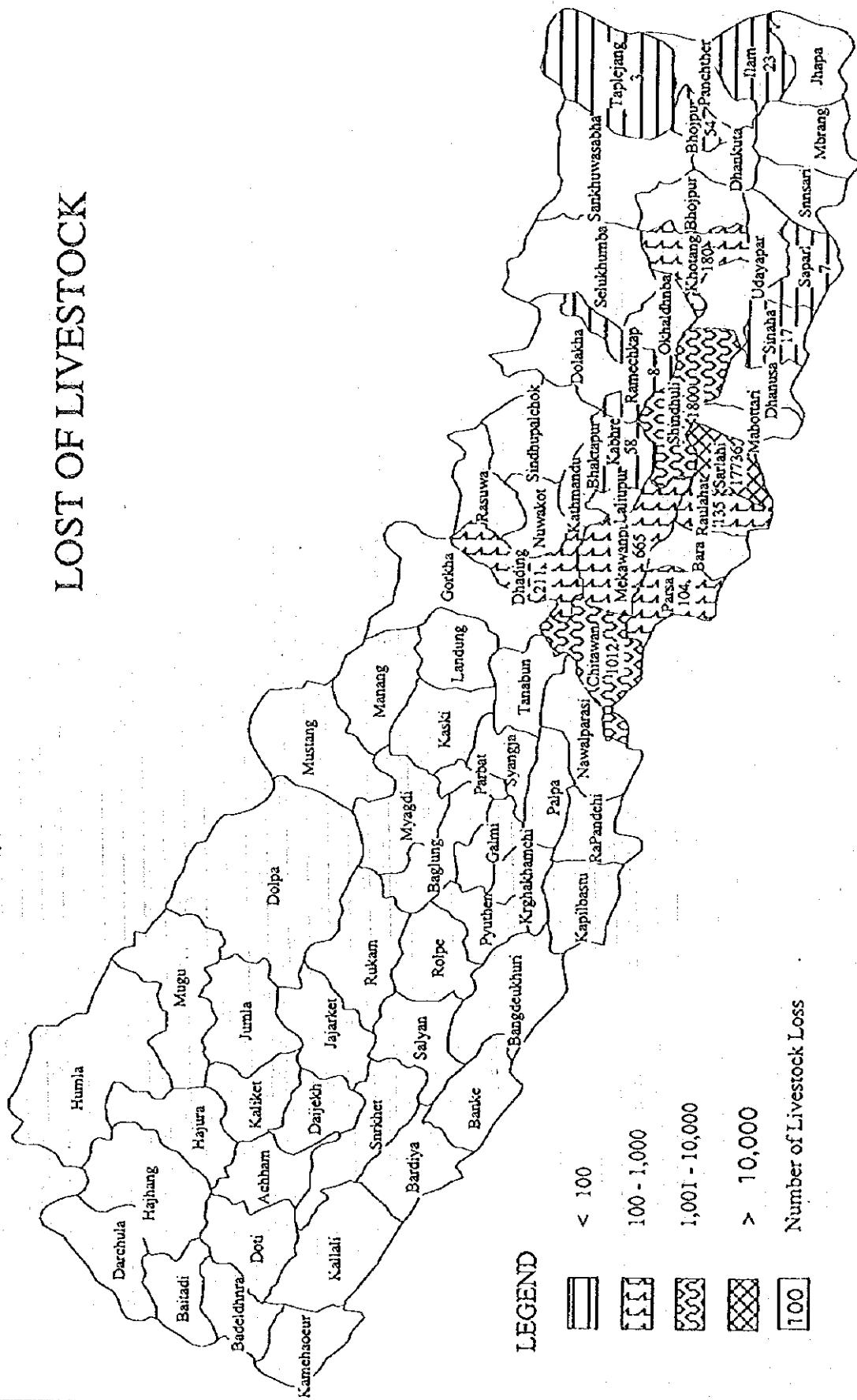


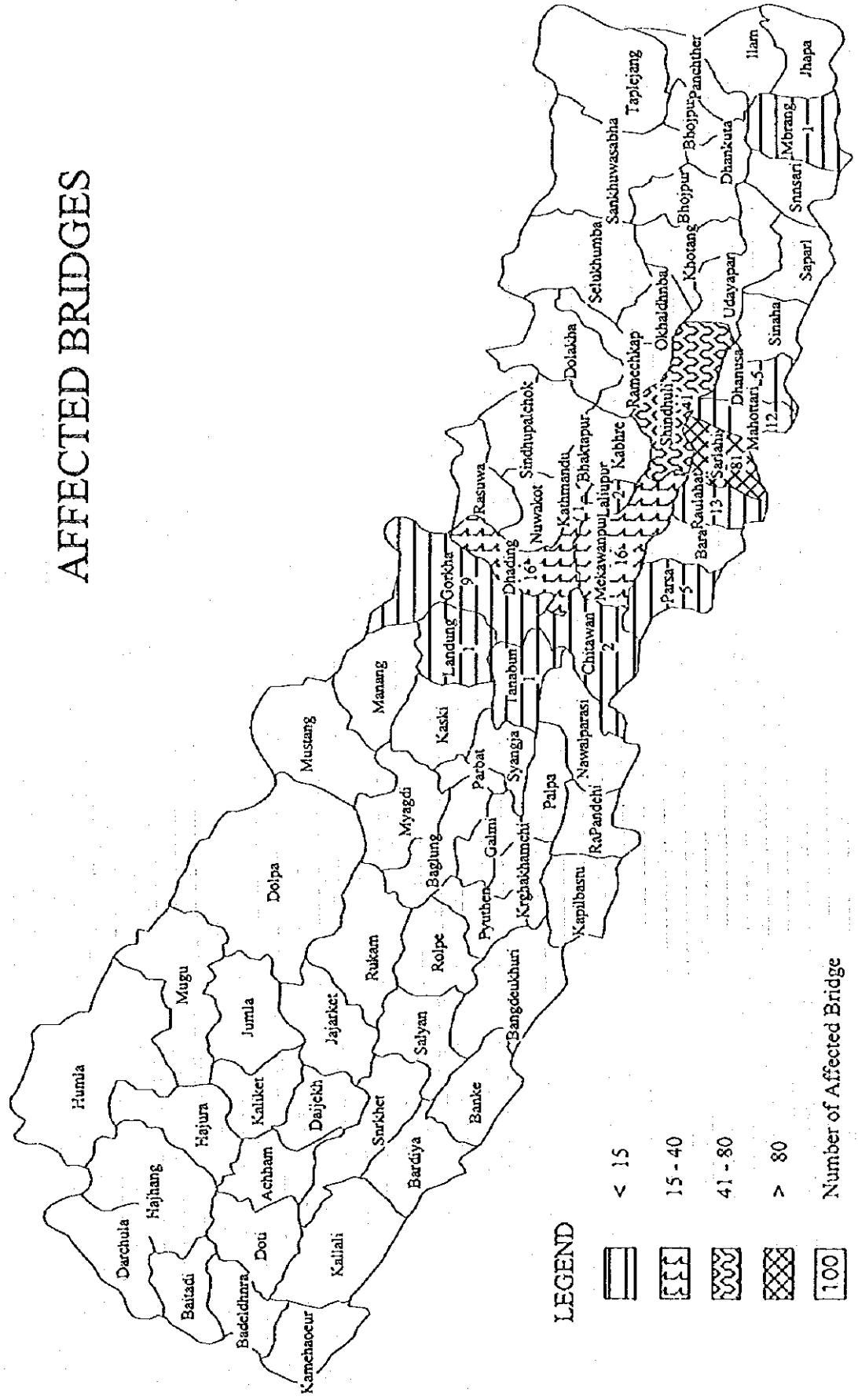
## **APPENDIX**

## LOST OF LIVESTOCK



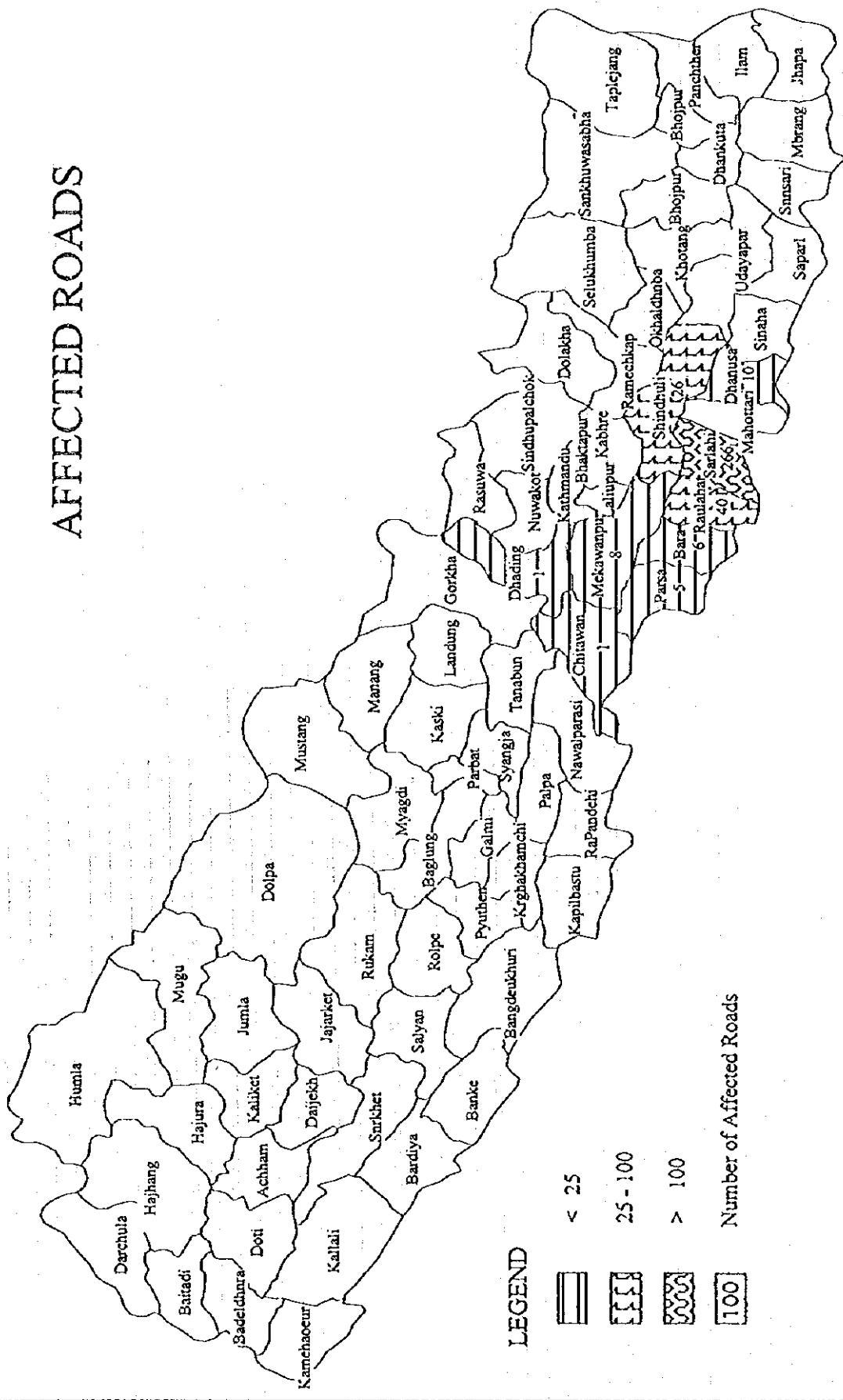
## 1-1 Lost of Livestock

## AFFECTED BRIDGES



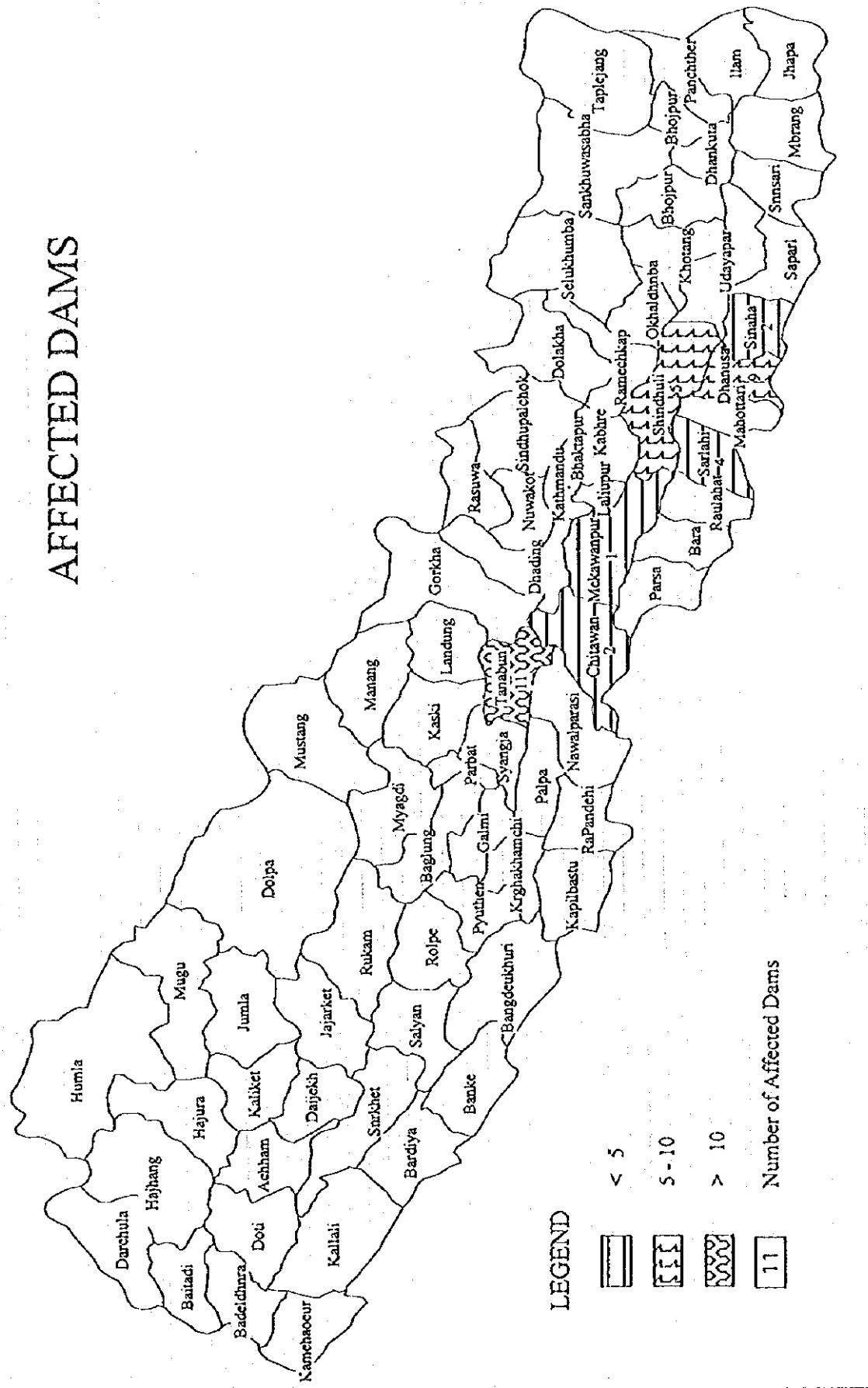
1-2 Affected Bridges

## AFFECTED ROADS



1-3 Affected Roads

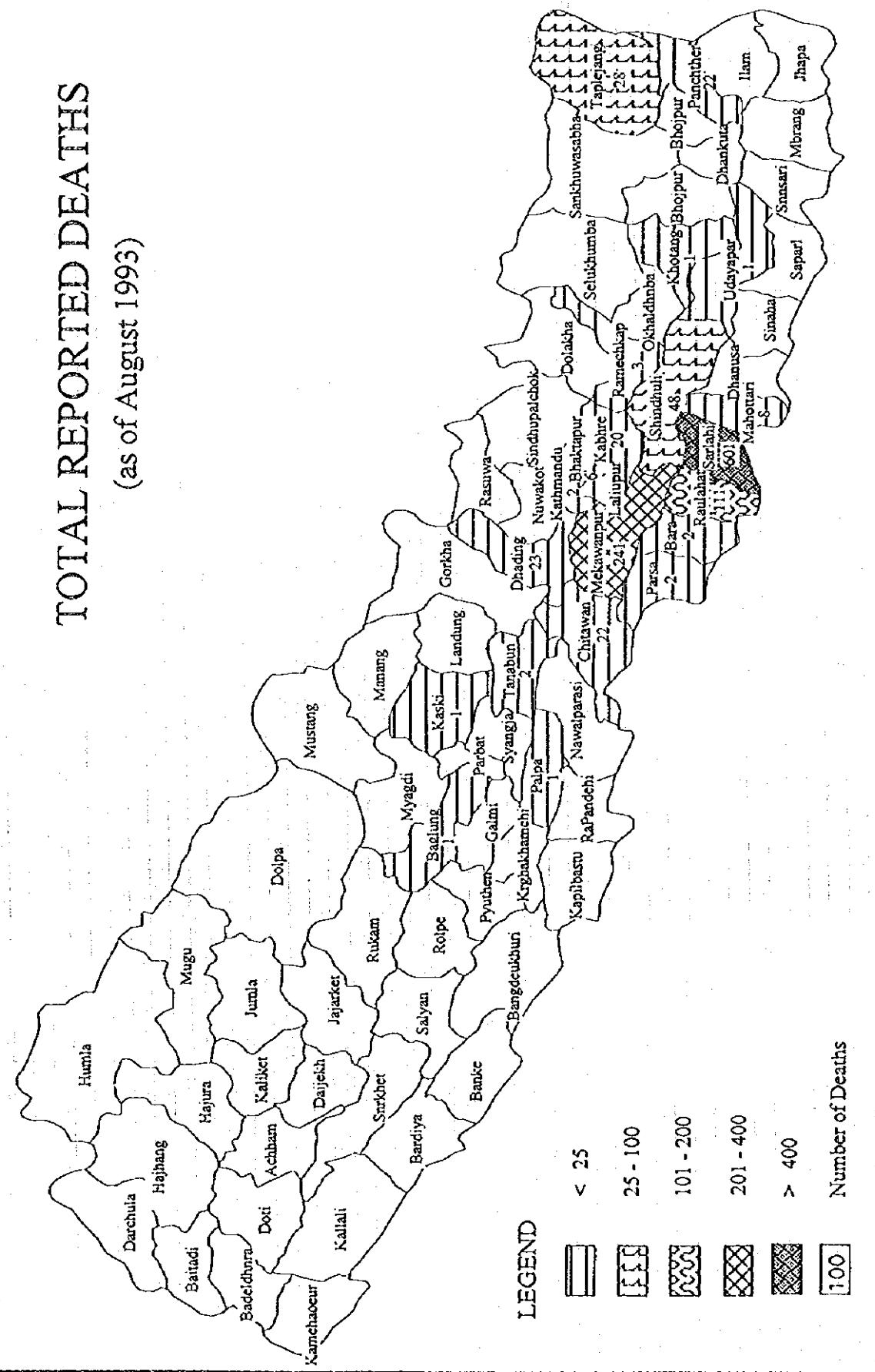
## AFFECTED DAMS



#### 1-4 Affected Dams

# TOTAL REPORTED DEATHS

(as of August 1993)



I-5 Total Reported Deaths

*MENRIS FACILITY*

*AND*

*SERVICES*

*USER'S INFORMATION*

International Centre For Integrated Mountain Development (ICIMOD)  
Mountain Environment and Natural Resources Information Services (MENRIS)

Jawalakhel, Kathmandu

Nepal

January 1995

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## **1. INTRODUCTION**

The Mountain Environment and Natural Resources Information Services (MENRIS) was established in November 1989 by the International Centre for Integrated Mountain Development's (ICIMOD) Programme VI (Natural Resources Assessment and Monitoring) with a Technical Assistance Grant from the Asian Development Bank (ADB), UNEP and GTZ.

The main objectives of the Programme are:

- o to improve environmental and natural resource management and promote sustainable economic growth in mountain countries through facilitating the solution of common problems and ensuring the communication of results on compatible Geographic Information System (GIS) platforms;
