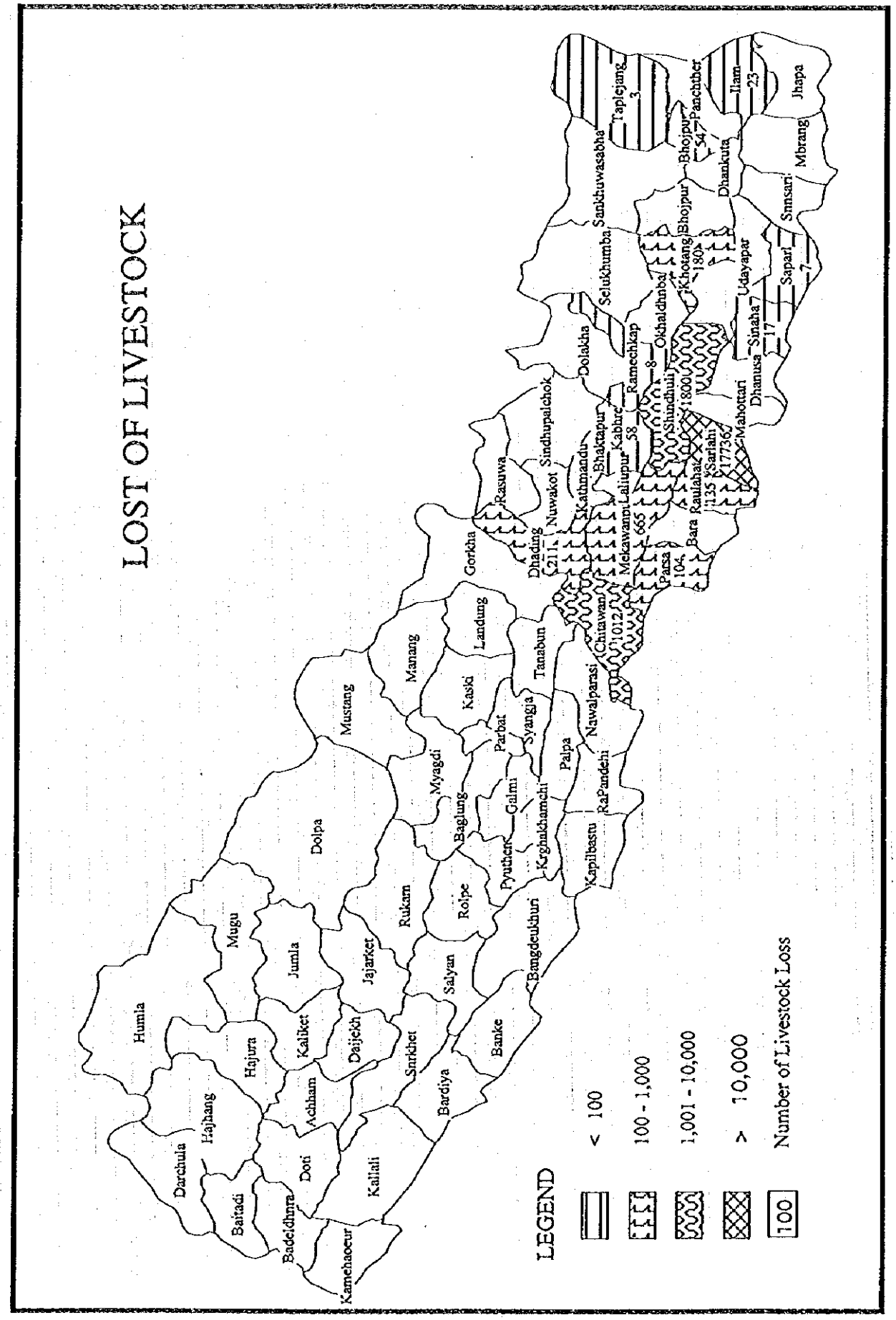
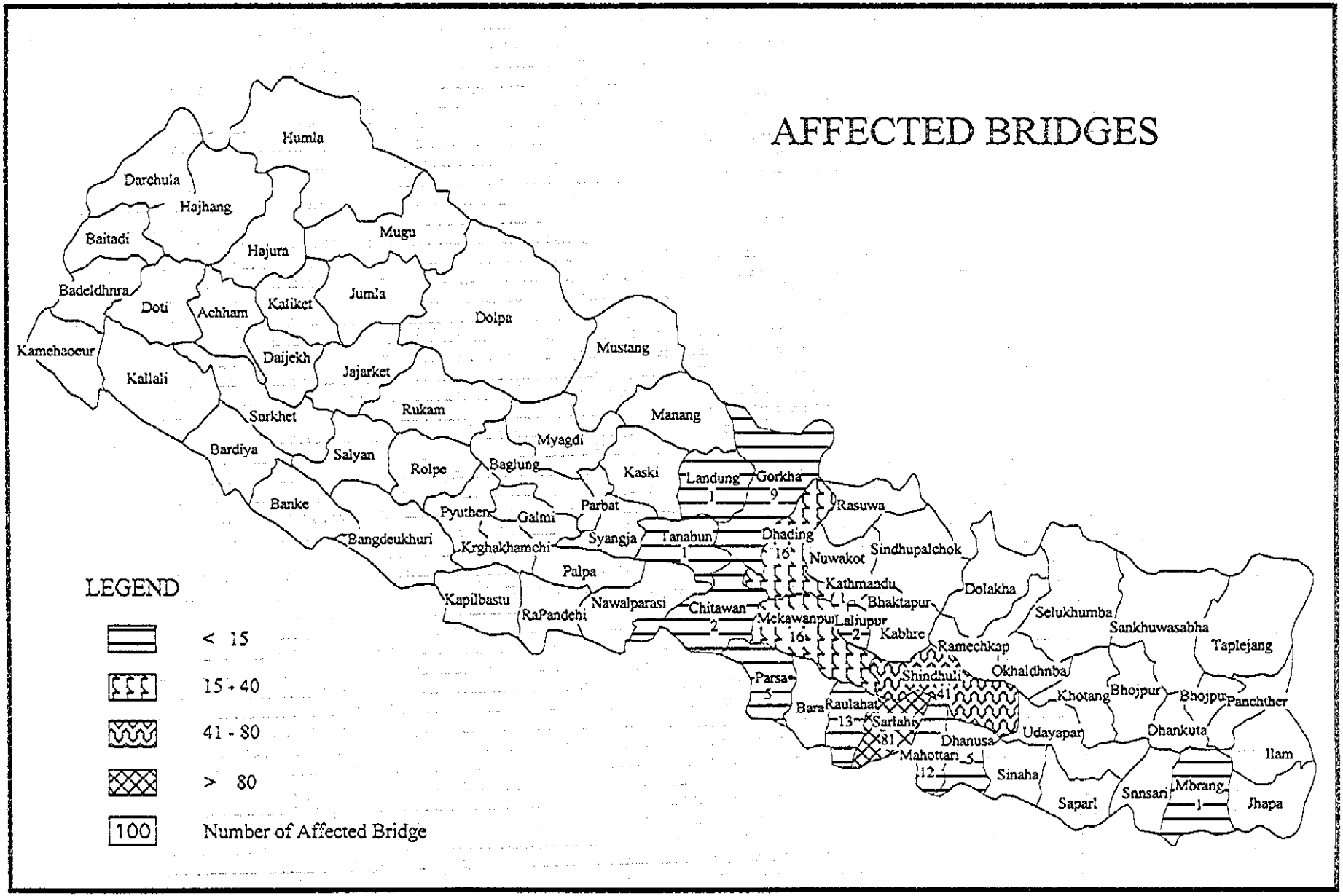
