

# **Spatial Data Infrastructures in Support of Land Governance and Natural Disaster Prevention and Management The FIG Com3 activity**

**Dr Chryssy Potsiou, Greece  
FIG Commission 3**

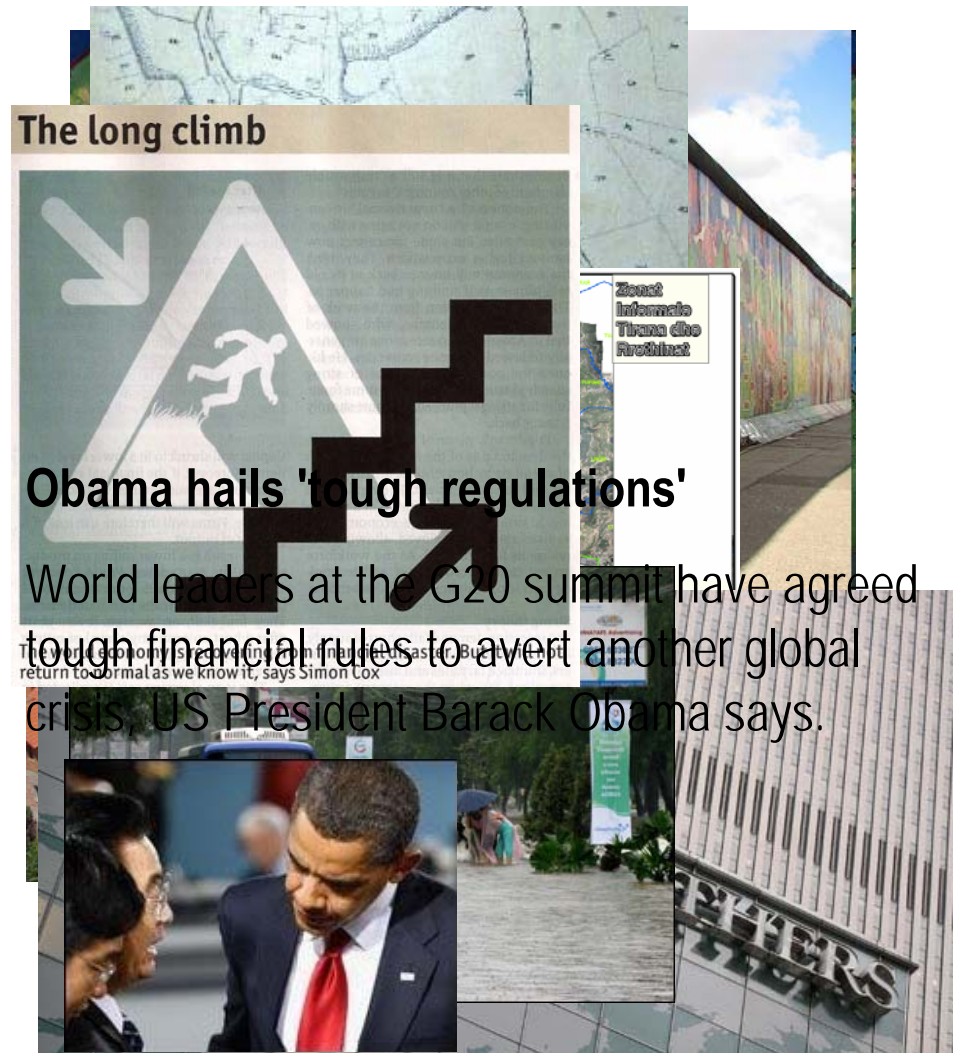
# Presentation Contents

- **The rapid Urbanization and the challenges we need to address**
- **Spatially enabled societies and the needs**
- **FIG Commission 3 Activity**

This presentation will only include commentary on the general aspects of SDI in connection with urban land management as you will be dealing with specific technical aspects during the next few days of this conference

# Spatially enabled societies

- Democratization
- Privatization of lands & registration of property rights
- Rapid urbanization
- Free market economies
- Accelerated development
- Climate change
- Global financial crisis
- New era of peace and harmony



# Spatially enabled societies

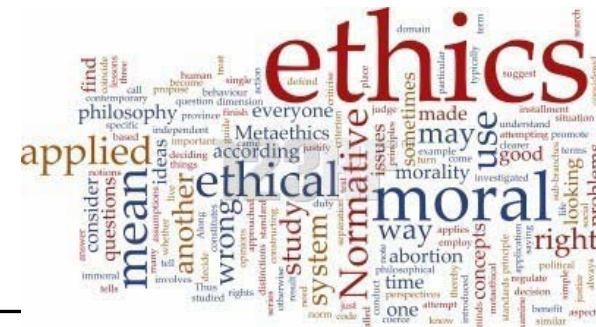
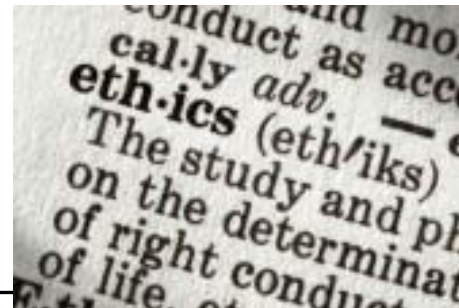
## ➤ Reliable spatial information



