Technical Report

Study of Uniform Coding Scheme For Computerisation of Land Records

NIC-LRISD-001(NICSI/70182)
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Land Records Information Systems Division
National Informatics Centre
Department of Information Technology
Ministry of Communications & Information Technology
Government of India

Amendment Log

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Draft	**01/02/2008**		**First Release**	
1.1	**01/05/2008**	**C1**	**Changes made to include comments,feedback,suggestions received from the NIC-CLR team of the States**	**Chapter 6**
1.2	**01/08/2008**	**C2**	**Changes made to include Soil Series, Location codes, Stored Procedures**	**Annexures-2,3,4 and 5**
1.3	**29/08/2008**	**C3**	**Changes made to season, tenancy, area units and encroacher type codes**	**2.3,2.7,2.11,2.12**

Authorship

This document has been prepared by Land Records Information Systems Division (LRISD), of National Informatics Centre (NIC), Department of Information Technology, Ministry of Communications & IT, Government of India in close consultation with NIC-CLR teams, DIOs of the districts and SIOs of the States at the behest of Department of Land Resources (DOLR), Ministry of Rural Development, Government of India.

This document is also available in pdf format at

http://dolr.nic.in/uniformcode/uniformcodereport.pdf

The revenue village directory with location codes based on Census 2001 is available on the website ***http://www.dolr.nic.in/freport.htm.***

The uniform code services such as area conversion, master codes, security policies are available under revenue village directory on the website ***http://www.dolr.nic.in***

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Disclaimer

While all possible care has been taken during the preparation of this document, possibility of any inadvertent error having crept in cannot be ruled out. Any such discrepancy should be communicated at lrisd@nic.in,vinay@nic.in,venkat@nic.in.

Suggestions, Comments and feedback for inclusion in the future versions of this document shall be highly appreciated. All such suggestions & feedback may be submitted on the website ***http://www.dolr.nic.in*** or directed to any of the following addresses:

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CHAPTER 1

INTRODUCTION

Computerisation of Land Records (CLR) is 100 percent centrally sponsored scheme of Government of India which is being successfully implemented in more than five hundred fifty districts (in more than 3000 Tehsils/Taluks) as joint venture project of Department of Land Resources(DOLR), NIC and State Governments. DOLR provides funds to the States for Data entry, Verification, Validation and setting up of Tehsil and District Centres whereas NIC extends necessary technical support in terms of Software Design, Development, Training and Consultancy and States carry out data entry and operationalisation of scheme.

The CLR project has won national and international recognition in Egovernance domain. Bhoomi project of Karnataka was awarded with international awards for its success. Similarly Apnakhata in Rajasthan; Tamil NILAM in Tamilnadu; Bhuabhilekh in M.P., A.P, Orissa, Haryana; Bhuiyan in Chattisgarh; Dharini in Goa; Bhumi in WB are some of the success stories in LR domain. In many other states, project implementation is being accorded high priority. Registration Project, has been successfully implemented by different States in around 1872 SROs known as CARD, PRISM, Dastavej, ORIS, GARVI, STAR, PEARL, HIMRIS and CORD etc.

At present, Land record databases are being created & maintained at tehsil/taluk/revenue circle level with non-spatial data. Registration Database is being maintained at Sub-Registrar offices. The databases capture the information pertaining to Ownership with plot details such as area; crop; irrigation; soil and transactions etc. The number of basic registers containing land records data is varying from States to States. However there are master registers which contains the details of land ownership and plot details. These master registers are often known as khata register and plot register. These plot register contains the land records details of all the plots.

It was decided at apex level that this information may need to be integrated at State and National level for data warehousing and mining purposes. Further Land Records and Registration also needs to be integrated which requires uniformity in nomenclature and format of various attributes and data within the LR & Registration domain across all the states. From this point of view, an attempt is being made to formulate a Uniform Coding Scheme/Standards, which shall be followed by all the states to facilitate collaboration and interoperability. This may facilitate multipurpose information and knowledge exchange within Land Resource domain as well as collaboration with other national level databases. All attributes for National Level Codification will be described in the English language to begin with. The national level data repository will be used for management information systems and planning.

At present land records databases which are being maintained in various states are following state specific set of codes for different attributes like crop, soil, land use, irrigation, season, area unit and location. The Land Records Information Systems Division of National Informatics Centre, New Delhi has initiated an exercise to standardize the coding scheme for different entities in the land records database exclusively for Data warehousing and Mining purposes for central/state datacentres.

1.1 Structure of current coding Scheme

Basic land records data is available in different registers as prescribed by States Govt. at District/Tehsil level. The number of these basic registers containing land records data is varying from States to State. However there are master registers which contains the details of land ownership and plot details. These master registers are often known as khata register and plot register. These plot register contains the land records details of all the plots.

The plot details include the soil type (Dumad/Chahhi/black soil/red soil/alluvial soil), trees grown, types of crop(wheat/rice/maize…) grown, land use(barren/cultivable). The ownership type of the plot is specified like sarkari and niji. The plot is also having details whether it is irrigated land or not.

The khata register contains details of ownership like name of the owner, father's name, caste and location. The format of Khatuni with different code is shown below.

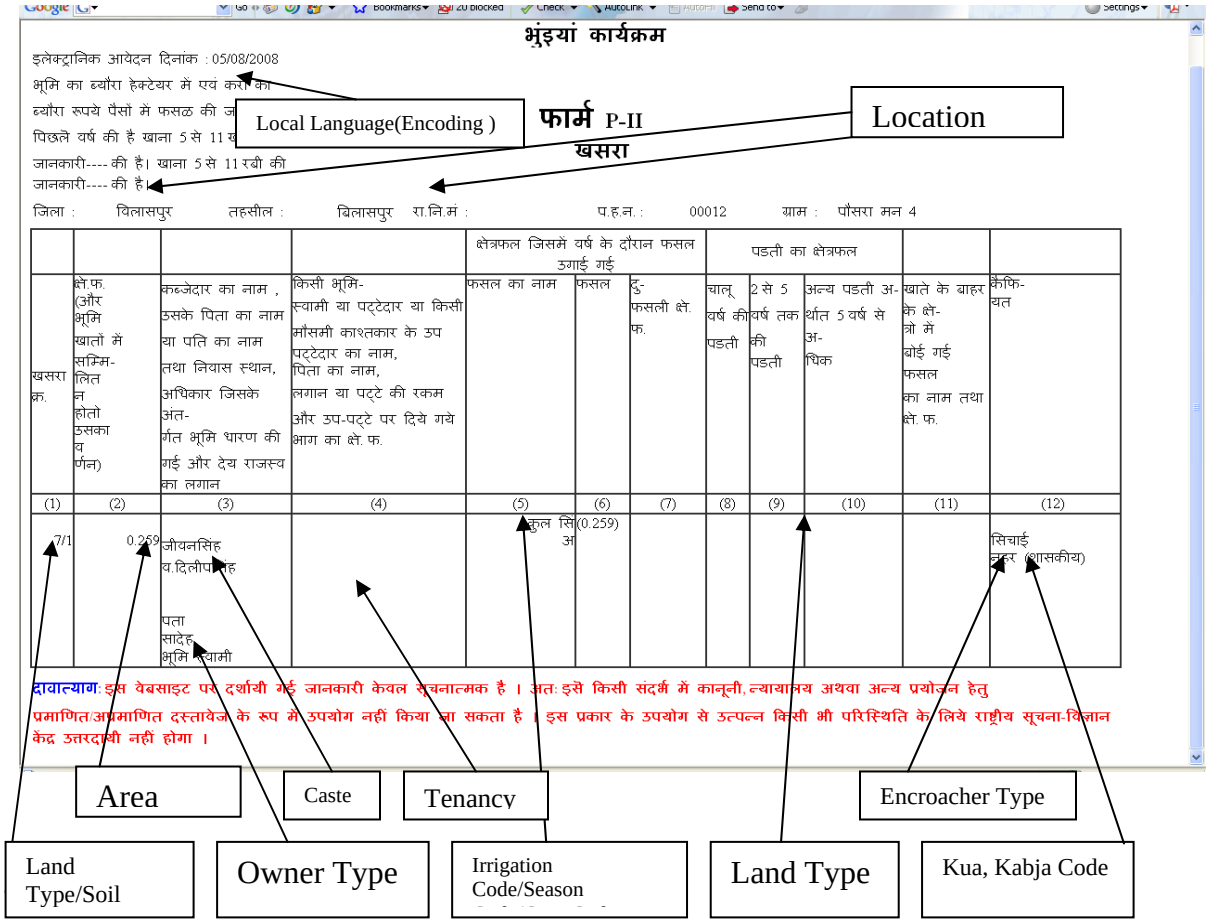


Fig 1 Details of a Khatauni(ROR) with code descriptions

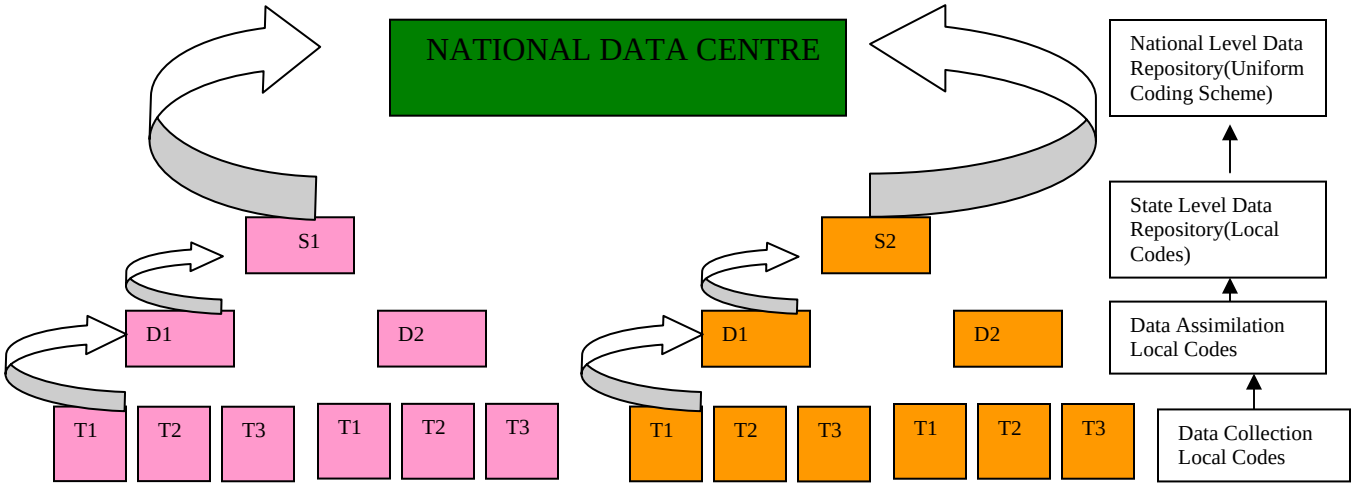
All these physical attribute pertaining to ownership and plot as available on the basic land registers or the entities which describe a piece of land has been codified during the electronic data capturing process. However while designing these code no attempt has been made to get uniformity across the Districts or across the States. Hence any query on the database across the States may not give the desired result.

1.2 Issues and Constraints

1. There is no uniform list for the attributes, which describes the plot attributes like soil, crops grown, land use or ownership.
2. Even if a list is there, the list is incomplete and not uniform through out the State.
3. Different Colloquial/local terms are used for indicating a characteristics of a plot.(like soil/land use)
4. Different practices followed over the decades in a locality are treated as a standard rather then the name list supplied by the States Revenue Department.
5. Different practices introduced by individual patwari and already recorded in the registers since last few decades.
6. Non adoption of any scientific methodology to name a characteristics. For example the soil type of a plot is mentioned using different local names and it has no relation to soil taxonomy as adopted by different National level organizations like All India Soil and Land Use Survey(AISLUP)

1.3 Purpose

1. Formulation of List of Land attributes /Fields for facilitating creation of Data Warehouse and Data Mining at State and National level.
2. Extraction of meaningful information through land records databases as available in different States.
3. Interoperability of the land records data with other national level databases like Census/Below Poverty Line (BPL) and Agriculture Census.
4. Formation of a National Level Data repository with uniformity across the States.



(T=Tehsil, D=District, S=State)

Fig 2 Flow of Data from Tehsil to District State and National Data Centre

1.4 Reference Standards

In order to facilitate interoperability across the domains, a reference has been made to several National level organizations as mentioned below:

A. Registrar General & Census Commissioner, India (Location codes)
B. Agriculture Census 2000-2001, Min. of Agriculture (Crop types)
C. National Bureau of Soil Survey and Land Use (NBSS & LUP)/ All India Soil and Land use Survey (AISLUS),National Natural Resources Management System(ISRO),NRSA.(Soil types)
D. Computerization of minor irrigation census by NIC.(Source of irrigation)
E. Technical Committee on Coordination of Agriculture, Statistics (TCCAS) , set up in 1948 by the Ministry of Food & Agriculture , Govt. of India. (Land use)
F. Below Poverty Line (BPL)BPL census list (Size of Holding)
G. Registration Act, 1908 (Deeds type as a part of Mutation types)

These national level organizations have conducted survey and published their result in various reports. They have also evolved some coding standard for different attributes and published their report which are based on these codes.

1.5 Approaches

At present each State is having computerized land records centers and these centers have been used for issuing records of right (ROR) to the public.

During national level data collection ***no alteration will be made to the existing data*** and facility. Only the data as ported to the national level data center will be dovetailed to have these new codes for the attributes as under consideration (Transformation approach). This will ensue the continuous availability of the existing facility to the public.

The National level data repository will be only used for management information system and planning.

All attributes in the National Level Codification will be described in English language only.

In order to achieve this uniform coding scheme the following sequences may be followed:
1.Sudy of the various Coding Schemes as available at District and Tehsil Level.
2. Identification of attributes, which will be taken for Uniform Coding Scheme across the States.
3. Preparation of Uniform Code List with code and description for all the attributes as selected in step 2.
4.***Look up tables may be prepared for compatibility*** with the national level code and the existing code.

