



WP3 - Common resources for a territorial planning analysis and strategy



Common Territorial Database – SmartCover Common Reference Land Cover Data and Smart GeoPortal

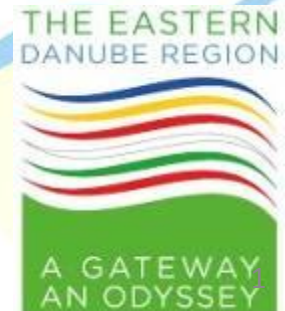
THE REQUIRED BASIS FOR SMART AND RESILIENT MANAGEMENT OF THE EU MACRO-REGIONAL STRATEGIES

Presentation of:

**PP9 - Agency of Sustainable Development and Eurointegration
- Ecoregions /ASDE/**

/Kristian Milenov, Zlatomir Dimitrov/

**Final Conference – Common Strategy for Sustainable Territorial
Development of the Cross-Border Area Romania-Bulgaria – Next Steps
6th of August 2015, Bucharest, Romania**





Content:

I. PP9 results and WP3 achievements

II. Relevance to the draft Common Strategy

III. Next steps, within the context of EU macro-regional strategies



I.1.Presentation of the WP3 results

Main deliverables and achievements from ASDE

- Common spatial data model and methodology
- Common reference ISO-based land cover/land use dataset
- SmartCover Architecture and Web Geo-portal
- Common methodology for regular territorial monitoring
- Coordination and technical support with the European Commission DG JRC
- Synergy with other national and EU projects
- First extensive use of COPENICUS EO and in-situ (LPIS) data
- Test-bed for INSPIRE harmonisation at trans-national level
- “Best practice” in the context of the JRC Danube Reference Data Service Infrastructure (DRDSI), developed by the European Commission
- Proposed package of pilot projects
fostering trans-border strategy planning, operational management and regular monitoring capacity
- Built-up of operational capacity base of Bulgaria and Romania
for strengthening resilience and more efficient use of regional funds



I.2.Core Element of the Common Territorial Database



Reference land cover layer (ISO 19144-2)

Uniquely defined geo-referenced units of territorial management, holding the information on land cover and land use.

Created and updated on the base of:

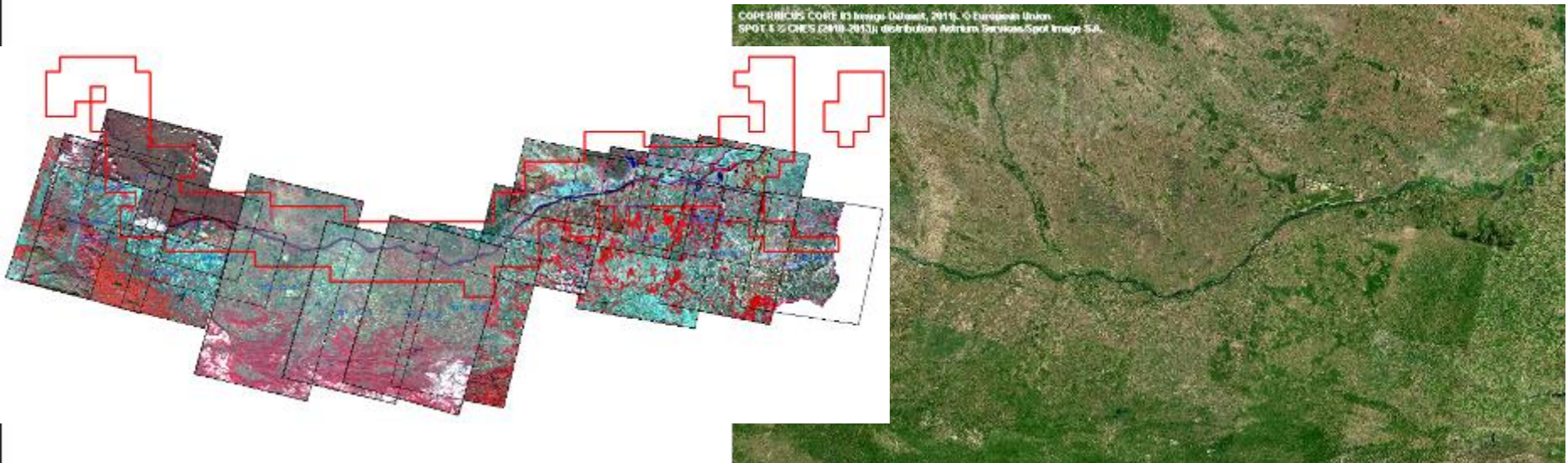
- ❑ Classification concepts of ISO 19144-2 (Land Cover Meta Language – LCML). Modeling concept of TEGON from MARS Unit of JRC
- ❑ Best management practices from the Land Parcel Identification System (LPIS) that channels all EU area-based aids in agriculture
- ❑ COPENICUS CORE satellite image and GIO HRL datasets in combination with in-situ data (LPIS, aerial orthophotos)
- ❑ Methodology elaborated in collaboration with the MARS Unit of the Joint Research Centre of the European Commission
- ❑ Data support from Digital Earth and Reference Data Unit of JRC



I.3. Common Reference LC/LU layer Copernicus Core Dataset 001



RapidEye Imagery 2011-2012



ASDE has signed an agreement with ESA regarding authorized access of **GMES Space Component Data Access (GSC-DA)**.

- **CORE 001** – RapidEye Archive 2011/2012
- **CORE 003** – SPOT 5 (mosaic provided by JRC)
- **Global component** – bio-physical parameters

GIO High Resolution Layers

Grassland, Wetlands,

- Water-bodies,
- Forest Type and Tree Cover Density,
- Imperviousness

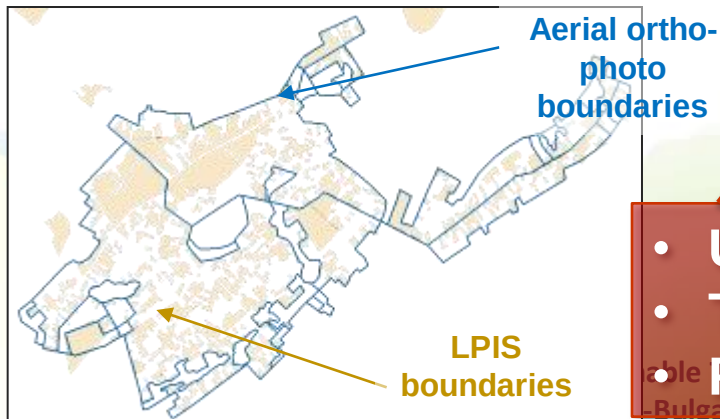




I.4.Land Parcel (LPIS) and “urban brick”



Approach of using LPIS gives effective units for managing territory, risk and resources



Aerial ortho-
photo
boundaries

LPIS
boundaries

- Uniquely identified
- Traceable
- Renewable



I.5. LC class generation following INSPIRE & LCML

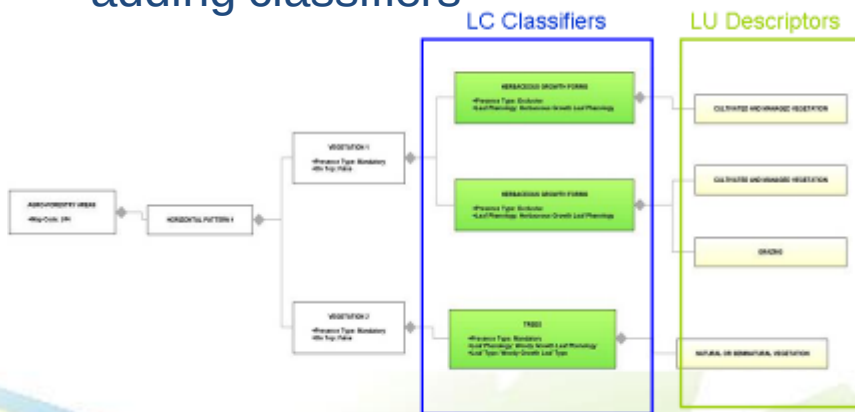


Increase the number of classifiers

Increase the number of LC classes

Bioclimatic	Life Form	Life Form (Two/Three) Surface Type and Dominance	Leaf Type and Phenology/ Artificial Surface Index	Seasonal pattern/Vertical Stress	Vegetation Artificiality	Waterlogging	Topographic aspect/Altitude	Water Supply Method (Irrigated/Drained)	Life Form (Grassland/Forbs)	Water Salinity	Water Artificiality
Bare (Degraded)	Herbaceous Vegetation	Herbaceous Vegetation	Annual/ Biennial Herbaceous Vegetation	Annual/ Biennial Herbaceous Vegetation	Artificial land	Artificial land	Artificial land	Artificial land	Artificial land	Artificial land	Artificial land
Moist (Open Vegetation)	Woody Vegetation	Woody Vegetation	Perennial Herbaceous Vegetation	Perennial Herbaceous Vegetation	Managed Grassland	Managed Grassland	Managed Grassland	Managed Grassland	Managed Grassland	Managed Grassland	Managed Grassland
	Lichen/Moss	Lichen/Moss	Broadleaf Deciduous Forest	Broadleaf Deciduous Forest	Paddy Rice Field	Paddy Rice Field	Paddy Rice Field	Paddy Rice Field	Paddy Rice Field	Paddy Rice Field	Paddy Rice Field
	Artificial Bare Surface	Artificial Bare Surface	Broadleaf Evergreen Forest	Broadleaf Evergreen Forest	Natural Grassland	Natural Grassland	Natural Grassland	Natural Grassland	Natural Grassland	Natural Grassland	Natural Grassland
	Natural Bare Surface	Natural Bare Surface	Coniferous Forest	Coniferous Forest	Tree Crop	Tree Crop	Tree Crop	Tree Crop	Tree Crop	Tree Crop	Tree Crop
	Water body surface	Water body surface	Artificial non-build up surface	Artificial non-build up surface	Waterlogged Forest	Waterlogged Forest	Waterlogged Forest	Waterlogged Forest	Waterlogged Forest	Waterlogged Forest	Waterlogged Forest
			Scrubland	Scrubland	Broadleaf Deciduous Forest	Broadleaf Deciduous Forest	Broadleaf Deciduous Forest	Broadleaf Deciduous Forest	Broadleaf Deciduous Forest	Broadleaf Deciduous Forest	Broadleaf Deciduous Forest
			Continuous urban fabric	Continuous urban fabric	Broadleaf Evergreen Forest	Broadleaf Evergreen Forest	Broadleaf Evergreen Forest	Broadleaf Evergreen Forest	Broadleaf Evergreen Forest	Broadleaf Evergreen Forest	Broadleaf Evergreen Forest
			Artificial non-build up surface	Artificial non-build up surface	Coniferous Forest	Coniferous Forest	Coniferous Forest	Coniferous Forest	Coniferous Forest	Coniferous Forest	Coniferous Forest
			Consolidated bare surface	Consolidated bare surface	Mixed Broadleaf and Coniferous Forest	Mixed Broadleaf and Coniferous Forest	Mixed Broadleaf and Coniferous Forest	Mixed Broadleaf and Coniferous Forest	Mixed Broadleaf and Coniferous Forest	Mixed Broadleaf and Coniferous Forest	Mixed Broadleaf and Coniferous Forest
			Unconsolidated bare surface	Unconsolidated bare surface	Woodland	Woodland	Woodland	Woodland	Woodland	Woodland	Woodland
			Water courses	Water courses	Urban Vegetated Areas	Urban Vegetated Areas	Urban Vegetated Areas	Urban Vegetated Areas	Urban Vegetated Areas	Urban Vegetated Areas	Urban Vegetated Areas
			Permanent ice and Snow	Permanent ice and Snow	Association of herbaceous and woody crops	Association of herbaceous and woody crops	Association of herbaceous and woody crops	Association of herbaceous and woody crops	Association of herbaceous and woody crops	Association of herbaceous and woody crops	Association of herbaceous and woody crops
					Artificial build up network	Artificial build up network	Artificial build up network	Artificial build up network	Artificial build up network	Artificial build up network	Artificial build up network
					Unconsolidated bare surface	Unconsolidated bare surface	Unconsolidated bare surface	Unconsolidated bare surface	Unconsolidated bare surface	Unconsolidated bare surface	Unconsolidated bare surface
					Water bodies	Water bodies	Water bodies	Water bodies	Water bodies	Water bodies	Water bodies
					Permanent ice and Snow	Permanent ice and Snow	Permanent ice and Snow	Permanent ice and Snow	Permanent ice and Snow	Permanent ice and Snow	Permanent ice and Snow

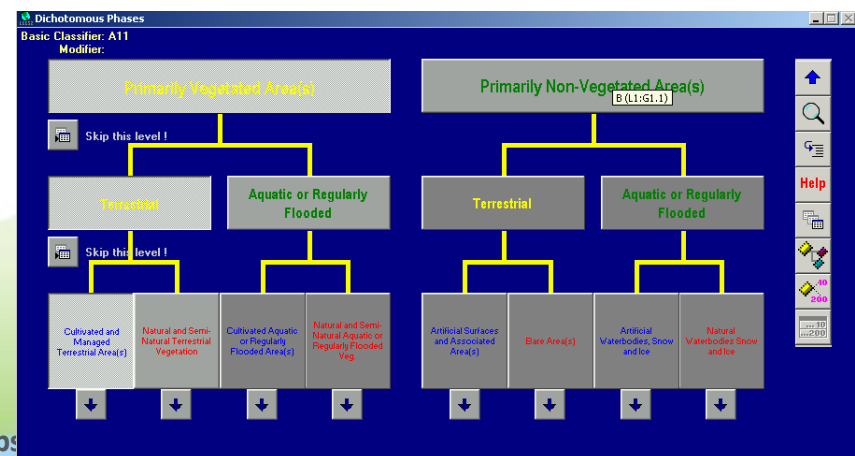
Growth of legend by adding classifiers



ISO 19114-2 Land Cover Meta Language (LCML)