## ➤ Education

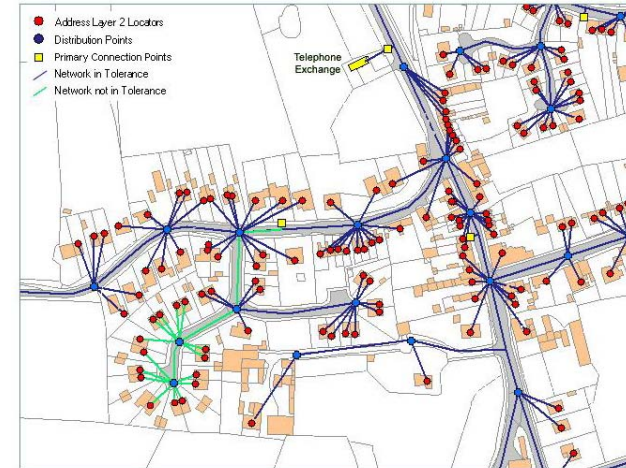


## ➤ Professional ethics





# Spatially enabled societies



Source: OS UK

# Homo sapiens did not start as an urban citizen!

120,000 years until the end of the last ice age when the very first "human settlement" appeared, and about

6,000 years more until the classical antiquity when people established large cities to live together for

security and prosperity, for trade, but also for worship.



# The World Goes to Town



# Culture & market have in a way replaced religion

- **visitors**
- **Investors**
- **large international corporations, are attracted by the largest cities worldwide for the museums, exhibitions, cultural events, fashion, theaters, art galleries, etc.**

**Cities became centers of learning, innovation and sophistication**

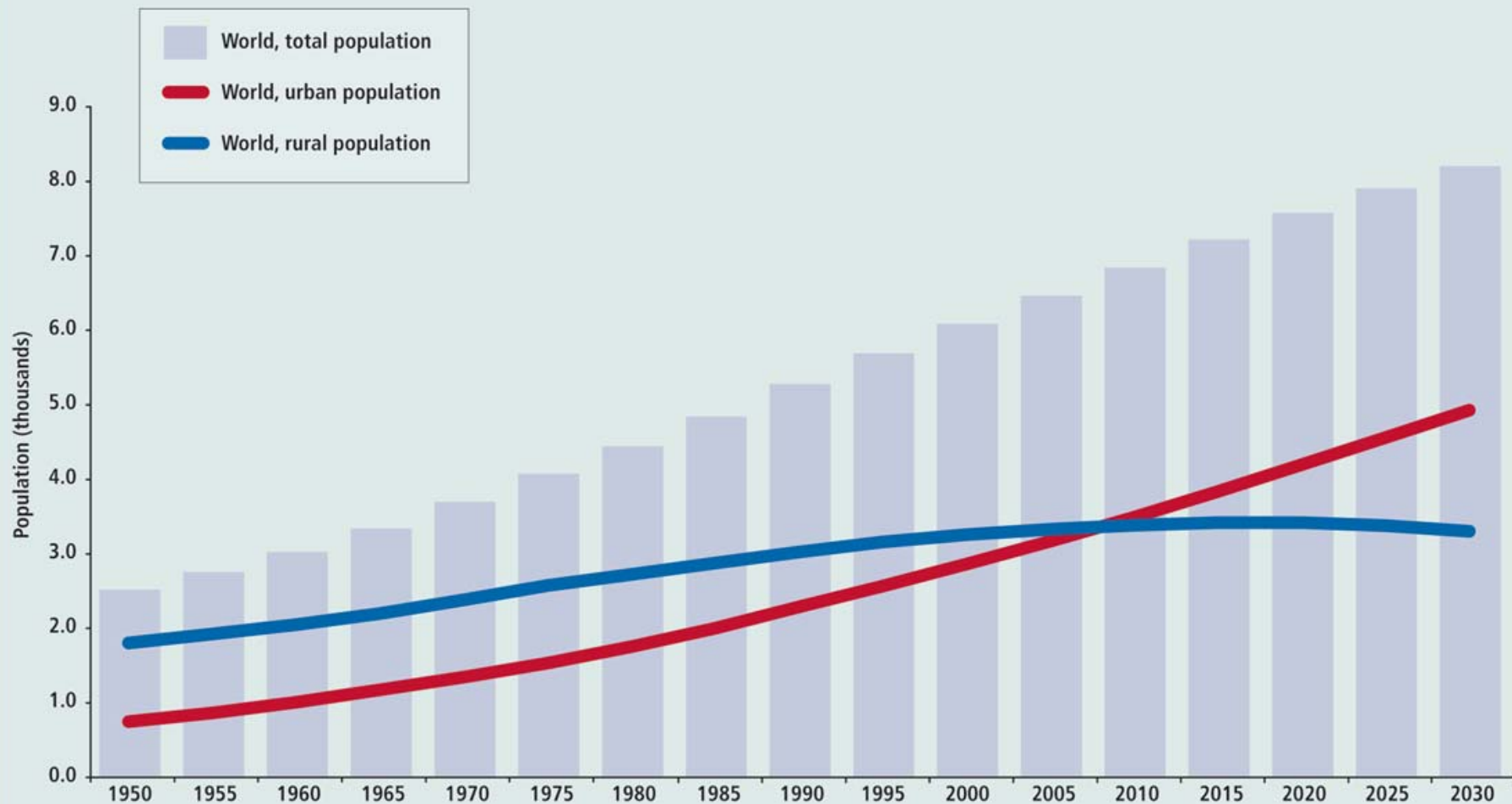


# Global proportion of the urban population increase

Year	Urban population	Proportion
1900	220 million	13 %
1950	732 million	29 %
2005	3.2 billion	49 %
2030	4.9 billion	60 %

