



EUROPE BENEATH OUR FEET:
WHY DOES IT MATTER?
... and what Geological Surveys can do about it

EuroGeoSurveys presentation to the
Scientific and Technological Assessment Panel of the
European Panel, Strasbourg, 25/10/07
Dr. Zdenek Venera, President



European Institutions

- + Provides science-based advice
- + Provides access to data, information and expertise
- + Participates to working groups
- + Formulates proposals

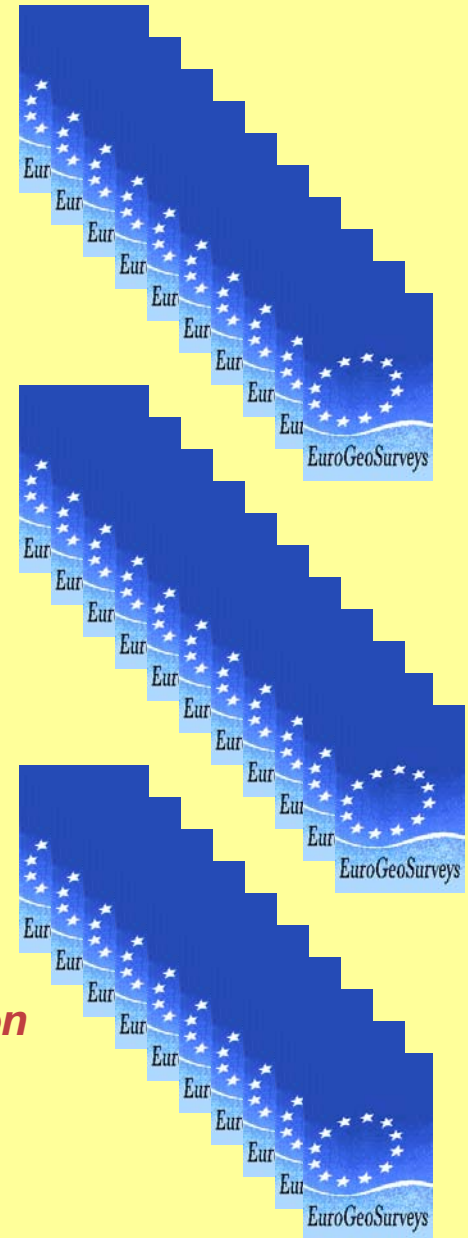
(PROACTIVITY)



(REACTIVITY)

- + Informs on policy development and implementation
- + Transmit requests and enquiries

33 National Geological Surveys



EU Geological surveys: some facts and figures

- Exist in every EU member state, with a wide range of affiliations, statutes and operational models
- An average of 100 years + of experience in solid Earth observation
- Nearly 5,000 researchers in all geology related disciplines
- Prime national data and information provider on georesources, geohazards and subsurface space
- Participation to over 160 FP5 or FP6 EU research projects (CO₂, geothermal energy, water, soils, coastal zones and marine domain, clean technologies for the processing of minerals ...)
- Decades of experience in developing countries