- equal (missing hierarchy)
- independent of scale and cartographic product
- correct representation of the real world
- fully exhaustive list of classes
- classes mutually exclusive
- based solely on land cover
- described through LCML
- in compliance with Annex F or INSPIRE DS on Land Cover



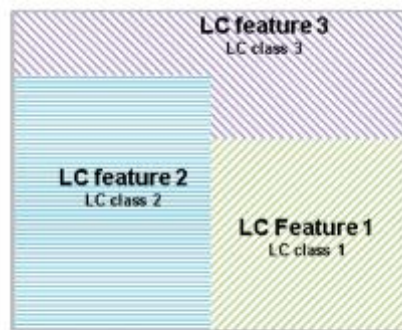
[illegible]



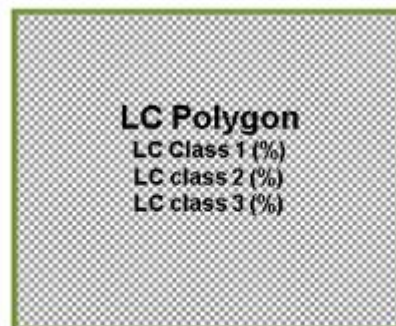
I.6. Class Conversion of FAO LCCS database Romania (2)



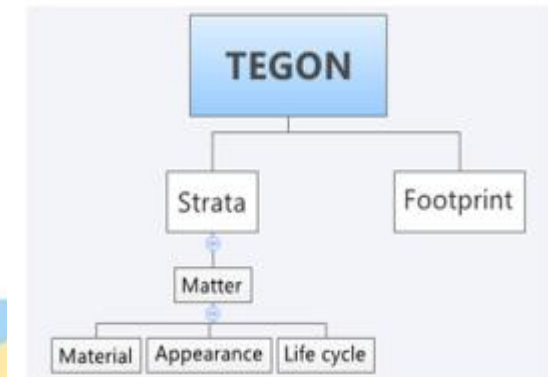
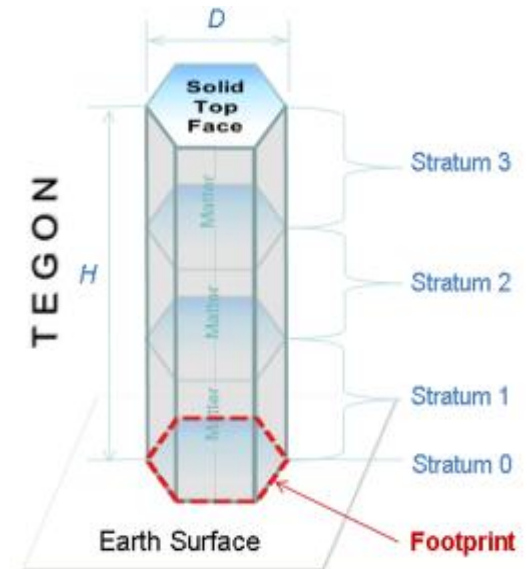
1. Import LCCS Class from FAO Legend
2. Decompose the LCCS class using TEGON concept
 1. Analyze the presence of cartographic or functional mix
 2. Filter out land use descriptors
3. Design of LC type (polytegon) with LCML
4. Convert relevant spatial data to the new LC type



Graphical representation of the real world (1:1)
(through the interpretation of the observation)



Graphical representation of the real world (1:100 000)
(observation instance of the Earth surface)





I.7. Project deliverables



Two adjacent spatial datasets for the Bulgarian and Romanian part of the cross-border cooperation (CBC) project area

- ☐ Both layers fully interoperable following the INSPIRE principles
- ☐ Common specification ensuring efficient cross-border analysis and reporting
- ☐ Classification coherence ensured by the use of standardized semantic language
- ☐ Provided through Web-based geo-service
- ☐ 85% thematic accuracy of the land cover data





I.8.Spatial Data Base Structure



Thematic Layers, structured in thematic groups (Romanian data was kindly provided by MRDPA)

Thematic group: AU (Administrative Unit)	
BG_AU_NUTS0	
BG_AU_NUTS1	
BG_AU_NUTS2	
BG_AU_NUTS3	
BG_AU_LAU1	
BG_AU_LAU2	
BG_AU_Settlement	
BG_AU_Settlement_pnt	
RO_AU_NUTS0	
RO_AU_NUTS1	
RO_AU_NUTS2	
RO_AU_NUTS3	
RO_AU_LAU2	
RO_AU_Settlement	
RO_AU_Settlement_pnt	

Thematic group: TN (Transport Network)	
BG_TN_Road	
BG_TN_Railway	
BG_TN_TransportNode	
RO_TN_Road	
RO_TN_Railway	
RO_TN_TransportNode	
Thematic group: HY (Hydrography)	
BG_HY_Watercourse_pln	
BG_HY_Watercourse	
BG_HY_StandingWater	
RO_HY_Watercourse_pln	
RO_HY_Watercourse	
RO_HY_StandingWater	

Thematic group: LC (Land Cover)	
BG_LC_LCCS	
BG_LC_LCCS_Ruse	
RO_LC_LCCS	
RO_LC_LCCS_Giurgiu	
Thematic group: SO (Soil)	
BG_SO_SoilDerivedObject	
RO_SO_SoilDerivedObject	

Thematic group: PS (Protected Site)	
BG_PS_ProtectedSite	
BG_PS_ProtectedSite_pnt	
RO_PS_ProtectedSite	
RO_PS_ProtectedSite_pnt	
Thematic group: ST (Statistics)	
BG_ST_Population_LAU2	
RO_ST_Population_LAU2	



I.9.Nomenclature Land Cover -1



№	LC Map Code	CLASS EN	CLASS BG
1	A	Arable land	Обработваеми земи
2	G	Managed grassland	Обработваеми (засаждани) тревы
3	R	Paddy rice field	Оризиса
4	N	Natural grassland	Естествени тревы
5	T	Tree crop	Насаждения от плодни дървета
6	P	Tree plantation	Насаждения от неплодни дървета
7	BDF	Broadleaf deciduous forest	Широколистни листопадни гори
8	BEF	Broadleaf evergreen forest	Широколистни вечнозелени гори
9	CF	Coniferous forest	Иглолистни гори
10	BCF	Mixed broadleaf and coniferous forest	Смесени широколистни и иглолистни гори
11	WLF	Waterlogged forest	Постоянно заблатени гори
12	WD	Woodland	Смесица от дървета, храсти и тревы (в различна страта)
13	UV	Urban vegetated areas	Градска растителност
14	AHT	Association of herbaceous and woody crops	Асоциация от тревисти и дървесни земеделски култури
15	ACT	Association of crops and natural trees	Асоциация от земеделски култури и естествени дървета
16	S	Shrub crop	Насаждения от плодни храсти





I.9.Nomenclature Land Cover - 2



№		CLASS EN	CLASS BG
17	SL	Scrubland	Смесица от храсти и трева в различна страта
18	WV	Waterlogged vegetation	Постоянно заблатена тревиста и храстова растителност
21	UBD	Discontinuous urban fabric	Неплътна урбанизирана структура
22	FUF	Fragmentary urban fabric	Фрагментарна урбанизирана структура
23	UBS	Artificial build up surface	Изкуствени/Антропогенни застроени площи
24	UBN	Artificial build up network	Изкуствени/Антропогенни застроени линейни обекти
25	BSC	Consolidated bare surface	Консолидирани естествени голи повърхности
26	BSN	Unconsolidated bare surface	Неконсолидирани естествени голи повърхности
27	RVR	Rivers	Реки
28	CHN	Channels	Канали
29	WR	Reservoirs	Язовири
30	WL	Lakes and impoundments	Езера и водоеми
31	CAG	Covered agriculture area	Покрити земеделски площи

Unique INSPIRE harmonized land cover classes for both Bulgaria and Romania!



I.10. Harmonization according INSPIRE



General scheme to maintain the common nomenclatures

□ national nomenclatures and their INSPIRE equivalents are simultaneously provided

bg_nom_code bg_code bg_name

BG_TN_000 0 x

BG_TN_100 0

BG_TN_101 0 NoData

BG_TN_101 1 bicycleRoad

BG_TN_101 2 dualCarriageway

BG_TN_101 3 enclosedTrafficArea

BG_TN_101 4 entranceOrExitCarPark

BG_TN_101 5 entranceOrExitService

BG_TN_101 6 freeway

BG_TN_101 7 motorway

BG_TN_101 8 pedestrianZone

BG_TN_101 9 roundabout

BG_TN_101 10 serviceRoad

National
[CodeList]

h_nom_code h_code

x x

INSPIRE Enumerations
[CodeList]

HG_TN_101 0

HG_TN_101 1

HG_TN_101 2

HG_TN_101 3

HG_TN_101 4

HG_TN_101 5

HG_TN_101 6

HG_TN_101 7

HG_TN_101 8

HG_TN_101 9

HG_TN_101 10

h_nom_code	h_code	h_name
HG_TN_000	0	x
HG_TN_100	0	
HG_TN_101	0	NoData
HG_TN_101	1	bicycleRoad
HG_TN_101	2	dualCarriageway
HG_TN_101	3	enclosedTrafficArea
HG_TN_101	4	entranceOrExitCarPark
HG_TN_101	5	entranceOrExitService
HG_TN_101	6	freeway
HG_TN_101	7	motorway
HG_TN_101	8	pedestrianZone
HG_TN_101	9	roundabout
HG_TN_101	10	serviceRoad
HG_TN_101	11	singleCarriageway

No	Тип	Вид	Имя на поле (в БД)	Имя на поле визуализации	Тип на поле / Длина / Домены	INSPIRE	SLD
1	D	X	CountryCode	CountryCode	string 2, domain: 'BG', 'RO'	да	не
2	D	X	NationalRailwayCode	NationalRailwayCode	string 20	да	не
3	D	X	NationalRailwayName	NationalRailwayName	string 100	да	не
4.1.4.2	D	XN	NationalRailwayClass_NAT	RailwayClass_NAT	short integer domain: BG_TN_201; RO_TN_201	не	не
4.3.4.4	C	XN	TrackGaugeCategory	TrackGaugeCategory	short integer domain: HG_TN_201	да	да
5.1.5.2	D	XN	RailwayFacility_NAT	RailwayFacility_NAT	short integer domain: BG_TN_202; RO_TN_202	не	не
	D		BeginLifeSpan	BeginLifeSpan	date	да	не
	D		EndLifeSpan	EndLifeSpan	date	да	не
	D		Source	Source	string 100	не	не
	D		CrossBorder	CrossBorder	short integer domain: 0,1	не	не
9	D	X	Length_m	Length_m	double	не	не

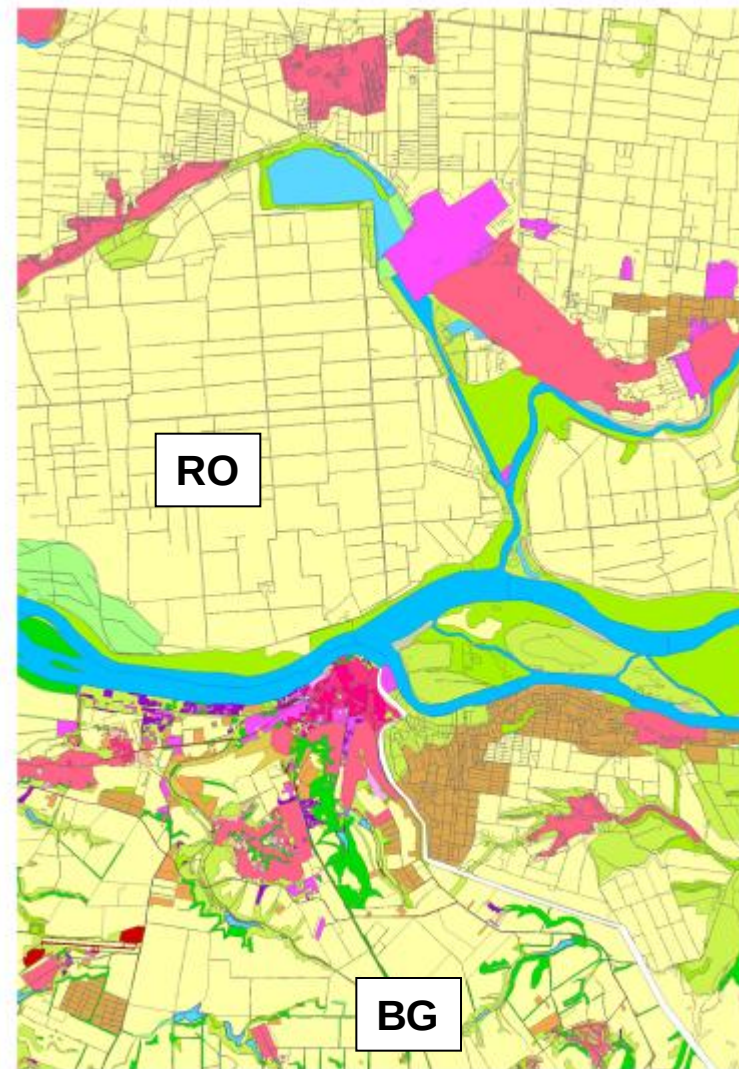
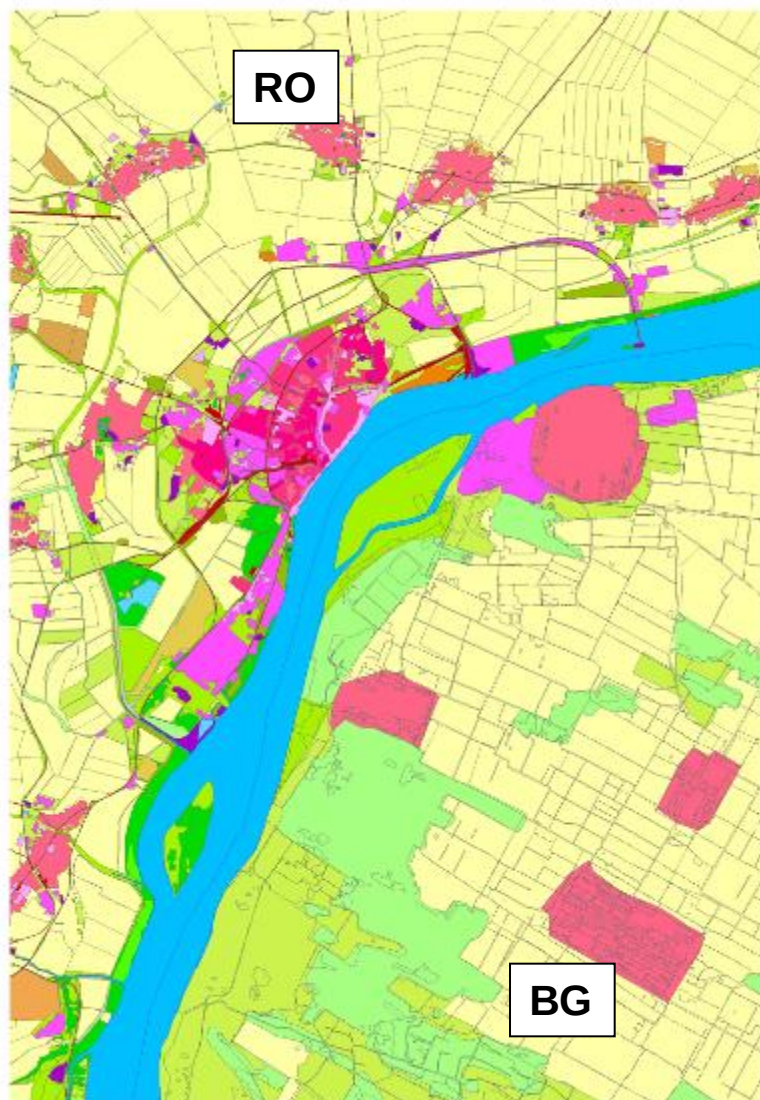


Depicted by
SmartCover Dictionary!