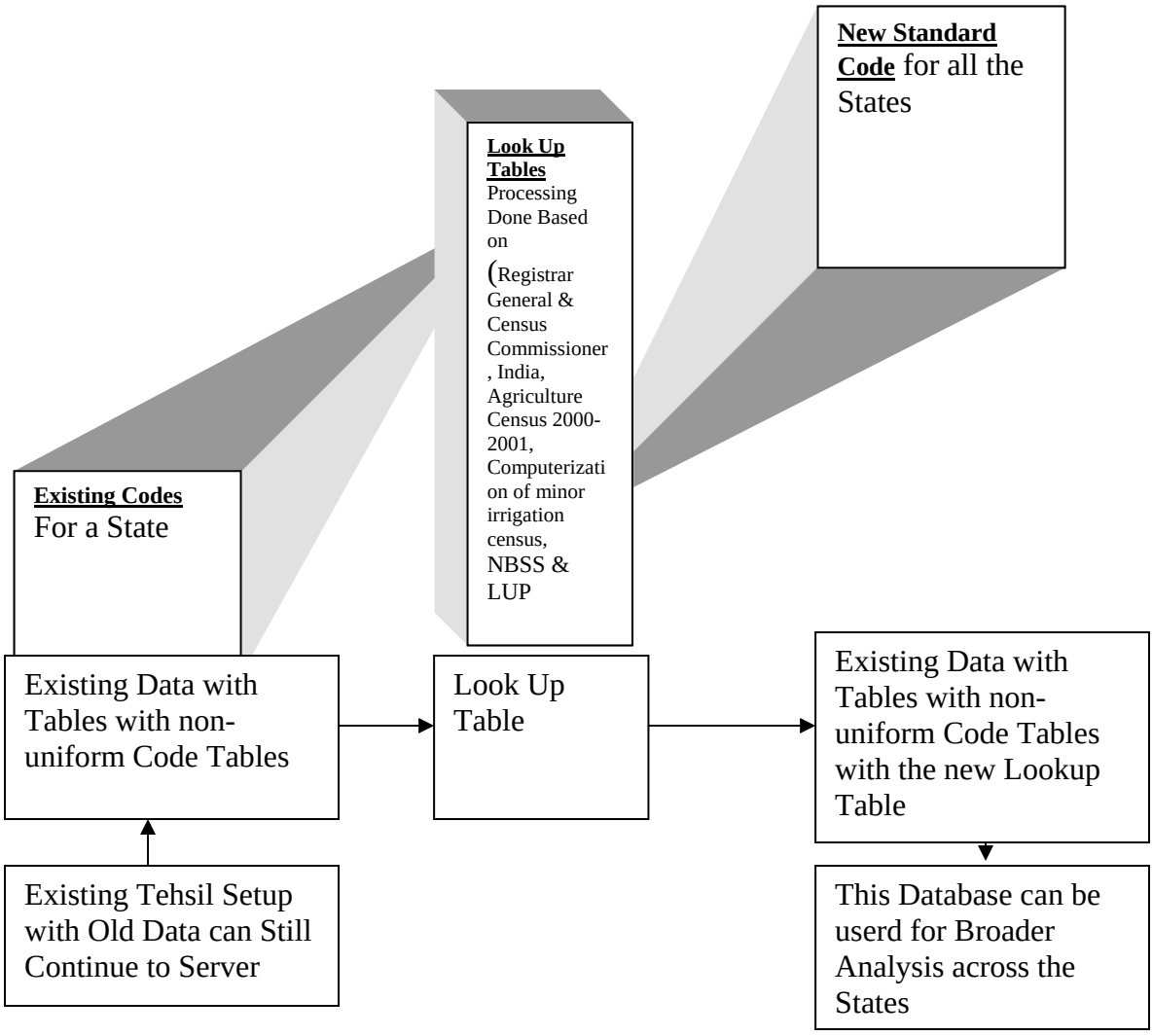


Fig 3 Approach for Uniform Code

1.6 Overview

This document is divided into two chapters. The first chapter provides an introduction about the objectives of preparing this document.

In the second chapter the proposed unified code for different entities are described in detail.

1.7 Audience

This document is meant for all the planners/programmers of Ministry of Rural Development and National Informatics Centre, New Delhi who are associated with computerization of land records project.

1.8 References

1. Land Records Computerisation, Technical Report and User Manual, October 1996, Land Revenue Department, Govt. of Sikkim & NIC, New Delhi.
2. Land Records Information System, Software Design Description, June 1997, NIC, LRISD, New Delhi.
3. Land Records Information System, Software Requirement Specification. June 1997, NIC, LRISD, New Delhi.
4. Computerisation of Land Records, A state wise profile, June 1994, NIC, LRISD, NEW DELHI.
5. Comparative Study Report, Land Records Computerisation, E-GIFI, NIC, NEW DELHI, July 2004.
6. NRIS Node Design and Standards, (NNRMS)-ISRO,Bangalore,Februrary 2000
7. Land Records Manuals of the States
8. Various sources from the Internet

CHAPTER 2

Uniform Coding Scheme For Computerisation of Land Records

Under this series, we have undertaken the study with the help of State NIC-LR teams to devise standard codifications for following attributes/parameters at the national level.

- Location
- Crop Code
- Season Code
- Soil Type Code
- Source of Irrigation
- Land use
- Area Unit/Extent
- Ownership Code
- Size of holding
- Mutation type
- Tenancy type
- Encroacher type
- Caste/Tribe
- Gender
- Encoding Standard

2.1 Standard Coding scheme for Location

2.1.1 Reference: Registrar General & Census Commissioner, India 2001 census

2.1.2 Definition: Location code uniquely identifies a land parcel in the administrative boundary of the Survey and Settlement Department.

2.1.3 Scope: The prime scope of the field is to identify the location of the land parcel.

Register General & Census Commissioner, India is the nodal agency for conducting the census in India. One of the major initiatives taken in the Census 2001 was the allotment of Permanent Location Code Number (PLCN) to each and every village within the State and not within a tehsil as in the earlier censuses. PLCN was thus assigned as one continuous number from the first village in the first district to the last village in the last district. PLCN is an eight digit unique location code number with the first six digits representing the code number of the village and the last two digits depicting two zeros '00'. These zeros are reserved as buffer to be used for coding any new village(s) that may come up between two villages in future. For example, if a new village comes up between two villages with PLCNs 01254600 and 01254700, the new village will be allotted PLCN 1254601 and so on.

The State/Union Territory is represented by two digits each in the code. In the State level data, the first two digits denote the district. The next four represent taluk, tahsil, Police Station, development block, circle or mandal as is relevant to each State. The towns as well as the villages are represented separately through Permanent Location Code Numbers consisting of eight digits for villages and four for wards. Beginning with the

first village of the first district to the last village in the last district, there is a continuous running number code for each village. The eight digits provided to represent the village will help addition of new villages in future without disturbing the overall scheme.

NOTE:
At present effort is made to adopt coding for four layers like State/District/Sub district/Village

As per RGI census each village has been uniquely assigned village code which is not dependent on the higher level formations like State and District. Keeping this in mind it is proposed that uniform codes as available as per census will be taken up as the standard location code for land records also.

2.1.4 Location Code Structure used in the 2001 Census

State/UT : Two digits(within the country)
District : Two digits(within the State/UT)
Sub district : Four digits (within the District)
Village : Eight digits (within the State/UT)
Town : Eight digit (within the District)
Ward : Four digits (within the Town)

The sub district code is in four digits and the same represents the taluk, tahsil, Police Station, development block, circle or mandal as is relevant to each State. At present since all the analysis on land records is based on the tehsil, the State/UT, District and Sub district code are adopted for standardization in land records computerization.

2.1.5 Location Code Structure adopted in Computerisation of Land Records(CLR)

State/UT : Two digits(within the country)
District : Two digits(within the State/UT)
Sub district : Four digits (within the District)
Village : Eight digits (within the State/UT)

Hence a total of 00+00+0000+00000000=16 digits is being used for location code in CLR.

Existing Hierarchy

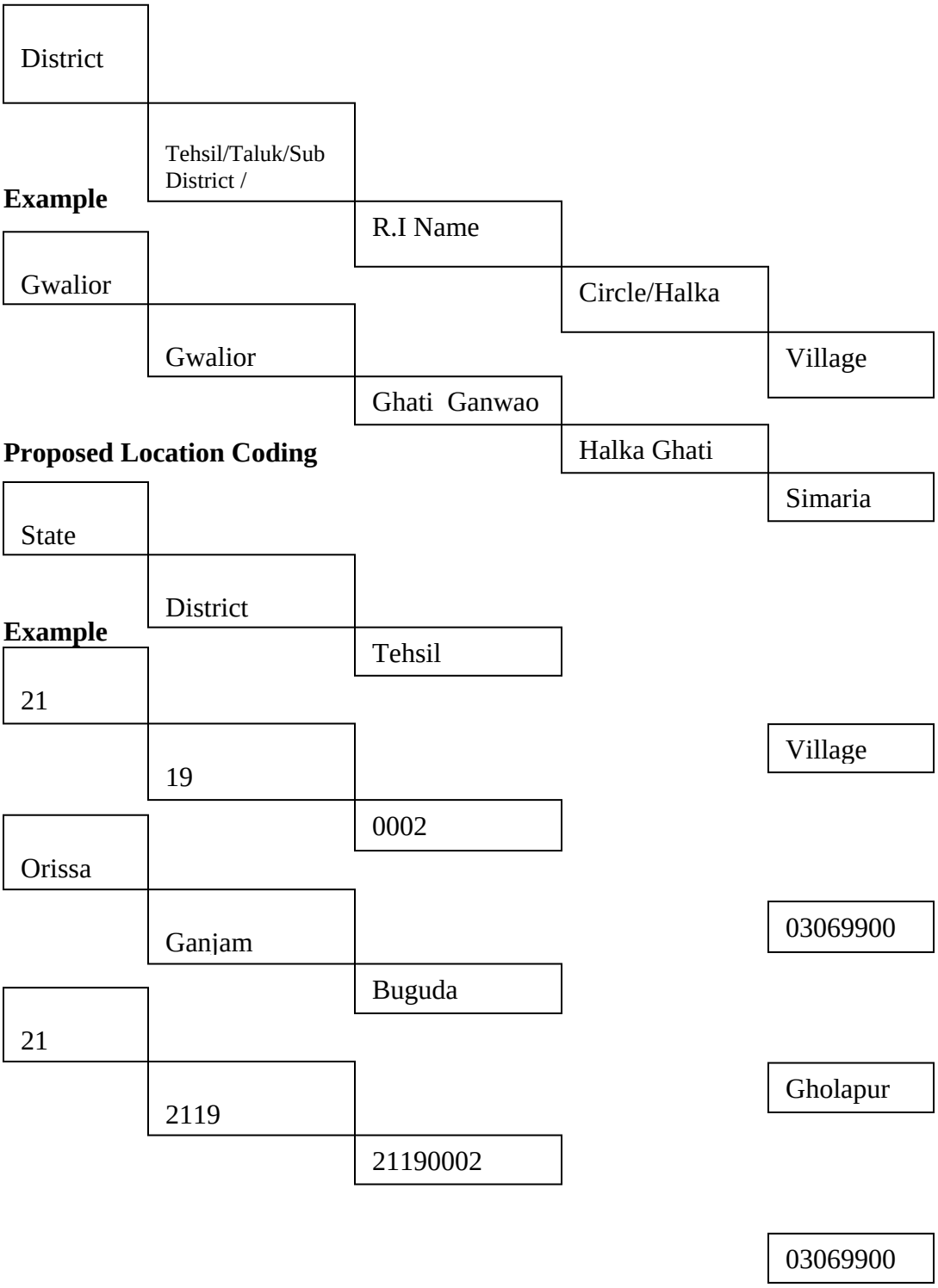


Fig 2 LOCATION CODE AND LOCATION NAME

2.1.6 Issues in Location Code Structure used in Census 2001

- For any level, the number of records in Land Records (LR) database do not match with census records
- The number of Census records are more than LR records
- The number of Census records are less than number of LR records
- Same Census records has no corresponding entry in LR
- Names of Census records does not match with LR (Spelling problem)
  For instance., Bangalore is one district in Census, but Bangalore Rural, Bangalore Urban in LR at the district level. Jamnagar is one village in Census, but Jamnagar City and Jamnagar Rural in LR at the village level. Similarly Sriperumbudur in Census and Thiruperumbudur in LR.

2.1.7 Issues in Land Records Database for Location Code

- Data storage is in 7bit/8bit ISCII/Unicode/ISFOC
- Some states have the data in separate tables for each levels such as district, taluka/tehsil and village
- Some states have the data in a single table for all the levels.

2.1.8 Suggested methodology for adopting Census Location code Structure in Land Records

- Census data 2001 is taken as the base
- Lookup tables have been created for District, Tehsil/Taluk and Village for each state with local location codes mapped to census code with a remark column to capture the differences.
- Remark column in the lookup table takes care of all these issues like ‘I’ means appended into the Census data, ‘Null’ means both of them match in all aspects, ‘CS’ means that data present in Census data, but not in LR data, ‘CS_combined_12_08’ to take care of entries (part).
- The lookup table has been created for all the states.

The location codification directory is attached as Annexure -1 to this document.