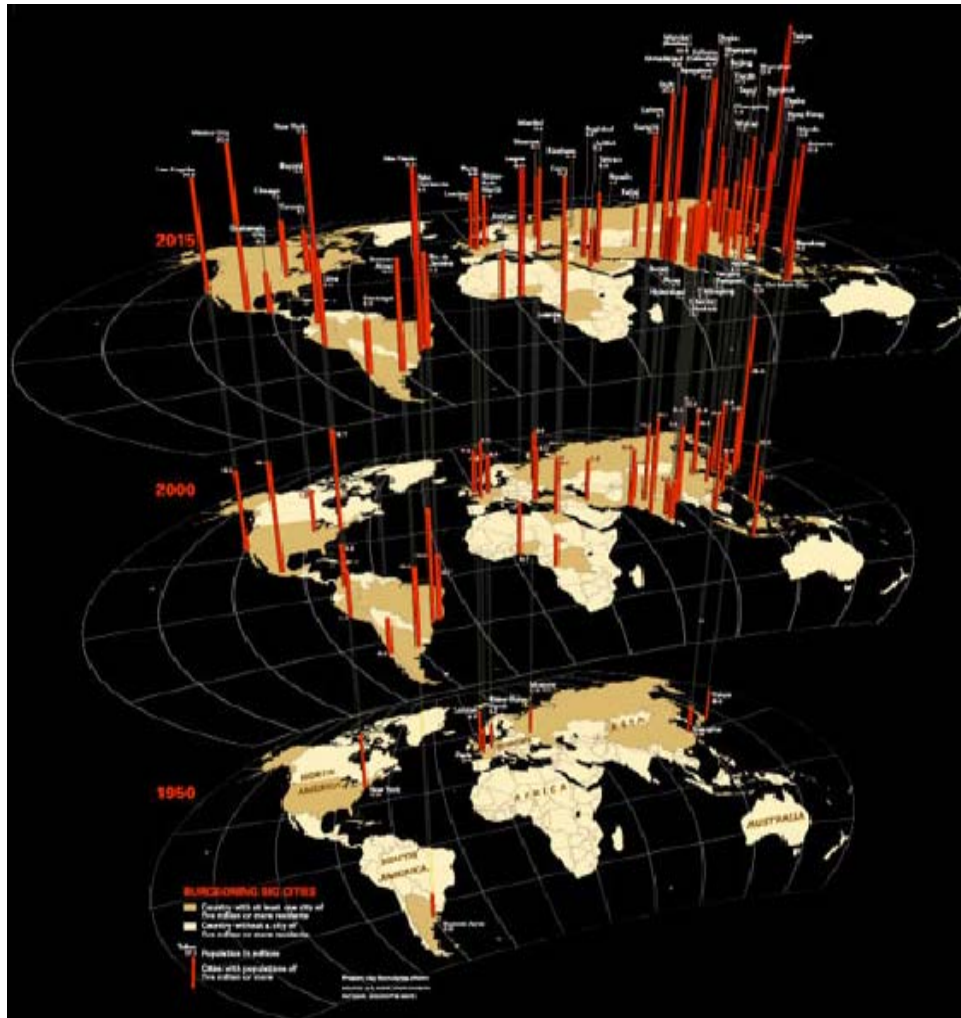
*Source: UN Population Division*

## The urban and rural population of the world, 1950-2030



City centers attract those looking for employment, education and better living conditions

# Megacities: home to 10 million or more



- 1950s New York, Tokyo, Buenos Aires, European Capitals
- 2005 Latin America, India, North America, Asia
- 2015 Latin America, Central Africa, Asia



# Place matters - all have a spatial dimension

- Food, water and energy insecurity
- Informal development, high urban densities, dilapidated city centers
- Lack of green areas and of buildings reflecting local cultural heritage,
- Transportation problems, traffic congestion and accidents
- Lack of basic services, insecurity of tenure, informal real estate markets
- Unsustainable land use and inefficient land administration systems
- Creation of slums, criminality
- Difficulty in natural hazards management
- Water, soil and air pollution, climate change
- Weak institutions to resolve conflict
- Inefficient administration, bad governance

# Place matters

*Spatial information should be made available both to*

***governments** to plan better policies for economic and social development, and environmental protection, but also to*

***citizens** and*

***business** to encourage creativity.*



Place matters:  
the Location  
Strategy for the  
United Kingdom

November 2008



# Waste management - garbage treatment

**6,000 tons of trash are produced daily in this city of >4M people**

**Greece has successfully managed to close about 800 open landfills and avoid high EU penalties. However, the costs for the regeneration and mechanical recycling procedure are also high**





# Energy insecurity

**Public Power Corporation in Greece will pay up to 2,2 billion euros a year for carbon emission licenses unless it shifts away from its dependence on lignite.**