I.11. Common Reference Land Cover



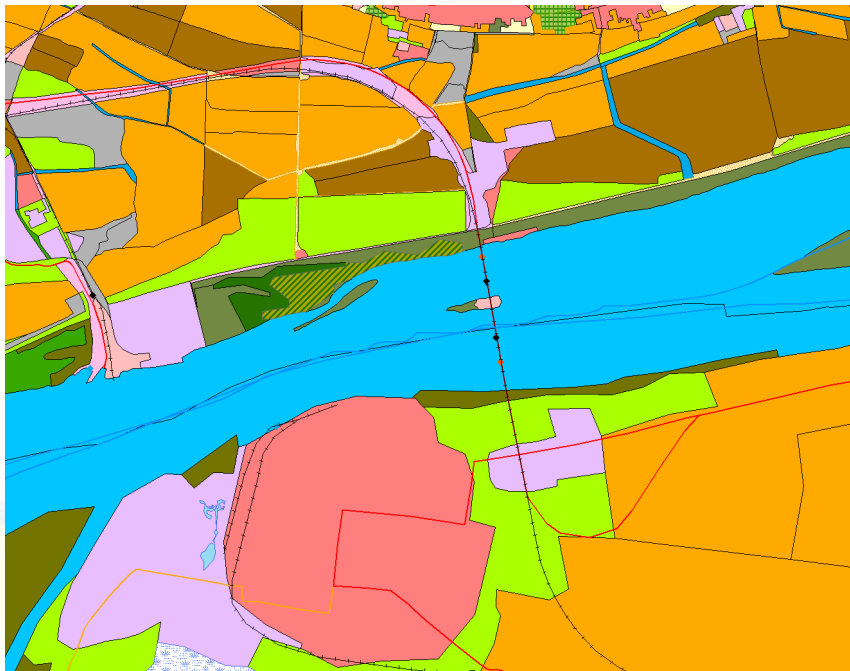


I.12.Positional alignment

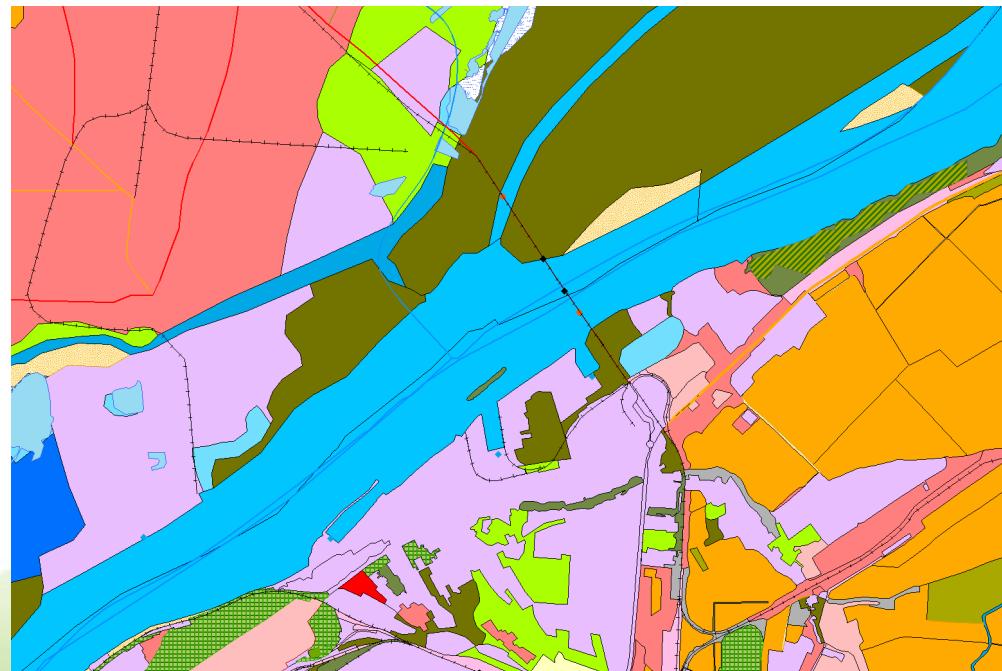


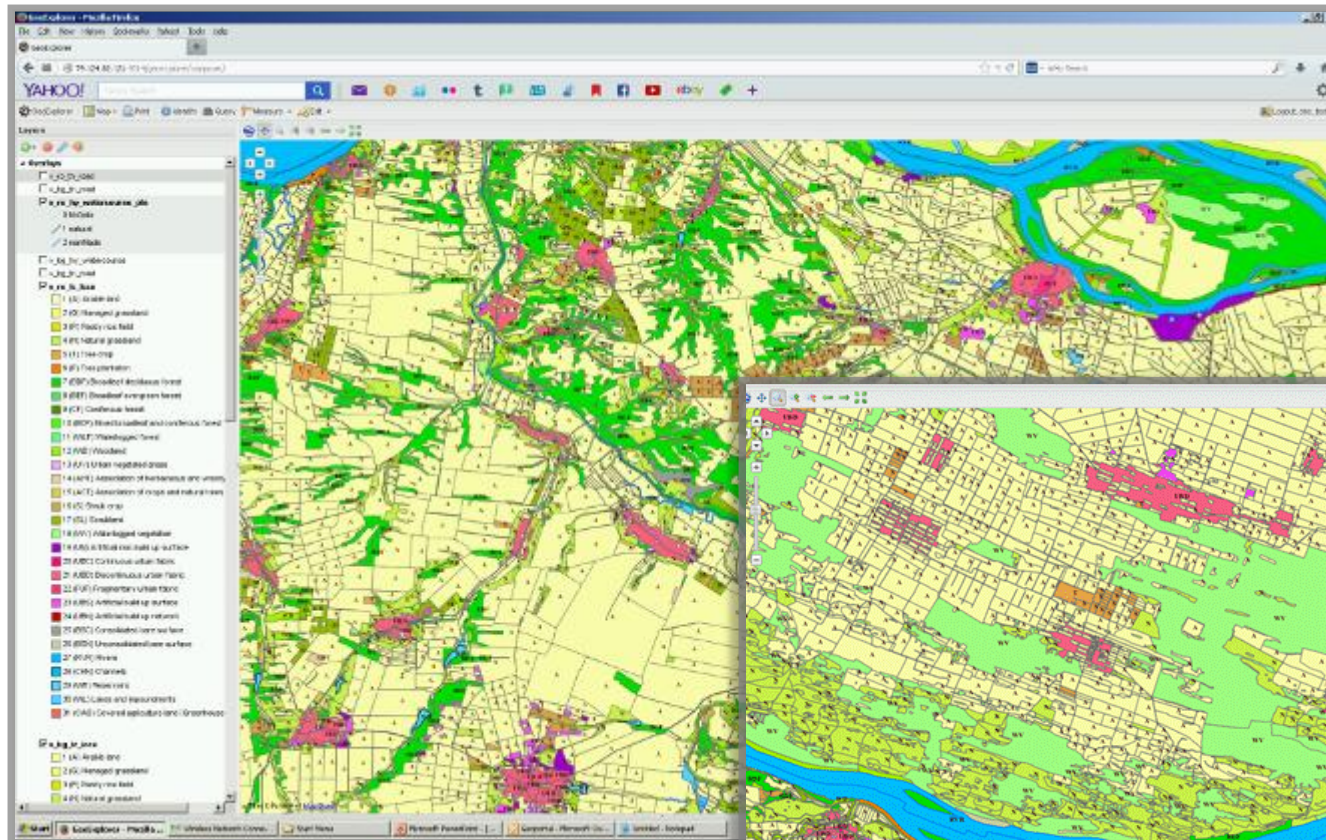
Datasets maintained in their national CRS
Displacement between BG and RO bridge points within 5 meters

Vidin-Calafat



Ruse-Giurgiu





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Development of the Cross-Border Area Romania-Bulgaria
6th of August 2015, Bucharest, Romania**



I.13.SmartCover Geoportal(2)



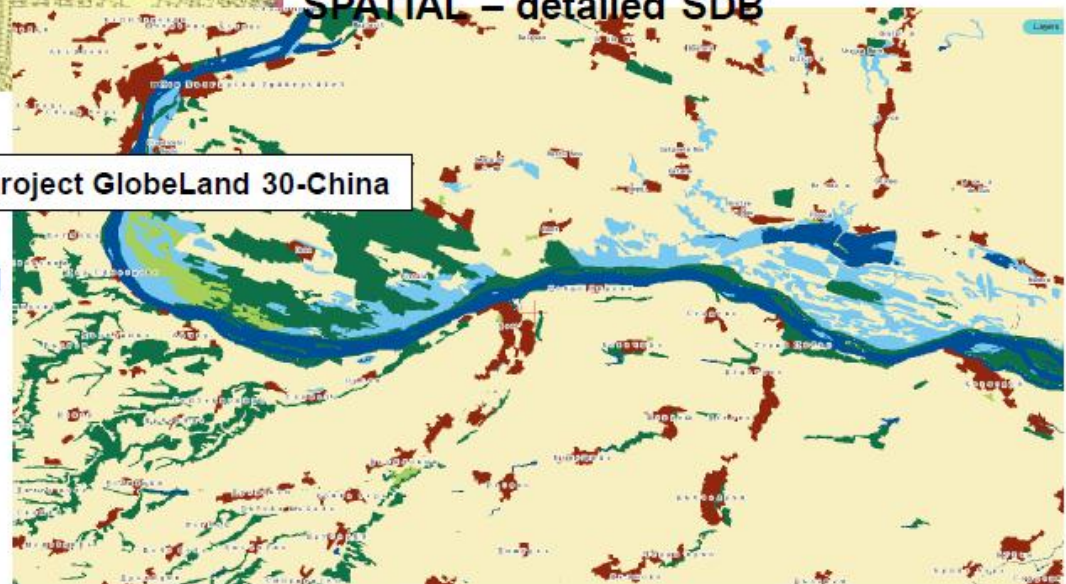
LAST YEAR IN CHINA (The ICIS Summit in Lanzhou, Gansu, China) – WE HAVE PROPOSED (2) :



Reference Land Cover - CBC project SPATIAL – Bulgaria –Romania –Danube region-Europa

- China created a land cover dataset for the whole world based on Landsat data – GlobeLand 30 project – global SDB
- ASDE elaborated reference land cover dataset for the cross-border area of Bulgaria and Romania – CBC project SPATIAL – detailed SDB

Project GlobeLand 30-China



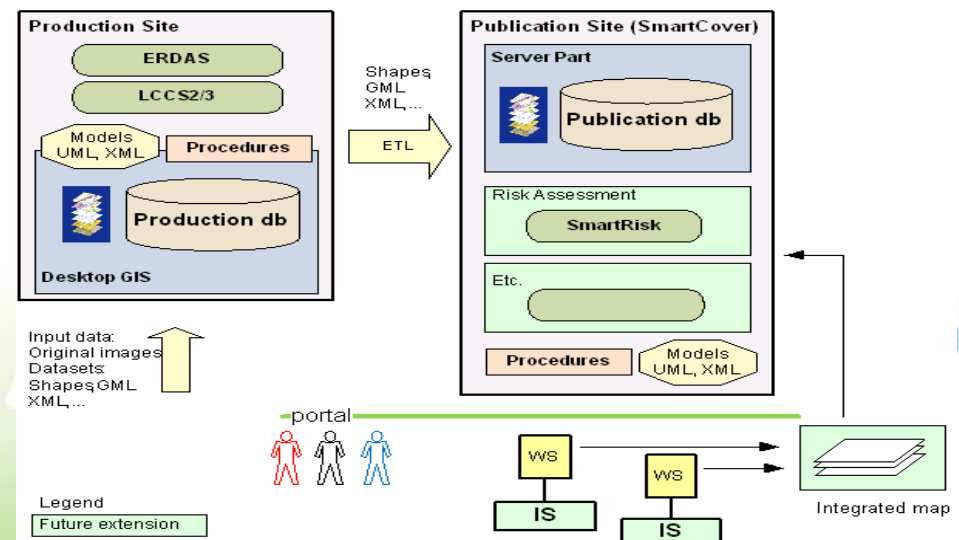
- Product comparison undergoing
- Initial discussions conducted with the National Geomatics Center of China and ISPRS Secretariat



