

READER's GUIDE to HIS Manual Surface Water

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1 GENERAL

The Hydrological Information System (HIS) provides information on the spatial and temporal characteristics of water quantity and quality variables describing the water resources/water use system in Peninsular India. The information needs to be tuned to the requirements of the decision/policy makers, designers and researchers to be able to take decisions for long term planning, to design or to study the water resources system at large or its components.

This manual describes the procedures to be used to arrive at a sound operation of the Hydrological Information System as far as hydro-meteorological and surface water quantity and quality data are concerned.

The HIS Manual Surface water consists of ten volumes, including:

Volume 1: Hydrological Information System: a general introduction to the HIS, its structure, HIS job descriptions, Hydrological Data User Group organisation and data user need assessment

Volume 2: Sampling Principles: units, principles of sampling in time and space and sampling error theory

Volume 3: Hydro-meteorology: network design, implementation, operation and maintenance

Volume 4: Hydrometry: network design, implementation, operation and maintenance

Volume 5: Sediment transport measurements: network design, implementation and operation

Volume 6: Water Quality sampling: network design, implementation, operation and maintenance

Volume 7: Water Quality analysis: laboratory procedures

Volume 8: Data processing and analysis: specification of procedures for data processing centres

Volume 9: Data transfer, storage, and dissemination: design and specification of procedures in the data storage centres

Volume 10: Surface Water protocols: outline of protocols for data collection, entry, validation and processing, communication, inter agency validation, data storage and dissemination, HIS training and management.

2 STRUCTURE OF THE VOLUMES

A volume of the HIS Manual Surface Water contains one or more of the following manuals, dependent on the topic:

1. **Design Manual**
2. **Field Manual**
3. **Operation Manual**
4. **Reference Manual**

The **Design Manuals** provide the procedures for the design activities to be carried out for the implementation and further development of the HIS. To arrive at a structured approach in developing the HIS, in the Volumes 3 to 6, where the sampling of hydro-meteorological, hydrologic, sediment transport and water quality variables is dealt with, the following general chapter sequence is maintained:

Chapter	Contents	Chapter	Contents
1	Introduction, definitions and units	5	Measuring frequency
2	Description of the relevant processes	6	Measurement techniques
3	Network design and optimisation	7	Equipment specification
4	Site selection	8	Station design and construction

The **Field Manuals** and **Operation Manuals** are *instruction books*, describing in detail the activities to be carried out in the field (station operation, maintenance and calibration), at the laboratory (analysis), and at the data processing centres (data entry, validation, processing and analysis) and data storage centres (data transfer, storage and dissemination). Each Field/Operation Manual is divided into a number of parts. Each part describes a distinct activity at a particular field station, laboratory or processing/storage centre. A hard copy of the relevant parts should be available for the locations listed in Annex 1.

For example, a hard copy of Volume 4: "Hydrometry", Field Manual, Part IV: "Current meter gauging" should be available at all hydrometric stations where flow measurements with a current meter takes place. Similarly, Volume 8: "Data processing and analysis", Operation Manual, Part I: "Data entry and primary processing" is to be applied at all Sub-divisional Data Processing Centres.

The **Reference Manual** of a particular Volume includes additional or background information on topics dealt with or deliberately omitted in the Design, Field and Operation Manuals.

3 OVERVIEW OF MANUALS

The manuals included in the ten volumes of the HIS Manual Surface Water are listed below.

Volume 1: Hydrological Information System

- Design Manual
- Field Manual
 - Part I: Job description
 - Part II: Terms of Reference for HDUG
 - Part III: Data needs assessment
- Reference Manual

Volume 2: Sampling Principles

- Design Manual
- Reference Manual

Volume 3: Hydro-meteorology

- Design Manual
- Field Manual
 - Part I: Network design and site selection
 - Part II: Standard raingauge station (SRG) operation and maintenance
 - Part III: Automatic raingauge station (ARG or TBR and SRG) operation and maintenance
 - Part IV: Full climatic station (FCS) operation and maintenance
 - Part V: Field inspections, audits, maintenance and calibration
- Reference Manual

Volume 4: Hydrometry

- Design Manual
- Field Manual
 - Part I: Network design and site selection
 - Part II: River stage observation
 - Part III: Float measurements
 - Part IV: Current meter gauging
 - Part V: Field application of ADCP
 - Part VI: Slope-area method
 - Part VII: Field inspection and audits
 - Part VIII: Maintenance and calibration
- Reference Manual

Volume 5: Sediment transport measurements

- Design Manual
- Field Manual
- Reference Manual

Volume 6: Water Quality sampling

- Design Manual
- Field Manual

Volume 7: Water Quality analysis

- Design Manual
- Operation Manual

Volume 8: Data processing and analysis

- Operation Manual
 - Part I: Data entry and primary validation
 - Part II: Secondary validation
 - Part III: Final processing and analysis
 - Part IV: Data management

Volume 9: Data transfer, storage, and dissemination

- Design Manual
- Operation Manual

Volume 10: Surface Water protocols

- Operation Manual
- Data entry forms

The contents of the manuals are incorporated in the Training Modules of the Hydrology Project.

AUTHORS

The following staff of the Hydrology Project contributed to the development of the HIS Manual Surface Water:

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ANNEX 1 Summary of distribution of hard copy of Surface Water Manuals

Volume	Manual	Part	Training	DSC	DPC	Div. PC	Sub-div	Stat/Lab
1. HIS	Design		+	+	+	+	+	
	Reference		+	+	+			
	Field	1: Job description	+	+	+	+	+	
		2: HDUG	+	+	+	+		
3: Data needs assessment		+	+	+	+			
2. Sampling principles	Design		+	+	+	+	+	
	Reference		+	+	+			
3. Hydro-meteorology	Design		+	+	+	+	+	
	Reference		+	+	+			
	Field	1: Network design and site selection	+	+	+	+	+	
		2: Standard rain gauge station (SRG)	+	+	+	+	+	1 SRG
		3: Automatic RGS (ARG/TBR)	+	+	+	+	+	1 ARG
		4: Full climatic station (FCS)	+	+	+	+	+	1 FCS
5: Field insp., audits, maint. & calibr.		+	+	+	+	+		
4. Hydro-metry	Design		+	+	+	+	+	
	Reference		+	+	+			
	Field	1: Network design and site selection	+	+	+	+	+	
		2: River stage observation	+	+	+	+	+	+
		3: Float measurements	+	+	+	+	+	+
		4: Current meter gauging	+	+	+	+	+	+
		5: Field application of ADCP	+	+	+	+	+	+))
		6: Slope-area method	+	+	+	+	+	+
		7: Field inspection and audits	+	+	+	+	+	
8: Maintenance and calibration		+	+	+	+	+		
5. Sediment transport	Design		+	+	+	+	+	
	Reference		+	+	+			
	Field		+	+	+	+	+	+
6. WQ sampling	Design		+	+	+	+	+	
	Field		+	+	+	+	+	+
7. WQ analysis	Design		+	+	+			+
	Operation		+	+	+			+
8. Data processing and analysis	Operation	1: Data entry and primary processing	+	+	+	+	+	
		2: Secondary processing	+	+	+	+		
		3: Final processing and analysis	+	+	+			
		4: Data management	+	+	+	+	+	
9. Data storage	Design		+	+	+			
	Operation		+	+	+			
10. Protocols	Operation		+	+	+	+	+	+
	Forms		+	+	+	+	+	+

Note) only applicable for few selected sites