- o to assist in the promotion of information exchange between interested participating countries (IPCs) of ICIMOD using GIS technology; and
- o act as a clearing house of existing knowledge in mountain resource management for agencies involved in mountain development.

The programme strategies and major activities accomplished in the establishment phase from 1990 to 1991 are listed below.

- o Establishment of Mountain Environment and Natural Resources Information System (MENRIS)
- o Establishment of MENRIS Training Programme
- o Facilitation of the use of MENRIS by institutions and agencies involved in Sustainable Mountain Development
- o Establishment of the MENRIS network in interested participating countries from ICIMOD Region

Three major programme strategies have been approved for the implementation phase covering 1992-1995 namely:

- o GIS Training Centre
- o Network Extension
- o Resource Centre

## **2. MENRIS SERVICES**

MENRIS in its establishment phase, has acquired substantial amount of GIS and Remote Sensing hardware/software and built-up in house competent expertise in the field of GIS and Remote Sensing. MENRIS is operationalizing its implementation phase by disseminating GIS and Remote Sensing technology to ICIMOD member countries through intensive training courses, compatible GIS hardware/software and through collaborative Case Studies.

In the years, MENRIS has developed various collaborative GIS/RS applications with bilateral agencies which demonstrated the potential of GIS and Remote Sensing in managing natural resources and environmental problems for the decision makers. Two case studies series and bi-yearly News letter have been published and distributed to various agencies in the world.

MENRIS is well acknowledged as a medium size GIS and Remote Sensing centre by various donors and institutions visitors and shown great interest on collaboration to develop GIS applications or some sort of consultation to initiate GIS activities. The services by MENRIS is more towards institutional capacity building through training, consultancy and carrying out sample pilot applications. As MENRIS is recognized as a service centre and currently, the following services are being made available to user groups in particular to mountain development:

- 1. Use of MENRIS Facility**
  - 2. Consultancy on Establishing GIS Centre and its implementation**
  - 3. GIS and Remote Sensing Training**
  - 4. Collaborative Case Study Development**
  - 5. Distribution of MENRIS Database**
- 
- 3. MENRIS Facility**

MENRIS comprised of various sets of hardware and software configuration to fulfill Hindu-Kush Himalayan Region GIS activities. The Table in the page 4 contains summary of hardware and software resources available in MENRIS. The hardware/software have been grouped into following categories to accomplish GIS and RS activities.