I.14.SmartCover highlights



- Novel approach of generating standardized land cover data
- Methodology extendable towards other Danube countries
- Flexible and scalable architecture
- Not just a land cover map, but geo-based system for territorial management
- Focus on monitoring and analysis of land changes
- Ready-to-use service





I.15.Benefits from Smartcover



- Harmonized spatial land-related databases and services for territorial analysis, development of common strategy and joint implementation of sectoral projects
- Geodata container for the elaboration of comprehensive set of indicators at the level of NUTS 3, 2 and LAU (local administration unit).
- ‘Detailed characterisation’ of rural areas and the transitional urban/rural zones for monitoring of land change – **SmartCover is already used for the validation of the high-resolution layer of grassland developed in the scope of GIO!**
- Tool for impact assessment of sectorial policy interventions and effects of EU funds expenditures
- System capable to provide information on future Ecological Focused Areas (EFAs) as part of the EU CAP greening
- Data support for climate change modeling and impact assessment of mitigation and adaptation measures



I.16.Positive feedback

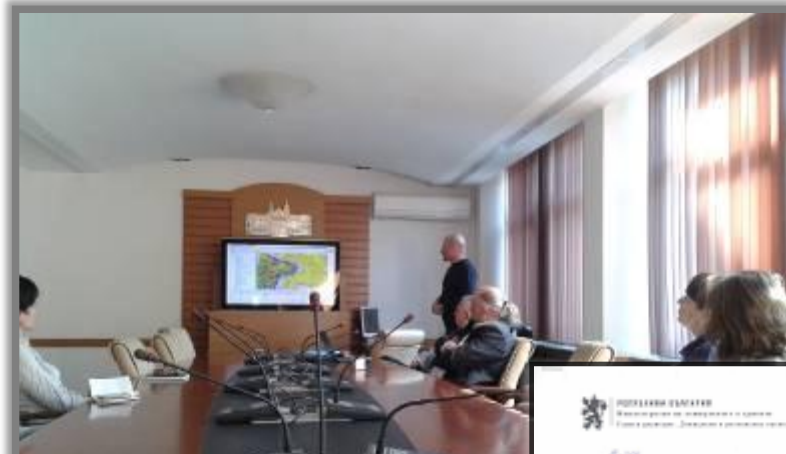


MARS Conference 2013



ASDE-JRC IES Meeting

Bulgarian Ministry of Agriculture



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I.17.SmartCover in the context of the JRC Danube Reference Data Service Infrastructure (DRDSI)

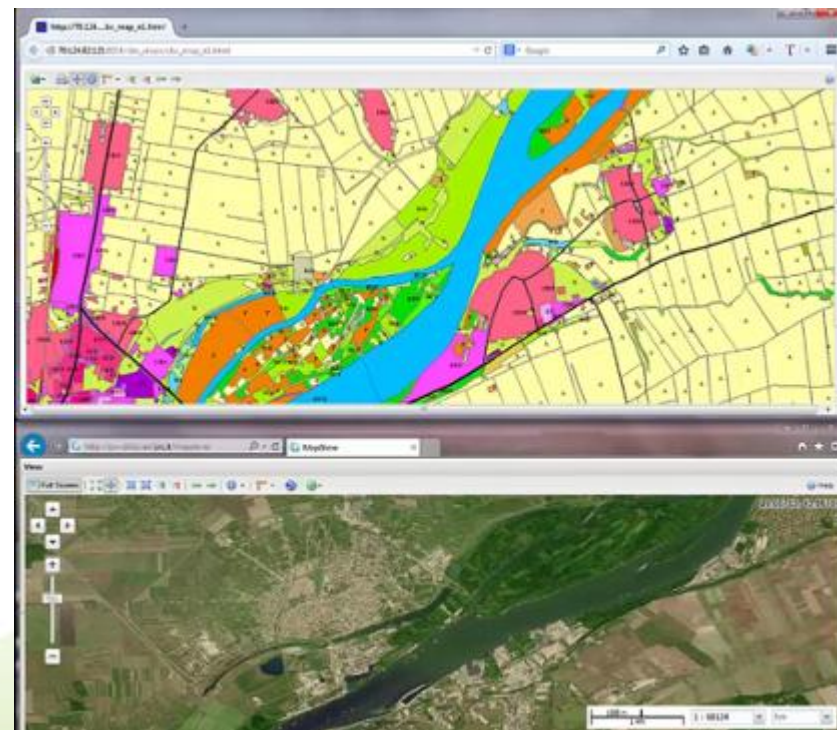
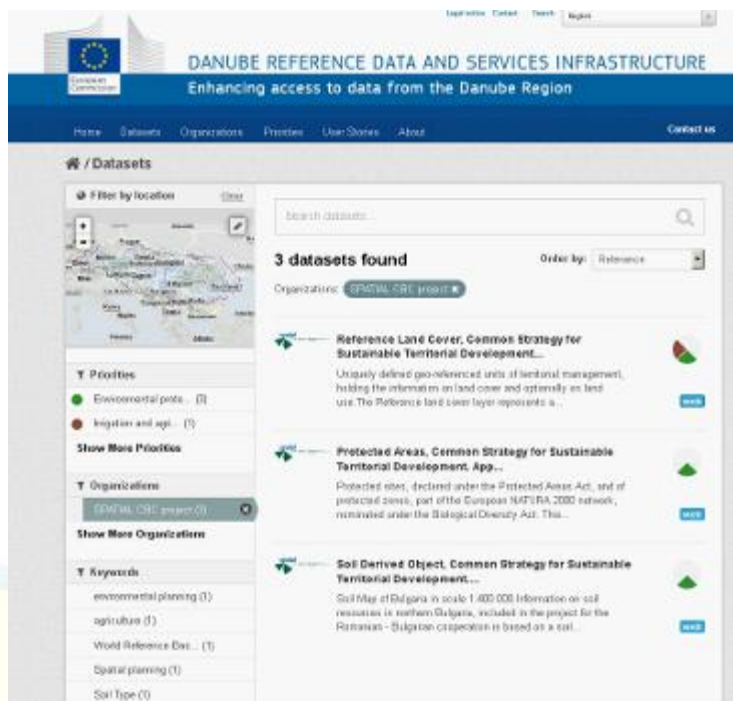


<http://drdsi.jrc.ec.europa.eu>

- Reference Land Cover-SPATIAL. Methodology for Common Strategy Reference Land Cover

<http://drdsi.jrc.ec.europa.eu/dataset/reference-land-cover-common-strategy-for-sustainable-territorial-development-approach-to-the-de>

- Direct link to SmartCover: http://79.124.82.121:9214/cbc_maps



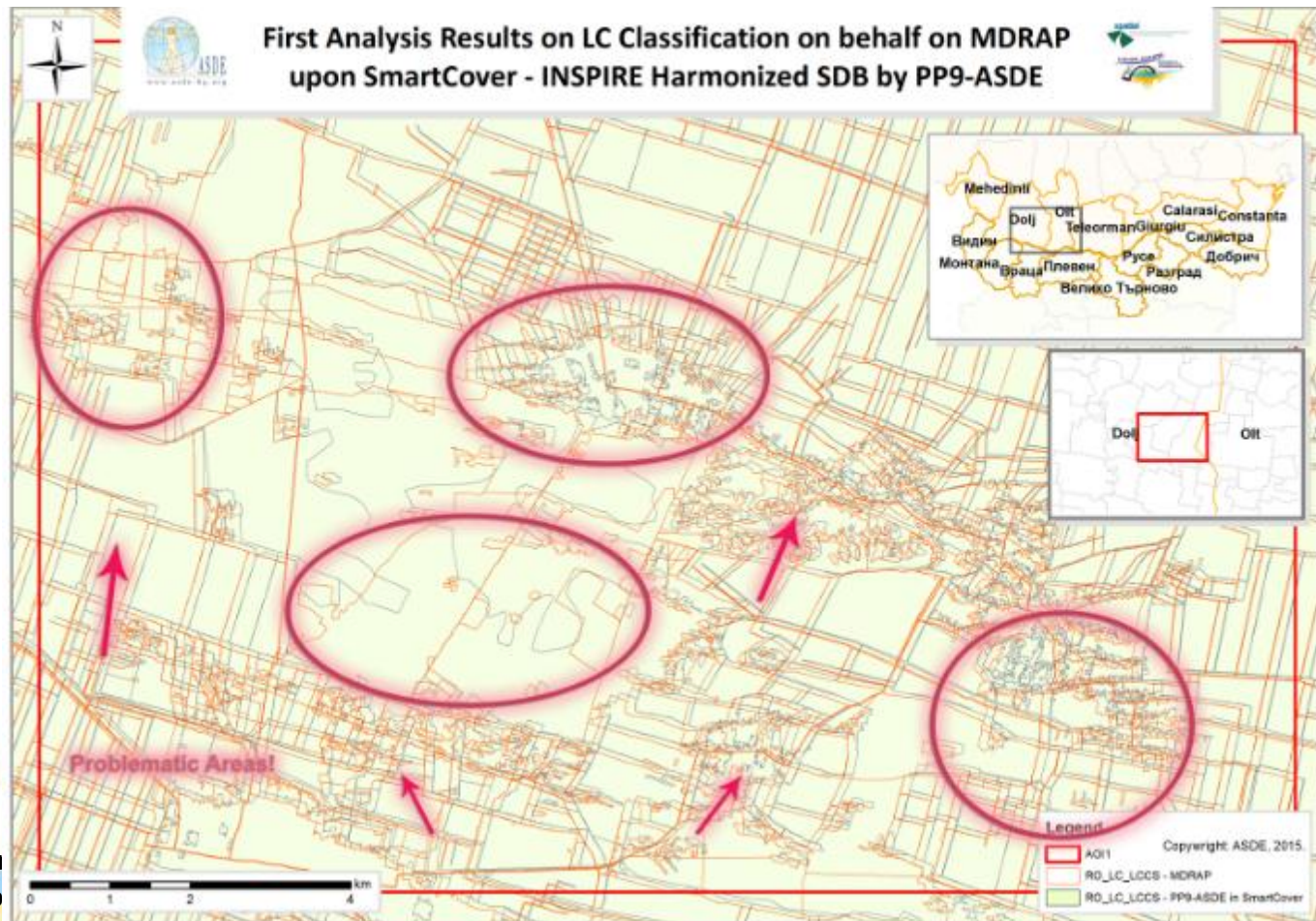
Presented during the High-level event - Scientific Support to the Danube Strategy in Vienna (June 2014)

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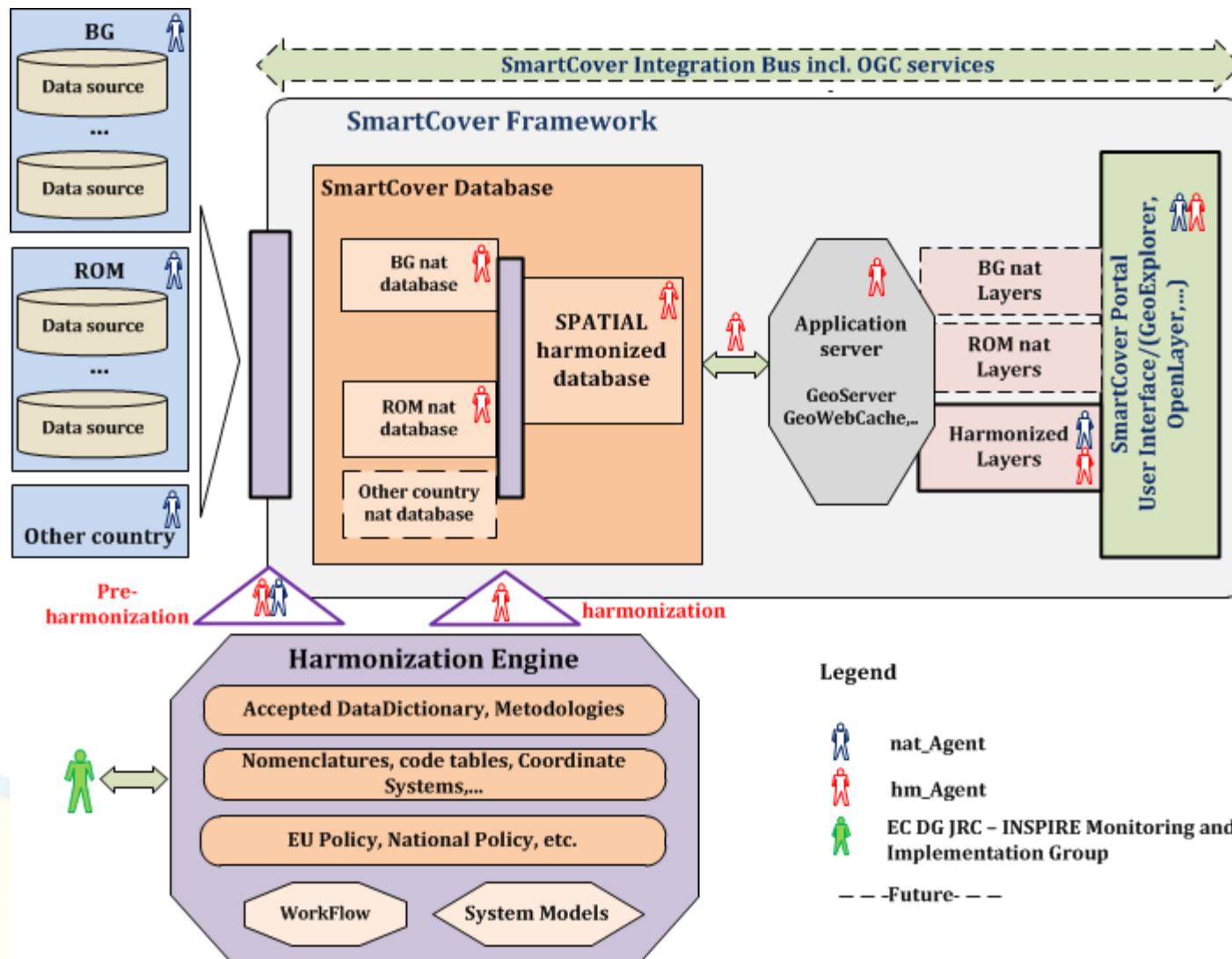


I.18. Reference land cover datasets for the Romanian part of CBC elaborated by ASDE and SC Soft Business Union provides different type of information that complements each other – further coordination is needed!





