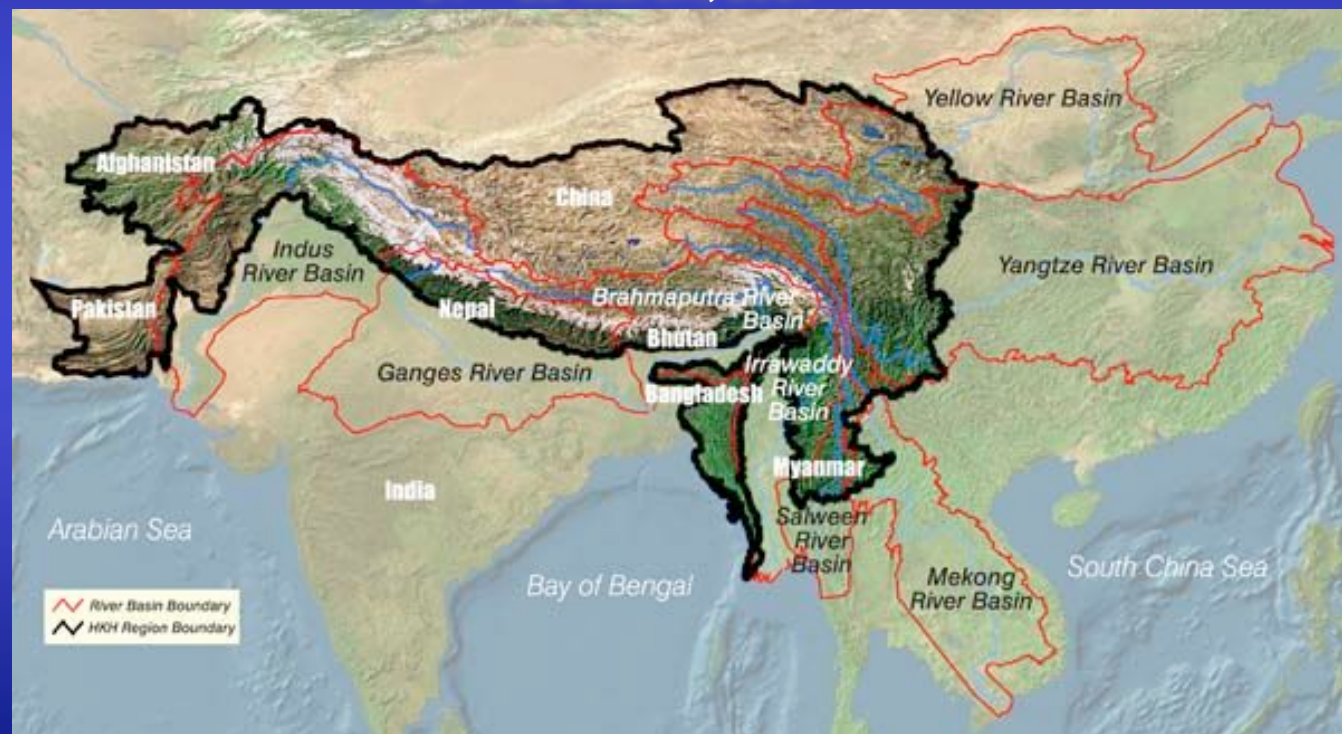


Mountain Knowledge Management in the Hindu Kush-Himalayan (HKH) Region – A Case Study

The First International Topic Maps User Conference
21 – 22 March, 2007



- ICIMOD - A regional mountain knowledge and learning centre devoted to sustainable mountain development in the greater Himalayan region.

The Hindu Kush-Himalayan Region

Extends over 3500 km from Afghanistan to Myanmar
And Home to 150 million People



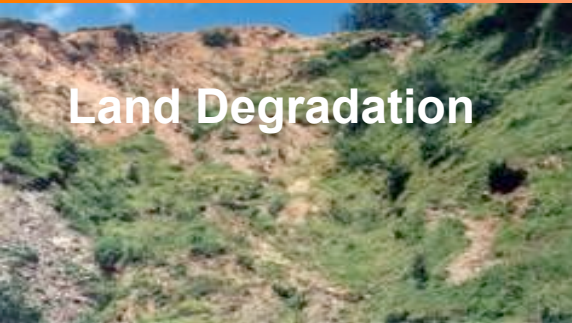
www.icimod.org

<http://menris.icimod.net>

Core and Thematic areas

- Topography
- Infrastructure
- Air
- Water
- Land
- Bio-diversity
- Glaciers and Climate Change
- Natural Disasters
- Socio-Economy





Land Degradation



Agriculture/ Land use

3 tiers disseminating platform Intranet, Extranet and Internet

ICIMOD focuses on different Thematic Areas and generate Data, Information and knowledge **in partnership with national, regional and global institution**

creation of a knowledge base on major issues of concern at the local, national and regional levels for sustainable mountain development





