Global Geospatial Information Management

Geospatial Information and the SEEA

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What is it and why was it needed?

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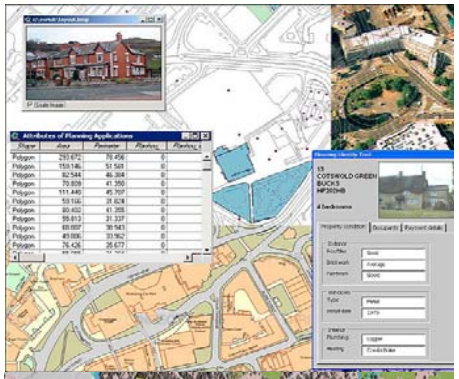
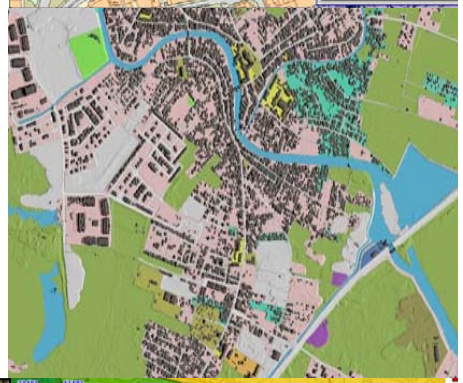
UN-GGIM: A global initiative

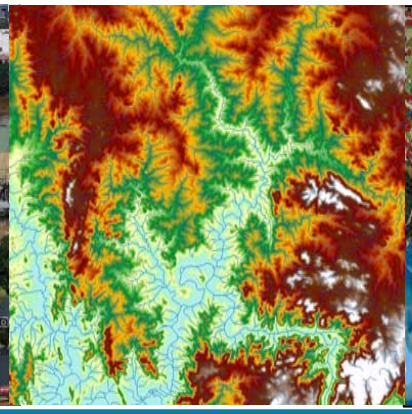
- A formal mechanism under UN protocol to discuss, enhance and coordinate Global Geospatial Information Management activities by **involving Member States** at the highest level as key participants
- Make joint decisions and set directions on the use of geospatial information within national and global policy frameworks
- Working with Governments to improve policy, institutional arrangements, and legal frameworks
- Addressing global issues and contributing collective knowledge as a community with shared interests and concerns
- Developing effective strategies to build geospatial capacity in the developing countries

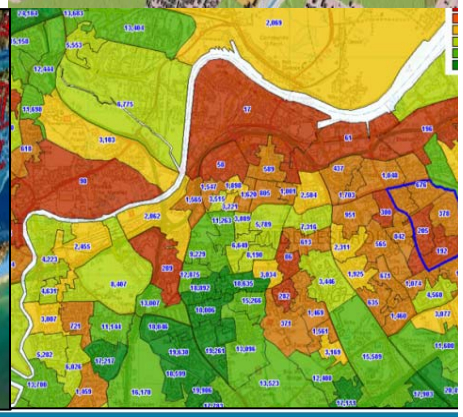
UN-GGIM: A global initiative

- Baselines - policy and legal, institutional arrangements, governance, principles
- Implement and adopt international standards and interoperability
- Global reference/framework datasets/data themes
- Establishing a global geospatial information platform
- Integration – land, marine, environment, urban hazards, statistics
- Sustainable development agenda
- Data->tools->map->measure->monitor->model