European Geological Surveys contributions
to EU policy-making

Research



Development cooperation

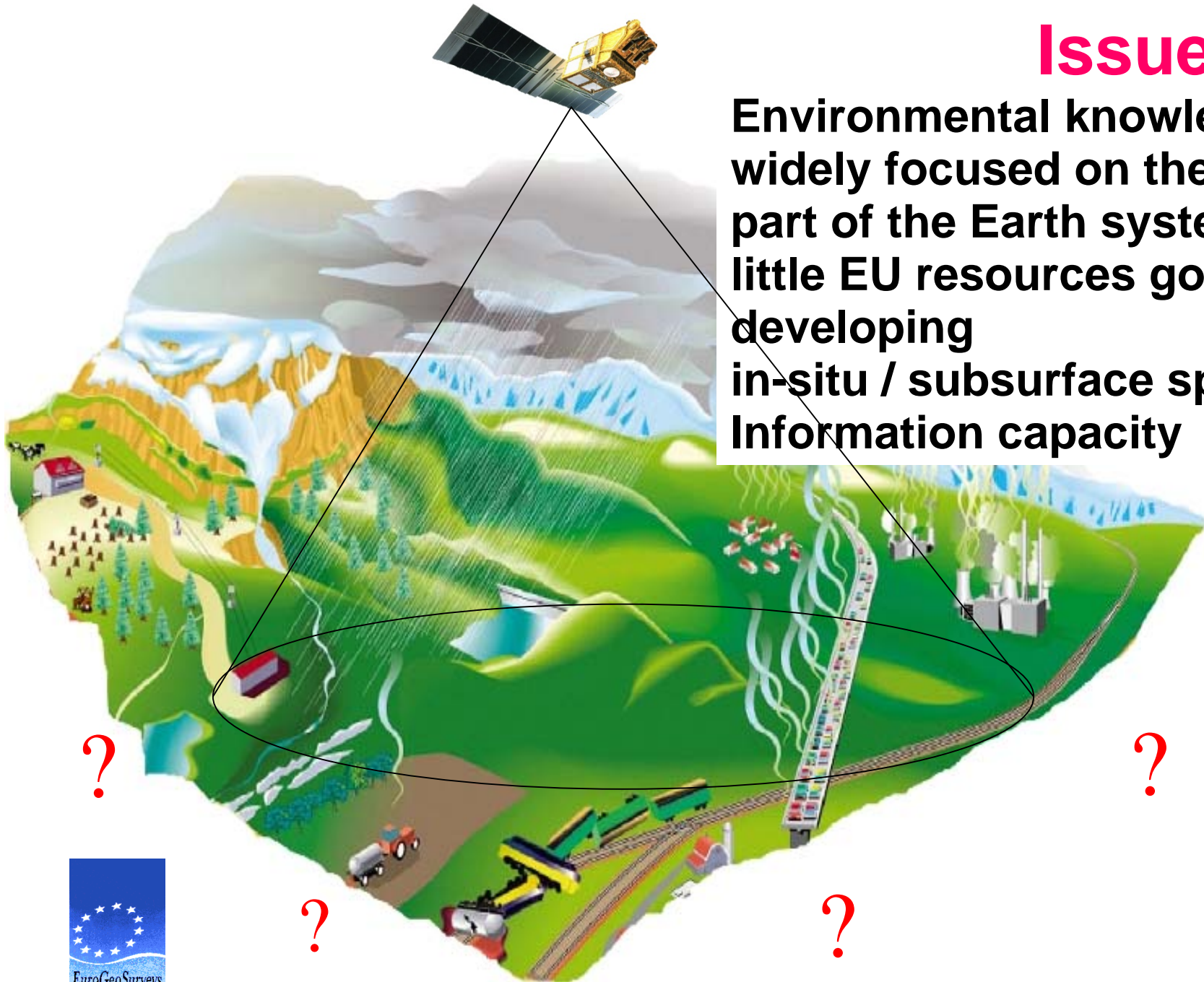
Expertise

Geographic information

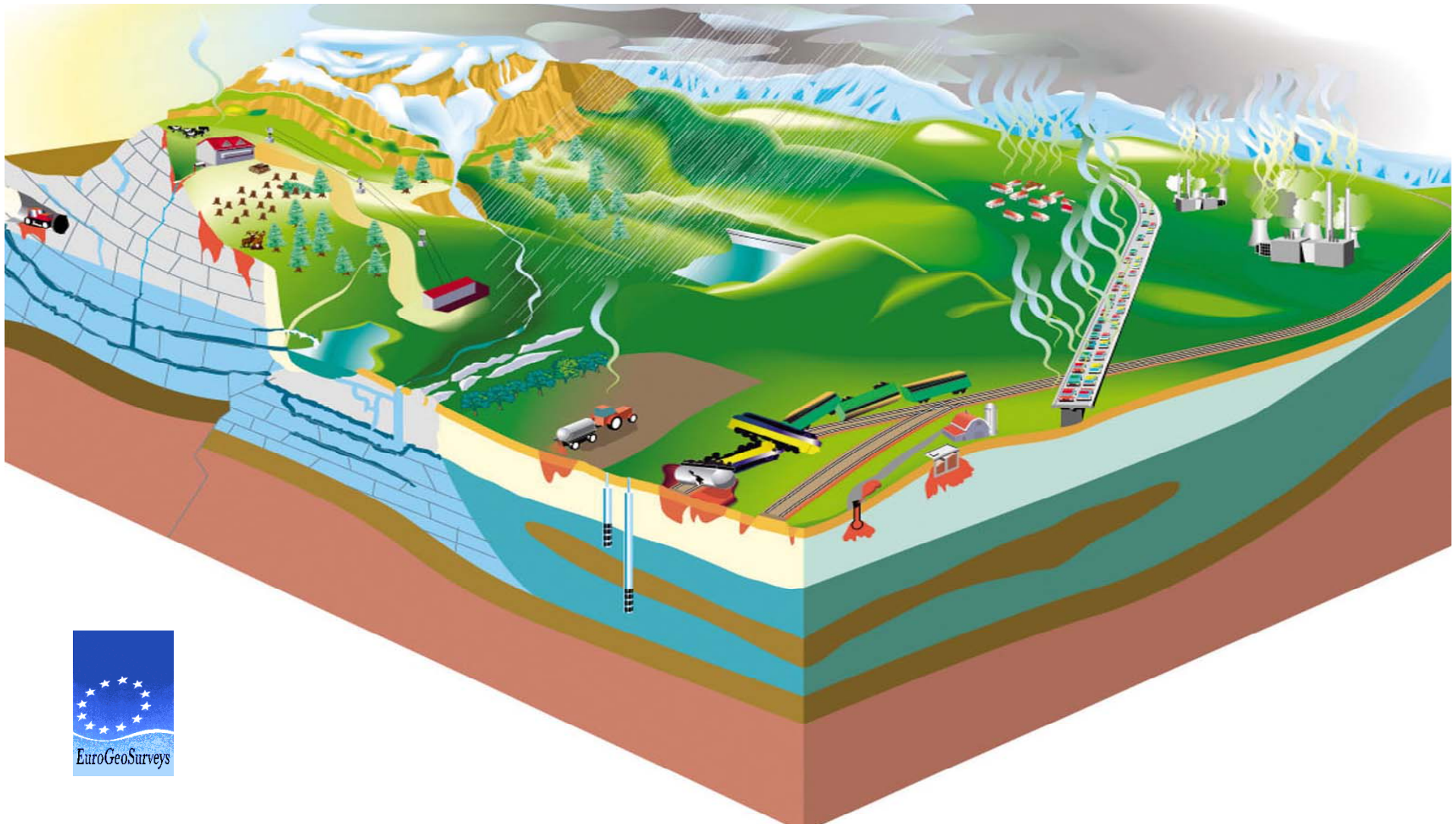


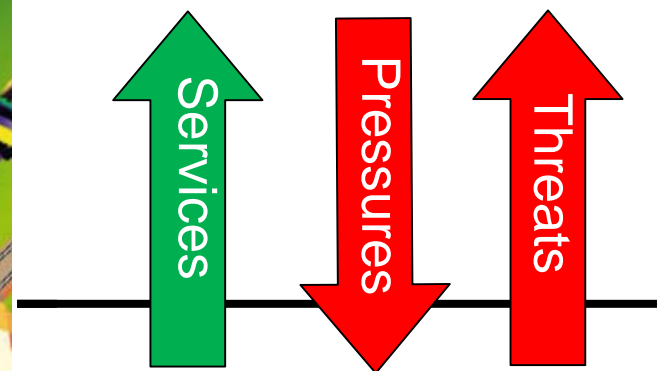
Issue:

Environmental knowledge is widely focused on the visible part of the Earth system and little EU resources go to developing in-situ / subsurface spatial Information capacity



... but the Earth system has two additional dimensions: subsurface and time. Why do they matter?