Bio-diversity



Natural Hazard/Floods

Information and Knowledge Management Framework

Implementation Methods	Target	Major Applications	Process
<p>PORTAL plus VORTAL</p> <p>ICIMOD Home and Thematic Vertical Portals</p> <p>Web content in HKH Languages</p> 	<p>Public and Global</p> <p>Provide global access to and distribution of mountain knowledge</p>	<p><u>SMD Knowledge Stores</u></p> <p>Homepages</p> <p>Data Mining</p> <p>Thematic content on Vortal – e.g., energy, floods, GIS, Women etc.</p> <p>Mtn. Best Practices Database</p> <p>E-learning on Mtn. Development etc.</p>	<p>Distributed Data Network;</p> <p>Web Hosting;</p> <p>Distance Education;</p> <p>Discussion Forum;</p> <p>Feedback;</p> <p>Security & Access Etc.</p>
<p>Extranet</p> <p>(Partners Knowledge and Collaboration)</p> 	<p>Partner Level</p> <p>Capture, Manage and Share Partners knowledge</p>	<p><u>Partner's Knowledge Stores</u></p> <p>Virtual Project Team collaboration</p> <p>Partners Document management</p> <p>Partners' Information Resources</p> <p>Communities of Practices</p> <p>M&E Database etc.</p>	<p>Awareness building;</p> <p>Capacity Building;</p> <p>Tech. Transfer;</p> <p>Networking;</p> <p>Security & Access etc.</p>
<p>Intranet</p> <p>(Collaborative Workspace and Organization Memory)</p>	<p>Organization Level</p> <p>Capture, Manage and Share knowledge Internally</p>	<p><u>ICIMOD Knowledge Stores</u></p> <p>Information Resources</p> <p>Document Management(unstructured)</p> <p>Virtual Workspace</p> <p>Data Mining, M & E Database</p> <p>Database management (structured) etc.</p>	<p>Technology Creation</p> <p>Application Development;</p> <p>Content Management;</p> <p>Security and Access etc.</p>



GIS for Sustainable Mountain Development

in the Hindu Kush Himalayas

BANGLADESH

Visit ICIMOD GIS Portal

South Asia Earthquake, 2005

Geo-Spatial Information Resources

- Condolence
 - Background Information
 - Earthquake History
 - Earthquake damaged ICIMOD's field office
 - Satellite Images
 - Photo Gallery
 - Movie
 - Useful Links
 - Eye Witness
- [My soul is buried in the rubble](#)
-Dr. Farooq Ahmad
- [Earthquake, A Personal Account](#)
-Mr. Sohail Sultan Khan, Pakistan Board Member
- ICIMOD's contribution
- Make your contribution
- Home

The powerful earthquake of 7.6 magnitude registered at 0350 GMT was felt at Afghanistan, India and Pakistan on October 8, 2005, with its epicentre in northern Pakistan 10 kilometres southwest of Muzaffarabad city. The devastating quake flattened nearby cities of the epicenter, triggered landslides throughout Kashmir causing deaths of more than 73,000 people, injuring tens of thousands of others and leaving 4 millions homeless. The death toll has reached more than 1,300 with over 6,200 people injured in Indian-administrated Kashmir and at least four person killed and some buildings collapsed in Afghanistan as an impact of the powerful earthquake.

Afghanistan, India and Pakistan are the member countries of ICIMOD and the Centre has contributed to many development programmes in this region directly and indirectly. At this need of the hour, ICIMOD now is actively involved in providing assistance and is planning for future disaster management programme in the region along with other various international aid organisations, international relief organisations, local NGOs and others involved in relief efforts.

[Movie: Fly from Balakot to Bagh \(Pakistan\)](#)

[Animated Earthquake Mechanism](#)
(source:www.earthquakepakistan.com)

- Useful Links**
- [Earthquake and Tectonic Plate motions: Kashmir Earthquake 2005](#)
 - [Earthquake in Pakistan](#)
 - [DFID \(Development for International Development\)](#)
 - [Seismosurfing the Internet for Earthquake Data](#)



File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Recycle Bin Mail Print Send To Favorites

Address <http://spacetechnology.icimod.net/> Go Links

Search Web Search Mail My Yahoo! Answers HotJobs Music My Web

Mountain Environment and Natural Resources' Information Systems

Home • MENRIS Portal • Contact / Feedback

- Workshops/Trainings
- News & Events
- Useful Links
- South Asia Earthquake Portal
- MENRIS Portal
- Contact and Feedback

Space Technology and Application for Integrated Mountain Development



Pursuant to UN resolution 58/89 and in accordance with the recommendation of UNISPACE III, the United Nations/Austria/Switzerland/European Space Agency/International Centre for Integrated Mountain Development Workshop on Remote Sensing in the Service of Sustainable Development in Mountain Areas was held in Kathmandu from 15 to 19 November 2004. The Workshop was the first in a new series of activities dedicated to sustainable development in mountain areas. Recognizing the special role of space technology applications for sustainable mountain development, one of the deliberations of the workshop was to develop a web portal with an aim to establish an open-ended, sustainable, long-term partnership. The web portal is a joint initiative of European Space Agency and ICIMOD.



- ### Links to Partners
- [European Space Agency](#)
 - [UNOOSA](#)
 - [UNOSAT](#)

- ### Educational Links
- [EDUSPACE](#)
 - [ITC, Netherlands](#)
 - [AIT, Thailand](#)
 - [more »](#)

- ### Useful Information
- [STDM Conferences, Meetings and Events 2006](#)
 - [eoPortal](#)
 - [Earth & Space Week](#)

- ### More on Space Application
- [EUMETSAT - Monitoring Weather, Climate and Environment](#)
 - [ESA Image of the week](#)
 - [USGS Weather](#)

- ### E-Journal / Newsletter
- [EARSeL eProceedings](#)

Workshop on Remote Sensing Application in the Service of Sustainable Development in Mountain Areas

An international workshop on "Remote Sensing in the Service of Sustainable Development in Mountain Areas" was held in Kathmandu, Nepal from 15 to 19 November 2004. It was organised by the United Nations Office for Outer Space Affairs (UN-OOSA) Office at Vienna and hosted by the Ministry of Population and Environment of His Majesty's Government of Nepal (MoPE/HMGN) and International Centre for Integrated Mountain Development (ICIMOD). The workshop was sponsored by European Space Agency (ESA), The Government of Austria, and The Government of Switzerland.