I.19. Maintenance and data upkeep



Based in the
Regional Center
in Euroregion
Ruse/Giurgiu

In collaboration
and
communication
with the Territorial
Observatory in
Romania-Bucharest
and the SEE
Regional Center in
Bulgaria-Sofia





I.20. WP3 provides key data to the Common Strategy RO/BG as well as for the Black Sea and Danube Strategy

- ☐ Common, integrated and holistic approach
- ☐ Overriding the constraints imposed by national barriers
- ☐ Building a database and a strategy for the all cross-border area
- ☐ Defining and building the cooperation framework
- ☐ Competitiveness and innovation
- ☐ Protect and improve the environment.
- ☐ EU Strategy for the Danube/Danube-Main-Rhine Macro-region
- ☐ Interventions with a big impact
- ☐ Sustainable regional development, territorial and urban planning national policy



Possible only through a comprehensive spatial database for the cross-border area of Bulgaria and Romania for:

- ☐ Elaboration of common strategy for sustainable territorial development
- ☐ Monitoring the impact of national and EU policies



I.21. A key for Pan-European data harmonization regional, national and local stakeholders needs



Harmonized pan-European data for reporting and statistical analysis needed for EC services – **not always useful for regional, national and local users**

INSPIRE

Urban Audit

CLC

Urban Atlas

Harmonization initiatives at pan - European level

National data
Country A

Specific methodologies required for trans-border macro-regions

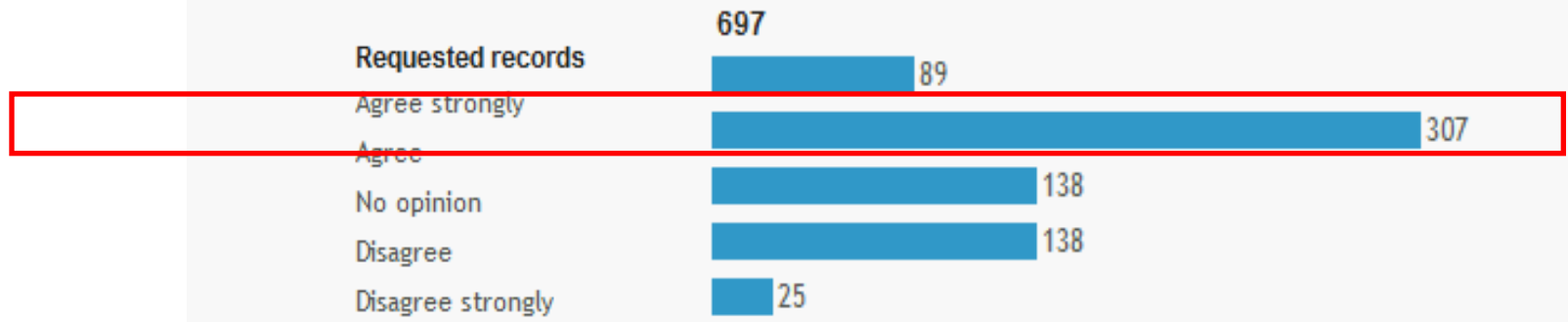
National data
Country B



I.22.Results from a public consultation under Directive INSPIRE

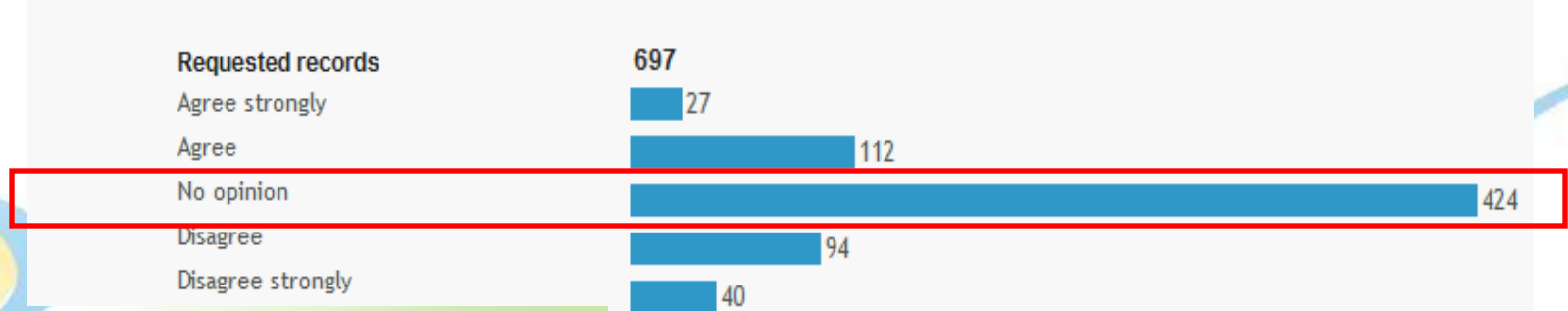


The implementation of INSPIRE is well co-ordinated in my country -single choice reply- (compulsory)



Lack of experience with respect to cross-border application

The implementation of INSPIRE is well co-ordinated between my country and its neighbouring countries -single choice reply- (compulsory)





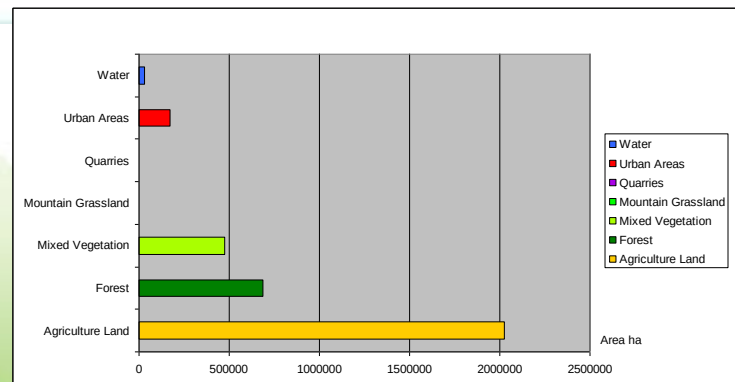
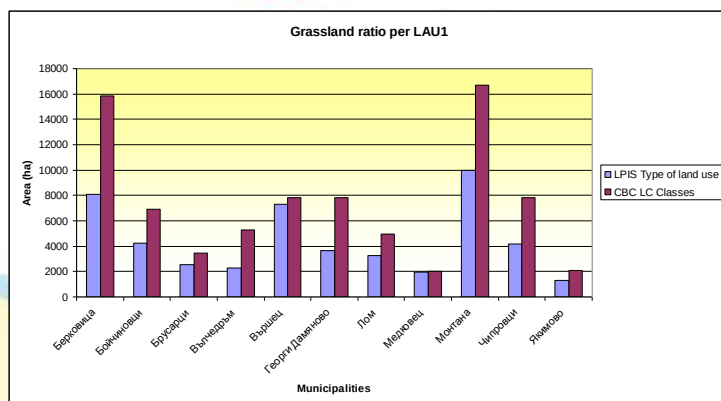
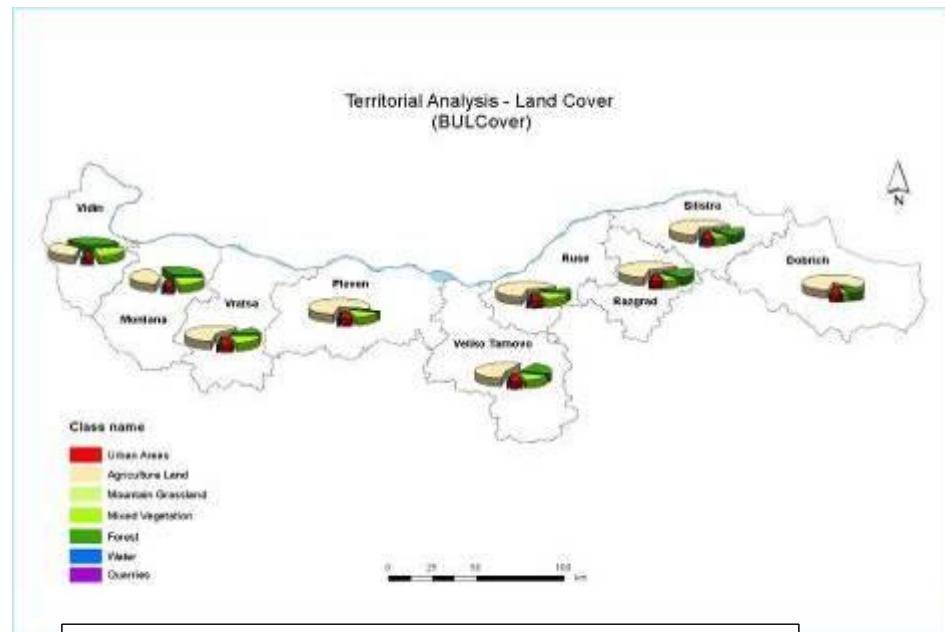
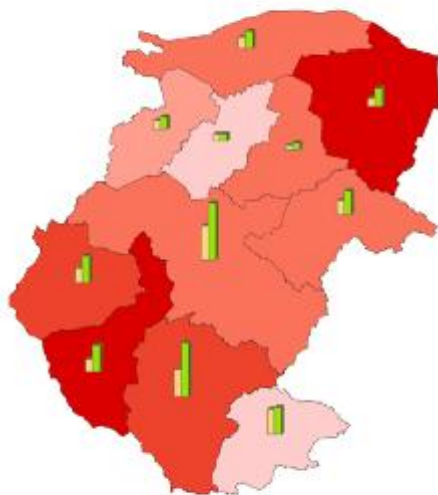
I.23.INSPIRE relevant issues from project SPATIAL



- Most mandatory attributes relevant for each theme were implemented
 - Extra alpha-numeric information provided by data custodians
- Common land cover nomenclature adopted according INSPIRE DS on LC
 - Annex F and G
- Reporting data quality and validation results
 - Though “Lineage” field in the INSPIRE metadata
- Cross-border harmonization of thematic information was challenging in certain cases
 - Loss of information after coding using pre-defined INSPIRE codelist and enumerations
 - Codelist inconsistency (“bridge” not included in DS on TN)
 - Portrayal rules depends on outcomes of common codelists mapping



I.24. Reliable statistics from the common database adapted to the context and needs of the macro-region





II.1. Draft COMMON STRATEGY – Comments



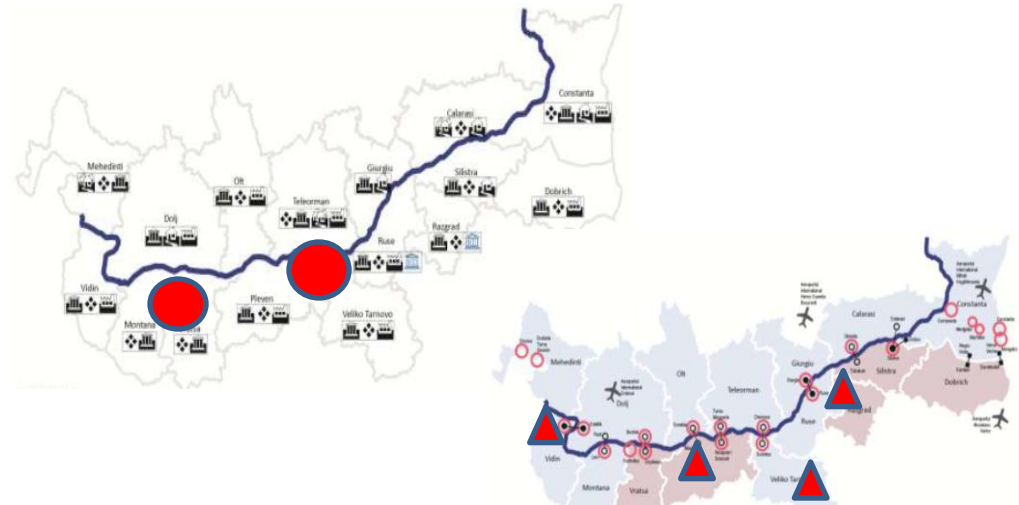
1. General note - Priority to the trans-border area and twinning cities.
2. Strategic objectives, to be balanced :
Pillar 1: Cross-border connectivity **and growth**; Pillar 2: Economic role of the cities **through a Smart cities program**; Pillar 3: Cultural and natural values **and their socialization** Pillar 4: **Regional and local** institutional **and operational** capacity ; Pillar 5: **Regular monitoring of changes and results and scenarios modeling**
- A. Strategic Objective 1: Developing the connectivity between **trans-border** urban areas, **links** with metropolitan areas to favor a sustainable polycentric territorial **and economic** development
- B. Strategic Objective 2: Strengthening the role of Danube cities by increasing attractiveness of the public areas and providing general interest utilities and services for local and tourists
- C. Strategic Objective 3: Strengthening the cultural and natural values network and linking it to similar networks in the Danube, **South East Europe** and Black Sea region
- D. Strategic Objective 4: Developing the **local, district and regional** institutional capacity for cooperation aiming to increase economic, social and territorial cohesion
Strategic Objective 5: Developing regional operational structure and capacity for regular monitoring and risk resilience of the trans-border area , in support also to the EU Danube and other macro-regional strategies