2.1.9 Metadata elements for Location Code

```
<?xml version="1.0" encoding="ISO-8859-1”?>
<!-- Compiled By LRISD NIC HEAD QUARTER-->
<!-- edited in NotePad -->
<!-- Date Posted: 7th April 2008 -->
<!-- Compliled by Land Records Information Systems Division NIC Hqrs, New Delhi -->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.lrisd.nic.in"
xmlns="http://www.lrisd.nic.in " elementFormDefault="qualified">
<xs:complexType name="Location" >
```

```
<xs:sequence>
<xs:element name="State"     type="xs:string" maxOccurs="1"/>
<xs:element name="District"     type="xs:string" maxOccurs="1"/>
<xs:element name="Sub District"     type="xs:string" maxOccurs="1"/>
<xs:element name="Village"     type="xs:string" maxOccurs="1"/>
 <xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.2 Standard Coding scheme for CROPS

2.2.1 Reference : Agriculture Census 2000-2001 schedules & Instructions for Land Record States

2.2.2 Definition : It is the name of the field which is being used to capture information regarding Crops grown in referred plot of land. At present, the crops information is collected season wise by the revenue functionaries in the various states. There are around 500 various types of crops grown with their variants which are stored in the database.

2.2.3 Scope : The prime scope of the field is to describe crops grown in particular plot.

Agriculture Census division of Ministry of Agriculture is a nodal agency which also conducts nation wide agriculture census across all the states. According to 2000-2001 agriculture census , major crops of the country has been classified in nineteen groups. Each group may have 99 group members.

For example Group “01” refers to cereals. In this group “Paddy 0101; Jowar 0102 etc have been enlisted. The Coding scheme is made up of four digits. A list of standard codes along with name of Crops is being given in ***Table 2.1- Standard Classification adopted for crops with digital coding scheme.***

Table 2.1 - Standard Classification adopted for Crops with digital coding scheme

Code	Classification
01	Cereals
02	Pulses
03	Food Grains
04	Sugar Crops
05	Spices & Condiments
06	Fruits
07	Vegetables
08	Other Food Crops
09	Food Crops

10	Oil Seeds
11	Fibres
12	Dyes & Tan materials
13	Drugs & Narcotics
14	Fodder & Green Manures
15	Plantation Crops
16	Floriculture Crops
17	Aromatic & Medicinal Plants
18	Other Non Food Crops
19	Non Food Crops

In order to accommodate local variations of these crops at state level , two more digits are being introduced for example, as per Agriculture census Code Wheat is referred as **0106. But let us say in a particular state local Varity of wheat is called as** wheat-desi. In order to accommodate these local variations of wheat , two more digits could be employed. Hence Wheat-Desi could be recorded as "010603". It will still facilitate grouping of all variety of wheat under the digital code "0106" as per standard agriculture census coding scheme.

Similarly , if name of crop itself is very specific local name, it could be listed under "Other Crop" category.

A comprehensive list of crops and corresponding codes used in Land Records are being given in ***Table 2.2-Comprehensive List of Crop Codes in Land Records.***

Table 2.2 - Comprehensive List of Crop Codes in Land Records.

Crop Code	**Crop Name**
010000	**Cereals**
010100	Paddy
010101	Paddy Unnat
010102	Paddy Vipul
010200	Jowar (Sorghum)
010201	Jowar Unnat
010202	Jowar Vipul
010300	Bajra (Pearl Millet)
010301	Bajra Unnat
010302	Bajra Vipul
010303	Bajra Anya
010400	Maize(Makka)
010401	Maize Unnat
010402	Maize Vipul
010403	Maize Chari
010500	Ragi (Mandia)
010600	Wheat
010601	Wheat Unnat

010602	Wheat Vipul
010603	Wheat Desi
010604	Wheat plain
010700	Barley
010800	Small Millets
010900	Kuchai
011000	Lakhedi
011100	Rayda
011200	Rachika
011300	Arya
011400	Chavali
011500	Badali
011600	Balore
011700	Dhaan(Botha)
011701	Dhaan Ropa Unnat
011702	Dhaan Ropa Vipul
011703	Dhaan Ropa Anya
011704	Dhaan Chidka Unnat
011705	Dhaan Chidka Vipul
011800	Batra/Batri
011900	Godar
012000	Kulti
012100	Tibra(Laak)
012200	Barbati
012300	Popat
012400	Kajni
012500	Kodo
012600	Basaara
012700	Kaakum
012800	Kutki
012900	Raala
013000	Saava
013100	Rajgirah
013200	Mahuva
013300	Soham
018800	Other Cereals
019900	Total Cereals
020000	**Pulses**
020100	Gram
020200	Tur(Arhar) (Red Gram)
020300	Urad (Black Gram)
020400	Moong (Green Gram)
020500	Masur (Lentil)
020600	HorseGram
020700	Beans(Pulses)

020800	Peas(Pulses)
020900	Chana Dal (Bengal Gram/Chickpea)
020901	Kabuli Chana
020902	Desi Chana
020903	Chana Gulabi
021000	Chola
028800	Other Pulses
028801	Semolina (Ravaa)
029900	Total Pulses
030000	**FoodGrains**
039900	Total FoodGrains
040000	**Sugar Crops**
040100	Sugar Cane
040101	Sugar Cane Ropa
040102	Sugar Cane Ratun
040200	Palmvriah
048800	Other Sugar Crops
049900	Total Sugar Crops
050000	**Spices & Condiments**
050100	Pepper (Black)
050101	Pepper-vine
050200	Chillies (Mirchie)
050300	Ginger
050400	Turmeric
050500	Cardamum (Small)
050600	Cardamum (Large)
050700	Betelnuts (Arecanuts)
050800	Garlic (Lassoon)
050801	Garlic Gaant
050802	Garlic Pathi
050900	Coriander (Dhaniya) (Cilantro)
050901	Coriander Beej
050902	Coriander Pathi
051000	Tamarind
051100	Cumin Seed (Jeera)
051200	Fennel/Anise Seed
051300	Nutmeg
051400	Fenugreek
051500	Cloves
051600	Cinnamon (Dalchini)
051700	Cocoa
051800	Kacholam
051900	Beetlvine(Paan)
052000	Ajwain
058800	Other Condiments & Spices

059900	Total Condiments & Spices
060000	**Fruits**
060100	Mangoes
060200	Oranges & Kinu
060300	Mosambi
060400	Lemon/Acid Lime
060500	Other Citrous Fruits
060600	Banana (Kela)
060601	Banana Kaata
060700	Table Grapes (Angoor)
060800	Wine Grapes (Black)
060900	Apple
061000	Pear
061100	Peaches
061200	Plum
061300	Kiwi Fruit
061400	Chiku (Sapota)
061500	Papaya
061501	Papaya kaata
061600	Guava
061700	Almond
061800	Walnut
061900	Cashewnuts
062000	Apricot
062100	JackFruit
062200	Lichi
062300	Pineapple
062400	Watermelon
062500	Muskmelon (Kharbuja)
062600	Bread Fruits
062700	Ber
062800	Bel
062900	Mulberry (Sahatoot)
063000	Aonla (Amla)
063100	Pomegranate (Anaar)
063200	Kaanda
068800	Other Fruits
069900	Total Fruits
070000	**Vegetables**
070100	Potato
070200	Tapioca (Cassava)
070300	Sweet Potato
070400	Yam
070500	Elephant Foot Yam
070600	Colacasia/Arum (Arbi)

070700	Other Tuber Crop
070800	Onion
070801	Onion Gaant
070802	Onion Beej
070803	Onion Baaji
070900	Carrot
071000	Raddish
071100	Beetroot
071200	Turnip (Shalgam)
071300	Tomato
071400	Spinach
071500	Amaranths (Chaulai)
071600	Cabbage (Bundgobi)
071700	Other leafy vegetable
071800	Brinjal
071900	Peas (Vegetable) (Green)
072000	Lady's Finger (Bhindi)
072100	CauliFlower
072200	Cucumber
072300	Bottle Gourd (Lauki)
072400	Pumpkin
072500	Bitter Gourd (Karela)
072600	Ash Gourd(Peta/Kumheda)
072700	Other Gourds
072800	Vench (Guar)
072801	Vench chari (Guar chari)
072900	Beans (Green) (Sem)
073000	Drumstick (Sajana)
073100	Green Chillies
073200	Mushroom
073300	Lotus Stem(Kakadi)
073400	Tinda
073500	Gilki
073600	Singada
078800	Other Vegetables
079900	All Vegetables
080000	**Other Food Crops**
080100	Other Food Crop1
080200	Other Food Crop2
080300	Other Food Crop3
089900	Total Other Food Crops
090000	**Food Crops**
099900	Total Food Crops
100000	**Oil Seeds**
100100	Groundnut

100101	Groundnut Small
100200	CastorSeed
100300	Sesamum (Til)
100301	Ramtil/Jagani
100400	Rapeseed & Mustard (Toria/Taramira)
100500	Linseed
100600	Coconut
100700	Sunflower
100800	Safflower
100900	Soyabean
101000	Nigerseed
101100	Oil Palm
108800	Other Oil Seeds
109900	Total Oil Seeds
110000	**Fibres**
110100	Cotton
110200	Jute
110300	Mesta
110400	Sunhemp
110500	Ambadi
110600	Dencha
110700	Umra
110800	Veerum
110900	Cambodia
111000	Jarila
111200	Burri
111300	H-420
118800	Other Fibres
119900	Total Fibres
120000	**Dyes & Tan. Materials**
120100	Indigo
128800	Other Dyes & Tan. Materials
129900	Total Dyes & Tan. Materials
130000	**Drugs & Narcotics**
130100	Opium/Hafim
130200	Tobacco
130201	Tobacco Anya
138800	Other Drugs & Narcotics
139900	Total Drugs & Narcotics
140000	**Fodder & Green Manures**
140100	Guar
140200	Oats
140300	Green Manures
140400	Lusan
140500	Grass

140600	Burseem
140700	Kardi
140800	Makka chari
140900	Chari
148800	Other Fodder Crops
149900	Total Fodder Crops
150000	**Plantation Crops**
150100	Tea
150200	Coffee
150300	Rubber
150400	Arecanut
158800	Other Plantation Crops
159900	Total Plantation Crops
160000	**Floriculture Crops**
160100	Orchids
160200	Rose (Gulab)
160300	Gladiolus
160400	Carnation
160500	Marigold (Genda)
160600	Lotus (Kamal)
160700	Jasmine (Mogra/Bela)
160800	Sunflower
160801	Sunflower yellow (Sevanthi)
160802	Sunflower white (Guldawari)
160900	Chameli
168800	Other Flowers
169900	Total Floriculture Crops
170000	**Aromatic & Medicinal Plants**
170100	Asgandh
170200	Isabgol
170300	Sena
170400	Moosli
170401	Safed Moosli
170500	Other Medicinal Plant
170600	Ashwagandha
170700	Saffron (Kesar)
171100	Lemon Grass
171200	Mint
171300	Menthol
171400	Eucalyptus
171500	Other Aromatic Plant
179900	Total Aromatic & Medicinal Plants
180000	**Other Non-Food Crops**
180100	Canes
180200	Bamboos

180300	Other Non-Food Crop1
180400	Other Non-Food Crop2
180500	Other Non-Food Crop3
188800	Other Non-Food Crops
189900	Total Other Non-Food Crops
190000	**Non-Food Crops**
199900	Total Non-Food Crops

2.2.4 Metadata elements for Crops

```
<xs:complexType name="Crops" >
<xs:sequence>
<xs:element name="Crop Code"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
<xs:element name="Crop name"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[a-z]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.3 Standard Classification adopted for SEASON with digital coding scheme.

2.2.1 Reference: Land Records

2.2.2 Definition: It is the name of the field which is being used to capture information regarding crop season being followed in the states. The entire agricultural operations is divided into major two crop seasons namely Kharif which lasts from third week of May till the end of October. This is followed by Rabi season(from November till April). In some states, a third season known as Jayad is also followed.

2.2.3 Scope: The prime scope of the field is to describe the crop season.

A standard list of standard codes along with name of crop seasons is being given in ***Table 2.3.1- Standard Classification adopted for Season with digital coding scheme.***

Table 2.3.1-Standard Classification adopted for Season with digital coding scheme

Season Code	Season Name
0100	**Kharif**
0101	Early Kharif
0102	Summer
0103	Pre-monsoon
0104	Monsoon
0105	Post-monsoon

0200	**Rabi**
0201	Early Rabi
0202	Winter
0300	**Jayad**
0301	Kharif Jayad
0302	Rabi Jayad
0400	**Others**
0401	Thaladi
0402	Bhadoi

Four seasons such as Kharif, Rabi, Jayad & Others can be standardized at the National Level.

2.2.4 Metadata elements for Season

```
<xs:complexType name="Season" >
<xs:sequence>
<xs:element name="Season Code"  type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
<xs:element name="Season name"   type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[a-z]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.4 Standard Classification adopted for SOIL TYPES with digital coding scheme.

2.4.1 Objective: Integrate/attempt and determine the soil classification to be used for Land Records Computerisation and organize the data “Soil Type” for MIS/DSS

2.4.2 Scope:

The soil data is being collected by patwari/village accountants at parcel level. This ground level data could provide soil information which could be integrated at 1:50000/1:250000 scale soil maps as prepared by national level organizations like Department of Space/NBSS,NRSA & LUP/ AISLUS.

2.4.3 Existing System:

2.4.4 Survey and Settlement Department

Land revenue registers are available in all the States. This database has the soil data as collected by the patwari in local terms. The electronic form of the same data is also available in the database and is collected under the computerization of land records project.

2.4.5 Disadvantages:

1.The soil data as available in the land records database is collected by using conventional approaches. The data is collected by the Patwari and he is not a soil expert.
2. There is a clear cut gap between the data collected by the Patwari and the data collected by different agencies in a scientific way.
3. The data as collected by the patwari is in more of land use and land revenue sense then the soil composition and physical characteristics.
4. There is no scientific correlation between the soil nomenclature as followed by the patwari and the soil code made by the various national level agencies.

Soil type is captured in the Land Records Database in the states of Andaman and Nicobar, Himachal Pradesh, Haryana, Rajasthan, Madhya Pradesh, Chattisgarh, Karnataka, Sikkim and Puducherry. There are about 998 different soil types in states like Rajasthan wherein they could be accommodated as sub-category in nine major categories of soil types in that State. Hence, after a detailed study of the soil codes in practice in the states, it was found that the digital code for storing soil type was five digits as 00000. The extreme left two digits would indicate the major category of soil such as Black Cotton, Alluvial, Wasteland, Hilly, Rocky, Sandy, Loamy, Silt, Clay, Red, Stony, Mixed, Garden and Others. The remaining three digits would indicate the soil sub-category. The digital codes for soil types in Land Records is given in Table 2.4.1-Codes for Soil types in Land Records.

Table 2.4.1- Codes for Soil types in Land Records

Soil Code	Soil Name
01000	**Chaahi/Kaali (Black Cotton/Black)**
01001	Chaahi Nahari
01002	Chaahi Mustar
01003	Chaahi Baraani
01004	Chaahi Aabi
01005	Chaahi Safeda
01006	Kaali I
01007	Kaali II
01008	Kaali A
01009	Kaali B
01010	Kaali C
01011	Kaali D
02000	**Nahari (Alluvial)**

02001	Alluvial Clay(Soil Class-I)
02002	Alluvial Loam (Soil Class-II)
03000	**Sewaj**
04000	**Talaabi Peta/Kheda/Peta**
04001	Kheda I
04002	Kheda II
04003	Kheda III
04004	Kheda A
04005	Kheda B
05000	**Kachaar**
05001	Kachaar I
05002	Kachaar II
05003	Kachaar III
05004	Kachaar IV
06000	**Baarani**
06001	Baarani Safeda
06002	Baarani Jalodak
06003	Baarani Keekar
06004	Baarani Baag
07000	**Banjar/Banjad/Padath/Banjar Dom/Banjo(Wasteland)**
07001	Banjar Kadim Charaaha
07002	Banjar Jadeed
07003	Banjar Kadim
07004	Banjar Avval
08000	**Beed**
09000	**Baag/Bagicha/Bagiche(Garden)**
09001	Baag Aabi
09002	Baag Nahari
09003	Baag Chaahi
09004	Baag Beri
10000	**Pahaadi(Hilly)**
10001	Pahaadi A
10002	Pahaadi B
11000	**Rocky**
12000	**Kullahu/Kool(Sand)**
12001	Regar Sand containing not more than 1/3 clay(Soil Class-V)
12002	Red Sand, or gravel, containing not more than 1/3 clay(Soil Class-VIII)
13000	**Aabi(Loam)**
13001	Regar loam containing from 1/3 to 2/3 clay(Soil Class-IV)
13002	Red loam containing from 1/3 to 2/3 clay(Soil Class-VII)

13003	Aabi I
13004	Aabi II
13005	Aabi III
13006	Aabi IV
13007	Aabi Sarkari
13008	Aabi A
13009	Aabi B
14000	**Sailabi/Khadin(Silt)**
15000	**Taink(Clay)**
15001	Regar Clay containing upwards of 2/3 of clay(Soil Class-III)
15002	Red Clay containing upwards of 2/3 clay(Soil Class-VI)
16000	**Laal(Red)**
16001	Laal A
16002	Laal B
17000	**Mixed**
17001	Black Mix
17002	Red Mix
18000	**Dumat**
18001	Dumat I
18002	Dumat II
18003	Dumat III
19000	**Padba**
19001	Padba I
19002	Padba II
19003	Padba III
20000	**Maar**
20001	Maar I
20002	Maar II
20003	Maar III
21000	**Gohan**
21001	Gohan I
21002	Gohan I(14)
21003	Gohan II
21004	Gohan III
21005	Gohan IV
22000	**Kaabar**
22001	Kaabar I
22002	Kaabar II
22003	Kaabar III
23000	**Aapasi**
23001	Aapasi I
23002	Aapasi II
23003	Aapasi III

23004	Aapasi IV
24000	**Daanda**
24001	Daanda I
24002	Daanda II
25000	**Behad**
25001	Behad I
25002	Behad II
26000	**Raakad**
26001	Raakad I
26002	Raakad II
26003	Raakad III
27000	**Khor**
27001	Khor I
27002	Khor II
27003	Khor III
27004	Khor IV
28000	**Booda**
28001	Booda I
28002	Booda II
29000	**Theer**
29001	Theer I
29002	Theer II
29003	Theer III
29004	Theer IV
30000	**Jor**
30001	Jor I
30002	Jor II
30003	Jor III
30004	Jor IV
31000	**Seka**
31001	Seka I
31002	Seka II
31003	Seka III
31004	Seka IV
32000	**Jalodak/Nadi/River**
32001	Jalodak Safeda
32002	Jalodak A
32003	Jalodak B
32004	Jalodak C
33000	**Sinchai**
33001	Sinchaai A
33002	Sinchaai B
33003	Sinchaai C
34000	**Dor**
34001	Dor 1

34002	Dor 2
35000	**Baada**
35001	Baada 1
35002	Baada 2
35003	Baada 3
36000	**Dussali**
36001	Dussali 1
36002	Dussali 2
37000	**Patrua**
37001	Patrua 1
37002	Patrua 2
38000	**Adaan**
38001	Adaan 1
38002	Adaan 2
39000	**Gadda**
39001	Gadda 1
39002	Gadda 2
39003	Gadda 3
40000	**Fardia**
41000	**Chaah Nehanchi**
42000	**Aa Kaakand**
43000	**Bhaalu**
44000	**Others(Digar/Anya Mitti)**
44001	Niyaayi
44002	Namayi
44003	Dahari
44004	Same
44005	Thoor
44006	Matyaar
44007	Rosli
44008	Bood
44009	Chirmot
44010	Chiknot
44011	Maagda
44012	Chow
44013	Kamaj Marla
44014	Dakar
44015	Jakheera Darakhthaan
44016	P-I
44017	P-II
44018	P-III
44019	C-I
44020	C-II
44021	C-III

2.4.6 Metadata elements for Soils