[UN General Assembly Report on "United Nations/Austria/Switzerland/European Space Agency/International Centre for Integrated Mountain Development Workshop on Remote Sensing in the Service of Sustainable Development in Mountain Areas"](#)

[More](#)

Remote Sensing Applications for Mountain Areas

[Use of ENVISAT and ERS satellite data, under the EDUSPACE Educational website tool in the HKH region](#)



Text Search

Water Vapour, 01-12-2003, ESA

Satellite Image Resources

Image Catalogue



Mountain Environment and Natural Resources' Information Systems



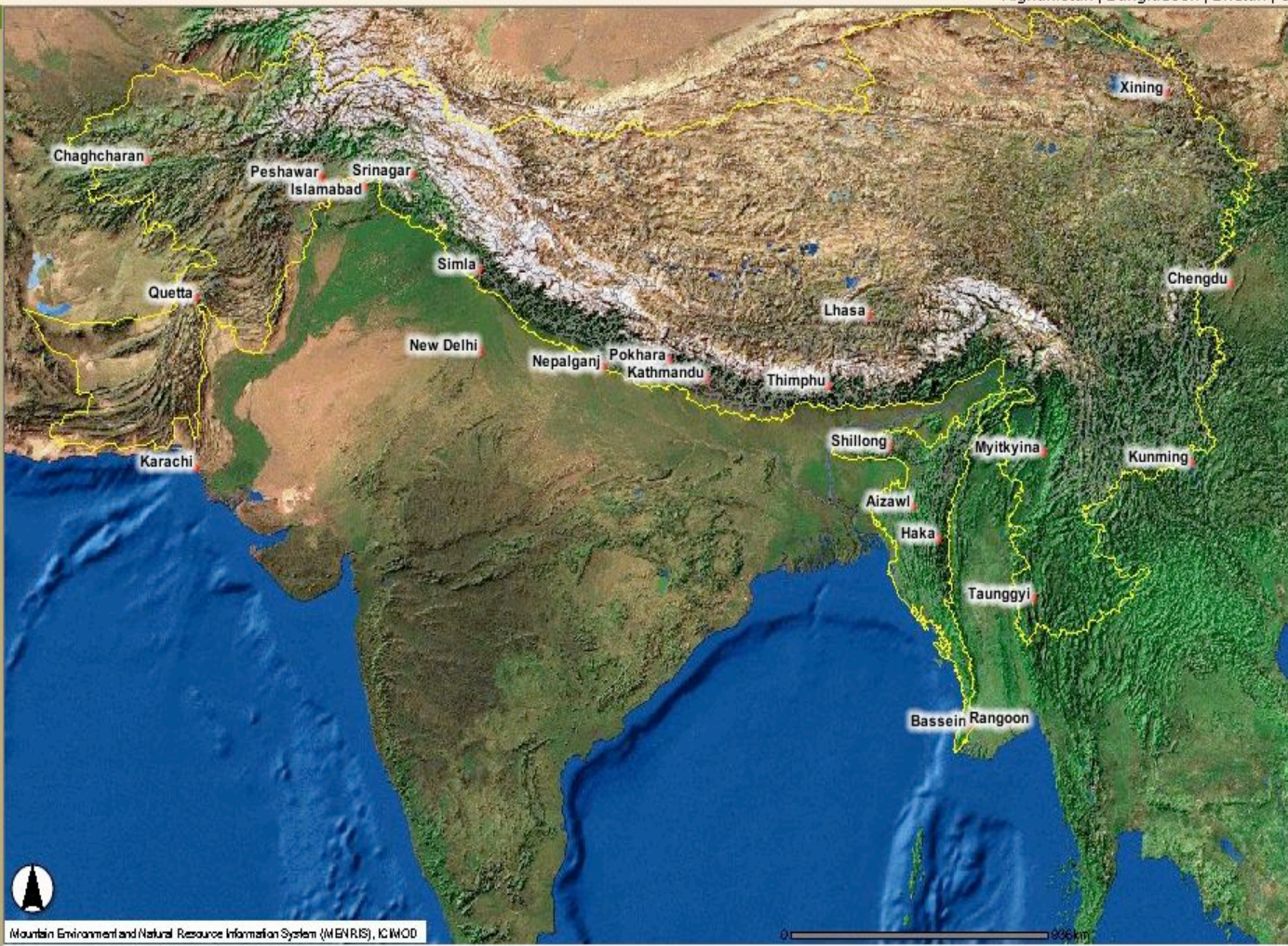
UNEP GRID-Kathmandu

Afghanistan | Bangladesh | Bhutan | China | India | Myanmar | Nepal | Pakistan

Navigation Tool

- Legend
- Zoom In
- Zoom Out
- Full Extent
- Move Map
- Measure
- Print Map

Data Catalogue through GeoNetwork



Map Layers

- Visible
- Major City
 - HKH Outline
 - Major River
 - Watershed
 - Protected Area
 - HKH District
 - Eco-Region
- Refresh Map

Viewer Help

Zoom In:
Click the Zoom In button and then either click the map near the center of the region you are interested in or click-and-drag a rectangle surrounding the area. Since maps are arranged in pyramid structure The Zoom In tool can be used multiple times to move closer and closer to desired regions.

