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MANAGEMENT INFORMATION SYSTEMS

FOR

RURAL WATER SUPPLY

Department of Rural Development
Ministry of Agriculture
GOVERNMENT OF INDIA

for implementation at

STATE LEVEL

volume I

OVERVIEW

NIDC

NATIONAL INDUSTRIAL DEVELOPMENT CORPORATION

Chanakya Bhawan, Africa avenue, Chanakyapuri, New Delhi 110021

JANUARY 1991

202.5-91MA-
14091

toyotsarga - drutatara - gatis tatparam vartma timah

press on with faster pace, having shed your load of water.

from MEGHDOOTA
by Kalidasa

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01
INTRODUCTION

Management Information Systems (MIS) for Rural Water Supply (RWS) form an important thrust area aimed at assisting the administrative and executing agencies in planning and monitoring RWS activities.

Providing of safe drinking water to villages is currently being carried out in a time-bound and mission-oriented manner requiring careful planning and close monitoring so as to fulfill an important national objective on an All-India basis.

The planning and monitoring requirements for RWS are multi-dimensional and need to be projected at, both, the macro and micro levels. The dimensions involved are essentially of time, cost and physical aspects. At the micro-level individual schemes and their constituent activities are to be planned and monitored.

At the macro-level such data is to be aggregated providing the overall picture.

In this current phase of operationalisation of the MIS, a number of key information areas have been ear-marked for implementation at the state-level. These are :

- ☐ **STATE PROFILE**
- ☐ **WORKS MONITORING**
- ☐ **CENTRE REPORTING SYSTEM**
- ☐ **STATE REPORTING SYSTEM**

In order to meet the information requirements in the above areas, an integrated system has been designed with the followings modules :

VIS
VILLAGE INFORMATION SYSTEM

This module provides village and habitation level information required for the STATE PROFILE and STATE REPORTING SYSTEM.

SIS
SCHEME INFORMATION SYSTEM

This module provides scheme-wise information required for the STATE PROFILE and STATE REPORTING SYSTEM.

SMS
SCHEME MONITORING SYSTEM

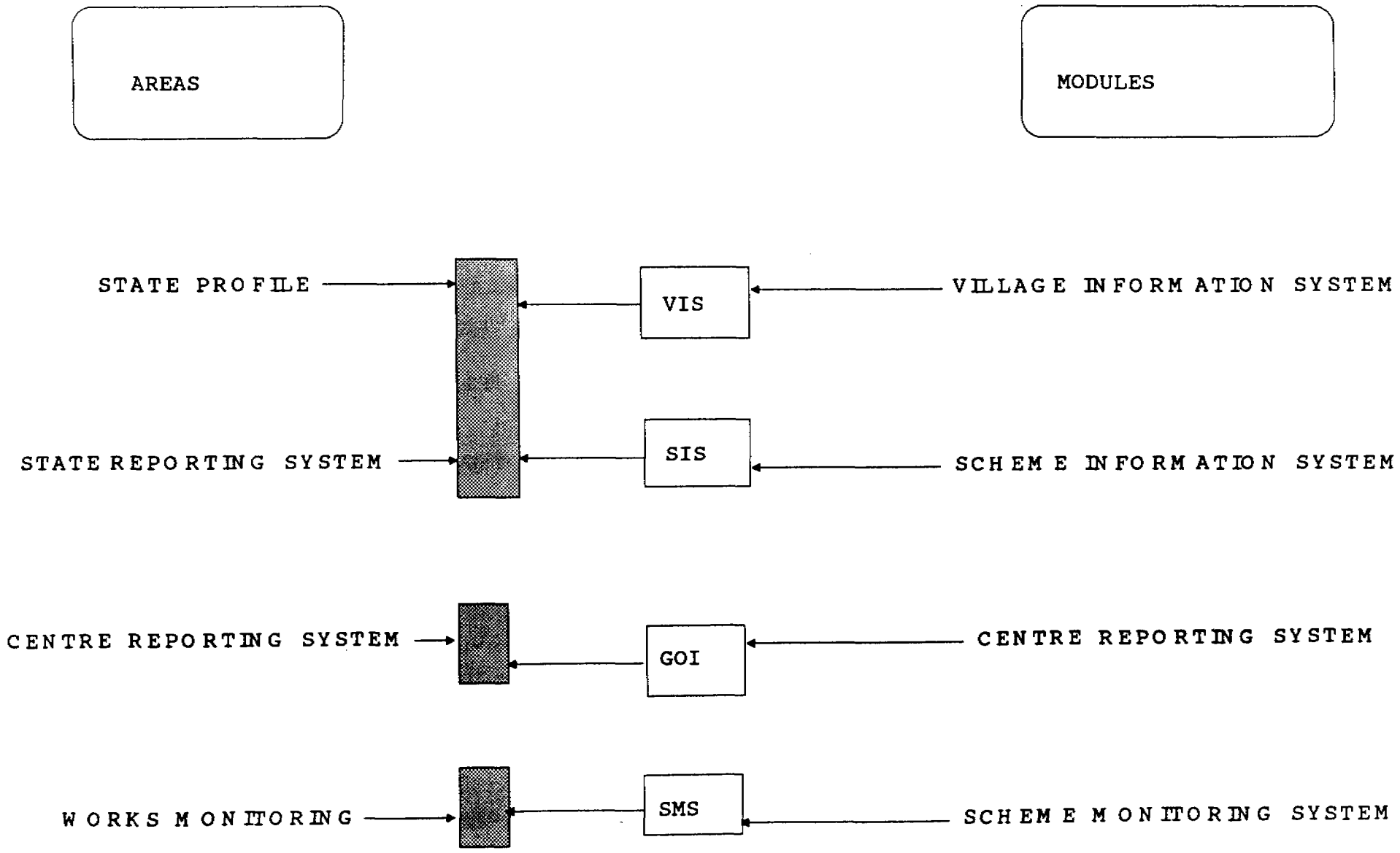
This module provides detailed activity-wise information as required for WORKS MONITORING.

GOI
CENTRE REPORTING SYSTEM

This module generates all reports required by DRD at the centre in both the existing and the new formats.

The above modules are designed to dovetail into the existing databases maintained at the state-level and provide enhanced means of accessing and reporting data. The systems are open-ended and incorporate user-defined frameworks for data storage, retreival and reporting.

The various modules are described further in this volume for an appreciation of their capabilities and uses.


AREAS
MODULES
STATE PROFILE
VIS
VILLAGE INFORMATION SYSTEM
STATE REPORTING SYSTEM
SIS
SCHEME INFORMATION SYSTEM
CENTRE REPORTING SYSTEM
GOI
CENTRE REPORTING SYSTEM
WORKS MONITORING
SMS
SCHEME MONITORING SYSTEM

02
VIS
VILLAGE INFORMATION SYSTEM

The VILLAGE INFORMATION SYSTEM (VIS) provides an ideal framework within which to maintain village and habitation-wise data. The information available in this module can be used for generating the :

- ☐ **STATE PROFILE**
- ☐ **STATE REPORTING SYSTEM**

The salient features of VIS are :

MASTER DATA

VIS enables the user to create and maintain :

- multiplebaseline structures
- each with any number of fields

from which information can be queried and reports can be generated. Each record is tagged with the relevent village and habitation code.

REFERENCE DATA

VIS enables th user to create and maintain :

- reference data types
- each with any number of entries

which can be used for the validation of user-selected fields in any of the user-defined baseline structures.

TRANSACTIONS

Changes in baseline data are logged as transactions which may be assigned a:

- reference
- details of field(s) affected
- changes in the value of the field(s)

These details can be listed and archived.

FLEXIBLE QUERY

Baseline information can be listed to printer or viewed on screen based on a user-based dynamic selection of :

Order

wherein the order in which the selected records are to be displayed can be defined.

Fields

wherein the user can select the fields required as well as the order of their appearence in the report.

Records

wherein the user can provide multiple criteria based on which records are to be selected.

Using such features, information required at the state-level for the purpose of maintaining a village or habitation level profile are completely met.

In addition reports can be generated which are usually required at the state level.

Information can also be systematically drawn out for the purpose of planning and monitoring.

03
SIS
SCHEME INFORMATION SYSTEM

The SCHEME INFORMATION SYSTEM (SIS) provides the framework within which to maintain scheme-wise data. The information available in this module can be used, in consonance with VIS, for generating the :

- ☐ **STATE PROFILE**
- ☐ **STATE REPORTING SYSTEM**

The salient features of SIS are :

SCHEME MASTER DATA

SIS enables the user to create and maintain scheme master data at various stages, such as :

- proposal
- technical approval
- administrative approval
- works time & cost schedule
- works actual start, finish & cost

from which information can be queried and reports can be generated. Each record is tagged with a scheme code which identifies its Division, type of scheme etc.

Each scheme may cover a number of villages or habitations. The details of each are also maintained by the system.

ORGANISATION STRUCTURE DATA

SIS enables th user to create and maintain the list of all offices like :

- Headquarters
- Zones
- Circles
- Divisions

which may be of different types, such as :

- works
- projects
- mechanical
- technology mission
- world bank

Further, the hierarchical relationship between the offices can also be maintained. The system also enables the user to define the block/village coverage under each division. These various aspects of the organisation structure can be viewed on screen or printed as reports.

DATA INTERLINKAGES

SIS also provides the platform upon which data can be interchanged between the various systems. The details of the interlinkages are described in a separate section.

04
GOI
CENTRE REPORTING SYSTEM

The CENTRE REPORTING SYSTEM (GOI) provides a means to generate all reports required by DRD, Govt. of India. The system also enables the user to maintain and update the status of target villages based on which the above reports can be generated. The information available in this module can be used for generating the :

☐ CENTRE REPORTING SYSTEM

The salient features of GOI are :

VILLAGE DATA

GOI enables the user to create and maintain :

- village basic master data
- status updation data

from which information can be queried and reports can be generated. Each record is tagged with the relevent census village code, which is the basis for DRD reporting.

REFERENCE DATA

VIS enables th user to create and maintain :

- reference data types
- each with any number of entries

which can be used for the validation of fields such as type of village, identification list, status etc. which are mandatory for centre reporting.

REPORTS

Reports are generated using existing formats for :

- monthly progress
- quarterly progress
- yearly progress

Reports are generated in the the proposed new formats for :

- monthly progress
- programme-wise progress
- village coverage

FLEXIBLE QUERY

Village information can be listed to printer or viewed on screen based on a user-based dynamic selection of :

Order

wherein the order in which the selected records are to be displayed can be defined.

Fields

wherein the user can select the fields required as well as the order of their appearence in the report.

Records

wherein the user can provide multiple criteria based on which records are to be selected.

Using this feature, information required by DRD can be systematically queried for exceptions and details.

05
SMS
SCHEME MONITORING SYSTEM

The SCHEME MONITORING SYSTEM (SMS) provides an ideal framework within which to plan and monitor works at the activity level. The information available in this module is to be used for the purpose of :

- ☐ **WORKS MONITORING**

The salient features of SMS are :

NUMBER OF SCHEMES & ACTIVITIES

Any number of schemes can be concurrently monitored using SMS. A special provision has been made to maintain data pertaining to SUB-MISSION schemes. Any number of activities can be assigned to each scheme.

ACTIVITY DURATION

The duration of activities under a scheme can be defined in terms of days, weeks or months.

CONNECTORS

Activities can be connected to one another to form a network using lead or lag connectors of various types.

NETWORK REPLICATION

Networks for similar types of schemes can be replicated to avoid additional data entry.

NETWORK UPDATION

As activities start or complete the network schedule can be updated.

COST DATA

Planned and actual cost data can be assigned to each activity of each scheme.

RESPONSIBILITY

Responsibility heads can be assigned to each activity of each scheme.

SCHEME REPORTS

A number of reports can be generated for each scheme, such as :

- Activity-wise Report
- List of Connectors
- Bar Chart
- Activity-wise planned & actual costs with variance
- Deviation is scheme completion dates

MULTIPLE SCHEME REPORTS

A number of reports can be generated for categories of schemes giving comparative figures at a glance of :

- Time analysis - scheduled & actual dates
- Cost analysis - planned & actual costs
- Cash-flow for any selected financial year

SUB-MISSION REPORTS

All reports pertaining to SUB-MISSIONS as required by DRD can be generated by SMS. These cover :

- Desalination plants
- Defluoridation plants
- Iron removal plants
- Guineaworm eradication activities
- Solar photo-voltaic plants

06
INTERLINKAGES

The various modules of the system are designed in such a way that data can be transferred from one to the other wherever relevent. Some of the important interlinkages are :

SIS -- SMS

SCHEME INFORMATION SYSTEM to SCHEME MONITORING SYSTEM

Under SIS, as and when all approvals for a scheme are complete and the same is ready for execution, data can be transferred to SMS, wherein the planned activity-wise data can be automatically created.

SIS -- VIS

SCHEME INFORMATION SYSTEM to VILLAGE INFORMATION SYSTEM

Under SIS, as and when a scheme record is created, field-wise data from the same can be transferred to an appropriate village/habitation baseline record if relevent.

SIS -- GOI

SCHEME INFORMATION SYSTEM to CENTRE REPORTING SYSTEM

Under SIS, as and when a scheme record is created, field-wise data from the same can be transferred to the analogous fields in the GOI baseline.

SMS -- SIS

SCHEME MONITORING SYSTEM to SCHEME INFORMATION SYSTEM

Under SMS, whenever all scheme activities are over, the scheme completion details can be transferred to SIS.

VIS -- GOI

VILLAGE INFORMATION SYSTEM to CENTRE REPORTING SYSTEM

As such, GOI contains a fixed set of fields which are required for generating all DRD reports. In case, all or part of these fields are already created under one or more of the VIS baselines, the same can be internally transferred.

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volume II

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NIDC

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JANUARY 1991

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01
INTRODUCTION

BACKGROUND

This volume describes the VILLAGE INFORMATION SYSTEM (VIS), which is a user-friendly and flexible module to be maintained at the state level. VIS can be used for collating the STATE PROFILE in terms of village and habitation-level data on RURAL WATER SUPPLY (RWS). VIS can also be used to generate a wealth of information in terms of user-defined reports aimed at augmenting the current STATE-LEVEL REPORTING SYSTEM.

VIS is one out of four packages aimed at meeting information requirements in the areas of :

- STATE PROFILE
- STATE REPORTING SYSTEM
- CENTRE REPORTING SYSTEM
- WORKS MONITORING

The complete suite of modules designed to meet the above requirements, consists of :

- VIS - VILLAGE INFORMATION SYSTEM
- SIS - SCHEME INFORMATION SYSTEM
- GOI - CENTRE REPORTING SYSTEM
- SMS - SCHEMES MONITORING SYSTEM

The origins of VIS lie in the 39 column system designed for problem villages and implemented country-wide. However, in view of the specific requirements of individual states, it was observed that the actual village / habitation data that is available with the states, or has been considered necessary for various purposes, tends to diverge considerably from the original 39 column format.

