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Unit 190 - Public Access to Geographic Information

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Advanced Organizer

Topics covered in this unit

This unit considers the important issue of public access to geographic information. It compares official policies of different countries toward public access to government-held information. It explains the approaches for public access to geographic information and examines the legal and societal implications that may result. Topics covered in this unit include:

- policy issues pertaining to public access to information
- the concept of information infrastructure
- geospatial data clearinghouse as an approach for public access to geographic information
- the legal implications of public access to geographic information
- the societal implications of public access to geographic information

Learning Outcomes

After learning the materials covered in this unit, students should be able to:

- explain information as the foundation of modern democracy
- give an overview of government policies toward public access to information with special reference to geographic information
- describe the concept of national geospatial data infrastructure in the context of national information infrastructure
- explain the objectives, components and operation of a geographic data clearinghouse
- identify the legal implications of copyright, intellectual property and liability pertaining

- to public access to geographic information
- explain how increased access to geographic information will change the behavior of people
- explain how increased access to geographic information will change the relationships between citizens and governments

Full Table of Contents

Metadata and Revision History

Public Access to Geographic Information

1. Public Access to Government-held Information

- "government" in the context of the discussion in this unit refers generally to all public sector agencies, authorities and departments at federal/national, state/provincial and local/county/municipal levels
- geographic information is an essential part of government-held information
 - its acquisition, processing and dissemination is subject to the same rules and procedures governing other forms or types of government-held information
- the issue of public access to geographic information can only be understood in the broader context of public access to government-held information in general

1.1. Government and information

- government collects and maintains large amounts of information on a regular basis in support of its functions and operation
- public access to government-held information is a high profile issue because
 - the public's right to know is a constitutional right of every citizen
 - the individual's right to privacy is also a constitutional right of every citizen
 - information held by governments can be used beyond their original intended purposes
 - ready access to the wealth of government-held information forms the basis of today's information or knowledge-based economy
 - inequitable access to government-held information tends to create unfair competition among business organizations and among social groups
 - this is not acceptable in a democratic society
- the government's role in information includes
 - collector --- acquires information as mandated by laws and regulations and for day to day operation of public administration
 - custodian --- manages and processes information in a systematic manner
 - regulator --- prevents the abuse of information and ensures fair and equitable access to information
 - user --- uses information for day to day operation and policy making

- in the US, re-inventing government through information technology is a key component of the *National Performance Review* project of the Clinton Administration that aims to make government more efficient and effective
- information technology can change the transparency of government by facilitating the reporting and publication of official policies
 - electronic delivery of information is more timely, faster and more cost-effective
- growing recognition of the importance of *information* or *knowledge-based industries* to the nation's economic well-being
 - helps to raise the issue of information to the highest level of policy agenda in government --- the primary driving force behind *national information infrastructure* and *national spatial data infrastructure* ([see 2.](#))
 - gives a focus for government information policies --- consistent policies, support to the knowledge industry, cooperation between different levels of government, and partnership between public, private and academic sectors

1.2. The public's right to know

- access to government-held information is every citizen's right
 - the right to know is the foundation of modern democracy
 - it ensures the legitimacy of the democratic decision-making process
 - a more open approach stimulates informed public debates on public policies
 - it is a device in the constitutional system of separation of power through checks and balances
 - in addition to the traditional parliamentary supervision, public participation represents a new approach to control and monitor public administration
 - it is the basis for the development of responsible citizenship
- the public's right to know is effected by different means
 - in the US, *Freedom of Information* (FOI) legislation that establishes the administrative mechanism to permit any citizen to request any record in the possession of government agencies
 - obligation to consult the public before policies are made (using Green and White papers, town hall meetings, public hearings, environmental impact assessments)
 - citizens' right to call for public hearings on issues affecting their interest and well-being
 - improved publication, explanation and justification of decisions to the public
- public access is restrictive, and limitations are always imposed in view of
 - information pertaining to national security and foreign policies
 - information concerned with the making of national economic, financial and monetary policies
 - activities of a public agency for the purpose of inspection, control or other forms of supervision
 - the interest of preventing or prosecuting crimes
 - the protection of personal integrity or the economic conditions of individuals
 - the interest of preserving rare animal and plant species

1.3. The individual's right to privacy

government-held information contains vast amount of information pertaining to personal particulars

- the individual's right to privacy is seen as basic human rights in modern democracy
- this right must be treated as the most critical issue in developing policies and procedures for public access to government-held information
 - personal data can only be collected and used for specified, explicit and legitimate purposes and must not be further processed in any way incompatible with those purposes
 - in published reports (e.g. census reports and statistics), personal particulars must be aggregated to prevent the identification of individuals
 - in the design of information systems, all output forms must be carefully scrutinized to ensure that no personal information is unnecessarily included
 - regulations must be in place to prevent the cross-referencing of data from different sources (e.g. voters' list and census track data sets) that will lead to the inference of personal information that people do not feel comfortable to reveal

1.4. Government policies toward public access to information

- policies toward public access to government-held information differ considerably among different countries
 - even within the same country or political entity, different jurisdictions may have different policies, for example,
 - in the United States, the policies of some state governments are not always in line with federal government policy
 - in the European Union, only Denmark, France, Greece, the Netherlands and Sweden have statutes that establish general rights of access to government-held data
 - the adoption of an open policy to public access is in fact an exception rather than a rule among the countries
 - very few countries have statutory public access laws, these include the five European Union member states noted above, Norway, the United States, Canada, Australia and a handful of other countries
- the United States' model of public access to federally held information is characterized by
 - the *First Amendment to the Constitution*, which provides in part that Congress shall make no law abridging freedom of speech or of the press
 - effectively removes restraints on the use of government information
 - once government information has been made public, restrictions of use are unlikely
 - the *Copyright Act of 1976*
 - this is a statutory prohibition against the use of copyright by the federal government
 - it places all federal government information in the public domain
 - any federal information made public can be used in any form without restrictions
 - the *Freedom of Information Act, 1994*
 - this act establishes the administrative mechanism that allows all Americans

- to request any record in the possession of a federal agency
 - agencies must accept, process and respond to all FIO requests within a reasonable time frame
 - if it is decided to deny a request, a reason must be given
 - all decisions to withhold can be appealed in the courts of law
- the *Paperwork Reduction Act*, 1995, with substantive provisions that
 - prevent an agency from establishing an exclusive, restrictive or other distribution arrangement that interferes with the timely and equitable availability of public information to the public
 - disallow an agency to restrict or regulate the use, resale or dissemination of public domain information
 - prohibit the collection of fees or royalties for resale or re-dissemination of public domain information
 - prevent an agency from establishing a user fee exceeding the cost of dissemination