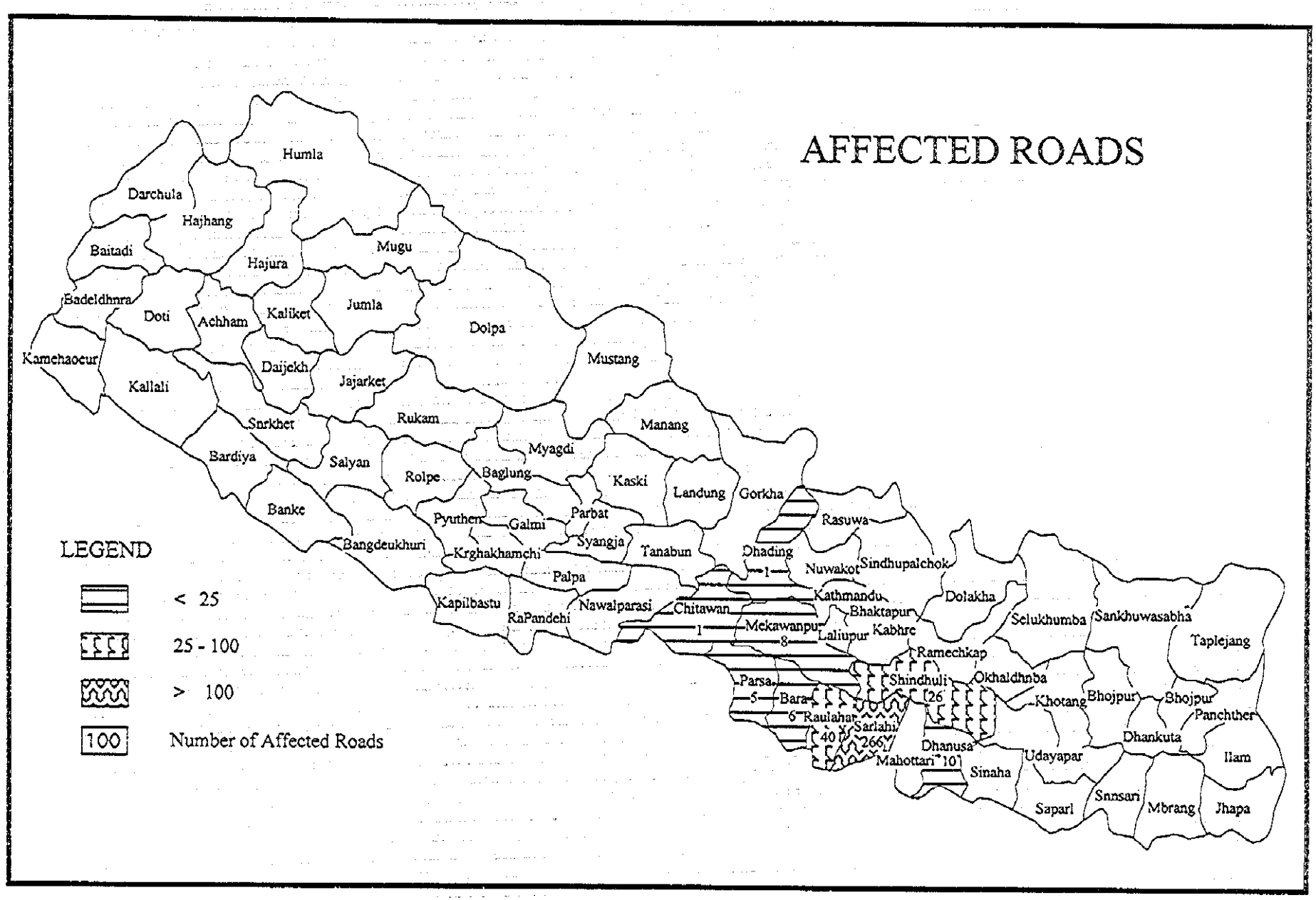
APPENDIX

