Towards a National Geographic Information Infrastructure: Overcoming Impediments to the Development of SDI in Nepal

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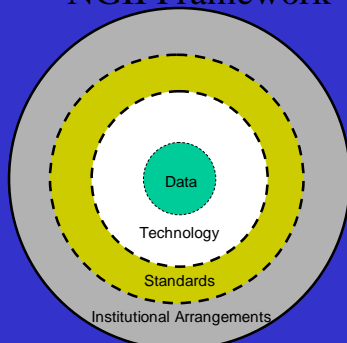www.ngiip.gov.np

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Agenda

- Status of GI related activities and Capacity for SDI building
- What are the "some" impediments
- SDI Development strategy
- Conclusions

NGII Framework

Status of GI activities

- Survey Department has always remained in the forefront of GI development in Nepal
- Land Resources Mapping 1980s
- New topographic base mapping 1992- 2002
- Sporadic development of IT, GIS and communication systems 1990s
- Creation of digital topographic database later 1996-2002
- Creation of digital orthophoto 2000-2002
- Initiation of National Geographic Information Infrastructure Programme 2002
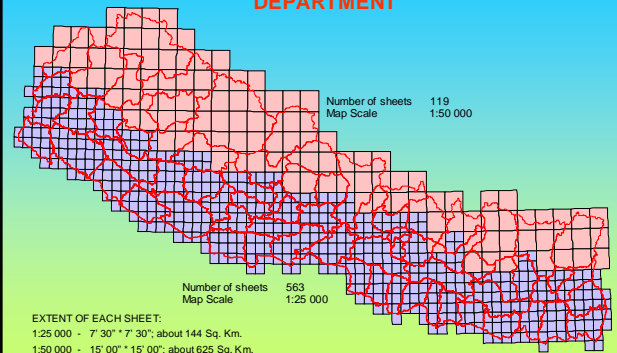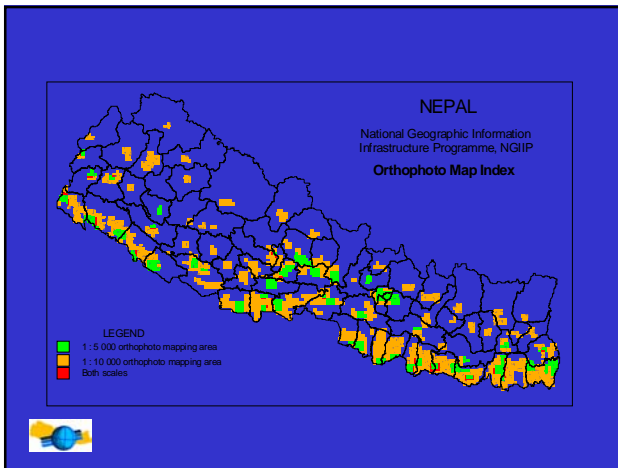

SDI from the national policy perspective

- Eighth Plan (1992 – 1997)
  - Initiation for use of GIS technology
  - Initiation for GIS Steering Committee
- Ninth Plan (1997 – 2002)
  - Increasing focus for use of GIS technology for information analysis for environmental and poverty reduction
  - Regulation passed for the Mapping Committee
- Tenth Plan (2002 – 20077)
  - Development of a national geographic information system for easy access and dissemination of geographic information
  - Initiation NGII programme

AVAILABILITY OF DIGITAL MAPS IN SURVEY DEPARTMENT

Number of sheets 119
Map Scale 1:50 000

Number of sheets 563
Map Scale 1:25 000

EXTENT OF EACH SHEET:
1:25 000 - 7' 30" * 7' 30"; about 144 Sq. Km.
1:50 000 - 15' 00" * 15' 00"; about 625 Sq. Km.

Slide 1

NEPAL

National Geographic Information
Infrastructure Programme, NGIIP

Orthophoto Map Index

LEGEND
- 1 : 5 000 orthophoto mapping area
- 1 : 10 000 orthophoto mapping area
- Both scales

Slide 2

Availability and usage of data

- Basic topographic data are available for all the users private or public
- Many many users
- Revenue of data sales last 6 months was 3.4 Million Rupees

  (Per capita income 20,000 Rupees)

Slide 3

But……………………………..