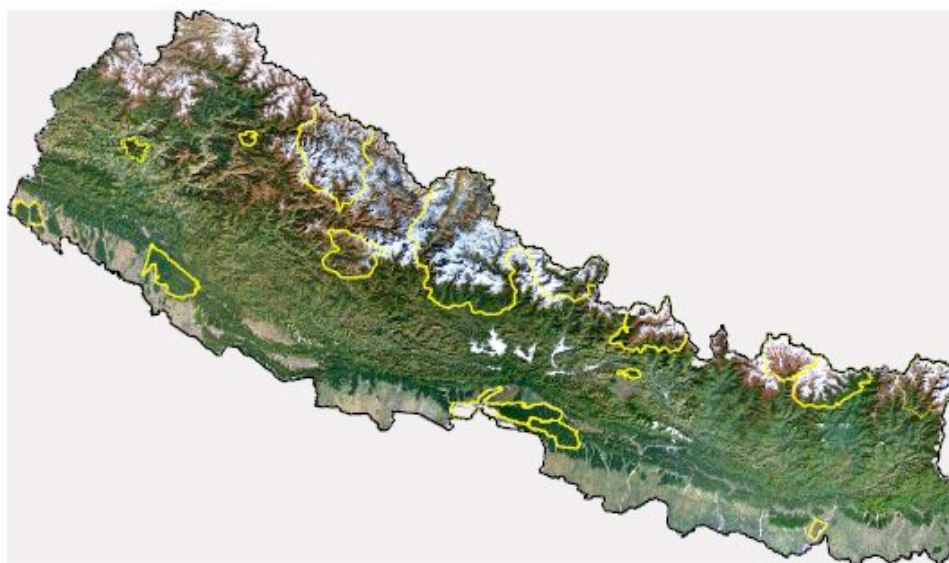
Move Map (Pan):
The Pan Map tool allows you to move the center of the viewing

Conservation Portal Biodiversity of Nepal



HOME | MAPS | ABOUT

- Protected Areas
- Mammals
- Reptiles & Amphibians
- Birds
- IUCN Red List
- Protected Species (NPWC Act)



General Information

Area of Nepal: 147,181 sq km (56,827 sq mi)

Number of Protected Areas:

National Park: 9	Wildlife Reserve: 3
Conservation Area: 3	Hunting Reserve: 1
Buffer Zone: 9	

Area (under Protected Areas):

28585.67 sq km (19.42% of Total Land Cover)

Share of Bio-resources:

Amphibians: 1.0%	Birds: 9.3%
Reptiles: 1.6%	Mammals: 4.5%

Park Name:	Area Name
Area (sq km):	Area
Headquarter:	Headquarter
Established:	Established
Mammals:	Mammals
Birds:	Birds
Others:	Others

Feedback / Queries

SEARCH

Protected Area

Advanced Search

- District
- Major Drainage
- Highways
- Satellite Image

Download

Sagarmatha National Park in Google Earth

Install SVG Viewer for viewing Maps



News

Towards Regional Geographic Information Infrastructure in the Hindu Kush - Himalayan Region

Events

Feedback

Submit your

Sitemap

-----Search-----

Go



- Search Metadata
- Map Catalog
- Posters
- Links

Access the ICIMOD GIS Portal www.icimod-gis.net

In partnership with



International Centre for Integrated Mountain Development



Local Government Engineering Department



Problem Statement

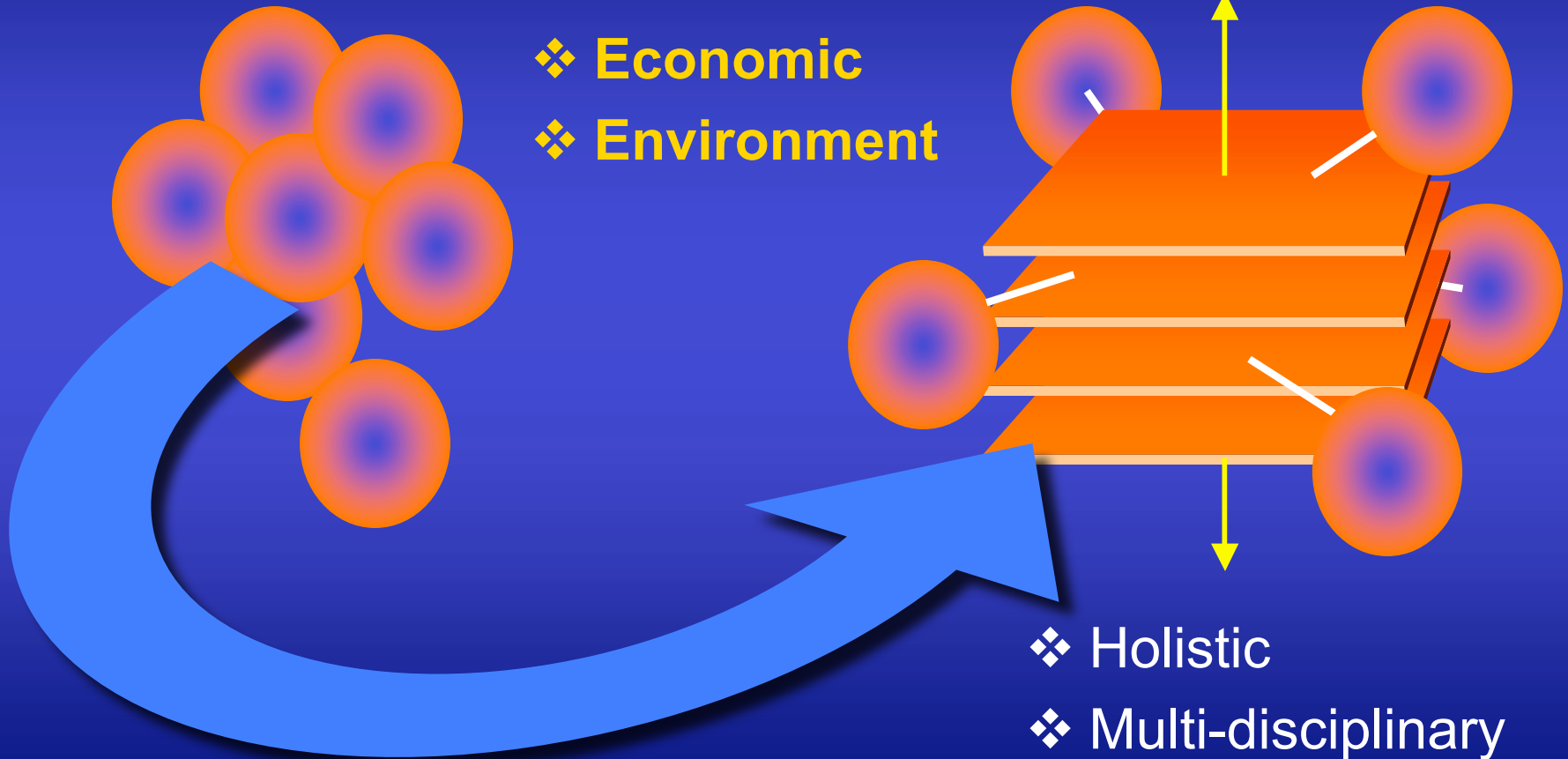
- Knowledge are growing exponentially and there is no “associated” mechanism;
- Data, information and knowledge are often not recycled or utilized;
- Duplication of efforts and wastage of resources;
- Generated knowledge often fragmented across many organizations and projects without much standards
- Availability and accessibility and their quality are mostly unknown
- As such, data and maps cannot be fully leveraged for analysis, planning, decision-making, communication, and education
- We need tools and mechanism to discover, publish, exchange, and communicate information and knowledge resources