The organisation structure varies from state to state which causes specific data and information flow patterns requiring specific treatment. Also, states differ in their methodologies which cause significant differences in the data content, levels of details, frequency and distribution of information. The states also differ in their current level of computerisation, computer awareness, availability of hardware, software, data and trained personnel.

Lastly, during the past months, meaningful discussions have been held with the concerned officials of DRD at the centre, and of the Boards and PHEDs at the states.

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Keeping in mind, the requirements that have arisen out of such factors and the various technological possibilities available on the existing hardware and software combinations, VIS has been evolved and its amalgamated features are intended to be a culmination of efforts towards providing the states with a powerful and flexible tool for the storage and extraction of village and habitation level data.

On one hand, VIS is a generalised framework which provides a much needed unification across diverse forms of data. On the other hand, VIS provides the user to define a multiplicity of diverse data forms enabling an appropriate model of the immediate real- life environment.

Despite a fairly complex internal mechanism, VIS is easy to operate by even a lay-user, because of its menu-driven and user- friendly external manifestation.

Definitely RWS problems would not be eradicated with the installation of VIS ! Problems are solved in the minds of men and from their resultant actions.

In this light, VIS could be that one significant cornerstone enabling the mind to be better informed, aiming at more decisive, meaningful and timely action.

STRUCTURE OF THIS VOLUME

This volume consists of 4 sections. These are :

- ☐ **(1) VIS - Uses & terminology**
- ☐ **(2) VIS - Operating Guide**
- ☐ **(3) VIS - Options & Sub-options**
- ☐ **(4) VIS - Interlinkages**

The contents of the various sections are :

(1) VIS - Uses & terminology
This section describes how VIS can be effectively used and also provides definitions for terms having specific meaning in the package.

(2) VIS - Operating Guide
This section describes how VIS can be operated. This section also provides the MENU-STRUCTURE of the package which enumerates the various options and sub-options.

(3) VIS - Options & Sub-options
This section describes in detail, each option and sub-option of VIS. This section can be referenced to know what function each option and sub-option performs.

(4) VIS - Interlinkages
This section describes how VIS is interlinked to other RWS packages, namely :

- SIS - Scheme Information System
- GOI - Centre Reporting System

The user may also read VOLUME I, which provides an overview of all the packages

section 1

USES & TERMINOLOGY
Village Information System

1.1
USES OF VIS

VILLAGE INFORMATION SYSTEM (VIS) is to be used for maintaining Village and/or habitation level baseline data. This baseline data can be used for :

- State Profile
- State Reporting System

Number of concurrent baselines

VIS enables the user to maintain more than one baseline structure. For example, separate baseline data may be maintained for, say basic village/habitation data, and separate for hand- pumps, sources of water, PWS schemes etc. The user has considerable flexibility in deciding in what manner data sets may be maintained.

Flexible number and types of columns

Each baseline can have a number of columns or what we call "fields". The number of fields can also be increased. Therefore, the user may begin with a minimal set of fields. Subsequently, as and when more data is collected and made available, corresponding additional fields can be added.

Reference Types & Data

Selected fields can be checked against a standard list of valid options. For example, a field giving village status may only contain values like NC, PC or FC. VIS defines, in the case of the preceding example, "village status" as a reference type and NC, PC and FC as reference data of this type.

Village / Habitation Master Data

Master data can be entered into each of the baselines depending on its consequent information requirements. For example a baseline may be just created for all the current year ACTION PLAN villages and therefore need not contain data of all the villages of the state.

Changes in status

The master data entered into VIS is taken as a datum and stored to reflect at all times the original status. Subsequent changes in any of the fields are stored separately and a transaction is created for each change. Therefore, the changes can be reflected over time. Also an element of verifiability is introduced into the system as each transaction would contain the relevent reference, authorisation etc.

Archiving of data changes

Over time, a number of changes would accumulate and, say after the completion of a financial year or plan period, may no longer be immediately relevent. Such transactions can be archived, that is, stored away separately. However, such data can be retreived and made "current" as and when required.

Reports & Displays

Data can be viewed on the screen or reports can be generated under various categories. Reference types and reference data under each type can be viewed or printed. The master baseline structure can be viewed or printed.

The village/habitation master data can be viewed or printed in a number of ways. This can be done by selecting the order, fields and records.

All transactions (i.e. changes in master data) can be viewed or printed either in chronological order, field order or village order.

How to start !

To start-up the system, therefore, the user needs to perform the following tasks :

- Enter Reference Types
- Enter Reference Data under each type
- Create Master baseline structure(s)
- Define fields under each Master
- Generate reports pertaining to reference types & data
- Generate reports pertaining to master types & structure

Normal Operations

Subsequently and in the normal course of usage, the following tasks need to be performed :

- Enter Village/Habitation Master data
- Enter changes as and when required
- List or View latest status of master data as required
- List or View changes as required

1.2 TERMINOLOGY

A number of terms and words are used throughout VIS which have a special meaning. Some of the important terms are:

Reference

This term denotes all data which will be "referenced" by the main village master data. Funding programmes, types of schemes, type of village, coverage status are all examples of Reference data.

Reference Types
With reference to the above, "Type of Programmes" is an example of a reference type. Therefore, for the complete system, a number of such reference types need to be defined.

Reference Data
Under each reference type, there need to be a set of reference entries. For example, the REFERENCE DATA under the reference type "Types of Programmes" would consist of entries like : MNP, ARWSP, APA, RLGEP etc.

SPECIAL REFERENCE TYPES
There are three special reference types which need to be defined to ensure full operation of VIS. These are :

- (VD) - Districts of the state
- (VB) - Blocks of the state
- (VI) - Census Villages of the state

Master

This term denotes the definition of the baseline(s) pertaining to villages / habitations.

Master Title
This is the title assigned to each Master baseline briefly describing its contents.

Master Structure
This is the structure of each Master baseline wherein each column is assigned a field. For each field a number of characteristics need to be defined. These are :

- Field name (8 characters long)
- Field type (Numeric, Character or Date)
- Field Length (Num : max 12.2 Char : max 30)

Besides these, each field needs to be assigned a position on screen for the purpose of entry & display. This consists of :

- Screen Code
- Section Code
- Line Code

A full field description is also required, which is displayed for a proper explanation of the field contents :

- Field Description (30 characters long)

A field may also be assigned a reference type code, which would indicate that the field can now contain only those values which are defined as reference data under the assigned reference type :

- Reference Code

In case the reference code is left blank, it indicates that the field requires no validation.

VILLAGE / HABITATION CODE

In the process of creating a master baseline a field called VILCODE is automatically created. Therefore, every master baseline would mandatorily contain this field and is the most important key field for all the master structures.

VILCODE consists of 15 characters as per the DISNIC pattern and has the following characteristics :

- Char 01-02 for STATE CODE
- Char 03-04 for DISTRICT CODE
- Char 05-06 for BLOCK CODE
- Char 07-09 for TYPE and CODE of ADMINISTRATIVE SUB-UNIT
- Char 10-13 for MANDAL/PANCHAYAT and VILLAGE CODE
- Char 14-15 for HAMLET / HABITATION / SUB-VILLAGE

DATA

Two DATA types are defined under the VIS system. These are :

MASTER
This is the basic data to be filled out as per the master structure defined by the user. Therefore, one village / habitation would require one master entry under each master baseline defined by the user and would consist of one record.

TRANSACTION

Whenever the contents of any column (or field) of a master baseline is to be changed, this is done through a transaction. Each transaction is automatically assigned :

- SerialNumber
- Current Date
- User Code

In addition, the user may provide :

- Reference (voucher, DO, letter etc.)
- Year & Month in which change has taken place
- Remarks / narration

Finally, the user needs to define :

- The column / field in which change is to be made
- New Value (to replace in case of Char & Date)
- New Value (to add OR replace in case of Num)

section 2

OPERATING INSTRUCTIONS
Village Information System

2.1
STARTING VIS

Log on to the directory where the VIS programs and data are loaded. For example, if this happens to be on your "C" disk and the directory is named VIS, the following prompt would now appear on the screen :

C:\VIS
At the prompt, type "VIS" and press [enter].

First an opening screen appears and then the MAIN MENU. The options of the MAIN MENU appear horizontally at the top. To begin with, the left-most option is high-lighted (in reverse VDU). Move to the option of your choice using :

- the [left arrow] and [right arrow] keys OR
- pressing the FIRST LETTER of the required option title

The further sub-options under the MAIN MENU option or a description of the same are displayed horizontally directly below the MAIN MENU line.

To select the option from the MAIN MENU of your choice :

- press [enter]

Now the sub-options pertaining to the selected option appear at the top line. Selection can now be made as done for the options of the main menu.

During the process of selecting sub-options, further sub-options or a brief description of the same are displayed horizontally directly below what is now the SUB MENU line.

To select the sub-option from the SUB MENU of your choice :

- press [enter]

In this manner, the user may select the option and then the sub- option of his choice.

Entering Data
Wherever data needs to be entered, the requisite would appear alongwith the line for entering data in reverse showing the extent of the field size. Type the necessary data and then press [enter] to signal the completion of data entry.

Multiple Choice Data
Wherever a field can take one of many standard values, the first such standard value is displayed at the data entry area alongwith a blinking two-way arrow alongside. Use the [up arrow] and the [down arrow] keys till the value of your choice is displayed. Select the same by pressing [enter].

Prompts at Top-Line

Either after data has been entered, or at the beginning, or on completion of the operations under a sub-option, a relevent prompt appears at the top of the screen usually requiring the user to select between :

- Yes
- No

or in certain instances, between options such as :

- Edit
- Modify
- Quit

The correct selection can be made by moving onto the required option either using :

- the [left arrow] and [right arrow] keys OR
- pressing the FIRST LETTER of the required option title

To select the option of your choice :

- press [enter]

Please ensure that the correct option is selected. This will facilitate the proper operation of the package.

2.2
OPERATING ENVIRONMENT

VIS can be operated on a PC/AT or PC/XT system. The requirements are :

- 640 KB RAM - main memory
- Hard disk capacity depending on datafiles size
- Monochrome monitor
- Dot-matrix Printer (132 column with condense mode)

section 3

OPTIONS & SUB-OPTIONS
Village Information System

3.1
MAIN MENU

The VIS MAIN-MENU consists of the following options :

- ☐ **Reference**
- ☐ **Master**
- ☐ **Data**
- ☐ **Housekeeping**
- ☐ **Exit**

These options broadly take care of the following tasks :

Reference

This option enables the user to create and maintain reference types and reference data under each type. The same can also be selectively viewed on screen or printed as and when required.

Master

This option enables the user to create, define and maintain master baseline structures. The titles and structures can also be selectively viewed on screen or printed as and when required.

Data

This option enables the user to enter data into the master baseline structures as well as create and maintain transactions to effect changes in the master baseline data.

Housekeeping

This option enables the user to perform "housekeeping" tasks such as indexing files and back-up and restoration of data from floppy diskettes.

Exit

On completion of a session with VIS, this option may be invoked to exit from VIS and return to DOS.

3.2
REFERENCE SUB-MENU

The REFERENCE SUB-MENU consists of the following options :

- ☐ **Create**
- ☐ **Select**
- ☐ **View**
- ☐ **Print**
- ☐ **Exit**

These options broadly take care of the following tasks :

Create

This option enables the user to CREATE a new Reference Type. The user needs to enter the following :

- Type Code (C2)
- Short Description (C8)
- Full Description (C40)

Select

This option enables the user to SELECT one of the already created reference types. A number of operations can be performed once a Reference Type is selected. These are :

- Data
- Modify
- Remove
- View
- Exit

These options are described below :

Data
This option enables the user to deal with the data under the selected Reference Type. The user can :

- Add - new data
- Select - one of the existing data records

The user may :

- Modify
- Remove

the selected data record under the selected reference type.

Modify
Under this option, the user can modify the title of the selected Reference Type.

Remove
Under this option, the user can remove the selected Reference Type. When this is removed, all data under the same is also automatically removed.

View
Under this option, the user can view on screen the data records under the selected Reference Type. Under this option, there are three special cases. These are :

- (VD)-Districts
- (VB)-Blocks
- (VI)-Census Villages

Under DISTRICTS, the display is direct, wherein all districts of the state are displayed on screen. In the case of BLOCKS, the user is expected to select one of the districts, and consequently, the blocks under the selected district are displayed. In the case of CENSUS VILLAGES, the user is expected to select a district and then a block under the district. Consequently, the census villages of the selected block are displayed on screen.

Exit
On completion of a session with VIS-REFERENCE-SELECT, this option may be invoked to return to the VIS-REFERENCE SUB-MENU.

View

This option displays on screen all the existing REFERENCE TYPES. Using this option, the user can know what are the reference types already defined in the system.

Print

This option enables the user to PRINT various reports pertaining to Reference Types and the data under them. The various options are :

- Reference Types
- Reference Data
- Village
- Data Form
- Exit

The reports printed under these various options are :

Reference Types
This option prints all the existing REFERENCE TYPES. Using this option, the user can know what are the reference types already defined in the system.

Reference Data
This option prints all the data records under all the existing Reference Types except, district, block & census village data.

Village
This option has the following sub-options :

- Districts
- Blocks
- Villages

Under DISTRICTS, the print is direct, wherein all districts of the state are listed to printer. In the case of BLOCKS, the user is expected to select one of the districts, and consequently, the blocks under the selected district are printed. In the case of CENSUS VILLAGES, the user is expected to select a district and then a block under the district. Consequently, the census villages of the selected block are listed to printer.

Data Form
This option prints out a blank form which can be used to manually fill-up a new Reference Type and the data records under it. This option maybe used in case new data is to be collected for subsequent data entry to the VIS system.

Exit
On completion of a session with VIS-REFERENCE-PRINT, this option may be invoked to return to the VIS-REFERENCE SUB-MENU.

Exit

On completion of a session with VIS-REFERENCE, this option may be invoked to return to the VIS MAIN MENU.