### **3.1 Resource Centre**

This comprises of two IBM RISC System 6000 Model 530 with four X-Stations 120. The system is running under IBM AIX V3.2 with X-windows V11 R4 and total of 2.5 GB storage capacity on each. The application software ARC/INFO V 6.1.1 and

ERDAS IMAGINE 8.02 are running on the system and being used mainly for GIS Database build-up and GIS applications.

### **3.2 Training Centre**

The MENRIS training facility consists of five units of Pentium PCs. having storage capacity of 420 MB each and running under DOS 6.2 and MS Windows for workgroup 3.11. The software PC ARC/INFO V 3.4.2, ARCVIEW for Windows and IDRISI 4.1 are being used for the GIS training purpose. The facility also include A3 size digitizer on each of the machine and a color HP Paintjet printer and a HP pen plotter for output production.

### **3.3 Digitization**

The MENRIS digitization facility consists of four units of digitization stations having two A0 size digitizer and two A1 size digitizer. The facility is being used for vector digitization with the collaborative institution case study as well as digitization of thematic base maps for database build up. The PC ARC/INFO V 3.42 Plus is being used for digitization. The possibility of scanning system to input spatial data is being explored.

### **3.4 Image Processing**

The MENRIS Image Processing (IP) Facility consists of Workstation based ERDAS Imagine and PC based Image Processing software. The workstation based IP with ERDAS Imagine 8.02 and PC based IP running ERDAS PC 7.5, IDRISI 4.0, JLWIS V1.3. The PC based IP is running under two 486 machine. The large hard disk capacity and 560 MB read/write magneto optical disk drives are used for storage of satellite imageries.

### **3.5 Word processing/DTP/Presentation**

Number of 486 IBM compatible machines are used for this purpose. The facility is being used for GIS training manual production, case study reports, MENRIS ISIS Database presentation, MENRIS Bulletins as well as other daily secretarial uses. The other software that are being used are Microsoft Office, Borland Office, Ventura Publisher 4.0 for Windows, ISIS 3.0, DBASE IV, LOTUS 123.

**Summary of hardware and software configuration at MENRIS**

System Hardware	No.	Input/Output Facilities	System	Application Software	Data Transfer	Function
IBM RS/6000 530 - 48 MB RAM - 2.5 GB Storage - CD-ROM	2	IBM 6091 19" Display, HP Laserjet, Colorcomp 1020 HP Draftmaster Tektronix Phaser III Pxi	AIX V 3.2 AIX WINDOWS VII R4	ARC/INFO V 6.1.1 ERDAS IMAGINE 8.02 ERDAS 7.5	1.44 MB 3.5" Floppy 1/4" 150 MB Tape Cartridge UNIX/TAR format	Database and GIS Application Build up plus image processing
X Station 120 - 8.5 MB RAM - 2 MM V RAM	4	6091 19" 1280 x 1024 Display	AIX V 3.2 AIX WINDOWS VII R4	ARC/INFO V 6.1.1 ERDAS IMAGINE 8.02 ERDAS 7.5		Database and GIS Application Build up plus image processing
IBM PC Pentium - 16 MB RAM - 340 MB Storage	2	SVGA 14" Display HP Laserjet III HP Laserjet IV M plus	OS/2 1.3 MS DOS 6.22 WFW 3.11	SPANS 5.2 ARCVIEW ILWIS 1.3	3.5" (1.44 MB), 5.25" (1.2 MB) Floppy 560 MB Ricoh optical R/W Cartridge	GIS Application Buildup
IBM PC Pentium - 8 MB RAM - 420 MB Storage	4	2 TDS AO Size Digitizer 2 culcomp A1 Size Digitizer SVGA 14" Display	MS DOS 6.22 WFW 3.11	PC ARC/INFO 3.4.2 DBASE IV MICROSOFT ACCESS	3.5" (1.44 MB) 5.25" (1.2 MB) Floppy	Digitization
IBM PC Pentium - 8 MB RAM - 420 MB Storage	5	SVGA Display HP 7475 Plotter 5 Summagraphics A3 Size Digitizer	MS DOS 6.22 WFW 3.11	ERDAS PC 7.5 IDRSI 4.1 Dbase IV MS : Office	3.5" (1.44 MB) 5.25" (1.2 MB) Floppy	GIS Training
IBM PC 486 - 8 MB RAM - 340 MB Storage	1	1600-6220 BPI Cirker M990 tape drive HP PAINTJET XL 300 SD 1280x1024 RGB Monitor	MS DOS 6.22 WFW 3.11	PC ARC/INFO 3.4.2 IDRSI 4.1	3.5" (1.44 MB) 5.25" (1.2 MB) Floppy 560 MB Ricoh optical R/W Cartridge	Demo System with SONY RGB Projector
IBM PC 486 - 8 MB RAM - 420 MB Storage	1	NEC SD Display Monochrome 12" Display HP PAINTJET	MS DOS 6.22 WFW 3.22	PC ARC/INFO 3.4.2 IDRSI 4.1	3.5" (1.44 MB) Floppy 560 MB Ricoh optical R/W Cartridge	ARC VIEW/IDRSI/LWIS
IBM Thinkpad Laptop - 20 MB RAM - 170 MB Storage	2	Active Matrix Color VGA	MS DOS 6.22 WFW 3.11	PC/ARC INFO	3.5" (1.44 MB) Floppy	ARC/INFO, presentation

The above configuration is hooked up in a ethernet TCP/IP network with PC-NFS und Novell Network 4.01.

#### **4. MENRIS TRAINING**

MENRIS is providing regular training courses on various levels as follows:

**a. Professional Level (4 - weeks)**

The training course is designed to develop analytical capability using GIS Software. The trainees are expected from various disciplines with Master's degree and prior knowledge in computers. The PC Arc/Info and IDRISI software are being extensively used in the training program.

**b. Technical Level (4 - weeks)**

The training course is designed to develop data input activity mainly digitization using PC Arc/Info software. The training course covers technicalities as to input data into GIS from maps and knowledge of data automation and database management system. The trainees are expected to be draftsman, cartographers with bachelor's degree and knowledge of computers and its operation.

**c. Policy Level (1 - day)**

The workshop cum seminar type programme for the Senior Executives to highlight potential of GIS and Remote Sensing for decision making process. The programme is organized to provide overview of GIS with lab session to demonstrate and explore capability of GIS as a tool. The top level management are expected to be participants.

Besides MENRIS provides customised training courses to suit particular user needs. Recently MENRIS is extending its training programme on following areas.

**d. Managers Training (1 - week)**

The training program is designed for team/project leaders, managers to apply GIS and remote sensing into their field. Basically the program is intended to provide adequate information on GIS and Remote Sensing technology as to how it could be applied in various disciplines.

**e. Image Processing and Remote Sensing (2 - weeks)**

The training program is designed for the professionals to work with remote sensing data. The course deals with extensive image processing and classification of images and being organized in IDRISI or ERDAS/Imagine software.

**f. Advanced GIS Training (3 - weeks)**

This training program is designed for the professional those who has already background in using GIS with ARC/INFO software. The course will enhance the

analytical capability and includes advanced GIS features TIN, NETWORK, GRID and AML/SML modules.

**g GPS Training (1- week)**

The workshop cum seminar type program is designed for the agencies those who want to use GPS for the data collection and integrate with GIS and Remote Sensing. The course will include GPS principals and extensive field work for collecting data using GPS and integrating with GIS system.

**5. MENRIS Database**

The rapid growth of datasets experienced by MENRIS along with increasing demand for mapped environmental and natural resources data emphasized the need to develop a database inventory system. It is aimed that the inventory system fulfills the datasets collected from various sources be stored, managed and updated timely.