**Consumers could expect a rise in electricity bills of 45% by 2013**



**Greece**



**Hanoi**



**Albania**

# Traffic Management



Hanoi, Vietnam



Mumbai, India





# Fresh water is very expensive



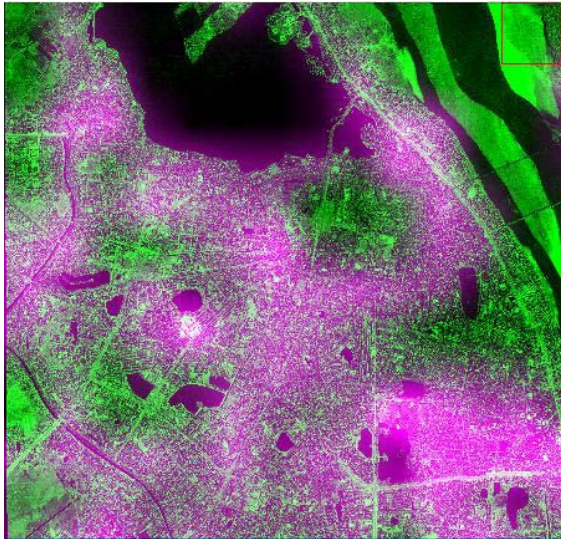
**Delhi (India) draws 75% of its drinking water from Yamuna river into which the city dumps quantities of sewage to join a cocktail of farm chemicals and industrial effluents, including arsenic**





# High urban densities

## High urban densities in Hanoi



Satellite image



Master plan



Cadastral map



← Also in Europe



# Results of rapid urbanization hit rich and poor alike



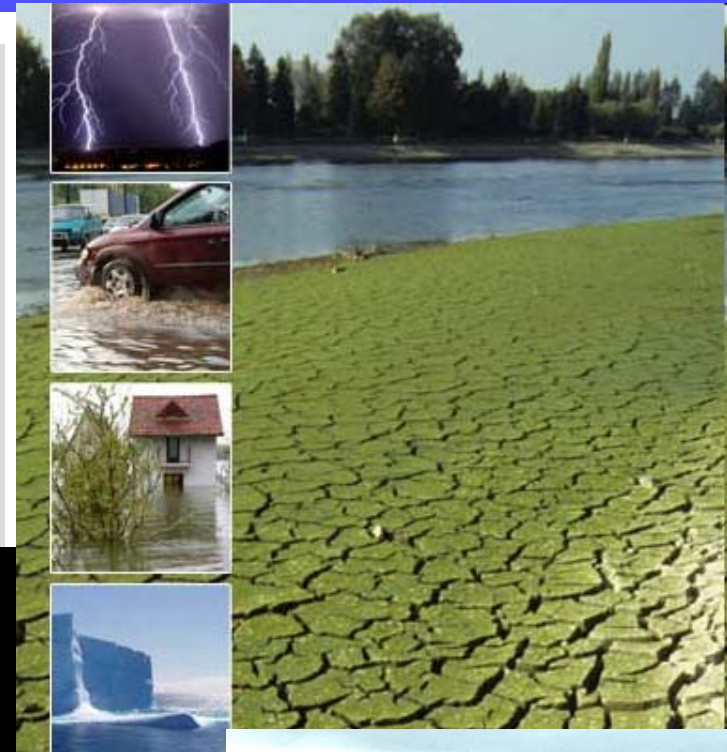
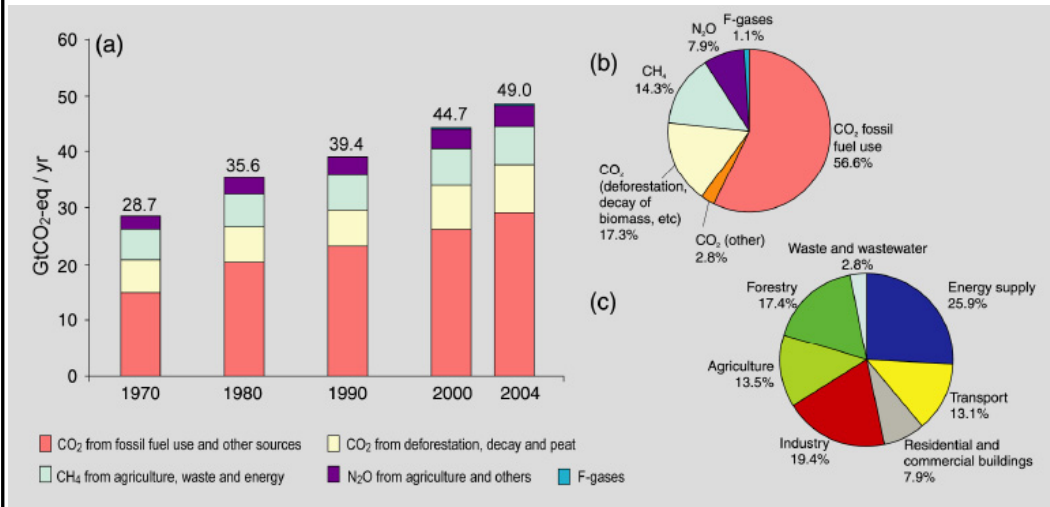


# Informal Urban Expansion

Informal Settlements →  
Informal Real Estate Markets



# Climate change





## Urbanization can be viewed as an indicator of development

- Concentration of the most dynamic economic activities in urban areas often produces economies of scale and leads to social and economic benefits
- It is a matter of human rights that people are free to choose where they will live

### However....

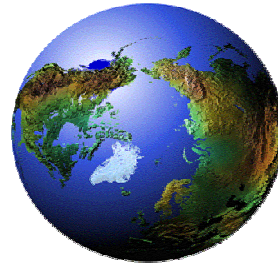
- Nobody wants to live in a city which is congested, suffers constant blackouts and frequent floods, with few parks, awful schools and clinics, devoid of any buildings of charm and character, governed by incompetent public sector
- It is a matter of good governance to achieve sustainable urban growth
- Restrictions on private rights in the use of land in terms of air, soil and water pollution have to be applied and accepted by all market participants.  
**All must assume the costs of the natural resources they consume, knowing that their competitors do the same!**