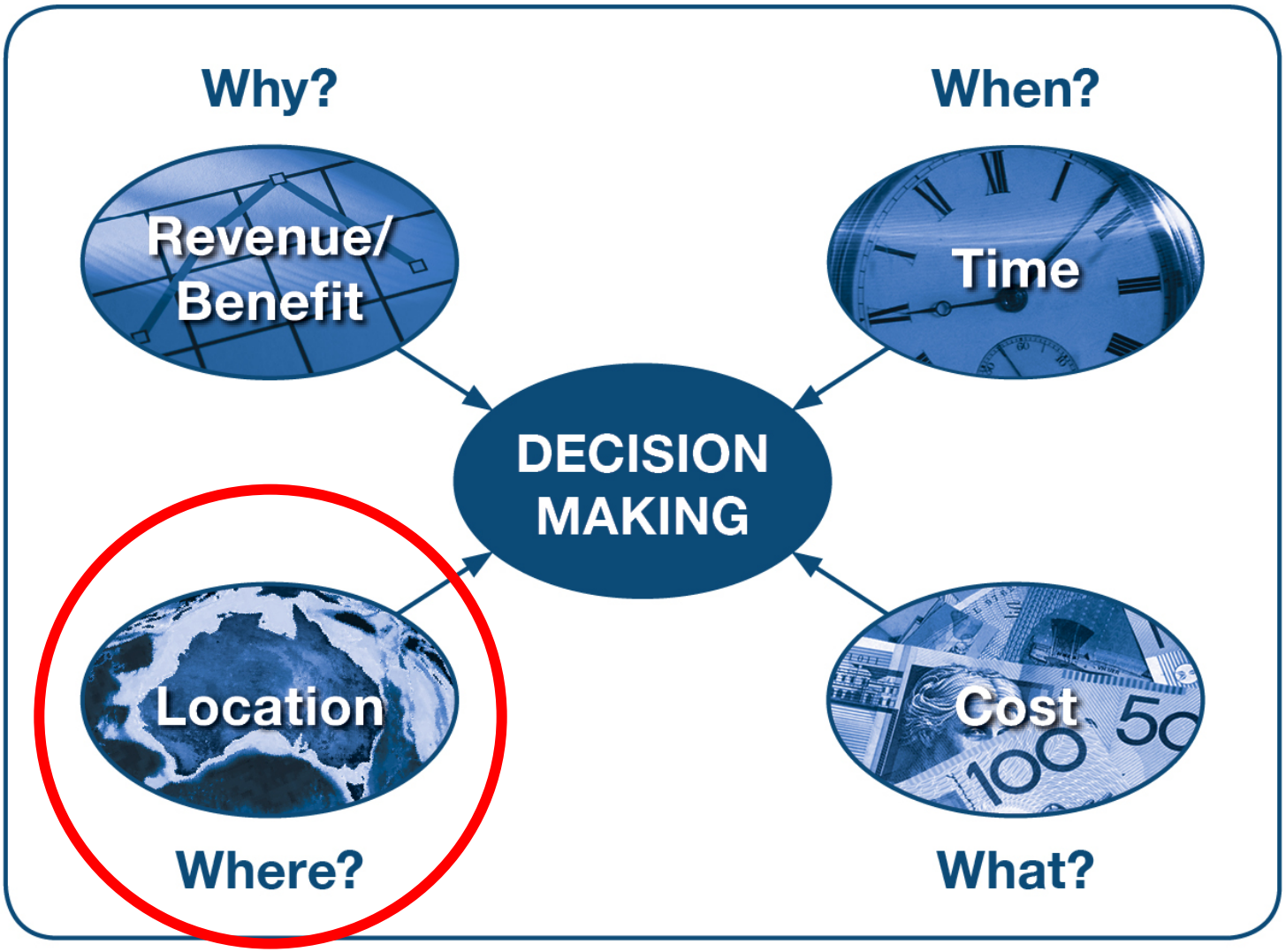








Location is the 4th dimension of decision making



RIO+20
United Nations Conference on Sustainable Development

Monitoring Sustainable Development: Why Location Matters?

"I am also pleased to see that the importance of reliable, trusted geographic information is now recognised. The United Nations has now established a Committee of Experts of Member States, which the UK co-chairs, to move this agenda forward"

Rt Hon Nick Clegg MP,
Deputy Prime Minister,
United Kingdom Government

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HM Government

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The global geospatial paradigm

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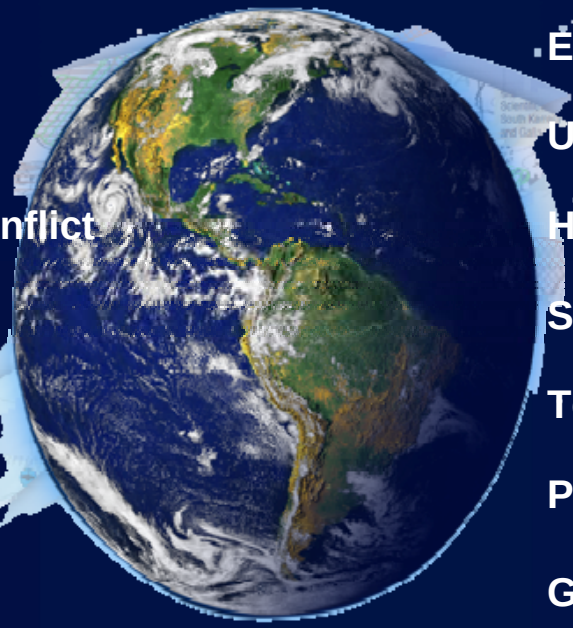
Our world is in continuous change

More than ever before, there is a need for timely, fit-for-purpose information on the state of the environment

- Climate Change
- Population
- Political and Social Conflict
- Loss of Biodiversity
- Energy
- Water Security
- Natural Resources



- Economic Uncertainty
- Urbanization and Land Use
- Human Health
- Security
- Technology Advancements
- Poverty & Inequality
- Globalization

