

GMES – Global Monitoring of Environment & Security

GSE Land Information Services
Managing Europe's resources
in times of climate change

GSE Colocation 5, ESA-ESRIN
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- “..., many adaptation activities are focussed on flood management and defence, whilst measures relating to drought and water scarcity are not yet widespread”
 - *Professor Jacqueline McGlade, Executive Director of the EEA, Berlin, February 13, 2007*

- "What we are able to see from satellite data is that the increase in soil that is sealed off by human infrastructure activities is even greater than we anticipated“. "Fragmentation of land is a time bomb ... if you use satellite data over a span of ten years you can really see a difference".
 - *Chris Steenmans, Project Manager for Land and Remote Sensing at the EEA, ESA News, November 2004*

GSE Land Responding to European Needs



Water – 30 to 40 % of EU rivers and lakes are charged with excessive nitrates concentration, show eutrophication symptoms, and pollute coastal zones



Agriculture – intensification leads to water stress, soil erosion and biodiversity decline

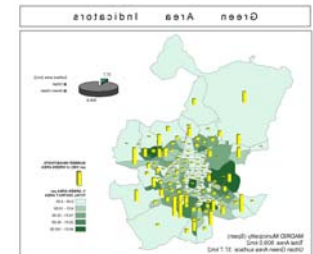
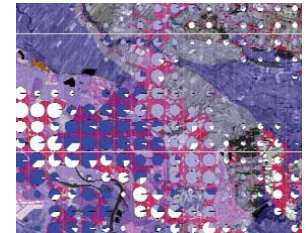
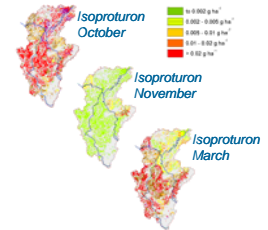


Soil Sealing - In Austria new roads and settlements bury the equivalent of 40 football fields every single day



Urban Settlements and transport networks growing - leads to soil sealing and fragmentation of landscape

Plant Protection Agents - Pesticides

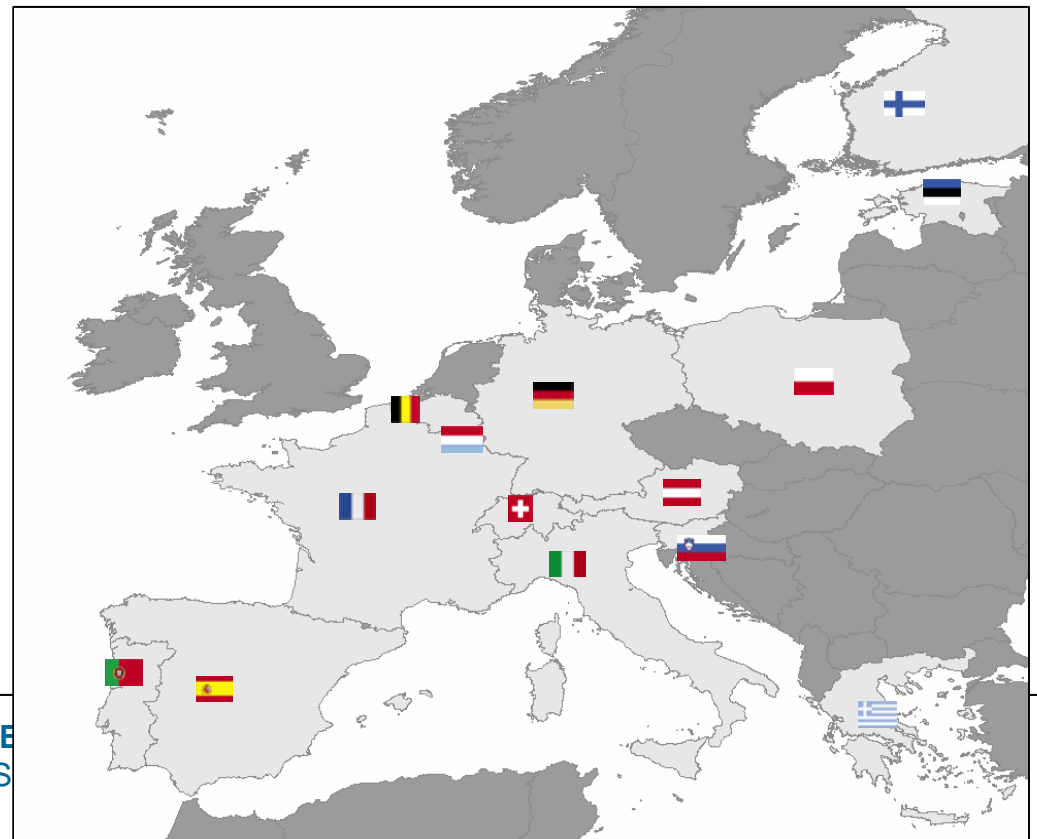


The GSE Land Production Overview Phase 3



Year	2006	2007	2008	SUM
Production	667,810 km2	257,458 km2	202,167 km2	1,127,435 km2
Service Providers	10	11	7	28
Users / Service Level Agreements	16	19	36	71

