Following items are to be proposed in the Immediate Programme:

1) Repair and replacement of existing ordinary raingauges:
   Not only replacement of damaged gauges but also relocation/improvement of some gauging stations located at improper sites affected by trees and houses should be conducted. As the results of field investigations, out of 42 visiting meteorological stations 9 stations are located in appropriate sites.
2) Replacement of 4 existing recording gauges:
   4 recording raingauges at stations No. 0218, No. 0219, No. 804 and No. 1319 are required to be replaced.
3) Addition of 10 recording gauges:
   10 recording stations (Station No. 0218, 0312, 0416, 0725, 1102, 1103, 1107, 1212, 1301, 1421) are selected from the viewpoint of uniform distribution.
4) Preparation of manuals and training:
   Activities of part-time observers and field technicians affect quality of data directly. Practical manuals and effective training are essential for them.

The tipping bucket-type gauge which equips both data logger and chart drum recorder is recommended to be installed in low land areas. In the mountainous and hilly areas located above EL. 2,000 m, the weighing-type gauge is recommended. Periodic inspection and maintenance are essential to operate it in good condition. The general idea of the installation in given in Fig. 7.1.

7.2.2 Water Level Observation System

The hydrometric observation network proposed in the Long Term Programme consists of three types of stations, basic, primary and secondary stations. A total of 110 stations among which 10 are basic, 38 are primary and 62 are secondary stations are selected as minimum observation network. The network includes 21 new stations to be established. Following items are planned in the Immediate Programme:

1) Minimum required repair of existing measuring equipment and facilities:
   Repair and reinforcement of the primary and secondary stations will be scheduled in the second and third stage of the Long Term Programme respectively. In the first stage of the Programme, minimum required repairs are proposed such as installation of single winches, replacement of spare parts of damaged recorder, repair of cable and so on.
2) Establishment of 10 basic hydrological stations:
   The basic hydrological station is the key station located downstream of the main basin and distributed at the basic point for water resources development planning

and river managing. In the Immediate Programme, this basic station is proposed to be established by reinforcing the existing station.

The following equipment and facilities should be completed at each basic hydrological station to carry out accurate and continuous observation:

a) Staff gauge facility (3 sections) for flood measurement by float or slope-area method,
b) Water level recorder and facility,
c) Double drum winch cableway applied for bank operating system and propeller type current meter,
d) Point integrated sediment sampling equipment and insitu sediment observation device, and
e) Office building.

Station No. 390 in the Tinau river and No. 598 in the Kamala river are proposed to be shifted to appropriate site. Detail field investigation should be done for site selection.

Gauge wells at Station No. 150 and No. 280 are functioning well by means of cleaning intake pipes and gauge well manually. However, gauge wells at Station No. 450, No. 589, No. 695 and No. 795 should keep good condition to conduct continuous clearing of sediment. Pump system may be useful for desilting work. Since it is difficult to select the suitable site for a gauge well as Station No. 390 and No. 598 due to river condition, pressure-type gauge is proposed to be installed due to its advantages of easy and cheap installation work as seen in Fig. 7.2. The gauge well at Station No. 350 suffers from serious scouring problem, so pressure-type gauge is also proposed.

Both of the existing and new recording gauges are recommended to be equipped with data logger. The existing float-type recorder can equip data logger easily. The pressure-type gauge is also recommended to be equipped with check system, for example built-in display, for control of pressure sensor and data logger.

Office buildings at Station No. 150, No. 280, No. 450, No. 589 and No. 795 were constructed by other projects. Continuous observation and maintenance by stationed staffs make data quality more reliable. Revision of manual is required in this Programme for proper operation.

7.2.3 Discharge Measurement System

In the Immediate Programme, the double drum winch cableway is proposed to all the basic hydrological stations as given in Fig. 7.3 except for No. 150, 280 and 598. At Station No. 150 and No. 280 at present double drum winch cableway is installed for bank operating system. This system has the advantages of safe operation and easy handling of a heavy weight during flood. Engine-drive winch available for heavier weight may be useful for such cable way of wide span and deep depth. The river bed is too wide to install cableway at Station No. 598 in the Kamala river. A bridge located downstream of the gauge is to be used for discharge measurement.

20 propeller type and 5 price type current meters are to be introduced in the Immediate Programme as the minimum requirement judging from the measurement schedule.

7.2.4 Sediment Sampling System

In the Immediate Programme, sediment sampling network which consists of 20 stations is recommended to be completed. Following stations are selected as the sediment sampling network:

Basic Stations (10)

	River Name	Proposed method	
150	Mahakali	Point integration	(P)
280	Kamali	ditto	(P)
289.95	Babai	ditto	(D)
350	West Rapti	ditto	(D)
390	Tinau	ditto	
450	Gandaki	ditto	(D)
589	Bagmati	ditto	(D)
598	Kamala	ditto	
695	Koshi	ditto	(D)
795	Kankai	ditto	

Other Stations (10)

	River Name	Proposed method	
240	Karnali	Depth integration	(D)
270	Bheri	ditto	(D)
410	Kali Gandaki	ditto	(D)
439.7	Marsyangdi	ditto	(D)
445	Burhi Gandaki	ditto	(D)
447	Trisuli	ditto	(D)
600.1	Arun	ditto	(D)
670	Dudh Koshi	ditto	(D)
680	Sun Koshi	ditto	
690	Tamur	ditto	(D)

Note: (P) existing point integrated sampling station
(D) existing depth integrated sampling station

The point integrated sampling and analysis have been conducted at station No. 150 and No. 280. The point integrated sampling is recommended at each basic station because more accurate data can be obtained generally in wide and deep river.

Turbidity is one of the indirect indexes to obtain the sediment concentration. Field measurement of turbidity is recommended as one of the effective sediment observation methods because of saving in manpower and time for sampling, transporting and analyzing. This method will be introduced to the basic stations and Station No. 550.05.

Following instruments are to be provided to reinforce existing instruments:

1) 8 point integrated samplers to be installed at basic stations,
2) 5 depth integrated samplers to be installed at other stations,
3) 10 turbidity meters at basic stations and 1 turbidity meter at No. 550.05.

7.2.5 Sediment Analysis System

In the Immediate Programme, reinforcement of the existing sediment laboratory equipment is proposed and no addition of new observation item is recommended. To strengthen existing sediment laboratory, laboratory equipments such as electric oven, electric balance are to be provided. For proper and efficient sediment observation, manual and training are essential.

7.2.6 Establishment System

The Establishment System is proposed to be introduced in the Immediate Programme. The System will function in the Basin Office. The technical staffs of the Basin Office will be responsible for structural design of stations and construction/installation works. Then, they should have knowledge in the field of civil engineering as well as those of instruments.

7.2.7 Inspection and Maintenance System

The daily/weekly inspection, several monthly inspection, the annual inspection and adjustment/calibration activities are proposed to be carried out in the Basin Office in the Long Term Programme. All of these activities are to be introduced in the Immediate Programme to raise the data quality. During implementation of the Immediate Programme, the following items should be detailed for smooth and accurate operation:

1) Inspection and maintenance manual for part-time observers, field technicians and mechanical technicians to be provided or revised.

2) Effective inspection system to be provided, which consists of a) Daily inspection by part-time observers, b) Periodic (three monthly) inspection by field technicians, c) Periodic (six monthly) instrument inspection by mechanical technicians, d) Overall annual inspection by Hydrologist/Meteorologist, and e) Occasional inspection .
3) Effective inspection schedule to be included.
4) Appropriate organization and staffing for effective inspection to be provided

Close and frequent communication should be achieved between the Central Office and each Basin Office in the Immediate Programme. Staffs of the Central Laboratory and workshop should give guidance and advices to the Basin Office. The instrument workshop in the Central Office should handle the following kind of repair and calibration: a) Mechanical instrument repair, b) Electrical and electronic instrument repair, and c) Calibration of observation instruments.

Thus, the following improvement is proposed in the Immediate Programme:

1) Lack of spare parts and spare instruments is one of the major reasons why existing workshop malfunctions, so sufficient spare parts and spare instruments should be provided.
2) The following machines/equipments are recommended to be provided: a) Small arc-welding machine, b) Power transformer, c) Set of electrical hand-tools, and d) Set of electrical measuring instruments such as multimeter portable transistor and diode tester etc.
3) The following calibration equipments are recommended to be provided: a) Time balance for adjustment of drum clock, b) Device of checking indicated value of rainfall and water level recorder, and c) Calibration facility for current meter.
4) The electrical engineer is required to maintain electrical/electronic instruments such as data logger. Both mechanical and electrical engineers should receive practical training and are recommended to master repair/maintenance technics at Instrument Manufacturers.
5) Technicians in the Central Office should contact Basin Office and exchange information on condition of instruments.

Regular calibration of the current meter is proposed and the calibration facility is to be introduced in the Immediate Programme. The operational activities of the calibration laboratory are fairly routine and repetitive. However until they master the technics, professional engineer should guide and train them. The calibration facility is recommended to be designed to calibrate current meter with maximum speed of 10 m/s. The calibration tank will be 2.0 m wide, 2.3 m deep and 160 m long as seen in Fig. 7.4.

7.2.8 Data Collection System

The objective of the Data Collection System is to collect observed or analysed hydro-meteorological data and information on observation station and equipment, and to send them to the Data Processing System after registration. This System will function mainly in the Basin Office while the Branch Office. The objective, concept and procedure of the System in the Immediate Programme are principally the same as those in the Long Term Programme. The main items proposed in the System are:

1) the data and information are to be collected by mail, staff and/or telephone. The telemeter system is not to be introduced in the Immediate Programme considering the purpose and the surrounding condition,
2) the inventory of data collection is to be provided by using computer for monitoring present status,
3) emergency information on stations, equipments, observers or others is also collected by mail, telephone or telegraph,
4) the procedure manual should be reviewed.

7.2.9 Data Processing System

The objective of the Data Processing System is to process collected data to the figures of user's need with entire checking, and to convey them including collected information on station and equipment to the Data Storing System. Almost all the works of this System are made in the Basin Office while the Central Office takes minor processing and final data checking. The objective, concept and procedure of the System in the Immediate Programme are principally the same as those in the Long Term Programme. The main items proposed in the System are:

1) the data and information in paper form, chart or ram card of the data logger are to be entered into computer with simple and easy operation method in the Basin Offices,
2) the data processing is to be made by using computers with three processing levels as stated and proposed in the Long Term Programme,
3) the processed data and information as well as the original data are to be transferred from the Basin Office to the Central Office in the form of disk by the staffs of the Basin Office except for on-line system,
4) the data checking work should be performed before and after data processing. The data book is compiled after the error correction,
5) The computer equipments are to be used for accurate and prompt processing as shown in Fig. 7.5,

6) the procedure manual should be reviewed.

7.2.10 Data Storing System

The objective of the Data Storing System is to store original and processed data and collected information safely and systematically and to convey the data and information to the Data Dissemination System. This System will function mainly in the Central Office. The objective, concept and procedure of the System in the Immediate Programme are principally the same as those in the Long Term Programme. The main items proposed in the System are:

1) the original data and information will be stored in the storeroom. The processed data will be kept in the database. The optical disk for back-up of data will not be introduced in the Immediate Programme considering well balanced improvement,
2) the System monitors the storing term and the data of which the storing term is expired will be abandoned, and
3) the procedure manual should be prepared.

7.2.11 Data Dissemination System

The objective of the Data Dissemination System is to disseminate necessary data to data users and also to the Data Quality Research System. This System will work mainly in the Central Office. The objective, concept and procedure of the System in the Immediate Programme are principally the same as those in the Long Term Programme. The main items proposed in the System are:

1) the data dissemination is to be made in the form of annual data book, floppy disk or photocopied list. The on-line dissemination is not proposed in the Immediate Programme. Thus, the data dissemination from the Basin Office is not introduced in the Programme, and
2) the procedure manual should be prepared.

7.2.12 Data Quality Research System

The objective of the Data Quality Research system is to improve quality of the hydro-meteorological data by proposing improvement plan of observation or data management based on related studies such as observation network study, investigation of modern instruments and other hydrological studies, and monitoring and investigating activities of

current observation and data management. This System will be operated in the Central Office. The objective, concept and procedure of the System proposed in the Immediate Programme are the same as those of the Long Term Programme.

7.2.13 Training System

In the Immediate Programme, a training center is proposed to be established in the DHM Central Office for proper, timely, systematic and specialized staff training as illustrated in Fig. 7.6. And the regular or intensive training will be held in the new training center as well as in the field. The additional training will also be held for staffs who do not understand well the observation or data management procedure.

Table 7.1 shows the outline of the field training proposed in the Immediate Programme. The trainees of this field training are part-time observers and field technicians. The main training items are procedures of observation and inspection including survey work. Table 7.2 gives the training schedule and recommended training hours for the newly employed staff, field assistant, junior hydro-meteorological assistant, senior hydro-meteorological assistant and engineers. This training is recommended in the Immediate Programme to be held in the training center covering overall knowledges according to the grade of the trainee including observation and data processing methods, hydro-meteorological analysis and management works.

7.2.14 Progress Control System

The objective of the Progress Control System is to monitor and control the progress of all the activities in order to keep the specified annual schedule and disseminate data within next year. This System should be introduced urgently in the Immediate Programme to achieve smooth operation of the other Systems to be established. The objective, concept and procedures of the System in the Immediate Programme are the same as those in the Long Term Programme. The main items of the System are:

1) the System will receive reports of present work status of all the other Systems every month and prepare monitoring report,
2) the System will control the progress of all the other Systems every month,
3) the System will modify the annual schedule of all the activities when some defects or discrepancies occur, and
4) the annual report is to be prepared and submitted to the Evaluation System.

7.2.15 Quality Control System

The objective of the Quality Control System is to monitor and control the quality of data and activity to disseminate reliable hydro-meteorological data. This System should also be established in the Immediate Programme for keeping and improving data quality. The objective, concept and procedure of the System in the Immediate Programme are the same as those in the Long Term Programme. The main items of the System are:

1) the System will receive reports on present work method and condition of all the other Systems every month and prepare monitoring report,
2) the System will control the quality of data and activity,
3) the System will revise check list of quality control monitoring, and
4) the annual report on the quality of data and activity is to be prepared and submitted to the Evaluation System.

7.2.16 Evaluation System

The objective of the Evaluation System is to evaluate the current activities and to improve them. The evaluation is to be conducted on the basis of the monitoring reports prepared in the Progress and Quality Control Systems, user's demand obtained through dialogue and others. The System proposed to be introduced in the Immediate Programme is the same as that of the Long Term Programme.

7.2.17 Proposed Computer Equipment

Computer equipments will be installed in the Central Office and each Basin Office in the Immediate Programme. In the Basin Office, the collected data and information will be entered and processed by the computer. The processed data and information will be sent to the Central Office and final checking, storing and dissemination will be done in the Central Office using the computer. The general idea of computer system mentioned above is illustrated in Fig. 7.5 for the Immediate Programme.

The computer equipments to be installed in the Central Office are proposed with the following six computer systems: 1) computer system for database, 2) computer system for data checking, 3) computer system for data dissemination, 4) computer system for management, 5) computer system for data entry and 6) computer system for training. The computers in the Central Office will be connected by the Local Area Network.

The computer equipments to be installed in each Basin Office consist of two computer systems: 1) computer system for data entry and 2) computer system for data storage. These computers are on an off-line system. Photocopy machine is also proposed to be installed for making back-up of the original data in the Basin Office.

The following show the proposed number of computer among which 14 sets are new and 7 sets are model computers :

Office	System	Number of Computer
Central Office	for data base	1 set
	for data checking	4 sets
	for data dissemination	1 set
	for management	1 set
	for data entry	1 set
	for training	5 sets
each Basin Office	for data entry	1 set
	for data storage	1 set

7.3 Organization and staff

The organization of the DHM proposed in the Immediate Programme is almost the same as that in the Long Term Programme, though the Basin workshop, water quality laboratory and telemeter system are not included in the Immediate Programme. The proposed organization will consist of the Central Office, four Basin Offices and 10 Branch Offices. The Basin Offices will be located at Nepalgunj, Pokhara, Kathmandu and Biratnagar. The total number of 129 technical staffs is required to operate the proposed observation and data management systems in the Immediate Programme.

7.4 Implementation Schedule and Cost

7.4.1 Implementation Schedule

The Immediate Programme is to be implemented for 3 years from the year 1993 to 1995. Generally, in the first year in 1993, designing work of observation instruments, computers and civil structures and preparation of tender documents will be carried out. The tendering will start in early 1994. The main construction and installation work will be made in 1994

and 1995. The implementation schedule is shown in Fig. 7.7 to 7.9 for the observation system, the data management system and the civil construction respectively.

7.4.2 Project Cost

The total project cost for the Immediate Programme is estimated to be around NRs. 366 million including price escalation. The foreign currency portion of the project cost is NRs. 275 million and the local portion is NRs. 91 million. The assumptions and conditions to estimate the above cost are almost the same as those of the Long Term Programme except for:

1) the general administrative expense of the HMG/N is estimated applying 1 % of the total direct cost.
2) the engineering service fee for the detailed design and construction supervision is calculated based on the assumed man-month of the foreign consultants.

The estimated cost for the Immediate Programme is given in Table 7.3. The annual disbursement schedule is tabulated below:

(Unit: 1,000 NRs)

Year	Investment			Operation & Maintenance	
	Foreign Currency	Local Currency	Total	Foreign Currency	Local Currency
1993	16,928	0	16,928	0	0
1994	160,794	66,989	227,783	2,326	997
1995	96,976	23,599	120,575	3,267	1,400
Total	274,698	90,588	365,286	5,593	2,397

The annual operation and maintenance cost is about NRs. 4.7 million in 1995 which is around 11% of the projected annual budget of the DHM in the same year.

7.5 Evaluation of Proposed Immediate Programme

The Immediate Programme is formulated as the first stage programme of the Long Term Programme to be implemented between the year 1993 and 1995. The Immediate Programme is designed to improve quality of the hydro-meteorological data by strengthening the existing hydro-meteorological observation and data management system without large expansion of observation equipment introduction. Thus, the Programme mainly concentrates to designate the standardized procedure of the observation and data

management and to clarify the responsibility of the Division Section or person in charge. These items are considered to be the most important and fundamental ones and should be realized before implementing the succeeding stages of the Long Term Programme.

8. CONCLUSIONS AND RECOMMENDATIONS

(1) The HMG/N has put stress on realization of water resources development, since the water resources is one of the most important natural resources for the economic development of the country. Improvement of hydro-meteorological observation and data management system has been conducted as the fundamental requirement for the effective development. Despite the HMG/N's effort, the hydrological observation is intermittent, data quality is insufficient, and data processing/management works are irregular and non systematic due to a combination of adverse factors such as; (a) lack of skilled technical personnel, (b) inadequate procedure of activities, (c) difficult communication and transportation, and (d) budgetary constraint. Improvement of the present system to observe and manage nationwide, continuous and reliable hydrological data is requisite for effective and economical planning and designing of water resources development, flood control and watershed management. The Long Term Programme is, then, proposed for the purpose of the above mentioned improvement work, and implementation of the Long Term Programme is keenly required.

(2) Out of the proposals of the Long Term Programme, the most fundamental items have been selected and the Immediate Programme is formulated. The Immediate Programme is aiming to improve quality of the hydrological data by strengthening the existing hydrological observation and data management system of the DHM. This Programme concentrates to improve operational activities of the existing system, and to clarify processing methods, work flow and responsibility of the Divisions, Sections and persons in charge. The above mentioned improvement is considered the first step before expanding observation and data management system. Thus, the Immediate Programme should be implemented urgently.

(3) The Long Term and Immediate Programmes, however, do not include observation and management systems of the following items, which is decided by considering the purpose to concentrate on improvement of fundamental activity and target year of the Programme:

1) Observation and data management system for meteorological parameters such as solar and wind energy,
2) Observation and data management system for snow and glacier including preparation of inventory of glacier lakes,

3) Limnological observation such as water level, sedimentation and water quality of lakes, and
4) Observation and data management system of real-time rainfall and water level data during floods for flood control purpose.

Though the above mentioned four items are excluded in the Programme, it is emphasized that these items should be reviewed and their improvement plans should be studied under the DHM on the earliest occasion.

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TABLES

Table 2.1 RIVER BASIN AREA

	Name of River Basin	Basin Area (sq.km) within Nepal	Percentage of Basin Area within Nepal
I.	MAHAKALI RIVER	5,317	34%
II.	SOUTHERN BORDER RIVER GROUP NO. 1	3,811	100%
III.	KARNALI RIVER	(43,227)	
	1. HUMLA KARNALI	5,527	65%
	2. MUGU KARNALI	6,155	100%
	3. SINJATILA	3,252	100%
	4. SETI WEST	7,103	100%
	5. BHERI	13,867	100%
	6. KARNALI MAIN (OTHERS)	7,323	100%
IV.	BABAI RIVER	3,252	100%
V.	SOUTHERN BORDER RIVER GROUP NO. 2	948	100%
VI.	RAPTI (WEST) RIVER	6,215	100%
VII.	SOUTHERN BORDER RIVER GROUP NO. 3	4,849	100%
VIII.	NARAYANI/GANDAKI RIVER	(31,726)	
	1. TRISULI	3,622	57%
	2. BUDHI	3,621	73%
	3. MARSHANGDI	4,819	100%
	4. SETI (GANDAKI)	2,843	100%
	5. KALI GANDAKI	11,573	100%
	6. RAPTI (GANDAKI)	2,993	100%
	7. NARAYANI/GANDAKI MAIN (OTHERS)	2,255	100%
IX.	SOUTHERN BORDER RIVER GROUP NO. 4	3,502	100%
X	BAGMATI RIVER	3,681	100%
XI.	SOUTHERN BORDER RIVER GROUP NO. 5	3,013	100%
XII.	KAMALA RIVER	1,786	100%
XIII.	SOUTHERN BORDER RIVER GROUP NO. 6	1,896	100%
XIV.	SUN KOSHI/SAPTA KOSHI RIVER	(27,863)	
	1. BHOTE KOSHI	240	10%
	2. TAMA KOSHI	2,714	76%
	3. DUDH KOSHI	4,030	100%
	4. ARUN	5,248	15%
	5. TAMAR/TAMUR	6,125	100%
	6. SUN KOSHI MAIN (OTHERS)	9,506	100%
XV.	SOUTHERN BORDER RIVER GROUP NO. 7	3,462	100%
XVI	KANKAI RIVER	1,317	100%
XVII.	SOUTHERN BORDER RIVER GROUP NO. 8	1,316	100%
	TOTAL	147,181	

Table 3.1 WORKS OF DIVISIONS

DIVISION	ITEM OF WORK
Hydrology Division	- Report preparation and publication of study and analysis of different hydrological aspects: o Periodical collection, evaluation and analysis of hydrological data of the water resources including the rivers within the boundary of the country. - Development of different types of hydrological models including analysis of regional hydrology for long term development and implementation of water resources. - Study of basic models which are necessary for flood forecasting. - Study of environmental imbalance survey of glaciers in Himalayan region,
Other Technical Services Section	- Construction, operation and maintenance of observation centres and instrument maintenance workshop. - Data collection, processing and management of computer. - Chemical laboratory: o Sediment analysis, o Chemical analysis of water and analysis of river pollution, o Analysis of air pollution and data collection of different environmental aspects. - Training and cooperation with WMO, SAARC countries and other countries.
Administration and Accounts Section	- Administration for staff and internal and public administration. - Preparation and use of office budget. - Auditing. - Supervision of financial administration and preservation of office property.
Regional Offices	- Establishment of observation centres, their operation and maintenance, and minor maintenance of instruments. - Data collection and primary processing. - Data collection for study of different environmental aspects. - Connection with centre.
Climatology Division	- Study, analyses and preparation of reports of different climatological aspects: o Publication of report and analyzed data, o Preparation of the special reports, which will be useful for agriculture, water resources, transportation, health, tourism and planning etc, o Classification of the country into different climatological regions. - Necessary services to agriculture: o Preparation of the climatological informations including forecasts to farmers, which are necessary for planning their long term programmes, o Alert about the bad effects of weather in agriculture. - Longterm study of climate and preparation of informations about the previous and possible changes of climate and their effects in environment.
Meteorology and Weather Forecasting Division	- Weather forecasting: o Weather forecasts and necessary information about weather to civil aviation, tourism, mountaineering and public sectors, o Periodical study of climate and information to the people about the possible bad weather. - Storm and flood warning. - Establishment of observation centres and making arrangement of information about weather from abroad.