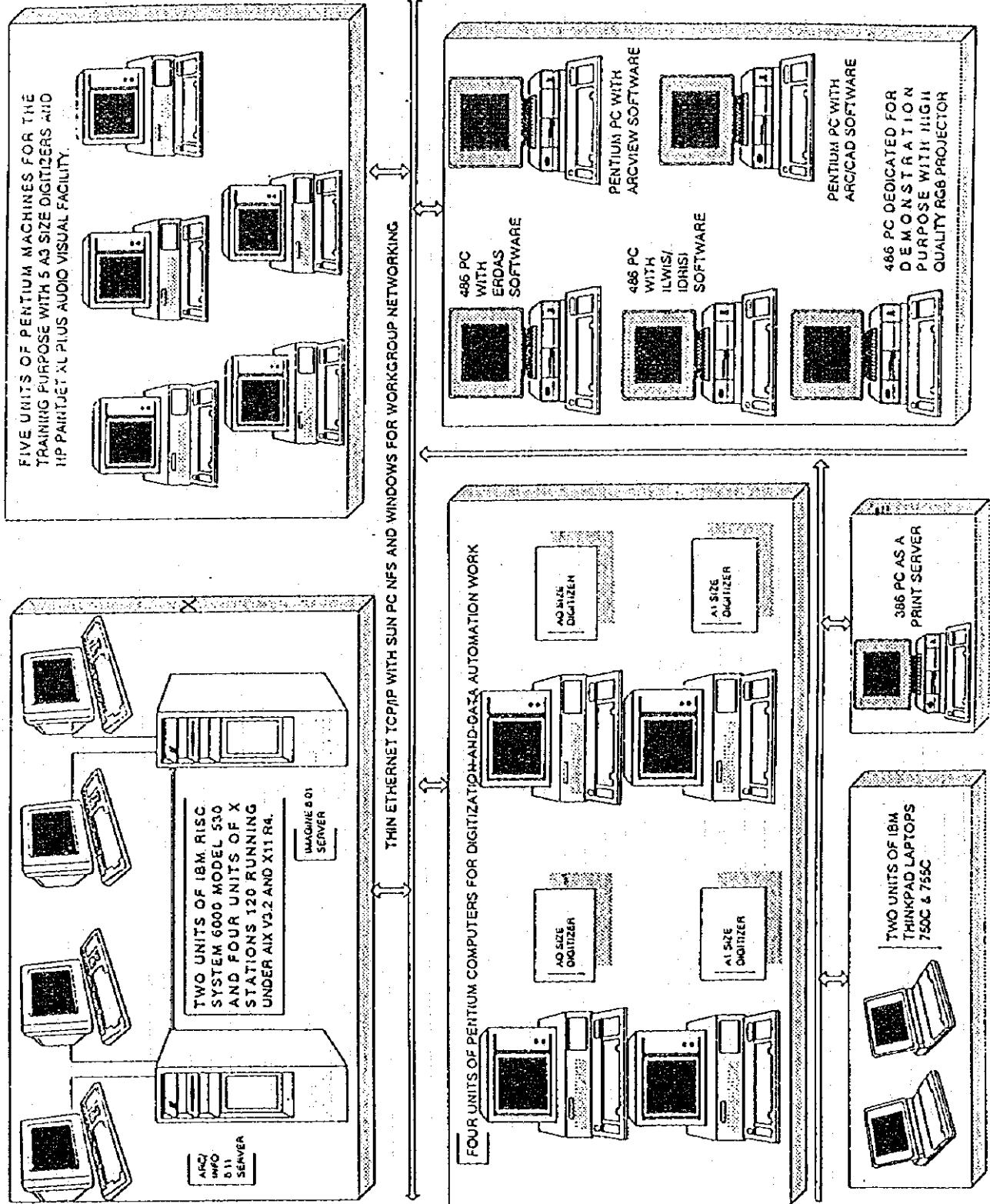
The MENRIS Database contains the environmental and natural resources datasets on Hindu-Kush Himalayan region at scales ranging from regional to subnational level. The principal data analysis tools are Geographic Information System (GIS) and Satellite Image processing system, both of which allow data for given areas to be combined, compared and analyzed on a geographic basis.

In an effort to build-up digital database, MENRIS is currently collecting datasets from following sources.

- a. Digitized Database
- b. Remotely Sensed Database
- c. Datasets from Outside Agencies

Much of the work is being done on standardization of database structure, exchange of database and its dissemination procedures. The current vector and raster database catalogues and sample of Database Request form, MENRIS Data exchange format are attached in the following sections.

## MENRIS HARDWARE CONFIGURATION



# LIST OF SOFTWARES

## VECTOR GIS

ARC/INFO V6.1.1  
PC ARC/INFO V3.4.2  
ARCVIEW V1.0

## RASTER GIS

SPANS V5.2 FOR RS/6000  
SPANS V5.2 FOR OS/2  
IDRISI 4.1  
LANTIS V 3.0  
ERDAS IMAGINE 8.02  
ERDAS 7.5  
GISSIZ INC ENCHEND NETHERLANDS  
GPS PATHFINDER PROFESSIONAL V 2.30

## OPERATING SYSTEM UTILITY SOFTWARE

ADX V3.2  
ADX WINDOWS V1.194  
DOS V6.22  
WINDOWS V3.1  
WINDOWS FOR WORKGROUPS V3.1  
OS2 V1.3  
NOVELL V4.01

## DTP & PRESENTATION

VENTURA V4.0  
STORYBOARD PLUS V2.0  
HARVARD GRAPHICS V3.0  
ADOBE ILLUSTRATOR  
MICROSOFT OFFICE  
BORLAND OFFICE  
OMNIPAGE  
VISIO  
ALDUS PHOTOSTYLER V 2.0cr  
CREATIVE MULTIMEDIA PACK

09-Feb-95

## MINIIS VECTOR DATABASE

Location	SNo.	Code Name	Description	Data Source	Scale	Projection/Map Unit	Storage File Name	Storage File Size
Nepal/Mech/Taplejung	28	OJ10103U	District Outline	LRMP 1984	1:125,000	UTM Zone 45	database/nepal/district/lam/outline	
Nepal/Mech/Lam	86	OJ10103U	District Outline	LRMP 1984	1:50000		database/nepal/district/lam/outline	
	24	UJ10103U	Land Utilisation	LAMP 1984	1:50,000	UTM Zone 45	database/nepal/district/lam/landuse	
	37	RD10103U	Roads and Trails	LRMP 1984	1:125,000	UTM Zone 45	database/nepal/district/lam/road	
	49	ST10103U	Major Settlements	LRMP 1984	1:125,000	UTM Zone 45	database/nepal/district/lam/settlement	
	56	VB10103U	VDC Boundary	LAMP 1984	1:50,000	UTM Zone 45	database/nepal/vdc_bound	
Nepal/Koshi/zone	78	CG10200U	Elevation Contours	LRMP 1984	1:50000		database/nepal/zone/koshi/contour	
	79	CO10200U	Elevation Contours	LRMP 1984	1:50000	UTM Zone 45	database/nepal/zone/koshi/contour	
	80	LS10200U	Land System	LRMP 1984	1:50,000		database/nepal/zone/koshi/landsys	
	81	LU10200U	Landuse	LRMP 1984	1:50000		database/nepal/zone/koshi/landuse	
	82	LU10200U	Landuse	LRMP 1984	1:50000	UTM Zone 45	database/nepal/zone/koshi/landuse	
	83	RD10200U	Roads and Trails	LRMP 1984	1:50,000	UTM Zone 45	database/nepal/zone/road_clip	
	84	RD10200U	Roads and Trails	LRMP 1984	1:50,000		database/nepal/zone/road	
	85	ZB10200U	Zonal Boundary	LRMP 1984	1:50000	UTM Zone 45	database/nepal/zone/outline	
Nepal/Koshi/Dhankuta	15	FR10207U	Forest Areas	KHDP 1984	1:25,000	UTM Zone 45	database/nepal/zone/outline	
	69	GPS Data - 1					database/nepal/district/dhankuta/gps.d	
	70	GPS Data - 2					database/nepal/district/dhankuta/gps	
	71	GPS Data - 3					database/nepal/district/dhankuta/gps	
	72	GPS Data - 4					database/nepal/district/dhankuta/gps	
	73	GPS Data - 5					database/nepal/district/dhankuta/gps	
	75	DI10207U	Landslides				database/nepal/district/dhankuta/landsl	
	76	RO10207U	Rocks				database/nepal/district/dhankuta/rocn	
	77	SH10207U	Spoheight				database/nepal/district/dhankuta/spoht	
	4	CO10207U	Elevation Contours	KHDP 1984	1:125,000	UTM Zone 45	database/nepal/district/dhankuta/contour	
	50	ST10207U	Major Settlements	KHDP 1984	1:25,000	UTM Zone 45	database/nepal/district/dhankuta/settle	
	57	VB10207U	VDC Boundary	KHDP 1984	1:25,000	UTM Zone 45	database/nepal/district/dhankuta/vdc.b	