1.5. Issues in public access to information

- many issues remain unsolved which may lead to serious problems in future
 - striking a balance between the public's right to know and the individual's right to privacy is always a very delicate decision in practice
 - many FIO requests end up as long legal processes in the court of law when the government and individuals cannot find common ground
 - as functions of government become privatized, what constitute public domain information becomes more difficult to define
 - for example, should information held a business organization owned by the government but run as a private enterprise be classified as public domain information or trade secret of a private company?
 - dilemma in defining the proper role of the public and private sectors in the delivery of government information products and services
 - in the mid-1980s, the Reagan Administration limited the role of government agencies to those required by law --- information dissemination activities were only allowed if they did not duplicate private sector products
 - in the early 1990s, the Clinton Administration redefined agency dissemination activities in broader terms and without the automatic deference to the private sector
 - the traditional barriers that separated public and private dissemination of government-held information are gradually eliminated as government agencies strive to improve client services by providing high-quality information products and services through the use of advanced computer networks
 - the inability of FIO legislation to catch up with the rapid changes in information technology
 - this has raised concern because FIO legislation may not be able to deal with, for example, the possibility of cross-referencing large data sets to derive sensitive personal data not possible by using manual methods in the

past

1.6. The special case of public access to geographic information

- although public access to geographic information is always subject to the same rules and policies for general government-held information, there are special considerations for access to geographic information
- government is undoubtedly the biggest producer and user of geographic information
 - geographic information represents a very significant part of the government's information holdings
 - collection of geographic information is usually a long term, large scale and capital-intensive undertaking that only the public sector can afford
 - this means that in many cases government has a *de facto* monopoly of geographic information (i.e. government is the only source of the information, such as national topographic surveys)
- among the many application areas of geographic information within government are
 - land and property registration
 - natural resources management (forestry, water and minerals)
 - environmental monitoring and management
 - urban planning and development
 - agriculture
 - public security and emergency services
 - transportation
 - surveying and mapping
 - social and community services
 - national defense
- many governments are reluctant to provide open public access to their holdings of geographic information because of the apparently higher commercial value of this type of information
 - geographic data are more expensive to collect and manage than other forms of data
 - the increasing use of geographic information in business decision making has created a greater market for geographic information than ever before
- at a time of shrinking operating budgets, government agencies responsible for the acquisition of geographic data tend to recoup some of their investments by selling geographic information as commercial products
 - some states in the United States have attempted to exploit the economic value of geographic information by copyrighting all their geographic information products
 - in many European countries, notably the United Kingdom, geographic information is always seen as a tradable commodity

2. Geographic Information as National Information Infrastructure

- *National Information Infrastructure* (NII) is a US Federal Government initiative that

aims to create a technology environment for the development and use of many information-based products that are vital to the social and economic well-being of the nation

- geographic information is an important component of NII as a wide range of public policies and economic activities are dependent on information about geography (i.e. occurrence, location, pattern of distribution and change over time)
 - therefore, facilitating public access to geographic information is a key NII requirement
- *National Spatial Data Infrastructure* (NSDI) addresses issues pertaining to geographic information within the conceptual framework of NII

2.1. The concept of the National Spatial Data Infrastructure

- users of geographic information in the past suffered from the lack of digital data
 - data had to be automated in-house or by contracting out to service bureaus
 - data automation was a very time-consuming and costly undertaking
- digital geographic data are more widely available now from governments, academic and research institutions and commercial data suppliers
 - however, increased availability of digital geographic data has not been translated into improved accessibility to geographic information
 - users are not aware of the existence of data
 - users have no idea whether or not a certain data set meets their application requirements
 - this has led to considerable duplication of efforts and waste of resources
- the National Spatial Data Infrastructure (NSDI) initiative was developed in response to the need to facilitate the reuse and sharing of existing data resources
 - the term "National Spatial Data Infrastructure" was coined by the Mapping Science Committee (MSC) of the National Research Council (NRC) in its 1993 report on the mandates and responsibilities of the National Mapping Division of the United States Geological Survey (USGS)
 - NSDI was defined as "the means to assemble geographic information that describes the arrangement and attributes of features and phenomena on the Earth. The infrastructure includes the materials, technology, and people necessary to acquire, process, store and distribute such information to meet a wider variety of needs" (NRC, 1993)
- the idea of NSDI was accepted by the Federal Geographic Data Committee (FGDC) and the Clinton Administration as a way to foster better intergovernmental relations, to empower state and local governments in the development of geographic data sets and to improve the performance of the federal government
- in April, 1994, the NSDI initiative was formally implemented by an executive order of President Clinton
 - this executive order outlined a number of federal actions to foster the development of NSDI and reinforced the leadership role of the FGDC in coordinating the development of NSDI nationally
- when the FGDC updated its NSDI strategic plan in 1977, four main goals were identified (FGDC, 1997):
 - building of relationships among organizations to support the continuing

- development of NSDI
- coordinating the production of a framework of basic digital geographic data from which other data can be derived or to which other data may be registered
- conceptualizing and implementing the *National Geospatial Data Clearinghouse* that aims to facilitate access to geographic data by developing tools for easy exchange of data, applications and results as well as by research and development of architectures and technologies that will enable data sharing
- fostering development of a variety of educational and training opportunities to increase the awareness and understanding of the vision, concepts and benefits of NSDI, and to improve the collection, management and use of geographic data
- within a relatively short time after its implementation, NSDI has generated considerable interest in the United States itself and internationally
 - it has significantly increased the awareness of the value, use and management of geographic data, particularly among federal and state agencies
 - initiatives similar to NSDI have also been established in countries other than the United States
 - in Canada: Geoconnections (formerly known as the Canadian Geospatial Data Infrastructure (CGDI))
 - in the United Kingdom: the National Geospatial Data Framework (NGDF)
 - in Australia: the Australian Spatial Data Infrastructure (ASDI)
 - the approaches, scopes and objectives of these national initiatives may differ from one another; however, they all share the common aim to assist public access to geographic data

2.2. The architecture and objectives of Geospatial Data Clearinghouse

- the concept of geospatial data clearinghouse provides a new model of public access to geographic information