```
<xs:complexType name="Soils" >
<xs:sequence>
<xs:element name="Soil Code"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
<xs:element name="Soil name"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[a-z]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.4.7 Sixteen Major Types of Soil

Soils are diverse and differ from area to area. Sixteen major types of soils have been recognized. These are listed below:

2.4.7.1 Red loamy soils (Eastern Himalayas, eastern ghats, Tamil Nadu uplands),

2.4.7.2 Red and lateritic soils (eastern plateau, north-eastern hills, western ghats),

2.4.7.3 Red and yellow soils (eastern plateau adjoining central highlands),

2.4.7.4 Shallow and medium black soils (Deccan plateau, central Maharashtra and Karnataka plateau),

2.4.7.5 Medium and deep black soils (central highlands, Narmada Valley, Malwa plateau, Bundelkhand and Kathiawar peninsula),

2.4.7.6 Mixed red and black soils (parts of Deccan plateau, Telangana, Bellary and Anantpur regions of Karnataka plateau),

2.4.7.7 Coastal alluvium - derived soils (eastern and western coastal plains),

2.4.7.8 alluvium - derived soils (western, northern and eastern plains),

2.4.7.9 Desert soils (southwestern Punjab, Haryana plains, Rajasthan, Marusthali and Kachchh peninsula),

2.4.7.10 Tarai soils (foothills of central and western Himalaya),

2.4.7.11 Brown and red hill soils (eastern Himalaya),

2.4.7.12 Saline and alkali soils (Kathiawar peninsula, alluvial plains of Uttar Pradesh, Haryana, Punjab and Rajasthan),

2.4.7.13 Shallow and skeletal soils (Ladakh and Kashmir).

2.4.7.14 Grey brown soils (foothills of Aravallis),

2.4.7.15 Brown forest and podzolic soil (north-western Himalaya),

2.4.7.16 Sandy and littoral soils (Lakshadweep and coastal areas of Andaman and Nicobar islands).

(Source:http://www.fao.org/ag/AGP/AGPC/doc/Counprof/India.htm)

2.4.8 National Level Efforts for Soil Mapping

It is observed that various national level organizations like NBSS & LUP, All India Soil and Land Use Survey, NNRMS Division of Department of Space are involved in preparation of soil map of the country in scales like 1:50000 and 1:250000. For this purpose the Maps of Survey of India and Satellite Maps are being used. These agencies use soil taxonomic classification which is strictly hierarchical in nature and is divided into six groups namely order, sub-order, great-order, great-group, family and series. They have identified 29 soil characteristics for classification of soil. The benchmark soil series used by NNRMS, ISRO, Department of Space, Bangalore is attached with Annexure-2 of this document.

A sample classification of the soil code is shown below:

SOIL-CODE

CODING SCHEME FOR SOILS UPTO SUB-GROUP LEVEL

Coding scheme for soil layer AA- BB- CC- DD- EEFFGG-HH (16 digits)

AA – Order (Two digits)
BB – Sub-Order (Two digits)
CC- Grate Group (Two digits)
DD- Sub-group (Two digits)
EE- Family, Texture (Two digits)
FF- Family, Mineralogy (Two digits)
GG-Family, Temperature (Two digits)
HH- Series (Two digits)

Level	Level-1	Level-2	Level-3
Detail	Sub-Group	Family	Series
Scale	1:1Million	1:2,50,000	1:50,000
Code	AABBCCDD	AABBCCDDEEFFGG	AABBCCDDEEFFGGHH

(**Source : Keys to Soil Taxonomy, Sixth Edition, 1994 USDA, Soil Conservation Service**)

2.4.9 Proposed System

As soil series information is collected by different agencies in a scientific way by various State and District level agencies, there is a need of updating this scientific soil information in land records registers.

When the soil data as collected in a scientific way is incorporated into land records registers, the uniform codification of soils will be automatically taken into account.

2.5 Standard Classification adopted for IRRIGATION SOURCES with digital coding scheme.

2.5.1 Reference: Computerisation of 3rd Minor Irrigation Census (Reference year 2000-2001) , NIC, DIT.

2.5.2 Definition : It is the name of field which is being used to capture information regarding irrigation source in referred land parcel ,plot or survey number.

2.5.3 Scope: The prime scope of the field is to acquire the information regarding irrigation source and type and its ownership.

Description of coding design for Irrigation sources

As per Minor irrigation census , Irrigation source have been classified as follows:

(A) Major Group (Please refer to table 2.5.1 for classification & codes)
(B) Minor Group (Please refer to table 2.5.1 for classification & codes)
(C) Owner type (Please refer to table 2.5.2 for classification & codes)
(D) Lifting Device type (Please refer to table 2.5.3 for classification & codes)

For each of these A ,B,C & D group , has been assigned and are being given in Table 2.5.1,2.5.2 & 2.5.3 . Any type of irrigation source may be represented using these codes. For example :

Type	Code
(i) Pucca Well (Self Owned) :	1010200

The list of codes for irrigation sources used in Land Records is given in Table 2.5.4

Table 2.5.1- Major & Minor group of irrigation sources

Major group	Digital code	Minor group	Digital_code
A		**B**	
Dugwell	1	Pucca_well	101
		Kuccha well	102
		Dug-cum-borewell	103

		Others	104
Shallow Tube wells	2	Shallow tubewell	201
		Filter point	202
		Bore well	203
		Other	204
Deep Tube well	3	Deep Tube well	300
Surface flow irrigation scheme	4	Tanks	401
		Ponds; Bundhis	402
		Permanent diversion	403
		Temporary Diversion	404
		Water conservation cum ground water	405
Surface lift irrigation scheme	5	Lift on river	501
		Lift on stream	502
		Lift on drain Canal	503
		Lift on tank/pond	504

Table 2.5.2- Codes for Ownership of irrigation source

Code	Owner group
01	Government owned
02	Self owned
03	Cooperative owned
04	Panchayat
05	Owned by group of farmers (Partnership)
06	Others(Private)
07	Owned by Trust

Table 2.5.3- Codes for lifting devices

Code	Name of lifting Devices
01	Electric pump
02	Diesel pump
03	Wind mills
04	Solar pump
05	Manual/Animal Operational fit
06	Others

Table 2.5.4- List of codes for irrigation sources in Land Records

Irrigation Source Code	Irrigation Source Name
1000000	Wells
1000100	Well (Government)
1000200	Well (Self Owned)
1000300	Well (Cooperative owned)
1000400	Well (Panchayat)

1000500	Well (Owned by group of farmers)
1000600	Well (Private)
1000700	Well (Owned by trust)
1010000	Pucca Well/Step Well
1010100	Pucca Well (Government)
1010200	Pucca Well (Self owned)
1010300	Pucca Well (Cooperative owned)
1010400	Pucca Well (Panchayat)
1010500	Pucca Well (Owned by group of farmers)
1010600	Pucca Well (Private)
1010700	Pucca Well (Owned by trust)
1020000	Kuccha Well/Masonry Well
1020100	Kuccha Well (Government)
1020200	Kuccha Well (Self owned)
1020300	Kuccha Well (Cooperative owned)
1020400	Kuccha Well (Panchayat)
1020500	Kuccha Well (Owned by group of farmers)
1020600	Kuccha Well (Private)
1020700	Kuccha Well (Owned by trust)
1040000	Others
2030000	Bore water/Bore well(Nalkoop)
2030100	Nalkoop (Government)
2030200	Nalkoop (Self owned)
2030300	Nalkoop (Cooperative owned)
2030400	Nalkoop (Panchayat)
2030500	Nalkoop (Owned by group of farmers)
2030600	Nalkoop (Private)
2030700	Nalkoop (Owned by trust)
2030101	Nalkoop Electric (Government)
2030201	Nalkoop Electric (Self owned)
2030301	Nalkoop Electric (Cooperative owned)
2030401	Nalkoop Electric (Panchayat)
2030501	Nalkoop Electric (Owned by group of farmers)
2030601	Nalkoop Electric (Private)
2030701	Nalkoop Electric (Owned by trust)
2030102	Nalkoop Diesel (Government)
2030202	Nalkoop Diesel (Self owned)
2030302	Nalkoop Diesel (Cooperative owned)
2030402	Nalkoop Diesel (Panchayat)
2030502	Nalkoop Diesel (Owned by group of farmers)
2030602	Nalkoop Diesel (Private)
2030702	Nalkoop Diesel (Owned by trust)
3000000	Tube wells
3000100	Tube Well Government
3000200	Tube Well Self

3000300	Tube Well Cooperative owned
3000400	Tube Well Panchayat
3000500	Tube Well (Owned by group of farmers)
3000600	Tube Well (Private)
3000700	Tube Well Owned by trust
4000000	Rain/Waterfall/Chashma(Natural Springs)/Ground Water/Surface Water
4010000	Tanks/ Reservoirs/Sagar/ Hatuwa Jal Yojana
4020000	Ponds/Farm Pond/Lake/Jheel
4020100	Pond (Government)
4020200	Pond (Self owned)
4020300	Pond (Cooperative owned)
4020400	Pond (Panchayat owned)
4020500	Pond (Owned by group of farmers)
4020600	Pond (Private)
4020700	Pond (Owned by trust)
4030000	Drain/Naala/Nahar/Canal/Stream/River/Small River
4030100	Nahar (Government)
4030200	Nahar (Self owned)
4030300	Nahar (Cooperative owned)
4030400	Nahar (Panchayat owned)
4030500	Nahar (Owned by group of farmers)
4030600	Nahar (Private)
4030700	Nahar (Owned by trust)
4040000	Anaicut/Kul/Kuhal/Garat
4050000	Bunds/Budkis/Check Dam/Rehants/Rapat
5000000	Lift Water
5030000	Lift Canal/Tor Canal
0000105	Hand pump (Haathnal) (Government)
0000205	Hand pump (Haathnal) (Self owned)
0000305	Hand pump (Haathnal) (Cooperative owned)
0000405	Hand pump (Haathnal) (Panchayat owned)
0000505	Hand pump (Haathnal) (Owned by a group of farmers)
0000605	Hand pump (Haathnal) (Private)
0000705	Hand pump (Haathnal) (Owned by trust)
0000001	Pump Electric
0000101	Pump Electric (Government)
0000201	Pump Electric (Self owned)
0000301	Pump Electric (Cooperative owned)
0000401	Pump Electric (Panchayat owend)
0000501	Pump Electric (Owned by a group of farmers)
0000601	Pump Electric (Private)
0000701	Pump Electric (Owned by trust)
0000002	Pump Diesel
0000102	Pump Diesel (Government)

0000202	Pump Diesel (Self owned)
0000302	Pump Diesel (Cooperative owned)
0000402	Pump Diesel (Panchayat owned)
0000502	Pump Diesel (Owned by a group of farmers)
0000602	Pump Diesel (Private)
0000702	Pump Diesel (Owned by trust)
9999999	No sources

2.5.4 Metadata elements for Source of irrigation

<xs:complexType name="***Source of Irrigation***" >
<xs:sequence>
<xs:element name="Irrigation Source Code" type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
<xs:pattern value="[0-9]"/>
</xs:restriction>
<xs:element name="Irrigation Source name" type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
<xs:pattern value="[a-z]"/>
</xs:restriction>
</xs:sequence>
</xs:complexType>

2.6 Standard Classification adopted for LAND USE with digital coding scheme.

2.6.1 Reference: Technical Committee on Coordination of Agriculture Statistics (TCCAS) , set up in 1948 by the Ministry of Food & Agriculture , Govt. of India.