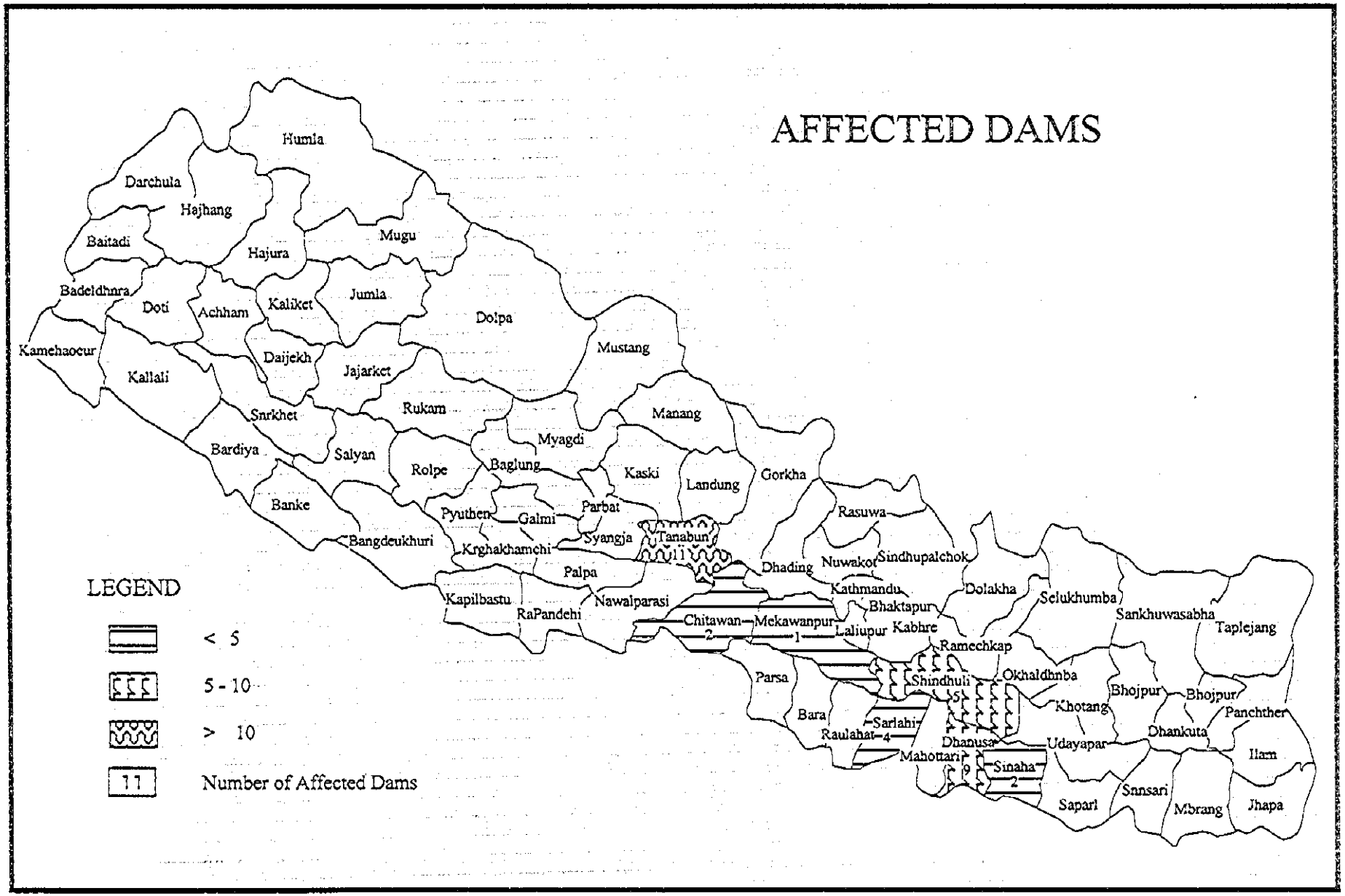


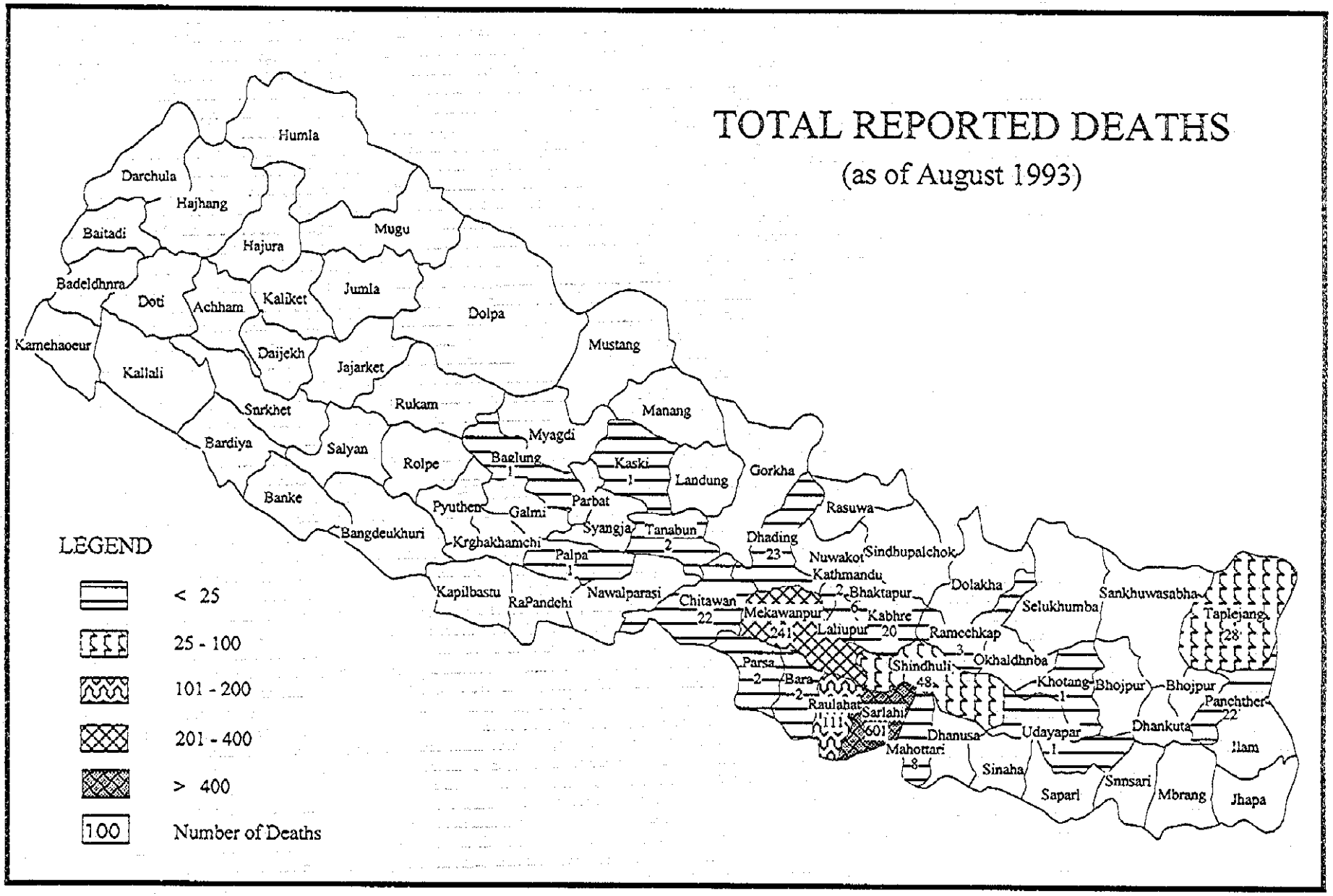
1-1 Lost of Livestock



1-2 Affected Bridges


AFFECTED ROADS
Humla
Darchula
Hajhang
Baitadi
Hajura
Mugu
Badeldhnra
Doti
Achham
Kaliket
Jumla
Dolpa
Kamehaocur
Kallali
Daijekh
Jajarket
Mustang
Rukam
Manang
Snrkhet
Bardiya
Salyan
Rolpe
Myagdi
Baglung
Kaski
Landung
Gorkha
Banke
Pyuthen
Galmi
Parbat
Rasuwa
Bangdeukhuri
Krghakhamchi
Syangja
Tanabun
Dhading
Nuwakot
Sindhupalchok
Palpa
Kapilbastu
RaPandehi
Nawalparasi
Chitawan
Kathmandu
Dolakha
Bhaktapur
Sclukhumba
Sankhuwasabha
Mekawanpur
Kabhre
Laliupur
Taplejang
Ramechkap
Parsa
Shindhuli
Okhaldhnba
Bara
Khotang
Bhojpur
Bhojpur
Raulahar
Sarlahi
Panchther
Dhankuta
Dhanusa
Mahottari
Udayapar
Iiam
Sinaha
Saparl
Snnsari
Mbrang
Jhapa
LEGEND
< 25
25 - 100
> 100
Number of Affected Roads