2.2.1. What is Geospatial Data Clearinghouse

- Geospatial Data Clearinghouse is one of the key components of NSDI that is designed to facilitate the discovery, evaluation and dissemination of digital geospatial data
 - it is *not* a central repository where data are stored
 - it is a facility of software and institutions functioning together as a detailed catalog of geospatial data residing in geographically distributed data servers
 - the clearinghouse provides *data set level information* (i.e. metadata) about existing data sets
 - it is a low-cost form of advertising for suppliers of geographic data to potential clients through the Internet
- the development of the concept of Geospatial Data Clearinghouse has been motivated by the desire to
 - minimize duplication of effort in the collection of digital geographic data
 - foster cooperative digital geographic data collection activities by federal, state and local agencies and the private sector
- the development of the concept of Geospatial Data Clearinghouse has also been prompted by the limitation of current World Wide Web indexing technology to assist in the search of metadata on the Internet

- current Web indexing technology has been designed for literal text search and matching for metadata stored in the *HyperText Markup Language* (HTML)
 - it does not provide the indexing required for search of coordinates, dates, time and other numeric values found in geographic data
 - it does not support the search for information stored within dynamic databases behind Web servers
- the objective of Geospatial Data Clearinghouse is to provide standard methods and *federated search capability* for the discovery of spatially referenced data in participating data servers ([see 2.2.3](#))

2.2.2. Who takes part in the Geospatial Data Clearinghouse?

- the coordinating federal agency of Geospatial Data Clearinghouse is FGDC, whose role includes
 - operates a registry service of conforming geographic data servers
 - develops prototype software
 - provides reference implementation
 - facilitates discussion among clearinghouse participants
 - design and develop training materials
- other participants of Geospatial Data Clearinghouse include
 - data suppliers interested in promoting discovery of digital geographic data sets through their description (i.e. standardized metadata)
 - data suppliers include government agencies, academic and research institutions, and commercial data providers
 - data suppliers operate multi-user computers (UNIX or Windows-NT) which house the server software, interfaces and metadata
 - server computers are connected to the Internet via dedicated high-speed data connection of 56 KB or greater
 - organizations that look for digital geographic data for their corporate applications
 - these are users of large volume of geographic data for various GIS and remote sensing applications
 - they access the clearinghouse using a Web browser on a PC or UNIX workstation
 - individual users who want to use digital geographic data for specific applications
 - these include many people who are simply interested in browsing geographic data
 - they access the clearinghouse typically using a PC through local area network with dedicated access to the Internet or via low-speed dial-up modem
 - through an international development grant, USGS has assisted in the development of clearinghouse services in Brazil and Costa Rica
 - other countries/jurisdictions can implement a searchable clearinghouse node for their data holdings (e.g. Australia's Environmental Resource Information Network (ERIN))

2.2.3. How the Geospatial Data Clearinghouse works

- Geospatial Data Clearinghouse is a decentralized, virtual repository of geospatial metadata maintained and served by participating data suppliers ([Figure 1](#))
 - Users access clearinghouse through gateway software located either on the Internet as a WWW-to-Z39.50 protocol gateway or as a client side application written in Java
 - Z39.50 is an information search and retrieval protocol widely used by libraries
 - FGDC has developed a profile for geospatial metadata, called "GEO", which provides guidance on how to implement FGDC metadata elements with a Z39.50 service
 - both the WWW-to-Z39.50 and Java gateways are able to make multiple threaded connections to one or more servers within the clearinghouse using an Internet accessible list of participating servers in a register maintained by FGDC
- the working principle of Geospatial Data Clearinghouse can be explained from the perspectives of client side and server side applications
- client side application refers to the user interface to the clearinghouse using readily available Web technology (e.g. Web browsers and hyperlinks)
 - the user accesses the clearinghouse and downloads metadata information across the Internet through hyperlinks in the metadata using one of the following two types of interfaces
 - enhanced HTML form-based interface ([Figure 2](#)) which allows the user to search for digital geospatial data based on its location, time period of content, full-text and fielded search
 - Java-based interface ([Figure 3](#)) which allows users with higher speed Internet connections and Web browsers to pose a similar query to the above HTML interface but with maps and other visualization tools for preparing the query (Editor's note - this interface seems to be no longer used for the whole FGDC clearinghouse, though it does access a limited number of military ones).
- server side applications include collection of geospatial metadata and searching for metadata
 - collection of geospatial metadata is based on "digital geospatial data set" as the basic unit of data description
 - the definition of a data set generally corresponds to the smallest identifiable data product (i.e. file) for which metadata are conventionally collected
 - data suppliers collect and record metadata pertaining to their data sets according to the Content Standard for Digital Geospatial Metadata released by FGDC
 - searching for metadata is done using ANSI Z39.50
 - ANSI Z39.50 server software typically communicates with a search engine to process the query and formulate the search result
 - it provides a single, standard protocol to access multiple metadata collections or geographic databases without the need to redesign the existing database systems
- clearinghouse sites are encouraged to provide hyperlinks within their metadata entries to

enable the user to directly download the digital data set of interest in one or more formats

- in case of data sets that are too large to be downloaded across the Internet or data sets that are only available commercially, there is always a linkage to a data order form

2.2.4. Example: the USGS Geospatial Data Clearinghouse

- the USGS Geospatial Data Clearinghouse (Figure 4) is one of the nodes of the National Geospatial Data Clearinghouse
- its function is to provide a pathway to find information about the geospatial data holdings of USGS
 - this node is in fact made up of a distributed set of sites organized on the basis of the four principal data themes of the USGS:
 - Biological Resources Information (Figure 5)
 - National Mapping Information (Figure 6)
 - Geological Information (Figure 7) Water
 - Resources Information (Figure 8)
- there are two ways of finding data
 - browsing by "best sellers" (Figure 9), product category (Figure 10) and theme (Figure 11)
 - searching by keyword or area of interest through the National Geospatial Data Clearinghouse Gateways (Figure 12)
- once the user has found the data set of interest, he/she can examine the metadata file which contains instructions for acquiring the data (Figure 13)
- the methods for acquiring data are different for different data sets
 - some data sets are free for online download
 - some data sets are not available for free download, and must be ordered by paying a distribution fee
- viewing of downloaded data set is done by means of a GIS or image processing system