Table 3.2 (1/5) LIST OF METEOROLOGICAL STATIONS

NO.	INDEX NO.	STATION'S NAME	TYPE OF STATION	REG.	LATI-TUDE		LONGI-TUDE		ELV. (m)	ACC.	ESTABLISHED DATE
1	101	KAKERPAKHA	PRECIPITATION	FW	29	39	80	30	842	HH	05/01
2	102	BAITADI	PRECIPITATION	FW	29	33	80	25	1,635	HH	02/01
3	103	PATAN (WEST)	CLIMATOLOGY	FW	29	28	80	32	1,266	HH	05/01
4	104	DANDELDHURA	SYNOPTIC	FW	29	18	80	35	1,865	HH	05/01
5	105	MAHENDRA NAGAR	AGROMETEOLOGY	FW	29	2	80	13	176	HH	02/01
6	106	BELAURI SANTIPUR	PRECIPITATION	FW	28	41	80	21	159	MD	02/01
7	107	DARCHULA	CLIMATOLOGY	FW	29	51	80	34	1,097	MD	02/01
8	108	SATBANJH	PRECIPITATION	FW	29	32	80	28	2,370	MD	06/01
9	201	PIPALKOT	PRECIPITATION	FW	29	37	80	52	1,456	MD	06/01
10	202	CHAINPUR (WEST)	CLIMATOLOGY	FW	29	33	81	13	1,304	MD	06/01
11	203	SILGADHI DOTI	CLIMATOLOGY	FW	29	16	80	59	1,360	HD	06/01
12	204	BAJURA	PRECIPITATION	FW	29	23	81	19	1,400	MD	01/01
13	205	KATAI	PRECIPITATION	FW	29	0	81	8	1,386	MD	12/01
14	206	ASARA GHAT	PRECIPITATION	FW	28	57	81	27	650	MD	03/01
15	207	TIKAPUR	CLIMATOLOGY	FW	28	30	80	57	140	HH	03/01
16	208	SANDEPANI	PRECIPITATION	FW	28	45	80	55	195	MD	12/01
17	209	DHANGADHI	CLIMATOLOGY	FW	28	41	80	36	170	HH	06/01
18	210	BANGGA CAMP	CLIMATOLOGY	FW	28	58	81	7	340		03/01
19	211	KHAPTAD	PRECIPITATION	FW	29	23	81	12	3,430	MD	04/01
20	212	SITAPUR	PRECIPITATION	FW	28	34	80	49	152	MD	02/01
21	214	KOLA GAUN	PRECIPITATION	FW	29	7	80	41	1,304	MD	02/01
22	215	GODAVARI (WEST)	CLIMATOLOGY	FW	28	52	80	38	288	HH	06/01
23	217	MANGALSEN	PRECIPITATION	FW	29	9	81	17	1,345	MD	01/01
24	218	DIPAYAL (DOTI)	SYNOPTIC	FW	29	15	80	57	617	HH	12/01
25	219	DHANGADHI	SYNOPTIC	FW	28	41	80	36	170		06/01
26	301	MUGU	PRECIPITATION	MW	29	45	82	33	3,803	MD	06/01
27	302	THIBRU	PRECIPITATION	MW	29	19	81	46	1,006	MD	12/01
28	303	JUMLA	SYNOPTIC	MW	29	17	82	10	2,300	1D	12/01
29	304	GUTHI CHAUR	PRECIPITATION	MW	29	17	82	19	3,080	MD	01/01
30	305	SHERI GHAT	PRECIPITATION	MW	29	8	81	36	1,210	MD	02/01
31	306	GAM SHREE NAGAR	PRECIPITATION	MW	29	33	82	9	2,133	MD	10/01
32	307	RARA	CLIMATOLOGY	MW	29	33	82	7	3,048	MD	10/01
33	308	NAGMA	PRECIPITATION	MW	29	12	81	54	1,905	MD	10/01
34	309	BIJAYAPUR (RASKOT)	PRECIPITATION	MW	29	14	81	38	1,814	MD	12/01
35	310	DIPAL GAUN	CLIMATOLOGY	MW	29	16	82	13	2,310	MD	06/01
36	311	SIMIKOT	CLIMATOLOGY	MW	29	58	81	50	2,800	MD	05/01
37	312	DUNAI	CLIMATOLOGY	MW	28	56	82	55	2,058	MD	06/01
38	313	DARMA	PRECIPITATION	MW	29	44	82	6	1,950	MD	09/01
39	401	PUSMA CAMP	CLIMATOLOGY	MW	28	53	81	15	950	MD	03/01
40	402	DAILEKH	CLIMATOLOGY	MW	28	51	81	43	1,402	MD	01/01
41	403	JAMU (TIKUWA KUNA)	PRECIPITATION	MW	28	47	81	20	260	MD	05/01
42	404	JAJARKOT	PRECIPITATION	MW	28	42	82	12	1,231	MD	12/01
43	405	CHISAPANI (KARNALI)	CLIMATOLOGY	MW	28	39	81	16	225	HH	01/01
44	406	SURKHET (BIRENDRA NAGAR)	SYNOPTIC	MW	28	36	81	37	720	HH	01/01
45	407	KUSUM	PRECIPITATION	MW	28	1	82	7	235	HH	11/01
46	408	GULARIYA	PRECIPITATION	MW	28	10	81	21	215	MD	01/01
47	409	KHAJURA (NEPALGANJ)	AGROMETEOLOGY	MW	28	6	81	34	190	HH	01/01
48	410	BALE BUDHA	PRECIPITATION	MW	28	47	81	35	610	MD	05/01
49	411	RAJAPUR	PRECIPITATION	MW	28	26	81	6	129	HH	02/01
50	412	NAUBASTA	PRECIPITATION	MW	28	16	81	43	135	MD	02/01

NOTE : ACC.(ACCESSBILITY)
HH : WITHIN HALF(0.5) HOUR WORKING DISTANCE
1D : WITHIN ONE(1) DAY HOUR WORKING DISTANCE
MD : MORE THAN ONE DAYS WORKING DISTANCE

Table 3.2 (2/5) LIST OF METEOROLOGICAL STATIONS

NO.	INDEX NO.	STATION'S NAME	TYPE OF STATION	REG.	LATI-TUDE		LONGI-TUDE		ELV. (m)	ACC.	ESTABLISHED DATE
51	413	SHYANO SHREE	PRECIPITATION	MW	28	27	81	35	302	MD	02/01
52	414	BANJAPUR	PRECIPITATION	MW	28	3	81	54	226	MD	02/01
53	415	BARGADAHA	PRECIPITATION	MW	28	26	81	21	200	MD	11/01
54	416	NEPALGUNJ (REG.OFF.)	CLIMATOLOGY	MW	28	4	81	37	144	HH	02/01
55	417	RANI JARUWA NURSERY	CLIMATOLOGY	MW	28	23	81	21	200	MD	12/01
56	418	MAINA GAUN (D.BAS)	PRECIPITATION	MW	28	59	82	17	2,000	MD	05/01
57	419	SIKTA	AGROMETEOLOGY	MW	28	2	81	47	195	HH	05/01
58	501	RUKUMKOT	PRECIPITATION	MW	28	36	82	38	1,560	MD	07/01
59	502	SHERA GAUN	PRECIPITATION	MW	28	35	82	49	2,150	MD	07/01
60	504	LIBANG GAUN	PRECIPITATION	MW	28	18	82	38	1,270	HH	07/01
61	505	BIJUWAR TAR	PRECIPITATION	MW	28	6	82	52	823	MD	08/01
62	507	NAYABASTI (DANG)	PRECIPITATION	MW	28	13	82	7	698	HH	12/01
63	508	TULSIPUR	CLIMATOLOGY	MW	28	8	82	18	725	HH	12/01
64	509	GHORAHI (MASINA)	PRECIPITATION	MW	28	3	82	30	725	HH	12/01
65	510	LOILABAS	PRECIPITATION	MW	27	42	82	32	320	HH	02/01
66	511	SALYAN BAZAR	CLIMATOLOGY	MW	28	23	82	10	1,457	HH	11/01
67	512	LUWAMJULA BAZAR	PRECIPITATION	MW	28	18	82	17	885	HH	11/01
68	513	CHAUR JHARI TAR	CLIMATOLOGY	MW	28	32	82	1	910	1D	06/01
69	514	MUSIKOT (RUKUMKOT)	CLIMATOLOGY	MW	28	38	82	29	2,100	MD	07/01
70	515	GHORAI	SYNOPTIC	MW	28	3	82	30	725		07/01
71	601	JOMSOM	CLIMATOLOGY	W	28	47	83	43	2,744	1D	07/01
72	604	THAKMARPHA	AGROMETEOLOGY	W	28	45	83	42	2,566	1D	12/01
73	605	BAGLUNG	CLIMATOLOGY	W	28	16	83	36	984	1D	05/01
74	606	TATOPANI	PRECIPITATION	W	28	29	83	39	1,243	MD	05/01
75	607	LETE	PRECIPITATION	W	28	38	83	36	2,384	MD	05/01
76	608	RANIPAUWA (M.NATH)	PRECIPITATION	W	28	49	83	53	3,609	MD	05/01
77	609	BENI BAZAR	CLIMATOLOGY	W	28	21	83	34	835	MD	02/01
78	610	GHAMI (MUSTANG)	PRECIPITATION	W	29	3	83	53	3,465	MD	11/01
79	612	MUSTANG (LOMANGTANG)	CLIMATOLOGY	W	29	11	83	58	3,705	MD	09/01
80	613	KARKI NETA	PRECIPITATION	W	28	11	83	45	1,720	MD	02/01
81	614	KUSHMA	CLIMATOLOGY	W	28	13	83	42	891	MD	05/01
82	615	BOBANG	PRECIPITATION	W	28	24	83	6	2,273	MD	12/01
83	616	GURJA KHANI	PRECIPITATION	W	28	36	83	13	2,530	MD	12/01
84	619	GHORAPANI	PRECIPITATION	W	28	24	83	44	2,742	MD	03/01
85	620	TRIBENI	PRECIPITATION	W	28	2	83	39		MD	02/01
86	621	DARBANG	PRECIPITATION	W	28	23	83	24		MD	02/01
87	622	RANGKHANI	PRECIPITATION	W	28	9	83	34		MD	01/01
88	701	RIDI BAZAR	PRECIPITATION	W	27	57	83	26	442	HH	07/01
89	702	TANSEN	CLIMATOLOGY	W	27	52	83	32	1,067	HH	07/01
90	703	BUTWAL	CLIMATOLOGY	W	27	42	83	28	205	HH	07/01
91	704	BELUWA (GIRWARI)	PRECIPITATION	W	27	41	84	3	150	HD	02/01
92	705	BHAIRHAWA AIRPORT	AERONAUTICAL	W	27	31	83	26	109	HH	09/01
93	706	DUMKAULI	AGROMETEOLOGY	W	27	41	84	13	154	HH	10/01
94	707	BHAIRHAWA (AGRIC)	AGROMETEOLOGY	W	27	32	83	28	120	HH	01/01
95	708	PARASI	PRECIPITATION	W	27	32	83	40	125	HH	05/01
96	710	DUMKIBAS	PRECIPITATION	W	27	35	83	52	164	HH	05/01
97	715	KHANCHIKOT	CLIMATOLOGY	W	27	56	83	9	1,760	HH	11/01
98	716	TAULIHAWA	CLIMATOLOGY	W	27	33	83	4	94	HH	11/01
99	721	PATTHARKOT (WEST)	PRECIPITATION	W	27	46	83	3	200	HH	03/01
100	722	MUSIKOT	PRECIPITATION	W	28	10	83	16	1,280	HH	06/01

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MD : MORE THAN ONE DAYS WORKING DISTANCE

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Table 3.2 (3/5) LIST OF METEOROLOGICAL STATIONS

NO.	INDEX NO.	STATION'S NAME	TYPE OF STATION	REG.	LATI-TUDE		LONGI-TUDE		ELV. (m)	ACC.	ESTABLISHED DATE
101	723	BHAGWANPUR	PRECIPITATION	W	27	41	82	48	80	MD	01/01
102	725	TAMGHAS	CLIMATOLOGY	W	28	4	83	15	1,530	HH	11/01
103	726	GARAKOT	PRECIPITATION	W	27	52	83	46	500	MD	11/01
104	727	LUMBINI	PRECIPITATION	W	27	28	83	17	95	HH	10/01
105	728	SIMARI	CLIMATOLOGY	W	27	32	83	45	154	MD	04/01
106	801	JAGAT (SETIBAS)	PRECIPITATION	W	28	20	84	54	1,334	MD	07/01
107	802	KHUDI BAZAR	CLIMATOLOGY	W	28	17	84	22	823	MD	07/01
108	804	POKHARA AIRPORT	AERONAUTICAL	W	28	13	84	0	827	HH	10/01
109	805	SYANGJA	CLIMATOLOGY	W	28	6	83	53	868	HH	11/01
110	806	LARKE SAMDO	PRECIPITATION	W	28	40	84	37	3,650	MD	06/01
111	807	KUNCHHA	PRECIPITATION	W	28	8	84	21	855	MD	06/01
112	808	BANDIPUR	PRECIPITATION	W	27	56	84	25	965	HH	06/01
113	809	GORKHA	AGROMETEOLOGY	W	28	0	84	37	1,097	HH	06/01
114	810	CHAPKOT	CLIMATOLOGY	W	27	53	83	49	460	MD	02/01
115	811	MALEPATAN (POKHARA)	AGROMETEOLOGY	W	28	13	83	57	856	HH	04/01
116	813	BHADAURE DEURALI	PRECIPITATION	W	28	16	83	49	1,600	MD	05/01
117	814	LUMLE	AGROMETEOLOGY	W	28	18	83	48	1,740	HD	11/01
118	815	KHAIRINI TAR	AGROMETEOLOGY	W	28	2	84	6	500	HH	03/01
119	816	CHAME	CLIMATOLOGY	W	28	33	84	14	2,680	MD	07/01
120	817	DAMAULI	PRECIPITATION	W	27	58	84	17	358	HH	01/01
121	818	LAMACHAUR	PRECIPITATION	W	28	16	83	58	1,070	HH	01/01
122	820	MANANG BHOT	PRECIPITATION	W	28	40	84	1	3,420	MD	06/01
123	821	GHANDRUK	PRECIPITATION	W	28	23	83	48	1,960	MD	05/01
124	823	GHAREDHUNGA	PRECIPITATION	W	28	12	84	37	1,120	MD	07/01
125	824	SIKLESH	PRECIPITATION	W	28	22	84	6	1,820	MD	06/01
126	826	WALLING	PRECIPITATION	W	27	59	83	46	750		11/01
127	827	RUMJAKOT	PRECIPITATION	W	27	52	84	8	660		05/01
128	902	RAMPUR	AGROMETEOLOGY	C	27	37	84	25	256	HH	01/01
129	903	JHAWANI	PRECIPITATION	C	27	36	84	32	270	HH	02/01
130	904	CHISAPANI GADHI	PRECIPITATION	C	27	33	85	8	1,706	MD	05/01
131	905	DAMAN	CLIMATOLOGY	C	27	36	85	5	2,314	HH	09/01
132	906	HETAUNDA N.F.I.	CLIMATOLOGY	C	27	25	85	3	474	HH	08/01
133	907	AMLEKHGANJ	PRECIPITATION	C	27	17	85	0	396	HH	06/01
134	909	SIMARA AIRPORT	AERONAUTICAL	C	27	10	84	59	130	HH	09/01
135	910	NUGADH	PRECIPITATION	C	27	17	85	10	244	HD	06/01
136	911	PARWANIPUR	AGROMETEOLOGY	C	27	4	84	58	115	HH	01/01
137	912	RAMOLI BAIRIYA	PRECIPITATION	C	27	1	85	23	152	HD	01/01
138	915	KARKHU GAUN	PRECIPITATION	C	27	37	85	9	1,530	HH	12/01
139	918	BIRGANJ	PRECIPITATION	C	27	0	84	52	91	HH	02/01
140	919	MAKWANPUR GADHI	PRECIPITATION	C	27	25	85	10	1,030	MD	12/01
141	920	BELUWA	PRECIPITATION	C	27	30	84	45	274	HH	12/01
142	921	KALAIYA	PRECIPITATION	C	27	2	85	0	140	MD	02/01
143	922	GAUR	CLIMATOLOGY	C	26	46	85	18	90	HH	03/01
144	1001	TIMURE	PRECIPITATION	C	28	17	85	26	1,900	MD	06/01
145	1002	ARU GHAT D. BAZAR	PRECIPITATION	C	28	3	84	49	518	MD	06/01
146	1004	NUWAKOT	CLIMATOLOGY	C	27	55	85	10	1,003	HH	05/01
147	1005	DHADING	PRECIPITATION	C	27	52	84	56	1,420	MD	05/01
148	1006	GUMTHANG	PRECIPITATION	C	27	52	85	52	2,000	MD	07/01
149	1007	KAKANI	AGROMETEOLOGY	C	27	48	85	15	2,064	HH	01/01
150	1008	NAWALPUR	PRECIPITATION	C	27	48	85	37	1,592	MD	06/01

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Table 3.2 (4/5) LIST OF METEOROLOGICAL STATIONS

NO.	INDEX NO.	STATION'S NAME	TYPE OF STATION	REG.	LATI-TUDE		LONGI-TUDE		ELV. (m)	ACC.	ESTABLISHED DATE
151	1009	CHAUTARA	PRECIPITATION	C	27	47	85	43	1,660	HH	07/01
152	1015	THANKOT	PRECIPITATION	C	27	41	85	12	1,630	HH	09/01
153	1016	SARMATHANG	CLIMATOLOGY	C	27	57	85	36	2,625	MD	11/01
154	1017	DUBACHAUR	PRECIPITATION	C	27	52	85	34	1,550	MD	11/01
155	1018	BAUNEPATI	PRECIPITATION	C	27	47	85	34	845	MD	11/01
156	1020	MANDAN	PRECIPITATION	C	27	42	85	39	1,365	MD	07/01
157	1022	GODAVARI	CLIMATOLOGY	C	27	35	85	24	1,400	HH	05/01
158	1023	DOLAL GHAT	PRECIPITATION	C	27	38	85	43	710	HH	07/01
159	1024	DHULIKHEL	CLIMATOLOGY	C	27	37	85	33	1,552	HH	06/01
160	1025	DHAP	PRECIPITATION	C	27	55	85	38	1,240	MD	12/01
161	1027	BAHRABISE	PRECIPITATION	C	27	47	85	54	1,220	HH	12/01
162	1028	PACHUWAR GHAT	PRECIPITATION	C	27	34	85	45	633	HD	01/01
163	1029	KHUMALTAR	AGROMETEOLOGY	C	27	40	85	20	1,350	HH	05/01
164	1030	KATHMANDU AIRPORT	AERONAUTICAL	C	27	42	85	22	1,336	HH	01/01
165	1035	SANKHU	PRECIPITATION	C	27	45	85	29	1,449	HH	09/01
166	1036	PANCHKHAL	AGROMETEOLOGY	C	27	41	85	38	865		11/01
167	1038	DHUNIBESI	CLIMATOLOGY	C	27	43	85	11	1,085	HH	04/01
168	1039	PANIPOKARI (KATHMANDU)	CLIMATOLOGY	C	27	44	85	21	1,335	HH	04/01
169	1043	NAGARKOT	CLIMATOLOGY	C	27	42	85	31	2,163	HH	05/01
170	1049	KHOPASI (PANAUTI)	PRECIPITATION	C	27	35	85	31	1,517	HH	06/01
171	1052	BHAKTAPUR	PRECIPITATION	C	27	44	85	25	1,330	HH	05/01
172	1054	THAMACHIT	PRECIPITATION	C	28	10	85	19	1,847	MD	11/01
173	1055	DHUNCHE	CLIMATOLOGY	C	28	6	85	18	1,982	HH	11/01
174	1057	PANSAYAKHOLA	CLIMATOLOGY	C	28	1	85	7	1,240	MD	01/01
175	1058	TARKE GHYANG	PRECIPITATION	C	28	0	85	33	2,480	MD	01/01
176	1059	CHANGU NARAYAN	PRECIPITATION	C	27	45	85	25	1,543	HH	05/01
177	1060	CHAPA GAUN	PRECIPITATION	C	27	36	85	20	1,448	HH	10/01
178	1062	SANGACHOK	CLIMATOLOGY	C	27	42	85	43	1,327	HH	05/01
179	1063	THOKARPA	PRECIPITATION	C	27	42	85	47	1,750	HD	07/01
180	1071	BUDDHANILAKANTHA	CLIMATOLOGY	C					1,360		02/01
181	1072	PAIGUTANG	CLIMATOLOGY	C	28	13	85	11	4,091		09/01
182	1101	NAGDAHA	PRECIPITATION	C	27	41	86	6	850	MD	01/01
183	1102	CHARIKOT	PRECIPITATION	C	27	40	86	3	1,940	HH	06/01
184	1103	JIRI	AGROMETEOLOGY	C	27	38	86	14	2,003	HH	08/01
185	1104	MELUNG	PRECIPITATION	C	27	31	86	3	1,536	MD	06/01
186	1106	RAMECHHAP	PRECIPITATION	C	27	19	86	5	1,395	MD	04/01
187	1107	SINDHULI GADHI	CLIMATOLOGY	C	27	17	85	58	1,463	HD	06/01
188	1108	BAHUN TILPUNG	PRECIPITATION	C	27	11	86	10	1,417	MD	05/01
189	1109	PATTHARKOT (EAST)	PRECIPITATION	C	27	5	85	40	275	HH	01/01
190	1110	TULSI	PRECIPITATION	C	27	2	85	55	457	MD	12/01
191	1111	JANAKPUR AIRPORT	CLIMATOLOGY	C	26	43	85	58	90	HH	06/01
192	1112	CHISAPANI BAZAR	PRECIPITATION	C	26	55	86	10	165	HH	07/01
193	1115	NEPALTHOK	PRECIPITATION	C	27	27	85	49	1,098	MD	04/01
194	1117	HARIHARPUR GADHI VALLEY	PRECIPITATION	C	27	20	85	30	250	MD	03/01
195	1118	MANUSMARA	CLIMATOLOGY	C	26	53	85	25	100	HH	02/01
196	1119	GAUSALA	PRECIPITATION	C	26	53	85	47	200	HH	02/01
197	1120	MALANGWA	PRECIPITATION	C	26	52	85	34	150	HH	03/01
198	1121	KARMAIYA	CLIMATOLOGY	C	27	7	85	28	131	HH	08/01
199	1122	JALESORE	CLIMATOLOGY	C	26	39	85	47		HH	03/01
200	1202	CHAURIKHARK	PRECIPITATION	E	27	42	86	43	2,619	MD	04/01

NOTE : ACC.(ACCESSBILITY)
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MD : MORE THAN ONE DAYS WORKING DISTANCE

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MAX 4,091

Table 3.2 (5/5) LIST OF METEOROLOGICAL STATIONS

NO.	INDEX NO.	STATION'S NAME	TYPE OF STATION	REG.	LATI-TUDE			LONGI-TUDE			ELV. (m)	ACC.	ESTABLISHED DATE
201	1203	PAKARNAS	PRECIPITATION	E	27	26		86	34		1,982	MD	12/01
202	1204	AISEALUKHARK	PRECIPITATION	E	27	21		86	45		2,143	MD	05/01
203	1206	OKHALDHUNGA	SYNOPTIC	E	27	19		86	30		1,720	1D	12/01
204	1207	NAME BHANJYANG	PRECIPITATION	E	27	12		86	25		1,576	MD	11/01
205	1210	KURULE GHAT	PRECIPITATION	E	27	8		86	25		497	MD	12/01
206	1211	KHOTANG BAZAR	PRECIPITATION	E	27	2		86	50		1,295	MD	05/01
207	1212	PHATEPUR	CLIMATOLOGY	E	26	44		86	51		100	HH	07/01
208	1213	UDAYAPUR GADHI	CLIMATOLOGY	E	26	56		86	31		1,175	HH	07/01
209	1215	LAHAN	CLIMATOLOGY	E	26	44		86	30		138	HH	11/01
210	1216	SIRAHA	PRECIPITATION	E	26	39		86	13		102	HH	06/01
211	1217	KHUMJUNG	PRECIPITATION	E	27	49		86	43		3,750	MD	05/01
212	1219	SALLERI	PRECIPITATION	E	27	30		86	35		2,378	MD	12/01
213	1220	CHIALSA	AGROMETEOLOGY	E	27	31		86	37		2,770	1D	05/01
214	1222	DIKTEL	PRECIPITATION	E	27	13		86	48		1,623	1D	06/01
215	1223	RAJBIRAJ	CLIMATOLOGY	E	26	33		86	45		91	HH	12/01
216	1224	SIRWA	PRECIPITATION	E	27	33		86	23		1,662	MD	05/01
217	1226	BARMAJHIYA	PRECIPITATION	E	26	36		86	54		85	HH	09/01
218	1301	NUM	PRECIPITATION	E	27	33		87	17		1,497	MD	06/01
219	1303	CHAINPUR (EAST)	CLIMATOLOGY	E	27	17		87	20		1,329	HH	07/01
220	1304	PAKHRIBVAS	AGROMETEOLOGY	E	27	3		87	17		1,680		01/01
221	1305	LEGUWA GHAT	PRECIPITATION	E	27	8		87	17		410	MD	07/01
222	1306	MUNGA	PRECIPITATION	E	27	2		87	14		1,317	MD	07/01
223	1307	DHANKUTA	SYNOPTIC	E	26	59		87	21		1,445	HH	06/01
224	1308	MUL GHAT	PRECIPITATION	E	26	56		87	20		365	HH	06/01
225	1309	TRIBENI	PRECIPITATION	E	26	56		87	9		143	MD	05/01
226	1311	DHARAN BAZAR	PRECIPITATION	E	26	49		87	17		444	HH	06/01
227	1312	HARAINCHA	PRECIPITATION	E	26	37		87	23		152	HH	04/01
228	1314	TERMATHUM	CLIMATOLOGY	E	27	8		87	33		1,633	HD	05/01
229	1316	CHATARA	PRECIPITATION	E	26	49		87	10		183	HH	06/01
230	1317	CHEPUWA	PRECIPITATION	E	27	46		87	25		2,590	MD	06/01
231	1319	BIRATNAGAR AIRPOART	AERONAUTICAL	E	26	29		87	16		72	HH	07/01
232	1320	TARAHARA	AGROMETEOLOGY	E	26	42		87	16		200	HH	07/01
233	1321	TUMLINGTAR	PRECIPITATION	E	27	17		87	13		303	1D	05/01
234	1322	MACHUWAGHAT	PRECIPITATION	E	26	58		87	10		158	MD	05/01
235	1323	DHARAN BRITISH CAMP	CLIMATOLOGY	E	26	47		87	17		400	HH	08/01
236	1324	BHOJPUR	AGROMETEOLOGY	E	27	11		87	3		1,595	1D	06/01
237	1325	DINGLA	PRECIPITATION	E	27	22		87	9		1,190	MD	05/01
238	1403	LUNGTHUNG	PRECIPITATION	E	27	33		87	47		1,780	MD	07/01
239	1404	TAPLETHOK	PRECIPITATION	E	27	29		87	47		1,383	MD	07/01
240	1405	TAPLEJUNG	SYNOPTIC	E	27	21		87	40		1,732	1D	07/01
241	1406	MEMENG JAGAT	PRECIPITATION	E	27	12		87	56		1,830	MD	07/01
242	1407	ILAM TEA ESTATE	AGROMETEOLOGY	E	26	55		87	54		1,300	HH	03/01
243	1408	DAMAK	PRECIPITATION	E	26	43		87	40		163	HH	03/01
244	1409	ANARMANI BIRTA	PRECIPITATION	E	26	38		87	59		122	HH	03/01
245	1410	HIMALI GAUN	PRECIPITATION	E	26	53		88	2		1,654	HH	02/01
246	1411	SOKTIM TEA ESTATE	CLIMATOLOGY	E	26	48		87	54		530	HH	06/01
247	1412	CHANDRA GADHI	PRECIPITATION	E	26	34		88	3		120	HH	02/01
248	1415	SANISCHARE	PRECIPITATION	E	26	41		87	58		168	HH	01/01
249	1416	KANYAM TEA ESTATE	CLIMATOLOGY	E	26	52		88	4		1,678	HH	04/01
250	1419	PHIDIM (PANCHTHER)	CLIMATOLOGY	E	27	9		87	45		1,205	HH	07/01
251	1420	DOVAN	PRECIPITATION	E	27	21		87	36		763	MD	07/01
252	1421	GAIDA (KANKAI)	CLIMATOLOGY	E	26	30		87	54		143	HH	02/01