## MINIIS VECTOR DATAFILE

Location	SNo	Code Name	Description	Data Source	Scale	Projection/Map Unit	Storage File Name	Storage File Size
Nepal/Koshi/Dhankuta	44	R110207U	Rivers and Streams	KHDP 1984	1:1125,000	UTM Zone 45	/database/nepal/district/dhankuta/liver	
Nepal/Koshi Zone	21	LS10200U	Land System	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/zone/koshi/landsys_clip	
Nepal/Gandaki/Gorkha	54	VB10736U	VDC Boundary	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/gorkha/vdc_bou	
	2	BR10736U	Bridges	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/gorkha/bridge	
	66	LU10736U	Land Utilisation	LRMP 1984	1:150,000		/database/nepal/district/gorkha/new_use	
	38	RD10736U	Roads and Trails	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/gorkha/road	
	46	R110736U	Rivers and Streams	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/gorkha/liver	
	67	OB10736U	Outline (District boundary)	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/gorkha/outline	
	65	LS10736U	Landsystems	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/gorkha/landsys	
	51	ST10736U	Major Settlements	LRMP 1984	1:150,000	UTM Zone 45		
	23	LU10736U	Land Utilisation	LRMP 1984	1:150,000	UTM Zone 45		
	64	CO10736U	Elevation Contours	LRMP 1984	1:150,000	UTM Zone 45		
Nepal/Bagmati/Sindhuphalch	55	VB10523U	VDC Boundary	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/gorkha/contours	
Nepal/Bagmati/Rasuwa	52	VB10528U	VDC Boundary	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/sindhuphalch/vdc_bou	
Nepal/Bagmati/Nuwakot	60	VB10529U	VDC Boundary	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/nuwakot/vdc_bou	
Nepal/Bagmati/Lalitpur	9	CT10526U	Lalitpur main city	Cadastrol Map	1:150,000	UTM Zone 45		
	45	RU10526U	Rivers and Streams	LRMP 1984	1:150,000	UTM Zone 45		
	68	VB10526U	Vdc	LRMP	1:150,000			
Nepal/Bagmati/Kavre	42	RU10524U	Rivers and Streams	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/kavre/liver	
	104	CO105244	Contours	LRMP 1984	1:150,000		/database/nepal/district/kavre/contour	
	107	RD10524U	Roads	LRMP 1984	1:150,000		/database/nepal/district/kavre/road	
	48	ST10524U	Major Settlements	LRMP 1984	1:150,000	UTM Zone 45	/database/nepal/district/kavre/settle	
	53	VB10524U	VDC Boundary	KHDP 1984	1:150,000	UTM Zone 45		
	105	OB10524U	District boundary	LRMP 1984	1:150,000			
	3	BR10524U	Bridges	LRMP 1984	1:150,000	UTM Zone 45		
	106	PA10524U	Panchayats, Pol. Subdivs.	LRMP	1:150,000			
Nepal/Bagmati/Kathmandu	61	VB10527U	VDC Boundary	LRMP 1984	1:1125,000	UTM Zone 45		

## MINNIS VECTOR DATABASE

Location	Sno.	Code Name	Description	Data Source	Scale	Projection/Map Unit	Storage File Name	Storage File Size
Nepal/Bagmati/Dhading	55	VB10530U	VDC Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/distric/vchading/outline	
	18	IL10530U	Ilaka (smallest pol. div)	LRMP 1984	1:50,000	UTM Zone 45		
	25	U10530U	Land Utilisation	LRMP 1984	1:50,000	UTM Zone 45		
Nepal/Bagmati/Bhakapur	58	VB10520U	VDC Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/bhakapur/vdc	
Nepal/Bagmati Zone/Dhadin	12	DB10530U	District Boundary	RMP 1984	1:50,000	UTM Zone 45	/database/nepal/distric/vchading/outline	
Nepal/Bagmati Zone	31	PO10500U	Protected Areas	HMG 1985	1:500,000	UTM Zone 45	/database/nepal/zone/bagmati/park	
	36	RD10500U	Roads and Trails	SBD 1989	1:125,000	UTM Zone 45	/database/nepal/bagmati/road	
	22	LU10500U	Land Utilisation	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/zone/bagmati/landuti	
	19	LC10500U	Land Capability	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/zone/bagmati/landcap	
	1	BR10500U	Suspension Bridges	SBD 1989	1:125,000	UTM Zone 45	/database/nepal/bagmati/bridges	
	62	ZB10500U	District Boundary	HMG 1983	1:125,000	UTM Zone 45	/database/nepal/zone/bagmati/outline	
	7	CO10500U	Elevation Contours	HMG 1983	1:125,000	UTM Zone 45	/database/nepal/zone/bagmati/elevatio	
	11	DB10500U	Dist. Body (Pol. Subdiv)	HMG 1983	1:125,000	UTM Zone 45	/database/nepal/zone/bagmati/zone	
	29	PA10500U	Panchayats Pol. subdiv	SBD 1988	1:125000	UTM Zone 45	/database/nepal/zone/bagmati/panchay	
	14	DR10500U	Drainage Networks	HMG 1985	1:50,000	UTM Zone 45	/database/nepal/zone/bagmati/river	
	47	ST10500U	Major Settlements	SBD 1989	1:125,000	UTM Zone 45	/database/nepal/zone/bagmati/village	
	20	LS10500U	Land System	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/zone/bagmati/landsys	
Nepal/Bagmati	103	TO10000U	Towns	HMG 1982	1:1m	UTM Zone 45		
	131	PO10000U	District: Pol. Subdiv	HMG 1982	1:2 m	UTM Zone 45		
Nepal	34	PR10000U	Mean Ann Precipitation	ERL 1988	ca. 1:3m	UTM Zone 45	/database/nepal/country/town	
	16	GE10000U	Geology	HMG 1985	1:1m	UTM Zone 45	/database/nepal/country/geology	
	27	NB10000U	National Boundary	HMG 1982	1:1m	UTM Zone 45	/database/nepal/country/border	
	17	HQ10000U	Headquarters	HMG 1982	1:2m	UTM Zone 45		
	5	CO10000U	Elevation Contours	HMG 1986	1:1m	UTM Zone 45	/database/nepal/country/contourO	
	102	DB10000U	District Boundary	HMG 1982	1:1 m		/database/nepal/country/district	
	63	ZO10000U	Zones:Pol. Subdivision	HMG 1982	1:2 m	UTM Zone 45	/database/nepal/country/zone	
	32	PO10000U	Protected Areas, Parks	ERL 1988	ca. 1:3m	UTM Zone 45	/database/nepal/country/park	

