



Implementation of INSPIRE directive in Croatian Environment Agency - CEA

Marijo Vranaričić, Croatian Environment Agency
Branimir Pavlinec, Croatian Environment Agency



The INSPIRE Directive (Infrastructure for Spatial Information in the European Community)

- aims to create a European Union (EU) spatial data infrastructure.
- requires EU Member States to share 34 different spatial data themes through a set of network (web) services.
- better facilitate public access to spatial information across Europe.
- also, a European Spatial Data Infrastructure will assist in policy-making across boundaries.
- implementation have to be done according to 'Implementing Rules' which set out how the system will operate
- Therefore the spatial information considered under the directive is extensive and includes a great variety of topical and technical themes.



INSPIRE is based on:

- 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; detailed for thorough investigations, general for strategic purposes.
- Geographic information needed for good governance at all levels should be readily and transparently available.
- Easy to find what geographic information is available, how it can be used to meet a particular need, and under which conditions it can be acquired and used.



Croatian Environment Agency - CEA

- established 2002
- has the obligation to:
 - collect, analyse and interpret the environmental data
 - provide the information necessary to implement the environmental policy efficiently to the state administration, the Government and the Parliament
 - preparing reports for both national and international needs
 - establish, develop and maintain Croatian Environment Information System – CEIS
 - All of this responsibilities are defined by law





Croatian Environmental Information System – CEIS

- **Environmental Protection Act** (OG No. 82/94, 128/99, 110/07)
- **By - law on Environmental Information System** (OG No. 68/08)
- **Croatian Environment Information System Development Program** for the period 2009-2012



With this approach, the Republic of Croatia has defined a path for creating a unique EIS which connects all existing data and information about the environment, acknowledging the principles:

- of editing information closest to the primary data source,
- acquiring the information once and distributing it among other participants of the system for various purposes,
- ensuring an easier approach to the information to the end user, primarily the bodies of the government of the Republic of Croatia for the needs of the direction of the environment protection policy and monitoring of its implementation, as well as for scientific, expert and general public needs.