A system that provides an unifying framework...

..

- ❖ **Social**
- ❖ **Economic**
- ❖ **Environment**

❖ Integration of Information



Mountain Portal

Mountain Knowledge Hub

<http://menris.icimod.net>

A collaborative effort to build, share, and communicate data, information and knowledge on mountain ecosystem and services in the HKH region

Mountain Portal – Major contents

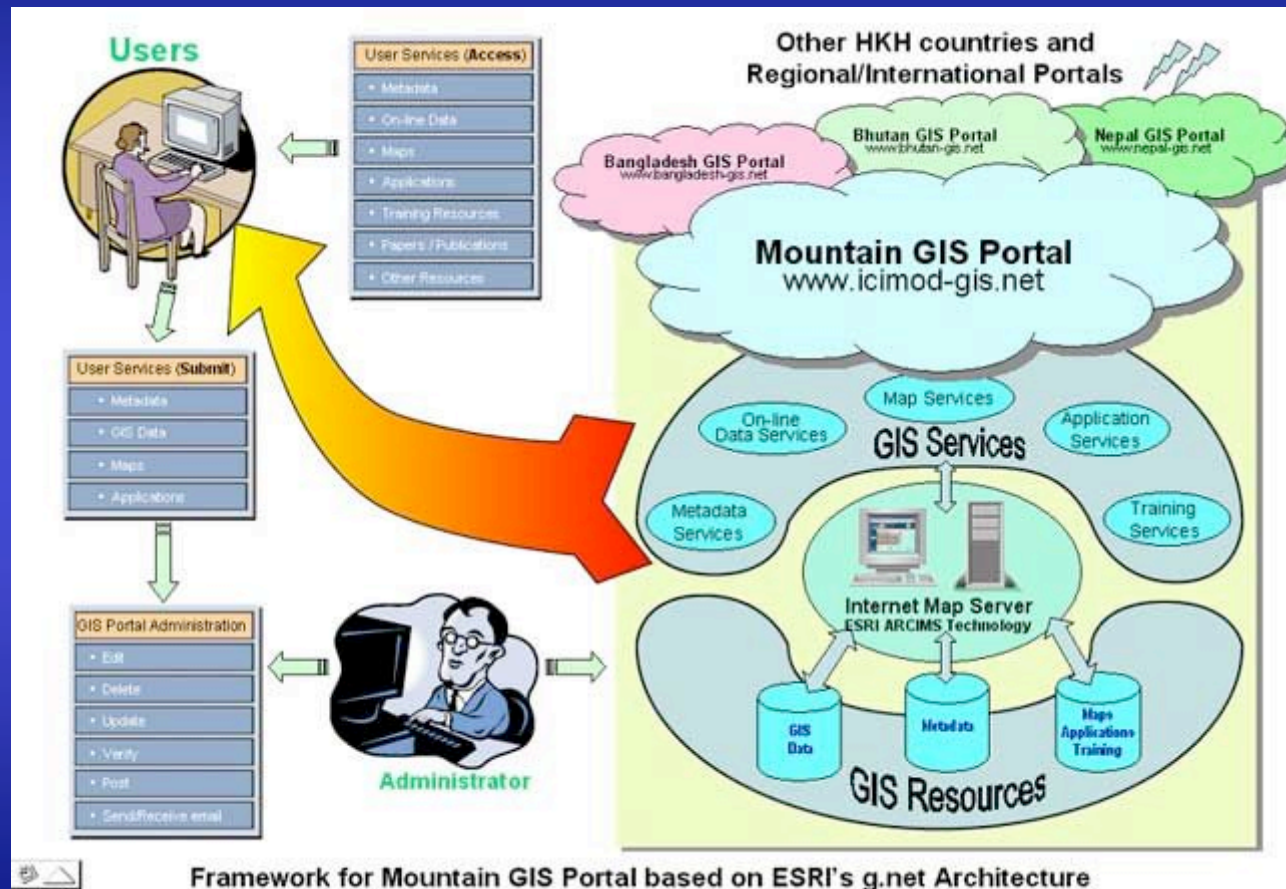
- GI for Sustainable Mountain development
- Spatial Data and Metadata Resources
- Image and Map Resources
- Spatial Visualization
- Good Practices
- Thematic Applications Resources
- Training and Educational Resources
- Papers and Publications
- Other Resources



Mountain GeoPortal - Architecture

Enabling Tools

- Content Management Systems
- ISO Metadata tools ISO - 19115
- ESRI ArcIMS
- SVG
- Google Earth
- Open Source
 - Minnesota Map Server
 - NASA Worldwind
- Wiki
- Document Management
- Discussion Forum
- Topic Map? (ongoing)



Knowledge Organization ?

