Chapter 9
Geospatial Data Infrastructure

ABSTRACT

The chapter focuses on geospatial data infrastructure. The mass of data needed for public policy planning could come from various sources. The chapter discusses the participatory approaches for the realization of open and interoperable systems and presents the geospatial data infrastructure approach to address this issue: core data sets, standards, institutional and legal arrangements, technology and capacity building. The environment in which the system is designed impacts the technological solution: legal and institutional framework, compliance with standards, availability of human resources, sustainability in terms of financial resources. The chapter examines experiences at the international level to draw best practices for implementing national and thematic GDI.

INTRODUCTION

Spatial (Geospatial) Data Infrastructures (SDIs, GDIs) refer to a set of fundamental spatial technologies, policies and standards that improves access and utilization of spatial data. One of SDI tasks is helping to spatially empower groups and the states by providing the policies.

It has distinctly been revealed, especially in the last ten years that spatial data requirements of today's applications or projects could be met only through an effective cooperation between different institutions or parties. This goal can be achieved through interoperability cooperation between different organizations.

Short through longer-term visions have been adopted for SDI initiatives, to address the needs of participating communities over the next decade and beyond. Some have achieved little beyond their initial good intentions, whilst others have built up considerable experience in formulating and implementing SDI initiatives.

BACKGROUND

Efficient application of GIS, particularly in the public sector, requires ready access to reliable, good-quality spatial data; it requires regulatory and fiscal frameworks that encourage interaction and communication of information and ideas between –and even within – government departments; and it needs suitably skilled personnel to work with these tools. In short, it requires establishment of spatial data infrastructures (SDIs) to provide technologies, policies and institutional arrangements that will facilitate the availability of, and access to, spatial data for all levels of government, the commercial sector, the non-profit sector, academia and citizens in general (Steudler, D., Rajabifard, A., 2012, Onsrud, H., Rajabifard, A., 2013).

Early adopters of the SDI model at the national level included, Netherlands,1992, USA, 1994, Australia (Australian Spatial Data Infrastructure, initiated in 1998), Canada (Canadian Geospatial Data Infrastructure, initiated in 1999), and Germany (Geodaten-Infrastruktur Deutschland – GDI-DE, initiated in 2001). While there was some earlier movement towards the SDI model in other European countries (e.g., Sweden, Denmark and the United Kingdom), the first comprehensive efforts began in most countries with the adoption of the INSPIRE Directive in May 2007, which created a mandatory requirement for the implementation of national SDIs by all European Union (EU) Member States in 2007.

There area number of SDI guidance documents, including *The SDI Cookbook* and *SDI Africa: An Implementation Guide* The Spatial Data Infrastructure (SDI) Manual for the Americas has been designed to provide guidance in several areas not covered by previous SDI manuals, including user-needs assessments, SDI governance, policy processes, and the impact of SDIs and benefits measuring and monitoring (Economic Commission for Africa, 2003, Economic and Social Council, 2013*).*

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