- There are many many other geographic or spatially elated information in other agencies which "I" do not exactly know

Slide 4

Drivers to NGII development

- **Governments and the community demand integrated solutions to complex problems**
- **Individual agencies can no longer provide all the answers: need of inter-agency and inter-jurisdictional collaboration**

Slide 5

Challenges are barriers to data access and use.

User perspective:

- **how can I find out if the data already exists?**
- **who is the custodian of the data ?**
- **is the data appropriate for my purpose?**
- **will it integrate with my other data?**
- **can I readily access and use it without unreasonable restrictions?**

Slide 6

So where is the problem?

- Immature institutional arrangements
- Immature user/provider relationships
- Poor knowledge of data availability
- Difficulties in assessing data quality
- Inconsistent policies on data access and use
- Lack of best practice in the use of technologies

We need to focus on

- **Governance and partnership building**
- **Access to data**
- **Data standards**
- **Interoperability**

Key issues in our NGII Implementation Plan

We need System for:

DISCOVERY tell me what data/services are available
ACCESS   give me access with minimum effort
INTEGRATION   let me combine data with other data
USE   give me the results in a form I can use

What are the impediments?

- Know how = Technology
- Capacity = human and financial
- Institutional setup

NGII implementation strategy

- Building by example: a pilot project with six government ministries/ departments and 33 district level offices
- Development of proper tools
- Developing working-together culture through joint projects and joint WGs
- Creating a institutional framework
- Building a organizational structure for liability and responsibilty
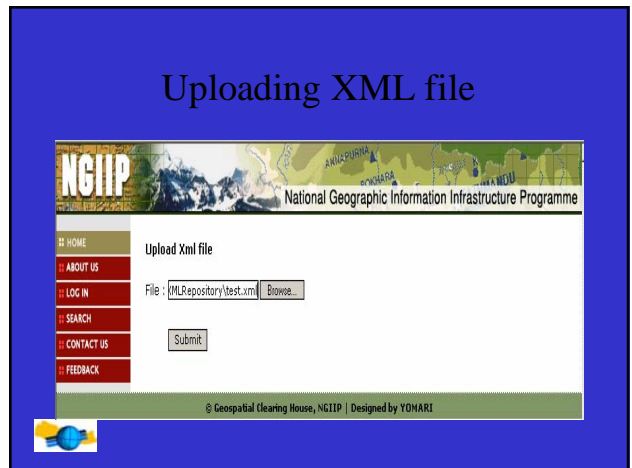
Institutionalization Priorities:

- **Inter-agency cooperation**
- **Standards, especially for interoperability**
- **Custodianship rights & responsibilities**
- **Access policies & data licenses**
- **Metadata for data discovery and use**
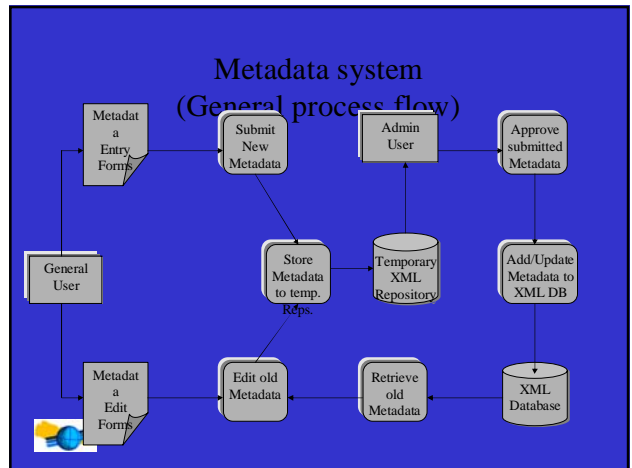
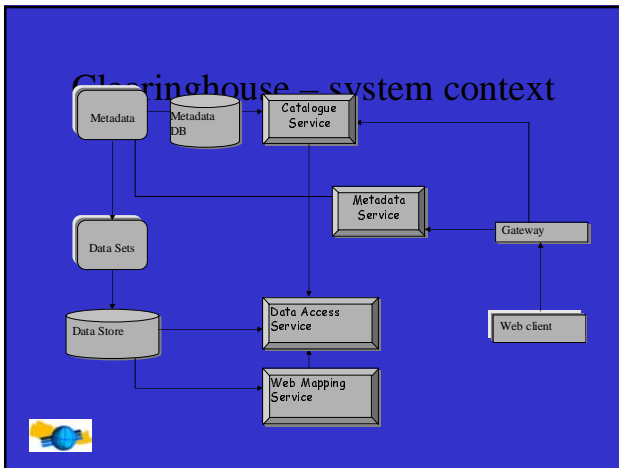## Institutionalization Priorities:

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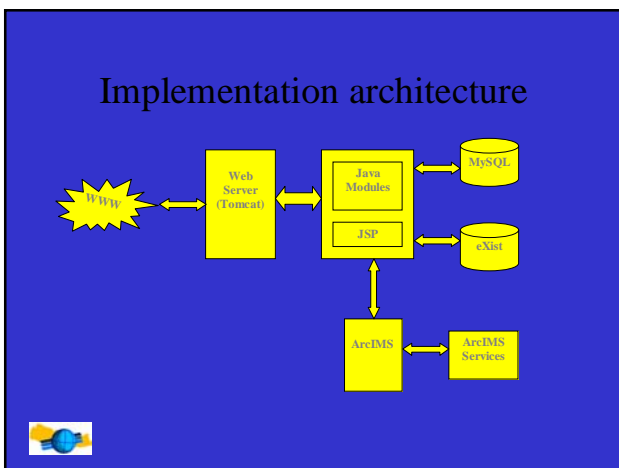- **Metadata for data discovery and use**

Clearinghouse – system context

Metadata system
(General process flow)

NGII Metadata Interface

Uploading XML file

Adding metadata using forms

General search

Search results

Partial metadata

Detail metadata in ESRI style

Metadata administration

Implementation architecture
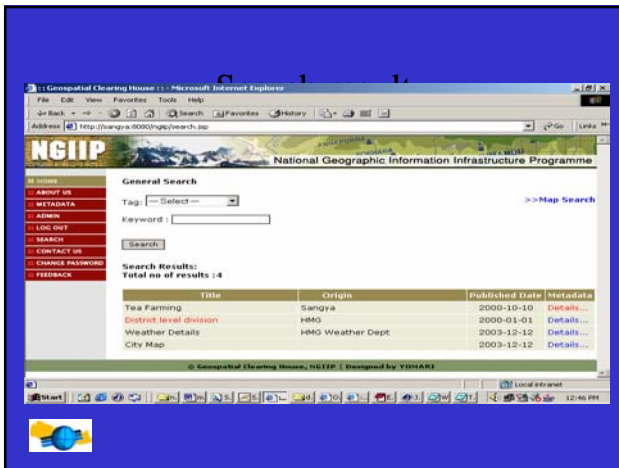
The prototype functionality

- Metadata can be created and edited with a simple WEB client.
- Metadata Search with both keywords and spatial interface.
- Metadata administration including a cataloguing into a single repository.
- Visualization of metadata with three different style sheets:
  - FGDC
  - ESRI
  - XML