# INSPIRE

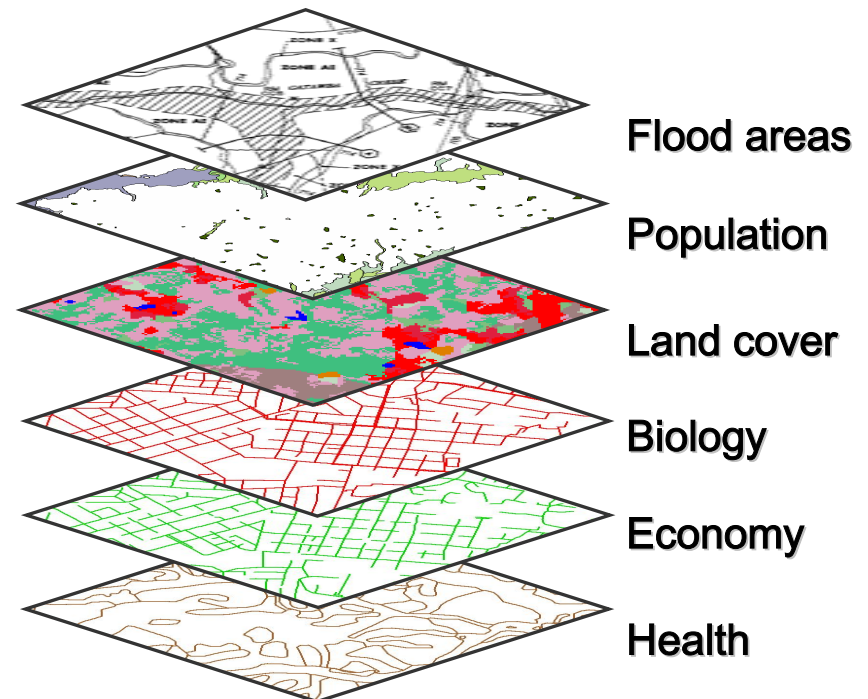
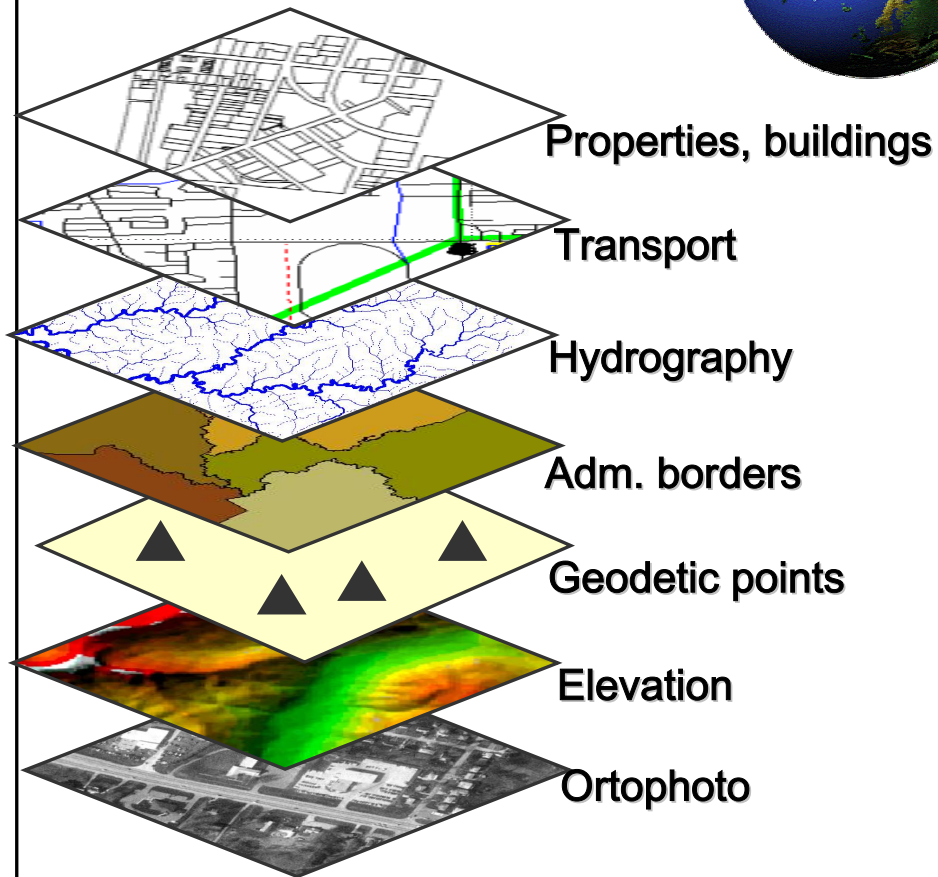
- **Infrastructure for SPatial InfoRmation in Europe**
  - <http://www.ec-gis.org/inspire>
  - **Initiated by DG Environment, Statistics and Research**
- **INSPIRE principles; data should be**
  - **Stored, made available and maintained at the most appropriate level**
  - **Possible to combine from different sources**
  - **Possible to share between users and applications**
  - **Easy to discover, evaluate and find conditions for use**
  - **Available on conditions that do not restrict their extensive use**