. . . data, information, knowledge, understanding….decisions

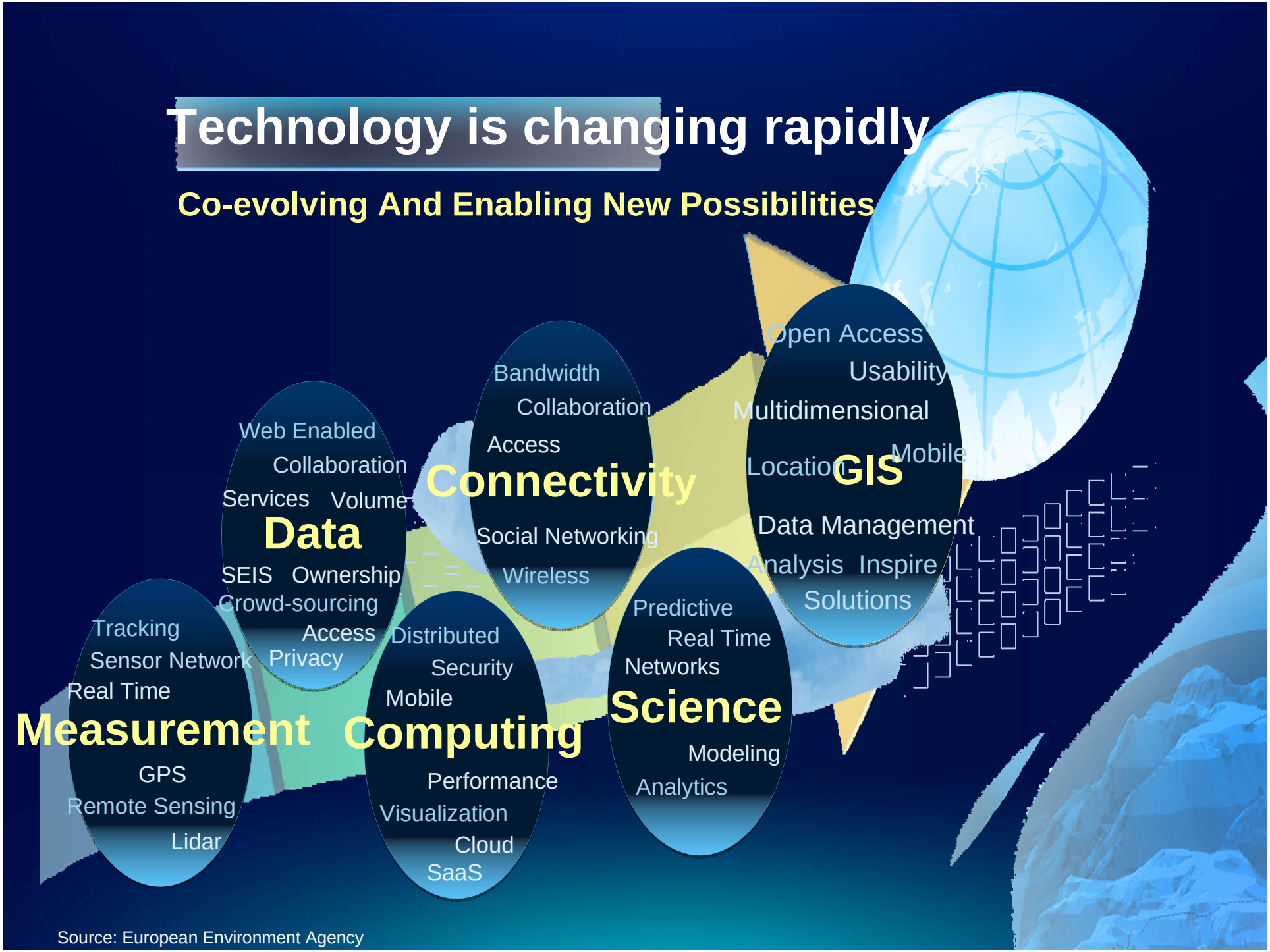
Source: European Environment Agency

We are being inundated with data and information

Source: European Environment Agency

Technology is changing rapidly

Co-evolving And Enabling New Possibilities



Source: European Environment Agency

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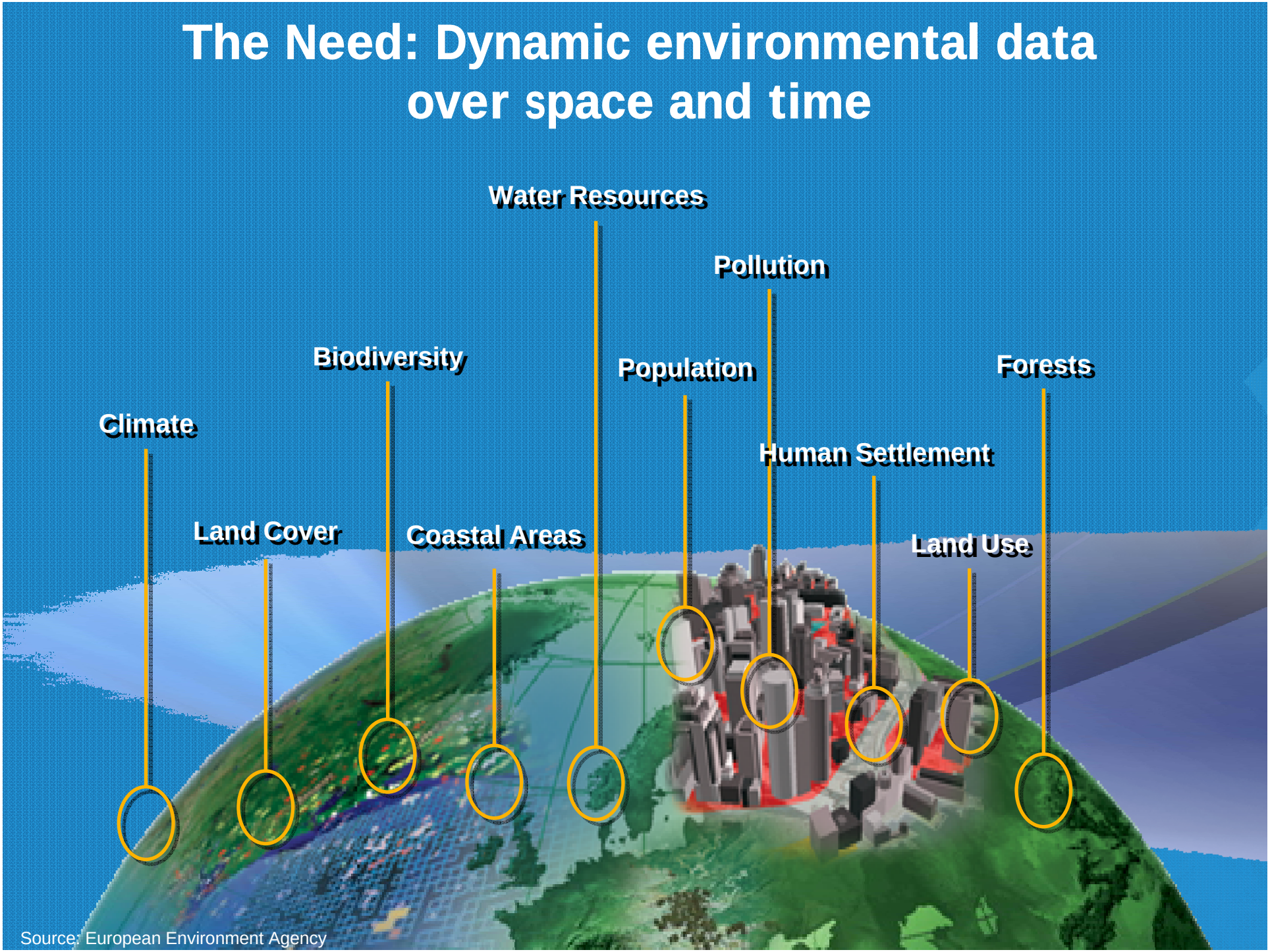
SEEA Experimental Ecosystem Accounting

Units for Ecosystem Accounting

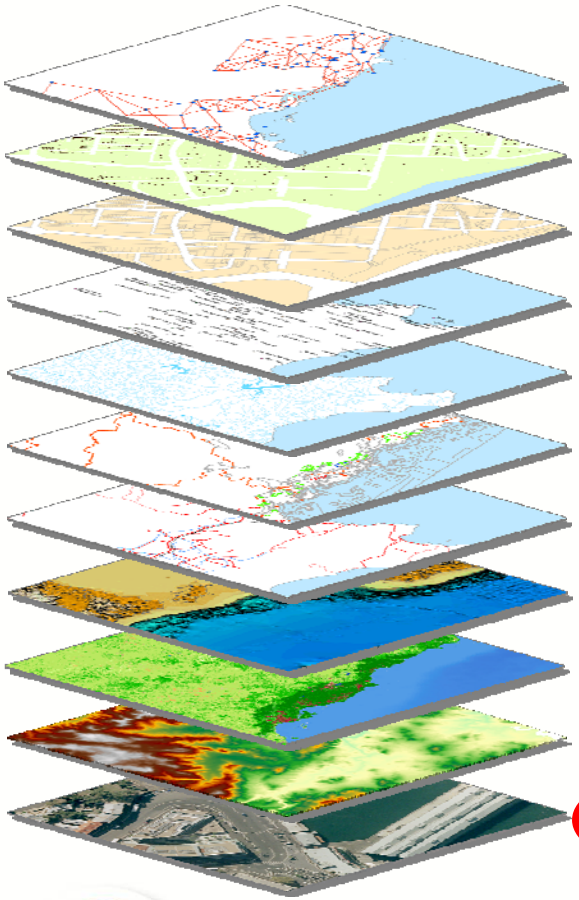
- Delineation of spatial units undertaken with the development of spatial databases in a GIS
- Databases could contain information such as soil type and status, water tables, rainfall amount and pattern, temperatures, vegetation, biodiversity, slopes, altitude, land management and use, population, and social and economic variables
- Information may be used to assess flows of ecosystem services from given spatial areas to relevant beneficiaries
- Proposes a units model based on spatial areas for measurement and compilation
- Basic spatial units (BSU), land cover/ecosystem functional units (LCEU), and ecosystem accounting units (EAU)
- In geospatial terms:
  - Baseline units of measure: a grid-thematic approach – extract values from themes to grids
  - Functional units of measure: homogeneous units as a function of BSU
  - Reporting units: a boundary unit