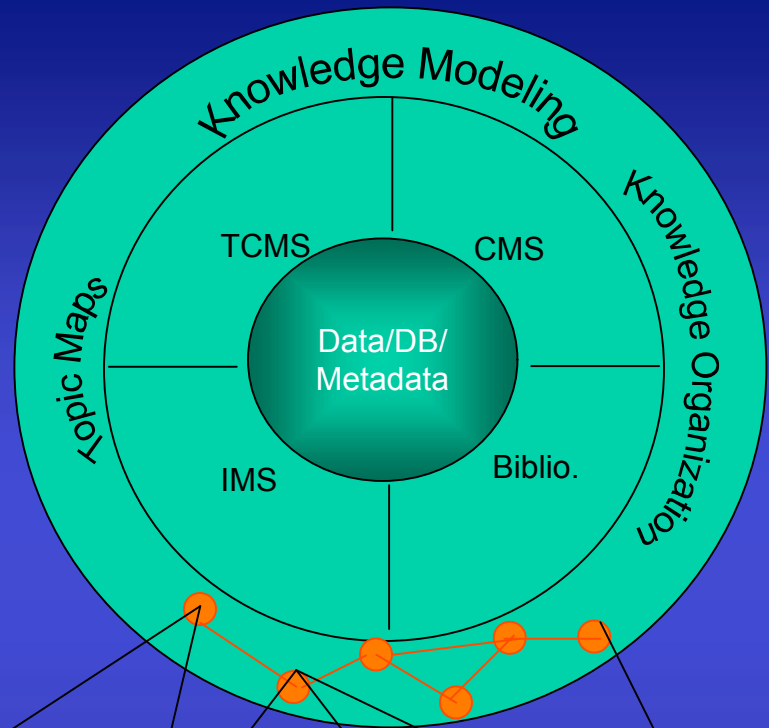
The collage illustrates the fragmented nature of the knowledge organization system. It features several overlapping web portals:

- MENRIS Portal:** The central portal, titled "Mountain Environment and Natural Resources' Information Systems", provides a map of the Hindu Kush Himalayas region with various layers and navigation tools.
- Protected Areas in the Hindu Kush Himalayas:** A specialized page showing protected areas within the region.
- Space Technology and Application:** A page discussing the use of satellite technology for mountain development.
- Board and Associated Committees:** A page listing various committees and their members.

The bottom of the image shows a Windows taskbar with the Start button, several open Internet Explorer windows, and system tray icons, indicating the user interface of the system.

It fails to fulfil our goal to create an integrated knowledge base system

Topic Map base Solution to the existing Portal System



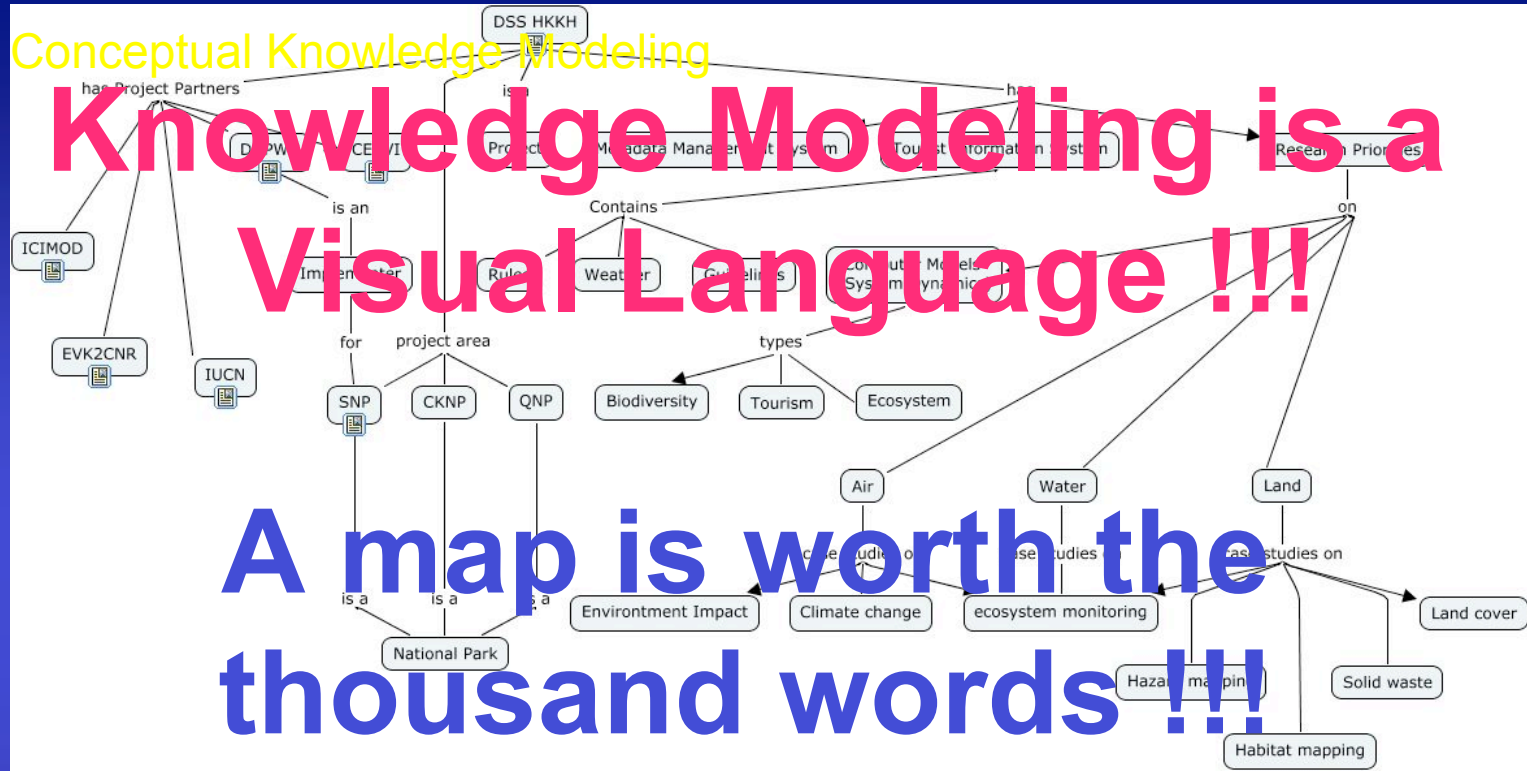
	Topic
	Association
	Occurrence

Portal Layer

External Info Layer

- Word/Pdf Doc
- Web Pages
- Project Partner IMS
- Database Rec
- Audio/ Video
- XML