2.6.2 Definition: It is the name of the field which is being used to capture information regarding usage of the Land in the referred plot. “PLOT” is an important entity of Land Record Information System which is related with another entity “ Owner”.

2.6.3 Scope : The prime scope of the field is to describe actual usage pattern of “plot” under consideration.

2.6.4 Classification of land-use

Till 1949-50, the land area in India was classified into five categories known as the ***five-fold land utilization classification***. These categories were:

(i) Forests,
(ii) Area not available for cultivation,

(iii) Other uncultivated land, excluding the current fallows
(iv) Fallow lands,
(v) Net area sown.

This five-fold classification was, however, a very broad outline of land-use in the country. The states were finding it difficult to present comparable data according to this classification owing to the lack of uniformity in the definitions & scope of classification covered by these five broad categories. To remove the non-compatibility & to break up the broad categories into smaller constituents for better comprehension, the **Technical Committee on Co-ordination of Agricultural Statistics (TCCAS), set up in 1948 by the Ministry of Food & Agriculture, recommended a nine-fold land-use classification replacing the old five-fold classification, & also recommended standard concepts & definitions for all the states to follow**. The Table 2.6.1 gives the nine-fold classification & its relationship with the old five-fold classification. The nine fold classification of Land use has been adopted by all the states since 1950-51, except by West Bengal which is still following five fold classification.

2.6.5 Recommendation : In existing Land Record databases, attribute :"*Land_Class*" is used to capture information about usage of plot in master table referred as PLOT MASTER. It may have some local variants in different state. It is recommended that information regarding "usage of land" should be captured as "Land Use" in PLOT_MASTER table. The nine fold classification scheme shall be followed with corresponding digital codes as mentioned in Table for Land Use. Botanical names were used for the tree crops grown along with their common names to arrive at unique codes.

The total length of digital code assigned for Land use type is 5 characters such as 00000. Here the extreme left two digits indicate the nine major categories of land use category and the next three digits indicate the land use type sub-category. The list of land use codes used in Land Records is given in table 2.6.2.

Table 2.6.1- Nine fold classification of land use

Code	New Classification
01	Forest
02	Land put to nonagricultural uses
03	Barren and unculturable land
04	Permanent pastures and other grazing lands
05	Miscellaneous tree crops & other groves, not included in net area sown
06	Culturable waste
07	Fallow land other than current fallow
08	Current Fallow
09	Net area sown

Table 2.6.2- Codes for Land use used in Land Records

Land	Land use name

use Code	
01000	**Forest/Jungle**
01001	Forest camp
01002	Protected forest/Reserved forest
01003	Government Forest
01004	Private Forest
01005	Social Forest
01006	Wild life Sanctuary
02000	**Land put to nonagricultural uses (Ghair Mumkin)**
02001	House/Bamboo and Thatched House/Wood and Thatched House/Wood and Tin House/Tinned Pucca House/Broken House/Hut
02002	Road/Street(Katchha and Pakka)(Sadak/Gali)
02003	Footpath/Path/Track(Raastha)
02004	Burial/Cremation Ground/Graveyard/Crematorium/Cemetry/Kabrstaan/Shamshaan Ghat
02005	Mausaleum/Chabootra/Chatri/Samadhi/Mazhaar
02006	Tram line
02007	Transport (Railway line/Railways/Bus station/Bus stand/Bus stop/Airport/Air strip/Helipad/Jetty/Ferry/National Highway/State Highway)
02008	Education (Schools-Primary, Higher Secondary,Music Schools,Physical Education,Deaf and Dumb /Colleges-Junior,Inter,Medical,Dental,Veterninary/Universities-Deemed Universitites, Agricultural Universities/Technical Institutions)
02009	Bridges/Culverts
02010	Playground/Sports complex/Stadium/Mela Ground/Parade Ground/Camping ground
02011	Shop/Store/Godown/Warehouse
02012	Residential(Bungalow/Building/Multi-storey/House)
02013	Commercial(Building/Multiplex/Mall/Cinemas)
02014	Industrial Estate/Factory/Dairy
02015	Farm House
02016	Office cum residence
02017	Offices(Government)
02018	Offices(Private)
02019	Petroleum/CNG outlets
02020	Post Office
02021	Police Station/Police outpost
02022	Market/Panchayat market/Mandi/Bazaar/Periodical Markets/Daily Market/Grain Market
02023	Telephone Exchange
02024	Community/Public Hall
02025	Pipe line
02026	Saw Mill/Mill
02027	Others(Government)
02028	Others(Private)
02029	Brick Kiln/Brick Field
02030	Aabadi/City Survey Area
02031	Vacant uncultivated/Open land/Sites/Plots

02032	Land under Water/Water Bodies(well,pond,tank,nallah,drain,lake,river,stream,large tank,watery land,dam,bund,nahar)
02033	Irrigation purposes
02034	Prepared land
02035	Defence Land/Military Land/Cantonment land
02036	Reserved land
02037	Public land
02038	Johar
02039	Land under various sections
02040	Partly non-agricultural land
02041	Religious Institution/Worship(Mosque/Church/Chapal/Temple/Gurdwara/Gumpa/Pagoda/Stupa/Jain Mandir)
02042	Tharisu
02043	Assessed
02044	Poramboke
02045	Government Poramboke
02046	Nalathu Poramboke/Natham Poramboke
02047	Nilam
02048	Purayidom
02049	Manai/Manavari
02050	Dry
02051	Bhoodan Board Land
02052	Panchayat Land
02053	Government Land
02054	Private Land
02055	Communidade Land
02056	Local Land
02057	Salt Land
02058	Marshy Land
02059	Swamp
02060	Sandy Land Bed
02061	Arable land
02062	Homestead
02063	Raised land near homestead
02064	Public Conveniences(Toilets/Latrines/Bathrooms)
02065	Shed/Cow Shed/Pump Shed/Cattle shed/Passenger shed/Market shed/Garage
02066	Hospitals(Dispensary/Veterinary Dispensary/Primary Health Centre/Private Hospital/Government Hospital)
02067	Quarters (Government)
02068	Quarters (Private)/Housing Colony
02069	Barracks/CRPF camp/IR Bn Camp/Transit camp/Refugee camp
02070	Anganwadi
02071	Cattle Pound/Pound
02072	Museum

02073	Resting places(Dharamshala/Rest House/ Circuit House/Inspection Bungalow/Dak Bungalow)
02074	Tourism/Historical place
02075	Panchayat Ghar
02076	Patwar Khana
02077	Threshing Floor
02078	Bari
02079	Jail
02080	Library
02081	Mine(Mining project/mining rejected)
02082	Simtal
02083	Gamtal
02084	Khajna
02085	Kamba/Kol
02086	Shamlaat
02087	Kaypadi
02088	Karinilam
02089	Khaasmahal
02090	Diamond Mine
02091	Granite Mine
02092	Coal Mine
02093	Stone Mine
02094	Manganese Mine
02095	Sandstone Mine
02096	Graphite Mine
02097	Bauxite Mine
02098	Gold Mine
02099	White Mortar Mine
02100	Yellow Mortar Mine
02101	Other Mines
02102	Training Institutions(BSF/SSB/Health Department/Women and Child Welfare/Police/Revenue Inspector/Patwari/ITBP/CISF)
02103	Offices(Quasi-Government)
02104	Offices(Boards/Corporations/PSUs/Autonomous Bodies)
02105	Offices(Judicial)
03000	**Barren and unculturable land/Banjar/Waste land**
03001	Unculturable waste
03002	Stone/Rocky
03003	Unassessed waste land
03004	Mountains, Hills and Hillock
03005	Banjar Kadim
03006	Banjar Jadid
04000	**Permanent pastures and other grazing lands**
04001	Grass and Bushes/Grass land
04002	Garden/Park(Baag/Bagicha)

04003	Orchards
04004	Grazing ground
05000	**Miscellaneous tree crops & other groves, not included in net area sown**
05001	Groves
05002	Timber trees
05003	Coconut Tree
05004	Snap melon tree (Kachra)
05005	Cashew Tree
05006	Bamboo
05007	Mirchie
05008	Mango (Amra,Aaam,Amba) (Mangifera indica)
05009	Jamun (Java Plum)(Syzyium Cumini)
05010	Jambava(Black Plum)(Eugenia Jambolana)
05011	Tamrind tree (Imli)(Tamarindus indica)
05012	Jack tree (Kathal)(Artocarpus heterophyllus)
05013	Jungle Jack (Artocarpus hirsutus)
05014	Guava (Amrud,Jamphal)(Psidium guajava)
05015	Indian Butter tree (Mahwa,Mowa,Mahua)(Bassia Longifolia)
05016	Madhu (Madhuca indica)
05017	Edible Date (Khajur)(Phoenix dactylifera)
05018	Palymrah-Palm (Tal)(Borassus flabellifer)
05019	Great fan palm(Tad) (Borassus species)
05020	Arjuna (Terminalia arjuna)
05021	Australian Wattle (Acacia nilotica)
05022	Custard Apple of India(Sharifa)(Annona squamosa)
05023	Other fruit trees
05024	Indian Oak tree(Teak)(Sagun,Sagwan)(Tectona grandis)
05025	Venteak(Nana) (Lagerstroemia-lanceolata)
05026	Sissoo tree (Shisham)(Dalbergia sissoo)
05027	Sal (Shorea robusta)
05028	Sakhu (Vatica robusta)
05029	Kino tree (Bija,Vengai) (Pterocarpus Marsupium)
05030	Eucalyptus species
05031	Sandalwood (Chandan)(Santalum album)
05032	Lebbeck tree (Siris) (Albizia Lebbeck)
05033	Rusty leaved lancewood (Pterlspermum rubignosum)
05034	Other building trees
05035	Neem (Neem,Bakain Neem(Azadirachta indica)
05036	Nim (Melia azadirachta)
05037	Bodhy tree (Pipal,Peepul,Asvattha)(Ficus religiosa)
05038	Bgove tree (Bargad)
05039	Golden Shower tree (Amaltas)(Cassia fistula)
05040	Flame of the forest tree (Palas)
05041	Banyan tree (Bara) (Ficus indica)
05042	Desoending tree (Nygrodha) (Ficus banghalensis)

05043	Ashok (Saraca indica)
05044	Kanchan (Bahunia variegate)
05045	Paladhua (Erythrina indica)
05046	Red Silk Cotton tree (Semal,Shimli) (Bombax malabaricum)
05047	Patali (Lagerstroemia)
05048	Bahada (Ficus glomerata)
05049	Bada Chakunda (Pitheocolobium)
05050	Chakanda (Cassia recemosa)
05051	Nagamali (Millingtonia)
05052	Ain (Terminalia Tomentosa)
05053	Other canopy trees
05054	Indian Fig tree (Ber)
05055	Chinese Date tree (Ber)(Zizyphus jujube)
05056	Jujube tree (Kuvala)(Zizyphus mauritiana)
05057	Babur (Acacia arabica)
05058	Babul (Mimosa nilotica)
05059	Ram Babul (Parkinsonia aculeata)
05060	Vilati Babul (Dendrocalamus strictus)
05061	Pagoda tree (Khair)
05062	Habeli (Thespesia populnea)
05063	Cutch tree (Khair)
05064	Bael tree (Bel)
05065	Casuarina (Casuarina equisetifolia)
05066	Champa (Michelia champaca)
05067	Dhak (Butea monosperma)
05068	Gulmohar (Delonix regia)
05069	Gular (Ficus glomerata)
05070	Jarul (Lagerstromia speciosa)
05071	Jungle Jalebi (Inga dulicis)
05072	Kadam (Anthocephalus chinensis)
05073	Kachnar (Bauhunia variegate)
05074	Karanj (Derris indica)
05075	Mulberry (Morus alba)(Shahtoot)
05076	Nisuidee (Rattal) (Vitexnedundo)
05077	Popular (Populous ciliates)
05078	Silver oak (Grevillea mimosaefolia)
05079	Sultanachampa (Calliandra species)
05080	Maharukha (Tree of Heaven) (Ailanthus excelsa)
05081	Mandara (Erythrina indica)
05082	Jacaranda (Jacaranda mimosaefolia)
05083	Copper pod
05084	Kalpavriksha (Adansonia digitata)
05085	Karanja (Pongamia glabra)
05086	Chameli (Pulmeria alba)
05087	Tulip (Sapthodea campanulata)

05088	Bahapilu Species (Salvadora clecides)
05089	Bahapilu (Salvadora persica)
05090	Vilati Kiker (Prosopis juliflora)
05091	Vilati Kikkar(Khejri,Sami)(Prosopis specigera)
05092	Devedaru(Polyalthia longiflia)
05093	Nalikchakunda (Cassia sofera)
05094	Kandichampa(Plumeria Alba)
05095	Poolang(Calophylum)
05096	Lamblatkan (Kigalia pinnata)
05097	Putranjiva (Putranjiva roxburghii)
05098	Sterculia (Sterculia palmata)
05099	Bola (Morus laevigata)
05100	Tutri (Morus indica)
05101	Uriam (Bischafia javanica)
05102	Soapnut (Ritha) (Sandindus tarifollatus)
05103	White Cedar (Agil) (Dysexylum Malabaricum)
05104	Irul (Xylsia Dolabriformia)
05105	Myla (Vetax Altissima)
05106	Poon (Calophyllum Tomentosum)
05107	Tun or Toon (Cedrela Toona)
05108	Chikrasi (Chukrasia tabularis)
05109	Shenkuranthi (Gulta Travancorica)
05110	Turmeric wood (Adina Cordifolia)
05111	Kindal (Terminalia Paniculata)
05112	Iron wood (Mesua ferrea)
05113	Priyangu (Aglaia roxbughiana)
05114	Malabar Mahogany (Hardwickia pinnata)
05115	Karanjili (Dipterecerpus Bourdillon)
05116	Thingam (Hopea Wightiana)
05117	Ceylon Rosewood(Kala Siris) (Albizia Odaratissima)
05118	Kussum (Ceylon oak) (Schleichera trijuga)
05119	Kattian(Spinous Kino tree) (Bridella retusa)
05120	Pharsa,Phalsa,Dhamin (Grewia tiliaefolia)
05121	Venkaili (Anegeissues Latifolia)
05122	Banati (Lophopetalum Wightiana)
05123	Black Dammar (Kala Dammar)(Commiphora strictum)
05124	Charoli-Kernel(Pial,Piyal)(Calumpang nut tree)(Buchanania latifolia)
05125	Guggula-Dhup(Ailanthus malabarica)
05126	Kuchila (Snakewood)(Strychnos nux-vomica)
05127	Puthenkolli (Poeciloneuron Cheloneides)
05128	Sweet Bark(Dalchini)(Cinnamomum zeylanica)
05129	Nedungar(Polyathia Fragrans)
05130	Thitpak(Baing)(Tatrameles nudifiora)
05131	Satinwood tree (Choloroxylon swistenia)
05132	Anjan(Hardvickia binata)