3.3
MASTER SUB-MENU

The MASTER SUB-MENU consists of the following options :

- ☐ **Create**
- ☐ **Select**
- ☐ **View**
- ☐ **Print**
- ☐ **Exit**

These options broadly take care of the following tasks :

Create

This option enables the user to CREATE a MASTER BASELINE and its STRUCTURE. To create a master baseline, its title needs to be provided, for which the user needs to enter the following :

- Master Code (C2)
- Short Description (C8)
- Full Description (C40)

Each master baseline may consist of any number of columns (or fields). As such, upto 1024 fields may be defined. For each field, the following needs to be entered :

To define the screen position for display :
- Screen Code (C2)
- Section Code (C2)
- Line Code (C2)

To define a relation with a Reference Type :
- Reference Type Code (C2)
-

To describe the content of the field :
- Full Description (C30)

To define the database characteristics of the field :
- Field Name (C8)
- Field Type (C1) [C/N/D]
- Field Length (N2) [C max 30 / N max 12 / D = 8]
- Field Decimals (N1) [for N max 2]

Please note that as already described, the VILCODE field for the census village code is automatically created. VILCODE is of type (C) and has a length of 15.

Select

This option enables the user to SELECT one of the already created Master Baselines. A number of operations can be performed once a Master Baseline is selected. These are :

- Structure
- Modify
- Remove
- View
- Exit

These options are described below :

Structure
This option enables the user to deal with the structure of the selected master baseline. The user can :

- Add - new fields
- Select - one of the existing fields

On selection, some characteristics of the field may be modified.

Modify
Under this option, the user can modify the title of the selected Master Baseline.

Remove
Under this option, the user can remove the selected Master Baseline. When this is removed, its structure, all master data and changes are also automatically removed.

View
Under this option, the user can view on screen all the fields of the selected Master Baseline.

Exit
On completion of a session with VIS-REFERENCE-SELECT, this option may be invoked to return to the VIS-REFERENCE SUB-MENU.

View

This option displays on screen all the existing MASTER BASELINES. Using this option, the user can know what are the master baselines already defined in the system.

Print

This option enables the user to PRINT various reports pertaining to the master baselines and the fields defined under them. The various options are :

- Record Types
- Structure
- Type Form
- Data Form
- Exit

The reports printed under these various options are :

Record Types
This option prints all the existing MASTER BASELINE RECORD TYPES. Using this option, the user can know what are the master baselines already defined in the system.

Structure
This option prints the field details of the selected master baseline record type.

Type Form
This option prints out a blank form which can be used to manually fill-up the field details of a new master baseline. This option maybe used in case new data is to be collected for subsequent data entry to the VIS system.

Data Form
This option prints out a blank form for a selected master baseline identifying the type and demarcating the length for each field, which can be used to manually fill-up records for a new Master Baseline. This option maybe used in case new data is to be collected for subsequent data entry to the VIS system.

Exit
On completion of a session with VIS-MASTER-PRINT, this option may be invoked to return to the VIS-REFERENCE SUB-MENU.

Exit

On completion of a session with VIS-MASTER, this option may be invoked to return to the VIS MAIN MENU.

3.4
DATA SUB-MENU

The DATA SUB-MENU consists of the following options :

- ☐ **Master**
- ☐ **Transaction**
- ☐ **Status**
- ☐ **Print**
- ☐ **Exit**

These options broadly take care of the following tasks :

Master

This option enables the user to select one of the already created master baselines. After selection, the user has the following options :

- Add
- Remove
- View
- Exit

These options are described below :

Add

Using this option, the user can enter fresh data for villages / habitations. The fields to be entered are as per the structure defined under the MASTER option. The fields may appear in a number of screens, whereas each screen maybe sub-divided into sections depending upon the definitions provided in the master structure. The field description appears as the prompt for each field. The system takes care that one habitation is entered only once by the user.

Remove

Using this option, the user can remove the record pertaining to a village / habitation. Usually, this option would be applicable in case of an erroneous entry which requires to be removed entirely.

View

Using this option, the user can select one of the village / habitation entries and view its contents. The selection can be done by either entering the corresponding VIL-CODE or else by a process of first selecting a district, then a block and finally one of the village / habitation entries under the same.

Exit

On completion of a session with VIS-DATA-MASTER, this option maybe invoked to return to the VIS-DATA SUB-MENU.

Transaction

This option enables the user to select one of the already created master baselines. After selection, the user has the following options :

- Add
- View
- Print
- Exit

These options are described below :

Add

Transactions are added to the system, whenever data pertaining to a particular village / habitation in the selected master baseline needs to be changed. One transaction is created per field that is changed.

For each transaction, the following are automatically generated :

- Transaction Number
- Transaction Date
- User Code

The following data needs to be entered :

- Reference Number (if any)
- Year/Month to which change is applicable
- Remarks / narration

The fields contained in the master structure are displayed and one of them may be selected. Against this the new value may be entered. In case of Character & Date fields, the new value replaces the existing one. In case of a Numeric field, the user may select to either ADD or REPLACE the existing value with the new one.

View

Under this option, the user may view the transactions or changes in data for a selected village / habitation. The selection can be done by either entering the corresponding VILCODE or else by a process of first selecting a district, then a block and finally one of the village / habitation entries under the same.

Print

Under this option, existing transactions can be selectively printed. The selection can be done on the basis of a :

- Cut-off start date
- Cut-off end date

Transactions having dates falling between these dates shall be selected for printing. The order of printing the transactions can be any combination of :

- Village / habitation
- Field name
- Chronological order

Exit

On completion of a session with VIS-DATA-TRANSACTIONS, this option may be invoked to return to the VIS-DATA SUB-MENU.

Status

This option enables the user to select one of the already created master baselines. After selection, the user has the following options :

- Reset
- Update
- Include
- Xclude
- Exit

These options are described below :

Reset

At all times, an updated version of the selected master baseline is kept in a database file. That is, a version which takes into consideration changes effected through the transactions.

The RESET option removes the effect of such changes and now the version is the one where each record is as originally entered.

Update

This option enables the user to once again incorporate the effect of the transactions which are currently available on the system.

The objective of the above two options is to provide the user to obtain intermediate updates of data. For example, data has been updated as on 30.09.90, but the user requires the position as on 30.06.90. In order to obtain this, the user may first use the RESET option and then use the UPDATE option in conjunction with transactions only upto 30.06.90.

The objective of the next two options is to manipulate the inclusion and exclusion of transactions as required above.

Include

This option enables the user to INCLUDE transactions into the "current" set from the archives. The process of archiving is described under the next option. For the purpose of Inclusion, the selection is on a CUT-OFF DATE, upto which transactions are to be included.

Xclude

This option enables the user to EXCLUDE transactions from the "current" set and add the same to the archives. For the purpose of Exclusion, the selection is on a CUT-OFF DATE, beyond which transactions are to be excluded.

Exit

On completion of a session with VIS-DATA-STATUS, this option may be invoked to return to the VIS-DATA SUB-MENU.

Print

This option provides the user with a generalised REPORT-WRITER cum QUERY facility. For the purpose of defining the contents , the selections are that of :

- Order
- Fields
- Records
- View / List
- Exit

The various selection options are described below :

Order

This option enables the user to select the order in which the records must appear in the report. For this purpose, all the fields of the master baseline structure are displayed on screen and the user may allocate an order on some of them. Consequently, the database file shall be indexed on the selected fields and in the selected order.

Fields

This option enables the user to select the fields as well as the order in which they shall appear in the report. For this purpose, all the fields of the master baseline structure are displayed on screen and the user may allocate an order on some of them. Consequently, only those fields allocated a number shall appear in the report and in the order they are numbered.

Records

This option enables the user to select the records that shall appear in the report. For this purpose, all the fields of the master baseline structure are displayed on screen. If a selection is to be based on a particular field, the same may be selected by entering "Y".

If the selected field is of type "Character", a match string or sub-string may be specified. Records in which this matches shall be selected for printing.

If the selected field is of type "Numeric", an upper AND / OR lower limit may be specified. Records which satisfy this condition shall be selected for printing.

If the selected field is of type "Date", an upper AND / OR lower date limit may be specified. Records which satisfy this condition shall be selected for printing.

When conditions are set on a number of fields, the combination of all of them shall be considered for record selection.

View / List

Based on the above three selection types, the data may either be VIEWED on screen or LISTED to printer. In case of listing to printer, the output may be directed to the printer or a print- file. In case of the print-file option, the user can specify the print-file name. A Report Heading can also be specified for all such output.

Exit

On completion of a session with VIS-DATA-PRINT, this option may be invoked to return to the VIS-DATA SUB-MENU.

Exit

On completion of a session with VIS-DATA, this option may be invoked to return to the VIS MAIN MENU.

3.5 HOUSEKEEPING SUB-MENU

The HOUSEKEEPING SUB-MENU consists of the following options :

- ☐ **Startup**
- ☐ **Index**
- ☐ **Backup**
- ☐ **Restore**
- ☐ **Exit**

These options take care of the following tasks :

Startup

This option is required to assign the STATE code and name to the system. Therefore, this option is required only at the beginning when the package is installed for your state. The details to be entered are :

- State Code (C2)
- State Name (C30)

The State Code should consist of the 2-digit census code which will also form the first two digits of the village / habitation code. State Name should be specified in full as the user would like it to appear in report headings etc.

Index

This option indexes all database files which are used by the VIS system. On invoking this option, the system automatically proceeds to index all files. The files are :

- VIS1 - Reference Type Master File
- VIS2 - Reference Data Master File
- VIS3 - Baseline Type Master File
- VIS4 - Baseline Structure Master File
- VIS71 - Transactions Current File
- VIS72 - Transactions Archives File

In addition, for each Baseline Type, two files exist. The filenames are :

- VISxx1 - Datum Baseline
- VISxx2 - Updated Baseline

where "xx" is the 2-character baseline record-type code. These files are also indexed and the filenames appear one by one as these files are indexed.

Indexing is an internal requirement of the system to ensure that the records of the the database files are ready to be accessed in the requisite manner when using the various options of the system.

Backup

This option enables the user to transfer data from the currently used hard-disk onto diskettes. Back-ups of data should be maintained at all times to ensure that in the event there is a failure of the hard disk, data is available on floppy disks which can be restored as explained in the next section.

In many cases, some of the master baselines are large, they can be backed-up onto multiple floppies, say district or block-wise, and then restored selectively, as and when required for processing.

Restore

This option enables the user to transfer data from diskettes to the currently used hard-disk. Back-ups of data on diskettes may be required to be restored, in case there is a failure of the hard disk.

In many cases, some of the master baselines are large, and have been backed-up onto multiple floppies, say district or block- wise, they can be restored selectively, as and when required for processing.

Exit

On completion of a session with VIS-HOUSEKEEPING, this option may be invoked to return to the VIS MAIN MENU.

section 4

INTERLINKAGES
Village Information System

4.1
INTERLINKAGE with SIS

Data can be incorporated from the SCHEME INFORMATION SYSTEM (SIS) into VIS. Under SIS, scheme-wise data can be created incorporating the village / habitation coverage under each scheme. In case, this data is required to update any of the master baselines, a facility can be specifically created to internally transfer such data, thereby eliminating duplicate data entry.

For further details, the user may also refer to Volume II, which provides the functional details for such interlinkages.

4.2 INTERLINKAGE with GOI

Data can be transferred to the CENTRE REPORTING SYSTEM (GOI) from VIS. GOI also requires census village-wise data used for generating information required by DRD at the centre. If any of the existing master baselines contain analogous data, the same can be transferred internally by creating a specific facility, thereby eliminating or minimising duplicate data entry.

For further details, the user may also refer to Volume II, which provides the functional details for such interlinkages.

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MANAGEMENT INFORMATION SYSTEMS

FOR

RURAL WATER SUPPLY

Department of Rural Development
Ministry of Agriculture
GOVERNMENT OF INDIA

for implementation at

STATE LEVEL

volume III

SIS
Scheme Information System

NIDC

NATIONAL INDUSTRIAL DEVELOPMENT CORPORATION

Chanakya Bhawan, Africa avenue, Chanakyapuri, New Delhi 110021

JANUARY 1991

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01
INTRODUCTION

BACKGROUND

This volume describes the SCHEME INFORMATION SYSTEM (SIS), which is a user-friendly and flexible module to be maintained at the state level. SIS can be used for collating the STATE PROFILE in terms of scheme details of RURAL WATER SUPPLY (RWS). SIS can also be used to maintain the organisational hierarchy .SISis also used to generate a wealth of information in terms of specific,user selective reports aimed at augmenting the current STATE-LEVEL REPORTING SYSTEM.

SIS is one out of four packages aimed at meeting information requirements in the areas of :

- STATE PROFILE
- STATE REPORTING SYSTEM
- CENTRE REPORTING SYSTEM
- WORKS MONITORING

The complete suite of modules designed to meet the above requirements, consists of :

- VIS - VILLAGE INFORMATION SYSTEM
- SIS - SCHEME INFORMATION SYSTEM
- GOI - CENTRE REPORTING SYSTEM
- SMS - SCHEMES MONITORING SYSTEM

The origins of SIS lie in the need for a system to maintain scheme data at the state level for better co-ordination between the headquarters and the divisions. Monitoring of schemes at the macro level, that is the scheme as an entity, is required for effectively controlling delays at various stages in scheme implementations.

The organisation structure varies from state to state which causes specific data and information flow patterns requiring specific treatment. Keeping this fact in mind, a sub-module for maintaining the organisation structure is a part of SIS, which can also be updated as and when required.

Lastly, during the past months, meaningful discussions have been held with the concerned officials of DRD at the centre, and of the Boards and PHEDs at the states.

Keeping in mind, the requirements that have arisen out of such factors and the various technological possibilities available on the existing hardware and software

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combinations, SIS has been evolved and its amalgamated features are intended to be a culmination of efforts towards providing the states with a powerful and flexible tool for the storage and extraction of scheme data and organisational hierarchy details.

Despite a fairly complex internal mechanism, SIS is easy to operate by even a lay-user, because of its menu-driven and user- friendly external manifestation.

Definitely RWS problems would not be eradicated with the installation of SIS ! Problems are solved in the minds of men and from their resultant actions.

In this light, SIS could be that one significant cornerstone enabling the mind to be better informed, aiming at more decisive, meaningful and timely action.

STRUCTURE OF THIS VOLUME

This volume consists of 4 sections. These are :

- ☐ **(1) SIS - Uses & terminology**
- ☐ **(2) SIS - Operating Guide**
- ☐ **(3) SIS - Options & Sub-options**
- ☐ **(4) SIS - Interlinkages**

The contents of the various sections are :

(1) SIS - Uses & terminology
This section describes how SIS can be effectively used and also provides definitions for terms having specific meaning in the package.

(2) SIS - Operating Guide
This section describes how SIS can be operated. This section also provides the MENU-STRUCTURE of the package which enumerates the various options and sub-options.