# The Norwegian NSDI

## Reference geodata



## Thematic geodata



# Norway digital geoportal



# Service based infrastructure

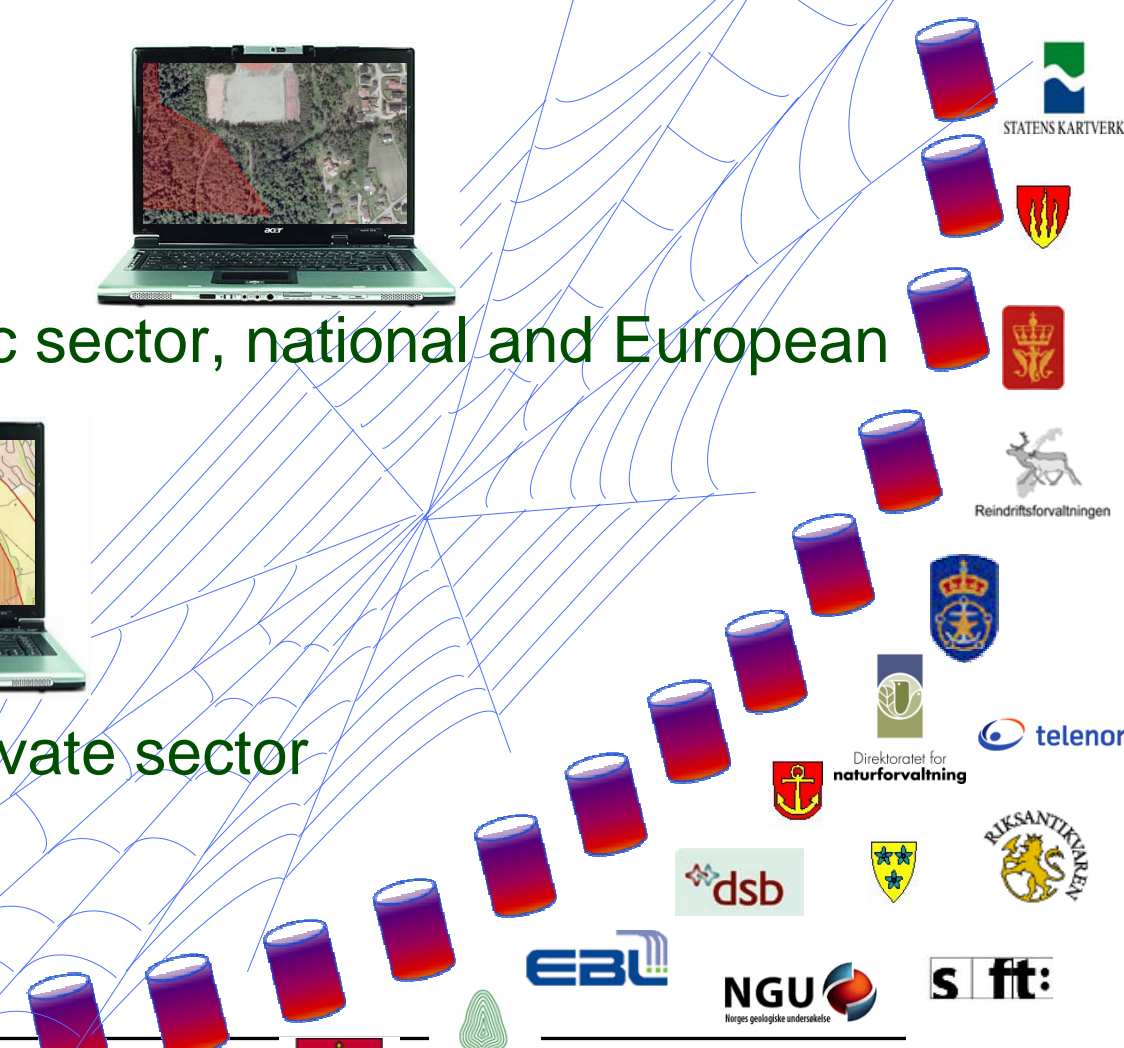
- metadata
- view services
- download services



Public sector, national and European

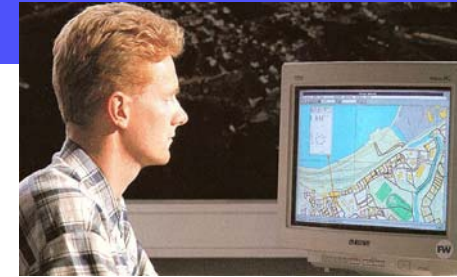


Citizens and private sector



# Extensive value for the society

- **Municipal administration**
- **Transport**
- **Shipping and Fishery**
- **Agriculture and Forestry**
- **Telecommunications and Energy**
- **Defence**
- **Emergency management**
- **Imagery**
- **Environmental and Area resource management**
- **Property management**
- **Education**
- **Media**
- **Leisure**
- **Map production**
- **eGovernment**



Adobe Reader - [Mypage-brosjyre for web.pdf]

File Rediger Vis Dokument Verktøy Vindu Hjelp

# Services on MyPage

The illustration below presents the different types of services available on MyPage.