AFFECTED DAMS
Humla
Darchula
Hajhang
Baitadi
Mugu
Hajura
Badeldhnra
Doti
Achham
Kaliket
Jumla
Dolpa
Kamehaocur
Daijekh
Jajarket
Mustang
Kallali
Snrkhet
Rukam
Manang
Bardiya
Salyan
Myagdi
Rolpe
Baglung
Kaski
Landung
Gorkha
Banke
Pyuthen
Galmi
Parbat
Rasuwa
Bangdeukhuri
Krghakhamchi
Syangja
Tanabun
11
Dhading
Nuwakot
Sindhupalchok
Palpa
Kathmandu
Dolakha
Selukhumba
Kapilbastu
Nawalparasi
Bhaktapur
Sankhuwasabha
Taplejang
RaPandehi
Chitawan
Mekawanpur
Laliupur
Kabhre
Ramechkap
Parsa
Shindhuli
Okhaldhnba
Bara
Sarlahi
Khotang
Bhojpur
Bhojpur
Raulahat
Dhanusa
Dhankuta
Panchther
Udayapar
Mahottari
Sinaha
Ilam
Saparl
Snnsari
Mbrang
Jhapa
LEGEND
< 5
5 - 10
> 10
11
Number of Affected Dams



1-5 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

Contents

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:

- 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;
- to assist in the promotion of information exchange between interested participating countries (IPCs) of ICIMOD using GIS technology; and
- 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.

- Establishment of Mountain Environment and Natural Resources Information System (MENRIS)
- Establishment of MENRIS Training Programme
- Facilitation of the use of MENRIS by institutions and agencies involved in Sustainable Mountain Development
- 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:

- GIS Training Centre
- Network Extension
- 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 an 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, ILWIS 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, Calcomp 1020 HP Draftmaster Tektronix Phaser III Pxi	AIX V 3.2 AIX WINDOWS V11 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 V11 R 4	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 Dizitizer 2 calcomp A1 Size Digitizer SVGA 14" Display	MS DOS 6.22 WFW 3.11	PC ARC/INFOR 3.4.2 DBASE IV MICROSOF ACCESS	3.5" (144 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 IDRISI 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	1600-6250 BPI Cipher M990 tape drive HP PAINTJe XL 300 5D 1280x1024 RGB Monitor	MS DOS 6.22 WFW 3.11	PC ARC/INFO 3.4.2 IDRISI 4.1	3.5" (1.44 MB) 5.25" (1.2 MB) Floppy 560MB Ricoh optical R/W Cartridge	Demo System with SONY RGB Projector
IBM PC 486 - 8 MB RAM - 420 MB Storage	1	NEC 5D Display Monochrome 12" Display HP PAINTJET	MS DOS 6.22 WFW 3.22	PC ARC/INFO 3.4.2 IDRISI 4.1	3.5" (1.44 MB) Floppy 560 MB Ricoh optical R/W Cartridge	ARC VIEW/IDRISI/ILWIS
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 and 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.

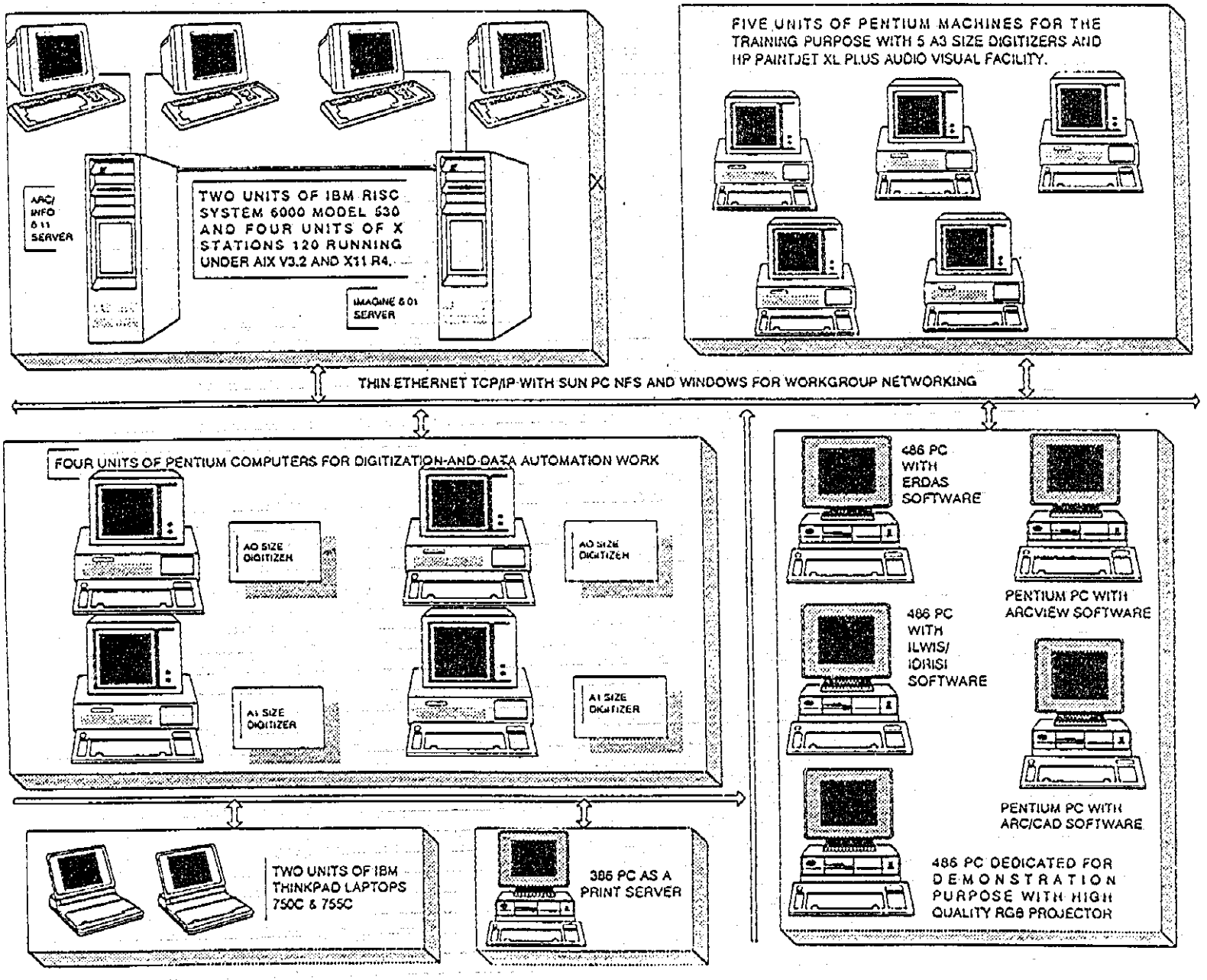
a. Digitized Database

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
ILWIS V 3.0
ERDAS IMAGINE 8.02
ERDAS7.5
GISSIZ ITC-ENCHENDE NETHERLANDS
GPS PATHFINDER PROFESSIONAL V 2.30