(3) SIS - Options & Sub-options
This section describes in detail, each option and sub-option of SIS. This section can be referenced to know what function each option and sub-option performs.

(4) SIS - Interlinkages
This section describes how SIS is interlinked to other RWS packages, namely :

- VIS - Scheme Information System
- GOI - Centre Reporting System
- SMS - Scheme Monitoring System

The user may also read VOLUME I, which provides an overview of all the packages

section 1

USES & TERMINOLOGY
Scheme Information System

1.1 USES OF SIS

SCHEME INFORMATION SYSTEM (SIS) is to be used for maintaining Scheme data and the organisational structure. This relevant data can be used for :

- State Profile
- State Reporting System

Scheme details

SIS enables the user to maintain detailed though specific data regarding the RWS schemes under progress in the state. Schemes can be monitored starting with the PROPOSAL stage and culminating in the stage when the works are completed and the scheme is commissioned. The monitoring includes the physical and financial targets and achievements as well as the list of villages / habitations covered under the scheme.

Village/Habitation coverage under schemes

The scheme data also contains the village-wise coverage status for each scheme under progress. The user can maintain individual habitation-level coverage status for the schemes still under progress. This enables a *micro* level control of schemes.

Scheme status

The user can maintain the current status of RWS schemes in the state. For example, the user can keep track of delays at key milestone stages, such as, proposal, technical approval, administrative approval stages and actual execution of works. This enables the user to access exception information regarding the progress of schemes.

List of Offices

A comprehensive list of all the relevent offices, namely zones, circles and divisions under the department/board can be maintained by the states. The office data includes a unique office code , a code of the office to which it reports as well as the description and location of the office. In case of divisions, data can also be maintained regarding the blocks under its administrative control. Updations can also be made, if required, for such data.

Reports & Displays

Data can be viewed on the screen or reports can be generated under various categories. The user is also provided with the facility of selection for the various screen displays and reports.

How to start !

To start-up the system, therefore, the user needs to perform the following tasks :

- Enter Office data
- Enter Blocks under the divisionsal offices
- Enter the Scheme details
- Generate reports pertaining schemes & offices

Normal Operations

Subsequently and in the normal course of usage, the following tasks need to be performed :

- Enter any change in data of the offices
- Enter changes regarding blocks under each office
- Enter new schemes proposed
- Enter updations regarding schemes & villages covered
- Print or View current status of schemes
- Print or View data of offices

1.2 TERMINOLOGY

A number of terms and words are used throughout SIS which have a special meaning. Some of the important terms are:

OFFICE CODE

An unique but logical system is followed for the office code comprising of 4 characters :

- ☐ **Char 01 - OFFICE LEVEL**
  - 0 - head office
  - 1 - zone
  - 2 - circle
  - 3 - division
- ☐ **Char 02 - OFFICE TYPE (Mechanical, Works, WB etc.)**
- ☐ **Char 03-04 - OFFICE serial number**

SCHEME CODE

The scheme code is also logically organised to help in data maintainace This codification is also followed in all other modules.

- ☐ **Char 01-04 - office code**
- ☐ **Char 05-08 - user defined scheme code**
- ☐ **Char 09 - type of scheme**

The char 04-09 of the scheme code should be standardised to reflect various key aspects of the scheme. For example, Char(09) should be used to denote the scheme type (PWS, MWS, HPS, etc.). Similarly, Char(08) should be used to specify the source of funds (Centre, state, LIC, etc.).

Scheme Status

This scheme status specifies the various stages pertinent to a scheme from its inception (proposal) to scheme completion and implementation.

The various stages are :

- Proposal stage
- Technical approval stage
- Administrative approval stage

- Works handing over stage
- Actual Works completion stage

Scheme details

The scheme details are exhaustive in nature and contain the following information :

- Scheme code (9 characters)
- Scheme description (32 characters)
- The programme(ARP/MNP/TTD etc.) under which scheme is covered
- The details of the stages (office, reference number & date, KL per day, cost)
- The scheduled and actual start & completion date of the schemes

section 2

OPERATING INSTRUCTIONS
Scheme Information System

2.1 STARTING SIS

Log on to the directory where the SIS programs and data are loaded. For example, if this happens to be on your "C" disk and the directory is named SIS, the following prompt would now appear on the screen :

C:\SIS
At the prompt, type "SIS" and press [enter].

First an opening screen appears and then the MAIN MENU. The options of the MAIN MENU appear horizontally at the top. To begin with, the left-most option is high-lighted (in reverse VDU). Move to the option of your choice using :

- the [left arrow] and [right arrow] keys OR
- pressing the FIRST LETTER of the required option title

The further sub-options under the MAIN MENU option or a description of the same are displayed horizontally directly below the MAIN MENU line.

To select the option from the MAIN MENU of your choice :

- press [enter]

Now the sub-options pertaining to the selected option appear at the top line. Selection can now be made as done for the options of the main menu.

During the process of selecting sub-options, further sub-options or a brief description of the same are displayed horizontally directly below what is now the SUB MENU line.

To select the sub-option from the SUB MENU of your choice :

- press [enter]

In this manner, the user may select the option and then the sub- option of his choice.

Entering Data
Wherever data needs to be entered, the requisite prompt would appear alongwith the line for entering data in reverse showing the extent of the field size. Type the necessary data and then press [enter] to signal the completion of data entry.

Multiple Choice Data
Wherever a field can take one of many standard values, the first such standard value is displayed at the data entry area alongwith a blinking two-way arrow alongside. Use the [up arrow] and the [down arrow] keys till the value of your choice is displayed. Select the same by pressing [enter].

Prompts at Top-Line

Either after data has been entered, or at the beginning, or on completion of the operations under a sub-option, a relevent prompt appears at the top of the screen usually requiring the user to select between :

- Yes
- No

or in certain instances, between options such as :

- Edit
- Modify
- Quit

The correct selection can be made by moving onto the required option either using :

- the [left arrow] and [right arrow] keys OR
- pressing the FIRST LETTER of the required option title

To select the option of your choice :

- press [enter]

Please ensure that the correct option is selected. This will facilitate the proper operation of the package.

2.2 OPERATING ENVIRONMENT

VIS can be operated on a PC/AT or PC/XT system. The requirements are :

- 640 KB RAM - main memory
- Hard disk capacity depending on datafiles size
- Monochrome monitor
- Dot-matrix Printer (132 column with condense mode)

section 3

OPTIONS & SUB-OPTIONS
Scheme Information System

3.1
MAIN MENU

The SIS MAIN-MENU consists of the following options :

- ☐ **Scheme**
- ☐ **Office**
- ☐ **Xchange**
- ☐ **Housekeeping**
- ☐ **Exit**

These options broadly take care of the following tasks :

Scheme

This option enables the user to add, update and maintain scheme details including the villages covered by the schemes. The reports of the same, under various selection options can be viewed or printed.

Office

This option enables the user to enter or update the data regarding the office details as well as view or print reports pertaining to the office data.

Xchange

This option enables the user to effectively interact with the other modules in terms of importing or exporting relevant information to or from the other modules.

Housekeeping

This option enables the user to perform "housekeeping" tasks such as indexing files and back-up and restoration of data from floppy diskettes.

Exit

On completion of a session with SIS, this option may be invoked to exit from SIS and return to DOS.

3.2 SCHEME SUB-MENU

The SCHEME SUB-MENU consists of the following options :

- ☐ **Add**
- ☐ **Select**
- ☐ **View**
- ☐ **Print**
- ☐ **Exit**

These options broadly take care of the following tasks :

Add

This option enables the user to ADD any new SCHEMES which has been proposed. To add a new scheme the user has to enter the following data :

- Scheme Code (C9)
- Short Description (C6)
- Full Description (C32)
- Programme name (C6)
- Proposal reference number (C12)
- Proposal reference date (D8)
- Proposal coverage level (KL/day)
- Proposal scheme cost (N9)

Please note that the user can select the programme which funds the scheme from the available options.

The next screen faciltates micro control of the scheme. The user can select the blocks & villages to be covered by the scheme. In this context, a check is applied. The user can only select blocks pertaining to the office handling the scheme which is determined by the first four characters of the scheme code.

Select

This option enables the user to SELECT one of the already created schemes and update the data. The updation includes the following information :

- Scheme short /long description
- Programme name

- Technical approval number,date,coverage level & cost
- Administrative approval number,date,coverage level & cost
- Works handing over number,date,coverage level & cost
- Works scheduled start & completion dates
- Actual start date, completion date and cost incurred

The user can also update on the village list for the scheme. The updations are :

- list of Villges covered by the scheme
- coverage level in terms of KL/day for each village

The user can maintain the villages completed under the scheme by marking 'C' under coverage for the villages.

View

This option displays on screen the details of the schemes in progress at various stages. The sub-options of this screen display are :

Scheme
The user can select the starting scheme from which the display is to be viewed. The starting scheme can be selected from the data already existing in the system.

Office
The user can select the office and the details of the schemes under that office can be viewed on screen. The office can be selected from the ones already existing in the system.

Programme
The user can select the programme and the details of the schemes funded by that programme can be viewed on screen. The programme can be selected from the ones already existing in the system.

Village
The user can select the the village to view the schemes covering the village. The selection of the village can be done by first selecting the district, then the block and finally the village.

Exit
The user can return to the SIS - Scheme SUB - MENU by this option.

Print

This option lists to the printer, details of the schemes in progress at various stages. The sub-options are :

Scheme
The user can select the starting scheme from which the list is to be printed. The starting scheme can be selected from the data already existing in the system.

Office
The user can select the office and the details of the schemes under that office can be listed to printer. The office can be selected from the ones already existing in the system.

Programme
The user can select the programme and the details of the schemes funded by that programme can be listed to printer. The programme can be selected from the ones already existing in the system.

Village
The user can select the the village to list the schemes covering the village. The selection of the village can be done by first selecting the district, then the block and finally the village.

Exit
The user can return to the SIS - Scheme SUB - MENU by this option.

3.3
OFFICE SUB-MENU

The OFFICE SUB-MENU consists of the following options :

- ☐ **Add**
- ☐ **Select**
- ☐ **Print**
- ☐ **Exit**

These options broadly take care of the following tasks :

Add

This option enables the user to ADD any offices created or reorganised. The user has to enter the following details for the offices :

- Office code(C 04)
- Short Description (C10)
- Reporting office code (C04)
- Full Description (C30)
- Location of the office (C30)
- Blocks in case of Divisional office (C06)

Select

This option enables the user to SELECT any one of the already added list of offices. The user is not required to remember the office code as he can select from the displayed list and view the following information :

- Office code Data
- Office short/long description
- Reporting office code
- Office location

The user can modify any details of the offices. Normally during reorganisation of the offices, the blocks and the reporting office changes and this updation can be easily made to the existing list of offices.

Print

This option enables the user to PRINT various reports pertaining to the list of offices . The various options are :

- Office (list of offices in ascending order)
- Block (list of blocks with the office covering it)
- Structure (Graphic representation of office hierarchy)
- Exit

Exit

On completion of a session with SIS - OFFICE, this option may be invoked to return to the SIS - MAIN MENU.

3.4
XCHANGE SUB-MENU

The XCHANGE SUB-MENU consists of the following options :

- ☐ **Import**
- ☐ **Export**
- ☐ **Exit**

These options broadly take care of the following tasks :

Import

This option enables the user to take in data from the other modules to effectively monitor the MIS in the state. The interlinkage consists of :

SMS
The SMS module monitors the scheme at the activity level and so the scheduled and actual dates & costs can be obtained from SMS directly.

VIS to GOI
The other two modules, VIS & GOI can be interlinked between each other and also with SIS with reference to the District / Block / Village list.

Archive
This option enables the user to recall any excluded data which has been archived earlier.

Exit
This option can be exercised to return to the Xchange sub-menu.

Export

This option enables the user to send data to the other modules to effectively monitor the MIS in the state. The interlinkage consists of :

SMS
The schemes which are handed over to works for execution can be directly sent to SMS module for an activity level monitoring of the schemes.

VIS
Data can be sent regarding Village/Habitation coverage under the schemes to update the baseline in VIS.

GOI

Data can be sent regarding Village/Habitation coverage & cost under the schemes to update the details stored for the entire state in GOI.

Archive

Tuis option enables the user to exclude any data not currently required to an archival status. The important thing to note is that data is not lost but just kept out of current use.

Exit

This option can be exercised to return to the Xchange sub-menu.

3.5 HOUSEKEEPING SUB-MENU

The HOUSEKEEPING SUB-MENU consists of the following options :

- ☐ **Startup**
- ☐ **Index**
- ☐ **Backup**
- ☐ **Restore**
- ☐ **Exit**

These options take care of the following tasks :

Startup

This option is required to assign the STATE code and name to the system. Therefore, this option is required only at the beginning when the package is installed for your state. The details to be entered are :

- State Code (C2)
- State Name (C30)

The State Code should consist of the 2-digit census code which will also form the first two digits of the village / habitation code. State Name should be specified in full as the user would like it to appear in report headings etc.

Index

This option indexes all database files which are used by the VIS system. On invoking this option, the system automatically proceeds to index all files. The files are :

- SIS1 - Office Data File
- SIS2 - Blocks under the offices Data File
- SIS3 - Scheme Data File
- SIS4 - Villages under schames Data File
- SIS9 - Office characteristics reference File
- VIS2 - Baseline Data Master file

Indexing is an internal requirement of the system to ensure that the records of the the database files are ready to be accessed in the requisite manner when using the various options of the system.

Backup

This option enables the user to transfer data from the currently used hard-disk onto diskettes. Back-ups of data should be maintained at all times to ensure that in the event there is a failure of the hard disk, data is available on floppy disks which can be restored as explained in the next section.

In many cases, some of the master baselines are large, they can be backed-up onto multiple floppies, say district or block-wise, and then restored selectively, as and when required for processing.

Restore

This option enables the user to transfer data from diskettes to the currently used hard-disk. Back-ups of data on diskettes may be required to be restored, in case there is a failure of the hard disk.

In many cases, some of the master baselines are large, and have been backed-up onto multiple floppies, say district or block- wise, they can be restored selectively, as and when required for processing.

Exit

On completion of a session with SIS-HOUSEKEEPING, this option may be invoked to return to the SIS MAIN MENU.

section 4

INTERLINKAGES
Scheme Information System

4.1 INTERLINKAGE with VIS

Data can be incorporated or sent to the VILLAGE INFORMATION SYSTEM (VIS) into SIS. Under SIS, scheme-wise data is created incorporating the village / habitation coverage under each scheme. In case, this data is required to update any of the master baselines, a facility can be specifically created to internally transfer such data, thereby eliminating duplicate data entry. The list of Districts / Blocks / Villages in the state can be transferred internally from VIS.

