

RECOGNIZING WEAKNESSES IN INFRASTRUCTURE AND INFORMATION

Using information effectively to support sustainable development can cause frustration due to barriers created by infrastructure. The number of tools and applications to handle data is constantly growing. Users often find it difficult to keep up with the constant changes in application software to store and read data, and new software is not always compatible with previous versions. A key capability that is often missing is the interoperation of tools obtained from different sources.

Technological progress has driven improvements in geographic information systems (GISs). However, related to remote sensing and information access over the Internet, the ability to analyze and assess data and to assemble information in a comprehensive integrated framework has lagged behind. There is an ongoing need to consider weaknesses in the whole data collection, description (metadata), cataloguing, analysis, assessment, and reporting process and to recommend necessary improvements to eliminate bottlenecks in the information system. Other technical needs include data portability, reusability, extendability, quick access, ease of storage and retrieval, ease of maintenance, longevity, and ease of organization and reorganization of data and information.

Limitations are imposed on data because, among other things,

- knowledge and data gaps exist in information systems supporting sustainable development
- environmental monitoring systems have been working to meet the demand over the past twenty years
- mathematical models used to calculate indicators and project future scenarios may not be validated at the field level
- for reasons of confidentiality, some socioeconomic data are suppressed, resulting in either a reduction of the area for which calculations can be made or a vast generalization of the data.

There is also an urgent need to stabilize data information to some open international standards, particularly in spatial data related to geomatics. For example, the Canada Centre for Remote Sensing chairs one of the most challenging groups within the international

ISO Geomatics Standards

Natural Resources Canada's Canada Centre for Remote Sensing (CCRS) initiated and is leading the development of ISO geomatics standards for imagery and gridded data such as medical, remote sensing, and hydrographic images. Twenty-six countries are participating in this initiative. The CCRS also leads Canada's national program to develop and implement ISO standards for all geomatics information, which involves more than one hundred government and private sector organizations.