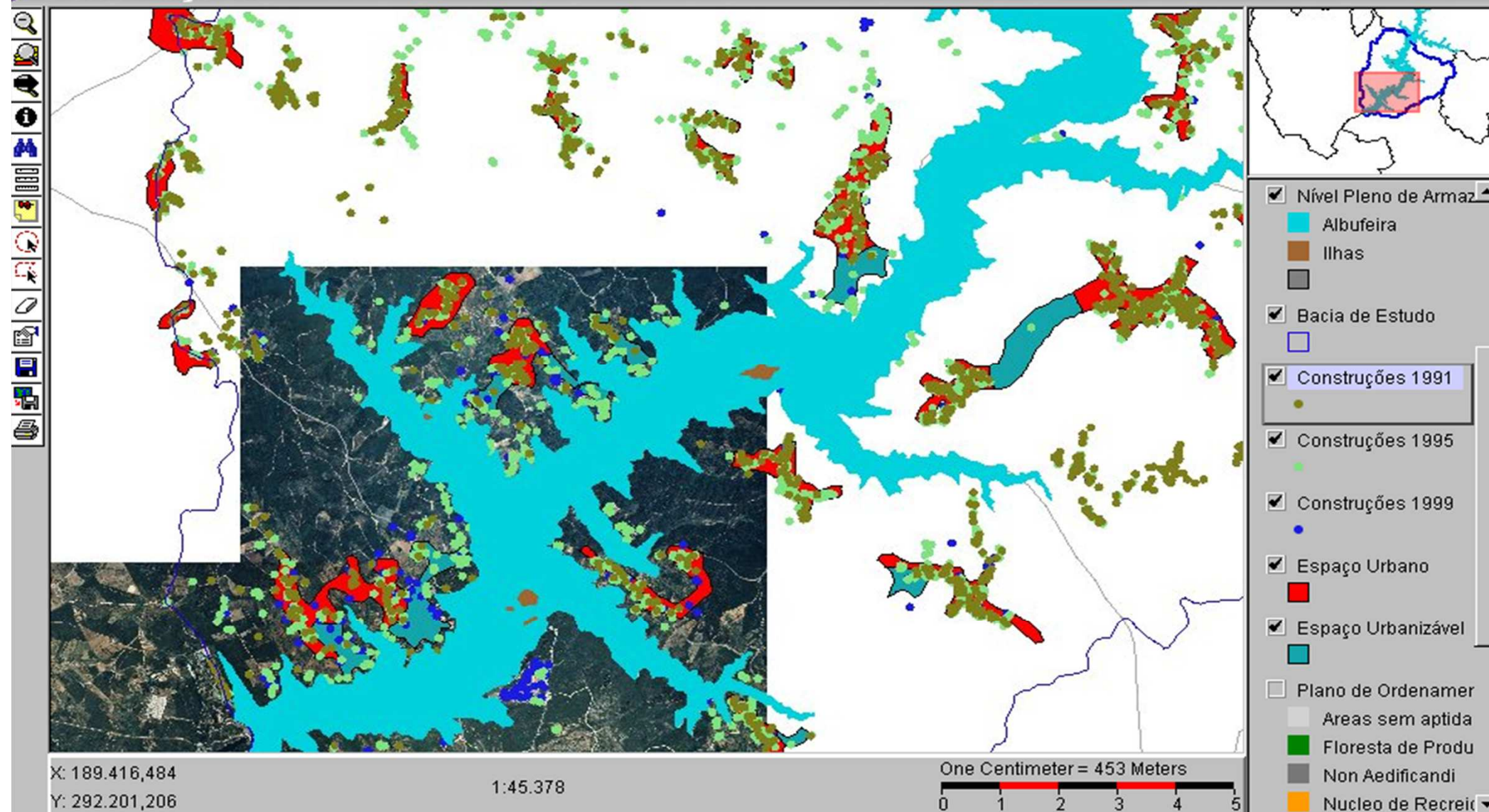
1:132.778

One Centimeter = 1.327 Meters



Identify

Construções



4. Conclusion- Future developments

- Water and landuse management are related and interfere with economic growth;
- Establishing a legal framework to cover water management and landuse related problems in a proper way is a very difficult task;
- Implementing, and monitoring this legal framework is also critical;
- INSPIRE'd IKM approaches require new business plans
- Dinamic Management - Adaptative development strategies integrating data sharing and increasing available knowledge;
- Informed collaboration of all stakeholders is essential
- Ethic- **information quality** to support each decision at different levels: juridical, technical, economical...

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Thank you
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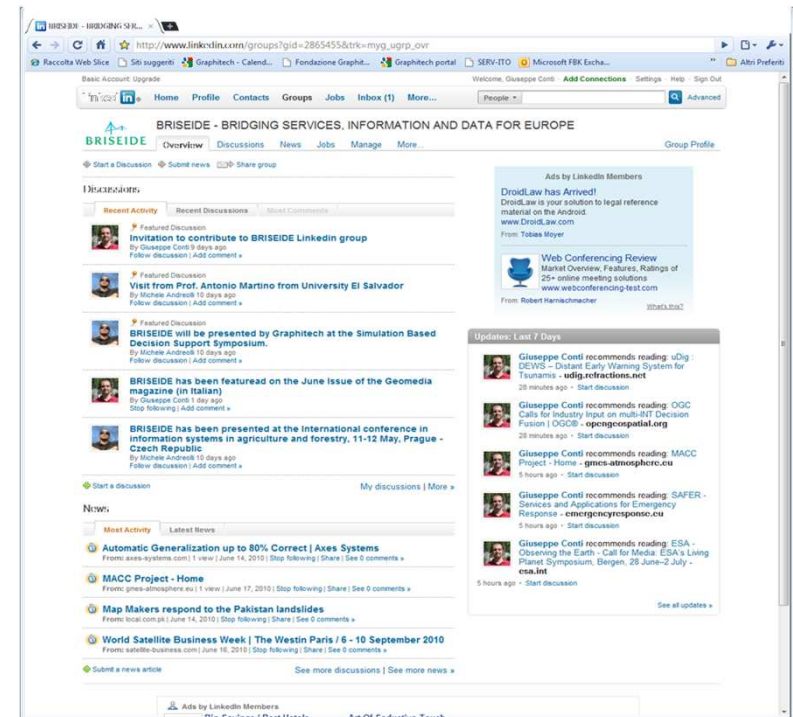
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