4.2
INTERLINKAGE with SMS

Data can be transferred to or from the SCHEME MONITORING SYSTEM (SMS). SMS requires the list of schemes sent to Works for execution for monitoring the schemes at the activity level. This list can be internally transferred to SMS by SIS through the Export sub-option in Xchange option in SIS. SIS also maintains the actual date of commencement & completition and cost of schemes which can be got from SMS which actually monitors the schemes.

This transfer of data is done through the Import sub-option under Xchange option of SIS. This prevents any duplication of data and maintains integrity among the different modules.

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MANAGEMENT INFORMATION SYSTEMS

FOR

RURAL WATER SUPPLY

Department of Rural Development
Ministry of Agriculture
GOVERNMENT OF INDIA

for implementation at

STATE LEVEL

volume IV

SMS
Scheme Monitoring System

NIDC

NATIONAL INDUSTRIAL DEVELOPMENT CORPORATION

Chanakya Bhawan, Africa avenue, Chanakyapuri, New Delhi 110021

JANUARY 1991

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01
INTRODUCTION

BACKGROUND

This volume describes the SCHEME MONITORING SYSTEM (SMS), which is a user-friendly and flexible module to be maintained at the division level. SMS can be used for collating WORKS MONITORING INFORMATION in terms of Scheme and activity level data on various Schemes. SMS can also be used to generate a wealth of information in terms of various reports aimed at augmenting the current information for various SCHEMES.

SMS is one out of four packages aimed at meeting information requirements in the areas of :

- SCHEME PROFILE
- ACTIVITY LEVEL MONITORING
- GENERATING REPORTS FOR WORKS MONITORING

The complete suite of modules designed to meet the above requirements, consists of :

- VIS - VILLAGE INFORMATION SYSTEM
- SIS - SCHEME INFORMATION SYSTEM
- GOI - CENTRE REPORTING SYSTEM
- SMS - SCHEME MONITORING SYSTEM

SMS uses the principles of PERT (Project Evaluation & Review Technique) and CPM (Critical Path Method) for the monitoring of schemes. This package can be used at the division - level to monitor & review various schemes at the activity level. The progress of each Scheme can therefore be closely monitored by identfying critical activities, time slippages and cost overruns.

This package can be effectively used as a tool for monitoring large schemes like Piped Water Supply Schemes and Combined Water Supply Schemes. These Schemes usually involve a long time duration and involve a number of activities. The duration of schemes can be maintained in days, weeks, or months.

Lastly during the past months, meaningful discussions have been held with the concerned officials of DRD at the centre, and of the Boards and PHEDs at the states.

Keeping in mind, the requirements that have arisen out of such factors and the various technological possibilities available on the existing hardware and software combinations, SMS has been evolved and its amalgamated features are intended to

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be a culmination of efforts towards providing the states with a powerful and flexible tool for monitoring & reviewing on-going schemes on a purely Scientific basis.

Despite a fairly complex internal mechanism, SMS is easy to operate by even a lay-user, because of its menu-driven and user- friendly external manifestation.

Definitely RWS problems would not be eradicated with the installation of SMS ! Problems are solved in the minds of men and from their resultant actions.

In this light, SMS could be that one significant cornerstone enabling the mind to be better informed, aiming at more decisive, meaningful and timely action.

STRUCTURE OF THIS VOLUME

This volume consists of 4 sections. These are :

- ☐ **(1) SMS - Uses & terminology**
- ☐ **(2) SMS - Operating Guide**
- ☐ **(3) SMS - Options & Sub-options**
- ☐ **(4) SMS - Interlinkages**

The contents of the various sections are :

(1) SMS - Uses & terminology
This section describes how SMS can be effectively used and also provides definitions for terms having specific meaning in the package.

(2) SMS - Operating Guide
This section describes how SMS can be operated. This section also provides the MENU-STRUCTURE of the package which enumerates the various options and sub-options.

(3) SMS - Options & Sub-options
This section describes in detail, each option and sub-option of SMS. This section can be referenced to know what function each option and sub-option performs.

(4) SMS - Interlinkages
This section describes how SMS is interlinked to other RWS packages, namely :

- SIS - Scheme Information System

The user may also read VOLUME I, which provides an overview of all the packages

section 1

USES & TERMINOLOGY
Scheme Monitoring System

1.1
USES OF SMS

SCHEME MONITORING SYSTEM (SMS) is to be used for maintaining detailed SCHEME data at the activity level. This data can be used for :

- Division level monitoring
- Project Management of Schemes

Project Management

SMS enables the user to monitor the scheme at the micro level i.e. at the activity level. The activities are treated as a separate entity for proper control of the scheme. The various activities are then linked to each other by connectors to form the scheme network which is also simultaneously analysed. This results in a very effective & logical control of the scheme.

Time and cost scheduling

SMS is used for scheduling the schemes at the activity level in terms of time and cost. A comparative updated analysis is made for the scheduled/actual duration of activities as well as the targeted/ actual cost incurred for activity completion.

Graphic & Diagramatic Displays

SMS provides the management with a tool to review the current status of the scheme in a nutshell. A Graphic BAR-CHART displays the schematic details of the time scheduling of the scheme. It gives the scheduled/ actual duration of the activities as well as the current progress.

Updation in status

The planned data entered into SMS is taken as a datum and stored to reflect at all times the planned status. Subsequent changes in any of the activity details are stored separately and an updation is created for each change. Therefore, the changes can be reflected over time. The user can analyse the changes made at various point of time.

Archiving of data

Over time, a number of changes would accumulate and, say after the completion of a financial year or plan period, may no longer be immediately relevent. Such data can be archived, that is, stored away separately. However, such data can be retreived and made "current" as and when required.

Reports & Displays

Data can be viewed on the screen or reports can be generated under various categories.

How to start !

To start-up the system, therefore, the user needs to perform the following tasks :

- Enter Scheme Code and scheme details
- Generate Calendar for the entire scheme duration
- Enter the activity planned details.
- Define connectors to link activities.
- Process the planned data.
- Generate reports pertaining to planned data.

Normal Operations

Subsequently and in the normal course of usage, the following tasks need to be performed :

- Enter actual scheme progress in terms of activities.
- Process the progress made.
- View latest status of the scheme.
- Print reports for the latest status.

1.2 TERMINOLOGY

A number of terms and words are used throughout SMS which have a special meaning. Some of the important terms are:

Scheme

A Scheme denotes an aggregate of individual entities (activities) that are inter-linked to form a complete system. 'SCHEME' can be generally taken to be analogous to 'Project' which is commonly used in Project Management parlance.

Activity

An Activity denotes a certain specified portion of a project/scheme which can be independently analysed, and a well- defined set of which aggregates to form a scheme.

In connection with an activity it is useful to be familiar with the following terms also :

Duration
This is the time required in a specified unit (day / week / month) to complete an activity.

Early Start
The Early start of an activity in a scheme is the earliest possible time that the activity can start with respect to all other activities of the scheme.

Early Finish
The Early finish of an activity in a scheme is the earliest possible time that the activity can be completed with respect to all other activities of the scheme.

Late Start
The Late start of an activity in a scheme is the latest possible time that the activity can start without extending the scheme completition date.

Late Finish
The Late finish of an activity in a scheme is the latest possible completition for the activity without extending the scheme completition date.

Activity Label
The Activity Label is the number assigned to an activity in a scheme which denotes the topological order (sorted on the basis of precedence relationships) of the activities.

Float

Float refers to the delay possible for an activity without affecting the overall schedule of the scheme. There are four types of float. Float is a measure of the non-criticality of an activity.

- **Total float**

is the difference between its Late Finish and Early Start.

- **Independent float**

is the difference between its Early Finish and Late start.

- **Safe float**

is the difference between its Late Finish and Late Start.

- **Free float**

is the difference between its Early Finish and Early Start.

Critical Path

Critical Path is the longest possible duration required for the scheme to complete. It is the sum of the durations of all critical activities. Critical activities are those for which the total float is zero or any delay in that activity will delay the entire scheme.

Connector

Connector defines the relationship between activities in a scheme. It defines the order of activities in a scheme. There are four types of connectors. They are :

- **Start to Finish (SF)**

The succeeding activity cannot finish until the preceeding activity has been started.

- **Start to Start (SS)**

The succeeding activity cannot start until the preceeding activity has been started.

- **Finish to Start (FS)**

The succeeding activity cannot start until the preceeding activity has been completed.

- **Finish to Finish (FF)**

The succeeding activity cannot finish until the preceeding activity has been completed.

Connector Duration

This defines the time interval (duration) between two activities which are linked by a connector. It allows for the intermediary delay between succesive activities.

Calendar

This contains dates which stores the working days and corresponding dates for the entire scheme duration. This is utilised for the Time - Scheduling of the scheme according to its activities and connectors.

Responsibility Head

This contains a list of entities (persons, departments etc.) responsible for completition of the activities in a scheme.

section 2

OPERATING INSTRUCTIONS
Scheme Monitoring System

2.1
STARTING SMS

Log on to the directory where the SMS programs and data are loaded. For example, if this happens to be on your "C" disk and the directory is named SMS, the following prompt would now appear on the screen :

C:\SMS
At the prompt, type "SMS" and press [enter].

First an opening screen appears and then the MAIN MENU. The options of the MAIN MENU appear in a card format diagonally. To begin with, the bottom-most option is high-lighted (in reverse VDU). Move to the option of your choice using :

- the [up arrow] and [down arrow] keys OR
- pressing the FIRST LETTER of the required option title

To select the option from the MAIN MENU of your choice :

- press [enter]

Now the sub-options pertaining to the selected option appear under it in a page format. Selection can now be made as done for the options of the main menu.

To select the sub-option from the SUB MENU of your choice :

- press [enter]

In this manner, the user may select the option and then the sub- option of his choice.

Entering Data
Wherever data needs to be entered, the requisite prompt would appear alongwith the line for entering data in reverse showing the extent of the field size. Type the necessary data and then press [enter] to signal the completion of data entry.

Prompts at Top-Line
Either after data has been entered, or at the beginning, or on completion of the operations under a sub-option, a relevent prompt appears on the screen usually requiring the user to select between :

- Yes
- No

or in certain instances, between options such as :

- Edit
- Delete

- Quit

The correct selection can be made by moving onto the required option either using :

- the [left arrow] and [right arrow] keys OR
- pressing the FIRST LETTER of the required option title

To select the option of your choice :

- press [enter]

Please ensure that the correct option is selected. This will facilitate the proper operation of the package.

2.2 OPERATING ENVIRONMENT

SMS can be operated on a PC/AT or PC/XT system. The requirements are :

- 640 KB RAM - main memory
- Hard disk capacity depending on datafiles size
- Color monitor/ Monochrome monitor
- Dot-matrix Printer (132 column with condensed mode)

section 3

OPTIONS & SUB-OPTIONS
Scheme Monitoring System

3.1
MAIN MENU

The SMS MAIN-MENU consists of the following options :

- ☐ **Reports**
- ☐ **View**
- ☐ **Process**
- ☐ **Data**
- ☐ **Select**

These options broadly take care of the following tasks :

Reports

This option enables the user to generate a number of reports concerning the various aspects of the schemes. Generation of each report is assisted by selective options.

View

This option enables the user to have a screen display of the bar- chart and network for the latest updatation of the schemes.

Process

This option enables the user to update the time schedule of the schemes whenever any changes are made in the scheme details. It is basically a compilation stage wherein the computer updates the time schedule for any changes made in the scheme details.

Data

This option enables the user to create, view, edit or remove data from the schemes taken up for monitoring. Thus this option enables the user to control the progress of the scheme through its activities.

Select

This option enables the user to select schemes in order to perform a number of relevent tasks.

3.2 SELECT SUB-MENU

The SELECT SUB-MENU consists of the following options :

- ☐ **Select**
- ☐ **Index**
- ☐ **Add**
- ☐ **Remove**
- ☐ **Copy**
- ☐ **Restore**
- ☐ **Archive**
- ☐ **Import Data**
- ☐ **Export Data**

These options broadly take care of the following tasks :

Select

This option enables the user to Select any one of the schemes to add or edit data, process for updated time schedule, view screen displays and generate reports for various scheme details.

Index

This option indexes all database files which are used by the SMS system. On invoking this option, the system automatically proceeds to index all files. The files are :

- OPMF1 - Scheme Master File
- OPMF2 - Scheme Updation File
- OPMF3 - Calendar Structure File
- OPMF4 - Scheme Responsibility Master
- OPMF5 - Scheme Activity Master File
- OPMF6 - Scheme Connectors File
- OPMF7 - State Code & Description File
- OPMF8 - Export file to SIS
- OPMF9 - Import file from SIS
- OPMF91 - Export file to SIS
- OPMF3H - Holiday Master File

Add

This option enables the user to Add a new Scheme to the system. This option allows the entry of scheme details on the macro basis i.e. at the scheme level. The data required is :

- Scheme Code
- Scheme short/long description
- Monitoring time frame(days/weeks/months/year)
- Scheduled Scheme start-date
- Scheduled Scheme finish-date

Remove

Under this option, the user can Delete any scheme from the list of schemes created for monitoring.

Copy

This option enables the user to Create new schemes with a lot of ease and flexibility. Sometimes Schemes are similar to existing ones in terms of activties,time frame etc. ,therefore instead of creating all the data once again for the scheme ,the user can Copy the data from an existing similar scheme and make only the few small, necessary changes.

Restore

Under this option, the user can restore any archived scheme for further analysis. This option introduces a great flexibility in handling schemes at a larger level.

Archive

Under this option, the user can put any schemes not required for current analysis to an archival status. The scheme details are kept in a separate database which cannot be currently edited or processed but can be brought back to operative status by the Restore option.

Import Data

This option enables an effective link between SIS and SMS. Schemes which are handed over to Works for monitoring can be internally sent to SMS for monitoring the schemes at the activity level from SIS.

Export Data

This option enables an effective link between SIS and SMS. Schemes which are completed can be sent to SIS update the Scheme details there.This internal transfer eliminates any duplication or wrong data regarding schemes in SIS as the actual dates and costs are directly got from SMS.