NOTE : ACC.(ACCESSBILITY)
HH : WITHIN HALF(0.5) HOUR WORKING DISTANCE
1D : WITHIN ONE(1) DAY HOUR WORKING DISTANCE
MD : MORE THAN ONE DAYS WORKING DISTANCE

Table 3.3 (1/3) LIST OF HYDROMETRIC STATIONS

FAR WESTERN REGION

NO.	ST. NO.	NAME OF RIVER	NAME OF SITES	LATI-TUDE			LONGI-TUDE			ELV. (m)	DR.AREA (sq km)	INSTRU-MENT			START OF RECORD
1	120	CHAMELIA	KARKALE GAON	29	40	20	80	33	30		1,150				65/01/01
2	150	MAHAKALI	PANCHESHWOR	29	26	45	80	15	30			C	R		
3	169.8	SURNAGAD	GUJAR GAON	29	31	0	80	35	0		(66)	C			
4	190.5	KANDRA KHOLA	AMSARA	28	36	0	80	56	0		(313)				
5	240	KARNALI	ASARA GHAT	28	57	10	81	26	30	629	19,260	C	R	S	61/01/01
6	250	KARNALI	BENIGHAT	28	57	40	81	7	10	320	21,240	C	R		63/02/01
7	251	SETI	CHAINPUR	29	33	30	81	12	40		2,040	C			
8	255	BHDHI GANGA	KAKARSANT	29	11	0	81	13	0		1,340	C			78/04/28
9	259.2	SETI	GOPAGHAT GAON	29	18	0	80	48	30		4,420	C			
10	260	SETI	BANGA NEAR BELGAON	28	56	40	81	8	40	328	7,460	C	R	S	63/02/06
11	262	TULI GAD	KHANAYATAL	28	56	0	80	54	0	314	896	C	R		65/06/17
12	280	KARNALI	CHISAPANI	28	38	40	81	17	30	191	42,890	C	R	S	62/01/01
13	285	MOHANA	KALAKUNTA	28	27	0	81	0	30		(623)				76/04/22

MID WESTERN REGION

NO.	ST. NO.	NAME OF RIVER	NAME OF SITES	LATI-TUDE			LONGI-TUDE			ELV. (m)	DR.AREA (sq km)	INSTRU-MENT			START OF RECORD
1	205	KHARPU KHOLA	KHARPU	29	57	0	81	52	0		1,310				78/05/14
2	206	HUMLA KARNALI	BIHI CHHARA	29	38	0	81	52	0		(8,447)				79/06/17
3	208	MUGU KARNALI	SURKHET	29	37	0	81	52	0		5,300	C			79/06/13
4	209	KAWADI KHOLA	KAWADI GHAT	29	36	16	81	45	28		795				
5	210	RARA DAHA	NIZAL	29	31	0	82	4	0		1,150				65/11/08
6	215	HUMLA KARNALI	THULDADA	29	9	0	81	36	0		15,200	C			66/02/06
7	220	TILA NALA	NAGINA	29	12	0	81	55	0		1,870	C			64/03/19
8	225	SINJA KHOLA	DIWARE	29	12	0	81	55	0		824	C			64/03/17
9	230	TILA NADI	SETIGHAT	29	8	0	81	36	0		3,470	C			64/03/08
10	241	LOHARE KHOLA	TALLO DUNGESWAT	28	41	0	81	36	0		1,060	C			65/05/24
11	245	CHHAMGHAT KHOLA	GITACHAUR	28	56	0	81	41	30		(108)	C			78/03/20
12	265	THULO BHERI	RIMNA	28	42	30	82	17	30		6,720	C			72/06/18
13	267	SANO BHERI	SIMLI GHAT	28	39	30	82	21	30		2,620	C			76/08/18
14	269.5	BHERI NADI	SAMAIJI GHAR									C	PR		
15	270	BHERI	JAMU	28	45	20	81	21	0	246	12,290	C	R	S	63/01/23
16	284	SARDA KHOLA	SHYALPANI - SITA PALL	28	22	30	82	11	45		295				77/06/17
17	286	SARADA KHOLA	DARADHUNGA	28	17	58	82	1	30		816	C	R	S	72/01/01
18	287	KAURIALA KARNALI	SATTAR FARM	28	24	30	81	5	0						80/03/17
19	288	GERUWA KARNALI	KOTHIYA GHAT	28	22	30	81	12	0		(14,853)				80/03/18
20	289.5	GOHAR KHOLA	SIRCHAUR GAON	28	9	15	82	22	45			C			77/06/21
21	289.95	BABAI NADI	CHEPANG									C	R		
22	289.9	BABAI NADI	GANGATA												
23	291	BABAI NADI	BHADA												
24	327	LUNGRI LHOLA	KHUNGREE GAON	28	13	30	82	42	30		467	C			76/12/26
25	330	MARI LHOLA	NAYAGAON	28	4	20	82	48	0	536	1,980	C			64/01/01
26	333	ARUN KHOLA	DEVISTAN	28	2	0	82	45	30		136	C			68/01/01
27	339.5	JHIMRUK KHOLA	TIGRA GAON	28	3	0	82	49	40		683	C			71/05/22
28	350	RAPTI	BAGASOTI GAON	27	54	0	82	51	0	381	3,380	C	R	S	75/05/08
29	350.5	RANGSING KHOLA	TINKHANNE GAON	27	47	30	82	49	0		(92)	C			83/01/03
30	360	RAPRI	JALKUNDI	27	56	50	82	13	30	218	5,150	C	R	S	64/04/08
31	385.2	RAPTI RIVER	FARINDA												

NOTE : INSTRUMENT

C : CABLEWAY
R : RECORDING WATER LEVEL GAUGE (FLOAT-TYPE)
PR: RECORDING WATER LEVEL GAUGE (PRESSURE-TYPE)
S : SEDIMENT SAMPLER

WESTERN REGION

Table 3.3 (2/3) LIST OF HYDROMETRIC STATIONS

NO.	ST. NO.	NAME OF RIVER	NAME OF SITES	LATI-TUDE			LONGI-TUDE			ELV. (m)	DR.AREA (sq km)	INSTRU-MENT			START OF RECORD
1	387.4	DUMRE KHOLA	KALIMATI	27	47	47	83	32	9	595	90	C			80/06/18
2	387.5	MADI TINAU	CHARCHARE	27	47	29	83	33	8	570	103	C	R		80/06/17
3	387.8	JHUMSA KHOLA	DUMAHI BARI	27	45	0	83	30	46	335	99	C			85/02/15
4	390	TINAU KHOLA	BUTWAL	27	42	10	83	27	50	184	554	C			63/12/09
5	403	KALI GANDAKI	JOMSOM	28	47	30	83	45	0		(3,060)				69/06/07
6	404.6	KALI GANDAKI	KALIPUL BENI	28	21	30	83	34	30		(4,581)				71/04/05
7	404.7	MYAGDI KHOLA	MANGLA GHAT	28	21	30	83	32	0		(1,112)	C			75/05/19
8	406.5	MODI KHOLA	NAYAPUL NEAR JHAPRE BAGAR	28	13	30	83	42	15		(635)	C			75/05/25
9	409.5	SETI KHOLA	SETI BENI	28	0	40	83	37	10		(138)				76/02/22
10	410	KALI GANDAKI	SETI BENI	28	0	30	83	36	10	546	6,630	C	R	S	64/02/21
11	413.2	DANAB KHOLA										C			
12	415	ANDHI KHOLA	DUMRICHAUR ANDHIMUHAN	27	58	20	83	35	20	543	476	C			64/04/06
13	416.2	DARAM KHOLA	WAMITAKSAR	28	11	45	83	18	15		(239)	C			78/12/18
14	417	BADIGAD KHOLA	RUDRABENI GULMI	27	58	20	83	26	10		1,990	C			67/05/24
15	419.1	KALI GANDAKI	ANSIGH - ANDHI GHAT									C			89/04/13
16	428	MARDI KHOLA	LAHACHOK	28	18	30	83	55	30		160	C			70/06/07
17	430	SETI	PHOOLBARI	28	14	0	84	0	0	830	582	C			64/01/01
18	436	MADI	SHISA GHAT	28	6	0	84	14	0		858	C			73/02/08
19	439.3	KHUDI KHOLA	KHUDI BAZAR	28	17	15	84	21	45		(151)	C			81/07/04
20	439.4	DORDI KHOLA	AMOTE BAGAR - SERA BESI	28	10	45	84	27	30		(341)	C			76/02/09
21	439.7	MARSYANGDI	BIMAL NAGAR	27	57	0	84	25	48	354	(4,088)	C	R	S	87/03/31
22	440	CHEPE KHOLA	GARAM BESI	28	3	41	84	29	23	442	308	C	PR		63/11/20
23	441	DARAUNDI KHOLA	NAYASANGHU GORKHA	28	1	0	84	35	15		386	C			67/10/13
24	445	BURHI GANDAKI	ARUGHAT	28	2	37	84	48	59	485	4,270	C	R	S	63/11/28
25	445.3	ANKHU KHOLA	ANKHU BRIDGE	27	58	20	84	49	10		768	C			67/01/01

CENTRAL REGION

NO.	ST. NO.	NAME OF RIVER	NAME OF SITES	LATI-TUDE			LONGI-TUDE			ELV. (m)	DR. AREA (sq km)	INSTRU-MENT			START OF RECORD
1	420	KALI GANDAKI	KOTAGAON SHRINGE	27	45	0	84	20	50	198	11,400	C	R		64/04/15
2	446.2	LANGTANG KHOLA	SHYAPRUBESI	28	9	30	85	20	45		(540)	C			
3	446.3	TRISULI KHOLA	DHUNCHE	28	7	10	85	17	40		49	C	R		63/01/01
4	446.8	PHALANKHU KHOLA	BETRAWATI	27	58	25	85	11	15	630	162				69/04/24
5	447	TRISULI	BETRAWATI	27	58	8	85	11	0	600	4,110	C	R	S	67/04/01
6	447.4	TADI KHOLA	RAUTAR NUWAKOT	27	55	0	85	17	10		254				
7	447.9	LIKHU KHOLA	PATTAWARI NUWAKOT	27	53	30	85	14	45		(145)				
8	448	TADI KHOLA	TADIPUL BELKOT	27	51	35	85	8	18	475	653				68/06/14
9	449.9	TRISULI	MUGLING	27	51	0	84	34	30						
10	449.95	TRISULI	BHORLETAR	27	49	0	84	26	45		(14,500)	C			82/02/26
11	450	NARAYANI	NARAYAN GHAT	27	42	30	84	25	50	180	31,100	C	R	S	62/02/10
12	460	RAPTI	RAJAIYA	27	26	30	84	58	15	332	579	C			63/01/01
13	465	MANAHARI KHOLA	MANAHARI	27	33	0	84	48	10	305	427	C	R		63/06/13
14	470	LOTHAR KHOLA	LOTHAR	27	35	40	84	43	0	336	169	C			63/11/30
15	505	BAGMATI	SUNDARIJAL	27	46	30	85	25	40	1,600	17	C	R		62/12/07
16	507	NAGMATI	SUNDARIJAL	27	46	20	85	26	10	1,660	13				63/11/01
17	510	SIALMATI	SHYAMDADO	27	46	10	85	25	10	1,660	3				63/11/01
18	511	DHAKAL KHOLA	GAGALGAU	27	44	45	85	26	15						
19	525.5	MANAHARA RIVER	SHAKYU SALMUTAR												
20	530	BAGMATI	GAURI GHAT	27	42	30	85	21	0	1,300	68				64/11/15
21	536.2	BISHNUMATI KHOLA	BUDHANILKANTHA	27	46	49	85	21	32	1,454	4				68/05/27
22	548	NAKHU KHOLA	NAKHU JAIL NEAR PATAN	27	39	40	85	18	30		56				62/01/01
23	550.05	BAGMATI	KHOKANA										PR		
24	586	BAGMATI	RAI GAON												
25	589	BAGMATI	PANDHERA DOBHAN	27	6	20	85	28	30	180	2,700	C	R	S	79/01/28
26	610	BHOTE KOSI	BARABISE	27	47	10	85	53	20	840	2,410				65/02/17
27	612	SUN KOSI	BARABISE	27	46	30	85	54	30		(84)				
28	620	BALEPHI KHOLA	JALBIRE	27	48	20	85	46	10	793	629	C			63/12/25
29	625	SUN KOSI	DOLALGHAT	28	38	30	85	43	0		(1,375)	C			
30	627.5	MELAMCHI KHOLA	HELAMBU	28	2	30	85	32	0						
31	629.1	INDRAWATI	DOLAL GHAT	27	38	20	85	42	30		1,225	C			
32	630	SUN KOSI	PACHUWAR GHAT	27	33	30	85	45	10	589	4,920	C			64/03/26
33	640	ROSI KHOLA	PANAUTI	27	34	50	85	30	50	1,480	87				63/10/17
34	641	ROSI KHOLA	LOLOKHOLA												
35	647	TAMAKOSI	BUSTI	27	38	5	86	5	12	849	2,753	C	R		70/01/14
36	650	KHIMTI KHOLA	RASNALU VILLAGE	27	34	30	86	11	50	1,520	313	C			64/04/06
37	652	SUNKOSI	KHURKOT	27	20	0	86	0	0	455	10,000	C			67/07/01
38	660	LIKHU KHOLA	SANGUTAR	27	20	10	86	13	10	543	823	C			64/03/24

NOTE : INSTRUMENT

C : CABLEWAY
R : RECORDING WATER LEVEL GAUGE (FLOAT-TYPE)
PR: RECORDING WATER LEVEL GAUGE (PRESSURE-TYPE)
S : SEDIMENT SAMPLER

Table 3.3 (3/3) LIST OF HYDROMETRIC STATIONS

EASTERN REGION

NO.	ST. NO.	NAME OF RIVER	NAME OF SITES	LATI-TUDE			LONGI-TUDE			ELV. (m)	DR.AREA (sq km)	INSTRU-MENT			START OF RECORD
1	592	BAGMATI	BRAMHAPURI	26	45	30	85	20	0		(13,790)				11/01
2	598	KAMALA	CHISAPANI	26	25	15	86	10	30		(1,595)				11/01
3	599	KAMALA	INARWA	26	36	45	86	9	0						
4	600.1	ARUN	UWA GAON	27	36	0	87	20	6	1,294	26,750	C	R	S	72/05/11
5	600.05	BARUN KHOLA	SEKSILA HATIYA	27	41	0	87	21	0	1,500	352				86/12/22
6	601.8	PANGTHA KHOLA	KURLE BESI	27	24	0	87	13	30		(28)				09/01
7	601.9	PANGMA KHOLA	KURLE BESI	27	24	0	87	12	45		(38)				09/01
8	602	SABHAYA KHOLA	TUMLINGTAR	27	18	20	87	13	15		375	C	R		74/01/02
9	602.5	HINWA KHOLA	PIPLETAR	27	17	45	87	13	30		110	C			75
10	604	ARUN	LEGUWA GHAT	27	9	0	87	16	30		(4,183)				68/06/01
11	604.5	ARUN	TURKEGHAT	27	20	0	87	11	30	414	28,200	C	R		75/05/23
12	606	ARUN	SIMLE	26	55	30	87	9	30		(5,173)	Br			80
13	665	SUN KOSI	AHRKAPUR (TOKSELGHAT)	27	10	30	86	22	0		(8,736)	C			86/02/20
14	668.4	TAKTOR KHOLA	BENI	27	31	45	86	33	30	2,350	(87)	Br			76
15	668.5	SOLUA KHOLA	SALME	27	30	30	86	33	15	1,800	(324)	Br			76
16	670	DUDH KOSI	RABUWA BAZAR	27	16	0	86	39	50	460	4,100	C	R	S	64/03/10
17	680	SUN KOSHI	KAMPUGHAT	26	52	30	86	49	20	200	17,600				65/06/28
18	681	SUN KOSHI	HAMPUACHUWAR	26	55	15	87	8	45		(14,682)	C			07/01
19	684	TAMUR	MAJHITAR	27	9	30	87	42	45		(4,076)	C			82
20	688.7	NIBUWA KHOLA	DHANKUTA	26	59	0	87	23	15		(28)				09/01
21	689	TANKHUWA KHOLA	BIRETAR NEAR DHANKUTA	26	58	30	87	22	15		51				64/01/01
22	690	TAMUR	MULGHAT	26	55	50	87	19	45	276	5,640	Br	PR	S	65/03/11
23	691	TAMUR	TRIBENI	26	55	0	87	10	0		(6,146)	C			06/01
24	695	SAPTA KOSHI	CHATARA-KOTHU	26	52	0	87	9	30	140	54,100	C		S	77/01/01
25	728	MAI KHOLA	RAJDWAIL	26	52	45	87	55	45		377	C		S	83/01/01
26	730	PUWA KHOLA	SAJBOTE (ILAM)	26	55	0	87	54	40	802	107	C			65/01/18
27	738	DEO MAI KHOLA	ANGDANG	26	54	0	87	46	15		(199)	C			82
28	795	KANKAI MAI	MAINACHULI	26	41	12	87	52	44	125	1,148	C	R		71/05/01
29	799	KANKAI	KUMARKHOD - JHAPA												87/10/30

NOTE : INSTRUMENT

C : CABLEWAY
R : RECORDING WATER LEVEL GAUGE (FLOAT-TYPE)
PR: RECORDING WATER LEVEL GAUGE (PRESSURE-TYPE)
S : SEDIMENT SAMPLER

Table 3.4 PRESENT CONDITION OF DATA COLLECTION

Time from Station to Regional Office	Within One Month	Within Two Months	Within Three Months	Within Four Months	Within Five Months
1. Hydrological Data (Staff gauge)					
1) Far-Western Region	54%	63%	92%	100%	100%
2) Mid-Western Region	53%	75%	85%	91%	95%
3) Western Region	64%	84%	92%	97%	99%
4) Central Region	3%	6%	15%	39%	55%
5) Eastern Region	38%	55%	86%	93%	97%
Whole Nepal	42%	57%	74%	84%	89%
2. Meteorological Data (Ordinary raingauge)					
1) Far-Western Region	73%	90%	98%	98%	98%
2) Mid-Western Region	39%	74%	87%	92%	95%
3) Western Region	75%	81%	84%	92%]	94%
4) Central Region	16%	74%	90%	92%	92%
5) Eastern Region	31%	58%	91%	93%	93%
Whole Nepal	47%	75%	90%	93%	94%

Note: The samples are from January 1991 to October 1992.

Table 3.5 PRESENT CONDITION OF HYDROLOGICAL DATA PROCESSING

	Number of Stations Stored in Database					
	Mean Daily Water Level Data			Mean Daily Discharge Data		
Year	All Data Entered	Part of Data Entered	Total	All Data Entered	Part of Data Entered	Total
1981	61	46	107	43	10	53
1982	61	46	107	44	7	51
1983	68	39	107	48	4	52
1984	69	50	119	46	7	53
1985	99	88	187	46	10	56
1986	91	116	207	28	13	41
1987	58	135	193	13	16	29
1988	56	81	137	16	11	27
1989	50	60	110	6	9	15
1990	56	53	109	4	5	9
1991	34	66	100	2	2	4
1992	0	44	44	0	3	3

Note: The figures are obtained in November 1992.

Table 3.6 NUMBER OF STAFF IN CENTRAL OFFICE

Year: 1991

	Position	Level	Others	Forecasting Division	Climatological Division	Hydrological Division	Other Technical Services	Snow & Glacier	Total
1	Director General	TGI	1	0	0	0	0	0	1
2	Chief Forecaster	TGI	0	1	0	0	0	0	1
3	Chief Meteorologist	TGI	0	0	1	0	0	0	1
4	Chief Hydrologist	TGI	0	0	0	2	0	0	2
5	Senior Meteorologist	TGII	0	1	2	0	1	0	4
6	Senior Hydrologist	TGII	0	0	0	2	0	1*	3
7	Senior Electrical Engineer	TGII	0	0 (1)	0	0	0	0	0 (1)
8	Divisional Hydrologist	TGII	0	0 (1)	0	1 (4)	0	1	2 (6)
9	Divisional Meteorologist	TGII	0	5	0	0	1	0	6
10	Divisional Chemist	TGII	0	0	0	0	1	0	1
11	Divisional Electrical Engineer	TGII	0	0 (2)	0	0	0	0	0 (2)
12	Meteorologist	TGIII	0	3 (9)	3 (6)	0	1 (2)	1	8 (18)
13	Hydrologist	TGIII	0	0	0	1 (6)	1 (2)	1	3 (9)
14	Electrical Engineer	TGIII	0	1	0	0	0	0	1
15	Chemist	TGIII	0	0	0	0	2	0	2
16	Statistician	TGIII	0	0	0	0	1	0	1
17	Senior Hydro-Meteorological Assistant	TNGI	0	21 (24)	0	0	3	8	32 (35)
18	Senior Meteorological Assistant	TNGI	0	0	9 (14)	0	0	0	9 (14)
19	Senior Hydrological Assistant	TNGI	0	0	0	11 (12)	0	0	11 (12)
20	Data Supervisor	TNGI	0	0	0	0	1	0	1
21	Overseer	TNGI	0	0	0	0	2	0	2
22	Draftman	TNGI	0	0	0	0	2	0	2
23	Junior Hydro-Meteorological Assistant	TNGII	0	7 (8)	0	0	5	0	12 (13)
24	Administration ClerK	TNGII	0	0 (1)	0	0	0	0	0 (1)
25	Lab. Technician	TNGII	0	0	0	0	2	0	2
26	Assist Data Pancher	TNGII	0	0	0	0	1 (2)	0	1 (2)
27	Assistant	TNGIII	0	1	0	0	0	0	1
28	Field Assistant	TNGIII	0	0	0	0	0	4 (6)	4 (6)
29	Instrument Mechanist	TNGIII	0	0	0	0	5	0	5
30	Junior Assistant	TNGIII	0	0	0	0	2	0	2
31	Junior Data Pancher	TNGIII	0	0	0	0	2	0	2
	(Technician) ACTUAL		1	40	15	17	33	16	122
	SUB-TOTAL CAPACITY		1	55	23	26	36	18	159
32	Divisional Administration Officer	AGII	1	0	0	0	0	0	0
33	Administration Officer	AGIII	1	0	0	0	0	0	0
34	Accountant	AGIII	1	0	0	0	0	0	0
35	Senior Assistant Accountant	ANGI	4	0	0	0	0	0	0
36	Store Assistant	ANGI	1	0	0	0	0	0	0
37	Junior Accountant	ANGI	2	0	0	0	0	0	0
38	Typist	ANGI	3	0	0	0	0	0	0
39	Administration Assistant	ANGII	1 (2)	0	0	0	0	0	0
40	Store Assistant	ANGII	1	0	0	0	0	0	0
41	Assistant Accountant	ANGII	1	0	0	0	0	0	0
42	Administration Assistant	ANGIII	2	0	0	0	0	0	0
43	Peon/Chawkidar/Kuchikar	-	16	7	0	0	0	0	0
	TOTAL ACTUAL		35	47	15	17	33	16	163
	CAPACITY		36	62	23	26	36	18	201

Level;
T: Technical
A: Administrative
G: Gazetted
NG: Non Gazetted

Table 3.7 NUMBER OF STAFF IN REGIONAL OFFICE

YEAR : 1991

REGION			FAR-WESTERN					MID-WESTERN				WESTERN			CENTRAL		EASTERN				
POST		Level	Regional Office	SYNOPTIC STATION			Hydro Station	Regional Office	SYNOPTIC STATION			Regional Office	SYNOPTIC STATION		Regional Office	Synoptic Station (Simara)	Regional Office	SYNOPTIC STATION			Total
				Dipayal	Dadeldhura	Dhangadhi			Surkhet	Jumla	Dang		Pokhara	Bhairahawa				Dhankuta	Okhaldhunga	Taplejung	Biratnagar	
1 Senior Hydrologist		TG2	0	0	0	0	0	1*	0	0	0	1*	0	0	0	0	1*	0	0	0	0	3
2 Senior Meteorologist		TG2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
3 Hydrologist		TG3	1(2)	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	5(6)
4 Meteorologist		TG3	0(1)	0	0	0	0	0(1)	0	0	0	1	0	0	1	0	1	0	0	0	0	3(5)
5 Senior Hydro-meteorological Assistant		TNG1	3(4)	1	1	1	1	2	1	1	1	3	1	1	3	1	5(6)	1	1	0(1)	1	29(32)
6 Silt Analyst		TNG1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	3
7 Junior Hydro. Meteo. Assistant		TNG2	3(1)	1	0(1)	1	2(3)	1(4)	1	1(3)	1(3)	4(7)	0(1)	1	5	0(1)	3(8)	1	1(2)	1	1	28(51)
8 Field Assistant		TNG3	2	1	1	1	1	3	1	1	1	3	1	1	2	1	2(3)	1	1	1	1	26(21)
9 Lab. Boy		TNG4	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	3
(Technician)	ACTUAL		10	3	2	3	4	10	3	3	3	15	2	3	13	2	15	3	3	2	3	102
SUB TOTAL	CAPACITY		16	3	3	3	5	14	3	5	5	18	3	3	13	3	22	3	4	3	3	132
1 Driver		-	0(1)	0	0	0	0	1	0	0	0	1	0	0	0	0	1	0	0	0	0	3(4)
2 Senior Administration Assistant		ANG1	1	0	0	0	0	1	0	0	0	1	0	0	1	0	0(1)	0	0	0	0	4(5)
3 Senior Store Assistant		ANG1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4 Accountant		ANG1	1	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	5
5 Administration Assistant		ANG2	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	3
6 Assistant Accountant		ANG2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
7 Store Assistant		ANG2	0(1)	0	0	0	0	0(1)	0	0	0	0(1)	0	0	1	0	2	0	0	0	0	3(6)
8 Typist		ANG3	1(2)	0	0	0	0	0(1)	0	0	0	0(1)	0	0	0(1)	0	0(1)	0	0	0	0	1(6)
9 Peon		-	5	0	0	0	2	0(1)	0	0	0	1	0	0	1	0	1	0	0	0	0	10(11)
10 Chowkidar		-	1	1	1	1	2	2	1	1	1	2	1	1	2	1	1(3)	1	1	1	1	23(25)
TOTAL	ACTUAL		19	4	3	4	8	16	4	4	4	22	3	4	21	3	22	4	4	3	4	156
	CAPACITY		28	4	4	4	9	23	4	6	6	27	4	4	22	4	33	4	5	4	4	199
German Development Worker			0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	4

NOTE: ( ) : Number of capacity
* : Act for

Level: T: Technician
G: Gazetted
NG: Non Gazetted

Table 3.8 BUDGET EXPENDITURES OF MOWR, DHM, DOI, NEA AND WECS

Unit: Thousand NRs.