2.3. Digital spatial libraries

- digital spatial libraries represent another approach to public access to geographic information
 - digital libraries are also referred to as *virtual libraries* and *electronic libraries* (Unit 148)
 - digital libraries make use of new computing, network and information management technologies to develop a new approach to the operation of libraries that encompasses
 - new types of information resources
 - new methods of acquiring and distributing information resources
 - new means of storing and preserving information resources
 - new modes of interaction with and for library users
- digital libraries are also considered as an essential component of national information infrastructure because they represent a way to
 - bring information to every citizen
 - reduce cost of government

- meet public information access laws mandated by federal/state legislatures
- some digital libraries developed or under development are specially designed for geographic information
 - these digital libraries are usually referred to as *digital spatial libraries* or *geolibraries*
 - examples of digital spatial libraries:
 - Environmental Electronic Library, University of California, Berkeley
 - Alexandria Digital Library, University of California, Santa Barbara

2.4. Freenets and geographic information kiosks

- in some communities there are *freenets* that provide public access to the Internet
 - freenets are usually sponsored or supported by local libraries
 - examples: Buffalo Freenet (Buffalo, NY, [Figure 14](#)) and National Capital Freenet (Ottawa, ON, [Figure 15](#))
 - the primary purpose of freenets is to provide access to community databases
 - community databases contain public information, including geographic information, about the local community
 - users of freenets can also access other forms of geographic information available on the Internet
 - *geographic information kiosks* are public-access terminals set up by government agencies, business organizations or libraries
 - the primary purpose of geographic information kiosks is to bring geographic information directly to the public
 - typical applications include: browsing land status information, community and social information, recreation and tourism information, business locations, electronic atlas and street guide, weather reports and maps, local and regional traffic conditions including connection to *Webcams* (i.e. video cameras connected to a computer server to provide real-time or interval images on the Web)
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3. Technical, Legal and Social Issues

3.1. Technical problems and possible solutions

- the greatest problem of public access to geographic information is the inability of many users to view and analyze the data
 - unlike text-based information, geographic information can only be viewed and analyzed using special GIS or image processing software packages
 - the costs of GIS and image processing software packages are in general still too high for popular use
 - GIS and image processing software applications are in general not as easy to use as word processing and spreadsheet applications
 - the formats of data sets downloaded from geospatial data clearinghouse may not be accepted by the particular GIS or image processing packages that a user has

- another major problem is concerned with the inherent limitations of NSDI
 - although NSDI was conceived as a distributed data source, it lacks the operational framework to support real-time access to distributed geographic data processing resources and their associated databases
 - current technologies and processes are only able to provide catalog access and superficial browsing of spatial data sets
 - it is not possible to remotely query against the widely heterogeneous assortment of spatial data sets in the NSDI geospatial data clearinghouse
 - the incompatibility between data sets and applications is the major hurdle for full integration of NSDI resources into the NII framework
- the solution is to promote *interoperable* geographic data processing
 - interoperability is defined as the ability to access multiple, heterogeneous data processing environments (i.e. data and software programs) by means of a single application interface
 - transparent access to heterogeneous geospatial databases in a distributed environment
 - standard user interface for the generation of queries in real time
 - ability to retrieve and use query-derived data sets (i.e. results of data analysis) in the user's native computing environment

3.2. The issues of data ownership, copyright and intellectual property

- public access to geographic information requires clear definitions of data ownership, copyright and intellectual property
- the US Federal Government as noted above adopts an open policy to data ownership and copyright
 - nearly all federally held geographic data are made available to anyone, even for commercial re-selling purposes, at minimal distribution costs
 - the private sector is allowed to repackage public domain data and sell them in the form of value-added information products
 - it is important to protect the copyright of value-added information
 - the purpose is to ensure that producers of value-added information will have the economic incentive to provide and to improve value-added information for the benefit of the public
 - value-added information is intellectual property because its production involves capital investment and use of the producer's knowledge
 - the issue of data ownership and copyright is more problematic in jurisdictions where the use of such data is subject to stringent copyright laws
- the relationship between the data producer and the primary data user is relatively well-defined
- however, it is hard to define the relationship between the original data producer and users of value-added information derived by the primary data user
 - information is not a tangible commodity and is therefore hard to price, i.e. it is difficult to determine the royalties that secondary and other users must pay the original data producer
 - it is impossible to determine the share of the royalties between the original data producer and the value-added information producer

it is difficult to trace the use of value-added information by secondary, tertiary and subsequent users

- the complication and complexity of the issue of copyright and intellectual property tend to hinder the popular use of geographic information even though it can be publicly accessed
 - some organizations and users do not want to get into the trouble of inadvertently infringing copyright laws
 - others are deterred by the time and money involved in getting copyright clearance and keeping track of the users of the information
 - this defeats the whole purpose of data sharing and scale of economy in the use of geographic information technology
 - therefore, striking a balance between producer rights and public rights is a crucial consideration in policy making associated with public access to geographic information

3.3. The issues of legal liability

- in the past, legal liability associated with the use of geographic information was mainly concerned with a relatively limited number of application areas such as cadastral surveying, engineering setting out and hydrographic and aeronautical charting
- today, as geographic information is increasingly used in business and management decision making, the possibility of making flawed decisions becomes very much greater
 - should the data supplier be held responsible for economic loss due to decisions made on the basis of incomplete, outdated, uncertain data
 - the problem is complicated because the data may have been processed and analyzed a number of times in the decision making process
- in order to encourage the sharing of geographic data among data collectors and users, it is essential to clearly define the limit of legal liability of the data supplier when problems occur

3.4. Socio-economic impacts of public access to geographic information

- public access to geographic information has brought many benefits
 - provides a new way of communication between government and citizens
 - provides the basis for the development of a knowledge base economy (information analysis, think tanks, systems integration consulting, value-added data reselling, as well as manufacturing of hardware and software for geospatial data management and applications)
 - allows people to make more informed and logical decisions based on the use of geographic factors
 - greater accessibility to geographic information is rapidly changing the ways people live, work and do business
 - promotes greater efficiency and increased responsiveness of government administration
 - restructures delivery of government services by online transaction of digital geographic information