Topic map standard is Evolving as an Enabling Technology



Mountain knowledge base community

- Knowledge model builder
- Thematic Expert
- Content manager
- System Developer



Mountain Knowledge



Conceptual Knowledge module

expert Community

DSS-HKKH for ecosystem management

Home Thematic Content Knowledge Base Online Map Sphere Forum

Knowledge Base

Search Links Help

User Login

Username:
Password:

Categories

- Applications
- Video/audio
- Case studies, best practices
- Datasets
- Directories
- Interactive resources
- Maps & graphics
- Other information resources
- Photographs
- Conference proceedings

DSS HKKH

Other Names
Decision Support System HKKH

Resources
General Information:
The DSS HKKH project aims at consolidation of institutional capacity for systemic planning and management at the local, national and regional levels, focusing on poverty reduction and on biodiversity conservation in the HKKH region.
Home Page:
<http://dss-hkhh.icimod.org>

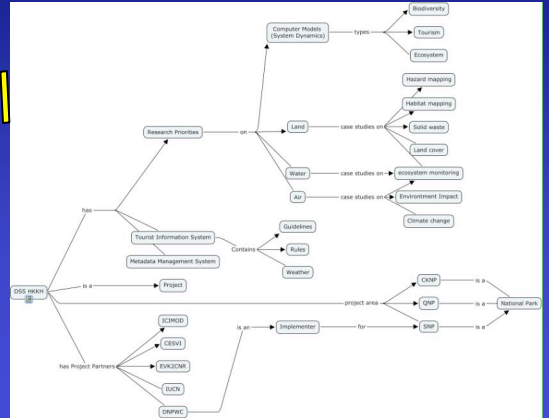
Project

Related Topics

Partnership
DNPWC (Partner)
CESVI (Partner)
ICIMOD (Partner)
IUCN (Partner)
EVK2CNR (Partner)

Project Area
SNP (National Park)
QNP (National Park)
CKNP (National Park)

Project Priority
Computer Models (Theme)
Land (Theme)
Air (Theme)
Water (Theme)



Topic Map System

DSS-HKKH - Spatial Metadata - Rajan Man Bajracharya

Home Thematic Content Knowledge Base Online Map Sphere Forum

Knowledge Base

Search Links Help

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Password:

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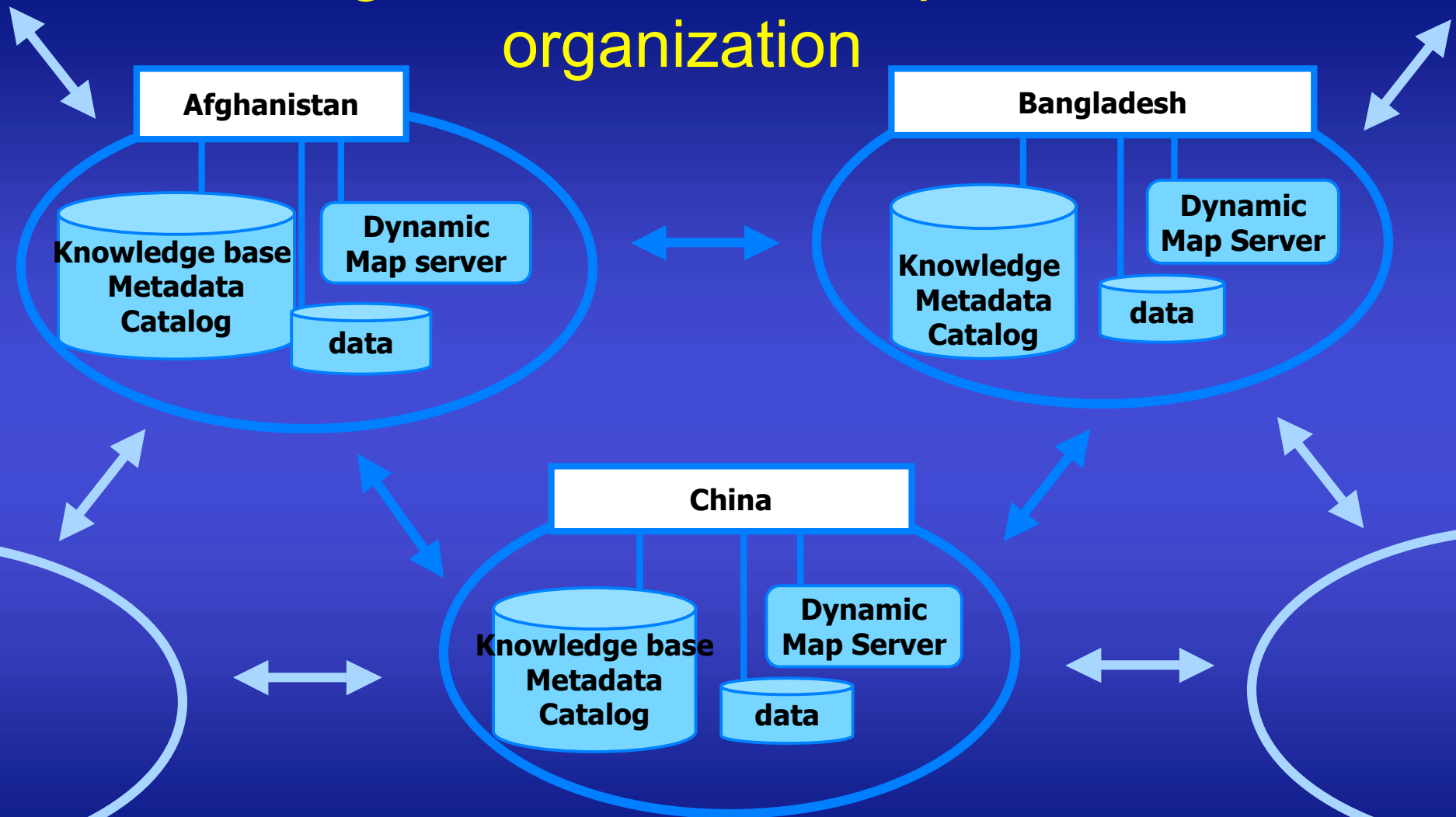
SNP