II.2. Draft COMMON STRATEGY – Comments - Diagnosis



1. Lots of missing data , mistakes and non-correct estimations – 6 months for editing(next step project), trans-border SDB not used
2. Overall diagnosis/Priorities –
The main European water band, connecting people, economy and culture – Danube-Main-Rhine is neglected; TRACECA-overvalued



Conceptual scheme for the European Network of centers for integrated management of risk and territory for the Danube region

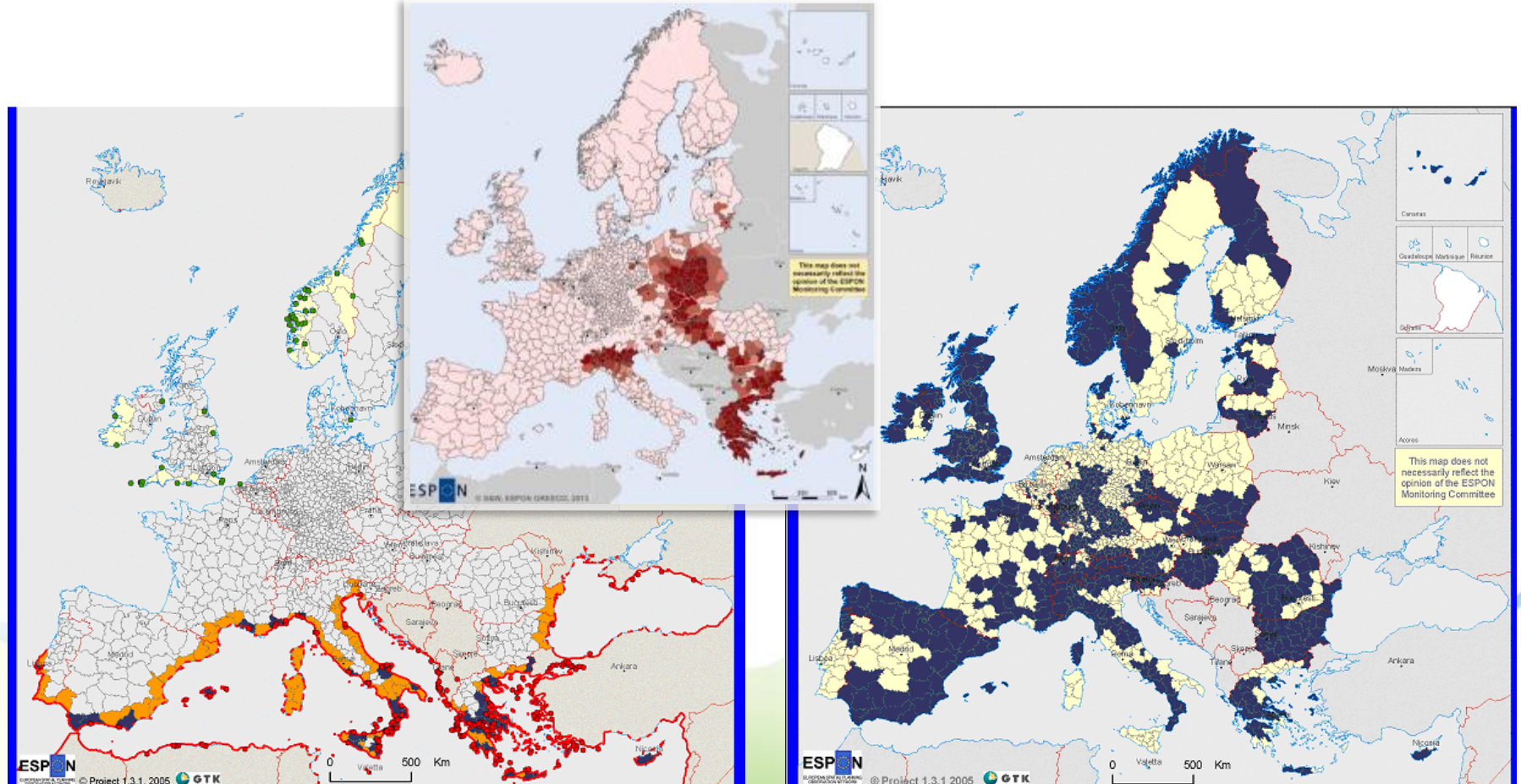




II.3. Draft COMMON STRATEGY – Comments



A user-oriented position in front of some Pan-EU observatories – ESPON, URBAN ATLAS ,
etc – “garbage in-garbage out”

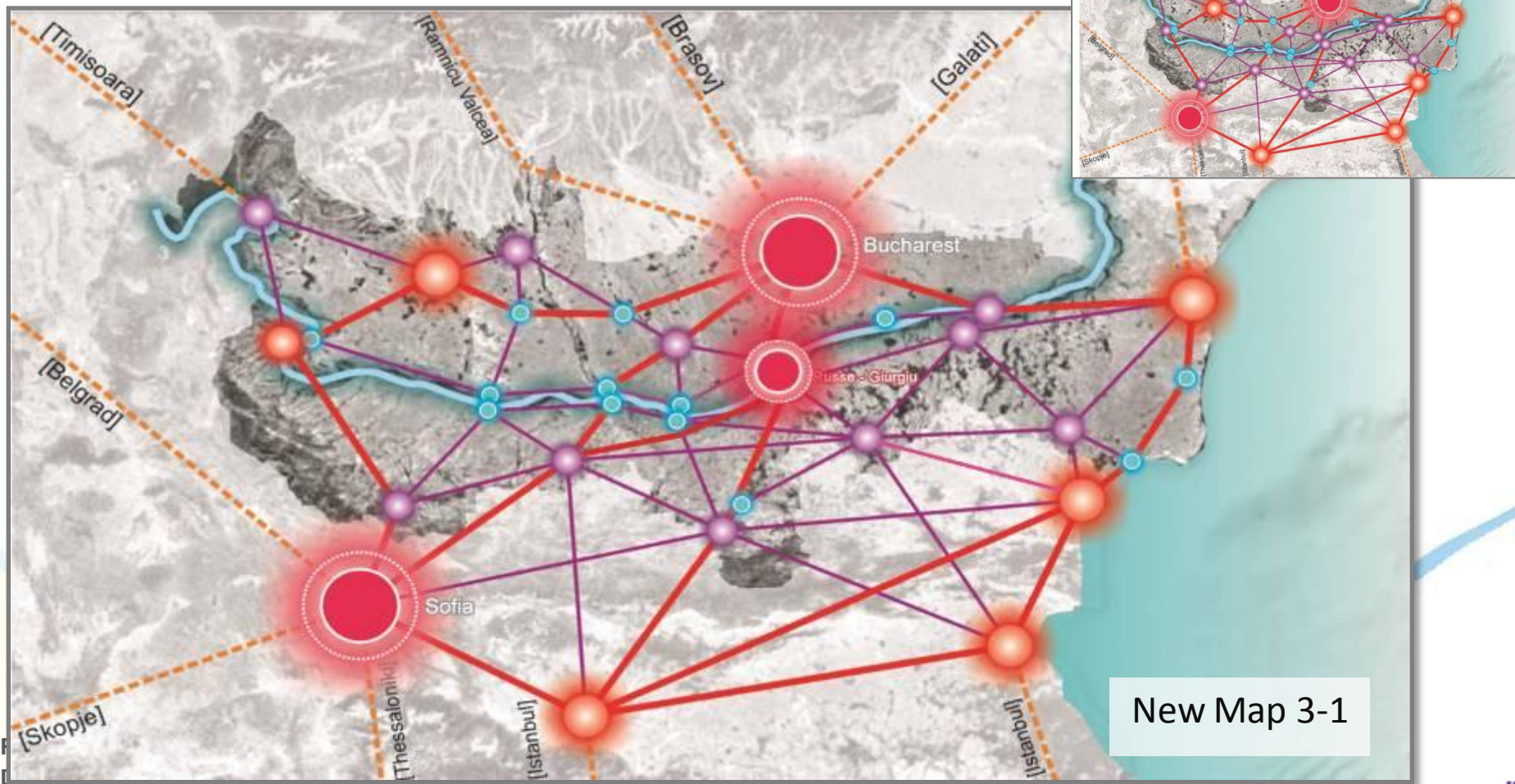




II.5. COMMON STRATEGY – Proposed Revisions



3. Changes in the main conceptual maps

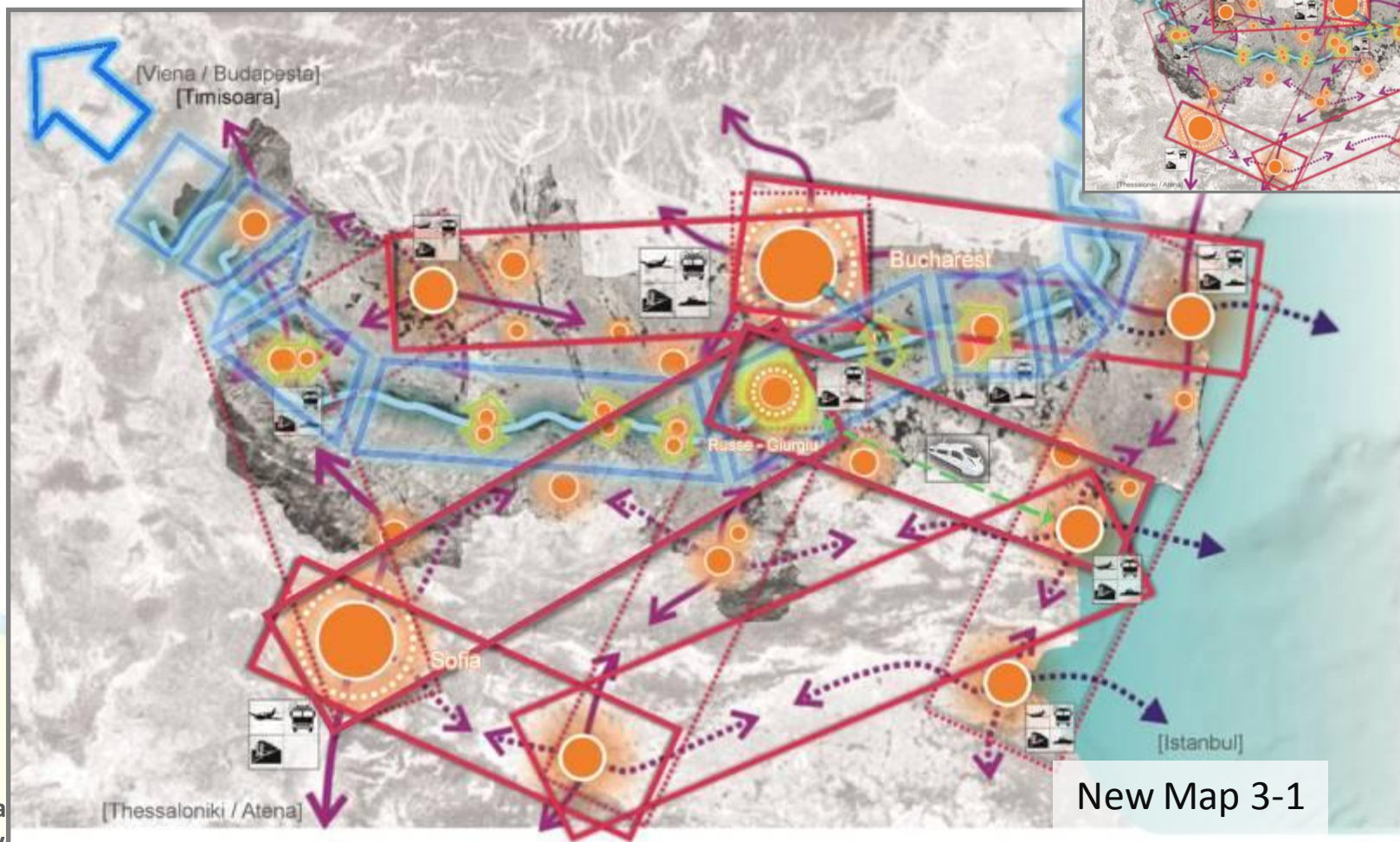




II.6.COMMON STRATEGY – Proposed Revisions



3. Changes in the main conceptual maps



New Map 3-1



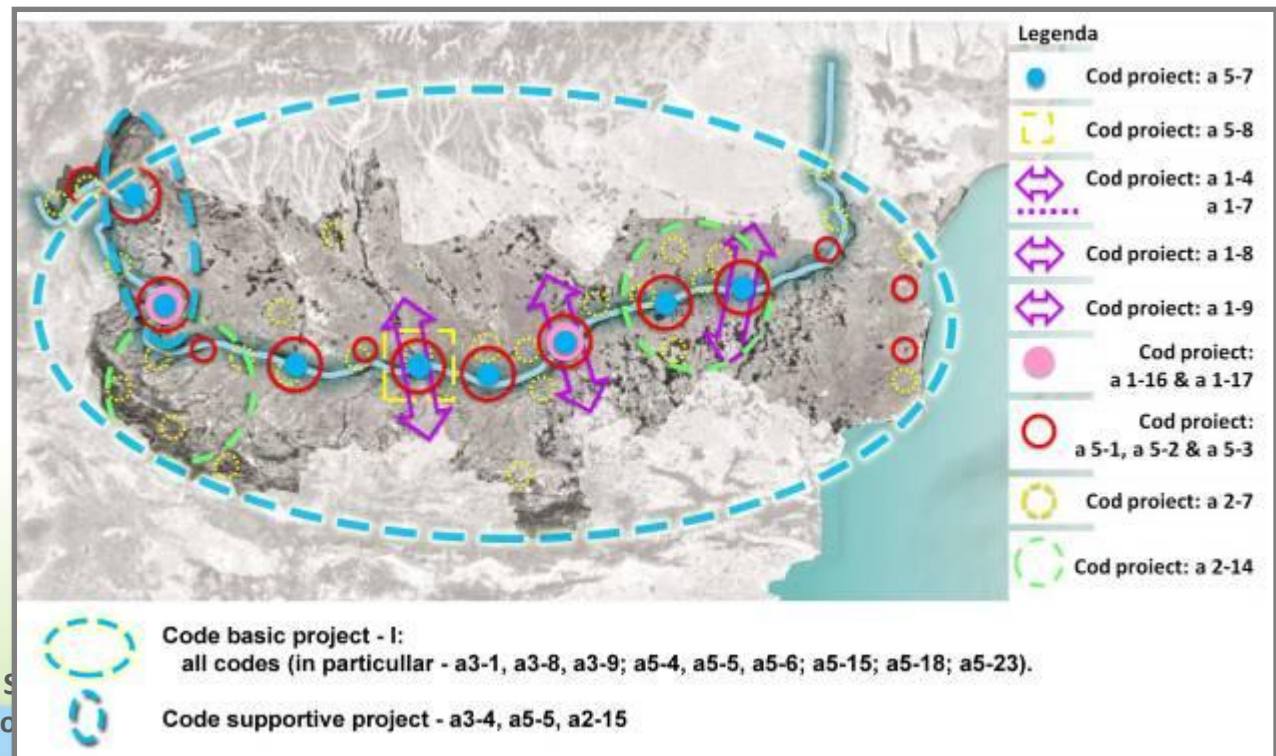


II.7. PROGRAM AND PROJECTS / GOVERNANCE AND MONITORING MECHANISM (1)