- raises citizens' awareness of local, regional and national political issues
 - encourages participation in policy making process
 - however, there are concerns about the negative effects of public access to geographic information
 - one of these concerns is the inequitable access to geographic information
 - access to computers and computer networks is not evenly distributed throughout the population
 - large number of people directly access the Internet through computers and accounts associated with school and work
 - increasing number of people access the Internet from home via commercial online services and Internet service providers
 - research has shown that computer access and use is positively related to higher levels of education and income
 - income- and education-based gap between social groups is widening over time
 - if current trend continues, access to geographic information and resulting benefits will be further skewed in favor of traditionally advantaged social groups
 - opinions also vary with regard to the real implications of political participation and government decision making resulting from more open public access to geographic information
 - although many people claim that this will lead to a rich form of "semi-directed democracy"
 - others fear that it will give well-organized interest groups even more power and influence at the expense of the interest of the society at large
-

4. Summary

- public access to geographic information is an important issue in today's society
 - the public's right to know is a constitutional right
 - open access to public information raises concerns about the protection of personal privacy
 - geographic information is a key sector of the knowledge base economy, it is important to ensure equitable access to government held geographic information
 - many governments are not willing to allow open access to geographic information because of the apparent commercial values of this type of information
- National Information Infrastructure is an initiative that aims to bring information to every citizen
 - the provision of geographic information is a key NII requirement as geographic information now plays an increasingly important role in government policy making, business decision making and the way people live and work
 - with the framework of NII, public access to geographic information is through Geospatial Data Clearinghouse, digital spatial libraries, community freenets and geographic information kiosks set up by government agencies

many issues pertaining to public access to geographic information have remained unsolved or not well understood, including

- technological --- the ability of the public to use geographic information in addition to the ability to access it
- legal --- data ownership, copyright and liability
- social and economic --- inequitable access to computers by different social groups and the increasing gap between the ability of different social groups to be benefited from the access to geographic information

5. Review and Study Questions

1. Explain the following terms in the context of public access to geographic information:
 - Freedom of Information (FOI)
 - National Information Infrastructure (NII)
 - National Geospatial Data Clearinghouse
 - Freenets
 - Interoperability of geographic data processing
2. Governments in general tend to adopt either an open or restrictive policy to public access to government-held geographic information. Explain the advantages and disadvantages of these two approaches from the perspective of citizens.
3. Consider the following case:

A national restaurant chain EateryX contracted BusinessConsultY to study the feasibility of opening a franchise outlet in a new mall. BusinessConsultY conducted the study, using demographic and other geographic data obtained from a commercial supplier called GeodataZ. Its report concluded that the new mall was an ideal location for a new franchise. After a year, the business failed. The franchisee sued EateryX for supplying misleading information. EateryX in turn sued BusinessConsultY for providing erroneous business analysis that led to the decision to open the restaurant in the mall. However, BusinessConsultY refused to accept any responsibility and instead blamed the "poor" data supplied by GeodataZ for causing the problem.

Should the data supplier GeodataZ be held accountable for the failure of the franchise? Explain why.

4. Is National Geospatial Data Clearinghouse, or similar initiatives in Canada, UK, Australia and other countries, an ultimate solution to the problem of public access to geographic information?
5. Explain how greater accessibility to geographic information has changed the relationships between governments and citizens.

6. References

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Unit 190 - Public Access to Geographic Information

Table of Contents

[Advanced organizer](#)

[Learning outcomes](#)

[1. Public access to government-held information](#)

[1.1 Government and information](#)

[1.2 The public's right to know](#)

[1.3 The individual's right to privacy](#)

[1.4 Government policies toward public access to information](#)

[1.5 Issues in public access to information](#)

[1.6 The special case of public access to geographic information](#)

[2. Geographic information as National Information Infrastructure](#)

[2.1 The concept of National Geospatial Data Infrastructure](#)

[2.2 The architecture and objective of Geospatial Data Clearinghouse](#)

[2.2.1 What is Geospatial Data Clearinghouse](#)

[2.2.2 Who take part in Geospatial Data Clearinghouse](#)

[2.2.3 How Geospatial Data Clearinghouse works](#)

[2.2.4 Example: the USGS Geospatial Data Clearinghouse](#)

[2.3 Digital spatial libraries](#)

[2.4 Freenets and geographic information kiosks](#)

[3. Technical, legal and social issues](#)

[3.1 Technical problems and possible solutions](#)

[3.2 The issues of data ownership, copyright and intellectual property](#)

[3.3 The issues of legal liability](#)

[3.4 Socio-economic impacts of public access to geographic information](#)

[4. Summary](#)

[5. Review and study questions](#)

[6. References](#)

Unit 190 - Public Access to Geographic Information

Metadata and Revision History

Page contents

1. [About the main contributor](#)
 2. [Details about the file](#)
 3. [Key words](#)
 4. [Index words](#)
 5. [Prerequisite units](#)
 6. [Subsequent units](#)
 7. [Revision history](#)
-