3.3
DATA SUB-MENU

The DATA SUB-MENU consists of the following options :

- ☐ **Activity**
- ☐ **Connectors**
- ☐ **Holidays**
- ☐ **Calendar**
- ☐ **Scheme deatils**
- ☐ **Resp. Heads**

These options broadly take care of the following tasks :

Activity

This option enables the user to CREATE or EDIT the activities for any scheme. The activity details required are :

- Activity code (C4)
- Activity short Description (C9)
- Full Description (C40)
- Milestone (C1)
- Activity Start date
- Activity Finish date
- Activity Duration

The activity Dates can be entered in three ways :

- Activity Start Date & Duration (activity in progress)
- Activity Start date & Finish Date (completed activity)
- Activity Duration (activity not started)

- Activity Responsibily Code (C4)
- Activity Actual Quantity
- Activity Actual Rate
- Activity Balance Quantity

Connectors

This option is to Create, Edit or Delete any Connectors between activities for any scheme. The connectors define the order of activities in a scheme. The user can

create new connectors for a scheme or edit existing ones to accommodate any scheme reorganisation. The connector details are :

- Activity From (C6)
- Activity To (C6)
- Connector Type
- Connector Duration

Holidays

Under this option, the user can define holidays according to the place of work to correctly time the activities for the schemes.

Calendar

Under this option, the user can generate a calendar for each scheme created to monitor the time schedule of the scheme. The calendar file contains the dates taking into account the holidays and non-working days and these dates are used to update time schedule for the particular scheme.

The calendar file generated for a scheme is assigned the name :

- Char(2) to (7) of SCHEME CODE + '3'

Scheme Title

Under this option, the user can EDIT the scheme title details. The Scheme Title includes :

- Scheme short/long description
- Scheme Time Frame (Unit of Duration)
- Scheme Working/Non-Working days
- Scheme Start & Finish dates

Responsibilty Heads

Under this option the user can edit the Responsibility Master file. The Responsiblity Heads define the entities (persons or departments) responsible for completing an activity. An Activity can have upto four Responsibility Heads. The details to be entered are :

- Responsibility short description
- Responsibility long description
- Responsibility Head's location

3.4
PROCESS SUB-MENU

The PROCESS SUB-MENU consists of the following options :

- ☐ **Read files**
- ☐ **Topological Sorting**
- ☐ **Forward Pass**
- ☐ **Backward Pass**
- ☐ **Write files**

These options broadly take care of the following tasks :

Read files

This option enables the computer to read all the data files for the selected scheme required for updating scheme Time-schedule.

Topological Sorting

This process labels the activities sorted in their precedence order. Labelling the activities includes processing the connectors to define the order in which the activities are to be scheduled. This labelling procedure precedes the time scheduling of a scheme.

Forward Pass

This process gives the Early Start and Early Finish Dates for each activity. This process makes use of the labelling done by Topological Sorting to schedule the activities.

Backward Pass

This process gives the Late Start and Late Finish Dates for each activity. This process makes use of the labelling done by Topological Sorting to schedule the activities.

Write files

On completion the processing of all activities of a scheme the Time-Schedule is stored in the activity's database files.

3.5
VIEW SUB-MENU

The VIEW SUB-MENU consists of the following options :

- ☐ **Bar-chart**
- ☐ **Network**

These options take care of the following tasks :

Bar-Chart

This option presents a screen display of the Time - Schedule of the activities of a scheme in a bar-chart form. It is a graphical representation of the scheduled and actual dates for the activties. A glance at this display immediately informs the user of the delayed activities, status of activities (not started, in progress, completed) and other Time schedule information.

Network

This option gives a diagramatic screen display of the scheme Network. The user can see the activities in a scheme and the activities preceeding and succeeding it. The user can also see the Early / Late Start / Finish dates as well as the activities already completed.

3.6
REPORTS SUB-MENU

The REPORTS SUB-MENU consists of the following options :

- ☐ **Activity - Wise**
- ☐ **Connectors**
- ☐ **Bar -Chart**
- ☐ **Network**
- ☐ **Updations**
- ☐ **Cash Flow**
- ☐ **Deviations**
- ☐ **Allocations**
- ☐ **Time Analysis**
- ☐ **Cost Analysis**
- ☐ **Sub Missions**

These options take care of the following tasks :

Activity- Wise

This option generates the activity details for a selected scheme. The various selection criteria for activities are :

- All Activities
- Float Range
- Starting Date
- Completing Date
- In Progress
- Delay Range
- Responsibility code

Connectors

This option generates reports providing the details of the connectors for any scheme. It gives a list of all connectors of a scheme .The user can select on :

- Activity from (in order of preceding connectors)
- Activity To (in order of succeeeding connectors)

Bar-Chart

This option generates a graphic printout for the scheduled/actual Time schedule of all the activities of a selected scheme.

Network

This option generates a graphic printout for the Time schedule for all activities with their preceeding & succeeding activities for a scheme.

Updation

This option generates a report providing the updations performed for a scheme. The information includes date of updation and updated cost and duration for the scheme.

Cash Flow

This report provides information regarding cash flow across schemes for a selected duration (max.12 months). Selection of schemes for cash flow analysis is done by the user.

Deviation

This option generates a report providing the information regarding the extent and range of Time and Cost deviations in updations for all schemes.

Allocations

This option generates a report giving the scheduled and actual financial data for the activities of a scheme alongwith variations.

Time Analysis

This option generates a report providing the scheduled and actual Dates for activities for selected/all schemes. Selection of schemes is done by the user.

Cost Analysis

This option generates a report providing the planned and actual costs for activities for some/all schemes. Selection of schemes is done by the user.

Sub Missions

This option generates a report providing the information about the Sub Missions under progress in the state with their current status in terms of villages covered activity-wise for each Sub Mission.

The Sub Missions are :

- ☐ **Solar Photo Voltaic Plants**
- ☐ **Desalination Plants**
- ☐ **Deflouridation Plants**
- ☐ **Iron Removal Plants**
- ☐ **Guinea Worm Removal activities**

section 4

INTERLINKAGES
Scheme Monitoring System

4.1 INTERLINKAGE with SIS

Data can be incorporated from the SCHEME INFORMATION SYSTEM (SIS) into SMS. Under SIS, scheme-wise data can be created incorporating the village / habitation coverage under each scheme. In case, this data is required to update any of the schemes, a facility is provided to internally transfer such data, thereby eliminating duplicate data entry.

Data regarding financial statistics for completed and in-progress schemes can be transfered to SIS using Export option.

For further details, the user may also refer to Volume III, which provides the functional details for such interlinkages.

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MANAGEMENT INFORMATION SYSTEMS

FOR

RURAL WATER SUPPLY

Department of Rural Development
Ministry of Agriculture
GOVERNMENT OF INDIA

for implementation at

STATE LEVEL

volume V

GOI
Centre Reporting System

NIDC

NATIONAL INDUSTRIAL DEVELOPMENT CORPORATION

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JANUARY 1991

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01
INTRODUCTION

BACKGROUND

This volume describes the CENTER REPORTING SYSTEM (GOI), which is a user-friendly and flexible module to be maintained at the state level. GOI can be used for generating the CENTRE REPORTS in terms of village level data on RURAL WATER SUPPLY (RWS). GOI can also be used to generate a wealth of information in terms of user-defined reports aimed at augmenting the current CENTER/STATE-LEVEL REPORTING SYSTEM.

GOI is one out of four packages aimed at meeting information requirements in the areas of :

- STATE PROFILE
- STATE REPORTING SYSTEM
- CENTRE REPORTING SYSTEM
- WORKS MONITORING

The complete suite of modules designed to meet the above requirements, consists of :

- VIS - VILLAGE INFORMATION SYSTEM
- SIS - SCHEME INFORMATION SYSTEM
- GOI - CENTRE REPORTING SYSTEM
- SMS - SCHEMES MONITORING SYSTEM

Funds are released by the Central Government for Rural Water Supply under various programmes. The monitoring of the utilisation of the funds as well as the state's overall performance is evaluated by measuring the physical and financial progress of schemes and the resultant coverage of villages and population. Currently, the formats for collecting such information are :

- Monthly Progress Report
- Quaterly Progress Report
- Yearly Progress Report
- New Formats (for monthly progress)

The MONTHLY PROGRESS REPORT has the information of coverage of action plan villages for not covered as well as partially covered villages and population thus benefitted by that coverage. It also takes care about the financial statistics like funds released upto the month , annual allocation and the expenditure during the month with emphasis on expenditure on any special category

The QUARTERLY PROGRESS REPORT contains upto date information about the progress made in the quarter and monitoring the progress by comparing the targetted coverage with the actual coverage. Further it throws light on programme wise avialable allocation and expenditure during the quarter.

The YEARLY PROGRESS REPORT gives the overall view of the performance made during that year. It specifies the total coverage under various schemes , total population benefitted during that year , total expenditure incurrred during that year with emphasis on type of services provided. The additional information like the number of problem villages covered during the year is also available.

Although there is regular flow of information through these existing formats , modified formats have been proposed which are substantially simplified.

The above mentioned requirements of Central Government were previously compiled and consolidated manually by the states. The GOI module takes care of all these requirements and generates all the above mentioned reports including the New Formats.

In addition, to facilitate the generation of user defined reports a 'FLEXIBLE QUERY REPORT' generating procedure is also incorporated in this module. The GOI module , is fully menu driven and fairly easy to operate by even a lay-operator.

Definitely RWS problems would not be eradicated with the installation of GOI ! Problems are solved in the minds of men and from their resultant actions.

In this light, GOI could be that one significant cornerstone enabling the mind to be better informed, aiming at more decisive, meaningful and timely action.

STRUCTURE OF THIS VOLUME

This volume consists of 4 sections. These are :

- ☐ **(1) GOI - Uses & terminology**
- ☐ **(2) GOI - Operating Guide**
- ☐ **(3) GOI - Options & Sub-options**
- ☐ **(4) GOI - Interlinkages**

The contents of the various sections are :

(1) GOI - Uses & terminology
This section describes how GOI can be effectively used and also provides definitions for terms having specific meaning in the package.

(2) GOI - Operating Guide
This section describes how GOI can be operated. This section also provides the MENU-STRUCTURE of the package which enumerates the various options and sub-options.

(3) GOI - Options & Sub-options
This section describes in detail, each option and sub-option of GOI. This section can be referenced to know what function each option and sub-option performs.

(4) GOI - **Interlinkages**
This section describes how GOI is interlinked to other RWS packages, namely :

- SIS - Scheme Information System
- VIS - Village Information System

The user may also read VOLUME I, which provides an overview of all the packages.

section 1

USES & TERMINOLOGY
Center Reporting System

1.1 USES OF GOI

CENTER REPORTING SYSTEM (GOI) is to be used for maintaining Village level baseline data. This baseline data can be used for :

☐ **Center Reporting System**

Maintainence of village status

GOI enables the user to maintain the current year action plan village status which includes the type of village, population benefitted and coverage status. Data is also maintained for current year schemes, which includes the start & end date, type of scheme, estimated and actual cost.

Maintainence of programme wise release of funds

The annual allocation made to the state under various programmes and the actual release and expenditure can also be monitored through GOI.

Generation of reports in existing formats

With all the data correctly recorded, GOI generates the reports as required by Central Government for monitoring the physical and financial progress.The generation of the reports is totally menu driven.

Generation of reports in new formats

GOI also generates the reports in the New format without any additional input of data. The New Formats contains the same information but are more comprehensive.

Flexible Query

A flexible query system is also provided which generates village lists based on user-selected criteria.

How to start !

To start-up the system, therefore, the user needs to perform the following tasks :

- Enter Reference Types
- Enter Reference Data under each type
- Create list of action plan villages with original status

Normal Operations

Subsequently and in the normal course of usage, the following tasks need to be performed :

- Update status of villge month wise
- Generate monthly progress report at each month end
- Generate quarterly progress report at each quarter end
- Generate yearly progress report at each year end
- Generate new formats at each month end

1.2 TERMINOLOGY

A number of terms and words are used throughout GOI which have a special meaning. Some of the important terms are:

Reference

This term denotes all data which will be "referenced" by the main village master data. Funding programmes, types of schemes, type of village, coverage status are all examples of Reference data.

Reference Types
With reference to the above, "Type of Programmes" is an example of a reference type. Therefore, for the complete system, a number of such reference types need to be defined.

Reference Data
Under each reference type, there need to be a set of reference entries. For example, the REFERENCE DATA under the reference type "Types of Programmes" would consist of entries like : MNP, ARWSP, APA, RLGEP etc.

LIST OF REFERENCES

The complete list of Reference Types required by the GOI system are as follows :

☐ Type of Village

- PV - Problem Village
- NPV- Non-problem Village

☐ List Type

- 1980 List
- 1985 List
- Others

☐ Category Type

- Special categories (if any)

☐ Village Status

- NC - Not Covered
- PC - Partially Covered
- FC - Fully Covered

☐ **Type of Programme**

- ARWSP
- MNP
- APA
- DDP
- APA
- LIC
- etc.

☐ **Type of Scheme**

- Hand Pump
- Stand Post
- Regional Water Supply
- etc.

☐ **Stage of Approval**

- Administrative Approval
- Technical Approval

☐ **Action Plan Inclusion**

- Yes
- No

Village Code

VILCODE consists of 11 characters as per part DISNIC pattern and has the following characteristics :

- Char 01-02 for DISTRICT CODE
- Char 03-04 for BLOCK CODE
- Char 05-07 for TYPE and CODE of ADMINISTRATIVE SUB-UNIT
- Char 08-11 for MANDAL/PANCHAYAT and VILLAGE CODE

section 2

OPERATING INSTRUCTIONS
Center Reporting System

2.1
STARTING GOI

Log on to the directory where the GOI programs and data are loaded. For example, if this happens to be on your "C" disk and the directory is named GOI, the following prompt would now appear on the screen :

C:\GOI
At the prompt, type "GOI" and press [enter].

First an opening screen appears and then the MAIN MENU. The options of the MAIN MENU appear horizontally at the top. To begin with, the left-most option is high-lighted (in reverse VDU). Move to the option of your choice using :

- the [left arrow] and [right arrow] keys OR
- pressing the FIRST LETTER of the required option title

The further sub-options under the MAIN MENU option or a description of the same are displayed horizontally directly below the MAIN MENU line.

To select the option from the MAIN MENU of your choice :

- press [enter]

Now the sub-options pertaining to the selected option appear at the top line. Selection can now be made as done for the options of the main menu.

During the process of selecting sub-options, further sub-options or a brief description of the same are displayed horizontally directly below what is now the SUB MENU line.

To select the sub-option from the SUB MENU of your choice :

- press [enter]

In this manner, the user may select the option and then the sub- option of his choice.

Entering Data
Wherever data needs to be entered, the requisite would appear alongwith the line for entering data in reverse showing the extent of the field size. Type the necessary data and then press [enter] to signal the completion of data entry.

Multiple Choice Data
Wherever a field can take one of many standard values, the first such standard value is displayed at the data entry area alongwith a blinking two-way arrow alongside. Use the [up arrow] and the [down arrow] keys till the value of your choice is displayed. Select the same by pressing [enter].

