

# **GSE Projects versus Land Monitoring Core Service**

**Report of Splinter Session with  
GSE Land, GSE Forest Monitoring, GSE Food Security**

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## Core Services

- Pan-European (multi-purpose) information service capacity
- Linked to EU information needs (EU policies and international commitments) or to decisions to share capacities at EU level
- EU as “client”
  - Guarantee of service, especially important for downstream services
  - Involved in service management / governance
  - Funding of EU added value through both R&D & operational mechanisms

## Downstream Services

- Tailored for specific applications at local / regional / national / European levels (public good or private use)
- EU not directly driving the service
  - EU not responsible for service requirements
- EU should encourage / support the implementation of these service layer especially through R&D activities
- European Commission could be user of downstream services

**Concept applicable on a case-by-case basis**

**(e.g. boundary between core & downstream services)**

Year of launch	LMCS component	Service elements	Products	Remark
2008	Continental - Fast Track, Ref.year 2006	1. Image services: ortho-correction, web map service	1a ortho-rectified imagery 2006 1b image mosaics 2006	Individual scenes, full radiometry Colour composites
		2. High resolution land-cover mapping	2a HR Built-up map 2006 2b HR Forest map 2006	1ha MMU, degrees of soil sealing 1ha MMU, 2-3 classes
		3. CORINE land-cover mapping	3a CLC changes 2000-2006 3b CLC map 2006	5ha MMU, 44 classes 25ha MMU, 44 classes, up-date planned every 3 years
2009	Global	t.b.d. by an ad-hoc-WG to be established 2007		
	Continental - Fast Track, Ref.year 2008	1. Image services: ortho-correction, web map service	1a ortho-rectified imagery 2008 1b image mosaics 2008	From now on regular (bi-) annual coverage of EU27+
		2. High resolution land-cover mapping	2a HR land-cover classes 2008 2b HR land-cover changes 2000-2006- 2008	1ha MMU, Classes t.b.d Classes t.b.d. . (e.g. in BOSS4GMES)
	Local - Fast Track, Ref.year 2007	1. Image services: ortho-correction	1a ortho-rectified imagery 2007 (Ref.: Teleatlas street netw.) 1b image mosaics 2007	For Urban Audit 2010 (300-500 cities), update planned every 3 years
		2. Land-use/-cover mapping	Urban Atlas 2007	0.25ha MMU (for all artificial surfaces), 22 classes
All	LMCS information dissemination & access service (archiving, cataloguing, networking), lasting from now on			
2010	Global	t.b.d.		
	Continental - Ref.year 2010	1. Image services: ortho-correction, web map service	1a ortho-rectified imagery 2010 1b image mosaics 2010	Degree of application of change detection procedures t.b.d.
		2. High resolution land- cover mapping	2a HR land-cover classes 2010 2b HR land-cover changes 1990-2010	

Year of launch	LMCS component	Service elements	Products	Remark
2011	<b>Global</b>	t.b.d.		
	<b>Continental</b> - Ref.year 2011	1.Image services: ortho-correction, web map service	1a ortho-rectified imagery 2011 1b image mosaics 2011	
		2.High resolution land-cover mapping	2a HR land-cover classes 2011 2b HR land-cover changes 2010-2011	1ha MMU, 21 classes, CLC-compatible; final design to be based on conclusions of FP7 Land projects (BOSS4GMES & "Geoland-2")
		3.CORINE land-cover mapping	3a CLC changes 2006-2010 3b CLC map 2006	5ha MMU, 44 classes 25ha MMU, 44 classes
		4.CAP land monitoring & AE indicators	Classes t.b.d.	MMU t.b.d.
2012	<b>Global</b>	t.b.d.		
	<b>Continental</b> - Ref.year 2012	1.Image services: ortho-correction, web map service	1a ortho-rectified imagery 2012 1b image mosaics 2012	
		2.High resolution land-cover mapping	2a HR land-cover classes 2012 2b HR land-cover changes 2011-2012	
		3.CAP land monitoring & AE indicators	Classes t.b.d.	MMU t.b.d.
	<b>Local</b> – Ref.year 2012	1.Image services: ortho-correction	1a ortho-rectified imagery (Ref.: Teleatlas street netw.) 1b image mosaics	For Urban Audit 2013 > 500 cities + other t.b.d. hot spots
<b>2.Land-use/-cover mapping</b>		<b>Urban Atlas 2012</b>	0.25ha MMU (for all artificial surfaces), 22 classes	

## **Local:** European Very High Resolution Land Use / Land Cover

- Hot spot mapping
- 22 mainly urban classes
- 0.25 ha MMU
- Accuracy t.b.d.

## **Continental:** European High Resolution Land Use / Land Cover

- Wall-to-wall mapping of European Continent
- Evolution of 10 classes (EEA precursor 2006) – 21 classes compatible with CORINE
- 1.0 ha MMU
- Accuracy t.b.d.