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- unit title: Public Access to Geographic Information
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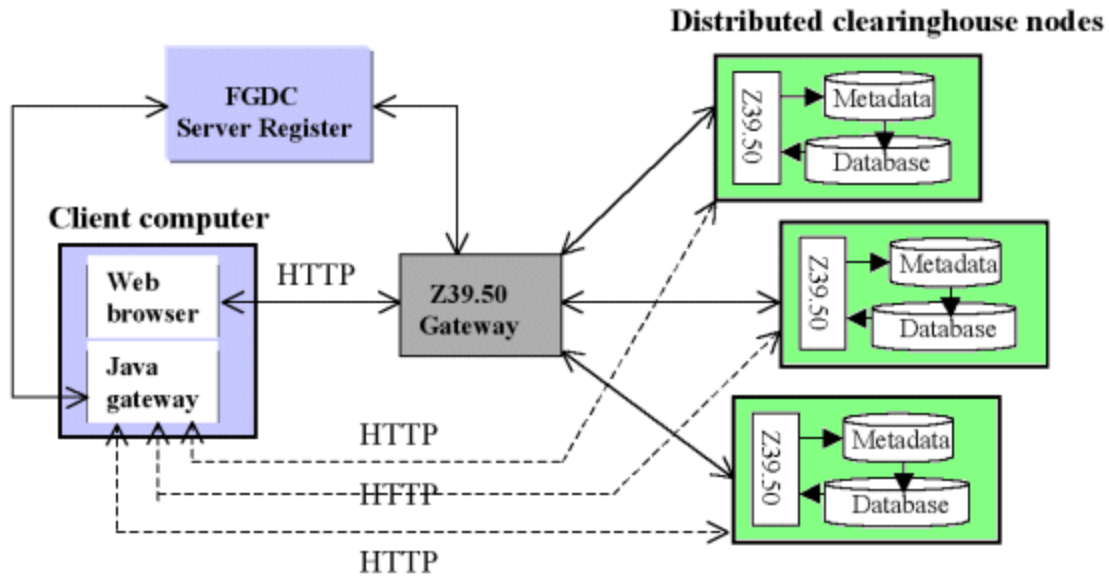
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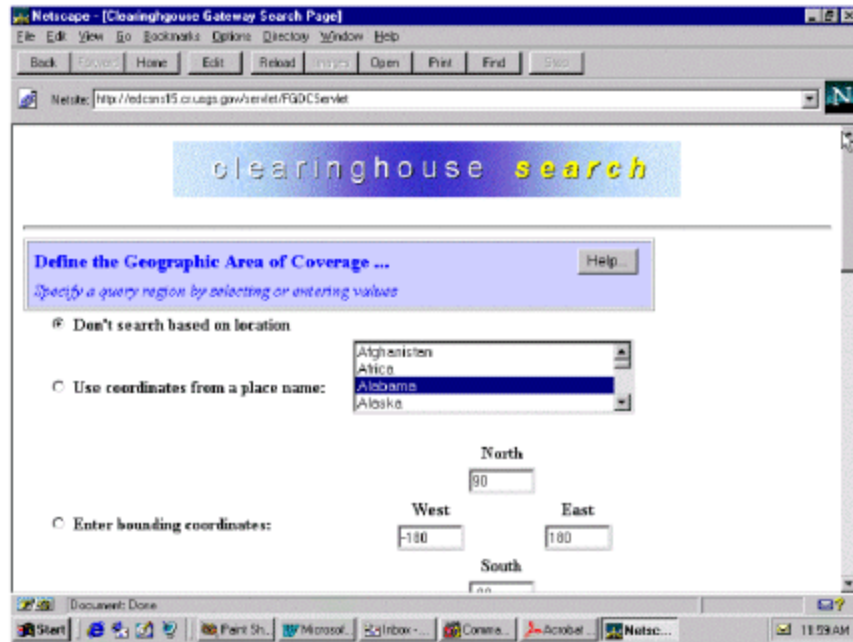
[Back to the Unit](#)