Items	Historical Budget Expenditures						Average Annual Growth Rate (%)					
	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1987/88-1988/89	1988/89-1989/90	1989/90-1990/91	1990/91-1991/92	1991/92-1992/93	1987/88-1992/93
MOWR												
Regular	1,243	1,498	2,071	1,773	2,377	5,263	20.5	38.3	(14.4)	34.1	121.4	40.0
Development	-	-	-	-	-	-	-	-	-	-	-	-
Total	1,243	1,498	2,071	1,773	2,377	5,263	20.5	38.3	(14.4)	34.1	121.4	40.0
DHM												
Regular	-	1,234	2,035	1,965	3,794	6,304	-	64.9	(3.4)	93.1	66.2	55.2
Development	-	18,536	12,265	16,723	18,023	20,680	-	(33.8)	36.3	7.8	14.7	6.3
Total	-	19,770	14,300	18,688	21,817		-	(27.7)	30.7	16.7	23.7	10.9
DOI												
Regular	9,444	9,180	12,699	4,586	9,145	12,032	(2.8)	38.3	(63.9)	99.4	31.6	20.5
Development	892,224	1,740,653	1,351,633	1,111,294	1,561,622	2,054,320	95.1	(22.3)	(17.8)	40.5	31.6	25.4
Total	901,668	1,749,833	1,364,332	1,115,880	1,570,767	2,066,352	94.1	(22.0)	(18.2)	40.8	31.6	25.2
NEA												
Regular	-	-	-	-	-	-	-	-	-	-	-	-
Development	1,678,292	1,385,090	1,124,882	1,316,537	1,915,166	2,715,821	(17.5)	(18.8)	17.0	45.5	41.8	13.6
Total	1,678,292	1,385,090	1,124,882	1,316,537	1,915,166	2,715,821	(17.5)	(18.8)	17.0	45.5	41.8	13.6
WECS												
Regular	-	-	-	-	-	2,382	-	-	-	-	-	-
Development	3,130	3,309	2,909	2,762	3,650	3,518	5.7	(12.1)	(5.1)	32.2	(3.6)	3.4
Total	3,130	3,309	2,909	2,762	3,650	5,900	5.7	(12.1)	(5.1)	32.2	-	-

Source: Income/Expenditure of Government, 1987/88, 1988/89, 1989/90, 1990/91, 1991/92 and 1992/93, Ministry of Finance.

Note 1: Figures in ( ) indicate negative.
Note 2: MOWR: Ministry of Water Resources.
DHM : Department of Hydrology and Meteorology.
DOI : Department of Irrigation.
NEA : Nepal Electricity Authority.
WECS: Water and Energy Commision Secretariat.

Table 3.9 DEVELOPMENT BUDGET EXPENDITURE BY DIVISION AND REGION IN THE DHM

Unit: Thousand NRs.

Division or Region	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	Average Annual Growth Rate (%) 1987/88-1988/89	1988/89-1989/90	1989/90-1990/91	1990/91-1991/92	1991/92-1992/93	1987/88-1992/93
DIVISIONS												
1. Director General & Secretariat	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2. Hydrology Division	7,822	8,998	7,258	7,057	7,905	7,663	15.0	(19.3)	(2.8)	12.0	(3.1)	0.4
3. Administration & Account Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4. Technical Service Division	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
5. Climatology Division & Meteorology and Weather Forecasting Division	3,169	2,850	2,407	1,481	1,442	1,476	(10.1)	(15.5)	(38.5)	(2.6)	2.4	(12.9)
6. Sub-Total (1)	10,991	11,848	9,665	8,538	9,347	9,139	7.8	(18.4)	(11.7)	9.5	(2.2)	(3.0)
REGIONS												
7. Eastern Region	1,580	2,030	1,903	2,070	1,704	2,410	28.5	(6.3)	8.8	(17.7)	41.4	11.0
8. Central Region	3,573	3,441	3,051	2,721	2,988	2,426	(3.7)	(11.3)	(10.8)	9.8	(18.8)	(7.0)
9. Western Region	1,318	1,742	1,623	1,459	1,996	1,926	32.2	(6.8)	(10.1)	36.8	(3.5)	9.7
10. Mid-Western Region	1,353	2,416	1,655	1,898	2,031	2,033	78.6	(31.5)	14.7	7.0	0.1	13.8
11. Far-Western Region	1,662	1,772	1,604	1,640	2,221	2,746	6.6	(9.5)	2.2	35.4	23.6	11.7
12. Sub-Total (2)	9,486	11,401	9,836	9,788	10,940	11,541	20.2	(13.7)	(0.5)	11.8	5.5	4.6
Grand Total	20,477	23,249	19,501	18,326	20,287	20,680	13.5	(16.1)	(6.0)	10.7	1.9	0.8

Source: Budget Expenditure Data of the Department of Hydrology and Meteorology.

Note: Figures in ( ) indicate negative.

Table 3.10 ESTIMATED BUDGET EXPENDITURE OF MOWR, DHM, DOI, NEA AND WECS, 1995/96 - 2010/11

Unit: Thousand NRs.

Items	1995/96	2000/01	2005/06	2010/11
MWR				
Regular	7,797	15,013	25,298	42,629
Development	-	-	-	-
Total	7,797	15,013	25,298	42,629
DHM				
Regular	10,358	23,696	47,661	95,863
Development	33,978	77,733	156,349	314,474
Total	44,336	101,429	204,010	410,337
DOI				
Regular	22,940	67,253	174,437	452,444
Development	3,916,816	11,482,635	29,782,999	77,249,429
Total	3,939,756	11,549,888	29,957,436	77,701,873
NEA				
Regular	-	-	-	-
Development	7,613,046	42,428,145	212,348,636	1,062,783,755
Total	7,613,046	42,428,145	212,348,636	1,062,783,755
WECS				
Regular	3,529	6,795	11,450	19,293
Development	5,212	10,035	16,910	28,495
Total	8,741	16,830	28,360	47,788

Table 3.11 ESTIMATED DEVELOPMENT BUDGET EXPENDITURE BY DIVISION AND REGION IN THE DHM, 1995/96-2010/11

Unit: Thousand NRs.

	Division or Region	1995/96	2000/01	2005/06	2010/11
	DIVISIONS				
1.	Director General & Secretariat	NA	NA	NA	NA
2.	Hydrology Division	12,591	28,804	57,935	116,529
3.	Administration & Account Division	NA	NA	NA	NA
4.	Technical Service Division	NA	NA	NA	NA
5.	Climatology Division & Meteorology and Weather Forecasting Division	2,425	5,548	11,159	22,445
6.	Sub-Total (1)	15,016	34,352	69,095	138,974
	REGIONS				
7.	Eastern Region	3,960	9,059	18,221	36,648
8.	Central Region	3,986	9,119	18,342	36,891
9.	Western Region	3,164	7,240	14,561	29,288
10.	Mid-Western Region	3,340	7,642	15,370	30,915
11.	Far-Western Region	4,512	10,322	20,761	41,758
12.	Sub-Total (2)	18,962	43,381	87,255	175,500
	Grand Total	33,978	77,733	156,349	314,474

Table 5.1 RIVER BASINS ORIGINATING FROM HIMALAYA MOUNTAINS

	(1) Annual Rainfall Distribution (mm)	(2) Basin Elevation within Nepal (m)	(3) Access in Basin	(4) Access from Kathmandu to Basin	(5) Existing Gauges		(6) Future Development Plans	(7) Percentage of Basin Area within Nepal (%)	(8) Existing River Structures/ Projects	(9) Basin Area (km^2)
					Rainfall	Water Level				
Mahakali River System Mahakali River	1,000~2,000	120~6,000	Tracks,	Road (dry season) by Air (non-regular)	8 (1)	3 (1)		34		15,670
Karnali River System Humla Karnali River	500~1,000	1,500~6,000	Tracks,	by Air (non-regular)	2 (0)	2 (0)		61		9,090
Mugu Karnali River	250~1,000	1,500~6,000	Tracks,	-	3 (0)	1 (0)		100		6,170
Sinja River	1,000~1,500	1,000~5,000	Tracks,	by Air (non-regular)	4 (1)	3 (0)	Jabitan P/S, Rami P/S, Samla P/S, Poliparni P/S	100		3,260
Seti River	1,000~2,500	500~6,000	Tracks,	by Air (non-regular)	7 (0)	4 (4)	West Seti P/S	100		7,120
Bheri River	250~2,000	300~5,000	Tracks,	by Air (non-regular)	8 (0)	3 (1)	Thapna P/S, Surkhet P/S, Lakarpata P/S,	100		13,900
Narayani/Gandaki River System Trisuli River	1,000~3,000	500~6,000	Tracks, Road	Road by Air (non-regular)	8 (0)	7 (1)		57	Trisuli P/S, Devighat P/S,	6,360
Budhi Gandaki River	1,000~3,000	400~6,000	Tracks,	Road	4 (0)	2 (1)	Budhi Gandaki P/S	73		4,970
Marsyangdi River	250~3,000	300~6,000	Tracks,	Road by Air (non-regular)	4 (0)	5 (1)	Bhomichok P/S	100	Marsyangdi P/S	4,830
Seti Gandaki River	1,500 ~5,000	250~6,000	Tracks, Road	Road by Air	8 (1)	3 (0)	Seti Gandaki P/S	100	Phewa P/S, Begnas Irrigation	2,850
Kali Gandaki River	250~5,000	500~6,000	Tracks, Road	Road by Air	21 (1)	7 (1)	Kali Gandaki A P/S Adhi Khola No. 1 P/S	100	Adhi Khola P.S	7,200
Sun Koshi/Sapta Koshi River System Bhote Koshi River	1,000~4,000	900~6,000	Tracks, Road	Road	16 (0)	7 (1)	Bhote Kosi No. 1 & 2 P/S Sunkosi No. 3 P/S	62	Panauli P/S, Sunkosi P/S	5,180
Tama Koshi River	1,000~2,500	900~6,000	Tracks, Road	Road by Air (non-regular)	3 (0)	2 (1)	Tama Kosi No. 2 & 3 P/S, Kimti Khola P/S	68		4,000
Dudh Koshi River	1,000~2,500	500~7,000	Tracks,	by Air (non-regular)	10 (1)	3 (1)	Dudh Kosi No. 1 P/S	100		4,040
Arun River	1,000~4,000	120~6,000	Tracks,	by Air (non-regular) Road	7 (0)	9 (3)	Arun No. 1, 2 & 3 P/S, Upper Arun P/S.	15		35,050
Tamar River	1,000~3,000	120~6,000	Tracks,	by Air (non-regular) Road	12 (2)	5 (2)	Mulghat P/S, Tamur No. 1P/S	100		6,140

( ) Automatic

Table 5.2 RIVER BASINS ORIGINATING FROM MAHABHARAT MOUNTAINS OR SIWALIK ZONE

	(1) Annual Rainfall Distribution (mm)	(2) Basin Elevation within Nepal (m)	(3) Access in Basin	(4) Access from Kathmandu to Basin	(5) Existing Gauges		(6) Future Development Plans	(7) Percentage of Basin Area within Nepal (%)	(8) Existing River Structures/ Projects	(9) Basin Area (km^2)
					Rainfall	Water Level				
Southern Border River Group No. 1	2,000	120~1,500	Tracks, Road	Road (dry season) by Air	8 (1)	3 (0)	Pancheshwar P/S, Poomagiri P/S	100		3,820
Babai River System	1,500	150~2,000	Tracks, Road	Road (dry season) by Air (non-regular)	8 (0)	4 (1)	Sarda P/S	100		3,260
Southern Border River Group No. 2	1,500	150~800	Tracks, Road	Road by Air	3 (1)	0		100		950
West Rapti River System	1,500~2,000	150~2,000	Tracks, Road	Road by Air	9 (1)	8 (2)	West Rapti P/S, Jhimruk P/S, Naumuri P/S, Siling P/S	100		6,230
Southern Border River Group No. 3	1,500~2,000	90~1,000	Tracks, Road	Road by Air	9 (1)	4 (1)		100		4,860
Narayani/Gandaki River System, Rapti River	1,500~2,000	150~2,000	Tracks, Road	Road by Air	6 (0)	3 (2)		100		3,000
Southern Border River Group No. 4	1,000~2,000	70~2,000	Tracks, Road	Road by Air	5 (1)	0		100		3,510
Bagmati River System	1,000~2,500	70~2,000	Tracks, Road	Road	25 (1)	10 (2)	Bagmati P/S, Kulekhani No. 3 P/S	100	Bagmati Irr. Kulekhani No. 1&2 P/S	3,690
Southern Border River Group No. 5	1,000~2,000	60~500	Tracks, Road	Road by Air	7 (0)	0	Sunkosi-Kamala diversion	100		3,020
Kamala River System	1,500~2,000	70~1,500	Tracks,	Road	3 (0)	2 (0)	Kamala P/S	100		1,790
Southern Border River Group No. 6	1,500	80~2,000	Tracks, Road	Road by Air	3 (0)	0	Sunkosi-Kamala diversion	100		1,900
Southern Border River Group No. 7	1,500~2,000	60~1,000	Tracks, Road	Road by Air	8 (1)	0	Sapta Kosi East Irr. Bakra Irr.	100		3,470
Kankai River System	1,500~3,000	80~2,500	Tracks, Road	Road	5 (0)	5 (2)	Kankai P/S, Maikhola Loop P/S	100	Kankai Irr.	1,320
Southern Border River Group No. 8	2,000~3,000	60~1,000	Tracks, Road	Road by Air	5 (0)	0		100		1,320

( ) Automatic

Table 5.3 SCORE TABLE FOR FIRST SCREENING

For river basins originating from Himalaya Mountains

River Basin	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Total
Mahakali River	0	2	0	0	2	0	0	2	0	6
Humla Karnali River	0	1	0	0	2	0	0	2	0	5
Mugu Karnali River	0	1	0	0	2	0	2	2	0	7
Sinja River	0	1	0	0	2	2	2	2	1	10
Seti River	0	2	0	0	2	1	2	2	0	9
Bheri River	0	1	0	0	2	2	2	2	0	9
Trisuli River	1	2	2	1	2	0	0	0	0	8
Budhi Gandaki River	1	2	0	1	2	1	0	2	1	10
Marsyangdi River	1	2	0	1	2	1	2	1	1	11
Seti Gandaki River	2	2	2	2	1	1	2	0	2	14
Kali Gandaki River	2	2	2	2	1	2	2	1	0	14
Bhote Koshi River	2	2	2	1	1	2	0	0	0	10
Tama Koshi River	0	2	2	1	2	2	0	2	1	12
Dudh Koshi River	0	2	0	0	2	1	2	2	1	10
Arun River	2	2	0	1	2	2	0	2	0	11
Tamar River	1	2	0	1	2	2	2	2	0	12

Criteria

	Score = 2	Score = 1	Score = 0
(1)	Deviation > 3,000 mm	Deviation > 2,000 mm	Deviation < 2,000 mm
(2)	Deviation > 5,000 m	Deviation > 3,000 m	Deviation < 3,000 m
(3)	Tracks, Road	-	Tracks
(4)	Road, by Air	Road, by Air (non-regular)	Others
(5)	1 raingauge >400 km^2	1 raingauge > 300 km^2	1 raingauge < 300 km^2
(6)	More than 2 projects	1 project	no project
(7)	100%	-	Others
(8)	no project	1 project	more than 2 projects
(9)	Area < 3,000 km^2	3,000 < Area < 5,000	Area > 5,000 Km^2

For river basins originating from Mahabharat Mountains or Siwalik Zone

River Basin	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	Total
Southern Border River Group No. 1	0	1	2	0	2	2	2	2	1	12
Babai River	0	1	2	0	2	1	2	2	1	11
Southern Border River Group No. 2	0	0	2	2	1	0	2	2	2	11
West Rapti River	1	1	2	2	2	2	2	2	0	14
Southern Border River Group No. 3	1	0	2	2	2	0	2	2	1	12
Rapti River (Narayani)	1	1	2	2	2	0	2	2	2	14
Southern Border River Group No. 4	2	1	2	2	2	0	2	2	1	14
Bagmati River	2	1	2	1	0	2	2	0	1	11
Southern Border River Group No. 5	2	0	2	2	2	1	2	2	1	14
Kamala River	1	1	0	1	2	1	2	2	2	12
Southern Border River Group No. 6	0	1	2	2	2	1	2	2	2	14
Southern Border River Group No. 7	1	0	2	2	2	2	2	2	1	14
Kankai River	2	2	2	1	0	2	2	1	2	14
Southern Border River Group No. 8	2	0	2	2	0	0	2	2	2	12

Criteria

	Score = 2	Score = 1	Score = 0
(1)	Deviation > 1,000 mm	Deviation > 500 mm	Deviation < 500 mm
(2)	Deviation > 2,000 m	Deviation > 1,000 m	Deviation < 1,000 m
(3)	Tracks, Road	-	Tracks
(4)	Road, by Air	Road, by Air (non-regular)	Others
(5)	1 raingauge > 400 km^2	1 raingauge > 300 km^2	1 raingauge < 300 km^2
(6)	More than 2 projects	1 project	no project
(7)	100%	-	others
(8)	no project	1 project	More than 2 projects
(9)	Area < 3,000 km^2	3,000 < Area < 5,000	Area > 5,000 Km^2

Table 5.4 INSTRUMENTS OF MODEL OBSERVATION SYSTEM (1/3)

	Instrument & Specification	Manufacture	Amount (or No.)		
			Western	Central	Total
(1)	C31 Universal Current Meter				
1.	Universal Current Meter C31 with carrying case	A.OTT (Germany)	No. 111040 No. 111041	No. 111039	3
2.	Propeller No. 1 125 mm dia. 0.25 m pitch brass	A.OTT	No. 1-113458 No. 1-113459 No. 1-113460	No. 1-113457	4
3.	Propeller No. 3 125 mm dia. 1.0 m pitch brass	A.OTT	No. 3-113319 No. 3-113320 (Damaged) No. 3-113321		2
4.	Counter Set Z 215	A.OTT	2	1	3
5.	Rod 3 m in sections with screw driver	A.OTT	2	1	3
6.	Stabilizer tail piece	A.OTT	2	1	3
7.	Weight balance long, 84 cm long	A.OTT	2	1	3
8.	Weight balance short, 50 cm long	A.OTT	2	1	3
9.	Intermediate piece	A.OTT	2	1	3
10.	Cable 111/200, 2.5 m long (between winch and Z215 counter)	A.OTT	2	2	4
11.	Cable 11/110, 2.5 m long (between current meter on rod and Z215 counter)	A.OTT	2	1	3
12.	Cable D5 Galvanized 111/454 170 m long (for spare use)	A.OTT	2	-	2
13.	Battery for counter set Z215	A.OTT	96	40	136
14.	Tools for current meter	A.OTT	2	1	3
15.	Spare weights & cap for weight balance	A.OTT	2	1	3
16.	Middle piece 100 kg (weight) with carrying case	A.OTT	2		2
17.	Middle piece 50 kg (weight) with carrying case	A.OTT		1	1
(2)	Mechanical cable way installation SK50-01				
1.	Double drum winch 100 kg with D5 Galvanized cable 111/154 170m - Mechanical operation - Operation side : Right hand - Vertical cable out let	A.OTT	No. 114052 (Tatopani) No. 114053 (Kalleri)	No. 114051 (Chyuntaha)	3
2.	Pulley block with bolts	A.OTT (Germany)	2	1	3
3.	Guide pulley with cover and bolts	A.OTT	2	1	3
4.	Angle bracket with bolts	A.OTT	2	1	3
5.	Trolley	A.OTT	2	1	3
6.	Tightner dia 32 mm for track cabel	A.OTT	2	1	3
7.	Tightner dia 12 mm for tow cable	A.OTT	2	1	3
8.	Schackel dia 32 m for track cable	A.OTT	2	1	3
9.	Schackel dia 12 m for track cable	A.OTT	2	1	3
(3)	Pricew Current meter				
1.	Price Current meter Model 0622-G - Model 622 Currentmeter - Parts for suspension cable - Tailpiece, Lead weight 15 lbp weight with hanger and pin - Parts for wading rod Wading rod 24 inch long 3 pcs Wading rod 18 inch long 1 pc Wading rod base, spring crip etc.	Teledyne Gurley (USA)	AY 4334		1
2.	1100 digital indicator	Teledyne Gurley	1		1
3.	Connection cable (between indicator and sounding reel)	Teledyne	1		1
4.	Steel cable with copper conductor 50 m long with weight hanger pin (100 lbp) and connector	Teledyne	2		2

Table 5.4 INSTRUMENTS OF MODEL OBSERVATION SYSTEM (2/3)