The screenshot shows the MyPage website interface. On the left, there is a sidebar with a search bar and a list of service categories including Consumer rights, Education, Health, Housing and property, Norwegian Armed Forces, Recreation, culture and the environment, Social security, Taxes, and Travel and transport. The main content area is titled 'Frontpage' and contains various service links and information. Three green callout boxes are overlaid on the screenshot:

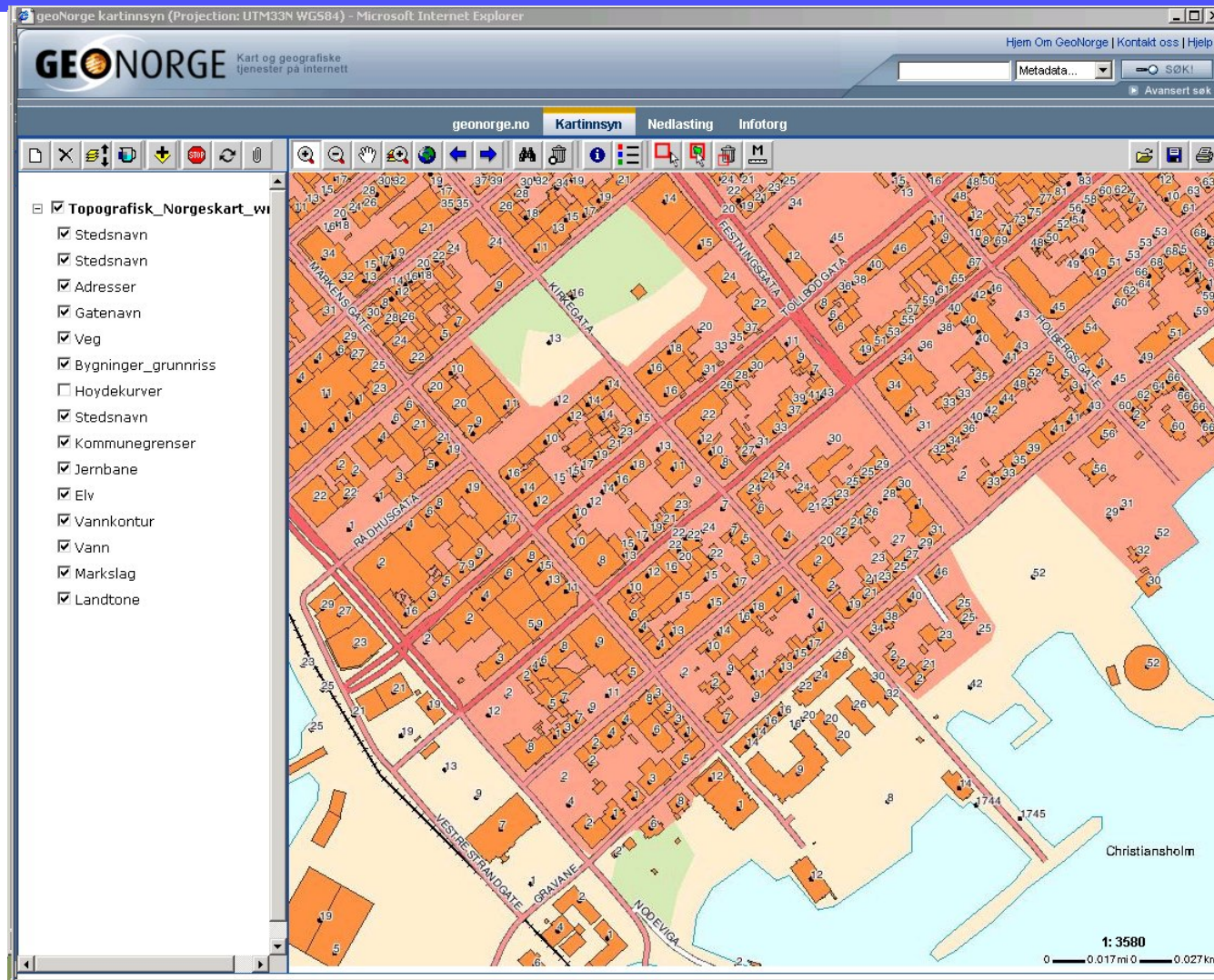
- Register services** provide citizens with personal data stored in public registers.
- Notification services** allow SPs\* to correspond with citizens.
- Calendar services** help citizens keep track of important dates and events.

4

start | 142% | 4 av 13 | 72% | 13:04



# Web Map Services: Dissemination of topographic data





# Web Map Services (2)

geoNorge kartinnsyn (Projection: UTM33N WGS84) - Microsoft Internet Explorer

GEONORGE Kart og geografiske tjenester på internett

Hjem Om GeoNorge | Kontakt oss | Hjelp

Metadata... SØK! Avansert søk

geonorge.no Kartinnsyn Nedlasting Infotorg

- Statens Kartverk Sjø
  - Dybdekontur
  - Torrfall\_grense
  - Torrfall
  - MudretOmrade\_grense
  - MudretOmrade
  - Grunne
  - Flytebrygge\_Grense
  - Flytebrygge
  - Flytedokk\_Grense
  - Flytedokk
  - Torrdokk\_Grense
  - Torrdokk
  - Skjaer\_punkt
  - Dybdepunkt
  - Konstruert kystkontur
  - Kystkontur
- Norge i Bilder
  - Ortofoto Backdrops
- Topografisk\_Norgeskart\_w
  - Stedsnavn
  - Stedsnavn
  - Adresser
  - Gatnavn