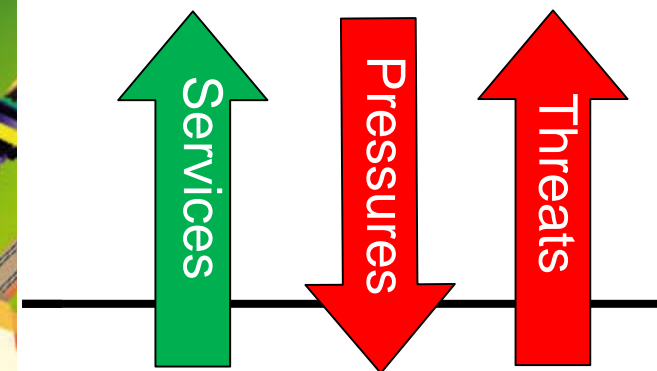




Vital resources and treacherous hazards



- Economic development & Competitiveness (security issues)
- Health and social well-being



Vital resources and treacherous hazards

Observing, understanding
and
managing the subsurface
is **critical to sustainable
development**



INSPIRE Directive:

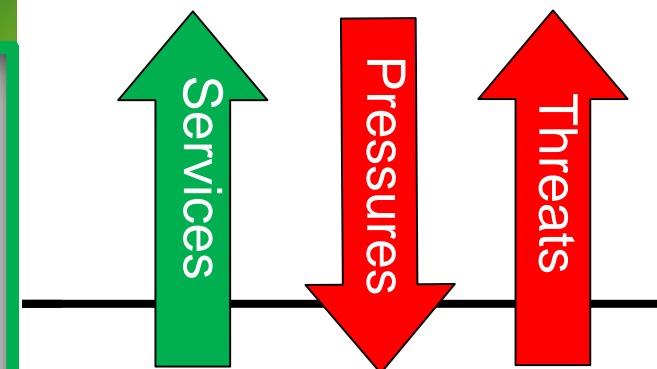
-Metadata:

- + 2010 (geology, groundwater)
- + 2013 (natural risks, energy, minerals)

-Interoperability:

- + 2014 (new data)
- + 2019 (existing data)

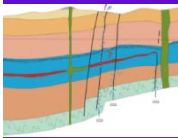
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Vital resources and treacherous hazards

**Tailor-made spatial information
and expertise
is required by
a wide range of end-uses
and end-users from private and public-sector.
Some can generate financially added-value services.**

End-uses



Climate/
CO2



Coast &
Seas



Fossil &
Ren. Energy



Geohazards



Health



Heritage



Infrastructure



Metals &
Minerals



Soils



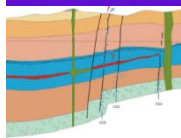
Water



Data acquisition from multiple sources



End-uses



Climate/
CO2



Coast &
Seas



Fossil &
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Geohazards



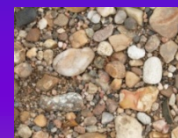
Health



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Infrastructure



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Water



Data acquisition from multiple sources



Geological data (limited use to non-specialists)



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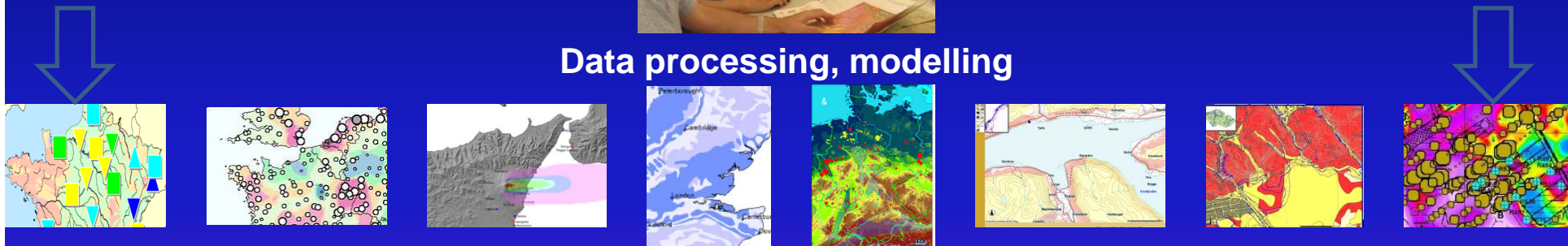
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Geological data (limited use to non-specialists)



Data processing, modelling



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Decision-aiding spatial information

End-uses



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Economic impacts of geology

- Over 50 % of the EU's public water supply comes from **groundwater** & its share in agriculture is growing (Eurostat, 2003)
- EU **minerals** industry produces about 3 bn tonnes/year, but EU is extremely dependent on metallic minerals imports. Minerals are needed by almost every component of the EU economy
- **Geological reservoirs** will play a major role for CO₂ storage. 200 bn m³ of natural gas are temporarily stored in subsurface reservoirs
- Worldwide use of clean, dependable **geothermal energy** amounts to 44 Twh/a of electricity generation while the accessible resource base is estimated at 12,000 Twh/a
- **Geohazards** cause considerable losses: the Assisi (Italy) 1997 earthquake caused 4.5 bn € losses, in the UK clay-rich soil shrinkage and swelling so far costed 8 bn € to the insurance industry
- The **ecological footprint of resources** used by the EU happens widely in developing countries

What geological surveys can do for Europe

- Provide data, information, expertise and policy advice at EU level on the geology related resources and hazards
- Develop pan-European intelligent statistics, thematic data and information layers ('Europe beneath our feet') in support to GMES and to the Shared European Information System in development at the EEA
- Foster multilingual interoperability of spatial information
- Serve as a science < > policy interface
- Advise on research needs
- Support developing countries in the sustainable use of their natural georesources ...

EU versus the US: the mineral resources example

The two regions are highly dependant on energy and mineral resources imports, the dependence of the EU for many metallic minerals being even higher

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USA	EU
State geological surveys	National geological surveys
Federal geological survey (USGS) with 51 M\$ 2007 budget for the assessment of mineral resources potential and the provision of minerals information to US government and economy	No EU capacity, no budget
Decades of federal attention to mineral resources issues	No competence given to EU up to 21/05 Council conclusions calling for the development of a to develop a coherent political approach with regard to raw materials supplies for industry, including all relevant areas of policy

... but

- a clear, funded, European remit is required
 - to develop a holistic, coherent, European monitoring for environment and security,
 - to develop an EU advisory and policy-supporting capacity on geology related issues
 - to develop an INSPIRE compliant European geological data and information infrastructure based on national assets and competences
 - to overcome the constraints related to voluntary contributions, national priorities, multiplicity of data formats and standards as well as the « stop and go » effect of project based contributions
 - to see the capacity building needs in developing countries better addressed

Thank you for your invitation

