# *Theme 8*. OUTREACH AND CAPACITY BUILDING OF SDI

## 8.1. Context and rationale of SDI outreach and capacity building

1. When we speak of Spatial Data Infrastructure we imply a computerized network of systems serving digital spatial data and data services.

2. But SDI is not only about the technology but about a way of doing things that presume data sharing and an underlying agreement on data standards and interoperability.

3. There are many managerial, systemic, institutional, legal and political issues that need to be addressed. Capacity

## 8.2. Sense and timeliness of SDI development

1. The continued advances in remote sensing, mapping and geospatial technologies, including an increasing variety of data acquisition capabilities and low cost and more powerful computing capacity, coupled with the development of geographic information system technology, have enabled and increased the demand for geographic information.

2. The establishment of a Spatial Data Infrastructure to support the sharing and use of spatial data locally, nationally and, in some cases, transnationally makes increasing sense.

3. Without a coherent and consistent SDI in place, there are inefficiencies and lost opportunities in the use of geographic information to solve problems.

4. It is important to take into account that the longer the harmonization of stand-alone databases is postponed, the more difficult it will be to make them interoperable.

5. However, the development of a SDI will rely heavily upon opportunities provided by the sociopolitical stability and the legal context of a country as well as other important institutional set-ups that might become instrumental while installing a dynamic process of information creation and exchange.

## 8.3. Current conditions for geographic information use in developing countries

1. The existing spatial data systems are not technically linked and institutional co-ordination is still weak.

2. Cooperation and coordination between public sector organizations is limited and the different data structures will not be compatible to facilitate data exchange.

3. Development and implementation are very internal and do not favor data sharing collaboration.

4. The spatial databases being built up are 'stand-alone systems', using individual philosophies and technologies (concepts, structures, hard and/or software).

5. Most of the motivation to employ geographic information and tools is still internal to institutions to serve their primary needs.

6. There are few national policy initiatives underway to encourage sharing and collaboration on geographic data and practices however there are only a few formalized institutional links to share data.

7. Vertical organization within government and administration is limiting cross sectoral data communication.

8. Access to information is hindered by a lack of transparency.

9. These problems are not exclusive to developing countries:

1) A fundamental problem underlying data sharing and distribution is the belief that one gains power and influence from withholding information and controlling it;

2) In fact, true power is held by those who distribute the information and whose information is used by senior political levels

## 8.4. The national SDI development in the USA

1. In the early 90's the US Government recognized the need to establish a sustaining spatial data infrastructure as part of its National Information Infrastructure.

2. With the advancement of technology and the increase in the personal computers, there was an accelerated explosion of digital information production from a multitude of federal, state, local, other public and private sources.

3. The FGDC was created in 1990 to 'promote the coordinated development, use, sharing, and dissemination of geographic data'.

4. Specific support was requested from several key federal agencies involved with geospatial missions.

5. The FGDC has also expanded its partnerships to include

## 8.5. The national SDI development in Australia

1. The initial impetus came from the Australia New Zealand Land Information Council (ANZLIC), the peak inter-governmental body for spatial data issues.

2. Some 3 years of the ASDI was spent scoping the size of the tasks ahead and allocating jobs and lead agency status for specific tasks.

3. The recent 12 months have seen the operationalization of the SDI programs in each of the States and Territories.

## 8.6. Other national and regional SDI development

1. The concepts of core data (or framework data), data standards, clearinghouses and metadata are well accepted as parts of SDI's in many nations around the world.

2. From the standpoint of global SDI development, these are areas where we collectively should place our near term efforts in gaining international agreement where possible.

3. **A SDI makes sense at the local, national, regional and global level** where the overlap and duplication in the production of geographic information is paralleled by insufficient flows of geographic information among different stakeholders due to a lack of standardization and harmonization of spatial data bases.

4. Once the importance of providing geographic information as an infrastructure similar to road and telecommunication networks is recognized, it makes sense to ensure that a consistent Spatial Data Infrastructure at the local, national and global level is developed.

## 8.7. The characteristics of 'ideal' SDI:

1. There is a common spatial data foundation organized according to widely accepted layers and scales (or resolution) that is available for the entire area of geographic coverage (parcel, neighborhood, city, county, state, nation, etc.) to which other spatial data can be easily referenced.

2. The foundation (or core) data is readily accessible and available at no or little cost from user-friendly and seamless sources to meet public needs and encourage conformance with it by producers of other geospatial data.

3. Both foundation and other geospatial data, as required and specified co-operatively by data producers and users, is updated according to commonly accepted standards and measures of quality.

5. Cost-effective, spatial data produced by one organization, political jurisdiction, or nation is compatible with similar data produced by other organizations, political jurisdictions or nations.

6. Spatial data can be integrated with many other kinds or sets of data to produce information useful for decision makers and the public, when appropriate.

7. Responsibility for generating, maintaining, and distributing the data is widely shared by different levels of government and the private sector. Governments take advantage of private-sector capabilities available at reasonable prices rather than maintaining dedicated capabilities.