Prompts at Top-Line

Either after data has been entered, or at the beginning, or on completion of the operations under a sub-option, a relevent prompt appears at the top of the screen usually requiring the user to select between :

- Yes
- No

or in certain instances, between options such as :

- Edit
- Modify
- Quit

The correct selection can be made by moving onto the required option either using :

- the [left arrow] and [right arrow] keys OR
- pressing the FIRST LETTER of the required option title

To select the option of your choice :

- press [enter]

Please ensure that the correct option is selected. This will facilitate the proper operation of the package.

2.2
OPERATING ENVIRONMENT

VIS can be operated on a PC/AT or PC/XT system. The requirements are :

- 640 KB RAM - main memory
- Hard disk capacity depending on datafiles size
- Monochrome monitor
- Dot-matrix Printer (132 column with condense mode)

section 3

OPTIONS & SUB-OPTIONS
Centre Reporting System

3.1 MAIN MENU

The GOI MAIN-MENU consists of the following options :

- ☐ **Data**
- ☐ **Reports**
- ☐ **Query**
- ☐ **Housekeeping**
- ☐ **Exit**

These options broadly take care of the following tasks :

Data

This option enables the user to enter, modify and maintain data pertaining to villages, programmes and other reference types.

Reports

This option enables the user to generate the various reports required by DRD at the centre.

Query

This option enables the generation of user-defined village lists based on adhoc criteria.

Housekeeping

This option enables the user to perform "housekeeping" tasks such as indexing files and back-up and restoration of data from floppy diskettes.

Exit

On completion of a session with VIS, this option may be invoked to exit from VIS and return to DOS.

3.2 DATA SUB-MENU

The DATA SUB-MENU consists of the following options :

- ☐ **Village**
- ☐ **Status**
- ☐ **Programme**
- ☐ **Reference**
- ☐ **Exit**

These options broadly take care of the following tasks :

Village

This option enables the user to CREATE and MODIFY basic data pertaining to a village. The user needs to enter the following :

- Village Code (C11)
- Village Name (C30)
- Village Type
- Village Population - total
- Village Population - SC
- Village Population - ST
- Village Population already covered - total
- Village Population already covered - SC
- Village Population already covered - ST
- Reference List Type
- Special Category Type (if any)
- Original Coverage Status

Status

This option enables the user to UPDATE the status data pertaining to a village. The user needs to enter the following :

- Village Code (C11)
- Programme Type
- Scheme Type
- Approval Type
- Target Type
- Estimated Cost

- Year/Month of Scheme Start
- Year/Month of Scheme Completion
- Actual Cost
- Updated Coverage Status
- Village Population benefitted - total
- Village Population benefitted - SC
- Village Population benefitted - ST

Programme

This option enables the user to ENTER, MODIFY and UPDATE the status data pertaining to a programme. The user needs to enter the following :

- Programme Code
- Annual Allocation
- Opening Balance - unutilised
- Release during the months (12)

Reference

This option enables the user to ENTER and MODIFY reference types and data under the reference types.

For Reference Types, the following data needs to be entered :

- Type Code (C2)
- Type Description (C30)

For Reference Data, the following data needs to be entered :

- Type Code (C2)
- Data Code (C4)
- Data Description (C30)

Exit

On completion of a session with GOI-DATA, this option may be invoked to return to the GOI MAIN-MENU.

3.3 REPORTS SUB-MENU

The REPORTS SUB-MENU consists of the following options :

- ☐ **Monthly**
- ☐ **Quarterly**
- ☐ **Yearly**
- ☐ **New Format**
- ☐ **Exit**

These options broadly take care of the following tasks :

Monthly

This option generates the MONTHLY PROGRESS REPORT in the EXISTING FORMAT. The user needs to enter the :

- Year
- Month

for which the report is required. The report consists of sections pertaining to :

- N-category Villages - physical progress
- P-category Villages - physical progress
- Population coverage
- Financial Progress

Quarterly

This option generates the QUARTERLY PROGRESS REPORT in the EXISTING FORMAT. The user needs to enter the :

- Year
- Quarter ending Month

for which the report is required. The report consists of sections pertaining to :

- Programme-wise - schemes / population / financial
- Programme-wise - number of villages
- Problem Villages & Population coverage
- Financial Progress

Yearly

This option generates the YEARLY PROGRESS REPORT in the EXISTING FORMAT. The user needs to enter the :

- Year

for which the report is required. The report consists of sections pertaining to :

- Physical & Financial Progress Summary
- Programme-wise - coverage - Problem villages
- Programme-wise - coverage - Non-Problem villages
- Programme-wise - scheme progress

New Format

This option generates the MONTHLY PROGRESS REPORT in the NEW FORMAT. The user needs to enter the :

- Year
- Month

for which the report is required. The report consists of sections pertaining to :

- Physical progress - villages & population
- Programme-wise - release & expenditure
- Village List pertaining to above
- Financial Progress

Exit

On completion of a session with GOI-REPORTS, this option may be invoked to return to the GOI MAIN MENU.

3.4
QUERY SUB-MENU

This option provides the user with a generalised REPORT-WRITER cum QUERY facility. For the purpose of defining the contents, the selections are that of :

- Order
- Fields
- Records
- View / List
- Exit

The various selection options are described below :

Order

This option enables the user to select the order in which the records must appear in the report. For this purpose, all the fields of the master baseline structure are displayed on screen and the user may allocate an order on some of them. Consequently, the database file shall be indexed on the selected fields and in the selected order.

Fields

This option enables the user to select the fields as well as the order in which they shall appear in the report. For this purpose, all the fields of the master baseline structure are displayed on screen and the user may allocate an order on some of them. Consequently, only those fields allocated a number shall appear in the report and in the order they are numbered.

Records

This option enables the user to select the records that shall appear in the report. For this purpose, all the fields of the master baseline structure are displayed on screen. If a selection is to be based on a particular field, the same may be selected by entering "Y".

If the selected field is of type "Character", a match string or sub-string may be specified. Records in which this matches shall be selected for printing.

If the selected field is of type "Numeric", an upper AND / OR lower limit may be specified. Records which satisfy this condition shall be selected for printing.

If the selected field is of type "Date", an upper AND / OR lower date limit may be specified. Records which satisfy this condition shall be selected for printing.

When conditions are set on a number of fields, the combination of all of them shall be considered for record selection.

View / List

Based on the above three selection types, the data may either be VIEWED on screen or LISTED to printer. In case of listing to printer, the output may be directed to the printer or a print- file. In case of the print-file option, the user can specify the print-file name. A Report Heading can also be specified for all such output.

Exit

On completion of a session with GOI-QUERY, this option may be invoked to return to the GOI MAIN-MENU.

3.5 HOUSEKEEPING SUB-MENU

The HOUSEKEEPING SUB-MENU consists of the following options :

- ☐ **Startup**
- ☐ **Index**
- ☐ **Backup**
- ☐ **Restore**
- ☐ **Exit**

These options take care of the following tasks :

Startup

This option is required to assign the STATE code and name to the system. Therefore, this option is required only at the beginning when the package is installed for your state. The details to be entered are :

- State Code (C2)
- State Name (C30)

The State Code should consist of the 2-digit census code which will also form the first two digits of the village / habitation code. State Name should be specified in full as the user would like it to appear in report headings etc.

Index

This option indexes all database files which are used by the VIS system. On invoking this option, the system automatically proceeds to index all files. The files are :

- GOIREF - Reference Type & Data Master File
- GOIPGM - Programme Master File
- GOIVIL - Village Master File

Indexing is an internal requirement of the system to ensure that the records of the the database files are ready to be accessed in the requisite manner when using the various options of the system.

Backup

This option enables the user to transfer data from the currently used hard-disk onto diskettes. Back-ups of data should be maintained at all times to ensure that in the event there is a failure of the hard disk, data is available on floppy disks which can be restored as explained in the next section.

In many cases, some of the master baselines are large, they can be backed-up onto multiple floppies, say district or block-wise, and then restored selectively, as and when required for processing.

Restore

This option enables the user to transfer data from diskettes to the currently used hard-disk. Back-ups of data on diskettes may be required to be restored, in case there is a failure of the hard disk.

In many cases, some of the master baselines are large, and have been backed-up onto multiple floppies, say district or block- wise, they can be restored selectively, as and when required for processing.

Exit

On completion of a session with GOI-HOUSEKEEPING, this option may be invoked to return to the GOI MAIN MENU.

section 4

INTERLINKAGES
Centre Reporting System

4.1 INTERLINKAGE with SIS

Data can be incorporated from the SCHEME INFORMATION SYSTEM (SIS) into GOI. Under SIS, scheme-wise data can be created incorporating the village / habitation coverage under each scheme. In case, this data is required to update village data under GOI, a facility can be specifically created to internally transfer such data, thereby eliminating duplicate data entry.

For further details, the user may also refer to Volume III, which provides the functional details for such interlinkages.

4.2 INTERLINKAGE with VIS

Data can be transferred to the CENTRE REPORTING SYSTEM (GOI) from VIS. GOI also requires census village-wise data used for generating information required by DRD at the centre. If any of the existing master baselines contain analogous data, the same can be transferred internally by creating a specific facility, thereby eliminating or minimising duplicate data entry.

For further details, the user may also refer to Volume III, which provides the functional details for such interlinkages.

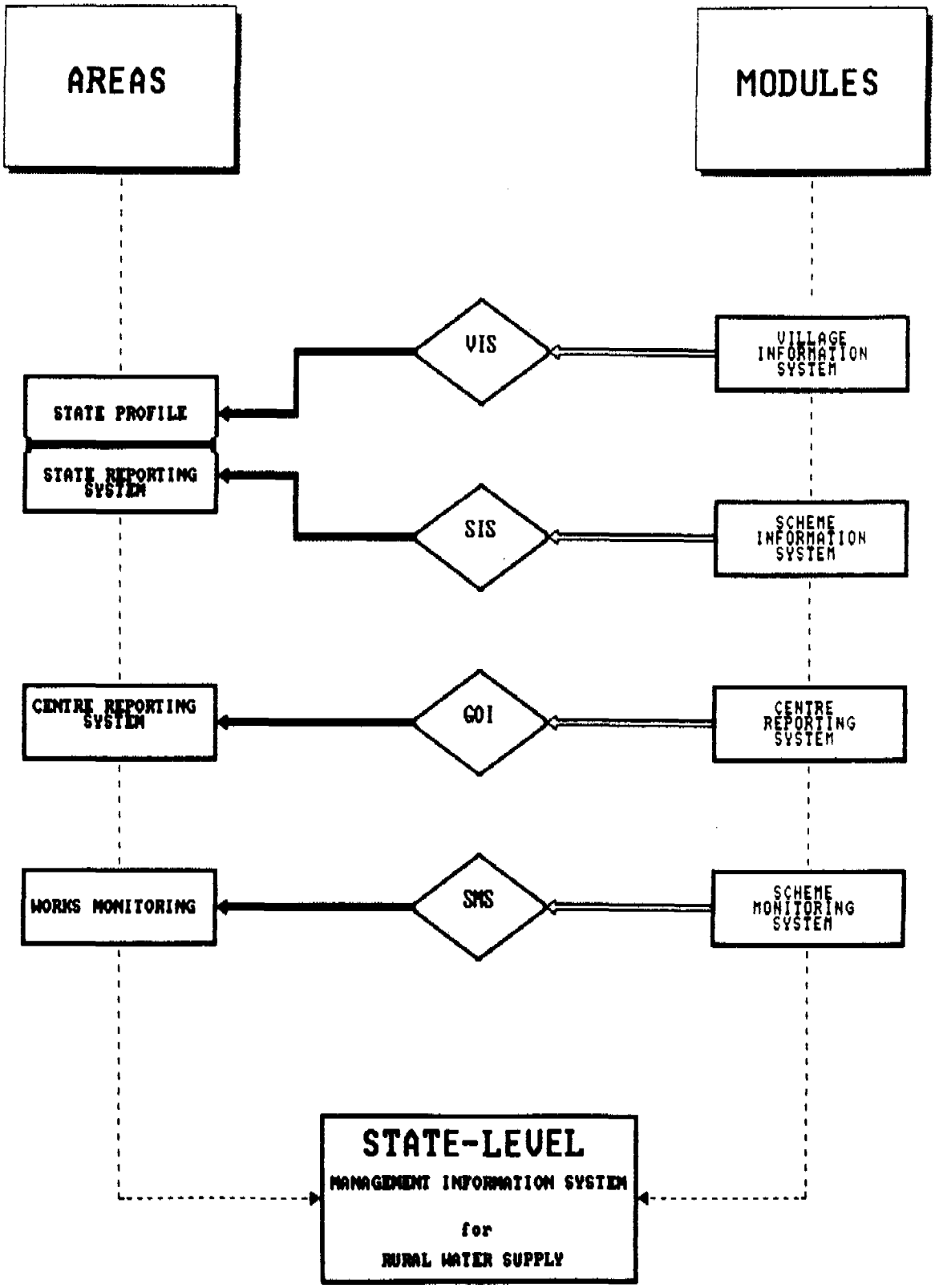
1991.