Other Names
Sagarmatha National Park

Resources
Attachments:
http://www.ev2cnr.org/files/sagarmathaeng_0.pdf
Useful Link:
<http://www.ev2cnr.org/en/node/210>
<http://www.dnpwc.gov.np/national-parks-sagarmatha.asp>
<http://dss-hkhh.icimod.org/projects/pr/SNP.htm>

Related Topics
Project Area
DSS HKKH (Project)
QNP (National Park)
CKNP (National Park)

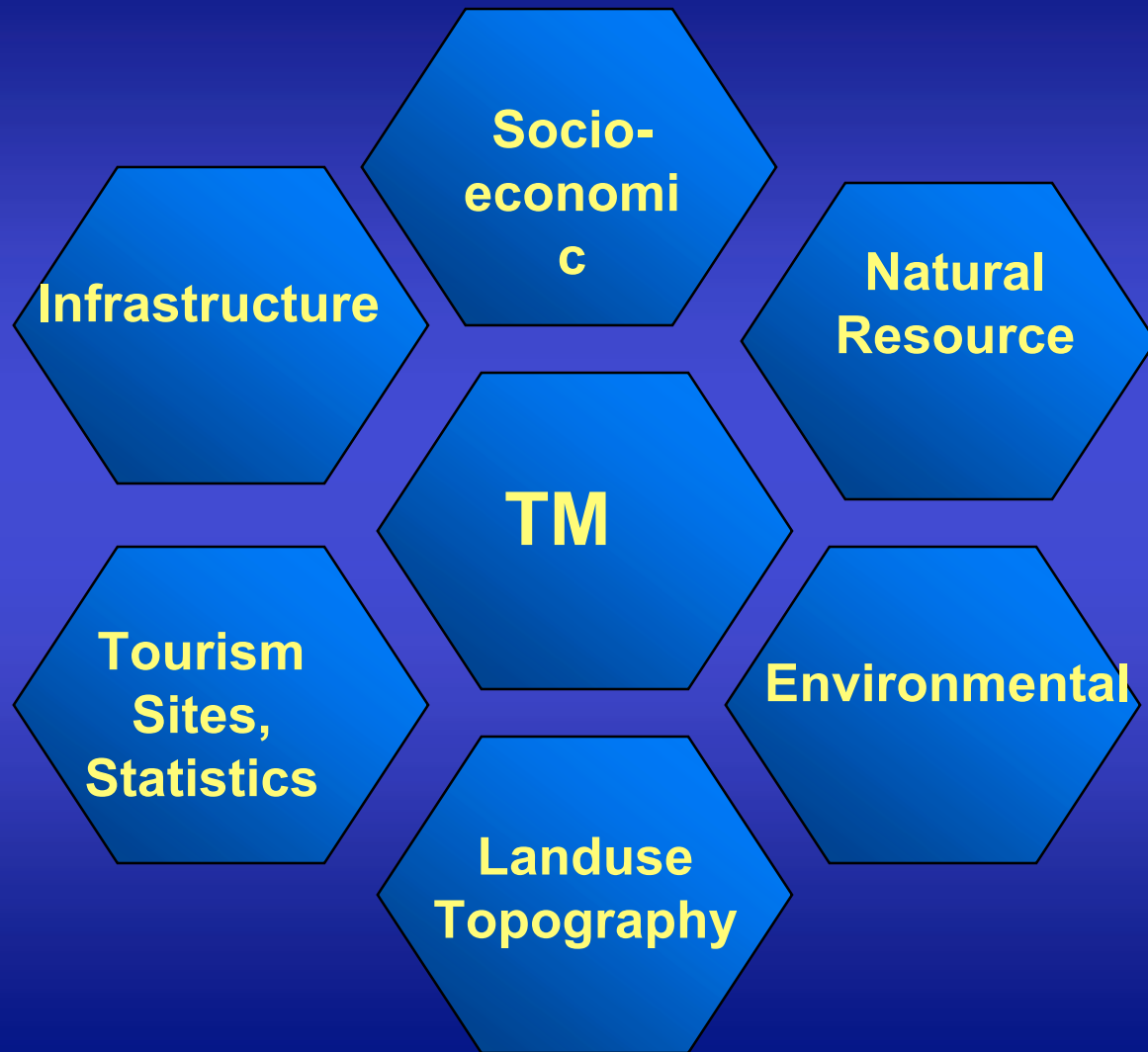
Integrated Portals with partner organization



Loosely coupled distributed network with decentralized ownership

Conclusion

- Topic map - A common Denominator
- Topic Map Is a Data Information and Knowledge Consolidator
- Topic map base tool is the solution which fulfill our goal to create a regional knowledge network in the HKH region





Thank you