- Production activities in 18 nations
- 61 Cities in 15 countries
- 9 European river basins
- 4 transnational regions



Service network evolution



Services transferred from academia into competitive operations

The GSE Land Service network comprises today 32 partners

- **12 Front-end service providers**
- **4 specialised value adders (e.g. model operators)**
- **Validation services by ETC-LUSI network**
- **Qualification services by independent auditors**

GMES Land Service Provider Network to set-up common standards & working-practices (pre-competitive phase)



The QA approach of GSE Land Information Services builds on four pillars

1. Product and service standards jointly set-up and agreed among GMES Stakeholders
2. Service Provider qualification scheme accepted by users organisations and service providers
3. Implementation scheme for the qualification elements performed by independent auditors (TÜV Süd) and trusted European experts as supervisors
4. Independent quality control of all mapping products led by ETC-LUSI on behalf of the end users



- **Baseline**

- 32 SLAs signed; 17 SLAs under negotiation (→ require funding confirmation!)
- Production activities in 18 nations
- 61 Cities in 15 countries with > 32 Mio. inhabitants
- 9 European river basins and 4 transnational regions mapped

- **Extensions**

- New Extensions confirmed
 - Czech Republic / PECS → just started
 - Greece, Portugal, Luxembourg → Q2/2007
- 17 SLAs / LoCs already signed with Extension Users
- 9 expressions of interest excluded due to budget constraints

→ *will they be disappointed?*

Sustainability



- **Operational GMES budgets not expected before 2014.**
- **Pre-operational examples under-pin good-will and engagement of European and national user organisations:** e.g. FTS “Sealing” (DG AGRI, EEA, ESA), FTS “UrbanATLAS” (DG REGIO), Various national / regional projects (e.g. Adour-Garonne, Vorarlberg, Regione di Veneto)
- **INTERREG 4 and LIFE+** expected to support Regions of Europe to procure GMES services.
- **FP7** expected to support set-up of operational production infrastructure, procurement of EO database. Large-area service production not economically feasible for private service providers (shared-cost!)
- **Pilot Services** under discussion *with the Parliament and/or ESA may be a “saviour of last resort”* to bridge the funding gap 2007/8 – 2014.

➔ **New public needs not matched by adequate budget lines to sustain GMES services.**

The Main Team Partners of GSE Land



Contact & further information

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User Federation & QA

ETC-LUSI

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GIM



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Indra



Infoterra GmbH



Infoterra SAS

Metria



Planetek



Communication & Systems



SYKE



Tragsatec





geoland

GSE Land esa

GMES Land User Activities

Frascati, 8 March 2007

Stefan Kleeschulte

User Federation Committee, ETC LUSI



Existing User Representations



- **GSE Land Technical Working Groups**
 - Project internal discussion (e.g. QA issues, nomenclature)
- **User Group on Land Monitoring**
 - Initiated out of GSE Land and geoland, but ...
 - ... open to all interested user organisations
 - Across project discussion
- **GMES Network of Users (GNU)**
 - FP6 project
- **European Environment Information and Observation Network**
 - Discussions for coordinated operational implementation of land monitoring across EEA Member States
 - Nationally mandated organisations

Major milestones: user consultations



1-2 Apr 2004	Vienna	GMES User Group soil sealing
Nov 2004	Copenhagen	EEA Management Board seminar LULCC Europe
27-28 Jan 2005	Athens	Eionet update CLC + high resolution built-up areas
30 Jun 2005	Copenhagen	6EAP needs 2008+
20-21 Oct 2005	Brussels	GMES Pilot services land monitoring
30-31 Jan 2006	Copenhagen	Eionet GMES FTS Land precursor
7-10 Feb 2006	Vienna	Land Data User Community
27-28 Jun 2006	Copenhagen	Eionet kick-off GMES Land FTSP 2006-2008
7-9 Feb 2007	Berlin	Land Data User Community
21-22 Feb 2007	Copenhagen	Eionet National Focal Points

User driven developments



- **GSE Land QA / QC approach**
 - Production chain audit
 - Independent validation of mapping products
 - User feedback
- **Service Provider pre-qualification**
 - Urban Atlas (DG REGIO)
 - Regional Mapping (?)
- **User training and demonstration**
 - Berlin product demo





- **FTS 2006 high resolution layers**
 - Built-up area / degree of soil sealing
 - Forest mapping
- **Urban Atlas**
 - Mapping of Urban Audit cities
- **Geoland forum user conclusions on the future of European land monitoring**
 - Dual approach:
 - Short-term vs. Long-term
 - **Top-down** (info requirements) meets **bottom-up** (data provision) in **SEIS**
 - How to create a win-win situation?
 - Request for NRC technical working group
 - **Do it now!**



- **Continuity of land user group**
 - B4G
 - GNU
- **Better integration with Forest and Risk GSEs**
 - Analysis of common nomenclature needs
 - Part of a common core service
- **Service sustainability**
 - Users need a *guarantee* before adopting new ways of working
- **Service extensions**
 - Ensured continental (core service) and local component (Urban Atlas)
 - ... but how to ensure further downstream needs (such as IKSMS)?
 - ... and how to join top-down and bottom-up approaches?

Downstream services in support of WFD Reporting