05133	Bhillar (Bischola Javanica)
05134	Eugunia Gardneri
05135	Eugunia Chavairan
05136	Kurumia Biaprattita
05137	Filicium decipies
05138	Aerocarpus fraxinifolia
05139	Gullenia excelsa
06000	**Culturable waste**
06001	Other culturable waste
07000	**Fallow land other than current fallow/Fallow land**
07001	Fallow land old (greater than 6 years)
07002	Fallow land new (between 2 to 5 years)
07003	Other fallows
08000	**Current Fallow**
08001	Current fallow (1 year)
09000	**Net area sown**
09001	Agricultural
09002	Seedlings
09003	Banana/Plantain cultivation
09004	Plantations(Tea, Coffee, Rubber, Cashew)
09005	Spices(Cardamom, Pepper)
09006	Government Plantations
09007	Paddy
09008	Vegetable
09009	Coconut
09010	Wet
09011	Paans/Betel leaves
09012	Cultivable land near homestead

2.6.6 Metadata elements for Land use

```
<xs:complexType name="Land use" >
<xs:sequence>
<xs:element name="Irrigation Source Code"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
<xs:element name="Irrigation Source name”     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[a-z]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.7 Standard Classification adopted for AREA UNIT/EXTENT with digital coding scheme.

2.7.1 Recommendation: In existing Land Record databases, attribute "area" is used to capture information about the area of a land parcel. Different traditional units like Kanal, Marla, Cents, Guntas, Bigha, Biswa, Biswansi, Sarsaai are used for recording the area of a land parcel. Area units are different within the state and sometimes same unit may have different conversion factors when used in different states. For example, Bigha is used in practice in both Assam and also in some states like Delhi, Rajasthan, Haryana etc. Both the Bigha units have different conversion factors to hectares. At present, it is represented as a numeric data type up to three decimal places. ***It is now recommended to have the area only in Metric Units as depicted in Table 2.7.1.*** The various area units in practice in land records are shown in Table 2.7.2. Conversion factors are locally available from different unit to metric system and it is depicted in Table 2.7.3. The area conversion service is available in the website **www.dolr.nic.in** under revenue village directory.

Table 2.7.1-Area units in metric system

Code	Description
001	Hectares

Table 2.7.2-Area units in practice in Land Records are

Area unit name
Hectares
Ares
Centi-are
Sq metres
Sq yards
Sq feet
Acres
Cents
Guntas
Bigha
Biswa
Biswansi
Kanal
Marla
Karam
Sarsaai
Kila
Bigha(Assam)
Katha (Assam)
Lessa
Shatak
Sq cm

Desi
Sq inch
Dismil
Dur
Katha (Jharkhand)

2.7.2 Metadata elements for Area units

```
<xs:complexType name="Area units" >
<xs:sequence>
<xs:element name="Area unit code"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
 </xs:restriction>
<xs:element name="Area unit name”     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[a-z]"/>
 </xs:restriction>
</xs:sequence>
</xs:complexType>
```

Table 2.7.3- Conversion Factors

1 centi-are = 1 Sq metre
1 centi-are = 10.76 Sq.feet
100 Centi-are = 1 Are
100 Are = 1 hectare
100 Sq metre = 1 Are
1 hectare = 100m x 100m = 10000 Sq metre
1 hectare = 404.68458 Acre(Tripura)
40 Are = 1 Acre
1 Lessa = 144 Sq feet
1 Katha = 5 Lessa or 720 Sq feet
1 Bigha(Assam) = 4 Katha or 20 Lessa or 2880 Sq feet
1 Sq metre = 10000 Sq cm (Gujarat)
2.47105 Acres = 1 Hectare (Kerala)
1 Are = 2.47105 cents (Kerala)
1 Acre = 100 cents (Kerala,Tamil nadu)
1 Cent = 40 Sq metres or 435 Sq feet
1 Acre = 40 Guntas(Andhra Pradesh and Karnataka)
1 Gunta = 100 Sq metres (around 1100 sq feet)
1 Acre = 121 Sq yards
1 Kuncham = 10 cents(Andhra Pradesh)
1 Sq link = 0.0404687 Sq metre (Kerala)
Shahjahani Jarib(165 feet) (Rajasthan)
1 Bigha = 1 Jarib x 1 Jarib = 165’ x 165’ = 27225 Square Feet
1 Bigha(Shahjahani Jarib) = 0.253 Hectare
Gantari Jarib(132 feet) (Rajasthan)

1 Bigha = 1 Jarib x 1 Jarib = 132’ x 132’ = 17424 Square Feet
1 Bigha(Gantari Jarib) = 0.16 Hectare
1 Bigha = 20 Biswansi (Rajasthan)
1 Acre = 4046.94 Sq metre (Jharkhand)
1 Dismil = 40.46 Sq metre (Jharkhand)
1 Katha(Jharkhand) = 66.89 Sq metre (Jharkhand)
1 Dur = 10 Sq metre (Jharkhand)
Before Bandobust(Settlement)
1 Karam = 57.157” (Haryana)
1 Biswansi = 1 Karam x 1 Karam (Haryana)
20 Biswansi = 1 Biswa (Haryana)
1 Bigha = 20 Biswa (Haryana)
4 Bigha-16 Biswa = 1 Acre (Haryana)
2.47 acre = 1 hectare(CG)
Government Settlement
1 Karam = 57.157” (Haryana)
20 Biswansi = 1 Biswa (Haryana)
1 Bigha = 20 Biswa (Haryana)
4 Bigha = 1 Kila (Haryana)
1 Kila = 40 Karam x 40 Karam (Haryana)
After Bandobust(Settlement)
1 Karam = 66” (Haryana)
1 Sarsaai = 1 Karam x 1 Karam (Haryana)
9 Sarsaai = 1 Marla (Haryana)
20 Marla = 1 Kanal (Haryana)
8 Kanal = 1 Acre (Ghuman) (Haryana)
1 Acre = 36 Karam x 40 Karam (North to South, East to West) (Haryana)
2.5 Acre = 1 Hectare (CG)

2.8 Standard Classification adopted for OWNERSHIP TYPE with digital coding scheme.

The total length of digital code assigned for Ownership type is 5 characters such as 00000.

There are four major categories of ownership type which are ***Government, Private, Institution and Others.*** Here the extreme left two digits indicate the major category Ownership type and the next three digits indicate the Ownership type sub-category. The standard list of ownership type codes in land records in given in Table 2.8.1.

Table 2.8.1- Codes for Ownership type in Land Records

Ownership type Code	**Ownership type name**
01000	**Government/Sarkar (Siwayachak)**
01001	Gram Panchayat/Gram Sabha

01002	Nagar Panchayat
01003	Nagar Palika
01004	Nagar Nigam
01005	Kendra Sarkar
01006	Rajya Sarkar(State Government)
01007	Sarkari Bhumiyan Nadard
01008	Kendra Shasanache Khate
01009	Kendra Shasanache Angikuruth Mandale
01010	Sarkari Pattedar
01011	Sinchai Vibaag
01012	Pranthiya Sarkar
01013	Zilla Parishad/Zilla Panchayat
01014	Custodian Government Land
02000	**Private/Besarkari/Niji**
02001	Bhumiswami/Bhumidhar/Pattedar
02002	Shasakiya Pattedar
02003	Seva Khatedar
02004	Bhoodan Krushak
02005	Adhipatya Krushak (Maurushi Krushak)
02006	Rahin
02007	Murthhin
02008	Najul Pattedar
02009	Dar Shikmi
02010	Bhoodan Bhumiswami
02011	Shasakiya Pattedar se Bhumiswami
02012	Shikmi (Maurushi)
02013	Gher Hakdar/Bhumiswami Gher Hakdar
02014	Asthaiya Pattedar
02015	Maalkaan Kabja
02016	Rayati Chirasthayi (Private Owned Land)
02017	Akrisha Chirasthayi (Owns Land only for House)/Ghar
02018	Adhi Akrisha Chirasthayi (Owns a part of a building)
02019	Raiyat
02020	Khatedar
02021	Gher Khatedar
02022	Vyaktigath Khatedar
02023	Samyukt Khatedar
02024	Samayik Khate
02025	Aa.Ku.Ma
02026	Aa.Pa.Ka
02027	Avibakht Kutumbh Khate
02028	Khajagi Company/Company
02029	Kua Malik (Owns only the well)
02030	Kuthiyadar
02031	Adhiyadar

02032	Hissadar
02033	Gher Marushi
02034	Pattedar Gharinda
02035	Chakauthedhar
02036	Makbuja Maalkaan
02037	Bhumiswami Asthanthariniya
03000	**Institution (Organisation/Sanstha/Bank/Society/Department/Board/Authority/ Trust)**
03001	Aaukaf Department
03002	Wakf Department/Wakf Board
03003	Peersthan
03004	Bharat Shasan Raksha Sampada
03005	Cantonment Board
03006	MES
03007	Dharmik Sthan(Mandir/Masjid/Church/Gurdwara)
03008	Communidade
03009	District Board
03010	Custodian
03011	Sthanik Swarajya Sanstha
03012	Sahakari Sanstha
03013	Shikshanik Sanstha
03014	Samajik Sanstha
03015	School
03016	College
03017	Dharmshala
03018	Sarvajanik Nirman Vibaag PWD
03019	Maharashtra Shasanache Vibaag
03020	Maharashtra Shasanache Mahamandale
04000	**Others**
04001	Allottee
04002	Myadi (Periodic Patta Holder)
04003	AP Holder (Annual Patta Holder)
04004	Lessee
04005	Possession on the basis of Patta
04006	Possession against various sections
04007	Possession under Homestead Benefits
04008	Interest till Death
04009	Common uses for Public
04010	Barga
04011	Permissive
04012	Grantee
04013	Lessee of Government
04014	Inam
04015	Khaasmahal Pattedar

04016	Market Committee
04017	Shaamlat Rastha
04018	Shaamlat Patti
04019	Shaamlat Deh
04020	Mills
04021	Jumla Mushtaraka Maalkaan
04022	Sabha
04023	Ashram
04024	Aabaadi Teeka
04025	Aabaadi Deh
04026	Gher Hazir/Kabij
04027	Aabpaara Kunidgaan
04028	Bartan Bartandaran
04029	Farm
04030	Allottee Chirasthayi
04031	Kheraj Myadi
04032	Bishes Myadi
04033	Eksona
04034	Kheraj Eksona
04035	Laa Kheraj(No Revenue)
04036	Nisf Kheraj (Half Revenue)
04037	NLR Grant
04038	Simple Fee Grant
04039	FS Grant
04040	WLA

2.8.1 Metadata elements for Ownership type

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<xs:sequence>
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  </xs:restriction>
<xs:element name="Ownership type name”     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[a-z]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.9 Standard Classification adopted for SIZE OF HOLDING (Farmer Category) with digital coding scheme.

2.9.1 Recommendation: In existing Land Record databases, attribute “Farmer Category(Size of Holding)” is used to capture information about the Category of the Farmer. It is based on the total land holding in hectares. BPL census list cater to the

actual need of the government at various level of administration. These are being used for various Rural Development Schemes. Table 2.9.1 gives a list of standard codes used for size of holding.

Table 2.9.1 – Codes for size of holding in Land Records

Holding size Code	Holding size name
1	Large Farmer (greater than 5 hectares)
2	Medium Farmer (greater than 2 hectares and less than/equal to 5 hectares)
3	Small Farmer/Marginal Farmer (less than/equal to 2 hectares)

2.9.2 Metadata elements for Size of Holding

```
<xs:complexType name="Size of Holding" >
<xs:sequence>
<xs:element name="Holding size code"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
<xs:element name="Holding size name”     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[a-z]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.10 Standard Classification adopted for various “MUTATION TRANSACTION TYPES” for purpose of usage in Land Records.

2.10.1 Introduction

“Mutation” refers to a procedure or process in land revenue administration system which results in changes in records for land holdings arising due to various transactions such as inheritance, contracts of sale and mortgage, court decree, registration, gift etc. The same would always involve transfer of “ownership”, but may or may not require changes in pilot/parcel identification and plot details. Under this function, the Mutation transaction gets updated to the main land database once the former are officially completed and legalized.

2.10.2 Purpose

The process of affecting change in ownership, land holding, land acquisitions etc are of prime importance from Land Resource Management perspective. Accordingly, it was envisage to study “Mutation process” of various states and create a classification scheme based on digital codes, which could be used as “base document for reference” for design and development of various land management information systems. It would greatly facilitate collaboration; interoperation of information and data among various databases of land domain. For example, if all the LR_databases are mapped to uniform coding

scheme, it would be possible to learn about sale; purchase; registration; acquisition of land at State and National level. It would also simplify replication of software modules from one place to another and facilitate technology transfer within the domain.

2.10.3 Scope

NIC has designed and developed Land Record Application s/w and database for almost all the states in country. These various variants of Land Record software's have uniformity with respect to domain functionalities and module designs but also cater to variations related with local language, grammar/vocabulary of revenue system of state. In this study, an attempt has been made to enlist all possible "mutation-transaction" types being used in various states covered under 100 percent centrally sponsored scheme, which are being used in Computerisation of land Record databases. The Table 2.10.2 shows the list of mutation transaction type codes in practice in the various states.

Based upon information, all "mutation-transaction types" have been classified in major 23 categories. Each of these major categories has their sub-types. Under each major category, each state may have several sub-categories or procedures, which are currently prevalent. Each major and minor category has been assigned a digital code of 4 characters "0000" such as "0102". Code 0102 refers to major category of "Inheritance" and sub-type of "inheritance for daughter". Table 2.10.1 shows the list of standard codes for mutation transaction types adopted in Land Records.

