Spatial Enablement
and
the Response to Climate Change
and
the Millennium Development Goals

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The global agenda
- Facing the Millennium Development Goals

Land governance
- Managing land rights, restrictions, and responsibilities

Spatially enabled government
- The significant role of the cadastre

Climate change
- Land administration in support of climate change adaptation

Natural disaster prevention and management
- Land administration in support of natural disaster risk management
The Millennium Development Goals

Goal 1: Eradicate extreme poverty and hunger
Goal 2: Achieve universal primary education
Goal 3: Promote gender equality and empower women
Goal 4: Reduce child mortality
Goal 5: Improve maternal health
Goal 6: Combat HIV/AIDS, malaria and other diseases
Goal 7: Ensure environmental sustainability

Goal 8: Develop a Global Partnership for Development

The framework includes 18 targets and 48 indicators enabling the ongoing monitoring of annual progress
Gross Domestic Product

North America

Western Europe

Japan and South Korea

Per capita in PPP US dollars
- More than 25,000
- 20,000 to 25,000
- 15,000 to 20,000
- 10,000 to 15,000
- 7,000 to 10,000
- 4,000 to 7,000
- 2,000 to 4,000
- Less than 2,000

Value
- This square represents 100 billions US dollars
Urban population growth

- **1970**: Rural 63%, Urban 37%
- **2000**: Rural 53%, Urban 47%
- **2030**: Rural 40%, Urban 60%

**2007**:
- Total world population: 6.5 billion
- Total urban population: 3.3 billion
- Total slum dwellers: 1.1 billion
Kibera, Nairobi, 250 ha, 1 mill+ people
It is all about:

**People,** human rights, engagement and dignity

**Politics,** land policies and good governance

**Places,** shelter, land rights, and natural resources

**Power,** decentralisation and empowerment
Outline of presentation

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Land governance is about the policies, processes and institutions by which land, property and natural resources are managed. This includes decisions on access to land; land rights; land use; and land development. Land governance is about determining and implementing sustainable land policies.
LAS provide the infrastructure for implementation of land polices and land management strategies in support of sustainable development.
Land administration systems are the basis for conceptualising rights, restrictions and responsibilities related to people, policies and places.

**Rights:**

Registration and security of tenure positions

**Responsibilities:**

Social, ethical commitment to environmental sustainability and good husbandry

**Restrictions:**

Planning and control of land-use and land development
The increasing role of property rights

"Civilised living in market Economies is not simply due to greater prosperity but to the order that formalised property rights bring"

Hernando de Soto – 1993

Continuum of rights
(GLTN-agenda)

From: illegal or informal rights
To: legal or formal rights

[Diagram showing a continuum of property rights, transitioning from informal to formal rights]
Property Restrictions
- two conflicting approaches

• The free market approach (current debate in the US)
  - Land owners should be obligated to no one and should have complete domain over their land.
  - The role of government to take over, restrict, or even regulate its use should be non-existent or highly limited.
  - Planning restrictions should only be imposed after compensation for lost land development opportunities

• The central planning approach (European perspective)
  - The role of democratic government include planning and regulating land systematically for public good purposes.
  - A move from every kind of land use being allowed unless it was forbidden to every change of land use is forbidden unless it is permitted and consistent with adopted planning regulations and restrictions.
Integrated land-use management

**Land Policies**
- Overall Land Policies
- Sectoral Land Laws and Policies
  - Agriculture
  - Environment
  - Water Supply
  - Housing
  - Heritage
  - Natural Resources
- Sectoral Programmes

**Land-Use Management**
- Regional and Local Spatial Planning
- Construction Planning

Implementation through
- Planning permissions
- Building permits
- Sectoral land use permits

**Land Information**
- Land Data Registers
  - Land Tenure
  - Land Value
  - Land Use
- Cadastral mapping
- Topographic mapping
- Natural resource maps
- Utility mapping
- Coordinated Land Information Systems

Implementation for Sustainable Development
Responsibilities:
A cultural map of the world

Uncertainty avoidance:
The preference of structured situations over unstructured or flexible ones

Power distance:
The degree of inequality among people accepted by the population

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Understanding the land management paradigm

- Sustainable Development
  - Economic, Social & Environmental

- Land Policy Framework

- Land Administration Functions
  - Land Tenure, Land Value
  - Land-Use, Land Development

- Land Information Infrastructures

- Country Context
  - Institutional Arrangements
Place matters

Everything happens somewhere

If we can understand more about the nature of “place” where things happen, and the impact on the people and assets on that location, we can plan better, manage risk better, and use our resources better.

“Heading toward spatial enabled society”
Institutional Challenges

• There are a range of stakeholder interests
  This includes Ministries/Departments such as:
  Justice; Taxation; Planning; Environment; Transport;
  Agriculture; Housing; Interior (regional and local authorities); Utilities;
  and civil society interests such as businesses and citizens.

• Creating awareness of the benefits of developing a shared platform for Integrated Land Information Management takes time and patience.

• Mapping/Cadastral Agencies have a key role to play
A spatially enabled government organises its business and processes around “place” based technologies, as distinct from using maps, visuals, and web-enablement.

The technical core of Spatially Enabling Government is the spatially enabled cadastre.
Significance of the Cadastre

Cadastral engines...