	Instrument & Specification	Manufacture	Amount (or No.)		
			Western	Central	Total
	5. Lead weight 100 lbp	Teledyne	1		1
	6. Battery 9V for 1100 digital indicator	Teledyne	6		6
	7. Pivot for Model 622	Teledyne	3		3
	8. Pygmy Price current meter Model 625 F	Teledyne		AY5010	1
	- Model 625 pygmy current meter	Gurley			
	- Parts for wading rod	(USA)			
	wading rod 24 inch long 3 pcs				
	wading rod 18 inch long 1 pc				
	wading rod base, spring crip				
	- Headphone				
	9. Battery 1.5 V for head phone of Model 625			6	
	10. Pivot for Model 625			3	
(4)	Pressure-type water level Recorder				
	1. Horizontal water level Recorder	SEBA	No. 2188		2
	Xi-S, Scale = 1:50	(Germany)	(Tatopani)		
			No. 2187		
			(Setibeni)		
	2. Pressure type sensor Type DS with connection	SEBA	No. 1177		3
	cable		(Tatopani)		
	Range : 0 to 10 m		No. 1169		
			(Kalleri)		
			No. 1198		
			(Setibeni)		
	3. Data logger MDS II connection with sensor	SEBA	No. E01185		1
	64 kbyte memory		(Kalleri)		
	4. Outer solid case for Data logger	SEBA	1		1
	5. Battery 1.5 V for water level Recorder Xi-S	SEBA	50		50
	6. Recording chart 32 days for recorder Xi-S	SEBA	50		50
	7. Recording chart 8 days for recorder Xi-S	SEBA	150		150
	8. Fiber pen for recorder Xi-S	SEBA	40		40
	9. Clock for recorder Xi-S	SEBA	1		1
(5)	Float type water level Recorder				
	1. Water level recorder Type-F	Stevens		Ser. 138176	1
	- Quartz Multi speed Timer	(USA)		-91 A	
	- float pulley 375 m dia			(Chyuntaha)	
	- counter weight 283 grms.			(Chyuntaha)	
	- Stainless float 203 mm dia.				
	- Stainless steel beaded float line				
	- Scale 1:5				
	2. Float dia. 203 mm	Stevens		1	1
		(USA)			
	3. Quartz Multi Speed Timer	Stevens		1	1
	4. Flaot Pulley dia 375mm	Stevens		1	1
	5. Float line 6 m with clip	Stevens		1	1
	6. Float weight 283 grm	Stevens		1	1
	7. Float pulley washer & Nut (# 30971)	Stevens		1	1
	8. Gears "F" Gage Scale Metric 1:1 (# 30470)	Stevens		1	1
	9. Gears "F" Gage Scale Metric 1:2	Stevens		1	1
	(# 30471)				
	10. Spring chart holder	Stevens		2	2
	11. Bearing ball 22 mm x 7 mm iD x 7 mm	Stevens		1	1
	(# 20518)				
	12. Bearing ball 3/4 oD x 1/4 iD x 9/32	Stevens		1	1
	(# 20505)				
	13. Cartridge pen for F-type Recorder	Stevens		16	16
	14. Battery for F-type Recorder	Stevens		24	24
	15. Recording chart 8 days for F-type Recorder	Stevens		54 x 3	162

Table 5.4 INSTRUMENTS OF MODEL OBSERVATION SYSTEM (3/3)

	Instrument & Specification	Manufacture	Amount (or No.)		
			Western	Central	Total
(6)	Tipping bucket-type recording raingauge				
1.	Tipping bucket-type raingauge type RG-50	SEBA (Germany)	RG 50.085 (Pamdur)		1
2.	Data logger MDS II for raingauge 56 K byte memory	SEBA	No. E00330		1
3.	Outer solid case for data logger	SEBA	1		1
(7)	Weighing-type recording raingauge				
1.	Weighing-type recording rainguage No. 720 Universal type - 0-300mm dual traveres - 192 hrs spring powered clock	Belfort (USA)	No. 92926 (Yaragau) No. 92924 (Samargau) No. 92925 (Dhakarjung) No. 92930 (Bega) No. 92932 (Kuhun) No. 92931 (Muna) No. 92927 (Beghara) No. 92933 (Sirkon) No. 92928 (Doban) No. 92929 (Sallyan) No. 92934 (Tisedi)	No. 92936 (Chyuntaha) No. 92935 (Kolbhi)	13
2.	192 hrs spring powered clock for Raingauge	Belfort	6		6
3.	Fiber pen Raingauge	Belfort	219	40	259
4.	Bucket for Raingauge	Belfort	6		6
5.	Recording chart 8 days, 300 m for Raingauge	Belfort	930	100	1030
(8)	Data transfer device for Data logger MDS II				
1.	Handterminal HT-100 with Battery charge adapter	SEBA (Germany)	2		2
2.	Interface cable between Data logger MDS II and HT-100	SEBA	4		4
3.	Interface cable between PC and HT-100	SEBA	2		2
4.	Pin connector (25 pin to 9 pin)	SEBA	1		1
5.	Memory card for HT-100 64 K byte Memory	SEBA	8		8
6.	Batery for Data logger MDS II	SEBA	13		13
(9)	Software for Data logger MDS II				
1.	Readout Software READHT data transmition from HT 100 to PC	SEBA (Germany)	1		1
2.	Readout and operation software TTERM data transmition from MDS II to PC	SEBA	1		1
3.	Listing software LIMDS	SEBA	1		1
4.	Graphic software PLMDS	SEBA	1		1
5.	Processing software for Precipitation listing REMDS	SEBA	1		1
6.	Processing software for Precipitation graphic PLREMDS	SEBA	1		1

Table 5.5 INSTRUMENTS OF MODEL DATA MANAGEMENT SYSTEM

Instrument	Quantity	Place
1. IBM PS/2 Model 80-161 With : Intel 80386 Processor, 2 MB Ram Memory, 20 MHz Speed, 1.44 MB 3.5" Floppy Disk Drive, 101 Enhanced Keyboard, 160 MB Hard Disk	1	Central Office
2. IBM 8512 14" Color Monitor (640 x 480, 0.41 mm)	1	Central Office
3. IBM Personal System/2 5.25" External Disk Drive	1	Central Office
4. IBM 3510 Optical Disk Storage Unit With : Cable 3 m, Adapter	1	Central Office
5. TOSHIBA T3100SX With : Intel 80386SX, 1 MB Ram Memory, 40 MB Hard Disk, 1.44 MB 3.5" Floppy Disk Drive, VGA Display System One Battery Pack	6	Regional Offices
6. Epson LQ-1170 Dot Matrix Printer With : Cable & Cord	7	Central & Regional Offices
7. 10 Keys Key Board With : Cable	6	Regional Offices
8. UPS 220 volts, More than 300 Watts With : Cable	1	Central Office
9. Stabilizer 500 Watts	7	Central & Regional Offices
10. Spike Suppressor (Volt Guard 220 V 1 kVA)	7	Central & Regional Offices
11. 3.5" Floppy Disk 2DD Type	180	Central & Regional Offices
12. 5.25" Floppy Disk 2DD Type	10	Central & Western Regional Offices
13. Ink Ribbon Cartridge/EPSON #7754	70	Central & Regional Offices
14. Paper 9.5" x 11"	70,000 pages	Central & Regional Offices
15. Optical disk	3	Central Office
16. TOSHIBA T3100SX 5.25" External Disk Drive	1	Western Regional Office
17. Softwares	28	Central & Regional Office

Table 5.6 SUMMARY OF MONTHS TAKEN FOR DATA COLLECTION

Region	Data	Item	Months Taken For Data Collection							Total
			One Month	Two Months	Three Months	Four Months	Five Months	Six Months	More	
Western	Hydro	Number of sample	140	45	18	11	4	0	2	220
		Rate	64%	20%	8%	5%	2%	0%	1%	100%
		Total	64%	84%	92%	97%	99%	99%	100%	-
	Meteo	Number of sample	460	34	16	51	11	9	29	610
		Rate	75%	6%	3%	8%	2%	1%	5%	100%
		Total	75%	81%	84%	92%	94%	95%	100%	-
	Sub Total	Number of sample	600	79	34	62	15	9	31	830
		Rate	72%	10%	4%	7%	2%	1%	4%	100%
		Total	72%	82%	86%	93%	95%	96%	100%	-
Mid Western	Hydro	Number of sample	191	80	36	23	15	8	11	364
		Rate	53%	22%	10%	6%	4%	2%	3%	100%
		Total	53%	75%	85%	91%	95%	97%	100%	-
	Meteo	Number of sample	203	179	66	25	16	7	21	517
		Rate	39%	35%	13%	5%	3%	1%	4%	100%
		Total	39%	74%	87%	92%	95%	96%	100%	-
	Sub Total	Number of sample	394	259	102	48	31	17	32	881
		Rate	45%	29%	12%	5%	4%	2%	3%	100%
		Total	45%	74%	86%	91%	95%	97%	100%	-
Total		Number of sample	994	338	136	110	46	26	63	1711
		Rate	58%	20%	8%	6%	3%	1%	4%	100%
		Total	58%	78%	86%	92%	95%	96%	100%	-

Note: 1) Using data observed in 1991 and 1992 in the Western Region and the Mid Western Region
2) Hydro data means data of staff gauge reading•Meteo data means data of daily rainfall.

Table 5.7 ENTRY OF STAFF GAUGE READING RECORD INTO COMPUTER (PRIORITY HYDROLOGICAL STATION)

Region	Data Entry	Number of Station							Total	Rate (%)
		1985	1986	1987	1988	1989	1990	1991		
Eastern	All data	6	7	13	4	1	1	5	27	43
	Part of data	3	2	3	2	1	1	1	16	25
	No entry	0	0	0	3	7	7	3	20	32
	Total	9	9	9	9	9	9	9	63	100
Central	All data	18	11	6	7	9	5	7	63	47
	Part of data	1	8	13	11	9	14	10	66	50
	No entry	0	0	0	1*	1	0	2*	4	3
	Total	19	19	19	19	19	19	19	133	100
Western	All data	7	7	7	7	7	7	3	45	92
	Part of data	0	0	0	0	0	0	2	2	4
	No entry	0	0	0	0	0	0	2	2	4
	Total	7	7	7	7	7	7	7	49	100
Mid Western	All data	6	1	2	6	3	2	0	20	48
	Part of data	0	5	4	0	3	4	4	20	48
	No entry	0	0	0	0	0	0	2	2	4
	Total	6	6	6	6	6	6	6	42	100
Far Western	All data	5	4	4	3	1	3	0	20	57
	Part of data	0	1	1	2	4	2	5	15	43
	No entry	0	0	0	0	0	0	0	0	0
	Total	5	5	5	5	5	5	5	35	100
Whole Country	All data	42	30	22	27	21	18	15	175	54
	Part of data	4	16	24	15	17	21	22	119	37
	No entry	0	0	0	4	8	7	9	28	9
	Total	46	46	46	46	46	46	46	322	100

Table 6.1 LIST OF METEOROLOGICAL STATIONS OF PROPOSED MINIMUM NETWORK (1/5)

NO.	INDEX NO.	NAME OF STATION	TYPE OF STATION	RIVER BASIN	Reg. office	ELEVATION (m)	TYPE OF RECORDER EXIST	TYPE OF RECORDER PLAN	REMARKS
1	101	KAKERPAKHA	PRECIPITATION	I	FW	842			Existing
2	102	BAITADI	PRECIPITATION	I	FW	1,635			Existing
3	103	PATAN (WEST)	CLIMATOLOGY	I	FW	1,266			Existing
4	104	DANDELDHURA	SYNOPTIC	I	FW	1,865	WE	TP+d	Existing
5	107	DARCHULA	CLIMATOLOGY	I	FW	1,097		TP+d	Existing
6	108	SATBANJH	PRECIPITATION	I	FW	2,370			Existing
7	105	MAHENDRA NAGAR	AGROMETEOLOGY	II	FW	176		TP+d	Existing
8	106	BELAURI SANTIPUR	PRECIPITATION	II	FW	159			Existing
9	207	TIKAPUR	CLIMATOLOGY	II	FW	140			Existing
10	208	SANDEPANI	PRECIPITATION	II	FW	195			Existing
11	209	DHANGADHI	CLIMATOLOGY	II	FW	170			Existing
12	212	SITAPUR	PRECIPITATION	II	FW	152			Existing
13	215	GODAVARI (WEST)	CLIMATOLOGY	II	FW	288			Existing
14	219	DHANGADHI	SYNOPTIC	II	FW	170	NS+	TP+d	Existing
15	311	SIMIKOT	CLIMATOLOGY	III-1	MW	2,800		WE	Existing
16	313	DARMA	PRECIPITATION	III-1	MW	1,950			Existing
17	301	MUGU	PRECIPITATION	III-2	MW	3,803		WE	Existing
18	303	JUMLA	SYNOPTIC	III-3	MW	2,300	AC+	WE	Existing
19	304	GUTHI CHAUR	PRECIPITATION	III-3	MW	3,080			Existing
20	308	NAGMA	PRECIPITATION	III-3	MW	1,905			Existing
21	310	DIPAL GAUN	CLIMATOLOGY	III-3	MW	2,310			Existing
22	201	PIPALKOT	PRECIPITATION	III-4	FW	1,456			Existing
23	202	CHAINPUR (WEST)	CLIMATOLOGY	III-4	FW	1,304			Existing
24	203	SILGADHI DOTI	CLIMATOLOGY	III-4	FW	1,360			Existing
25	204	BAJURA	PRECIPITATION	III-4	FW	1,400			Existing
26	205	KATAI	PRECIPITATION	III-4	FW	1,388			Existing
27	211	KHAPTAD	PRECIPITATION	III-4	FW	3,490		WE	Existing
28	217	MANGALSEN	PRECIPITATION	III-4	FW	1,345			Existing
29	218	DIPAYAL (DOTI)	SYNOPTIC	III-4	FW	617		TP+d	Existing
30	312	DUNAI	CLIMATOLOGY	III-5	MW	2,058		TP	Existing
31	403	JAMU (TIKUWA KUNA)	PRECIPITATION	III-5	MW	260			Existing
32	404	JAJARKOT	PRECIPITATION	III-5	MW	1,231			Existing
33	406	SURKHET(BIRENDRA NAGAR)	SYNOPTIC	III-5	MW	720	WE	TP+d	Existing
34	418	MAINA GAUN (D.BAS)	PRECIPITATION	III-5	MW	2,000		TP+d	Existing
35	501	RUKUMKOT	PRECIPITATION	III-5	MW	1,560			Existing
36	502	SHERA GAUN	PRECIPITATION	III-5	MW	2,150			Existing
37	513	CHAUR JHARI TAR	CLIMATOLOGY	III-5	MW	910			Existing
38	514	MUSIKOT (RUKUMKOT)	CLIMATOLOGY	III-5	MW	2,100		TP+d	Existing
39	206	ASARA GHAT	PRECIPITATION	III-6	FW	650			Existing
40	210	BANGGA CAMP	CLIMATOLOGY	III-6	FW	340			Existing
41	214	KOLA GAUN	PRECIPITATION	III-6	FW	1,304			Existing
42	302	THIBRU	PRECIPITATION	III-6	MW	1,006			Existing
43	305	SHERI GHAT	PRECIPITATION	III-6	MW	1,210			Existing
44	306	GAM SHREE NAGAR	PRECIPITATION	III-6	MW	2,133			Existing
45	307	RARA	CLIMATOLOGY	III-6	MW	3,048		WE	Existing
46	309	BIJAYAPUR (RASKOT)	PRECIPITATION	III-6	MW	1,814		TP+d	Existing
47	401	PUSMA CAMP	CLIMATOLOGY	III-6	MW	950		TP+d	Existing
48	402	DAILEKH	CLIMATOLOGY	III-6	MW	1,402			Existing
49	405	CHISAPANI (KARNALI)	CLIMATOLOGY	III-6	MW	225			Existing
50	410	BALE BUDHA	PRECIPITATION	III-6	MW	610			Existing
51	411	RAJAPUR	PRECIPITATION	III-6	MW	129			Existing
52	415	BARGADAHA	PRECIPITATION	III-6	MW	200			Existing
53	417	RANI JARUWA NURSERY	CLIMATOLOGY	III-6	MW	200			Existing
54	408	GULARIYA	PRECIPITATION	IV	MW	215			Existing
55	413	SHYANO SHREE	PRECIPITATION	IV	MW	302			Existing
56	507	NAYABASTI (DANG)	PRECIPITATION	IV	MW	698			Existing
57	508	TULSIPUR	CLIMATOLOGY	IV	MW	725			Existing
58	509	GHORAHI (MASINA)	PRECIPITATION	IV	MW	725			Existing
59	511	SALYAN BAZAR	CLIMATOLOGY	IV	MW	1,457			Existing
60	512	LUWAMJULA BAZAR	PRECIPITATION	IV	MW	885			Existing
61	515	GHORAI	SYNOPTIC	IV	MW	725	FS	TP+d	Existing
62	409	KHAJURA (NEPALGANJ)	AGROMETEOLOGY	V	MW	190			Existing
63	412	NAUBASTA	PRECIPITATION	V	MW	135			Existing
64	416	NEPALGUNJ (REG.OFF.)	CLIMATOLOGY	V	MW	144		TP+d	Existing
65	407	KUSUM	PRECIPITATION	VI	MW	235			Existing
66	414	BAIJAPUR	PRECIPITATION	VI	MW	226			Existing
67	419	SIKTA	AGROMETEOLOGY	VI	MW	195			Existing
68	504	LIBANG GAUN	PRECIPITATION	VI	MW	1,270			Existing
69	505	BIJUWAR TAR	PRECIPITATION	VI	MW	823		TP+d	Existing
70	510	LOILABAS	PRECIPITATION	VII	MW	320			Existing
71	702	TANSEN	CLIMATOLOGY	VII	W	1,067		TP+d	Existing
72	703	BUTWAL	CLIMATOLOGY	VII	W	205			Existing
73	705	BHAIRHAWA AIRPORT	AERONAUTICAL	VII	W	109	WE	TP+d	Existing
74	707	BHAIRHAWA (AGRIC)	AGROMETEOLOGY	VII	W	120			Existing
75	708	PARASI	PRECIPITATION	VII	W	125			Existing
76	716	TAULIHAWA	CLIMATOLOGY	VII	W	94			Existing
77	721	PATTHARKOT (WEST)	PRECIPITATION	VII	W	200			Existing
78	723	BHAGWANPUR	PRECIPITATION	VII	W	80			Existing
79	727	LUMBINI	PRECIPITATION	VII	W	95			Existing
80	728	SIMARI	CLIMATOLOGY	VII	W	154			Existing
81	1001	TIMURE	PRECIPITATION	VIII-1	C	1,900			Existing
82	1004	NUWAKOT	CLIMATOLOGY	VIII-1	C	1,003		TP+d	Existing
83	1005	DHADING	PRECIPITATION	VIII-1	C	1,420			Existing
84	1007	KAKANI	AGROMETEOLOGY	VIII-1	C	2,064			Existing
85	1038	DHUNIBESI	CLIMATOLOGY	VIII-1	C	1,085			Existing
86	1054	THAMACHIT	PRECIPITATION	VIII-1	C	1,847			Existing
87	1055	DHUNCHE	CLIMATOLOGY	VIII-1	C	1,982			Existing
88	1057	PANSAYAKHOLA	CLIMATOLOGY	VIII-1	C	1,240			Existing
89	1072	PAIGUTANG	CLIMATOLOGY	VIII-1	C	4,091			Existing
90	801	JAGAT (SETIBAS)	PRECIPITATION	VIII-2	W	1,334			Existing
91	806	LARKE SAMDO	PRECIPITATION	VIII-2	W	3,650			Existing
92	1002	ARU GHAT D. BAZAR	PRECIPITATION	VIII-2	C	518		TP+d	Existing
93	802	KHUDI BAZAR	CLIMATOLOGY	VIII-3	W	823		TP+d	Existing
94	807	KUNCHHA	PRECIPITATION	VIII-3	W	855			Existing
95	809	GORKHA	AGROMETEOLOGY	VIII-3	W	1,097			Existing
96	816	CHAME	CLIMATOLOGY	VIII-3	W	2,680			Existing
97	820	MANANG BHOT	PRECIPITATION	VIII-3	W	3,420			Existing
98	823	GHAREDHUNGA	PRECIPITATION	VIII-3	W	1,120			Existing
99	804	POKHARA AIRPORT	AERONAUTICAL	VIII-4	W	827	WE+	TP+d	Existing
100	808	BANDIPUR	PRECIPITATION	VIII-4	W	965			Existing
101	811	MALEPATAN (POKHARA)	AGROMETEOLOGY	VIII-4	W	856			Existing
102	815	KHAIRINI TAR	AGROMETEOLOGY	VIII-4	W	500			Existing
103	817	DAMAULI	PRECIPITATION	VIII-4	W	358			Existing
104	818	LAMACHAUR	PRECIPITATION	VIII-4	W	1,070			Existing
105	824	SIKLESH	PRECIPITATION	VIII-4	W	1,820			Existing
106	601	JOMSOM	CLIMATOLOGY	VIII-5	W	2,744			Existing
107	604	THAKMARPHA	AGROMETEOLOGY	VIII-5	W	2,566			Existing
108	605	BAGLUNG	CLIMATOLOGY	VIII-5	W	984			Existing

Table 6.1 LIST OF METEOROLOGICAL STATIONS OF PROPOSED MINIMUM NETWORK (2/5)

NO.	INDEX NO.	NAME OF STATION	TYPE OF STATION	RIVER BASIN	Reg. office	ELEVATION (m)	TYPE OF RECORDER EXIST	TYPE OF RECORDER PLAN	REMARKS
109	606	TATOPANI	PRECIPITATION	VIII-5	W	1,243			Existing
110	607	LETE	PRECIPITATION	VIII-5	W	2,384			Existing
111	608	RANIPAUWA (M.NATH)	PRECIPITATION	VIII-5	W	3,609			Existing
112	609	BENI BAZAR	CLIMATOLOGY	VIII-5	W	835			Existing
113	610	GHAMI (MUSTANG)	PRECIPITATION	VIII-5	W	3,465			Existing
114	612	MUSTANG (LOMANGTANG)	CLIMATOLOGY	VIII-5	W	3,705			Existing
115	613	KARKI NETA	PRECIPITATION	VIII-5	W	1,720			Existing
116	614	KUSHMA	CLIMATOLOGY	VIII-5	W	891			Existing
117	615	BOBANG	PRECIPITATION	VIII-5	W	2,273			Existing
118	616	GURJA KHANI	PRECIPITATION	VIII-5	W	2,530			Existing
119	619	GHORAPANI	PRECIPITATION	VIII-5	W	2,742			Existing
120	620	TRIBENI	PRECIPITATION	VIII-5	W	1,000			Existing
121	621	DARBANG	PRECIPITATION	VIII-5	W	1,500			Existing
122	622	RANGKHANI	PRECIPITATION	VIII-5	W	1,500			Existing
123	701	RIDI BAZAR	PRECIPITATION	VIII-5	W	442			Existing
124	715	KHANCHIKOT	CLIMATOLOGY	VIII-5	W	1,760			Existing
125	722	MUSIKOT	PRECIPITATION	VIII-5	W	1,280			Existing
126	725	TAMGHAS	CLIMATOLOGY	VIII-5	W	1,530		TP+d	Existing
127	726	GARAKOT	PRECIPITATION	VIII-5	W	500			Existing
128	805	SYANGJA	CLIMATOLOGY	VIII-5	W	868			Existing
129	810	CHAPKOT	CLIMATOLOGY	VIII-5	W	460			Existing
130	813	BHADAURE DEURALI	PRECIPITATION	VIII-5	W	1,600			Existing
131	814	LUMLE	AGROMETEOLOGY	VIII-5	W	1,740			Existing
132	821	GHANDRUK	PRECIPITATION	VIII-5	W	1,960			Existing
133	826	WALLING	PRECIPITATION	VIII-5	W	750			Existing
134	827	RUMJAKOT	PRECIPITATION	VIII-5	W	660			Existing
135	902	RAMPUR	AGROMETEOLOGY	VIII-6	C	256			Existing
136	903	JHAWANI	PRECIPITATION	VIII-6	C	270		TP+d	Existing
137	904	CHISAPANI GADHI	PRECIPITATION	VIII-6	C	1,706			Existing
138	906	HETAUNDA N.F.I.	CLIMATOLOGY	VIII-6	C	474			Existing
139	919	MAKWANPUR GADHI	PRECIPITATION	VIII-6	C	1,090			Existing
140	920	BELUWA	PRECIPITATION	VIII-6	C	274			Existing
141	704	BELUWA (GIRWARI)	PRECIPITATION	VIII-7	W	150		TP+d	Existing
142	706	DUMKAULI	AGROMETEOLOGY	VIII-7	W	154			Existing
143	710	DUMKIBAS	PRECIPITATION	VIII-7	W	164			Existing
144	907	AMLEKHGANJ	PRECIPITATION	IX	C	396			Existing
145	909	SIMARA AIRPORT	AERONAUTICAL	IX	C	130	NS	TP+d	Existing
146	910	NIJGADH	PRECIPITATION	IX	C	244			Existing
147	911	PARWANIPUR	AGROMETEOLOGY	IX	C	115			Existing
148	918	BIRGANJ	PRECIPITATION	IX	C	91			Existing
149	921	KALAIYA	PRECIPITATION	IX	C	140			Existing
150	905	DAMAN	CLIMATOLOGY	X	C	2,314			Existing
151	912	RAMOLI BAIRIYA	PRECIPITATION	X	C	152			Existing
152	915	KARKHU GAUN	PRECIPITATION	X	C	1,530			Existing
153	922	GAUR	CLIMATOLOGY	X	C	90			Existing
154	1015	THANKOT	PRECIPITATION	X	C	1,630			Existing
155	1022	GODAVARI	CLIMATOLOGY	X	C	1,400			Existing
156	1029	KHUMALTAR	AGROMETEOLOGY	X	C	1,350			Existing
157	1030	KATHMANDU AIRPORT	AERONAUTICAL	X	C	1,336	NS	TP+d	Existing
158	1035	SANKHU	PRECIPITATION	X	C	1,449			Existing
159	1039	PANIPOKARI (KATHMANDU)	CLIMATOLOGY	X	C	1,335			Existing
160	1043	NAGARKOT	CLIMATOLOGY	X	C	2,163			Existing
161	1052	BHAKTAPUR	PRECIPITATION	X	C	1,330			Existing
162	1059	CHANGU NARAYAN	PRECIPITATION	X	C	1,543			Existing
163	1060	CHAPA GAUN	PRECIPITATION	X	C	1,448			Existing
164	1071	BUDDHANILAKANTHA	CLIMATOLOGY	X	C	1,360			Existing
165	1117	HARIHARPUR GADHI VALLEY	PRECIPITATION	X	C	250		TP+d	Existing
166	1121	KARMAIYA	CLIMATOLOGY	X	C	131			Existing
167	1109	PATTHARKOT (EAST)	PRECIPITATION	XI	C	275			Existing
168	1110	TULSI	PRECIPITATION	XI	C	457			Existing
169	1111	JANAKPUR AIRPORT	CLIMATOLOGY	XI	C	90			Existing
170	1118	MANUSMARA	CLIMATOLOGY	XI	C	100			Existing
171	1119	GAUSALA	PRECIPITATION	XI	C	200			Existing
172	1120	MALANGWA	PRECIPITATION	XI	C	150			Existing
173	1122	JALESORE	CLIMATOLOGY	XI	C	61		TP+d	Existing
174	1112	CHISAPANI BAZAR	PRECIPITATION	XII	C	165		TP+d	Existing
175	1213	UDAYAPUR GADHI	CLIMATOLOGY	XII	E	1,175			Existing
176	1216	SIRAHA	PRECIPITATION	XII	E	102			Existing
177	1215	LAHAN	CLIMATOLOGY	XIII	E	138			Existing
178	1223	RAJBIRAJ	CLIMATOLOGY	XIII	E	91			Existing
179	1006	GUMTHANG	PRECIPITATION	XIV-1	C	2,000			Existing
180	1101	NAGDAHA	PRECIPITATION	XIV-2	C	850			Existing
181	1102	CHARIKOT	PRECIPITATION	XIV-2	C	1,940			Existing
182	1103	JIRI	AGROMETEOLOGY	XIV-2	C	2,003		TP+d	Existing
183	1104	MELUNG	PRECIPITATION	XIV-2	C	1,536			Existing
184	1202	CHAURIKHARK	PRECIPITATION	XIV-3	E	2,619			Existing
185	1203	PAKARNAS	PRECIPITATION	XIV-3	E	1,982			Existing
186	1204	AISEALUKHARK	PRECIPITATION	XIV-3	E	2,143			Existing
187	1206	OKHALDHUNGA	SYNOPTIC	XIV-3	E	1,720	NS	TP+d	Existing
188	1207	NAME BHANJYANG	PRECIPITATION	XIV-3	E	1,567			Existing
189	1217	KHUMJUNG	PRECIPITATION	XIV-3	E	3,750			Existing
190	1219	SALLERI	PRECIPITATION	XIV-3	E	2,378			Existing
191	1220	CHIALSA	AGROMETEOLOGY	XIV-3	E	2,770			Existing
192	1301	NUM	PRECIPITATION	XIV-4	E	1,497		TP+d	Existing
193	1303	CHAINPUR (EAST)	CLIMATOLOGY	XIV-4	E	1,329			Existing
194	1304	PAKHRIBVAS	AGROMETEOLOGY	XIV-4	E	1,680	FS+	TP+d	Existing
195	1305	LEGUWA GHAT	PRECIPITATION	XIV-4	E	410			Existing
196	1306	MUNGA	PRECIPITATION	XIV-4	E	1,317			Existing
197	1317	CHEPUWA	PRECIPITATION	XIV-4	E	2,590			Existing
198	1321	TUMLINGTAR	PRECIPITATION	XIV-4	E	303			Existing
199	1322	MACHUWAGHAT	PRECIPITATION	XIV-4	E	158			Existing
200	1324	BHOJPUR	AGROMETEOLOGY	XIV-4	E	1,595			Existing
201	1325	DINGLA	PRECIPITATION	XIV-4	E	1,190			Existing
202	1307	DHANKUTA	SYNOPTIC	XIV-5	E	1,447	WE	TP+d	Existing
203	1308	MUL GHAT	PRECIPITATION	XIV-5	E	365			Existing
204	1309	TRIBENI	PRECIPITATION	XIV-5	E	143			Existing
205	1314	TERMATHUM	CLIMATOLOGY	XIV-5	E	1,633			Existing
206	1403	LUNGTHUNG	PRECIPITATION	XIV-5	E	1,780			Existing
207	1404	TAPLETHOK	PRECIPITATION	XIV-5	E	1,383			Existing
208	1405	TAPLEJUNG	SYNOPTIC	XIV-5	E	1,732	WE	TP+d	Existing
209	1406	MEMENG JAGAT	PRECIPITATION	XIV-5	E	1,830			Existing
210	1419	PHIDIM (PANCHTHER)	CLIMATOLOGY	XIV-5	E	1,205			Existing
211	1420	DOVAN	PRECIPITATION	XIV-5	E	763			Existing
212	1008	NAWALPUR	PRECIPITATION	XIV-6	C	1,592			Existing
213	1009	CHAUTARA	PRECIPITATION	XIV-6	C	1,660			Existing
214	1016	SARMATHANG	CLIMATOLOGY	XIV-6	C	2,625		WE	Existing
215	1017	DUBACHAUR	PRECIPITATION	XIV-6	C	1,590			Existing
216	1018	BAUNEPATI	PRECIPITATION	XIV-6	C	845			Existing