**Global:** t.b.d.

GSE Land	Degree of Compliance with LMCS			Downstream
	Local (Urban) Component	Continental Component (Europe)	Global Component	
Sub-Services				Benefit of Core Service
European Urban Atlas	✘			75%
Impervious Areas and Soil Sealing		×		75%
Inland Water Quality		✘	×	80%
Irrigation / agricultural water consumption		×	✘	80%

## **GSE Land Services services are:**

- **Driven by EU policies: ESDP, Urban Thematic Strategy, Soil Thematic Directive, Integrated Coastal Zone Management, Water Framework Directive, ...**
- **Users are at local, regional, national or European level**

## **LMCS Local Component:**

- **Excellent match as DG Regio is defining within GSE Land team the Urban Atlas requirements**

## **LMCS Continental Component:**

- **Intermediate step towards the full information products**
- **Service evolution for overall European roll-out in response to information needs of European Directives**

## **LMCS Global Component:**

- **Use for agricultural class distinction**

GSE Forest Monitoring	Degree of Compliance with LMCS			Downstream
	Local (Urban) Comp.	Continental Comp. (EU)	Global Component	Benefit of Core Service
PAN European Forest Monitoring		✘		80%
UNFCCC / KP Reporting		×		20-60%
Forest Information Update				10%
Environmental Monitoring		×		60%
Forest Operations & Disturbances				40%
KP CDM				Small benefit of global?

✘ strong match with LMCS, × partial match with LMCS

- GSE Forest Monitoring services are:
  - Driven by **international, EU and national policies**
  - **Users** are mostly at **national**, but also at European, sub-national and local level
- GSE FM has a **Pan European service** which is a **Core Service**, but also has downstream applications (SoE reporting etc.).
- Most **other GSE FM services are downstream** services, which would **benefit strongly from a (generic) core** product in different levels of utility, depending on the final specifications of the LMCS (e.g. thematic accuracy, MMU).
- The Pan-European and Downstream services, such as UNFCCC and Environmental Monitoring have commonalities that fit the general technical requirements of the LMCS (IG Report) → **consolidated and validated components can be part of the evolving LMCS.**

	Degree of Compliance with LMCS			Downstream
	Local (Urban) Component	Continental Component (Europe)	Global Component	Benefit of Core Service
<b>GSE Food Security</b>				
<b>Early Warning</b>			×	
<b>Support to FAO / WFP CFSAM</b>			×	
<b>Agricultural Mapping</b>			×	
<b>Yield Assessment</b>			×	



## GSE Food Security services are Core Services:

- **Driven** by EU Food Aid and Food Security policy
- The **users** are African Ministries of Agriculture, Regional/National Early Warning Units, FAO, WFP, ...,
- **Sustainability** depends on EC funding (**no subsidiarity issues**)

## LMCS Global Component:

- LMCS Global Component is currently **UNDEFINED**
- **IF** the Global Component meets the following requirements,  
**THEN** GSE Food Security services can be transferred to LMCS

## Requirements:

- Global Component must include services at regional/national/sub-national scale.
- User Requirements must be specified by the real users: FAO, WFP, REWU, NEWU, African Ministries of Agriculture, etc.
- Annual in-situ fieldwork is essential for calibration & validation
- Users must be integrated to guarantee access to ancillary data and to promote building of local capacity (as required by EU development policy).

**GSEs: Finish mid 2008 / mid 2009**

**FP-7: (Pre-) operational validation of GMES services and products**

- **1. call 2007: Development of upgraded capabilities to existing FTS and related (pre-)operational services → Core services, downstream services for validation of CS**
- **2. call 2009: Stimulating the development of downstream GMES services**

**Operational budget lines: need to be established**

- **Local: DG Regio**
- **Continental: DG Env, DG Agri, EEA**
- **Global: DG Dev, DG Relex → AIDCO, ECHO**

- **GSE Services are information services** based on a mapping component
- **First core service** are the geo-coded ortho-rectified satellite images and mosaic
- **Implementation** of pre-cursor Land Monitoring by EEA with high resolution layer on forest and soil sealing
- **Users** require **continuity** in the information services – potential gap between end of GSE and Downstream Call
- **Service networks** can only be maintained by supplying services – potential gap for downstream services
  - ➔ **potential anticipation of FP7 2<sup>nd</sup> call to “late 2008”**

## **LMCS Local Component:**

- **Excellent match with Urban Atlas**
- **Similar demand for very high resolution information for other dynamic areas (Nature 2000, Forestry, ...)**  
**expressed at e.g. user workshop Oct 2005**

## **LMCS Continental Component:**

- **Strong match with intermediate products of downstream services of GSEs**
- **Service evolution of consolidated and validated GSE services to Europe-wide information services**

## **LMCS Global Component:**

- **Is under definition (subgroup of IG Land)**
- **Policy driver and sustainability is at EU level (DGs, UN, International Conventions, Treaties, ...)**