OPERATING SYSTEM UTILITY SOFTWARE

AIX V3.2
AIX X WINDOWS V11 R4
DOS V 6.22
WINDOWS V3.1
WINDOWS For WORKGROUPS V 3.11
OS/2 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 2.0cc
CREATIVE MULTIMEDIA PACK

09-Feb-95

MENRIS VECTOR DATABASE

Location	SNo	Code Name	Description	Data Source	Scale	Projection/Map Unit	Storage File Name	Storage File Size
Nepal/Mechi/Taplejung	28	OU10103U	District Outline	LRMP 1984	1:125,000	UTM Zone 45		
Nepal/Mechi/Ilam	86	OU10103U	District Outling	LRMP 1984	1:50000		/database/nepal/district/ilam/outline	
	24	LU10103U	Land Utilisation	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/ilam/landuse	
	37	RD10103U	Roads and Trails	LRMP 1984	1:125,000	UTM Zone 45	/database/nepal/district/ilam/road	
	49	ST10103U	Major Settlements	LRMP 1984	1:125,000	UTM Zone 45	/database/nepal/district/ilam/settlement	
	56	VB10103U	VDC Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/ilam/vdc_bound	
Nepal/koshi/zone	78	CO10200U	Elevation Contours	LRMP 1984	1:50000		/database/nepal/zone/koshi/contour_clip	
	79	CO10200U	Elevation Contours	LRMP 1984	1:50000	UTM Zone 45	/database/nepal/zone/koshi/contour	
	80	LS10200U	Land System	LRMP 1984	1:50000		/database/nepal/zone/kosi/landsys	
	81	LU10200U	Landuse	LRMP 1084	1:50000		/database/nepal/zone/koshi/landuse_cli	
	82	LU10200U	Landuse	LRMP 1984	1:50000	UTM Zone 45	/database/nepal/zone/koshi/landuse	
	83	RD10200U	Roads and Trails	LRMP 1984	1:50000	UTM Zone 45	/database/nepal/zone/road_clip	
	84	RD10200U	Roads and Trails	LRMP 1984	1:50000		/database/nepal/zone/road	
	85	ZB10200U	Zonal Boundary	LRMP 1984	1:50000	UTM Zone 45	/database/nepal/xone/outline	
Nepal/Koshi/Dhankuta	15	FR10207U	Forest Areas	KHDP 1984	1:25,000	UTM Zone 45		
	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_d	
	72		GPS Data - 4				/database/nepal/district/dhankuta/Gps	
	73		GPS Data - 5				/database/nepal/district/dhankuta/Gps_	
	75	LD10207U	Landslides				/database/nepal/district/dhankuta/landsli	
	76	RO10207U	Rocks				database/nepal/district/dhankuta/rockl	
	77	SH10207U	Spotheight				/database/nepal/district/dhankuta/spot_	
	4	CO10207U	Elevation Contours	KHDP 1984	1:125,000	UTM Zone 45	/database/nepal/dist/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	

MENRIS VECTOR DATABASE

Location	SNo	Code Name	Description	Data Source	Scale	Projection/Map Unit	Storage File Name	Storage File Size
Nepal/Koshi/Dhankuta	44	RI10207U	Rivers and Streams	KHDP 1984	1:125,000	UTM Zone 45	/database/nepal/district/dhankuta/river	
Nepal/Koshi Zone	21	LS10200U	Land System	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/zone/koshi/landsys_clip	
Nepal/Gandaki/Gorkha	54	VB10736U	VDC Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/gorkha/vdc_bou	
	2	BR10736U	Bridges	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/gorkha/bridge	
	66	LU10736U	Land Utilisation	LRMP 1984	1:50000		/database/nepal/distric/gorkha/new_use	
	38	RD10736U	Roads and Trials	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/gorkha/road	
	46	RI10736U	Rivers and Streams	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/gorkha/river	
	67	OB10736U	Outline (District boundary	LRMP 1984	1:50000	UTM Zone 45	/database/nepal/district/gorkha/outline	
	65	LS10736U	Landsystems	LRMP 1984	1:50000	UTM Zone 45	/database/nepal/district/gorkha/landsys	
	51	ST10736U	Major Settlements	LRMP 1984	1:50,000	UTM Zone 45		
	23	LU10736U	Land Utilisation	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/gorkha/old_use	
	64	CO10736U	Elevation Contours	LRMP 1984	1:50000	UTM Zone 45	/database/nepal/district/gorkha/contours	
Nepal/Bagmati/Sindhupalch	55	VB10523U	VDC Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/sindhu/vdc_bou	
Nepal/Bagmati/Rasuwa	52	VB10528U	VDC Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/rasuwa/vdc_bou	
Nepal/Bagmati/Nuwakot	60	VB10529U	VDC Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/nuwakot/vdc_bo	
Nepal/Bagmati/Lalitpur	9	CT10526U	Lalitpur main city	Cadaspol Map	1:50,000	UTM Zone 45		
	45	RI10526U	Rivers and Streams	LRMP 1984	1:50,000	UTM Zone 45		
	68	VB10526U	Vdc	LRMP	1:50000		/database/nepal/district/lalitpur/vdc	
Nepal/Bagmati/Kavre	42	RI10524U	Rivers and Streams	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/kabhre/river	
	104	CO10524	Contours	LRMP 1984	1:50000		/database/nepal/district/kabhre/contour	
	107	RD10524U	Roads	LRMP 1984	1:50000		/database/nepa/district/kabhre/road	
	48	ST10524U	Major Settlements	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/kabhre/settle	
	53	VB10524U	VDC Boundary	KHDP 1984	1:50,000	UTM Zone 45	/database/nepal/district/kabhre/vdc	
	105	DB10524U	District boundary	LRMP 1984	1:50000		/database/nepal/district/kabhre/outline	
	3	BR10524U	Bridges	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/kavre/bridge	
	106	PA10524U	Panchayats, Pol. Subdivis	LRMP	1:50000		/database/nepal/district/kabhre/panch	
Nepal/Bagmati/Kathmandu	61	VB10527U	VDC Boundary	LRMP 1984	1:125,000	UTM Zone 45		