Table 6.1 LIST OF METEOROLOGICAL STATIONS OF PROPOSED MINIMUM NETWORK (3/5)

NO.	INDEX NO.	NAME OF STATION	TYPE OF STATION	RIVER BASIN	Reg. office	ELE-VATION (m)	TYPE OF RECORDER EXIST	TYPE OF RECORDER PLAN	REMARKS
217	1020	MANDAN	PRECIPITATION	XIV-6	C	1,365			Existing
218	1023	DOLAL GHAT	PRECIPITATION	XIV-6	C	710			Existing
219	1024	DHULIKHEL	CLIMATOLOGY	XIV-6	C	1,552			Existing
220	1025	DHAP	PRECIPITATION	XIV-6	C	1,240			Existing
221	1027	BAHRABISE	PRECIPITATION	XIV-6	C	1,220			Existing
222	1028	PACHUWAR GHAT	PRECIPITATION	XIV-6	C	633			Existing
223	1036	PANCHKHAL	AGROMETEOLOGY	XIV-6	C	865			Existing
224	1049	KHOPASI (PANAUTI)	PRECIPITATION	XIV-6	C	1,517			Existing
225	1058	TARKE GHYANG	PRECIPITATION	XIV-6	C	2,480			Existing
226	1062	SANGACHOK	CLIMATOLOGY	XIV-6	C	1,327		TP+d	Existing
227	1063	THOKARPA	PRECIPITATION	XIV-6	C	1,750			Existing
228	1106	RAMECHHAP	PRECIPITATION	XIV-6	C	1,395			Existing
229	1107	SINDHULI GADHI	CLIMATOLOGY	XIV-6	C	1,463		TP+d	Existing
230	1108	BAHUN TILPUNG	PRECIPITATION	XIV-6	C	1,417			Existing
231	1115	NEPALTHOK	PRECIPITATION	XIV-6	C	1,098			Existing
232	1210	KURULE GHAT	PRECIPITATION	XIV-6	E	497			Existing
233	1211	KHOTANG BAZAR	PRECIPITATION	XIV-6	E	1,295			Existing
234	1212	PHATEPUR	CLIMATOLOGY	XIV-6	E	100		TP+d	Existing
235	1222	DIKTEL	PRECIPITATION	XIV-6	E	1,623			Existing
236	1224	SIRWA	PRECIPITATION	XIV-6	E	1,662			Existing
237	1226	BARMAJHIYA	PRECIPITATION	XIV-6	E	85			Existing
238	1316	CHATARA	PRECIPITATION	XIV-6	E	183			Existing
239	1311	DHARAN BAZAR	PRECIPITATION	XV	E	444			Existing
240	1312	HARAINCHA	PRECIPITATION	XV	E	152			Existing
241	1319	BIRATNAGAR AIRPOART	AERONAUTICAL	XV	E	72	FS+	TP+d	Existing
242	1320	TARAHARA	AGROMETEOLOGY	XV	E	200			Existing
243	1323	DHARAN BRITISH CAMP	CLIMATOLOGY	XV	E	400			Existing
244	1408	DAMAK	PRECIPITATION	XV	E	163			Existing
245	1407	ILAM TEA ESTATE	AGROMETEOLOGY	XVI	E	1,300		TP+d	Existing
246	1410	HIMALI GAUN	PRECIPITATION	XVI	E	1,654			Existing
247	1411	SOKTIM TEA ESTATE	CLIMATOLOGY	XVI	E	530			Existing
248	1409	ANARMANI BIRTA	PRECIPITATION	XVII	E	122			Existing
249	1412	CHANDRA GADHI	PRECIPITATION	XVII	E	120			Existing
250	1415	SANISCHARE	PRECIPITATION	XVII	E	168			Existing
251	1416	KANYAM TEA ESTATE	CLIMATOLOGY	XVII	E	1,678			Existing
252	1421	GAIDA (KANKAI)	CLIMATOLOGY	XVII	E	143		TP+d	Existing
253	623	YARAGAU	PRECIPITATION	VIII-5	W	3,620	WE		Model system
254	624	SAMARGAU	PRECIPITATION	VIII-5	W	3,570	WE		Model system
255	625	DAKARJUNG	PRECIPITATION	VIII-5	W	3,160	WE		Model system
256	626	BEGA	PRECIPITATION	VIII-5	W	1,770	WE		Model system
257	627	KUHUN	PRECIPITATION	VIII-5	W	1,550	WE		Model system
258	628	MUNA	PRECIPITATION	VIII-5	W	1,970	WE		Model system
259	629	BAGHARA	PRECIPITATION	VIII-5	W	2,330	WE		Model system
260	630	SIRKON	PRECIPITATION	VIII-5	W	790	WE		Model system
261	828	KHULDI DOBAN	PRECIPITATION	VIII-5	W	2,400	WE		Model system
262	829	SALLYAN	PRECIPITATION	VIII-5	W	1,460	WE		Model system
263	830	PAMDUR	PRECIPITATION	VIII-4	W	1,160	TP+d		Model system
264	831	TISEDI	PRECIPITATION	VIII-5	W	1,100	WE		Model system
265	923	KOLBHI	PRECIPITATION	IX	C	109	WE		Model system
266	924	CHYUNTAHA	PRECIPITATION	IX	C	86	WE		Model system
267	2000	GHANGRU	PRECIPITATION	I	FW	3,500			Newly Proposed
268	2001	CANETI	PRECIPITATION	I	FW	3,000			Newly Proposed
269	2002	GHUSA	PRECIPITATION	I	FW	2,500			Newly Proposed
270	2003	SIPH	PRECIPITATION	I	FW	2,100			Newly Proposed
271	2004	KOTILA	PRECIPITATION	I	FW	2,100			Newly Proposed
272	2005	DUMLTH	PRECIPITATION	I	FW	2,000			Newly Proposed
273	2006	GULTHADI	PRECIPITATION	I	FW	1,900			Newly Proposed
274	2007	RUPAL	PRECIPITATION	I	FW	1,400			Newly Proposed
275	2008	BINAYAK	PRECIPITATION	I	FW	800			Newly Proposed
276	2009	DIAMA	PRECIPITATION	I	FW	800			Newly Proposed
277	2010	JOGBUDA	PRECIPITATION	I	FW	600			Newly Proposed
278	2011	BANDABAI	PRECIPITATION	II	FW	1,050			Newly Proposed
279	2012	HATTIDHUNGA	PRECIPITATION	II	FW	800			Newly Proposed
280	2013	SIMTI	PRECIPITATION	II	FW	750			Newly Proposed
281	2014	RAMPURA	PRECIPITATION	II	FW	320			Newly Proposed
282	2015	KAL	PRECIPITATION	II	FW	100			Newly Proposed
283	2016	MUNCHU	PRECIPITATION	III-1	MW	3,500			Newly Proposed
284	2017	LEPCHACHAUR	PRECIPITATION	III-1	MW	3,300			Newly Proposed
285	2018	RIP	PRECIPITATION	III-1	MW	2,700			Newly Proposed
286	2019	SHRINAGA	PRECIPITATION	III-1	MW	1,600			Newly Proposed
287	2020	BHANJYAN	PRECIPITATION	III-2	MW	4,200			Newly Proposed
288	2021	KUWANGAU	PRECIPITATION	III-2	MW	4,100			Newly Proposed
289	2022	HALEKHARK	PRECIPITATION	III-2	MW	3,200			Newly Proposed
290	2023	BANGU	PRECIPITATION	III-2	MW	3,000			Newly Proposed
291	2024	SIDDHI	PRECIPITATION	III-2	MW	2,000			Newly Proposed
292	2025	NAPHUKANA	PRECIPITATION	III-3	MW	3,100			Newly Proposed
293	2026	MACHHATU	PRECIPITATION	III-3	MW	3,000			Newly Proposed
294	2027	RIYAN	PRECIPITATION	III-3	MW	3,000			Newly Proposed
295	2028	SANIGAU	PRECIPITATION	III-3	MW	2,700			Newly Proposed
296	2029	DILTIKAT	PRECIPITATION	III-3	MW	2,000			Newly Proposed
297	2030	MANMA	PRECIPITATION	III-3	MW	1,050			Newly Proposed
298	2031	KUNDAGOTH	PRECIPITATION	III-4	FW	3,700			Newly Proposed
299	2032	DAHACHAUR	PRECIPITATION	III-4	MW	3,300			Newly Proposed
300	2033	THALARA	PRECIPITATION	III-4	FW	2,700			Newly Proposed
301	2034	WATAUDI	PRECIPITATION	III-4	FW	2,300			Newly Proposed
302	2035	DAGUN	PRECIPITATION	III-4	FW	2,300			Newly Proposed
303	2036	RAISALLR	PRECIPITATION	III-4	FW	2,000			Newly Proposed
304	2037	JADIGANDA	PRECIPITATION	III-4	FW	2,000			Newly Proposed
305	2038	DAIPASILA	PRECIPITATION	III-4	FW	2,000			Newly Proposed
306	2039	SUNKADA	PRECIPITATION	III-4	FW	1,600			Newly Proposed
307	2040	MARTADI	PRECIPITATION	III-4	FW	1,600			Newly Proposed
308	2041	SATPHERI	PRECIPITATION	III-4	FW	1,400			Newly Proposed
309	2042	DARBA	PRECIPITATION	III-4	FW	1,300			Newly Proposed
310	2043	KHATERA	PRECIPITATION	III-4	FW	1,000			Newly Proposed
311	2044	SAPHEBAGAR	PRECIPITATION	III-4	FW	1,000			Newly Proposed
312	2045	GOLMA	PRECIPITATION	III-4	FW	700			Newly Proposed
313	2046	MANDUWAGA	PRECIPITATION	III-5	MW	4,000			Newly Proposed
314	2047	TARANGAU	PRECIPITATION	III-5	MW	3,900			Newly Proposed
315	2048	KHANIGAU	PRECIPITATION	III-5	MW	3,400			Newly Proposed
316	2049	MOTIGOTH	PRECIPITATION	III-5	MW	3,000			Newly Proposed
317	2050	CHHACHUKOT	PRECIPITATION	III-5	MW	3,000			Newly Proposed
318	2051	BANTHART	PRECIPITATION	III-5	MW	2,900			Newly Proposed
319	2052	PAHAR	PRECIPITATION	III-5	MW	2,800			Newly Proposed
320	2053	BHUJI	PRECIPITATION	III-5	MW	2,800			Newly Proposed
321	2054	JATSUMARA	PRECIPITATION	III-5	MW	2,500			Newly Proposed
322	2055	JUPHAL	PRECIPITATION	III-5	MW	2,300			Newly Proposed
323	2056	SYAIBHULSAN	PRECIPITATION	III-5	MW	2,000			Newly Proposed
324	2057	DHARMASHATA	PRECIPITATION	III-5	MW	2,000			Newly Proposed

Table 6.1 LIST OF METEOROLOGICAL STATIONS OF PROPOSED MINIMUM NETWORK (4/5)

NO.	INDEX NO.	NAME OF STATION	TYPE OF STATION	RIVER BASIN	Reg. office	ELEVATION (m)	TYPE OF RECORDER EXIST	TYPE OF RECORDER PLAN	REMARKS
325	2058	PARJODAR	PRECIPITATION	III-5	MW	1,900			Newly Proposed
326	2059	KHARAN	PRECIPITATION	III-5	MW	1,800			Newly Proposed
327	2060	KABRENETA	PRECIPITATION	III-5	MW	1,800			Newly Proposed
328	2061	RAUTGAU	PRECIPITATION	III-5	MW	1,700			Newly Proposed
329	2062	CHIRAGAU	PRECIPITATION	III-5	MW	1,700			Newly Proposed
330	2063	THAL	PRECIPITATION	III-5	MW	1,500			Newly Proposed
331	2064	BHARMA	PRECIPITATION	III-5	MW	1,500			Newly Proposed
332	2065	PAKHAPANI	PRECIPITATION	III-5	MW	1,200			Newly Proposed
333	2066	GIJA	PRECIPITATION	III-5	MW	1,200			Newly Proposed
334	2067	CHARKULI	PRECIPITATION	III-5	MW	1,200			Newly Proposed
335	2068	PIPALTA	PRECIPITATION	III-5	MW	1,050			Newly Proposed
336	2069	CHAURJAHADI	PRECIPITATION	III-5	MW	900			Newly Proposed
337	2070	MAJHKHARK	PRECIPITATION	III-5	MW	900			Newly Proposed
338	2071	CHHINYU	PRECIPITATION	III-5	MW	700			Newly Proposed
339	2072	SHRICHAUR	PRECIPITATION	III-5	MW	600			Newly Proposed
340	2073	CHAPON	PRECIPITATION	III-5	MW	400			Newly Proposed
341	2074	SAIN	PRECIPITATION	III-6	FW	3,800			Newly Proposed
342	2075	NIGAIKOT	PRECIPITATION	III-6	MW	2,500			Newly Proposed
343	2076	MUMRA	PRECIPITATION	III-6	MW	2,200			Newly Proposed
344	2077	YUNA	PRECIPITATION	III-6	FW	2,200			Newly Proposed
345	2078	NAKHARJI	PRECIPITATION	III-6	MW	2,100			Newly Proposed
346	2079	CHHIPARI	PRECIPITATION	III-6	MW	2,000			Newly Proposed
347	2080	KOLTI	PRECIPITATION	III-6	FW	1,800			Newly Proposed
348	2081	WALUTAR	PRECIPITATION	III-6	MW	1,600			Newly Proposed
349	2082	PATAL	PRECIPITATION	III-6	FW	1,500			Newly Proposed
350	2083	KATTI	PRECIPITATION	III-6	MW	1,400			Newly Proposed
351	2084	DAYARGAU	PRECIPITATION	III-6	MW	1,100			Newly Proposed
352	2085	BINAYAK	PRECIPITATION	III-6	FW	1,100			Newly Proposed
353	2086	PAIMA	PRECIPITATION	III-6	FW	1,000			Newly Proposed
354	2087	SALIBAN	PRECIPITATION	IV	MW	1,500			Newly Proposed
355	2088	GWANTE	PRECIPITATION	IV	MW	600			Newly Proposed
356	2089	KACHILA	PRECIPITATION	IV	MW	600			Newly Proposed
357	2090	JYAMIRE	PRECIPITATION	IV	MW	500			Newly Proposed
358	2091	AMDADA	PRECIPITATION	IX	C	900			Newly Proposed
359	2092	CHURIYA	PRECIPITATION	IX	C	600			Newly Proposed
360	2093	BHIKHANATHOR	PRECIPITATION	IX	C	300			Newly Proposed
361	2094	BAIRIYA	PRECIPITATION	IX	C	200			Newly Proposed
362	2095	BLIOTI	PRECIPITATION	V	MW	400			Newly Proposed
363	2096	PEWA	PRECIPITATION	VI	MW	2,300			Newly Proposed
364	2097	KEURIGAU	PRECIPITATION	VI	MW	1,900			Newly Proposed
365	2098	SIUTBAN	PRECIPITATION	VI	MW	1,900			Newly Proposed
366	2099	GHUSWAN	PRECIPITATION	VI	MW	1,900			Newly Proposed
367	2100	SWARGADWARI	PRECIPITATION	VI	MW	1,700			Newly Proposed
368	2101	AGLUN	PRECIPITATION	VI	W	1,500			Newly Proposed
369	2102	NAMJA	PRECIPITATION	VI	MW	1,300			Newly Proposed
370	2103	CHARTIGAU	PRECIPITATION	VI	MW	1,200			Newly Proposed
371	2104	MASINA	PRECIPITATION	VI	MW	1,100			Newly Proposed
372	2105	DHANCHAUD	PRECIPITATION	VI	C	1,100			Newly Proposed
373	2106	SIRUWARI	PRECIPITATION	VI	MW	1,100			Newly Proposed
374	2107	DHAKABAN	PRECIPITATION	VI	C	1,100			Newly Proposed
375	2108	GASIKOCHHAP	PRECIPITATION	VI	MW	800			Newly Proposed
376	2109	SIDDHARA	PRECIPITATION	VI	C	750			Newly Proposed
377	2110	JURPANI	PRECIPITATION	VI	MW	500			Newly Proposed
378	2111	DHAKERI	PRECIPITATION	VI	MW	400			Newly Proposed
379	2112	PACHAHA	PRECIPITATION	VI	MW	400			Newly Proposed
380	2113	BANKATHI	PRECIPITATION	VI	MW	400			Newly Proposed
381	2114	GANGADHI	PRECIPITATION	VI	MW	300			Newly Proposed
382	2115	BALDENGADHI	PRECIPITATION	VII	W	1,200			Newly Proposed
383	2116	TUKALKADI	PRECIPITATION	VII	W	600			Newly Proposed
384	2117	BHAISAHINAKA	PRECIPITATION	VII	MW	400			Newly Proposed
385	2118	KRISHANAGAR	PRECIPITATION	VII	W	100			Newly Proposed
386	2119	GAJEDI	PRECIPITATION	VII	W	100			Newly Proposed
387	2120	KASERI	PRECIPITATION	VIII-1	C	2,600			Newly Proposed
388	2121	DHARAMPANI	PRECIPITATION	VIII-1	C	600			Newly Proposed
389	2122	RATMATE	PRECIPITATION	VIII-1	C	600			Newly Proposed
390	2123	LAMAGAR	PRECIPITATION	VIII-2	W	4,000			Newly Proposed
391	2124	LIGAU	PRECIPITATION	VIII-2	W	2,700			Newly Proposed
392	2125	SATHIGAU	PRECIPITATION	VIII-2	C	1,900			Newly Proposed
393	2126	LABUBENSI	PRECIPITATION	VIII-2	W	1,200			Newly Proposed
394	2127	DARKHA	PRECIPITATION	VIII-2	C	1,100			Newly Proposed
395	2128	MAIDI	PRECIPITATION	VIII-2	C	1,050			Newly Proposed
396	2129	KARCHE	PRECIPITATION	VIII-3	C	3,100			Newly Proposed
397	2130	BAJE	PRECIPITATION	VIII-3	W	2,200			Newly Proposed
398	2131	HAJHUWAKHAIRENI	PRECIPITATION	VIII-3	W	1,000			Newly Proposed
399	2132	LUTTELBHANIYAN	PRECIPITATION	VIII-3	W	800			Newly Proposed
400	2133	JAUBARI	PRECIPITATION	VIII-3	W	700			Newly Proposed
401	2134	KARCHON	PRECIPITATION	VIII-4	W	3,000			Newly Proposed
402	2135	BHUJUN	PRECIPITATION	VIII-4	W	1,600			Newly Proposed
403	2136	CHISANKHU	PRECIPITATION	VIII-4	W	450			Newly Proposed
404	2137	KHUMAKHAN	PRECIPITATION	VIII-5	W	2,200			Newly Proposed
405	2138	SUNPAN	PRECIPITATION	VIII-5	W	1,900			Newly Proposed
406	2139	BHINGITHE	PRECIPITATION	VIII-5	W	1,800			Newly Proposed
407	2140	KHARJYAN	PRECIPITATION	VIII-5	W	1,500			Newly Proposed
408	2141	SHANTIPUR	PRECIPITATION	VIII-5	W	1,200			Newly Proposed
409	2142	KADA	PRECIPITATION	VIII-5	C	1,200			Newly Proposed
410	2143	CHHIPCHHIPE	PRECIPITATION	VIII-5	W	1,100			Newly Proposed
411	2144	BESAREDADA	PRECIPITATION	VIII-5	W	1,050			Newly Proposed
412	2145	ARCHALE	PRECIPITATION	VIII-5	W	1,000			Newly Proposed
413	2146	KATUNJE	PRECIPITATION	VIII-5	C	800			Newly Proposed
414	2147	JYAGDI	PRECIPITATION	VIII-5	W	550			Newly Proposed
415	2148	RAMDI	PRECIPITATION	VIII-5	W	500			Newly Proposed
416	2149	JAMIRE	PRECIPITATION	VIII-5	C	400			Newly Proposed
417	2150	BALARAMPU	PRECIPITATION	VIII-5	C	400			Newly Proposed
418	2151	BHARATPUR	PRECIPITATION	VIII-5	C	200			Newly Proposed
419	2152	MEGHAURI	PRECIPITATION	VIII-5	C	200			Newly Proposed
420	2153	JHIRUDI	PRECIPITATION	VIII-7	W	1,100			Newly Proposed
421	2154	BENIGHAT	PRECIPITATION	VIII-7	C	450			Newly Proposed
422	2155	MUGLIN	PRECIPITATION	VIII-7	C	400			Newly Proposed
423	2156	BENIMANIPUR	PRECIPITATION	VIII-7	W	200			Newly Proposed
424	2157	BALMIKI ASHRAM	PRECIPITATION	VIII-7	C	100			Newly Proposed
425	2158	CHOMARA	PRECIPITATION	VIII-7	W	100			Newly Proposed
426	2159	DHARNE	PRECIPITATION	X	C	1,700			Newly Proposed
427	2160	CHHABELI	PRECIPITATION	X	C	1,600			Newly Proposed
428	2161	KALLMATI	PRECIPITATION	X	C	1,200			Newly Proposed
429	2162	DADHIGURANSE	PRECIPITATION	X	C	550			Newly Proposed
430	2163	JHURJHURE	PRECIPITATION	X	C	400			Newly Proposed
431	2164	RAIGAU	PRECIPITATION	X	C	400			Newly Proposed
432	2165	MATHAULI	PRECIPITATION	X	C	250			Newly Proposed