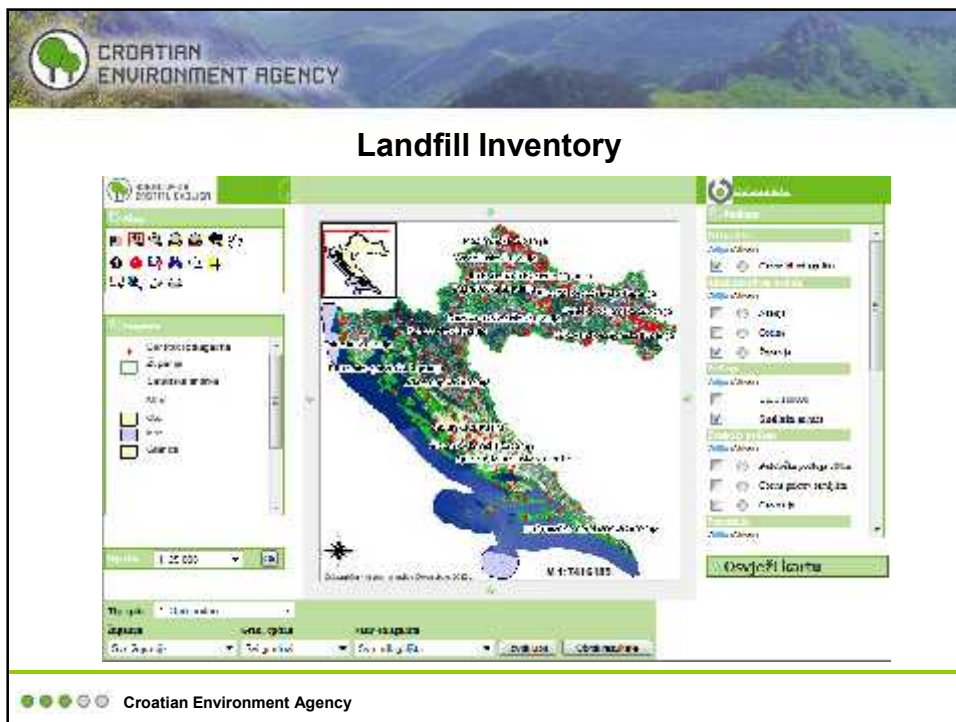
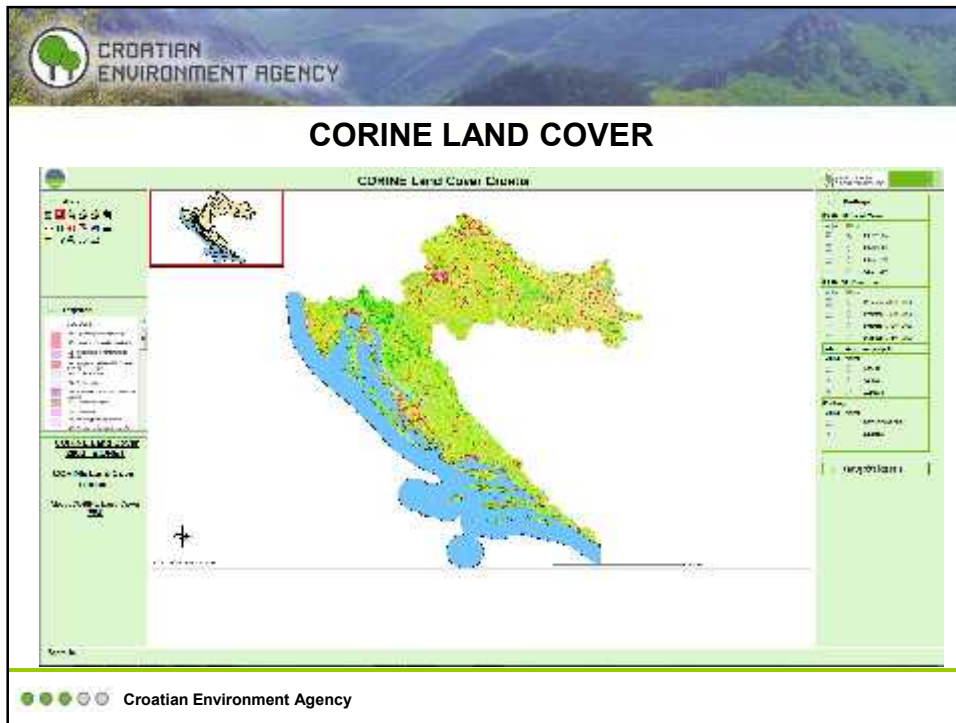
Implementation of INSPIRE directive in CEA

- Taking into consideration the INSPIRE Directive that is about to come to full power in Croatia, CEA is studying the specifications of data themes, both from *Annex I* that is already in power and *Annexes II and III* that are still in draft specifications
- Out of 34 INSPIRE data themes CEA recognizes its responsibility for:
 - Annex II: **Land Cover**
 - Annex III: Soil, **Land use**, Human health and safety, Utility and governmental services, **Environmental monitoring facilities, Area management/restriction/regulation zones and reporting units (part Waste)**



Implementation of INSPIRE directive in CEA

- CEA is involved in producing and/or maintenance of databases on various aspects of environment.
- not all, but many of them have a geospatial component as an important aspect which must be taken into consideration.
- Some of the datasets with geographic reference that CEA is responsible for are:
 - Corine Land Cover
 - Landfill Inventory
 - Environmental Pollution Registry (EPR)





Implementation of INSPIRE directive in CEA

There are also other GIS projects that CEA is involved in building the WEB GIS GEOPORTAL for environmental protection with components:

- WEB GIS system for Air Quality Database,
- WEB GIS system for Map of noise exposure,
- WEB GIS system for Maps of exploitation and exploration of mineral resources field
- WEB GIS system for Sea bathing water quality on beaches in the Republic of Croatia and others....
- WEB GIS portal for sharing the satellite and HR layers (agreement with ESA)
- METADATA portal



- CEA employees are also active in NSDI bodies in Croatia – WG for linking the NSDI program with e-Government.