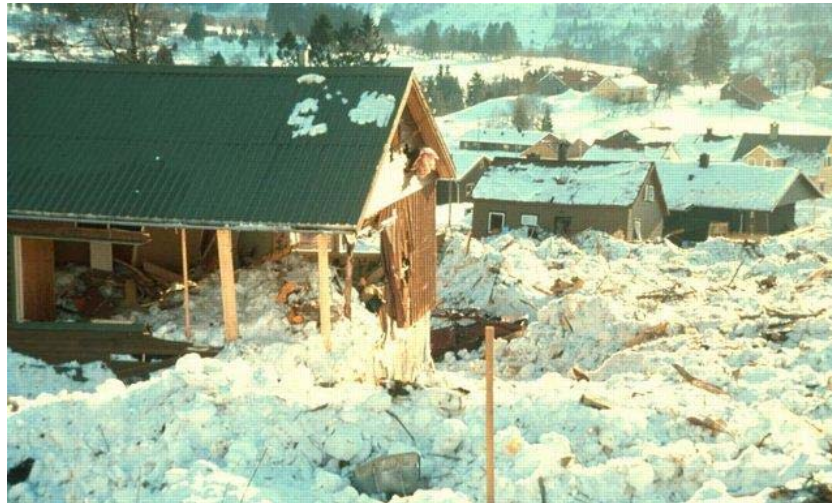
# Digital Planning Dialogue

The screenshot shows a web browser window titled "Vestfold - Microsoft Internet Explorer" displaying the website for Tønsberg kommune. The browser address bar shows the URL: <http://kart.tonsberg.kommune.no/webinnsyn/Content/Main.asp?layout=vestfold&vr=asv>. The website header includes the Tønsberg kommune logo and navigation tools. A sidebar on the left provides "Planinformasjon" for the "Reguleringsplan Kaldnes industriområde", including the status "Offentlig ettersyn" and a deadline of "10.12.2006". It also lists links for "Reg. bestemmelser", "Plankart (PDF)", "Illustrasjoner", and "Saksframlegg". A tree view shows "Andre Saksdokumenter" and "Tidligere saksdokumenter". At the bottom of the sidebar, there is a "Send uttalelse" button. The main content area features a map with a red triangle marker and a form titled "Tønsberg kommune - Microsoft Internet Explorer". The form fields are: "Navn: Ola Nordmann", "Postadresse: Olastien 4, 3100 Tønsberg", "E-postadresse: Ola.nordmann@hotmail.com", and "Emne: Uttalelse til 1.gangs høringsutkast reguleringsplan Kaldnes industriområde". There is a large text area for "Innspill:" and a "Send til kommunen" button. Below the form, a timeline diagram shows the process stages: "Varsel - planstart" (07/08/2006), "1.gangs behandling" (10/11/2006), "2.gangs behandling" (10/12/2006), "Planvedtak", and "Ev. klagebehandling". The timeline also indicates "planinitiativ", "uttalelser til varsel", "utarbeide planforslag", "Saksforberedelse", and "uttalelser til off. ettersyn".



# Society security – slide risk

Municipalities – responsibility in build up areas



Risk  
management  
and actions

Planning/  
construction

Actions

Watch,  
warning,  
preparedness

# Billions are invested on Cadastre Projects

- *Technical approaches alone are not sufficient*; in order for any investment on major technical projects (e.g., cadastre, NSDI, etc) to be efficient and meet our expectations significant policy reforms are necessary. *Effective land governance* is critical to addressing these challenges.
- *Land governance recognises that land is not only technical but also extremely political in nature; improving governance on land requires bridging the gap and preventing conflicts between the so called formal, customary and informal systems and institutions.*

*It means establishing new partnerships between governmental authorities, people, academia and the private and professional sectors.*



# 2006-2010 period FIG Commission 3

## FIG Commission 3 “Spatial Information Management”

- General principles, norms, standards, practical guidance
  - *informal urban and suburban development*
  - *formal access to land, property and housing*
  - *environmental monitoring, disaster prevention and management*
- Annual Workshops
  - Greece (2007) – Spain (2008) – Germany (2009) – Bulgaria (2010)
- Expert Group Meetings

# Synergies :



# UN HABITAT

# UN/ECE WPLA



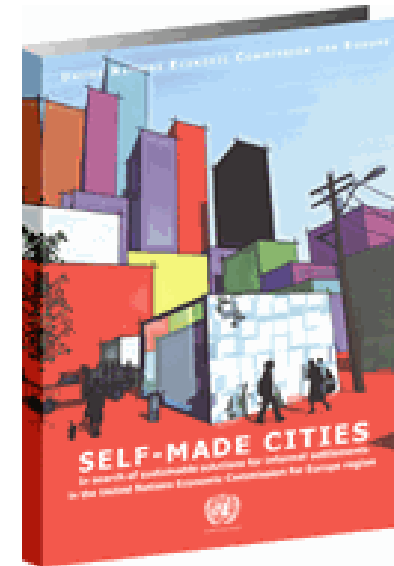
Geographic Information Systems Congress, IZMIR

2-6 November 2009



# Publications

- Proceedings of FIG Com3 Annual Workshops
- UN ECE publication on Self-made cities
- Joint FIG-UN HABITAT-GLTN publication on developing land tools for the legal integration and the provision of environmental improvements in informal urban development and to contribute to the alleviation of poverty and the economic growth
- FIG publication on Spatial Information in support of Mega-cities management, the drafting of which will also be completed by the end of this year





# FIG Com3 Resolutions

- Promote a **holistic view** of urban and rural land and its social, economic, environmental and political linkages
- Improve **coordination** between development partners, citizens and donors
- Implement significant **legal and institutional land reforms**

**TESEKKÚRLER !!**

**Thank you !!**

**Ευχαριστώ !!**