Figure 1: Architecture of Geospatial Data Clearinghouse



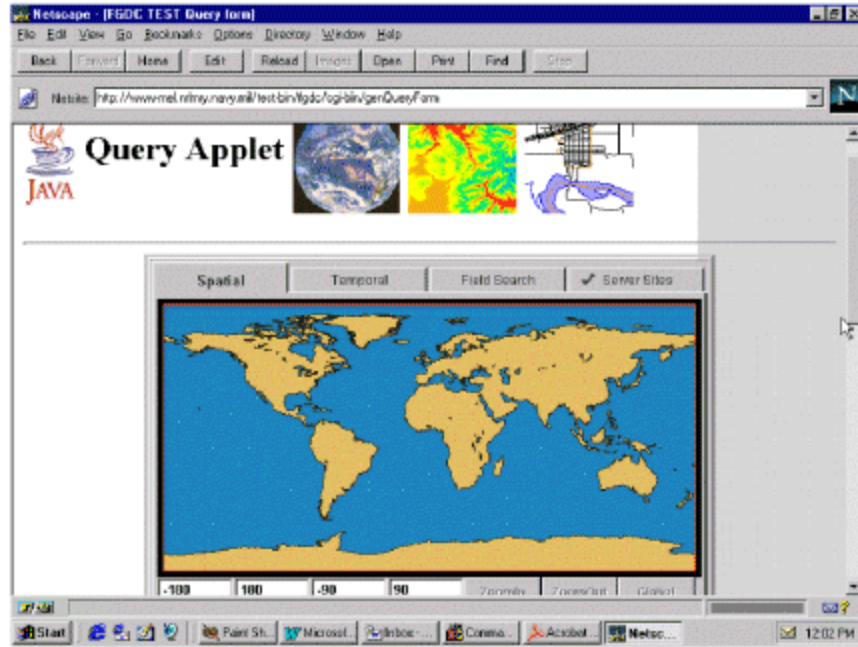
A.K. Yeung 1999-04-15 u190-01

Figure 2: NGDC - HTML-based search interface

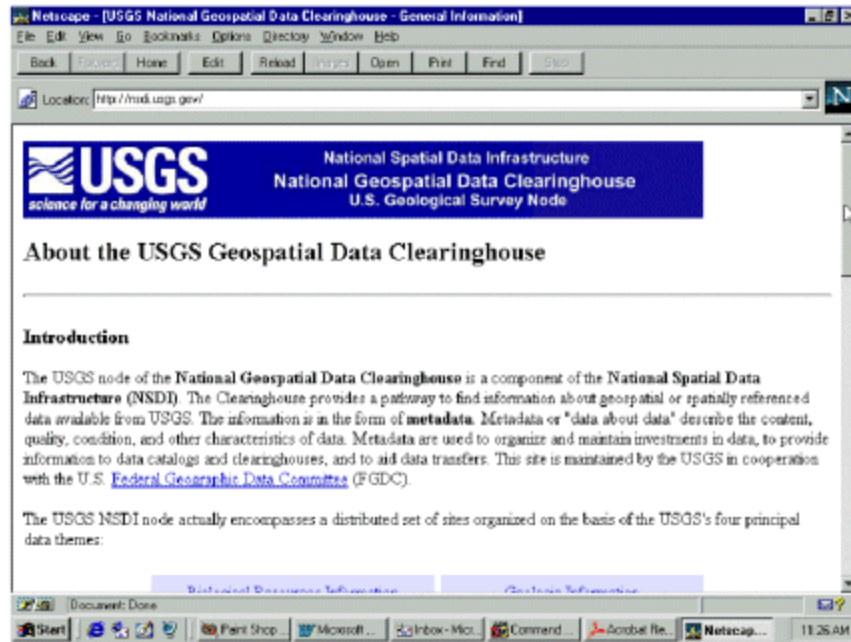


A.K. Yeung 1999-04-15 u190-02

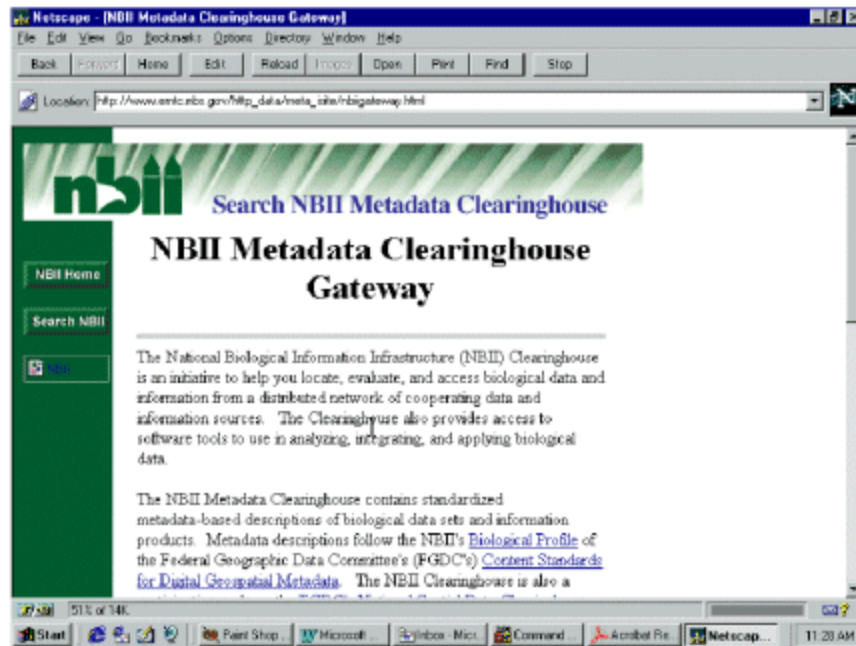
Figure 3:NGDC - Java-based search interface