09-Feb-95

MENRIS VECTOR DATABASE

Location	SNo	Code Name	Description	Data Source	Scale	Projection/Map Unit	Storage File Name	Storage File Size
Nepal/Bagmati/Dhading	59	VB10530U	VDC Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/dhading/outline	
	18	IL10530U	Ilaka(smallest pol div)	LRMP 1984	1:50,000	UTM Zone 45		
	25	LU10530U	Land Utilisation	LRMP 1984	1:50,000	UTM Zone 45		
Nepal/Bagmati/Bhaktapur	58	VB10525U	VDC Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/district/bhaktapur/vdc	
Nepal/Bagmati Zone/Dhadin	12	DB10530U	District Boundary	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/dist/dhading/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 Bndy (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	1:500,000	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	
Nepal/Bagmati	20	LS10500U	Land System	LRMP 1984	1:50,000	UTM Zone 45	/database/nepal/zone/bagmati/landsys	
Nepal	103	TO10000U	Towns	HMG 1982	1:1m	UTM Zone 45	/database/nepal/country/town	
	13	DI10000U	District: Pol Sub-divi	HMG 1982	1:2 m	UTM Zone 45		
	34	PR10000U	Mean Ann Precipitation	ERL 1988	ca. 1:3m	UTM Zone 45	/database/nepal/country/precip	
	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/contour0	
	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	

09-Feb-95

MENRIS 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/country/roads	
	40	RE10000U	Regions:Pol Subdivision	HMG 1982	1:2 m	UTM Zone 45	/database/nepal/country/region	
	41	RI10000U	Major Rivers	HMG 1982	1:2m	UTM Zone 45	/database/nepal/country/river	
India	93	DB10000U	District Boundry				/database/india/india_dis	
HKH Region	6	COH0000U	Elevation Contours	AGS	1:5m	UTM Zone 45	/database/hkhcon	
	8	CTH0000U	Main City	AGS	1:5m	UTM Zone 45	/database/hkh_dig/main_city	
	10	DBH0000U	District Boundary	AGS	1:5m	UTM Zone 45	/database/hkh/hkhdist	
	33	PRH0000U	Precipitation	AGS	1:5m	UTM Zone 45		
	95	RIH0000U	Rivers (Himrrr)				/database/hkh/himrrr	
	30	PKH0000U	National Parks	AGS	1:5m	UTM Zone 45		
	96	RIH0000U	Rivers (Himriv)				/database/hkh/himriv	
	35	RBH0000U	Regional Boundary	AGS	1:5m	UTM Zone 45	/database/hkh/outline	
	100		Elevation Contours (Cont-				/database/hkh/cont-layers	
	94	DBH0000U	District Boundary	AGS	1:5m	UTM Zone 45	/database/hkh/hkhdistrict	
	26	LUH0000U	Land Use	AGS	1:5m	UTM Zone 45		
	97	COH0000U	Elevation Contours (himc				/database/hkh/himcon	
	101		Rivers				/database/hkh_dig/river	
	99		Himbdy				/database/hkh/himbdy	
	98		Himcil				/database/hkh/himcil	
	43	RIH0000U	Rivers	AGS	1:5m	UTM Zone 45	/database/hkh/hkhriv	
Bangladesh	91	CO20000U	Elevation Contours				/database/bangladesh/contour	
Bangladesh	90	PO20000U	Population				/database/bangladesh/population	
	92	NB20000U	Boundary				/database/bangladesh/boundry1	
	88	RT20000U	Roads and Trails				/database/bangladesh/road	

09-Feb-95

MENRIS VECTOR DATABASE

Location	SNo	Code Name	Description	Data Source	Scale	Projection/Map Unit	Storage File Name	Storage File Size
Bangladesh	87	RD20000U	Roads				/database/bangladesh/road2	
	89	RF20000U	Rise				/database/bangladesh/rise	
/Nepal/koshi/dhankuta	74		GPS Data - 6				/database/nepal/district/dhankuta/gps_d	