The Need: Dynamic environmental data over space and time



Source: European Environment Agency

National to global framework datasets



Positioning (Geodetic)

Address (Buildings)

Cadastre (Tenure)

Names (Gazetteer)

Water (Hydrology)

Administrative Boundaries

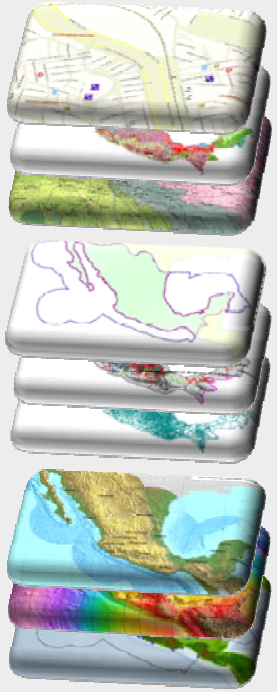
Transport

Bathymetry (Hydrography)

Land cover (Vegetation)

Elevation

Imagery (Satellite & Photo)



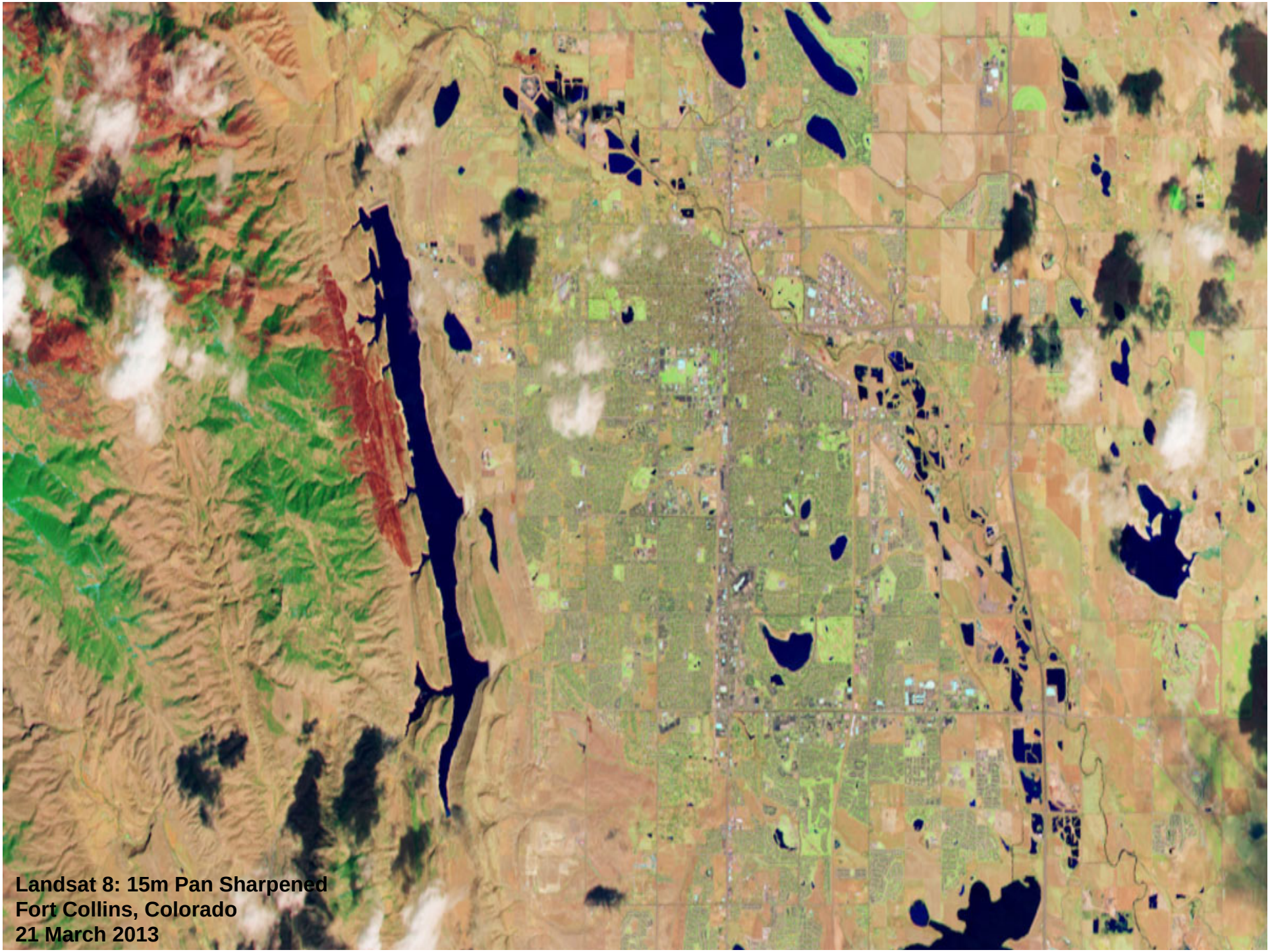
Geographical names

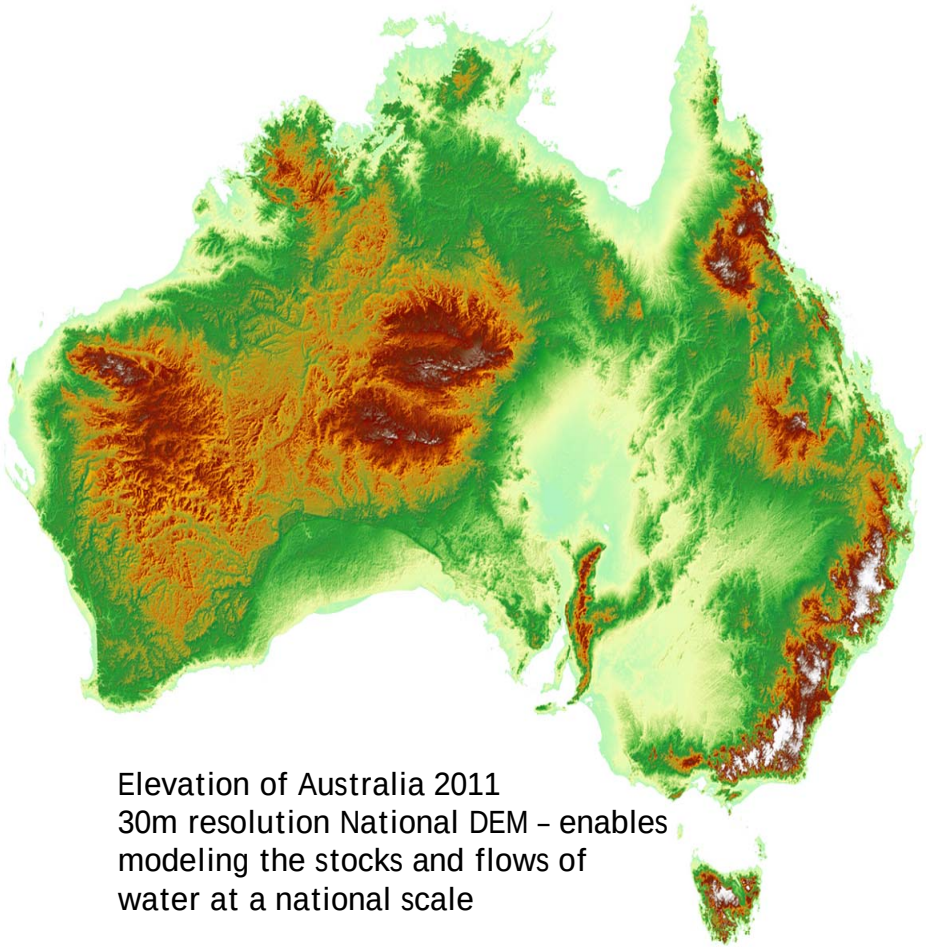
Cadastre, Topographic, Natural Resources and Climate Data