3.3.2. Governance – Twinning cities administration, with the support of district administration and state administration from both countries; Monitoring – Regional center in Euro-region Ruse/Giurgiu, supported by twinning cities administration, joint Vidin/Mehedinti center and public administration from both countries; coordination and expert support from EC-JRC;

3.3.2. Comments on the MAPS OF JOINED PROJECTS – the changed map of joined projects is presented below





III.1. NEXT STEPS – follow-up SATIAL-2 and parallel projects /Regional Governance, risk management and monitoring mechanism

3.3.2. New basic project on PLANNING/EARLY WARNING -MANAGEMENT- MONITORING. PRIORITY AXE 3: SAVE REGION and PRIORITY AXE 5: AN EFFICIENT REGION. Title: REGIONAL CENTER FOR INTEGRATED RISK AND TERRITORY MANAGEMENT FOR THE REGION OF LOWER DANUBE IN EUROREGION RUSE/GIURGIU; Covering all codes; particular codes - a3-1, a3-8, a3-9; a5-4, a5-5, a5-6; a5-15; a5-18; a5-23.

The Regional Center will be responsible also for the regular monitoring of changes and results, as well as for upgrading the reference land cover/land use layer and the regular harmonization of thematic SDB,s from the trans-border area (72 000 km²);

Supported by twinning project for early warning/risk management center in VIDIN / MEHEDINTI districts

Additional 2 supporting projects:

Sub-project A: Territorial Observatory in Bucharest – priority axe 5

Sub-project B: SEE Center for integrated risk and territory management in Sofia – priority axe 3

The Regional Center in Euroregion Ruse/Giurgiu , as well as both sub-projects A and B will be left open for enlargement of their operational and coordination capacity for the countries of Lower Danube and Black Sea region.



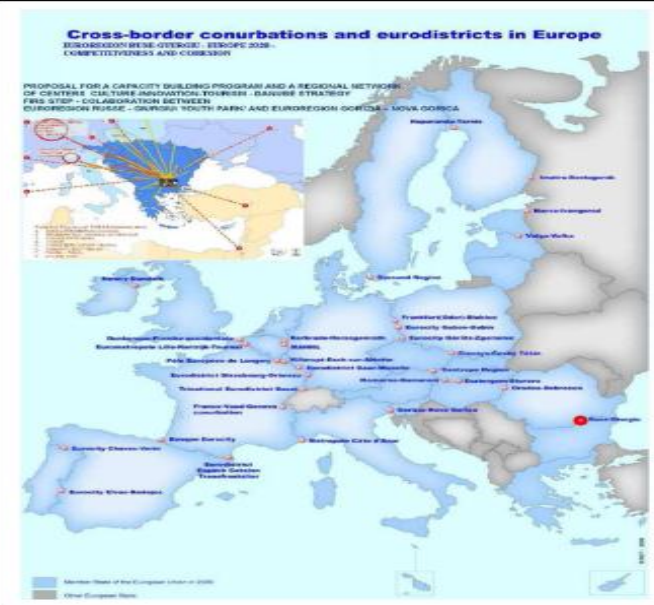
III.2. PROGRAM AND PROJECTS – Regional center for Lower Danube – of international importance – trans-border - Bulgaria, Romania, Serbia, Ukraine, Moldova (2)



‘Projects and Initiatives’ Listing Template

Name for the initiative: European network of regional centers for integrated risk and territory management

Conceptual scheme for the European Network of centers for integrated management of risk and territory for the Danube region



The initiative of European Network of Regional Centers for integrated risk and territory management

Project name: Regional center for integrated risk and territory management of the region of Lower Danube

Development of the cross border area Romania - Bulgaria - Next steps

6th of August 2015, Bucharest, Romania





III.3. The Reference Data are accepted under the JRC Program -2014 – 2015, as well as in DRDSI/project3/



Project Title: 990 - MARS-Danube Nexus MARS contribution to the Danube Water-Agriculture Nexus

Project Objectives: In the context of the cross-border Bulgaria-Romania cooperation project, the project will support the production of a land cover layer. A set of indicators for territorial sustainability will be developed.

Main Policy DG: DG REGIO

Additional Policy DGs: AGRI and CLIMA

External Beneficiaries: R&D Inst Int - Governmental and independent R&D institutions

Project contact: JRC.H.4

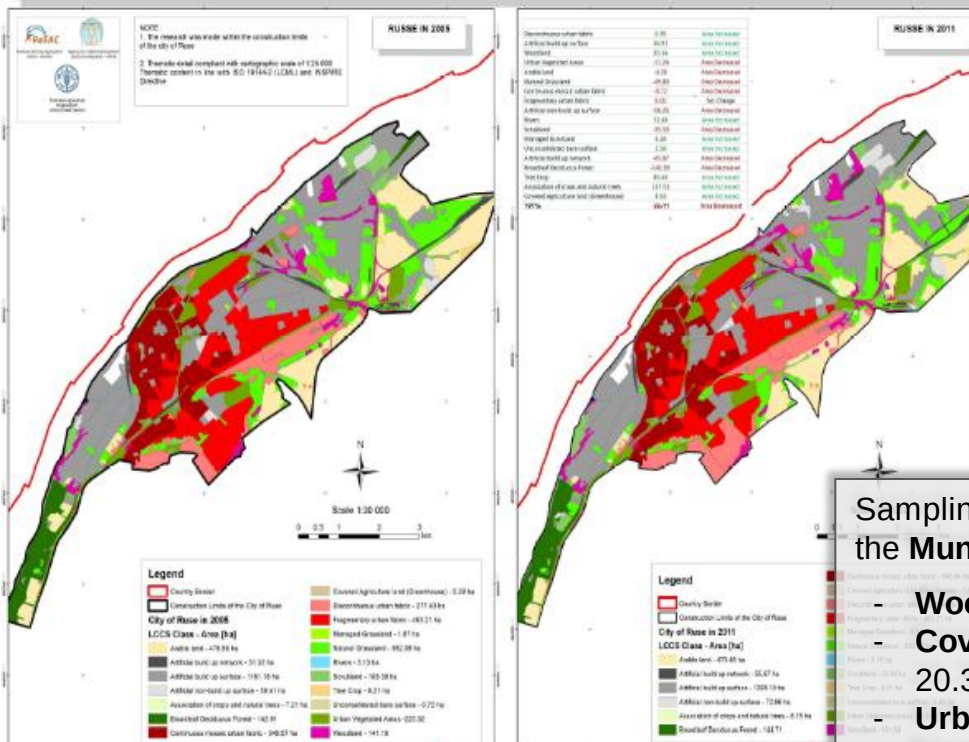
http://ec.europa.eu/dgs/jrc/downloads/mawp_2014_2015.pdf

MACRO-REGIONAL PRIORITY(Danube, Black-Sea, etc.): Building and maintenance of a reference database and services land cover/land use is of crucial importance for the European macro-regional strategies, the common european development projects and the existing programs for Earth Observation, GEOSS, COPERNICUS, LUCAS and will facilitate their harmonization with the world standard ISO 19144-2(LCML)

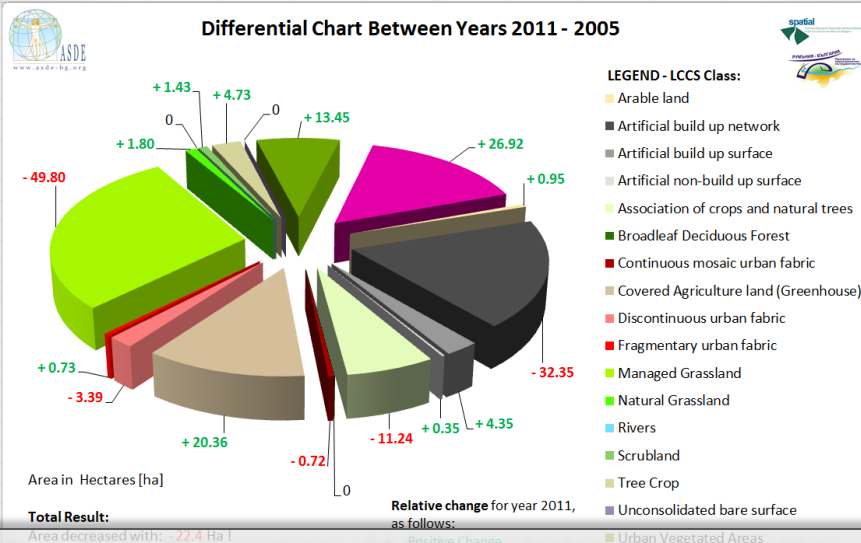
III.4.Regular monitoring of changes/actualization of the reference layer and auditing of the efficient use of EU and national funds (a project for the first 6 years)

MAP COMPARISON OF LAND COVER CHANGES BETWEEN - 2005 TO 2011

Thematic map for the city of Ruse including Land Cover classes; Land Use Classes and Mixed classes based on LCSS system of FAO of year 2005 and 2011



Differential Chart Between Years 2011 - 2005



Sampling from Statistical analysis of **LC boundaries changes** within the Municipality of Ruse for years 2005 and 2011:

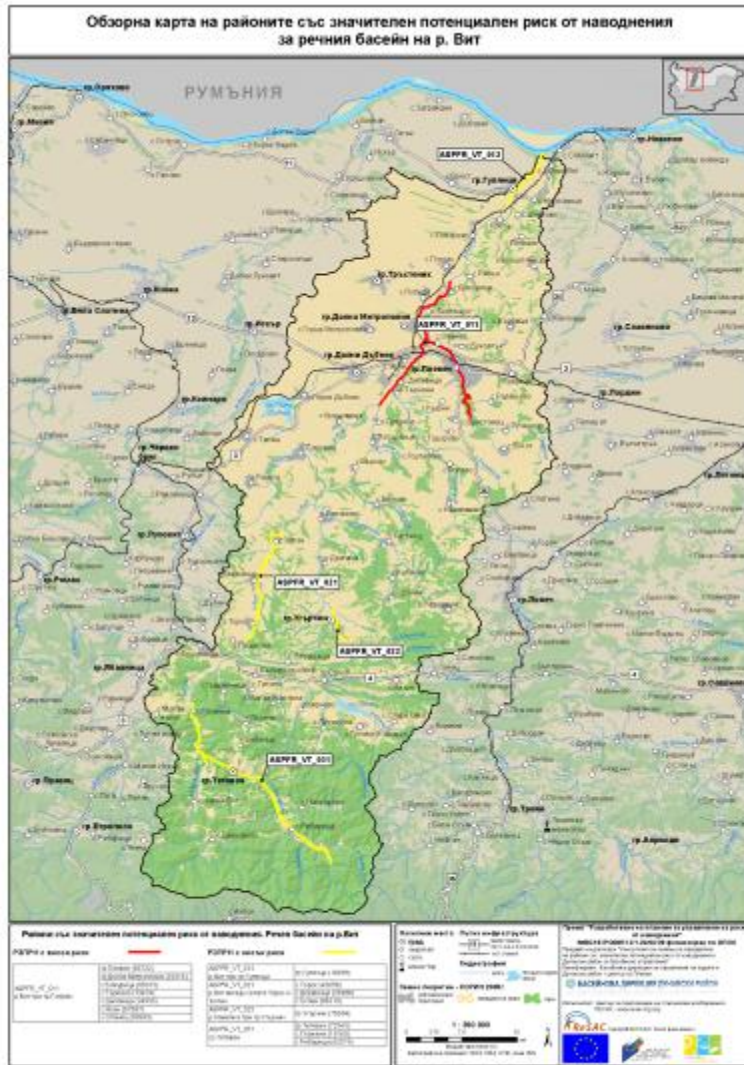
- **Woodland** – area **increased** with 26.92 Ha;
- **Covered Agriculture land (Greenhouse)** – area **increased** with 20.36 Ha;
- **Urban vegetated areas** – area **increased** with 13.45 Ha;
- **Discontinuous urban fabric** – area **decreased** with 3.39 Ha;
- **Association of crops and natural trees** – area **decreased** with 11.24 Ha;
- **Artificial build up network** – area **decreased** with 32.35 Ha;
- **Managed Grassland** – area **decreased** with 49.80 Ha;

TOTAL: Area **decreased** with 22.44 Ha !

General Conclusion – Good territorial and urban management ?