Table 2.10.1- Mutation-Transaction Types
Mutation-transaction types with National level digital coding scheme (NLDS)

Mutation type Code	Mutation type Description
0100	**Uttar Adhikar/Virasat/Inheritance/Succession**
0101	Pitarajita
0102	Pothi (Inheritance for daughter)
0103	Survivorship
0104	Inheritance by adoption and daughter
0105	Heir ship entry
0106	Tenant Inheritance
0107	Warish Enrollment
0108	Paitrak(Khaandani)
0200	**Uttar Jivit/Adoption/Godanama**
0300	**Will(Wasiyat/Wasiyatnaama)**
0301	Registered will
0302	Unregistered will
0400	**Sale/Bechan/Bain/Vikreya**
0401	Redemption of lease deeds with possession (Conditional Sale)
0402	Auction sale
0403	Conveyance
0404	ReConveyance

0405	Purchase
0500	**Mortgage/Bandak/Rehanman/Pledge**
0501	Sub-mortgage
0502	Mortgage with possession
0503	Mortgage without possession
0504	Sale of mortgaged land
0505	Sale of mortgage
0506	Second mortgage
0507	Redemption of mortgages/Release/Rehanmukht/Liability removal
0508	Redemption of second mortgage
0509	Redemption of sub mortgage
0510	Borrowings from milk co-operatives ((Taaran)
0511	Redemption of mortgage with possession
0512	New mortgage
0513	Sale to mortgagee
0514	Liability entry
0600	**Gift/Hevva/Bakshish**
0601	Samrapan
0700	**Partition/Vibhajan/Batwara/Batankan/Division/Takseem**
0701	Splitting of Joint Pattas
0702	Baghapatram
0703	Division of Land
0704	Division of Khewat
0705	Consolidation/Amalgamation/Merger of plots/Merging of Sub divisions/Joining of adjacent surveys
0706	Combining of Khewats/Istraak Mulkhiyat
0707	Private partitions
0708	Sub division
0709	Patta transfer with sub division
0800	**Court Decree/Nyayikadesh/Court order(Judicial institutions, tribunals)**
0801	Court Stay
0802	Release Court Stay
0803	Change in area of plot due to court settlement
0804	Court cases
0805	Cases under Inam Abolition act
0806	Cases under land ceiling
0900	**Tenurial_Cultivator rights**
0901	Tenure Change new to old
0902	Mutation of tenant/Tenant entry
1000	**Others/Anya**
1001	Settlement
1002	Rights entered if owner is alive
1003	Laawaris holdings
1004	Reservation

1005	De-reservation
1006	Cancellation/Annulment
1007	Survey Exchange
1008	Abandonment
1009	Requisition
1010	Minor/Major
1011	Note
1012	Mund carial right
1013	Variyid
1014	Khana Nashin Daughter
1015	Regularization/Niyaman
1016	Khatedari
1017	Mutations of managers of institutions
1018	ROR Movement
1019	Dakhil Kharij
1020	Burdi/ Baramdi
1021	Tartibi Rahin
1022	Rahin Baikami
1023	Kami Jasti Patrak Durasti (KJP)
1024	Distribution among family
1025	Distribution among family members if owner is alive
1026	Distribution
1027	Distribution in Presence
1028	Co-ownership/Joint Ownership
1029	Tabdil Haqiyat
1030	Tabdil Malkiyat
1031	Sehat Indraaj
1032	Akhraajnaama
1033	Barga enrollment
1034	Pattedar Enrollment
1035	Mussanna Intkaal (Duplicate mutation)
1036	Rupantaran/Namjari/Mutation
1037	Extension of plot
1038	Transfer of plot
1039	Addition of plots
1040	Deletion of plots
1041	Other transactions without involving mutations
1042	Patta transfer without subdivision
1043	Land under ULC act
1044	Akatphod patrak/hissa form no 12
1045	Mutation regarding absentee or not in possession
1046	Mutation of khata khalsa
1047	Alteration of rent by occupancy tenants
1048	Mutation of assignees
1049	Mutation under tenancy act

1050	Recording of share croppers
1051	Homestate Beneficiary enrollment
1052	Recording of Patta Beneficiary
1053	City Survey Area
1054	Ozhumuri
1055	Group Ozhumuri
1056	Piece land Dakhal
1057	Bhoodan
1058	Dakhal ka Punarsadya
1059	Bhu-Arjan
1060	Prativedan(Adhikruth kathan)
1061	Kaashtkaari
1062	Dar-Kaashtkaari
1100	**Adverse Possession**
1101	Encroachment
1200	**Land Acquisition**
1201	Land acquisition award
1202	LAcq Sec 4
1203	LAcq Sec 6
1300	**Lease/Pattanama**
1301	Lease of Government Land
1302	Redemption of lease
1303	Surrender of lease
1400	**Land Allotment/assignment/Awantan**
1401	Vesting of Land
1402	Government allotment
1403	Land assignment cum sale
1500	**Land-Alienation (Conversion of land use)**
1501	Land conversion
1502	Mutations of alienations
1503	Temporary alienation
1504	Alienation in case of hissadari kasht
1505	Alienation by occupancy tenants
1506	Diversion
1600	**Settlement**
1601	Bandobastidari
1700	**Rights entry**
1701	Right to succession
1702	Rights entered if owner is alive
1703	Other rights entry
1704	Rights entry in presence
1800	**Rights relinquishment/Relinquishing/Hak-Tyag**
1801	Rights withdrawal
1802	Extinction of Interest
1803	Di-vesting of Land

1804	Land taken back to Government Head
1805	Other rights removal
1806	Tenant removal
1807	Piece land removal
1900	**Donation/Donate/Daan**
2000	**Grant**
2001	LR- Grant
2002	Re-Grant
2003	Grant of occupancy rights
2004	Grant of Land order
2005	Lease Rent Land Grant
2006	Lease Grant
2100	**Correction in records/Rectification**
2101	Change of classification of land (dry to wet)
2102	Correct encumbrance/remarks
2103	Change in survey settlement
2104	Change in area
2105	Correction of Area of Village
2106	Correction as directed by court
2107	Cultivator change
2108	Change in name
2109	Change in religion
2110	Change in possession
2111	Change in caste/ sub-caste
2112	Change in land type
2113	Non-Agricultural Change
2114	Change of purpose
2115	Waive (Change in ownership)
2116	Regional change full village transfer
2117	Regional change partial village transfer
2118	Regional change new village entry
2119	Regional change merging with existing village
2120	Change in Tenure
2121	Change in Surveyed land
2200	**Government orders/Circulars**
2201	Government Order
2202	Government Circular
2203	Government to Government
2204	Government Restriction
2205	Regularization/Ratification/Niyaman
2206	Partition by Government order
2207	Orders under MLRC
2208	Order for Special assignment of land
2209	Orders under Tenancy act
2210	Revenue Recovery/Bid

2300	**Registration Deeds**
2301	Succession deed
2302	Supplementary deed
2303	Duplicate deed
2304	Settlement deed
2305	Sale Deed/Sale certificate
2306	Declaration of Trust
2307	Registration
2308	Intimation slip
2309	Exchange Deed/Tabaadla/survey exchange/Vinimaya/Badlein
2310	Lease deeds with possession
2311	Redemption of lease deeds with possession
2312	Partition Deed
2313	Distribution deed
2314	Gift deed
2315	Will deed
2316	Release deed
2317	Partnership
2318	Agreement
2319	General Power of Attorney(GPA)
2320	Special power of attorney(SPA)
2321	Correction deed(Titamma)
2322	Cancellation of GPA
2323	Cancellation of SPA
2324	Cancellation of Will
2325	Cancellation of Partnership

2.10.4 Metadata elements for Mutation transaction type

<xs:complexType name="***Mutation type***" >
<xs:sequence>
<xs:element name="Mutation type code" type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
  <xs:pattern value="[0-9]"/>
 </xs:restriction>
<xs:element name="Mutation type name” type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
  <xs:pattern value="[a-z]"/>
 </xs:restriction>
</xs:sequence>
</xs:complexType>

Table 2.10.2 - List of State wise Mutation_Transaction_Types

State	Mutation Types with description
1.Karnataka	• J-Slip for registered sale transactions • Inheritance case with Unregistered sale transactions

	• Rights/Liabilities refers to change the Rights & Liabilities • Govt. Order • Acquisition-Acquisition of land by Government • Alienation-Convert the land for N.A. purposes • Court Order-Change the RTC as per the court order • Court Stay-Stay ongoing/future transactions of the owner • Cultivators-Change the Cultivator details • Phodi- Consolidation/division of RTC • RTC Movement -Shifting of RTCs from one village to another village/Hobli/Taluka
2.Orissa	• Sale/ Purchase • Inheritance • Gift • Partition • Change in Caste/ Name • Land Conversion • Land acquisition • Lease of Govt. Land • Court order

3.Himachal Pradesh	• Sale – Registered document generated from sub-registrar's office • Inheritance – Unregistered documents, certificates submitted by the Public. • Inheritance either through will or through Hindu Succession Act/ Tribal • Custom Law / Muslim succession law. • Gift- Gift given by gifter to giftee • Partition – Partition of Account due to personal settlement or ordered by • court • Changes in Ownership/ Cultivators –(May come from court orders) • Pledge/Release – Pledge of land to the financial institutes to avail loan • Exchange- Land Consolidation • Mortgage with possession For the Share of Ownership • Redemption of Mortgage with possession • Lease deeds with possession • Redemption of Lease Deeds with possession • Adoption • Relinquishment (blood relations giving share of his/her land) • Change in Name • Change in Religion • Changes in Possession • Sehat Rakba/Change in Area of a Plot Due to Court Settlement • Combining/Division of Khewat (Owner Account) / Khatoni (Cultivator Account) • Government Order – Grant of land by government to the poor people
	• Land alienation – Conversion of agricultural land to non-agricultural land • Land acquisition – Acquisition of land by government for Public purpose • Revenue Court order – Orders issued by revenue court based on the disputes • or objections • Court stay – Stay brought on the owner • Division of land – division or consolidation of land based on survey report • Dakhil-Kahrij- At settlement, land from village is merged with another • village. • Burdi/Baramdi- The land that is washed away in the floods. • Tartibi Rahin-If a person mortgages land and take loan and without replaying the loan he sells the land to some one else with the agreement that the new purchaser will pay the mortgage amount to mortgagee. • Rahin Baikami- The land is purchased by the mortgager if mortgagee can not repay loan.

4.Gujarat	• Sale • Gift • Will • Inheritance • Distribution • Distribution in Presence • Land Allotment • Removal of right • Tenant Dakhal • Tenant inheritance • Removal of Tenant • Liability Dakhal • Removal of Liability • Other Right Dakhal • Removal of Other right • Land Acquisition Award • Land joint holding (joint ownership) • Mortgage Dakhal • Removal of Mortgage • Piece Land Dakhal • Removal of Piece Land • Borrowings (Taaran) from milk co-operative etc. • Amalgamation of adjacent lands • Change in Tenure order • Non-Agriculture Order • Kami Jasti Patrak (KJP) Durasti • Change in surveyed Land • Consolidation Yojana • Lease Grant • Government allotment By order • Kalam 4 Notification • Kalam 6 Notification • Exchange surveys • Owner Name Change • Minor to Major • Hakk Dakhal in Presence • Land forfeited to Government Head • City Survey Area • Change in tenure from new to old • Regional Change full Village transfer • Regional Change partial village transfer • Regional Change new village dakhal • Regional Change merging in existing village

5.Assam	• Mutation (Namjari) • Partition (Division / Separation of Dag/Patta) • Allotment • Encroachment • Mutation of Tenant • Acquisition • Settlement • Requisition • Annulment
6.MP	• Sale – Registered document generated from sub-registrar's office • Inheritance – Unregistered documents, certificates submitted by the Public • Gift- Gift given by gifter to giftee • Changes in Ownership/ Cultivators –(May come from court orders) Court order – Orders issued by Civil/ Revenue court based on the disputes or objections • Will – Registered/unregistered "will" submitted by the concerned person after the death of Landholder.
7.Chattisgarh	• Sale • Bhoodan • Heir (Phouti/Uttaradhikar) • Mortgage • Court Decree • Partition • Will • Exchange Deed • Baalig hone par
7.Andhra Pradesh	• Sale, gift, donation – Registered document generated from sub-registrar's office • Inheritance – Unregistered documents, certificates submitted by the Public • Splitting of Joint Pattas • Partition deed - registered document • Acquired by father (Pithrarjitham) • Change of classification of land (dry to wet) • Mortgage – Pledge of land to the financial institutes to avail loan. Registered or unregistered • Assignment – Assignment t of land by government to the land less poor • Land alienation – Transfer of land to the private parties for public purpose such as for establishment hospitals, Industries, societies. • Land acquisition – Acquisition of land by government for Public purpose

	• Revenue Court orders – Orders issued by revenue court based on the disputes or objections • Court Decree – Change in cultivators as per the court order. • Cases under land ceiling • Cases under Inam Abolition Act • Land Purchase by Government department for distribution to landless poor on market value. • Relinquishment
8.Sikkim	• Registration – Registered document generated from SDM's office • Inheritance – Unregistered documents, Banda Paper submitted by the Public • Court Decree – Order Given by Court on a disputed land • Land Acquition- Acquisition of land by government for Public purpose • Government to Government(one department to another)
9.Uttar Pradesh	• Sale /Purchase • Inheritance • Will • Correction in records • Patta • Batwara • Possession. • Mortgage • Land Type Change
10. Delhi	• Sale • Gift • Inheritance • Will • Court Order
11.Haryana	• Sale • Gift • Mortgage with possession • Mortgage without possession • Exchange • Changes in Ownership based on civil court decrees • Inheritance • Partitions • Leases • Redemption of mortgage.
12.J& K	• Inheritance: When a right holder dies and his name is replaced by his successor in the records. This includes daughter of a deceased Hindu leaving no male issue as well as Collaterals of the deceased husband of a widows who re-marries.

	• Lawaris Holdings: In a 'Bhaichara estate, if an owner dies heirless, his land would become "Shamilat Deh'. In a "Non Bhaichara estate', in a similar circumstances, the land would be sold to highest bidder. • Inheritance by Adoption and Daughter: If the adoption is by a registered deed, mutation would be entered in the name of adopted son, otherwise it would be entered in the name of heirs of the deceased (if the adopted son is not in cultivating possession of the land). • Khana Nashin Daughter: A daughter who resides at her parental home with her husband would have the mutation entered in her name but it can be devolved to her husband, the "Khana Nashin Damad' only if she dies heirless. On her death, the names of her sons and daughters should be substituted. If her husband remarries, the property would pass to the legal heirs of her father. • Inheritance by Daughter: If a daughter succeeds her father according to Muslim Personal Law, the mutation would be treated as Inheritance and entered accordingly. • Partition by Government Order: Mutations should be entered after fully verifying the shares sanctioned and the possession on the spot. • Private Partitions: Mutation should be written as soon as the Patwari finds that it has been given effect to on the ground. It should mention whether there are any trees on the partitioned land. Mutation would not be allowed in case of partition of burial grounds, cremation places, places of worship, places of public utility. • Exchanges: Exchanges by agreement of the parties concerned are lawful but it should be seen that the provisions of the Big Landed Estates Abolition Act, 2007 (Samwat) are not defeated. • Mutations where sales are permitted: Mutations of transfers by registered deeds may be sanctioned, provided that the transfer is found to have been actually made and acted upon. • Mutations of Alienations: If any alienation of land is made otherwise than in accordance with the provisions of the Alienation of Land Act or involves any condition contrary to those provisions, the Patwari shall nevertheless enter the same in his register. • Temporary Alienation: For temporary alienation including mortgages, farms and leases where the alienor is a member of and agricultural class and the alienee is not, the Patwari after knowing about the terms of the contract enters the Mutation. • Mortgages without Possession: Mutation would be entered but in the Jamabandi, note would be made in the Remarks column. • Alienation by Occupancy tenants: Necessary action regarding the alienations of occupancy rights will be taken according to sections 60 and 61 of the Jammu and Kashmir Tenancy Act No. II of Samvat 1980. • Alienation in case of Hissadari Kasht: When a sharer in holding holds possession of certain lands by way of Hissadari Kasht, and alienates particular fields in his possession, such alienation being lawful in other respects, mutation would be entered.