Land, Island and Submarine Relief

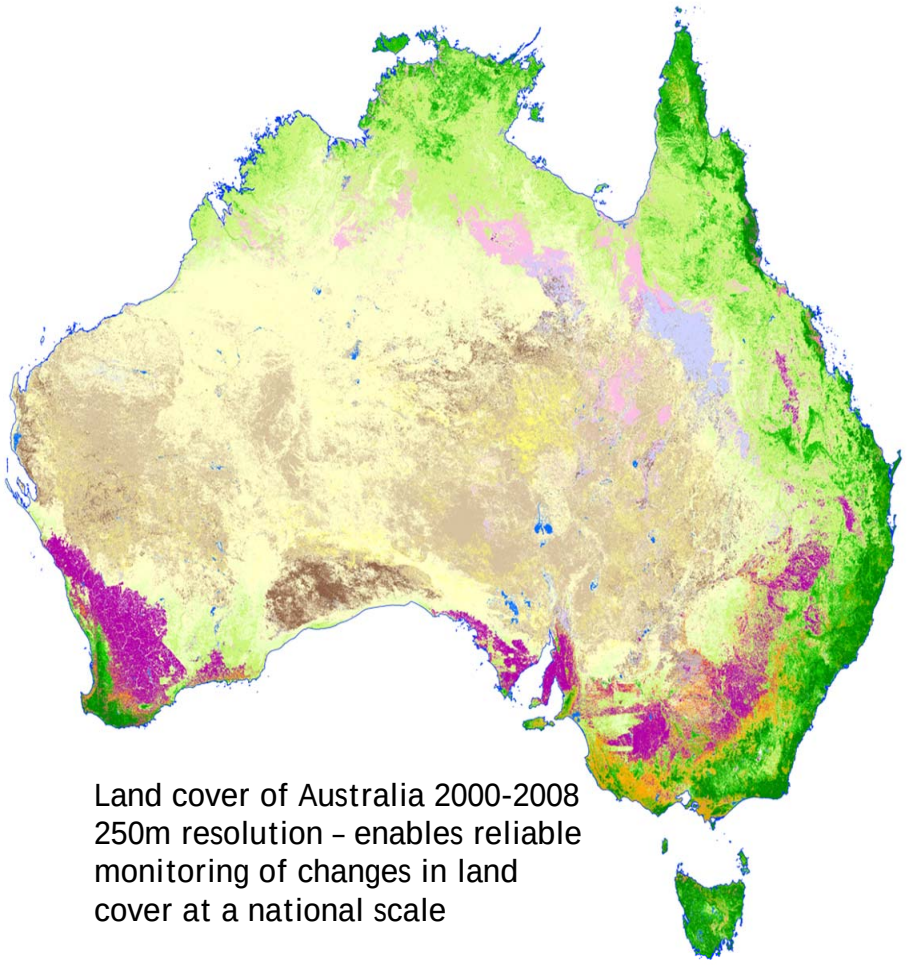
Coastal, International, State and Municipal Limits

Geodetic Reference Frame


Landsat 8: 15m Pan Sharpened
Fort Collins, Colorado
21 March 2013



Elevation of Australia 2011
30m resolution National DEM – enables modeling the stocks and flows of water at a national scale



Land cover of Australia 2000-2008
250m resolution – enables reliable monitoring of changes in land cover at a national scale