WEB GIS portal for sharing the satellite images and HR layers

CEA – have signed agreement with European Space Agency – ESA (for Corine Land Cover 2012 update project)

CEA will publish following CORE datasets:

- DWH_MG2_CORE_01: Optical HR Pan EU coverages 2011/2012
 - Coverage 1: HR2 with SWIR and VNIR - IRS-P6/ Resourcesat-2; Atlantic Islands, Azores/Canaries, Iceland and French DOM areas by Spot-4/5 (23.5m not orthorectified/20m/25m orthorectified)
 - Coverage 2: HR1 with VNIR (including red-edge) - Rapideye constellation (6.5m not orthorectified/5m/20m/25m orthorectified)
- DWH_MG2_CORE_02: DAP_MG2-3_01 Access to former pan EU coverage archives
 - Image 2009: majority of IRS-p6/Resourcesat-1 with gap filling and Atlantic Islands Azores/Canaries and French DOM areas by Spot-4/-5.
 - Image 2006: composed of both IRS-P6/Resource-1 and Spot -4/-5.
 - HR2 (23.5m and 20m not orthorectified//20m and 25m orthorectified), SWIR, VNIR.

- DWH_MG2b_CORE_03: Optical VHR2 coverage over EU 2011-2013
 - Optical very high resolution multispectral:
 - SPOT-5 at 2.5m pan-sharpened or bundle & FORMOSAT
 - VHR2 (2.5m pansharpened, 2m pansharpened) VNIR.
- DWH_MG3_CORE_04: Optical worldwide LR coverage
 - Optical low resolution multispectral i.e SPOT VGT, MR2 (>100m and <=300m) LR (>300m) VNIR, SWIR
- DWH_MG3_CORE_06: Optical worldwide MR coverage
 - Optical low resolution multispectral i.e SPOT VGT, MR2 (>100m and <=300m) LR (>300m) VNIR, SWIR
- DWH_MG2-3_CORE_08: European Monthly MR composites 2011-2012
 - Monthly coverages optimised as cloud-free as possible with individual products, ranging from the first to the last day of a given month, during March to October; Spatial Resolution 60m (AWiFS)

High-resolution land cover layers:

- **HR Layer Imperviousness**
 - Input data: IRS-P6 LISS-III, SPOT4-5 (Image2006-2009)
- **HR Forest layer**
 - Input data: IRS-P6 AWiFS / Image2006-2009
- **HR Layer Agricultural (Grassland)**
 - Input data: multitemporal IRS-P6 AWiFS
- **HR Layers Wetland**
 - Input data: multitemporal IRS-P6 AWiFS, Image2009-2006
- **HR Layer Water bodies**
 - Input data: multitemporal IRS-P6 AWiFS, Image2009-2006

All of this data (satellite and HR layers) will be available through the WMS services

Implementation of INSPIRE directive in CEA

CEA also use exiting services such are:

Digital Orthophoto (DOP) WMS from State Geodetic Administration - SGA and has developed a prototype application for:

- Corine Land Cover
- Landfill Inventory

with DOP WMS as the basic layer.



CEA are working on the other projects implementation such as:

- Ministry Of Finance - Tax Administration:
 - Web services: use for exchange data about a personal identification number - OIB
- Paying Agency for Agriculture, fisheries and rural development:
 - Web services: use to connect with their databases (e.g. Land Parcel Identification System - LPIS)
- Use of web services for the various registers that applications in CEA use

On the other hand, CEA is going to participate in SDI by publishing services first of all WMS, with the data from its domain of responsibility, such as Corine Land Cover WMS, HR layers, Satellite images, but also for all public data from all databases within the CEA ...

Another way of CEA contribution to NSDI Croatia development is translation of European Environmental Thesaurus GEMET, which is used as a domain field for keywords in spatial metadata records according to INSPIRE.



Implementation of INSPIRE directive in CEA

Croatian Environment Agency vision for the future is:

- that spatial data are used/shared as any other infrastructure
- the services are expected to be:
 - available,
 - Up-to-date
 - ready to use,
 - standardized, and
 - participation in the data exchange regulated flexibly among NSDI stakeholders, along with the business model for its economic sustainability.

Thank you

Croatian Environment Agency
Trg maršala Tita 8
10 000 Zagreb
Croatia
Phone: ++385 1 488 68 40
Fax: ++385 1 488 68 50
E-mail: info@azo.hr



www.azo.hr