Table 6.1 LIST OF METEOROLOGICAL STATIONS OF PROPOSED MINIMUM NETWORK (5/5)

NO.	INDEX NO.	NAME OF STATION	TYPE OF STATION	RIVER BASIN	Reg. office	ELE-VATION (m)	TYPE OF RECORDER EXIST	TYPE OF RECORDER PLAN	REMARKS
433	2166	AHALE	PRECIPITATION	XII	C	1,050			Newly Proposed
434	2167	CHHARCHHARE	PRECIPITATION	XII	C	600			Newly Proposed
435	2168	SINDHULIMADI	PRECIPITATION	XII	C	518			Newly Proposed
436	2169	TRIBENIGHAT	PRECIPITATION	XII	E	150			Newly Proposed
437	2170	THANCHHEMU	PRECIPITATION	XIV-2	C	3,200			Newly Proposed
438	2171	NAJIN	PRECIPITATION	XIV-2	E	2,500			Newly Proposed
439	2172	TOMDADA	PRECIPITATION	XIV-2	C	1,300			Newly Proposed
440	2173	BABRE	PRECIPITATION	XIV-2	C	1,200			Newly Proposed
441	2174	CHISAPANI	PRECIPITATION	XIV-2	C	950			Newly Proposed
442	2175	BAKAHKHARKA	PRECIPITATION	XIV-4	E	3,100			Newly Proposed
443	2176	PAHAKHOLA	PRECIPITATION	XIV-4	E	2,900			Newly Proposed
444	2177	CHYAKSILA	PRECIPITATION	XIV-4	E	2,500			Newly Proposed
445	2178	MOYAN	PRECIPITATION	XIV-4	E	2,000			Newly Proposed
446	2179	CHAPE	PRECIPITATION	XIV-4	E	1,400			Newly Proposed
447	2180	BAIKUNTHE	PRECIPITATION	XIV-4	E	1,300			Newly Proposed
448	2181	NOKLUN	PRECIPITATION	XIV-4	E	1,000			Newly Proposed
449	2182	OLANCHUNGOLA	PRECIPITATION	XIV-4	E	3,200			Newly Proposed
450	2183	SAMUN	PRECIPITATION	XIV-4	E	2,700			Newly Proposed
451	2184	KHEBAN	PRECIPITATION	XIV-4	E	1,900			Newly Proposed
452	2185	SAKRANTI	PRECIPITATION	XIV-4	E	1,900			Newly Proposed
453	2186	ANSARAN	PRECIPITATION	XIV-4	E	1,700			Newly Proposed
454	2187	THARPU	PRECIPITATION	XIV-4	E	1,100			Newly Proposed
455	2188	MAUWAJI	PRECIPITATION	XIV-4	E	550			Newly Proposed
456	2189	RIPAL	PRECIPITATION	XIV-6	E	2,700			Newly Proposed
457	2190	MAHATHAN	PRECIPITATION	XIV-6	C	2,300			Newly Proposed
458	2191	KAPHALE	PRECIPITATION	XIV-6	E	2,100			Newly Proposed
459	2192	CHAHALE	PRECIPITATION	XIV-6	E	2,000			Newly Proposed
460	2193	RISINGO	PRECIPITATION	XIV-6	C	1,800			Newly Proposed
461	2194	SAJKOT	PRECIPITATION	XIV-6	C	1,500			Newly Proposed
462	2195	BIJULIKOT	PRECIPITATION	XIV-6	C	1,100			Newly Proposed
463	2196	MAJHAKHANI	PRECIPITATION	XIV-6	E	800			Newly Proposed
464	2197	SOLPA	PRECIPITATION	XIV-6	C	500			Newly Proposed
465	2198	KAMPUGHAT	PRECIPITATION	XIV-6	E	450			Newly Proposed
466	2199	GAIGHAT	PRECIPITATION	XIV-6	E	152			Newly Proposed
467	2200	SINHADEVI	PRECIPITATION	XV	E	1,400			Newly Proposed
468	2201	YASIMBHE	PRECIPITATION	XV	E	1,050			Newly Proposed
469	2202	GAURIGAN	PRECIPITATION	XV	E	100			Newly Proposed
470	2203	MAHABI	PRECIPITATION	XVI	E	2,050			Newly Proposed
471	SG 1	LANGTANG	Snow & Glacier	VIII-1	C	3,920			Existing
472	SG 2	DINGBOCHE KHUMBU	Snow & Glacier	XIV-3	E	4,355			Existing
473	SG 3	MACHHAPUCHHARE ANNAPURN	Snow & Glacier	VIII-5	W	3,470			Existing
474	SG 4	HURIKOT	Snow & Glacier	III-5	MW	2,735			Existing
475	SG 5	ZANGA, HUMLA	Snow & Glacier	III-1	MW	4,050			Existing
476	SG6	MAKALU	Snow & Glacier	XIV-4	E	3,980			Existing

NOTE TYPE OF RECORDING RAIN GAUGE

WE : Weighing type raingauge
NS : Natural siphone type raingauge
SF : Siphone float type raingauge
TP : Tipping bucket type raingauge
+d : With Data logger

REGION

FW : FAR WESTERN
MW : MID WESTERN
W : WESTERN
C : CENTRAL
E : EASTERN

Table 6.2 LIST OF HYDROMETRIC STATIONS OF PROPOSED MINIMUM NETWORK (1/3)

NO.	INDEX NUMBER	NAME OF RIVER	NAME OF SITES	TYPE OF STATION	NUMBER OF BASIN	RE-GION	BASIN AREA(sq.km) inside Nepal	include outside	PHY. DIV.	EXISTING INSTRUMENT			PROPOSED INSTRUMENT				REMARKS
1	120	CHAMELIA	KARKALE GAON		I	FW	1,150		MM				S	P+d			Existing
2	150	MAHAKALI	PANCHESHWOR	BASIC	I	FW	12,600		MM	S	F		DW	F+d	PS	WQ	Existing
3	285	MOHANA	KALAKUNTA		II	FW	623		S				S				Existing
4	205	KHARPU KHOLA	KHARPU	P	III-1	MW	1,310		HM				DW	P+d			Existing
5	206	HUMLA KARNALI	BIHI CHHARA	P	III-1	MW	5,471	8,447	HM				DW	P+d			Existing
6	208	MUGU KARNALI	SURKHET	P	III-2	MW	5,300		HM	S++			DW	P+d			Existing
7	220	TILA NALA	NAGINA		III-3	MW	1,870		HM	S++			S				Existing
8	225	SINJA KHOLA	DIWARE		III-3	MW	824		HM	S++			S				Existing
9	230	TILA NADI	SETIGHAT	P	III-3	MW	3,470		HM	S++			DW	P+d			Existing
10	251	SETI	CHAINPUR		III-4	FW	2,040		HM	S++			S				Existing
11	255	BHDHI GANGA	KAKARSANT		III-4	FW	1,340		MM	S++			S				Existing
12	259.2	SETI	GOPAGHAT GAON		III-4	FW	4,420		MM	S			(S)				Existing
13	260	SETI	BANGA NEAR BELGAON	P	III-4	FW	7,460		MM	S++	F	DS	DW	F+d			Existing
14	265	THULO BHERI	RIMNA	P	III-5	MW	6,720		HM	S++			DW	P+d			Existing
15	267	SANO BHERI	SIMLI GHAT		III-5	MW	2,620		HM	S++			S				Existing
16	269.50	BHERI NADI	SAMAIJI GHAR	P	III-5	MW	9,670		S	S++	F		S	F+d			Existing
17	270	BHERI	JAMU	P	III-5	MW	12,290		S	S++	F	DS	S	P+d	DS		Existing
18	209	KAWADI KHOLA	KAWADI GHAT		III-6	MW	795		HM				S				Existing
19	215	HUMLA KARNALI	THULDADA	P	III-6	MW	15,200		HM	S++			DW	P+d			Existing
20	240	KARNALI	ASARA GHAT	P	III-6	FW	19,260		MM	S++	F	DS	DW	F+d	(DS)		Existing
21	241	LOHARE KHOLA	TALLO DUNGESWAT		III-6	MW	1,060		MM	S++			S				Existing
22	250	KARNALI	BENIGHAT	P	III-6	FW	21,240		MM	S++	F		DW	F+d			Existing
23	262	TULI GAD	KHANAYATAL		III-6	FW	896		S	S++	F		S	F+d			Existing
24	280	KARNALI	CHISAPANI	BASIC	III-6	FW	42,890		S	DW	F	PS	DW	F+d	(PS)	WQ	Existing
25	287	KAURIALA KARNALI	SATTAR FARM		III-6	MW	43,650		T				----	----			Existing
26	288	GERUWA KARNALI	KOTHIYA GHAT		III-6	MW	43,650		T				----	----			Existing
27	286	SARADA KHOLA	DARADHUNGA		IV	MW	816		S	S++	F-	DS	S				Existing
28	289.9	BABAI NADI	GANGATA		IV	MW	1,320		S				----	----			Existing
29	289.95	BABAI NADI	CHEPANG	BASIC	IV	MW	3,000		S	S++	F		DW	F+d	PS	WQ	Existing
30	291	BABAI NADI	BHADA		IV	MW	3,097		T				S				Existing
31	330	MARI LHOLA	NAYAGAON		VI	MW	1,980		MM	S++			S				Existing
32	339.5	JHIMRUK KHOLA	TIGRA GAON		VI	MW	683		MM	S++	F		S				Existing
33	350	RAPTI	BAGASOTI GAON	BASIC	VI	MW	3,380		S	S++	F-	DS	DW	P+d	PS	WQ	Existing
34	360	RAPRI	JALKUNDI	P	VI	MW	5,150		S	S++	F	DS	S	P+d			Existing
35	385.2	RAPTI RIVER	FARINDA		VI	MW	6,120		T				----	----			Existing
36	387.5	MADI TINAU	CHARCHARE		VII	W	103		S	S	F		(S)	F+d			Existing
37	390	TINAU KHOLA	BUTWAL	BASIC	VII	W	554		S	S++			DW	P+d	PS	WQ	Existing
38	446.8	PHALANKHU KHOLA	BETRAWATI		VIII-1	C	162		MM				S				Existing
39	447	TRISULI	BETRAWATI	P	VIII-1	C	4,110		MM	S	F++	DS	DW	P+d	(DS)		Existing
40	448	TADI KHOLA	TADIPUL BELKOT		VIII-1	C	653		MM	Br			S				Existing
41	445	BURHI GANDAKI	ARUGHAT	P	VIII-2	W	4,270		MM	S	F++	DS	DW	P+d	(DS)		Existing
42	445.3	ANKHU KHOLA	ANKHU BRIDGE		VIII-2	W	768		MM	S++			S				Existing
43	439.7	MARSYANGDI	BIMAL NAGAR	P	VIII-3	W	4,088		MM	S	F	DS	DW	F+d	(DS)		Existing

Table 6.2 LIST OF HYDROMETRIC STATIONS OF PROPOSED MINIMUM NETWORK (2/3)

NO.	INDEX NUMBER	NAME OF RIVER	NAME OF SITES	TYPE OF STATION	NUMBER OF BASIN	RE-GION	BASIN AREA(sq.km) inside Nepal	include outside	PHY. DIV.	EXISTING INSTRUMENT			PROPOSED INSTRUMENT			REMARKS
44	440	CHEPE KHOLA	GARAM BESI		VIII-3	W	308		MM	S	P	(S)	P+d			Existing
45	430	SETI	PHOOLBARI		VIII-4	W	582		MM	S++		S	P+d			Existing
46	438	MADI	SHISA GHAT		VIII-4	W	858		MM	S		(S)				Existing
47	403	KALI GANDAKI	JOMSOM		VIII-5	W	3,060		HH			S				Existing
48	404.7	MYAGDI KHOLA	MANGLA GHAT		VIII-5	W	1,112		HM	S		(S)				Existing
49	406.5	MODI KHOLA	NAYAPUL NEAR JHAPRE BAGAR		VIII-5	W	635		MM	S		(S)				Existing
50	410	KALI GANDAKI	SETI BENI	P	VIII-5	W	6,630		MM	S	F&P	DS DW	(P)+d	(DS)		Existing
51	415	ANDHI KHOLA	DUMRICHAUR ANDHIMUHAN	P	VIII-5	W	476		MM	S+		DW	P+d			Existing
52	417	BADIGAD KHOLA	RUDRABENI GULMI		VIII-5	W	1,990		MM	S		(S)				Existing
53	419.1	KALI GANDAKI	ANSIGH - ANDHI GHAT		VIII-5	W	10,220		MM	S		(S)				Existing
54	420	KALI GANDAKI	KOTAGAON SHRINGE	P	VIII-5	C	11,400		S	S	F+	(S)	P+d			Existing
55	460	RAPTI	RAJAIYA	P	VIII-6	C	579		S	S+		S	P+d			Existing
56	465	MANAHARI KHOLA	MANAHARI		VIII-6	C	427		S	S+	F	S	F+d			Existing
57	470	LOTHAR KHOLA	LOTHAR		VIII-6	C	169		S	S		(S)				Existing
58	449.9	TRISULI	MUGLING		VIII-7	C	7,648	11,720	MM			S				Existing
59	450	NARAYANI	NARAYAN GHAT	BASIC	VIII-7	C	27,030	31,100	S	S	F	DS DW	F+d	PS	WQ	Existing
60	505	BAGMATI	SUNDARIJAL		X	C	17		MM	S+	F	S	F+d			Existing
61	550.05	BAGMATI	KHOKANA	P	X	C	610		MM	Br	P	DW	P+d		WQ	Existing
62	589	BAGMATI	PANDHERA DOBHAN	BASIC	X	C	2,700		T	S	F+	DS DW	P+d	PS	WQ	Existing
63	592	BAGMATI	BRAMHAPURI		X	C	3,790		T			----	----			Existing
64	598	KAMALA	CHISAPANI	BASIC	XII	E	1,595		S			DW	P+d	PS	WQ	Existing
65	599	KAMALA	INARWA		XII	E	1,775		T			----	----			Existing
66	610	BHOTE KOSI	BARABISE	P	XIV-1	C	240	2,410	HM	Br		DW	P+d			Existing
67	647	TAMAKOSI	BUSTI	P	XIV-2	C	1,896	2,753	MM	S	F++	DW	P+d			Existing
68	650	KHIMTI KHOLA	RASNALU VILLAGE		XIV-2	C	313		MM	S+		S				Existing
69	670	DUDH KOSI	RABUWA BAZAR	P	XIV-3	E	4,100		MM	S	F	DS DW	F+d	DS		Existing
70	600.1	ARUN	UWA GAON	P	XIV-4	E	1,204	26,750	HM	S	F	DS DW	P+d	(DS)		Existing
71	604	ARUN	LEGUWA GHAT		XIV-4	E	4,183		MM			S				Existing
72	604.5	ARUN	TURKEGHAT	P	XIV-4	E	2,707	28,200	MM	S	F+	DW	P+d			Existing
73	606	ARUN	SIMLE	P	XIV-4	E	5,173		MM	Br		DW	P+d			Existing
74	684	TAMUR	MAJHITAR		XIV-5	E	4,076		MM	S		(S)				Existing
75	690	TAMUR	MULGHAT	P	XIV-5	E	5,640		MM	Br	P	DS S	(P)+d	(DS)		Existing
76	620	BALEPHI KHOLA	JALBIRE		XIV-6	C	629		MM	S		(S)				Existing
77	629.1	INDRAWATI	DOLAL GHAT	P	XIV-6	C	1,225		MM	S		DW	P+d			Existing
78	630	SUN KOSI	PACHUWAR GHAT	P	XIV-6	C	4,920		MM	S		DW	P+d			Existing
79	652	SUNKOSI	KHURKOT		XIV-6	C	7,840	10,000	MM	S		(S)				Existing
80	660	LIKHU KHOLA	SANGUTAR		XIV-6	C	823		MM	S	F	(S)	F+d			Existing
81	665	SUN KOSI	AHRKAPUR (TOKSELGHAT)	P	XIV-6	E	8,736		MM	S	F	DW	P+d			Existing
82	680	SUN KOSHI	KAMPUGHAT	P	XIV-6	E	14,583	17,600	MM			DW	P+d	DS		Existing
83	695	SAPTA KOSHI	CHATARA-KOTHU	BASIC	XIV-6	E	24,400	54,100	S	S	F	DS DW	F+d	PS	WQ	Existing
84	728	MAI KHOLA	RAJDWAIL		XVI	E	377		MM	S	F+	DS (S)				Existing
85	795	KANKAI MAI	MAINACHULI	BASIC	XVI	E	1,148		S	S+	F+	DW	P+d	PS	WQ	Existing
86	799	KANKAI	KUMARKHOD - JHAPA		XVI	E	1,330		T			----	----			Existing

Table 6.2 LIST OF HYDROMETRIC STATIONS OF PROPOSED MINIMUM NETWORK (3/3)

NO.	INDEX NUMBER	NAME OF RIVER	NAME OF SITES	TYPE OF STATION	NUMBER OF BASIN	RE-GION	BASIN AREA(sq.km) inside Nepal	include outside	PHY. DIV.	EXISTING INSTRUMENT		PROPOSED INSTRUMENT		REMARKS
87	403.5	KALI GANDAKI	TATOPANI	P	VIII-5	W	3,690		HM	DB	P	DW	(P)+d	Model system
88	406	KALI GANDAKI	KALLERI	P	VIII-5	W	5,600		MM	DB	P+d	DW	(P+d)	Model system
89	595	JAMUNI RIVER	CHYUNTAHA	P	IX	C	110		T	DB	F	DW	(F)	Model system
90	New 1	SURMAYA GAD	MELGHAT		I	FW	750		MM			S		Proposed
91	New 2	MAHAKALI	BRAMHADEBMANDI	P	I	FW	14,600		S			S	P+d	Proposed
92	New 3	MAHAKALI	DODHARA		I	FW	15,200		T			----	----	Proposed
93	New 4	MUGU-KARNALI	DABRA		III-2	MW	4,280		HH			S		Proposed
94	New 5	SETI	SUNKADA or RAYAL		III-4	FW	560		MM			S		Proposed
95	New 6	THULI-BHERI	JUPHAL		III-5	MW	2,925		HM			S		Proposed
96	New 7	THULI-BHERI	SHIMI		III-5	MW	3,920		HM			S		Proposed
97	New 8	BHERI	RATOCHAUR		III-5	MW	8,400		MM			S		Proposed
98	New 9	MAN RIVER	BALAIPUR		V	MW	948		T			S		Proposed
99	New10	BUDHI-GANDARI	LUKUWA	P	VIII-2	W	1,605		HM			DB	P+d	Proposed
100	New11	MARSYANDI	BAJE		VIII-3	W	2,005		HM			S		Proposed
101	New12	SETI	KALIKATAR	P	VIII-4	W	2,812		MM			DB	P+d	Proposed
102	New13	NARAYANI	SUSTA		VIII-7	W	31,719		T			S		Proposed
103	New14	RATO RIVER	SAKRI		XI	C	385		T			S		Proposed
104	New15	BHATIWALAN RIVER	MADHUPATTI ?		XIII	E	420		T			S		Proposed
105	New16	DUDH KOSHI	JUBIN		XIV-3	E	1,565		HM			S		Proposed
106	New17	TAMAR	TAPLETHOK		XIV-5	E	1,815		HM			S		Proposed
107	New18	KABELI-KHOLA	ANBUN		XIV-5	E	850		MM			S		Proposed
108	New19	SAPTA KOSHI	BALUWA		XIV-6	E	27,860		T			----	----	Proposed
109	New20	BUDHI RIVER	AMAHI		XV	E	410		T			S		Proposed
110	New21	MECHI	BANIYANI	P	XVII	E	782		T			S	P+d	Proposed
111	SG 1		LANGTANG		VIII-1	C	340		HH					Snow & Glacier
112	SG 2		DINGBOCHE KHUMBU		XIV-3	E	135		HH					Snow & Glacier
113	SG 3		MACHHAPUCHHRE ANNAPURNA		VIII-5	W	148		HH					Snow & Glacier
114	SG 4		HURIKOT		III-5	MW	725		HH					Snow & Glacier
115	SG 5		ZANGA, HUMLA		III-1	MW	553		HH					Snow & Glacier
116	SG 6		MAKALU		XIV-4	E	240		HH					Snow & Glacier

NOTE: INSSTRUMENT

DW: Double drum winch Cable way (Bank operating)

S : Single drum winch Cable way with Cable car

Br: Bridge

F : Float-type Recording water level gauge

P : Pressure-type Recording water level gauge

+t: With Telemetry Capability

+d: With Data Logger

PS: Point Integrated Sediment Sampler

DS: Depth Integrated Sediment Sampler

WQ: Water Quality Sampling Instrument

+ : Repair is to be required

++: Replacement is to be required

( ): New installation is not necessary

REGION

FW: FAR WESTERN

MW: MID WESTERN

W : WESTERN

C : CENTRAL

E : EASTERN

Type of station

BASIC: Bacic station

P : Primary station

Others are Secondary station

PHY. DIV. : Physiographic Division

HH : High Himalaya

HM : High Mountain

MM : Middle Mountain

S : Siwalik

T : Terai

Table 6.3 SUMMARY OF INSTRUMENTS OF EXISTING AND PROPOSED WATER LEVEL GAUGING STATION

	Type of Station	Number of Station		Instrument to be installed													
				Cable Way				Water Level Recorder				Sediment Observation				W.Q. Obs	
				DW	S	Sub total		P	F	Sub total		PS	DS	Subtotal		Sub total	
Existing Station	Basic	10	86	10	0	10	79	3	7	10	41	10	0	10	20	10	11
	Primary	31		25	6	31		8	23	31		0	10	10		1	
	Secondary	45		0	38	38		0	0	0		0	0	0		0	
Model Station	Basic	0	3	0	0	0	3	0	0	0	3	0	0	0	0	0	0
	Primary	3		3	0	3		2	1	3		0	0	0		0	
	Secondary	0		0	0	0		0	0	0		0	0	0		0	
Proposed Station	Basic	0	21	0	0	0	18	0	0	0	4	0	0	0	0	0	0
	Primary	4		2	1	3		2	2	4		0	0	0		0	
	Secondary	17		0	15	15		0	0	0		0	0	0		0	
Total	Basic	10	110	10	0	10	100	3	7	10	48	10	0	10	20	10	11
	Primary	38		30	7	37		12	26	38		0	10	10		1	
	Secondary	62		0	53	53		0	0	0		0	0	0		0	
	Total			40	60	100		15	33	48		10	10	20		11	

Note: Cable way

- DW : Double drum winch
- S : Single drum winch

Water level Recorder

- P : Pressure-type
- F : Float-type

Sediment observation

- PS : Point integrated Sampler
- DS : Depth integrated Sampler

W.Q. Obs : Water Quality observation

Table 6.4 SUMMARY OF OBSERVATION SYSTEM IN LONG TERM PROGRAMME

	Basic Station	Primary Station	Secondary Station
1) Observation instruments	i) Staff Gauge facility (3 Sections) ii) Water Level Recorder & Facility iii) Bank Operation Double drum winch cable way iv) Point integrated sample v) Portable meters and electrodes for water quality observation	i) Staff gauge facility (3 Sections) ii) Water level recorder & facility iii) Mountainous area →Double drum winch cable way (Bank operating) Terai area →Single drum winch cable way (with cable car) iv) Depth integrated sample v) Portable meters and electrodes for water quality observation	i) Staff gauge only (1 Section) ii) Single drum winch cable way with cable car
- Flood measurements			Peak water level gauge (Flood-crest gauge)
2) Water level observation			
- Regular	3 times per day (8, 12, 16)	3 times per day (8, 12, 16)	3 times per day (8, 12, 16)
- Flood	every hour during flood	every hour during flood	every hour during flood
3) Discharge measurement			
- Regular measurement	twice a week in dry season once a week in monsoon season A minimum total of 36 times per year	a minimum of 10 times per year	a minimum of 6 times per year
- Flood measurement	i) Shortened and optimized measurement by bank operating current meter ii) Float method iii) Slope area method	ditto	i) Float method ii) Slope area method
4) Sediment observation			
- Regular	Point integrated sampling once a week in dry season once a day in monsoon season	Depth integrated Sampling ditto	no observation
- Flood	every hour during flood	every hour during flood	
5) Water quality observation	Once a day for basic properties e.g. temperature, PH, conductivity turbidity, others per month	ditto (550.05 only)	no observation
6) Inspection and Maintenance	Stationed staffs carry out frequent inspection and continuous maintenance. Mechanic/Electric inspection is Carried out by mechanics once a year	Field technicians in branch office carry out inspection and mechanics conduct Mechanical/Electric Inspection once a year	ditto
7) Staff	Two stationed field technicians stay in all year	Field technicians in branch office	Field technicians in branch office

Table 6.5 RECOMMENDED FIELD SCHEDULE ON PRECIPITATION STATIONS

Month		Recording Station			Non-Recording Station		Specified Station
		Inspection		Data Collect	Insp.	Data Collect	Annual inspect.
		F.Te	M.Te		F.Te		Me
Jan.							
Feb.		○		○	○	△	
Mar.							
Apr.			(Cal)				◎
May		△		○			
June							
July	Mon soon		Stand by at office				
Aug.		△		○			
Sep.							
Oct.							
Nov.		○		○			
Dec.			○				
Total Number		2	2	4	1		1

(Manual data to be sent by mail once a month)

(Manual data to be sent by mail once a month)

Remarks

F.Te : Field technician
M.Te : Mechanical technician
Me : Meteorologist
○ : as scheduled
△ : as required
(Cal) : Calibration and adjustment of instruments

1) Annual inspection by Meteorologist shall be carried out according to results of field inspection by technicians.