rast

MENRIS IMAGE DATABASE

28-Aug-94

Ref	Location	Platfo	Data	Y	Mo	D	Positi	Geog	Cloud	Qualit	Disk Storage	Disk f	Tape	Tape	Pixel	Band	Cols	Rows	Sourc	Remarks	Quick
Bangladesh																					
6	Bangladesh		data								MEN07b_bckp:\BANGDESH\		none						FAO		
68	Rajbari area (north)	Spot	P	89	1	6	K23SJ	Lamb	none	correc	MEN08A_DATA\ RDR0189P\ 79E9 *	LAN	none	none	10 m	1	2599	2826	1Mar9	HRV No2 Mirror=0.44degWe	
69	Rajbari area (south)	Spot	P	89	1	6	K23SJ	Lamb	none	correc	MEN08A_DATA\ RDR0189P\ 79E10	LAN	none	none	10 m	1	2604	2826	1Mar9	HRV No2 Mirror=0.44degWe	
70	Rajbari area	Spot	P	93	12	31	UR:x=	Lamb	none	correc	MEN08A_DATA\ RDR1295P	BiL L	none	none	10 m	1	2571	5471	1Mar9	SceneId=235-302 Very compl	
77	Rajbari	Spot	XS	93	?	?	?	?	?	?	MEN08A_DATA\ RDR__03\	BSQ			10m	3	741	641	Jul 94	part of processed image	
China																					
78	Shigatze, Tibet	Lands	TM	89	1	?	p190?	none	no clo	correx	none		ICIM	LAN	30m	6			Jul94	Band 6 not given;series of tin	
79	Shigatze, Tibet	ERS1	RADA	93	6	1	whole	none					ICIM	LAN	12.5m	1	5601	3201	Jul94	time:11:29	
Nepal																					
1	Nepal		Popul	78				UTM	?	good	MEN06a_Data \NEP__79_\		ICIM		100m		UTM4	UTM4	IFG. 2	6 images (3 maps split betwe	
2	Mustang valley	Lands	TM	88	11	20	Path1	none	little o	good	MEN03b_Data \MTG1188T\	bsq	OMG	bsq	30m	7	7020	5729	DMG	3 tapes 6250 BPI	
3	Kathmandu	Lands	TM	88	10	12	Path1	level 4	little o	?	MEN02a_Data \KTM1088T\	bsq	OMG	bsq	30m	7	7020	5729	DMG	Scene ID: 5168604185400. 3	
4	Kathmandu	Spot	P (Pa	88	12	20	K224J	none	little o	good	MEN03a_Data \KTM1288P\	raw	ICIM		10m	1			CNRS		
5	Kathmandu	Lands	TM	89	1	24	Path1	none	top hill	good	MEN03a_Data \KTM0188T\	bsq	ICIM	bsq	30m	7	4320	2984	EOSA		
7	Dehkhuri	Lands	MSS	84			Upper	UTM4	?	noisy	MEN18B_DATA \DEU__84M\	LAN	ICIM	BIP	50m	4	2976	2233	IFG 0	tape 1600 BPI	
8	Lumbini	Lands	MSS	84			Upper	UTM4	?	noisy	MEN06b_Data \LMN__84M\	BIP B	ICIM	BIP	50m	4	3004	2270	IFG 0	tape 1600 BPI	
9	Kathmandu	Lands	MSS	84			Upper	UTM4	?	noisy	MEN06b_Data \KTM__84M\	BSQ	ICIM	BIP	50m	4	3004	2270	IFG 0	tape 1600 BPI	
10	Sagarmatha	Lands	MSS	84			Upper	UTM4	?	noisy	MEN06b_DATA \SGM__84M\	BIP B	ICIM	BIP	50m	4	2976	2233	IFG 0	tape 1600 BPI read.200ec92	
11	Kanchanjangha	Lands	MSS	84			Upper	UTM4	?	?	none	tape n	ICIM	tape n	50m	4	2976	2233	IFG 0	tape 1600BPI is dead	
12	Gaur	Lands	MSS	84			Upper	UTM4	?	noisy	MEN18B_DATA \GAUR_84M LAN	LAN	ICIM	BIP	50m	4	3029	2269	IFG 0	tape 1600 BPI	
13	Janakpur	Lands	MSS	84			Upper	UTM4	?	noisy	MEN18B_DATA \JANK_84M LAN	LAN	ICIM	BIP	50m	4	3002	2233	IFG 0	tape 1600 BPI	
14	Dhankuta	Lands	MSS	84			Upper	UTM4	?	noisy	MEN_6b_Data \DKT__84M\	BIP	ICIM	BIP	50m	4	3002	2233	IFG 0	tape 1600 BPI	
15	Tingkar	Lands	MSS	84			Upper	UTM4	?	noisy	MEN18B_DATA \TNG_84M LAN	LAN	ICIM	BIP	50m	4	2893	2236	IFG 0	tape 1600 BPI	
16	Humla	Lands	MSS	84			Upper	UTM4	?	noisy	MEN18B_DATA \HUM__84M LAN	LAN	ICIM	BIP	50m	4	2893	2236	IFG 0	tape 1600 BPI	
17	Dadeldhura	Lands	MSS	84			Upper	UTM4	?	noisy	MEN06A_DATA \DAD__84M\	LAN	ICIM	BIP	50m	4	2921	2235	IFG 0	tape 1600 BPI	
18	Jumla	Lands	MSS	84			Upper	UTM4	?	noisy	NEP06A_DATA \JUM__84M\	LAN	ICIM	BIP	50m	4	2921	2235	IFG 0	tape 1600 BPI	
19	Dolpa	Lands	MSS	84			Upper	UTM4	?	noisy	MEN06A_DATA \DOL__84M\	LAN	ICIM	BIP	50m	4	2951	2273	IFG 0	tape 1600 BPI	
20	Mahendranagar	Lands	MSS	84			Upper	UTM4	?	noisy	MEN06A_DATA \MAH__84M\	LAN	ICIM	BIP	50m	4	2949	2234	IFG 0	tape 1600 BPI	
21	Nepalganj	Lands	MSS	84			Upper	UTM4	?	noisy	MEN06A_DATA \NGJ__84M\	LAN	ICIM	BIP	50m	4	2949	2234	IFG 0	tape 1600 BPI	
22	Pokhara	Lands	MSS	84			Upper	UTM4	?	noisy	MEN_6b_Data \POK__84M\	BIP B	ICIM	BIP	50m	4	2978	2272	IFG 0	tape 1600 BPI	
23	Mustang	Lands	MSS	84			Upper	UTM4	?	noisy	MEN06A_DATA \MUS__84M\	LAN	ICIM	BIP	50m	4	2951	2273	IFG 0	tape 1600 BPI	
24	Gorkha	Lands	MSS	84			Upper	UTM4	?	noisy	MEN_6b_Data \GOR__84M\	BSQ	ICIM	BIP	50m	4	2978	2272	IFG 0	tape 1600 BPI	
25	Jugal himal- Khumbu h	Lands	MSS	84			Upper	UTM4	?	noisy	MEN_6b_Data \JGL__84M\	BIP	ICIM	BIP	50m	4	2949	2234	IFG 0	tape 1600 BPI	
26	Kathmandu	Plane	b/w sc	89	12		South	none	none	good (	MEN_3a_Data \SWK1289M\	raw	none		7	1: fro	1483	938			
27	Kathmandu area		DEM (	86	11		K224J	UTM	undef	very g	MEN_3a_Data \STAR\	raw	ICIM	raw	20m	1	3850	3300	30Nov	FILE IS FAR_OR is integers(	