8. The costs of generating, maintaining, and distributing such data are justified in terms of public benefits and/or private

## 8.8. Principles of the GSDI organization and realization

1. At the 2nd GSDI Conference in 1997 the Global Spatial Data Infrastructure (GSDI) was defined as *".. the policies, organizational remits, data, technologies, standards, delivery mechanisms,* and financial and human resources necessary to ensure that those working at the global and regional scale are not impeded in meeting their objectives."

2. The GSDI is intended to be non-competitive, collaborative, and to build on and unify common activities in the field of geographic information exchanges and harmonization.

3. The GSDI is envisaged to support trans-national or global access to geographic information and it is seen by many as central to the response to the challenge of global sustainable

4. The GSDI is an effective promotion of national and regional Spatial Data Infrastructures.

5. **The stakeholders and interested parties and initiatives in the development of the GSDI** were identified at the 3rd GSDI Conference (1998) in Canberra, Australia, such as:

**1) National mapping organizations/agencies;**

**2) Industry;**

**3) Other agencies, organizations and institutions;**

**4) National and regional SDI initiatives:**

a) National SDI developments in countries such as Malaysia, Hungary, Australia, New Zealand, USA, UK, Canada;

c) The Global Mapping initiative, Globalmap, promoted by the Geographical Survey Institute of Japan, is a key pool of resources for GSDI development to exchange institutional and technological experiences and standards among many countries:

– The US FGDC, in collaboration with other nations, has helped to seed many common standards and best practices;

– Japan has adopted its National Spatial Data Infrastructure Promoting Association (NSDIPA) as a reflection of the US NSDI;

– Other nations have adopted or have based their NSDI's on FGDC practices, standards, and framework concepts;

– Some of the ISO TC 211 standards are based on FGDC developed standards (for example, Metadata);

## 8.9. INSPIRE Directive

1. In Europe a major recent development has been the entering in force of the **INSPIRE Directive**, establishing an **IN**frastructure for **SP**atial **I**nfo**R**mation in **E**urope to support Community environmental policies, and policies or activities which may have an impact on the environment.

2. INSPIRE is based on the infrastructures for spatial information established and operated by the 27 Member States of the European Union.

3. The Directive addresses 34 spatial data themes needed for environmental applications, with key components specified through technical implementing rules. This makes INSPIRE a

4. Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was published in the official Journal on the 25th April 2007. The INSPIRE Directive entered into force on the 15th May 2007.

5. To ensure that the spatial data infrastructures of the Member States are compatible and usable in a Community and transboundary context, the Directive requires that common Implementing Rules (IR) are adopted in a number of specific areas (Metadata, Data Specifications, Network Services, Data and Service Sharing and Monitoring and

6. These IRs are adopted as Commission Decisions or Regulations, and are binding in their entirety.

7. The Commission is assisted in the process of adopting such rules by a regulatory committee composed of representatives of the Member States and chaired by a representative of the Commission.

8. INSPIRE should assist policy-making in relation to policies and activities that may have a direct or indirect impact on the environment.

## 8.10. Development of national SDI in Ukraine

1. Cabinet of Ministers of Ukraine adopted in 2007/2013 the Conception of project for the Law of Ukraine 'On National Spatial Data Infrastructure'.

2. As to this Conception, the development of Ukrainian NSDI has to provide:

1) Legislative, normative-technical and organizational basis for the implementation of effective government policy in the scope of production, supply and use of spatial data;

2) Formation of united geoinformation space of Ukraine by application of uniform coordinate-information models and framework sets of spatial data concerning territory of the country;

3) Creation and development of consistent spatial data bases in other data domains;

4) Optimization of costs for production and use of geoinformation resources;

5) Considerable improvement of spatial data bases' access and setting up of transparent and operative spatial data communication at any spatial, scale or problem level;

6) Stimulation of investment increase into production of spatial data and geoinformation services and also into allied sectors;

7) Coordination of short- and long-term plans aimed at realization of geoinformation projects at levels of administrations and territories;

## 8.11. Canadian-Ukrainian educational project concerning Ukrainian NSDI

1. The Partners for Development Program of the Department of Foreign Affairs, Trade and Development Canada (DFATD) funds selected universities working on international development project:

1) Vancouver Island University (VIU);

2) Taras Shevchenko National University of Kyiv;

3) National Technical University of Ukraine "Kyiv Polytechnic Institute" (KPI).

2. This universities are proposed to develop and deliver an educational program to the Ukrainian civil service to support the development of a National Spatial Data Infrastructure (NSDI) in Ukraine.

3. The proposal was successful in gaining funding and in November of 2012, the **project 'Laying the Foundation for a Spatial Data Infrastructure: Building Capacity within the Ukrainian Government to Support Sustainable Economic Growth"** began.

4. Six critically important SDI courses will be adapted to the Ukrainian context, translated into Ukrainian and delivered to Ukrainian civil servants who are responsible for the implementation of the NSDI.