MANAGEMENT INFORMATION SYSTEM
RURAL WATER SUPPLY
STATE LEVEL

Library
IRC International Water
and Sanitation Centre
Tel.: +31 70 30 689 80
Fax: +31 70 35 899 64

GRAPHIC OVERVIEW

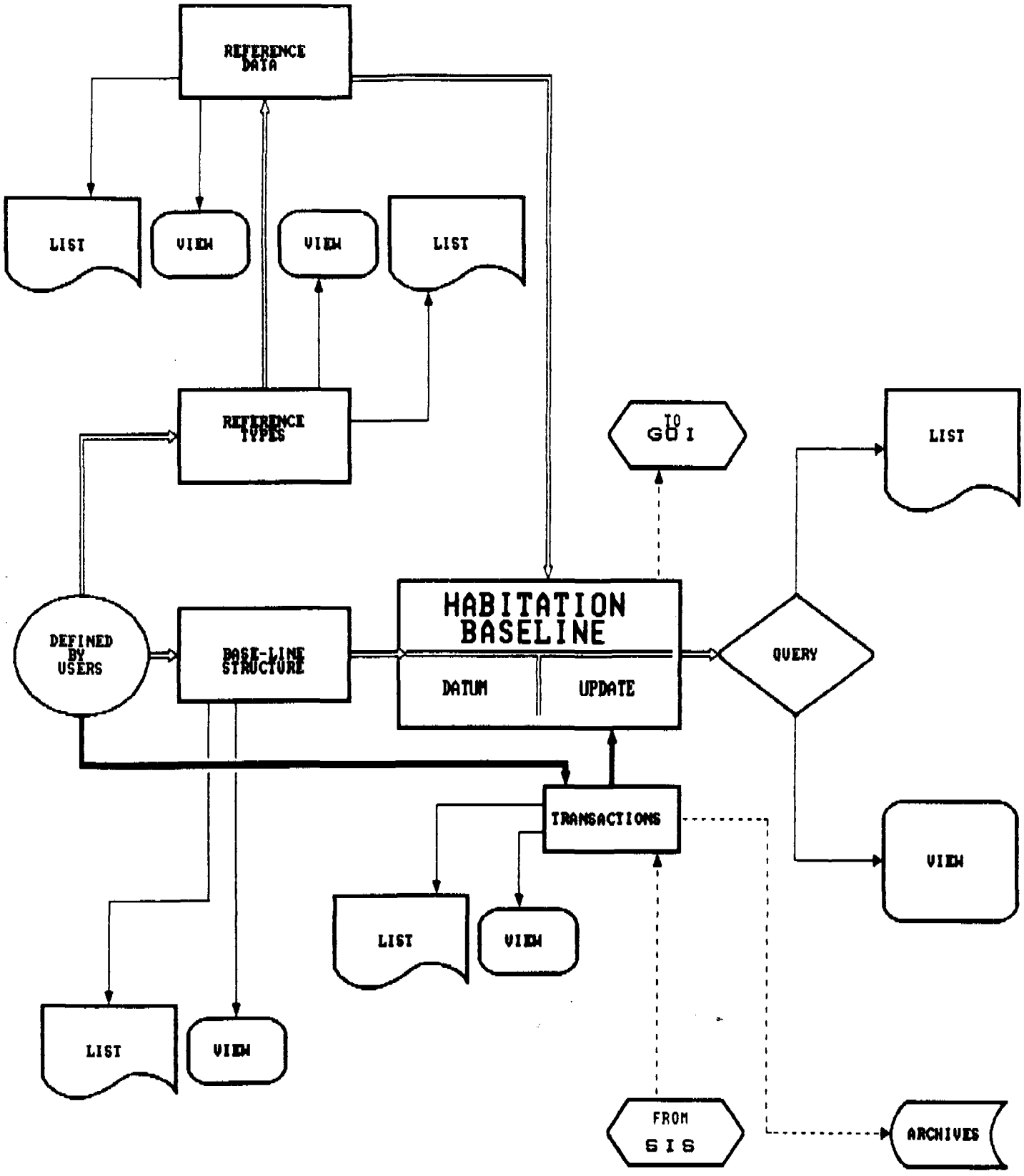
NATIONAL INDUSTRIAL DEVELOPMENT CORPORATION
DEPARTMENT OF RURAL DEVELOPMENT
GOVERNMENT OF INDIA



NIDC

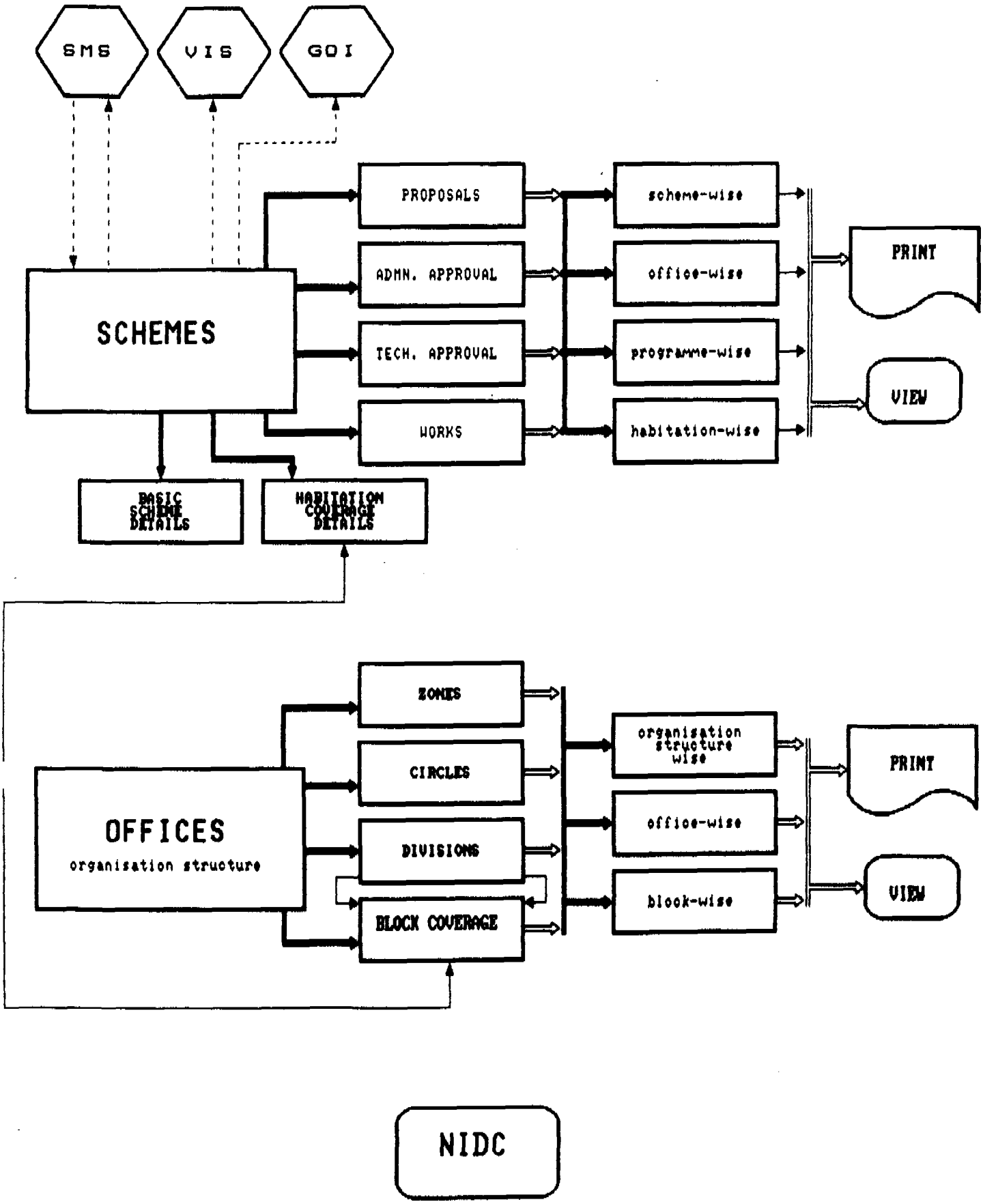
LIBRARY IRC
PO Box 93190, 2509 AD THE HAG
Tel.: +31 70 30 689 80
Fax: +31 70 35 899 64
BARCODE:
LO:

VILLAGE INFORMATION SYSTEM

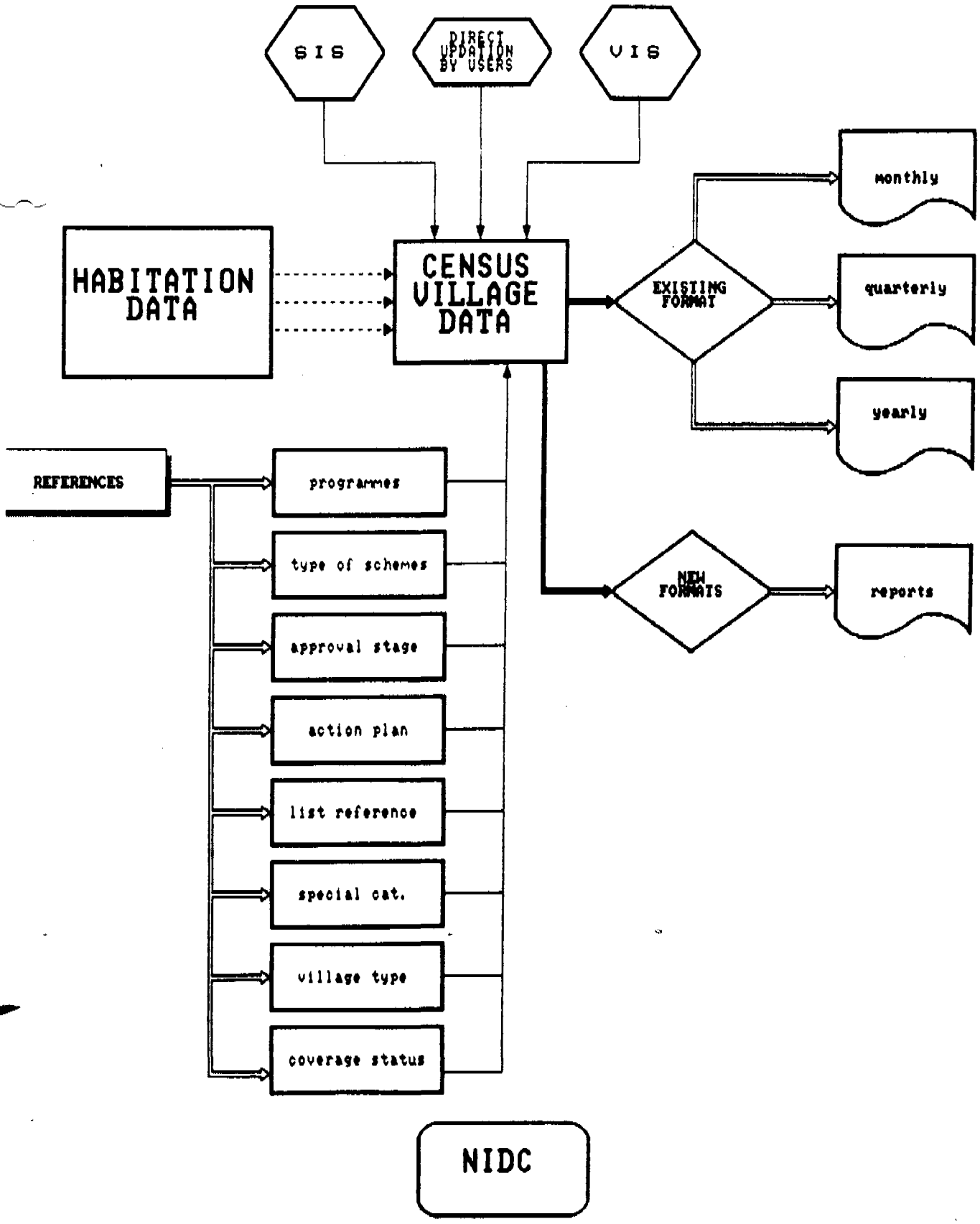


NIDC

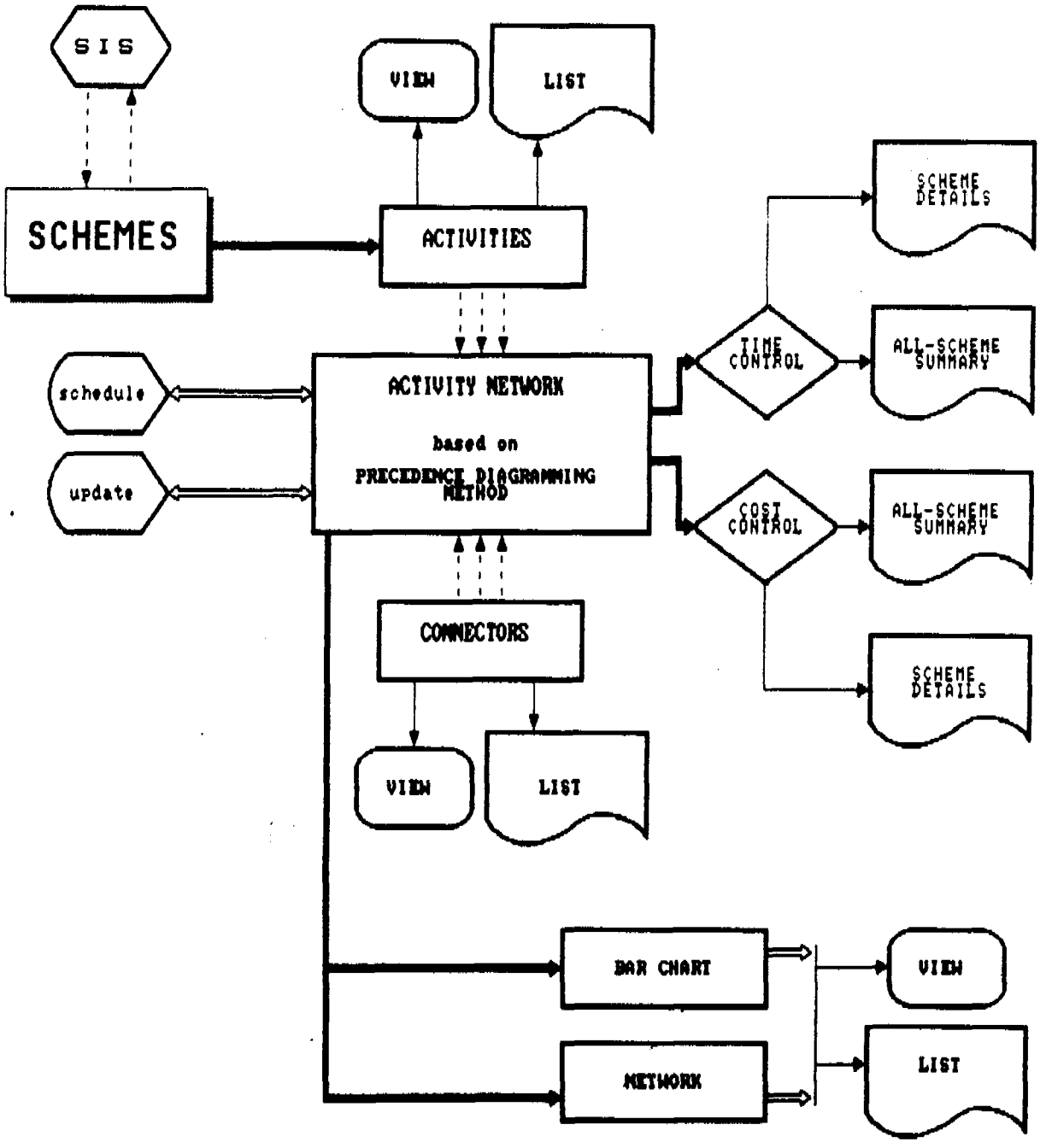
SCHEME INFORMATION SYSTEM



CENTRE REPORTING SYSTEM



SCHEME MONITORING SYSTEM



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