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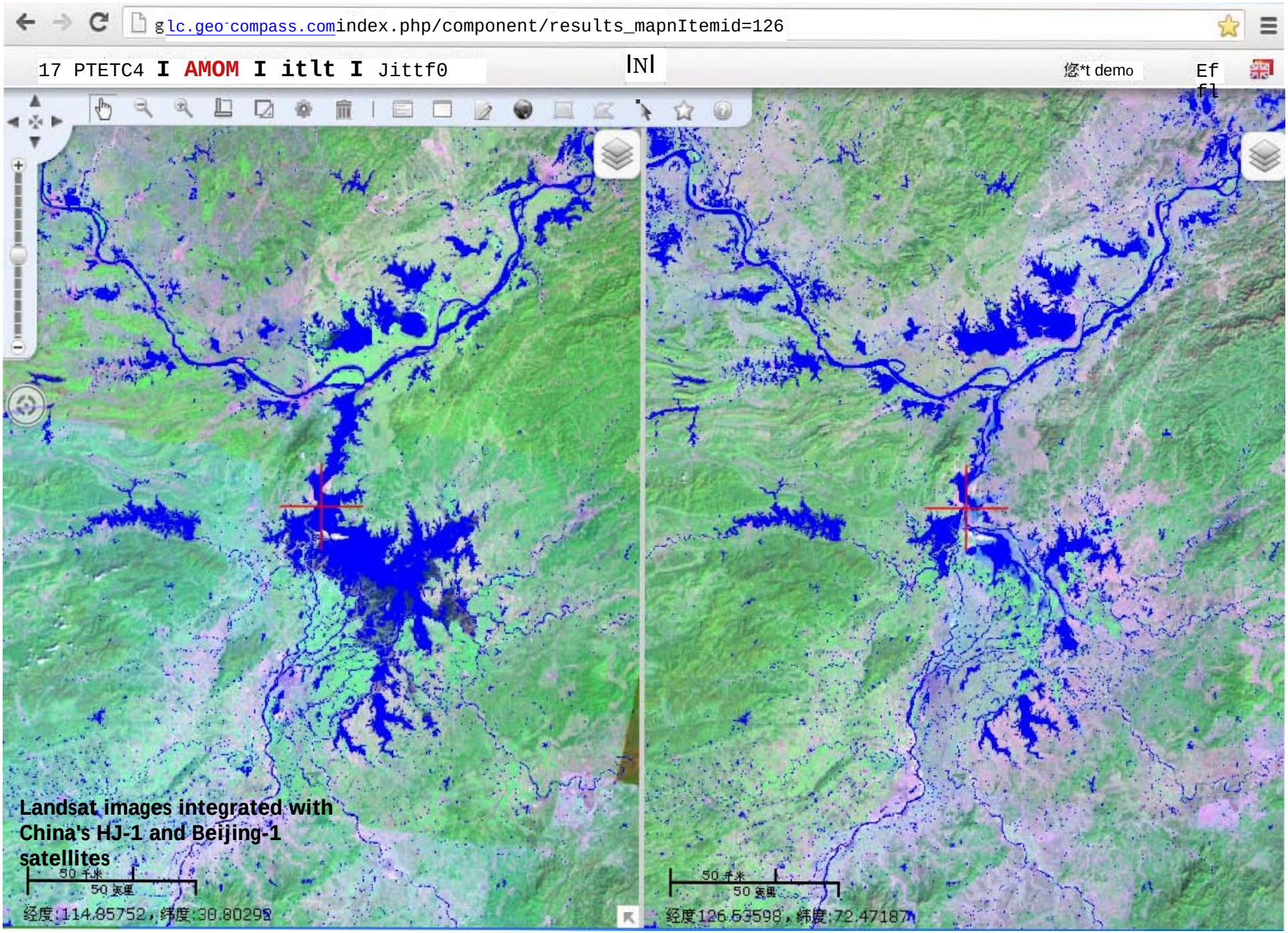
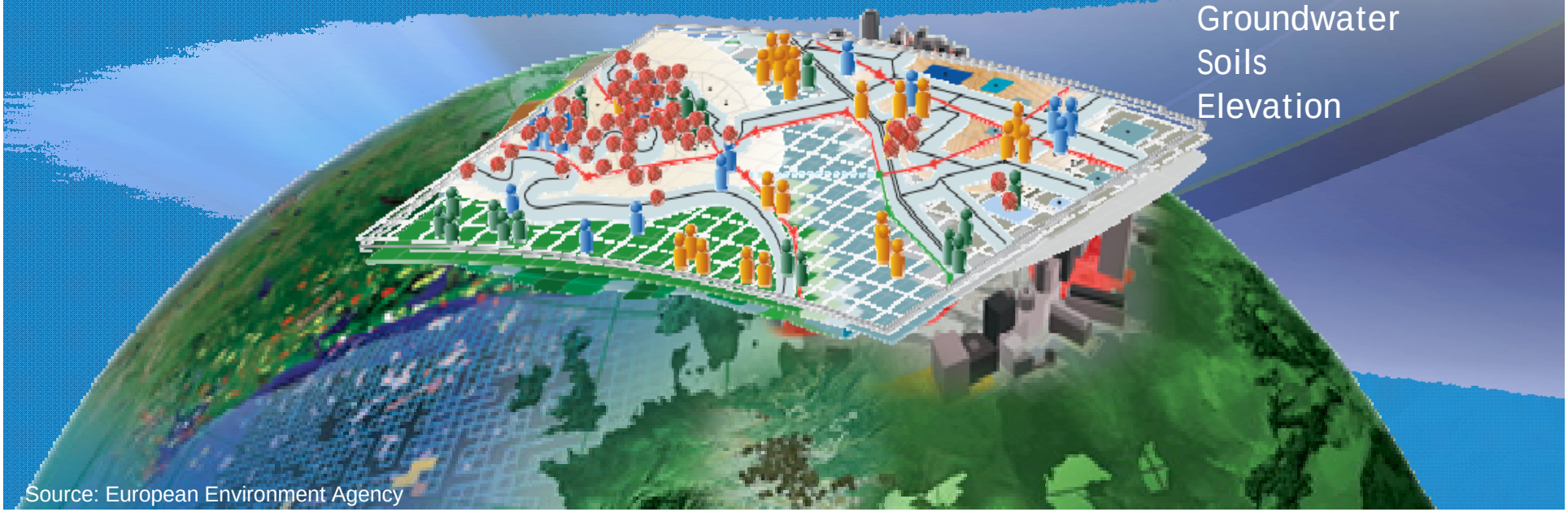


All of these variables can be integrated into consolidated reporting units…. if the data is consistently available over space and time

Administrative bdys
Population
Human settlement
Infrastructure
Rainfall
Temperature
Land use
Land cover
Topography
Vegetation
Surface water
Groundwater
Soils
Elevation



Source: European Environment Agency

Geospatial information and remote sensing technologies

Integrate data and information…

Over space and time . . .

Source: European Environment Agency

SEEA Experimental Ecosystem Accounting

Some considerations regarding the geospatial aspects

- A new area and many data gaps, but requires a data-driven approach for the analysis
- Take a pragmatic and practical approach to the problem
- What are agencies doing? What are reliable sources of information/knowledge?
- Within a geospatial-statistical paradigm, consider:
  - The required governance and institutional arrangements (top cover)
  - Tools and applications that may be needed and/or available
  - The data (and units of measure) needed to drive the analysis – must be sustainable and consistent – will be variable at first
  - The temporality of the data – real-time, sensors, monitoring, etc.
  - Modelling and analysis – to what level of detail and/or aggregation
  - Take a standards-based approach as much as possible
  - Ensure common architectures and interoperability across systems and platforms
  - Pilot first, then grow

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GLOBAL GEOSPATIAL
INFORMATION MANAGEMENT

Thank You

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