1. Multipurpose Cadastre (German style)

2. Title or deeds tenure style Cadastres (Torrens/English style)

3. Taxation driven cadastre (French/Latin/USA style)

SDI
Mapping agencies and other data providers

SDI
Parcels Properties Buildings Roads

Land management paradigm

Tenure

Value

Use

Development

Spatially enabled government

Incorporating:
Land policy

Spatially enabled LAS

Services to business and public

Country context

Better decision making

Sustainable development
- Economic
- Environmental
- Social
- Governance

Sustainable development

Integrated functions
Land Governance – a hierarchy of land issues

- Land policy
- Land management paradigm
- Land adm. system
- SDI
- Cadastre
- Land parcel

“Land in Society”
**Good governance is:**

- **Sustainable and locally responsive:** It balances the economic, social, and environmental needs of present and future generations, and locates its service provision at the closest level to citizens.

- **Legitimate and equitable:** It has been endorsed by society through democratic processes and deals fairly and impartially with individuals and groups providing non-discriminatory access to services.

- **Efficient, effective and competent:** It formulates policy and implements it efficiently by delivering services of high quality.

- **Transparent, accountable and predictable:** It is open and demonstrates stewardship by responding to questioning and providing decisions in accordance with rules and regulations.

- **Participatory and providing security and stability:** It enables citizens to participate in government and provides security of livelihoods, freedom from crime and intolerance.

- **Dedicated to integrity:** Officials perform their duties without bribe and give independent advice and judgements, and respects confidentiality. There is a clear separation between private interests of officials and politicians and the affairs of government.

Adapted from FAO, 2007
Good governance and corruption
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Facing the new challenges

Focusing on land Governance and achieving the MDGs, also includes facing the big challenges of the new millennium:

• Climate change
• Food shortage
• Energy scarcity
• Urban growth
• Environmental degradation
• Natural disasters
• Global financial crisis

All these challenges relate to governance and management of land
Land professionals play a key role
"Climate change is the defining challenge of our time"
Combining the impacts of climate change with the current global financial crisis we risk that all the efforts to meet the MDGs will be rolled back. Those that contributed the least to this planetary problem continue to be disproportionately at risk.

Ban Ki-moon, UN secretary general

"Climate change also provides a range of opportunities"
Prevention of climate change can be greatly enhanced through better land-use planning and building codes so that cities keep their ecological footprints to a minimum and make sure that their residents, especially the poorest, are protected as best as possible against disaster.

Anna Tibaijuka, Executive Director, UN-Habitat
Climate change impacts

Based on Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability, Summary for Policymakers, Intergovernmental Panel on Climate Change, April 2007.
The impact of climate change

Vulnerable Communities

Climate Change
increases the frequency and intensity of climate related disasters, and exacerbates ecosystem degradation

Ecosystem Degradation
triggers more disasters, reduces resilience and releases more GHGs to the atmosphere

Increased Disaster Risk
undermines ecosystem and community resilience and exacerbates impacts of climate variability and change

The interaction between climate change, ecosystem degradation and disaster risk, UNEP, 2009
Climate change - The world in terms of carbon emission

Climate change - The world in terms of increased mortality
No matter the inequity between the developed and developing world in terms of emissions and climate consequences, there is a need to develop relevant means of adaptation to climate change both in the rich and the poorer countries.

Sustainable Land Administration Systems should serve as a basis for climate change mitigation and adaptation as well as prevention and management of natural disasters.

- Incorporating climate change into current land policies
- Adopting standards for energy use, emissions, carbon stock potential,.....
- Identifying prone areas (sea level rise, drought, flooding, fires,...)
- Controlling access to land and the use of land in relation to climate change and disaster risks
- Controlling building standards and emissions in relation to climate change
- Improving resilience of existing ecosystems vulnerable to climate change
Geo-information management

...creates a strong foundation

...for sustainable action

Source: ESRI
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USA

Billion Dollar Weather Disasters 1980 - 2008

Legend

- Hurricane
- Tropical Storm
- Flood
- Severe Weather
- Blizzard
- Fires
- Nor'easter
- Ice Storm
- Heat Wave/drought
- Freeze

Dollar amounts shown are approximate damages/costs in $ billions.

Location shown is the general area for the regional event. Several hurricanes made multiple landfalls.

Additional information for these events is available at NCDC WWW site
www.ncdc.noaa.gov/ol/reports/billionz.html

The U.S. has sustained 90 weather related disasters over the last 29 years with overall damages/costs exceeding $1.0 billion for each event. Total costs for the 90 events exceed $700 billion using a GNP inflation index.

NOAA's National Climatic Data Center
The disaster risk management cycle

- **Risk identification/assessment**
  - Hazard analysis & monitoring
  - Vulnerability analysis
  - Determination of risk

- **Prevention and mitigation**
  - Land use planning
  - Land management
  - (Non-) structural measures

- **Preparedness**
  - Early warning
  - Evacuation
  - Emergency planning

- **Recovery**
  - Rehabilitation
  - Reconstruction
  - Rescue services
Disaster risk prevention and management

- Humanitarian actors are often confronted with land issues when undertaking emergency shelter and protection activity.

- The information on the people to land relationship is crucial in the immediate post disaster situation.

- Disaster risks must be identified as area zones in the land-use plans and the land information system with the relevant risk assessment and information attached.

- Measures for disaster risk prevention and management should be integrated in the land administration systems

Post Disaster Land Guidelines developed by FAO/UN-Habitat
“While many people are aware of the terrible impact of disasters throughout the world, few realise this is a problem that we can do something about”

Kofi Annan, 2004
Climate Change …

We cannot change the Hazard but we can manage the Risk
The role of FIG intend to play a strong role in building the capacity to design, build and manage Land Governance systems in response to Climate Change and in support of The Millennium Development Goals

“Building the capacity for taking the land policy agenda forward”
The XXIV FIG
International Congress 2010
Sydney, Australia - 11 to 16 April 2010

Facing the Challenges
– Building the Capacity

www.fig2010.com
Thank you
For your attention