Information Dissemination Roadmap

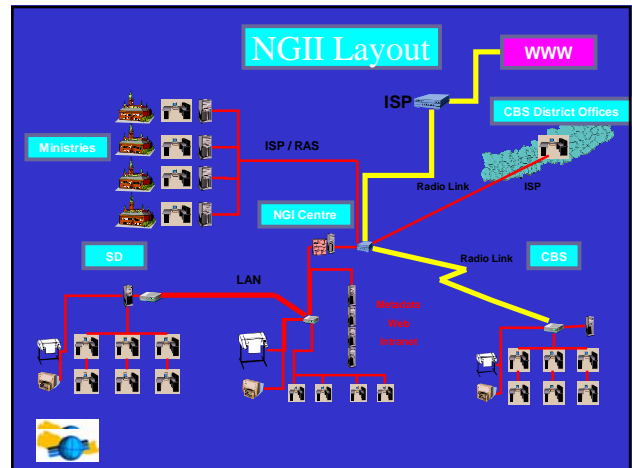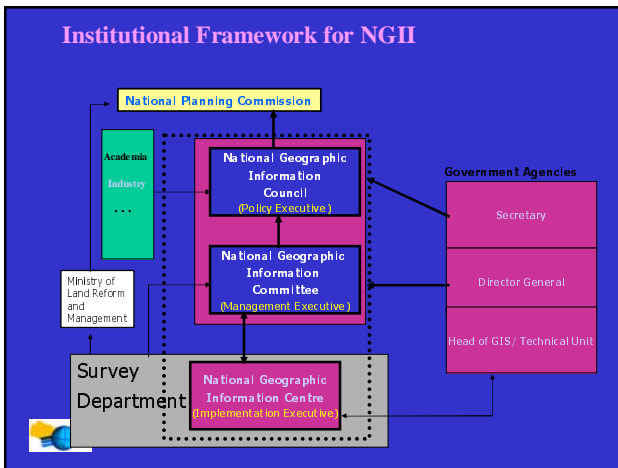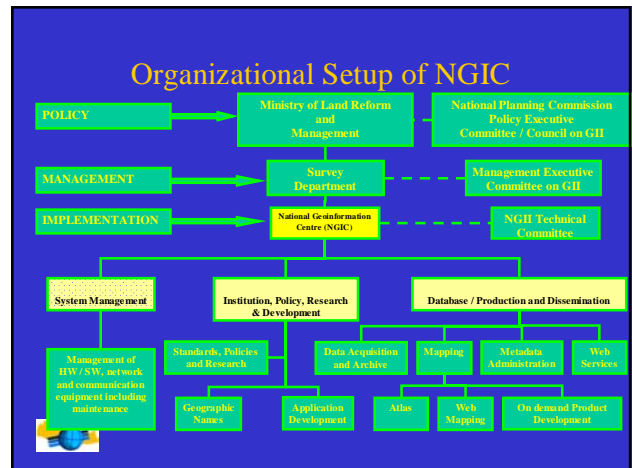|	Information Access	
	Off-line	On-line
Method		
Off - line	**Type I Behavior** Data ordering by mail, fax or telephone for use on customer's computer	**Type II Behavior** Data files accessed online downloaded and used on customer's computer to extract information
On-line		**Type III Behavior** Transaction based approaches to access, modify and integrate geospatial data to create information products.

NGII Layout

WWW

ISP

CBS District Offices

Ministries

ISP / RAS

NGI Centre

Radio Link

ISP

SD

Radio Link

CBS

LAN

Institutional Framework for NGII

National Planning Commission

Academia Industry …

National Geographic Information Council (Policy Executive)

Government Agencies

Secretary

National Geographic Information Committee (Management Executive)

Director General

Ministry of Land Reform and Management

Head of GIS / Technical Unit

Survey Department

National Geographic Information Centre (Implementation Executive)

Organizational Setup of NGIC

POLICY	Ministry of Land Reform and Management	National Planning Commission Policy Executive Committee / Council on GII

MANAGEMENT — Survey Department — Management Executive Committee on GII

IMPLEMENTATION — National Geoinformation Centre (NGIC) — NGII Technical Committee

System Management

Institution, Policy, Research & Development

Database / Production and Dissemination

Management of HW / SW, network and communication equipment including maintenance

Standards, Policies and Research

Data Acquisition and Archive

Mapping

Metadata Administration

Web Services

Geographic Names

Application Development

Atlas

Web Mapping

On demand Product Development

Conclusion

- SDI development in Nepal is in a very infancy stage of development.
- There are many problems and impediments to its realization in Nepal. Sustainability might be a problem.
- However, there can be no single model of SDI, the "Nepalese" model will continue.

Thank you !

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