Table 6.6 RECOMMENDED FIELD SCHEDULE ON WATER LEVEL STATIONS

Month		Basic Station				Primary Station				Secondary Station			Specified Station
		D.M.	C.S.	Inspection		D.M.	C.S.	Inspection		D.M.	C.S.	Insp.	Annual inspect.
				S.Te	M.Te			S.Te	M.Te			S.Te	Hy
Jan.		②	○	○									
Feb.		②		○	(Cal)	①	○	△		①		△	
Mar.		②		○					(Cal)		○		
Apr.		②		○		①		○		①		○	◎
May		②		○									
June		③		○		②		△		①		△	
July	Mon soon	③		○	Stand by at office	①		○	Stand by at office	①		○	
Aug.		③		○		②		△					
Sep.		③		○		②		△		①		△	
Oct.		②		○									
Nov.		②		○		①		○		①		○	
Dec.		②		○									
Total Number		36	1	Weekly	2	10	1	3	2	6	1	3	1

Remarks

D.M. : Discharge Measurement
C.S. : Cross-Section Survey
S.Te : Station field technician
M.Te : Mechanical technician
Hy : Hydrologist
(n) : Number of D.M.
(Cal) : Calibration of instruments
○ : as scheduled
△ : as required

1) Annual inspection by Hydrologist shall be carried out according to results of field inspection by technicians.
2) Data collection shall be conducted at the time of discharge measurements.
3) Number of discharge measurements does not include Temporary Measurement

Table 6.7 OUTLINE OF COLLECTED MATERIAL

Data, Sample or Information to be Collected	Observation Method	Style of Data	Number of Data Collection			Collection Frequency	Processing Frequency	Remarks
			Max.	Min.	Ave.			
1. Precipitation • daily	manual gauge	paper form	12	12	12	monthly	monthly	• Observe once per day
• continuous	automatical	chart						• Number depends on paper. Processing frequency depends on inspection schedule
	automatical	ram card						• Number depends on capacity and recording frequency. Collection and processing frequency depend on inspection schedule.
• real time	telemeter	digital sign					real time	• Number, collection frequency and processing frequency depend on inspection schedule.
2. Water Level • daily	Staff gaug	paper form	12	12	12	monthly	monthly	• Observed once per day
• continuous	automatical	chart						• Number depends on paper. Processing frequency depends on inspection schedule.
	automatical	ram card						• Number depends on capacity and recording frequency. Collection and processing frequency depend on inspection schedule.
• real time	telemeter	telemeter						• Number, collection frequency and processing frequency depend on inspection schedule.
3. Discharge	currentmeter	paper form	36	6	6		monthly	• The number of discharge measurement depends of kind of stations, river condition and number of floods.
	float	paper form					monthly	
	slope-area	paper form					monthly	Basic Station : bi-weekly discharge, flood
	tracer	sample					monthly	Primary Station : ten times per year
								Secondary Station : minimum six times per year
4. Suspended Sediment	sample	sample					monthly	Collection frequency depends on season. Number depends on flow condition
5. Riverbed Material	sample	sample	1	1	1	yearly	yearly	
6. Water Quality	sample	sample	365	365	365	every day	monthly	
	sample	paper form	365	365	365	every day	monthly	
7. Report on Station Inspection	inspection	paper form	4	1	4	every three month	every three month	
8. Cross Section Survey	survey	paper form	1	1	1	---	yearly	
9. Emergency Information	---	telephone	-	-	-	---	---	

Table 6.8 SUMMARY OF DATA ENTRY WORK

Entry Data	Recording Style	Observation Method	Entry Method	Remarks
1. Precipitation				
a. Daily precipitation	Paper form	Manual	Keyboard	
b. Continuous precipitation	Chart	Automatical gauge	Digitizer	
	Ram card	Data logger	Reader	
	Wire	Telemeter system	Automatically	For basic station
	Wireless	Telemeter system	Automatically	For basic station
2. Water Level				
a. Daily water level	Paper form	Manual	Keyboard	
b. Continuous water level	Chart	Automatical gauge	Digitizer	
	Ram card	Data logger system	Reader	
	Wire	Telemeter system	Automatically	For basic station
	Wireless	Telemeter system	Automatically	For basic station
c. Extreme water level	Chart	Automatical gauge	Keyboard	
	Ram card	Data logger system	Reader	
	Wire	Telemeter system	Automatically	For basic station
	Wireless	Telemeter system	Automatically	For basic station
3. Discharge	Paper form	Float	Keyboard	
	Paper form	current meter	Keyboard	
	Paper form	SlopE-area	Keyboard	
4. Sediment				
a. Suspended sediment concentration	Paper form	Depth integrated sampling	Keyboard	
	Paper form	Point integrated sampling	Keyboard	
b. Particle size analysis	Paper form	Hydrometer method	Keyboard	
c. Grain size	Paper form	Sieve	Keyboard	
d. Percentage of void	Paper form		Keyboard	
5. Water Quality	Paper form	Kit	Keyboard	
		Laboratory	Keyboard	
6. Information of Station	Paper form	Inspection or phone	Keyboard	
7. Cross Section Survey	Paper form	Survey	Keyboard	

Table 6.9 STORING DATA (1/2)

Data	Style	Storing Frequency	Term to be stored	Remarks
A. Original Data				
1. Precipitation				
a. continuous precipitation	chart	yearly	forever	
	ram card	*	—	
	digital or analog sign	*	—	
b. daily precipitation	paper form	yearly	forever	
2. Water Level				
a. continuous water level	chart	yearly	forever	
	ram card	*	—	
	digital or analog sign	*	—	
b. daily water level	paper form	yearly	forever	
3. Discharge	paper form	yearly	forever	
4. Sediment				
a. sediment concentration	paper form	yearly	forever	
b. perticle size	paper form	yearly	forever	
c. grain size	paper form	yearly	forever	
d. percentage of void	paper form	yearly	forever	
5. Water Quality	paper form	yearly	forever	
6. Station Description				
a. inventory	paper form	yearly	forever	
b. inspection sheet	paper form	yearly	forever	
c. others	paper form	—	—	
7. Cross Section Survey	paper form	yearly	forever	
8. Error Report	paper form	yearly	forever	
B. Processed Data	File			In Computer
1. Precipitation				
a. continuous precipitation	file	yearly	forever	
b. daily precipitation	file	yearly	forever	
c. daily mean precipitation	file	yearly	forever	
d. rainfall intensity	file	yearly	forever	
e. isohyetal map	file	yearly	forever	
2. Water Level				
a. continuous water level	file	yearly	forever	
b. daily water level	file	yearly	forever	
c. daily mean water level	file	yearly	forever	
d. extream water level	file	yearly	forever	
3. Discharge				
a. discharge measurement	file	yearly	forever	
b. continuous discharge	file	yearly	forever	
c. daily mean discharge	file	yearly	forever	
d. extreme discharge	file	yearly	forever	
4. Rating Table	file	yearly	forever	

Table 6.9 STORING DATA (2/2)

Data	Style	Storing Frequency	Term to be stored	Remarks
5. Sediment				
a. daily sediment concentration	file	yearly	forever	
b. daily sediment transport	file	yearly	forever	
c. extreme sediment transport	file	yearly	forever	
d. particle size	file	yearly	forever	
e. grain size	file	yearly	forever	
f. percentage of void	file	yearly	forever	
7. Water Quality	file	yearly	forever	
8. Station Information				
a. station description	file	irregular	till updated	
b. data collection record	file	every day	till updated	
9. Cross Section	file	yearly	forever	
C. Data Book	book	yearly	forever	
D. Backup	Optical disk			
1. Precipitation				
a. continuous precipitation	optical disk	**	forever	
b. daily precipitation	optical disk	**	forever	
2. Water Level				
a. continuous water level	optical disk	**	forever	
b. daily water level	optical disk	**	forever	
c. extreme water level	optical disk	**	forever	
3. Discharge				
a. discharge measurement	optical disk	**	forever	
4. Rating Table	optical disk	**	forever	
5. Sediment				
a. sediment concentration	optical disk	**	forever	
b. particle size	optical disk	**	forever	
c. grain size	optical disk	**	forever	
d. percentage of void	optical disk	**	forever	
7. Water Quality	optical disk	**	forever	
8. Station Information				
a. inventory	optical disk	**	forever	
b. inspection sheet	optical disk	**	forever	
9. Cross Section Survey	optical disk	**	forever	
10. Error Report	optical disk	**	forever	
E. Output List	paper	**	forever	

Note: —; These data will not be stored.Note: —; These data will not be stored.
*: It will depend on the field trip of staff
**: •The back up for original data will be made once a year.
•The back up for processed data will be made twice a year at the Central Office.
•The back up for processed data will be made every month at the Basin Office

Table 6.10 TRAINING ITEM

Trainee	Target	Training Item			
		Introduction	Observation	Data Processing	Analysis
Newly Employed Staff	Introduction on the DHM works	Outline of the DHM	—	—	—
Field Assistant	Correct observation according to the DHM observation manual	Necessity of hydrological and meteorological data	Observation method Maintenance of gauge	—	—
Junior Hydro-Meteorological Assistant	Correct observation including site inspection and data entry	Data processing in the DHM General knowledge on meteorology and hydrology	Observation method Inspection of station	Basic knowledge on computer Data entry	—
Senior Hydro-Meteorological Assistant	Correct data processing according to the DHM data processing manual	Data checking in the DHM General knowledge on meteorology and hydrology	Water quality	Data processing in the DHM following operation manual on data processing and data base software Operation on computer	—
Engineer	Full responsibility on data quality	Management	Total knowledge on planning of observation network	Data checking in the DHM Maintenance of computer	Precipitation analysis Stream flow analysis

Table 6.11 ALTERNATIVE OF ORGANIZATION

Case	Organization and Roles				Outline of the cases	Advantage	Disadvantage
	Work Item	Central Office	Basin Office	Branch Office			
1	Data Collection	○			DHM will consist of only Central Office. Central Office will carry out every works.	Since every resources such as manpower and computer equipments will be concentrated to one place, it will save resources and is efficiency.	It will be difficult to maintain all stations well because of big number of stations. If error will be found, it will be difficult to investigate the causes.
	Data Entry	○					
	Date Processing	○					
	Data Management	○					
2	Data Collection	×	○		DHM will consist of Central Office and Basin Office. Basin Office will collect data. Central Office will enter, process and manage data.	Since every resources for data management will be concentrated at one place, it will save resources for them and is efficiency.	It will be difficult to investigate the cause of errors, because all data will be processed and checked far from stations and staffs for inspection. It will be also difficult to instruct local staffs and observers.
	Data Entry	○	×				
	Date Processing	○	×				
	Data Management	○	×				
3	Data Collection	×	○		DHM will consist of Central Office and Basin Office. Basin Office will collect and enter data. Central Office will process and manage data.	Since all data will be collected, entered and checked at one place, it will be easy to investigate the cause of error and instruct staffs for inspection and observers.	The responsibility for data check will not be clear because the data will be processed at the different place where they will be collected and entered. The data checking work will be late because of transfer of data.
	Data Entry	×	○				
	Date Processing	○	×				
	Data Management	○	×				
4	Data Collection	×	○		DHM will consist of Central Office and Basin Office. Basin Office will collect, enter and process data. Central Office will manage data.	Since data will be collected, entered and processed at same place, it will be easy to investigate cause of error and instruct staffs for inspection and observers. The responsibility will be also clear.	Since data will be processed at Basin Offices, much experienced staffs and resources will be necessary. It will difficult to cope with urgent information without Branch Office.
	Data Entry	×	○				
	Date Processing	×	○				
	Data Management	○	×				
5	Data Collection	×	△	△	DHM will consist of Central Office, Basin Office and Branch Office. Branch Office will collect data. Basin Office will collect and enter data. Central Office will process and manage data.	In case that urgent information such as damaged or troubled station will be get, Branch Office will cope with early.	The responsibility for data checking will not be clear, because the place for data entry and processing will not same.
	Data Entry	×	○	×			
	Date Processing	○	×	×			
	Data Management	○	×	×			
6	Data Collection	×	△	△	DHM will consist of Central Office, Basin Office and Branch Office. Branch Office will collect data. Basin Office will collect, enter and process data. Central Office will manage data.	Branch Office will be able to cope with urgent information such as damaged or troubled stations. It will be easy to check and investigate error, because data will be processed at one place and Branch Office will be established.	The running cost for Branch Office will be charged.
	Data Entry	×	○	×			
	Date Processing	×	○	×			
	Data Management	○	×	×			
7	Data Collection	×	△	△	DHM will consist of Central Office, Basin Office and Branch Office. Branch Office will collect and enter data. Basin Office will collect, enter and process data. Central Office will manage data.	It will be easy to check or investigate error, because Branch Office will be established stations and the data will be entered and checked near from stations.	Since the electric condition will not be good, it will be difficult to operate computer regularly. Much resources will be necessary. It will take much time to enter and transfer data.
	Data Entry	×	△	△			
	Date Processing	×	○	×			
	Data Management	○	×	×			

Table 6.12 NUMBER OF OBSERVATION STATION IN CHARGE OF BASIN OFFICE

Basin Office		Far Western	Western	Central	Eastern	Total
Location of Office		Nepalgunj	Pokhara	Kathmandu	Biratnagar	4
Branch Office		1. Bangga 2. Chainpur 3. Simikot 4. Jumla 5. Musikot	1. Jomsom	1. Simara	1. Okhaldhunga 2. Khandbari 3. Taplejung	10
Main Basin		Mahakali Karnali Babai West Rapti Tinau	Narayani	Bagmati	Kamala Kankai Sun Koshi	
	Basin Area (km2)	67,619	31,726	10,196	37,640	147,181
Hydrometric Station	Basic Station	5	1	1	3	10
	Primary Station	13	11	2	12	38
	Secondary Station	28	16	3	15	62
	Total	47	28	6	30	110
Precipitation Station	Recording Station	21	19	6	14	60
	Non-recording Station	175	95	37	103	410
	Total	196	64	43	117	470

Table 6.13 TOTAL NUMBER OF REQUIRED ENGINEERING STAFFS (1/2)

Office	Remarks	Number of staffs
1. Central Office		
1.1 Evaluation Division	Chief	1
1.2 Data Management Division	Chief	1
	Staff	2
1.2.1 Management Section		
1.2.1.1 Progress Control Unit		1
1.2.1.2 Quality Control Unit	Chief	1
	Data Processing Staff	4
	Observation	1
Laboratory	Chief	1
	Sediment	2
	Water Quality	2
Workshop	Chief	1
	Observation Equipment	4
	Computer Maintenance	2
Sub-Total (1.2.1)		19
1.2.2 Data Arrangement Section	Chief	1
1.2.2.1 Data Storing Unit	Chief	1
	Data Arrangement	2
	Maintenance of Software	4
1.2.2.2 Data Dissemination Unit	Staff	2
Sub-Total (1.2.2)		10
Sub-Total in the Central Office		33
2. Basin Office		
2.1 Far Western Basin Office	Chief	1
a Data Arrangement Unit	Data Entry	1
	Data Processing	2
b Observation Unit		4
c Laboratory Unit		2
d Workshop Unit		3
Sub-Total (2.1)		13
2.2 Western Basin Office	Chief	1
a Data Arrangement Unit	Data Entry	1
	Data Processing	2
b Observation Unit		6
c Laboratory Unit		2
d Workshop Unit		2
Sub-Total (2.2)		14
2.3 Central Basin Office	Chief	1
a Data Arrangement Unit	Data Entry	1
	Data Processing	2
b Observation Unit		2
c Laboratory Unit		0
d Workshop Unit		0
Sub-Total (2.3)		6
2.4 Eastern Basin Office	Chief	1
a Data Arrangement Unit	Data Entry	1
	Data Processing	2
b Observation Unit		4
c Laboratory Unit		2
d Workshop Unit		2
Sub-Total (2.4)		12

Table 6.13 TOTAL NUMBER OF REQUIRED ENGINEERING STAFFS (2/2)

Office		Remarks	Number of staffs
3.	Branch office		
3.1	Bannga		2
3.2	Chainpur		2
3.3	Simikot		2
3.4	Jumla		2
3.5	Musikot		2
3.6	Jomson		2
3.7	Simla		2
3.8	Okhalding		2
3.9	Khadbari		2
3.10	Taplejung		2
	Sub-Total (3)		20
4	Basic Station		
4.1	Mahakali		2
4.2	Karnali		2
4.3	Babai		2
4.4	West Rapti		2
4.5	Tamur		2
4.6	Gandaki		2
4.7	Bagmati		2
4.8	Kamara		2
4.9	Koshi		2
4.10	Kankai		2
	Sub-Total (4)		20
5	Synoptic Station		
5.1	Dandeldhura		2
5.2	Dhangadhi		2
5.3	Dipayal		2
5.4	Surkhet		2
5.5	Jumla		1
5.6	Ghorai		2
5.7	Bhairhawa		2
5.8	Pokhara		2
5.9	Simla		1
5.10	Kathmandu		2
5.11	Okhaldhunga		1
5.12	Dhankuta		2
5.13	Biratnagar		2
5.14	Taplejung		1
	Sub-Total (5)		20
	Grand-Total		138

Table 6.14 GENERAL ITEMS TO BE INCLUDED IN THE LONG TERM PROGRAMME (1/2)

FUNCTION OF SYSTEM	SUBSYSTEM AT				LONG TERM PROGRAMME			MODEL SYSTEM
	(1) OBSERVATION STATION	(2) BRANCH OFFICE	(3) BASIN OFFICE	(4) CENTRAL OFFICE	FIRST STAGE (Immediate Programme)	SECOND STAGE	THIRD STAGE	
					Urgent Improvement of Existing System till 1995 ` Elevation of Observation Accuracy ` Strengthening of Basin Office Work ` Improvement of Data Managing Work ` Completion of Processing of Existing Data ` Introduction of Basic Station	Initial Extension of Existing System till 2000 ` Expansion of Observation Network ` Introduction of New Observation and Management Items ` Elevation of Observation Accuracy ` Smoothening of Data Managing Work	Further Extension of Existing System till 2005 ` Expansion of Observation Network to Complete Min Network ` Improvement of Data Dissemination System ` Preparatory Study and Work for Further Stage	
(A) OBSERVATION	Precipitation Observation System				Reinforcement/Repair of Existing Raingauge * Repair of Existing Ordinary and Recording Raingauge * Addition of Recording Raingauges(10)	Extension of Raingauge Network (Initial stage:Focusing priority water resources project and scarce density) * Establishment of New Raingauge Stations (102) * Addition of Recording Raingauges(15)	Extension of Raingauge Network(Final stage:Completing min network) * Establishment of New Raingauge Stations(102) * Addition of Recording Raingauges(7)	* Plan of Distribution and Selection of Gauge Type * Installation,Operation and Maintenance
	Water Level Observation System				Repair of Existing Water Level Gauge and Introduction of Basic Stations * Minimum Required Repair of Existing Staff Gauges and Measuring Equipment * Establishment of Basic Stations(10)	Completion of Primary Station and Extension of Water Level Gauge Network * Repair/Reinforcement of Existing Equipments of Primary Stations(34) * Establishment of Primary Stations(4)	Completion of Secondary Station and Extension of Water Level Gauge Network * Repair/Reinforcement of Existing Equipments of Secondary Stations(45) * Establishment of Secondary Stations(17)	* Plan of Distribution and Selection of Gauge Type * Installation,Operation and Maintenance
	Discharge Measurement System				Repair of Existing Measuring Equipments * Minimum Required Repair of Existing Measuring Equipment * Repair and Addition of Current Meter	Completion of Measuring Equipments of Primary Stations * Improvement and Addition of Equipment of Primary Stations * Addition of Current Meter	Completion of Measuring Equipments of Secondary Stations * Improvement and Addition of Equipments of Secondary Stations	* Operation and Maintenance of Measuring Equipment * Introduction of Float and Slope-area Methods
	Sediment Sampling System				Completion of Sediment Observation Network * Repair/Reinforcement of Sediment Sampling Equipments	Introduction of Sampling of Riverbed Material * Introduction of Sampling Equipments		* Sampling and Guidance * Improvement of Sampling Method
	Water Quality Sampling System					Introduction of Water Quality Observation * Introduction of Field Test Kits and Sensor	Completion of Water Quality Observation Network * Addition of Field Test Kits and Sensors	
(B) SEDIMENT AND WATER QUALITY ANALYSIS	Sediment Analysis System		Sediment Analysis System		Reinforcement of Sediment Laboratory * Repair/Reinforcement of sediment Analysis Instrument	Introduction of Gradation Analysis * Installation of Equipments		
	Water Quality Analysis System		Water Quality Analysis System			Introduction of Water Quality Analysis * Introduction of Laboratory Equipment (BOD/COD)	Completion of Water Quality Analysis * Addition of Laboratory Equipment (BOD/COD)	
(C) ESTABLISHMENT, INSPECTION AND MAINTENANCE OF FACILITY			Establishment System		* Improvement of Establishment System			
		Inspection and Maintenance System	Inspection and Maintenance System		* Improvement of System	Introduction of Workshop in Basin Office * Installation of Mechanics and Tools		* Study on Inspection Manual
				Inspection and Maintenance System	* Establishment of Calibration Facility for Current Meter Reinforcement of Central Workshop * Reinforcement of Mechanics and Tools			

Table 6.14 GENERAL ITEMS TO BE INCLUDED IN THE LONG TERM PROGRAMME (2/2)

FUNCTION OF SYSTEM	SUBSYSTEM AT				LONG TERM PROGRAMME			MODEL SYSTEM
	(1) OBSERVATION STATION	(2) BRANCH OFFICE	(3) BASIN OFFICE	(4) CENTRAL OFFICE	FIRST STAGE (Immediate Programme)	SECOND STAGE	THIRD STAGE	
					Urgent Improvement of Existing System till 1995 ` Elevation of Observation Accuracy ` Strengthening of Basin Office Work ` Improvement of Data Managing Work ` Completion of Processing of Existing Data ` Introduction of Basic Station	Initial Extension of Existing System till 2000 ` Expansion of Observation Network ` Introduction of New Observation and Management Items ` Elevation of Observation Accuracy ` Smoothening of Data Managing Work	Further Extension of Existing System till 2005 ` Expansion of Observation Network to Complete Min Network ` Improvement of Data Dissemination System ` Preparatory Study and Work for Further Stage	
(D) DATA PROCESSING AND MANAGEMENT		Data Collection System	Data Collection System		* Mail/Staff	* Mail/Staff	* Mail/Staff Introduction of Telemetry System * Establishment of Telemetry Stations(3)	* Mail * Trial of Wireless Communication
			Data Processing System		* Introduction of Computer * Reinforcement of Processing System Introduction of Data Logger System * Introduction of Data Logging Equipment	Reinforcement of Computer Reinforcement of Data Logger System * Addition of Data Logging Equipment	* Reinforcement of Computer	* Introduction of New Computer * Data Processing and Checking
			Data Storing System		* Improvement of Storing System			
			Data Dissemination System				* Commencement of Data Dissemination	
				Data Processing System	* Collection by Floppy Disk * Mail/Staff * Introduction of Computer * Improvement of Processing System * Completion of Processing of Existing Data Backlog	* Collection by Floppy Disk * Mail/Staff * Reinforcement of Computer	* Data Transmission through Telecommunication Line, Mail/Staff * Introduction of On Line System between Regional and Central Offices * Study on Renewal of Computer	* Data Collection by Floppy Disk * Introduction of New Computer * Data Processing and Checking
				Data Storing System	* Establishment of Storeroom * Improvement of Storing System		* Improvement of Storing System	
				Data Dissemination System	* Improvement of Dissemination System		* Publication of Data Book for Previous Year's Data	
(E) DATA QUALITY IMPROVEMENT AND TRAINING				Data Quality Research System	* Introduction of Research System * Improvement of Manual			
		Training System	Training System		* Invitation of Foreign Expert * On The Job Training	* Invitation of Foreign Expert * On The Job Training	* Invitation of Foreign Expert * On The Job Training	* On The Job Training * Lecture and Guidance
				Training System	* Invitation of Foreign Expert * Establishment of Training Center * Regular Training * Training in Manufacturer	* Invitation of Foreign Expert * Regular Training * Training in Manufacturer	* Invitation of Foreign Expert * Regular Training * Training in Manufacturer	* Lecture and Guidance
(F) MONITORING AND EVALUATION OF ACTIVITIES			Progress Control System	Progress Control System	* Improvement of Progress Control System			* Establishment of Organization and Schedule
			Quality Control System	Quality Control System	* Improvement of Quality Control System			
				Evaluation System	* Improvement of Evaluation System			