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## MINRIS VECTOR DATABASE

Location	SNo	Code Name	Description	Data Source	Scale	Projection/Map Unit	Storage File Name	Storage File Size
Nepal	39	RD10000U	Roads and Trails	HMG 1988	1:1m	UTM Zone 45	/database/nepal/county/roads	
	40	RE10000U	Regions;Pol Subdivision	HMG 1982	1:2 m	UTM Zone 45	/database/nepal/county/region	
	41	R110000U	Major Rivers	HMG 1982	1:2m	UTM Zone 45	/database/nepal/county/river	
India	93	DB10000U	District Boundary				/database/india/india_dis	
<hr/>								
KKH Region	6	COH0000U	Elevation Contours	AGS	1:5m	UTM Zone 45	/database/kkh/con	
	8	CTH0000U	Main City	AGS	1:5m	UTM Zone 45	/database/kkh_dig/main_city	
	10	DBH0000U	District Boundary	AGS	1:5m	UTM Zone 45	/database/kkh/khndist	
	33	PH10000U	Precipitation	AGS	1:5m	UTM Zone 45	/database/kkh/khprec	
	95	RH0000U	Rivers (Him)				/database/kkh/khriver	
	30	PKH0000U	National Parks	AGS	1:5m	UTM Zone 45	/database/kkh/park	
	96	RH10000U	Rivers (Himav)				/database/kkh/khimav	
	35	RBH0000U	Regional Boundary	AGS	1:5m	UTM Zone 45	/database/kkh/outline	
	100		Elevation Contours (Cont.)					
	94	DBH0000U	District Boundary	AGS	1:5m	UTM Zone 45	/database/kkh/cont-layers	
	26	LTH0000U	Land Use	AGS	1:5m	UTM Zone 45	/database/kkh/khndistrict	
	97	COH0000U	Elevation Contours (Himc)					
	101		Rivers					
	99		Himbdy					
	98		Himell					
	43	RH0000U	Rivers	AGS	1:5m	UTM Zone 45	/database/kkh/river	
<hr/>								
Bangladesh	91	CO20000U	Elevation Contours				/database/bangladesh/contour	
Bangladesh	90	PO20000U	Population				/database/bangladesh/population	
	92	NB20000U	Boundary				/database/bangladesh/boundary	
	88	RT20000U	Roads and Trails				/database/bangladesh/road	

09-Feb-95

MENUS VECTOR DATABASE

Location	SNo	Code Name	Description	Data Source	Scale	Projection/Map Unit	Storage File Name	Storage File Size
Bangladesh	87	RC20000U	Roads				/database/bangladesh/road2	
	89	RF20000U	Rise				/database/bangladesh/rise	
Nepal/Koshi/dhankuta	74		GPS Data - 6				/database/nepal/distric/dhankuta/gps.d	

MENRIS IMAGE DATABASE

284110-94

284/100

Ref Location

Ref	Location	Platf	Data	Y	Mo	D	Positi	Geoq	Cloud	Qualit	Disk	Storage	Disk f	Tape	Tape	Pixel	Band	Cols	Rows	Sourc	Remarks	Quick	
<b>Bangladesh</b>																							
<b>6) Bangladesh</b>																							
68) Rajbari area (north)	Spat	P	89	1	6	K235J	Lamb	none	Correc	MENQA DATA\BR0199P\7989\	none	none	LAN	none	none	10 m	1	2599	2826	1Ma9	HVR No2 Mirror=0 4+degWe!		
69) Rajbari area (south)	Spat	P	89	1	6	K235J	Lamb	none	Correc	MENQA DATA\BR0199P\79810	none	none	LAN	none	none	10 m	1	2604	2826	1Ma9	HVR No2 Mirror=0 4+degWe		
70) Rajbari area	Spat	P	93	12	31	URxz	Lamb	none	Correc	MENQA DATA\BR0199P\201P	none	none	DIL	none	none	10 m	1	2571	5.71	1Ma9	ScenId=235-302 Very compl		
77) Reibon	Spat	XS	93	7	7	?	?	?	?	MENQA DATA\BR0199P\20X	BSQ	none	Om	3	741	5.41	Jul 94	Jul 94	part of processed image				