Re.	Location	Satellite	Data	Y	M	D	Projection	Geog	Cloud	Quality	Disk Storage	Disk T	Tape	Tape	Pixel	Band	Cols	Rows	Source	Remarks	Quick
28	Kathmandu area	Spot	P (Pa	86	12	12	K224J	UTM	none	excell	MEN_9a_Data \STAR\STAR_OR	raw	ICIM	raw	10m	1	7700	6600	30Nov	orthoimage from Spot scene i	
29	Kathmandu area	Spot	P (Pa	86	11	7	K224J	none	none	excell	MEN_9a_Data \SPOT\SPOT2_IM DA	raw	ICIM	raw	10m	1	8640	6001	SPOT	Spot scene id:S1H28611070	
30	Kathmandu area	Spot	P (Pa	86	12	12	K224J	none	none	excell	MEN_9a_Data \SPOT\SPOT1_IM DA	raw	ICIM	raw	10m	1	8640	6001	SPOT	Spot scene id:S1H18612120	
31	Kathmandu area, Lalitp	Lands	TM	90	12	21	Path1	none	none	excell	MEN_1a_Data \KTM90TQ2\	BSQ	FINI	BSQ (	30m	7	4000	2848	21Jv9	BIL has 4000bytes header	
32	Kathmandu area	IRS-1	LISS2	89	4	9	PATH	?	?	?	MEN_1a_Data \KTM0489\	BIL	ICIM	BIL (F	36.25	4	2520	2500	NRSA	Header : 2520 bytes.Pixel : 1	
33	Kathmandu area Lalitp	Lands	TM	90	12	21	Path1	none	none	excell			FINI	BIL	30m	7	4000	2848	21Jv9	BIL has 4000bytes header	
34	Parsa district	Lands	TM	90	12	21	Path1	none	none	excell	MEN11B_DATA \ PAR9012T\	BIL	FINI	BIL	30m	7	4000	2848	20/01/	BIL has 4000bytes header	
35	Ganesh massif Gorkh	Lands	TM	90	12	21	Path1	none	none,	excell	MEN_4a_Data \ GSH11290T\	BIL L	FINI	BIL	30m	7	4000	2848	21Jv9	BIL has 4000bytes header	
36	Manaslu massif	Lands	TM	91	12	15	Path1	none	none,	excell	MEN_2b_Data \ MSU1291T\	BIL L	FINI	BIL	30m	7	4000	2848	21Jv9	BIL has 4000bytes header	
37	Tansen	Lands	TM	90	11	26	Path 1	none	??	??	DELETED (MEN_1ABDATA \ TNS119	BIL	FINI	BIL	30m	7	4000	2848	2Fev9	BIL has 4000bytes header	
38	Lalitpur district	Spot	XS (M	91	5	5	K224J	none	mount	??	MEN_3a_Data \ KTM0591X\	BSQ	CNRS	BSQ	20m	3	5400	3004	3Fev9	combination of 2 scenes (K=2	
39	Sagarmatha massif	TM	Lands	92	11	17	Path1	none	??	??	MEN10a_Data \ SRM1192T\ + MEN1	BSQ	DMG	BSQ	30m	7	7020	6145	20Ma	3 tapes 625 BPI. Bands 1,2,3	
40	Jumla area	TM	Lands	89	11	30	Path1	none	??	??	MEN13a_Data \ JUM1169T\ + MEN1	BSQ	DMG	BSQ	30m	7	7020	6145	June9	3 tapes 625 BPI. Bands 1,2,3	
41	Chitwan area	TM	Lands	90	11	26	Path1	none	little n	excell	MEN10b_data \ CHI1190T\	BIL	FINI	BIL	30m	7	4000	2848	20/01/	BIL has 4000bytes header	
42	Manang area, Nepal	Spot	Panch	90	3	4	K221J	none	??	??	TO READ	??	DMG	??	10m		??	??	May9		
43	Mustang area, Nepal	Spot	XS	91	5	10	K220J	none	??	??	TO READ	??	DMG	??	20m		??	??	May9		
44	Mustang area, Nepal	Spot	Panch	92	10	16	K220J	none	little (I	excell	MEN04A_DATA \ MUS10921\	LAN	DMG	BIL (I	10m	1	8640	6010	May9	tape is very noisy, 22 lines los	
45	Arun area	Lands	TM	92	9	22	PATH	SOM,	?		MEN06b_DATA \ ARU02V2T\	LAN	ICIM	BSQ (	28.5	7	6967	5965	Mov 9	Scene-id 932300117-01	
46	Nepal country	NOAA	AVHR	87	11	9	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
47	Nepal country	NOAA	AVHR	87	11	10	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
48	Nepal country	NOAA	AVHR	87	11	26	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
49	Nepal country	NOAA	AVHR	87	11	26	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
50	Nepal country	NOAA	AVHR	87	12	13	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
51	Nepal country	NOAA	AVHR	87	12	13	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
52	Nepal country	NOAA	AVHR	90	11	15	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
53	Nepal country	NOAA	AVHR	90	11	17	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
54	Nepal country	NOAA	AVHR	90	12	17	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
55	Nepal country	NOAA	AVHR	90	12	17	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
56	Nepal country	NOAA	AVHR	90	12	31	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
57	Nepal country	NOAA	AVHR	92	11	4	Sector	none	mouta	??	MEN_1a_Data \ NEP1192V\	LAN	ICIM	AVHR	1100	5	2046	2000	NRSA	too cloudy	
58	Nepal country	NOAA	AVHR	92	11	5	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
59	Nepal country	NOAA	AVHR	92	11	6	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
60	Nepal country	NOAA	AVHR	92	11	7	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
61	Nepal country	NOAA	AVHR	92	11	24	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
62	Nepal country	NOAA	AVHR	92	11	24	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
63	Nepal country	NOAA	AVHR	92	12	18	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
64	Nepal country	NOAA	AVHR	92	12	18	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
65	Nepal country	NOAA	AVHR	93	1	25	Sector	none	mouta	??	MEN01A_DATA \ NEP0193V\	LAN	ICIM	AVHR	1100	5	2046	2000	NRSA	too cloudy	
66	Nepal country	NOAA	AVHR	93	5	12	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
67	Nepal country	NOAA	AVHR	93	5	13	Sector	none	??	??			ICIM	AVHR	1100	5			NRSA		
71	Nepal ???? area	Spot	P	86	11	7	KJ=22	correc	??	??	MEN04A_DATA \ _223295\	BIL (r	ICIM	none	10m	1	7390	5988	4Apr9	Sceneid=1 223-295 86/11/07	
72	Nepal ???? area	Spot	P	86	12	12	KJ=22	correc	??	??	MEN10B_DATA \ _224295	BIL (r	ICIM	none	10m	1	8036	6010	4Apr9	Sceneid=1 224-295 86/12/12	
73	Arun River	Spot	XS	90	3	18	KJ=22	none	??	??	CD-ROM 01	BIL	ICIM		20m	3	5400	3000	20 Ma		
74	Arun River	Spot	XS	87	11	12	KJ=22	none	very fe	very g	CD-ROM 02	BIL	ICIM		20m	3	5400	3000	20 Ma		
75	Arun River	Spot	XS Or	87	11	12	KJ=22	Ortho	very fe	very g	MEN07B_DATA \ ARU87ORX	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 Storage	Disk f	Tape	Tape	Pixel	Band	Cols	Rows	Sourc	Remarks	Quick
Nepal, China																					
76	Rasuwa distict; Tibet	Lands	TM	90	12	21	P141	?	?	?	none	LAN	ICIM	BIL (F	30m	7	3900	2848	9 Mar	2Lines may be missing	

Training
on
GEOGRAPHICAL INFORMATION SYSTEM (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), ICIMOD, 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 MENRIS/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. *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.

3. *Who should attend*

- Natural resource persons who require knowledge of GIS technology.

4. *Pre-requisite*

- No prior knowledge of GIS, but computer knowledge would be better.

5. *Time-duration*

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

6. *Course Modules*

- Concepts: Computer and GIS
- Data base, design and analysis, which include:
  - Spatial data
  - Map design
  - Raster/Vector analysis
- Project Work

7. *Training Methods*

- 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.
- Lectures and discussions during the training will be in English.

8. *Computer Facilities in the Department*

- Personal Computer:
  - 8 sets with 486
  - 2 sets with 386
- Digitizer:
  - Calcomp A1 size - 2
  - Calcomp A3 size - 6
- Printer
  - Laser IIIp - 1
  - Color Printer - 1
  - Pin Writer - 2

9. *Fee*

- The participation fee of the one m training course is Rs. 25,000/- per partici This covers tuition, training manuals, refreshments and pocket expenses. It doe provide for local travel expenses.

10. *Venue*

- Central Department of Geogr Tribhuvan University, Kirtipur, Kathma

11. *Application*

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

The Central Department of Geography
Tribhuvan University
Kirtipur, Kathmandu
Tel. 222129

- 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): 222129

- Asst. Administrator
  Central Department of Geography
  Tribhuvan University
  Tel. (Office): 222129

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