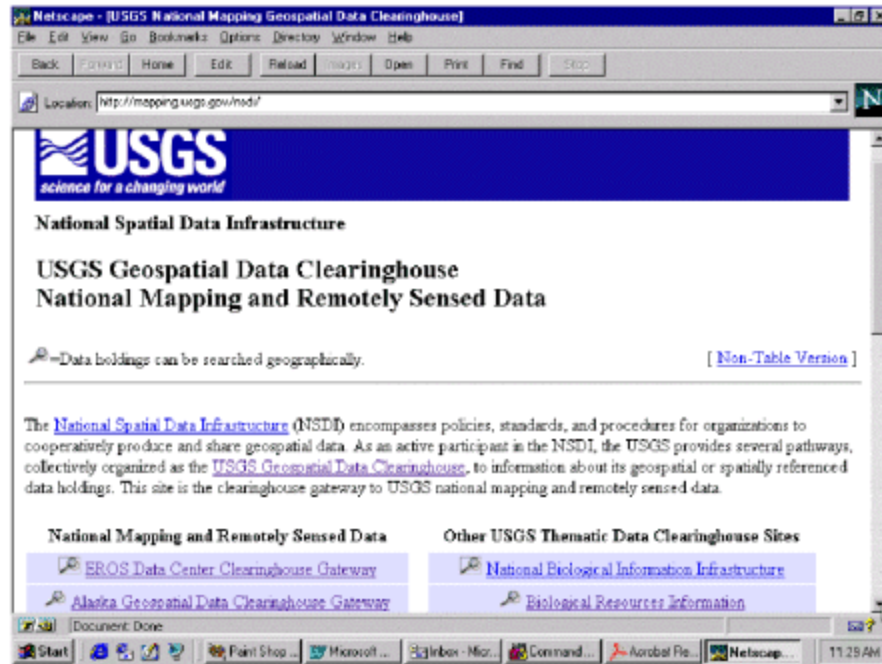
A.K. Yeung 1999-04-15 n190-03

Figure 4: USGS Clearinghouse - home page

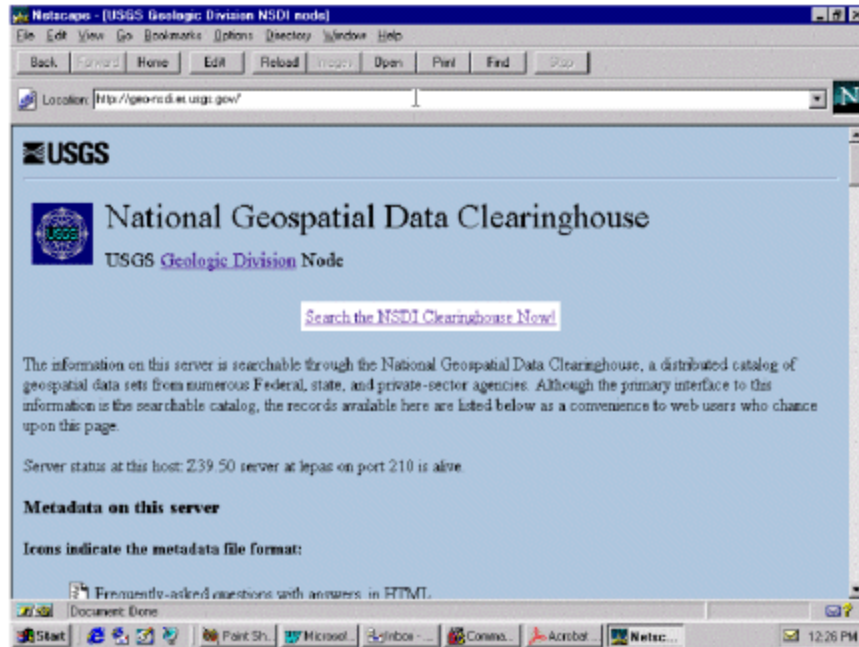
A.K. Yeung 1999-04-15 u190-04

Figure 5: USGS Clearinghouse - biology theme

A.K. Yeung 1999-04-15 n190-05

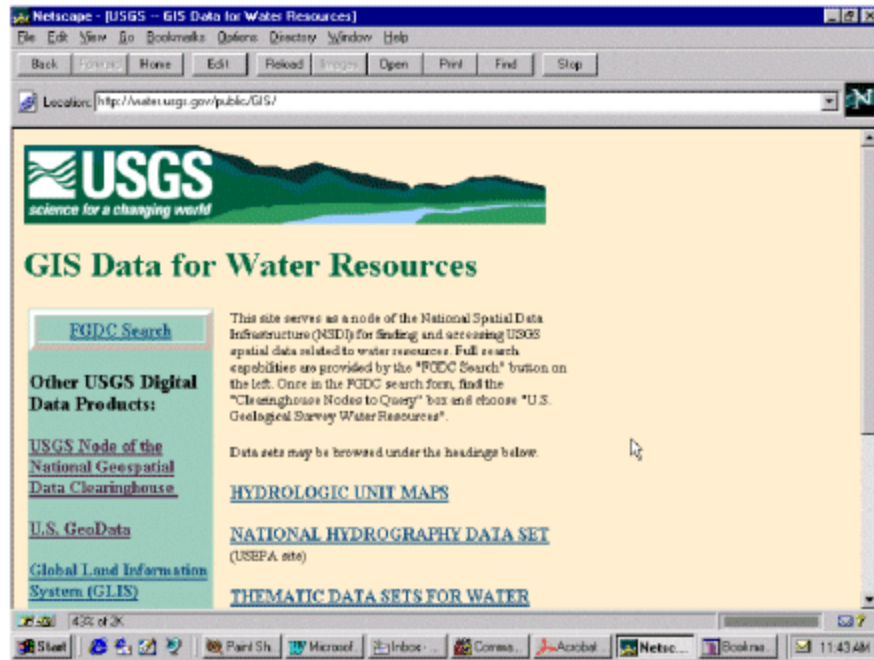
Figure 6: USGS Clearinghouse - mapping theme

A.K. Yeung 1999-04-15 u190-06

Figure 7: USGS Clearinghouse - geology theme

A.K. Yeung 1999-04-15 u190-07

Figure 8: USGS Clearinghouse - water resource theme



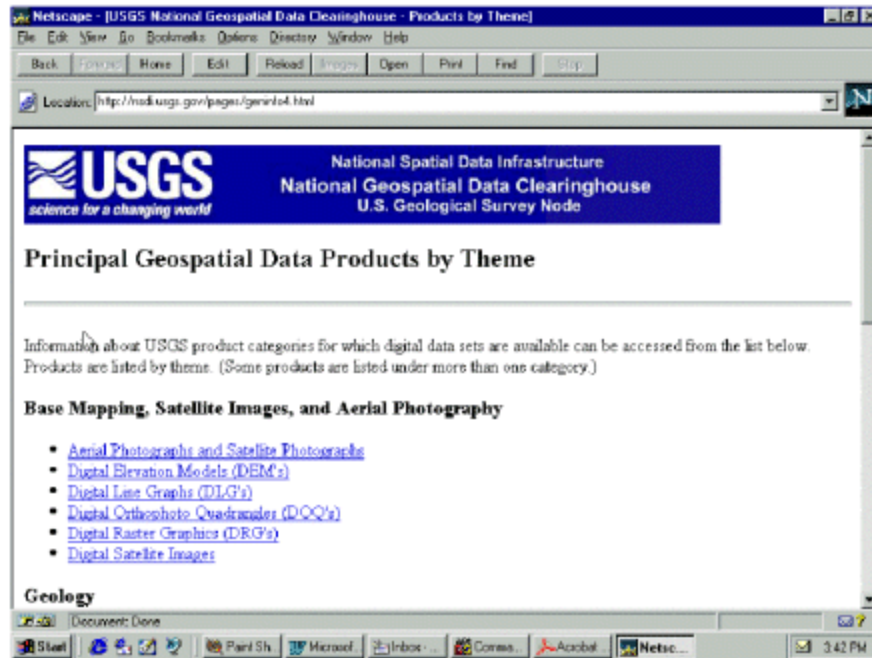
A.K. Yeung 1999-04-15 n190-08

Figure 9: USGS Clearinghouse - search by “best seller”

A.K. Yeung 1999-04-15 n190-09

Figure 10: USGS Clearinghouse - search by product category

A.K. Yeung 1999-04-15 u190-10

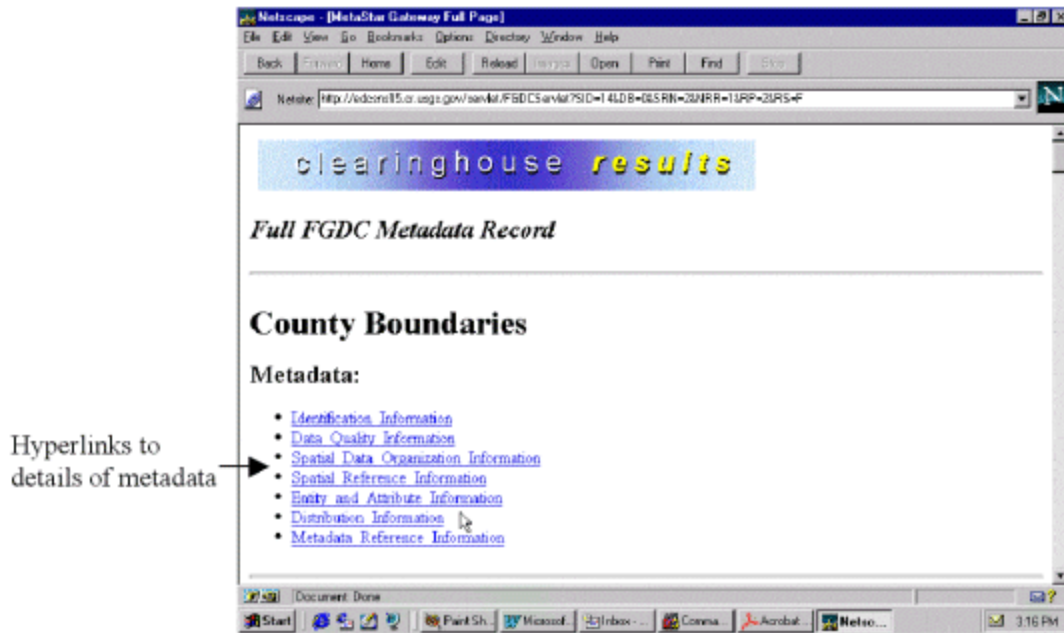
Figure 11: USGS Clearinghouse - search by theme

A.K. Yeung 1999-04-15 n190-11

Figure 12: National Data Clearinghouse Gateways

A.K. Yeung 1999-04-15 u190-12

Figure 13: Result of search, National Geospatial Data Clearinghouse



A.K. Yeung 1999-04-15 u190-13

Figure 14: Buffalo Freenet, NY



A.K. Yeung 1999-04-15 n190-14

Figure 15: National Capital Freenet, Ottawa, ON, Canada

A.K. Yeung 1999-04-15 u190-15