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Re	Locality	X	Y	Pos.	Date	Disk	Tape	Type	Pixel	Band	Col	Row	Source	Disk Storage		Quick				
														Run	Remarks					
28	Kathmandu area	P	Pa	86	12	12	K224J	UTM	none	excell	MEN_02_Dainyastar.OK	raw	10m	1	7100	6600	30Nov	outbound from Spot scene		
29	Kathmandu area	P	Pa	86	11	7	K224J	none	none	excell	MEN_03_Dainyastar.OK	raw	10m	1	8640	6001	SPOT	Spot scene id: S1H128611070		
30	Kathmandu area	Spot P	Pa	86	12	12	K224J	none	none	excell	MEN_04_Spot_Spot_LinkOK	raw	10m	1	8640	6001	SPOT	Spot scene id: S1H128612120		
31	Kathmandu area, Lalitpur	Lands-TM	TW	90	12	21	Path	?	Path	?	excell	MEN_10_Dainyastar.OK	BSQ	30m	7	4000	2848	21Jv9	BSQ has 4000bytes header	
32	Kathmandu area	IRS-1	LISS2	89	4	9	PATH	?	?	excell	MEN_12_Dainyastar.OK	BSQ	30m	1	2520	2500	NRSA	Header : 2520 bytes, Pixel : 1		
33	Kathmandu area, Lalitp	Lands-TM	TW	90	12	21	Path	?	Path	?	excell	MEN_13_Dainyastar.OK	FINCIL	30m	7	4000	2848	21Jv9	BSQ has 4000bytes header	
34	Parva district	Lands-TM	TW	90	12	21	Path	?	Path	?	excell	MEN_18_DATA_PARV0127N	BIL	FINCIL	30m	7	4000	2848	20/01	BIL has 4000bytes header
35	Ganesh massif Gorkh	Lands-TM	TW	90	12	21	Path	?	Path	?	excell	MEN_19_Dainyastar.OK	BIL	FINCIL	30m	7	4000	2848	21Jv9	BIL has 4000bytes header
36	Kanaski massif	Lands-TM	TW	91	12	15	Path	?	Path	?	excell	MEN_20_Dainyastar.OK	BIL	FINCIL	30m	7	4000	2848	21Jv9	BIL has 4000bytes header
37	Tansen	Lands-TM	TW	50	11	28	Path	1	Path	1	DELETED (MEN_TABDATA) IN 19	BIL	FINCIL	30m	7	4000	2848	21Jv9	BIL has 4000bytes header	
38	Lalitpur district	Spot XS	TM	91	5	5	K224J	none	mount	?	?	MEN_3a_Dainyastar.OK	BSQ	20m	3	5400	3004	3F ev9	combination of 2 scenes (K=2)	
39	Sagarmatha massif	TW	LandS	92	11	17	Path	?	Path	?	?	MEN_10_Dainyastar.OK	BSQ	30m	7	7020	6145	20Ma	3 lapes 625 BPI, Bands 1,2,3	
40	Jumla area	TW	LandS	89	11	30	Path	?	Path	?	?	MEN_10_Dainyastar.OK	BSQ	30m	7	7020	6145	June9	3 lapes 625 BPI, Bands 1,2,3	
41	Chitwan area	TW	LandS	90	11	26	Path	1	Path	1	little n excell	MEN030 DATA CHITWAN	BIL	FINCIL	30m	7	4000	2848	20/01	BIL has 4000bytes header
42	Janhang area, Nepal	Spot	Patch	90	3	4	K224J	none	?	?	TO READ	?	DMC??	10m	1	77	77	May9		
43	Mustang area, Nepal	Spot	XS	91	5	10	K220J	none	?	?	TO READ	?	DMC??	24m	1	77	77	May9		
44	Mustang area, Nepal	Spot	Patch	92	10	16	K220J	none	while 0 excell	?	?	?	DMC01	10m	1	6640	6010	May9	tape is very noisy, 22 lines los	
45	Fun area	Lands-TM	TW	92	5	22	PATH	SOM	SOM	?	?	MEN030 DATA FUN02	LAN	ICIM_BSQ_U	28.5	7	6967	5965	May9	Scene id: 932300117-01
46	Nepal country	NOAAAVH	87	11	9	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
47	Nepal country	NOAAAVH	87	11	10	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
48	Nepal country	NOAAAVH	87	11	26	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
49	Nepal country	NOAAAVH	87	11	26	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
50	Nepal country	NOAAAVH	87	12	13	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
51	Nepal country	NOAAAVH	87	12	13	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
52	Nepal country	NOAAAVH	90	11	15	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
53	Nepal country	NOAAAVH	90	11	17	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
54	Nepal country	NOAAAVH	90	12	17	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
55	Nepal country	NOAAAVH	90	12	17	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
56	Nepal country	NOAAAVH	90	12	31	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
57	Nepal country	NOAAAVH	92	11	4	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	2046	2000	IRRS	100 cloudy	
58	Nepal country	NOAAAVH	92	11	5	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
59	Nepal country	NOAAAVH	92	11	6	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
60	Nepal country	NOAAAVH	92	11	7	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
61	Nepal country	NOAAAVH	92	11	24	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
62	Nepal country	NOAAAVH	92	11	24	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
63	Nepal country	NOAAAVH	92	12	18	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
64	Nepal country	NOAAAVH	92	12	18	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	2046	2000	IRRS	100 cloudy	
65	Nepal country	NOAAAVH	93	1	25	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
66	Nepal country	NOAAAVH	93	5	12	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
67	Nepal country	NOAAAVH	93	5	13	Sector	none	?	?	?	?	?	ICIM_AVHR	1100	5	...	NRSA			
68	2777 area	Spot P	Pa	86	12	12	KJ=22	correct	?	?	?	?	?	BIL (r)	10m	1	8036	6010	4A99	Sceneld=1 220-295 85/11/07
69	2777 area	Spot XS	50	3	18	KJ=22	none	?	?	?	?	?	CD-ROM 01	20m	3	5400	3000	20 Ma		
70	Anan River	Spot XS	87	11	12	KJ=22	none	very le	?	?	?	?	?	CD-ROM 02	20m	3	5400	3000	20 Ma	
71	Anan River	Spot XS Or	87	11	12	KJ=22	Ortho	very le	?	?	?	?	?	CD-ROM 03	20m	3	4882	5052	20 Ma	Each image of the mosaic sh
72	Anan River	Spot XS	50	3	18	KJ=22	none	?	?	?	?	?	LAN	ICIM_BSQ	20m	3	4882	5052	20 Ma	Each image of the mosaic sh

Ref	Location	Platfo	Data	Y	Mo	D	Positi	Geog	Cloud	Qualit	Disk S	Tape	Pixel	Band	Cols	Rows	Sourc	Remarks	Quick	
Nepal, China	76 Rasura district; Tibet	Landsat TM	90 12 21	P141	7	7	1000				LAN	CIM	BIL	F30m	7	3900	2848	9 Mar	2 Lines may be missing	2

**Training Program**  
on  
**GEOGRAPHICAL INFORMATION SYSTEMS**  
**(GIS)**  
**IN PLANNING & MANAGEMENT OF**  
**NATURAL RESOURCES**

Organized by  
Central Department of Geography  
Tribhuvan University  
Kirtipur, Kathmandu  
Nepal

In Collaboration with

Mountain Environmental and Natural Resources  
Information System  
(MENRIS), ICMOD, Kathmandu, Nepal

## 1. Introduction

A computerized Geographical Information System (GIS) has become an important tool for most applications in environmental and natural resources inventory and analysis. It is known that there is a growing trend of GIS users in the country. A majority of the organizations including government, non-governmental, utilities, international and private are now in a position to be involved in sharing GIS database, and many have already decided to use GIS database. A large number of other organizations would also be encouraged and interested in using GIS. This trend would represent new paradigms in both academic and professional fields. But most organizations are not aware of the computer GIS database and analysis system. This is mainly due to the lack of trained manpower in their departments. Infact it is perceived as an inevitable technology at many levels. But, at present, there is not any systematic training and education centre of GIS in the country.

The Central Department of Geography, Tribhuvan University through using its computer GIS facilities and trained manpower in collaboration with MCENRIS/ICIMOD for the first time is going to conduct a training on GIS in planning and management of natural resources for the professional level.

## 2. Who should attend

- Natural resource persons who require knowledge of GIS technology.
- No prior knowledge of GIS, but computer knowledge would be better.

## 3. Time-duration

- A month long practical training to utilize GIS in multi-sectoral analysis.

## 4. Prerequisite

- Personal Computer: 8 sets with 486 processor and 2 sets with 386.
- Digitizer: 1
- Printer: 1
- Calcomp A1 size - 2
- Calcomp A3 size - 6
- Laser 11P - 1
- Color Printer - 1
- Plot Writer - 2

## 5. Course modules

- Concepts: Computer and GIS
- Data base, design and analysis, which includes:

### Spatial data

### Map design

### Raster/Vector analysis

### Project Work

## 6. Training Methods

## 7. Venue

## 2. Purpose

- to introduce professionals to the concepts and skill required to utilize GIS for systematic analysis of environment and natural resource problems.

Trainees will be expected to involve in preparation and planning of spatial and non-spatial information.

- Lectures and discussions during 3 th training will be in English.

## 8. Computer Facilities in the Department

- Personal Computer: 8 sets with 486 processor and 2 sets with 386.
- Digitizer: 1
- Printer: 1
- Calcomp A1 size - 2
- Calcomp A3 size - 6
- Laser 11P - 1
- Color Printer - 1
- Plot Writer - 2

## 9. Fee

- The participation fee of the one month training course is Rs. 25,000/- per participant. This covers tuition, training materials, refreshments and pocket expenses. It does not provide for local travel expenses.

## 10. Venue

## Central Department of Geography Tribhuvan University, Kirilitpur, Kathmandu

- Training will be based on a Personal Computer (PC) environment.
- The lab sessions will utilize software: ARC/INFO, IDRISI,etc.

- The training will be based on class room, lab notes, transparencies and slides.
- The data for training will be based on the case studies carried out in Nepal.

#### *Application*

- All applications together with curriculum vitae and contact address should be submitted to:

The Central Department of Geography  
Tribhuvan University  
Kirtipur, Kathmandu  
Tel. 2222129

- Successful candidates for the training will be informed before the commencement of training date.

#### *12. Contact Persons*

Training Coordinator,  
Central Department of Geography  
Tribhuvan University  
Tel. (Office): 2222129

Asst. Administrator  
Central Department of Geography  
Tribhuvan University  
Tel. (Office): 2222129

MENRIS/ICIMOD,  
Program Coordinator  
GPO Box 3226  
Jawalakhel, Kathmandu.  
Tel.: 525313