III.5.Future extensions of SmartCover – flood risk /5/



Regions with high flood risk

Spatial data of the areas prone to floods defined from DANUBE FLOODRISK project





III.6. III.5.Future extensions of SmartCover – cultural heritage (6)

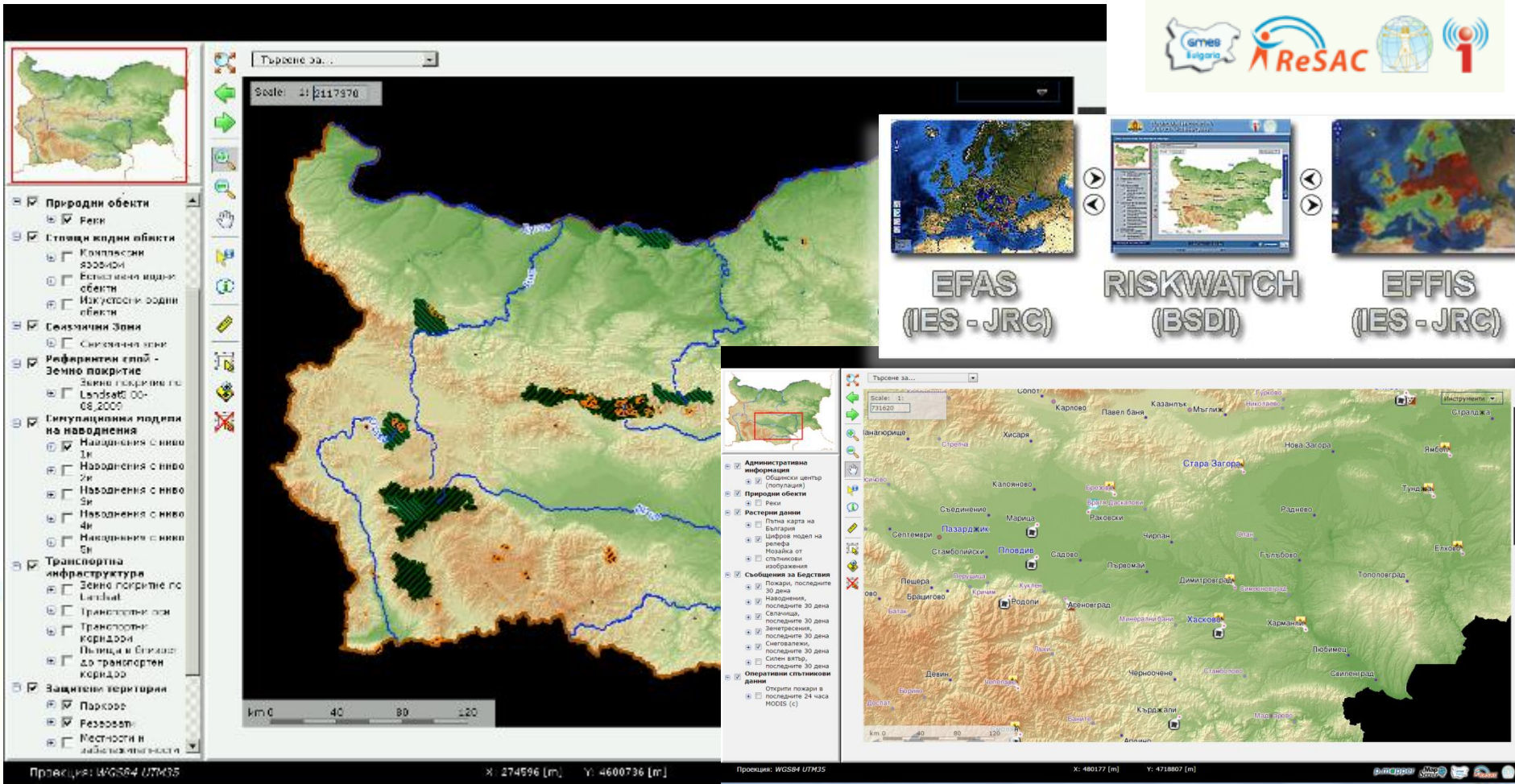


Touristic areas and cultural heritage





III.7.Geoportal of the Bulgarian Spatial Data infrastructure (BSDI), in combination with Romanian portal risk and territorial management, (7)



Development of the Cross-Border Area Romania-Bulgaria – Next Steps

6th of August 2015, Bucharest, Romania



III.8.Addressing various data needs with harmonized Bulcover/Romcover Reference Land Cover Layer - draft



Aims

Strategy for sustainable
management of trans-
border territory - CBC

Natura 2000

Water

Directive 02/2007/EO
INSPIRE

Directive 60/2007/EO –
for Floods

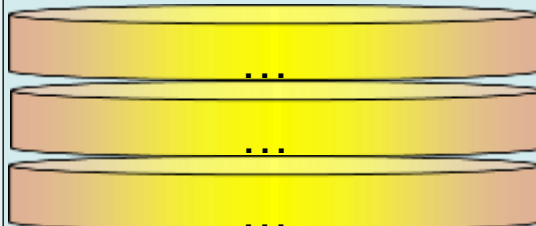
EU Program – Global
Monitoring for
Environment and
Security (GMES)

EU Program –
Europe 2020

Danube Strategy

Others....

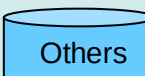
Spatial Data from Romania



ROMCOVER
?

Spatial Data – EU - World

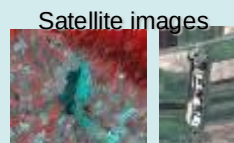
Globcover



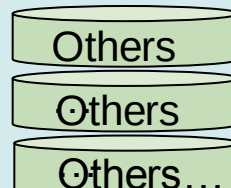
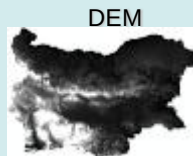
Cross compliance



Spatial Data from Bulgaria



Digital Urban Atlas
BG



Bulgarian Spatial Data
Infrastructure (BSDI)

Data Mining for Risk and
Security

Flood Risk



Cross-Border Services

Strategy for sustainable
management of trans-
border territory - CBC



GMES Components:

Space;
In-situ;

GMES Core Services:

1. Emergency Response
2. Land
3. Security
4. Marine

LCLU Change Detection;
DB Cross Compliance with
Bg-Ro LC layer

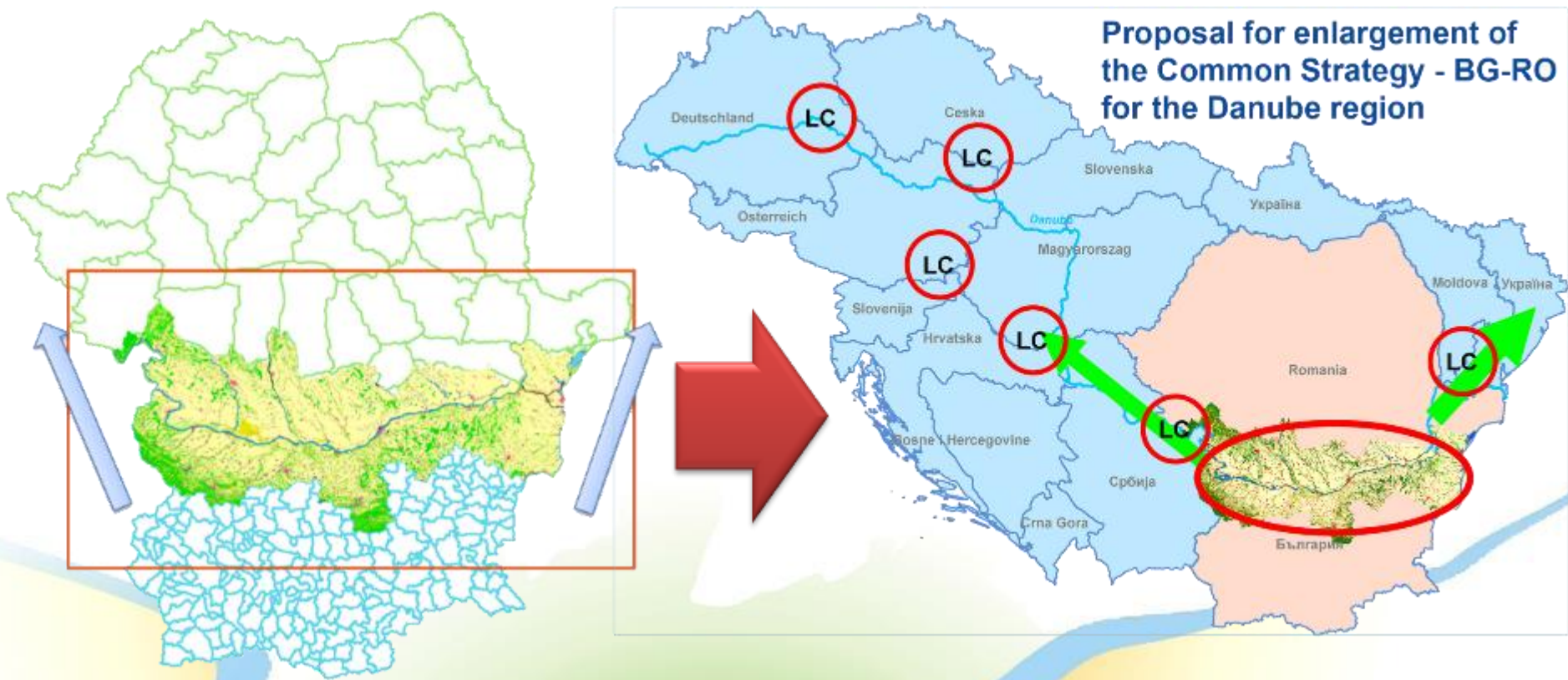
Permanent monitoring;
Foresight, prevention
analysis; impact ass.

Integrated Sust. Man.
Regional/ Municipal Plans

Thematic network/ projects
under the Danube strategy

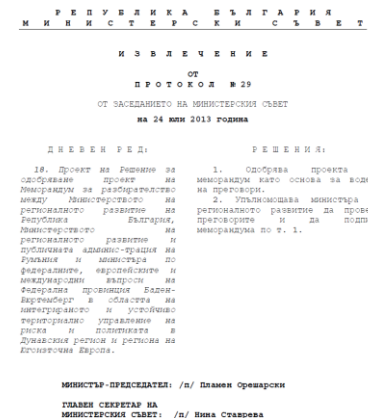
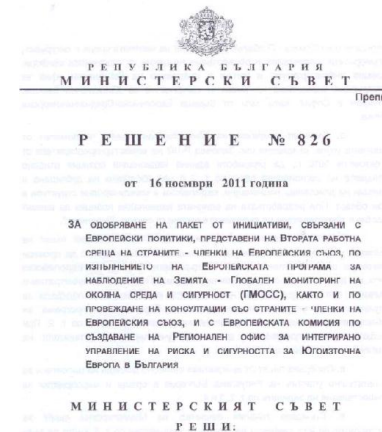
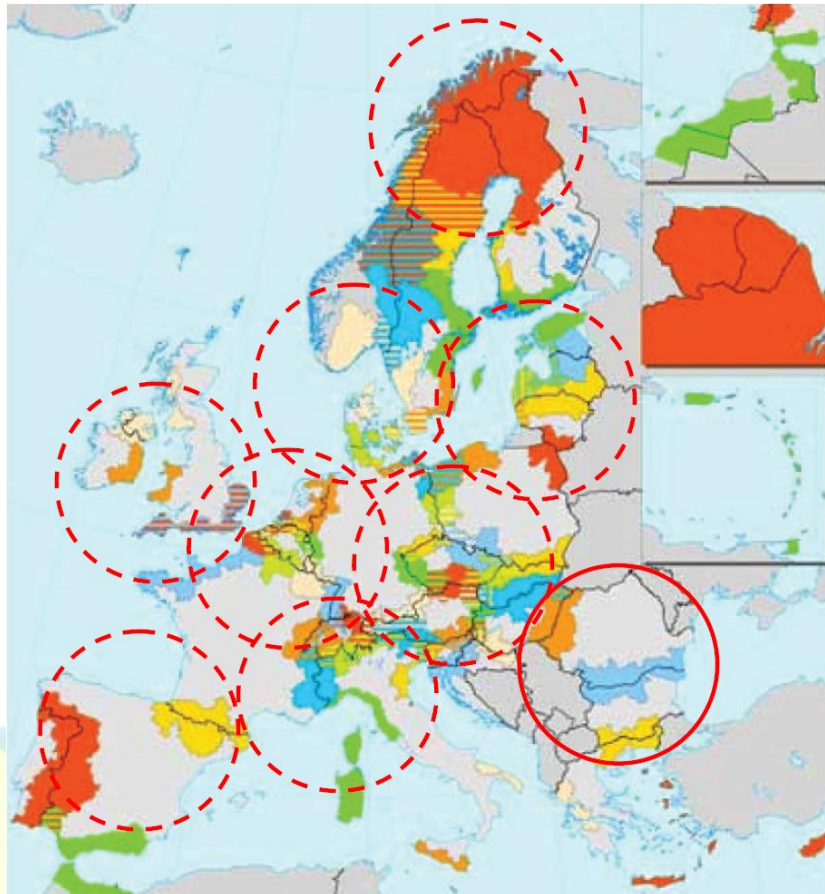


III.9. Proposal for enlargement of the CBC for the Danube Region





III.10. Bulgarian government initiative for European regional centers network– a possible joint initiative, started with Romania and EC structures



- Resolution of the Council of Ministers, 761, from 2004
- Resolution of the Council of Ministers, 826/16.11. 2011
- Protocol of the 6th session of the Commission Bulgaria-Baden-Wurtemberg, Nov, 2012;
- MIS ETC 171- Common strategy RO-BG – reference SDB – 2014;
- IPCRD-Ruse – European/Danube regional centers networks – July, 2013;
- MoU between Ruse and Giurgu – Euroregiona Ruse/Giurgu – July, 2013;





Thank You for your attention!



www.cbc-spatial.eu; spatial.mdrap.ro

<http://drdsi.jrc.ec.europa.eu>; http://79.124.82.121:9214/cbc_maps

Agency of Sustainable Development and Eurointegration – Ecoregions

9, Kokiche str.,

www.asde-bg.org; www.cbc171.asde-bg.org;