	• Redemption of Mortgages: Cases of redemption of mortgages including such simple mortgages without possession, which have been noted in the remarks column of the Jambandi should be decided on Mutation registers. • New Mortgage: When the same parties cancel and old mortgage and affect a new mortgage for an increased area, or for an increased amount, a mutation should be written up. • Grant of Occupancy Rights: Cases of grant of occupancy or protected tenancy rights to a tenant by a proprietor comes under this head. Mutation would be entered if there were no dispute. • Mutation from Khata Khalsa: Mutations of Nautor from Khata Khalsa would be attested under orders of a competent authority. • Alteration of Rent by Occupancy Tenants: Such alterations can be made on the decree of a competent court or by agreement of both landlord and the tenant. The Patwari enters mutation when alteration of rent by consent is reported to him. • Mutation on Relinquishment: On relinquishment of Kasht and ejectment etc. of a protected tenant or occupancy tenant, the incident (Waqia) should be brought onto the Mutation Register and decided on merits. • Mutations of Assignees: These will be written up on receipt of the order from Higher authorities. • Mutations of Managers of Institutions: Same procedure as that in case of Assignees. • Mutation regarding Absentee or not in Possession: Ghair Hazir (Absentee) or Ghair Qabiz (not in Possession) refers to a rights holder who abandons his lands and becomes an absentee from the village, or even if he remains in the village, does not cultivate the land. The person who is in possession should be shown as Qabiz. • Correction of Area of Village: In case of correction of area of villages by transfer of land to, or from, other villages, or to or from the Beruni Line Deh (Village Border), effect should be given to the alteration in the Mutation. • Tabdil Haqiyat: When a defaulter's land is forfeited after taking all steps for realization of arrears and the land is bestowed on another person with or without the condition of payment of arrears by him. • Mutations by Court Order: All such cases should be shown in red ink by the Patwari in the last column of Mutation sheet by giving the particulars of date of decision, party names, name and rank of officer and brief purpose of order. • Sale: – Registered document generated from sub-registrar's office • Gift: Land gifted by one party to another • Pledge/Release: Pledge of land to the financial institutes to avail loan • Mortgage with possession: For the Share of Ownership • Lease deeds with possession • Redemption of Lease Deeds with possession

	• Change in Name • Change in Caste/Sub-caste • Change in Area of a Plot Due to Court Settlement • Combining/Division of Khewat (Owner Account) / Khatoni (Cultivator Account) • Land acquisition: Acquisition of land by government for Public purpose • Cultivator change: Change in cultivators as per the court order • Movement of RTC: Movement of land documents from one village to other village
13. Punjab	• Sale, Bain • Gift, Hevva • Inheritance, Viraasat • Partition, Takseem • Exchange, Tabaadla • Court Order, Tabdeel Mulkhiyat • Lease, Pataa • Redemption of Lease, Fak Ul Pataa • Adoption, Godnaama • Sehat Indraaj • Akhraajnaama • Mussanna Intkaal (Duplicate Mutation) • Combining Khewats, Istraak Mulkhiyat • Mortgage, Rahan (with possession) or Ad Rahan • Redemption of Mortgage, Fak Ul Rahan • Sub-mortgage, Rahan dar Rahan • Redemption of sub-mortgage, Fak dar Rahan • Second mortgage, Jiaadi Rahan • Redemption of second mortgage, Fak Jiaadi Rahan • Sale of mortgaged land, Bain Bacammi Rahan • Sale of mortgage, Bain haq Murtahin • Sale to mortgagee, Fak Ul Rahan Tardeebi
14. Daman & Diu	• Succession: Inheritance of the Property from parents to children. • Survivorship: Inheritance of the Property from parents to children. • Inheritance: Inheritance of the Property from parents to children. • Sale : Sale of Land between two parties • Gift : Giving away a piece or whole as a gift to other(s) • Mortgage : Mortgaging a piece of whole • Release : Releasing of the land in favour of any releasee • Lease : Leasing for a specific period • Land Acquisition: Acquiring of Land for public purpose. • II. Type of Mutations on account of change of Land • Agricultural to Residential / Commercial / Industrial Use

	• Non-Agriculture to Non-Agriculture – for change of purpose • III. Types of mutation involving partition of right and sub-division of holdings • Partition : Partition of Land among joint family members • Sub-division : Dividing a piece of land into sub-holdings without change of occupancy rights • Amalgamation : Amalgamating contiguous two or more land holdings of same occupant into one bigger holding
15.West Bengal	• Transfer of property, Gift or inheritence etc – mutation • Recording of Share croppers • Recording of Homestead Beneficiary • Recording of Patta Beneficiary • Vesting of land • Divesting of Land • Correction as directed by Court • Land Acquisition
16.Kerala	• Sale • Settlement • Gift • Inheritance • Court decree • Assignment • Relinquishment • Acquisition
17. Tamil Nadu	• Patta Transfer without Sub Division • Patta Transfer with Sub Division • Clubbing of Sub Divisions • Alienation • Acquisition • Assignment • Other transactions without involving mutations • Change of classification • Lease • Relinquishment
18.Rajasthan	• Sale • Virasat • Will (Wasiyat) • Gift • Adoption • Nabalig to Balig • Daan Patra • Regularization • Conversion

	• Distribution (Takasama) • Court Orders • Surrender(Hak Tyag) • Mortgage (Rahan) • Mortgage Release (Rahan Mukti) • Allotment • Exchange (Vinimay) • Lease Deed (10 to ..99 years)
19. Arunachal Pradesh	• Transfer of plot • Extension of plot • Conversion of plot • Merging of plot
20.Manipur	• Mutation (Change of Owner) • Partition • Sale – Registered document generated from sub-registrar's office • Inheritance – Unregistered documents, certificates submitted by the Public • Pledge/Release – Pledge of land to the financial institutes to avail loan • Government Order – Grant of land by government to the poor people • Land alienation – Conversion of agricultural land to non-agricultural land • Land acquisition – Acquisition of land by government for Public purpose • Revenue Court order – Orders issued by revenue court based on the disputes or objections • Court stay – Stay brought on the owner • Cultivator change – Change in cultivators as per the court order • Division of land – division or consolidation of land based on survey report • Movement of ROR – Movement of land documents from one village to other village
21.Bihar	• Kaashtkaari • Dar-Kaashtkaari • Bandak kartha • Vikretha(Seller) • Bandobastidaari(Settlement) • Vibhajan(Partition) • Vinimaya(Badlein/Exchange) • Paithrak(Khaandani/Inheritance) • Bhoodan • Batwara • Daan(Bakshish/Donation) • Bhu-Arjan • Prativedan(Adhikrut kathan) • Vikreya(Sale)

	• Dakhal Ka Punarsaday(Regularization) • Vasiyatnaama(Will)
22.Jharkhand	• Sale • Gift • Succession • Partition • Change
23.Goa	• Sale Deed • Will • Succession • Court Order • Acquisition • Partition • Amalgamation
24. Maharastra	• Heirship Entry • Will • Distribution Deed • Gift Deed • Release Deed • Sale/ Conveyance • Exchange Deed • Govt Orders • Grant of Land Order • Land under ULC Act • Orders under MLRC • Order for Spl. Assignment of Land • Orders under Tenancy Act • Akatphod Patrak/Hissa Form No.12 • K.J.P. • Court Orders
25.Andaman & Nicobar	• Sale Registered sale transactions • Gift Registered sale transactions • Inheritance-Transfer of title on the basis of legal heir ship • Waive Change the ownership • Will Registered deed • Govt. Order Government Grants • Acquisition Acquisition of land by Government • Alienation/Diversion Convert the land for N.A. purposes • Court Order Change the ROR as per the court order • Court Stay Stay ongoing/future transactions of the owner

25.Andaman & Nicobar	• Sub- Division Consolidation/Division of ROR

It is observed that the different types of mutations like Inheritance/Succession, gift, Will, Sale, Court Order are the most common types of mutations because of which ownership changes occur in different States. Ownership changes are also occur most frequently because of the transactions like Inheritance, sale. The transactions like Mortgage without possession/Mortgage with possession, Mortgage with redemption, Sub-Mortgage, Second Mortgage are mostly applicable to northern States. Any Change in Caste/Name, Change in the Rights and liabilities, RTC movement, Cultivator change, Change in religion, Change in classification of land are also occur through a mutation. In Northern India States(HP/Punjab/Haryana) clerical mistakes in the basic registers are done through a mutation process known as FardBadar. Land Conversion, Land acquisition, Govt. Orders, Lease of Govt. Lands are the most common types of transaction that occur because of different Govt. orders.

2.11 Standard Classification adopted for TENANCY TYPES with digital coding scheme.

The total length of digital code assigned for tenancy type is 4 characters such as 0000. Here the extreme left two digits indicate the seventeen major categories of tenancy type category and the next two digits indicate the tenancy type sub-category. The tenant may pay the rent either in cash or in kind(giving a part of the produce).

Table 2.11.1 shows the list of standard codes for tenancy types adopted in Land Records.

Table 2.11.1 - Codes for tenancy types in Land Records

Tenancy type Code	Tenancy type name
0100	**Permanent Tenant**
0200	**Temporary Tenant**
0300	**Fixed Rent Tenant**
0400	**Others**
0401	Bashrah Padtha Maalkhaan
0402	Ekmusht Nakdi
0403	Galla Batai Va Hissa
0404	Malik/Malikaan Dwara Bhusa Lena

0405	Jabdti Lagaan
0406	Tabadala
0407	Rayati
0408	Gher Majruva Aaam
0409	Gher Majruva Maalik
0410	Bakaasth
0411	Kaisr-E-Hind
0500	**Ex-proprietary Tenant**
0600	**Occupancy tenant**
0700	**Non-occupancy tenant**
0800	**Sebait**
0900	**Matoali**
1000	**Trustee**
1100	**Pattadar**
1200	**Individual tenant**
1300	**Bila Lagaan**
1301	Bila Lagaan Bavajah Tabadala
1302	Bila Lagaan Bavajah Hibba
1303	Bila Lagaan Bavajah Bye
1304	Bila Lagaan Bavajah Rishtedari
1305	Bila Lagaan Bavajah Rivatmatdari
1306	Bila Lagaan Bavajah Tasvur Milkiyati
1400	**Kirayaa**
1401	Kirayaa Salaana
1402	Riyayati Kirayaa
1500	**Bil-mukta**
1501	Bil-mukta chakautha Nakad Va Pydavar
1502	Jinsi Bil-mukta
1600	**Khatedar**
1601	Ghair Khatedar
1700	**Cultivation**
1701	Cultivation by Self
1702	Cultivation by laborers
1703	Cultivation by tenants
9999	**Not Available**

2.11.1 Metadata elements for Tenancy type

```
<xs:complexType name="Tenancy type" >
<xs:sequence>
<xs:element name="Tenancy type code"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
<xs:element name="Tenancy type name”     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
```

```
    <xs:pattern value="[a-z]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.12 Standard Classification adopted for ENCROACHER TYPES with digital coding scheme.

The total length of digital code assigned for encroacher type is 2 characters such as 0000. Here the extreme left two digits indicate the seven major categories of encroacher type category and the next two digits indicate the encroacher type sub-category.
Table 2.12.1 shows the list of standard codes for encroacher types adopted in Land Records.

Table 2.12.1 – Codes for Encroacher types in Land Records

Encroacher type Code	Encroacher type name
0100	**Landless Encroacher**
0200	**Land having Encroacher (Kabjadar)**
0300	**Well Encroacher (Kua Kabja)**
0301	Kua Malik
0302	Beja Kabja
0400	**Illegal use**
0500	**Adverse (Avaid) Possession**
0501	Government Land
0600	**Permissive (Regularization) (Vaid)**
0601	Possession on the basis of Patta
0602	Possession against various sections
0603	Possession under Homestead Benefits
0700	**Others**
0701	Common uses for Public
0702	Interest till Death
0703	Business
0704	Building
0705	Agriculture
0706	Dharak
0707	Ghair Hazir
0708	Ghair Kabij
0709	Bila Sifat
0710	Sebait
0711	Exchange
0712	Barga
0713	Talibi

2.12.1 Metadata elements for Encroacher type

```
<xs:complexType name="Encroacher type" >
<xs:sequence>
<xs:element name="Encroacher type code"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
<xs:element name="Encroacher type name”     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[a-z]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.13 Standard Classification adopted for CASTES/TRIBES category with digital coding scheme.

The classification adopted at the national level are only the major categories from the land records database. The detailed list of castes/tribes are maintained by the respective social welfare departments of the states and the centre. The States can have 2 digits for each sub category under the major category, so that 99 sub types can be accommodated in each major category, but at the national level we have identified only the following 9 major categories having four digits. The total length of digital code assigned for castes/tribes type is 4 characters such as 0000. The list of standard castes/tribes codes adopted in Land Records is given in Table 2.13.1.

Table 2.13.1 - Castes/Tribes codes in Land Records

Caste type Code	Caste type name
0100	Scheduled Castes (SC)
0200	Scheduled Tribes (ST)
0300	Other Backward Classes (OBC)
0400	Others/General
0500	Minorities
0600	Slum Dwellers (Assam & Jharkhand)
0700	Ex-Tea Garden Labourers (Assam)
0800	Ex-Servicemen
0900	Physically Challenged
9999	Not Available

2.13.1 Metadata elements for caste type

```
<xs:complexType name="Caste type" >
<xs:sequence>
<xs:element name="Caste type code"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
<xs:element name="Caste type name”     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[a-z]"/>
  </xs:restriction>
</xs:sequence>
</xs:complexType>
```

2.14 Standard Classification adopted for GENDER with digital coding scheme.

2.14.1 Recommendation: In existing Land Record databases, attribute “Gender” is used to capture information about the gender of the owner. The Table 2.14.1 shows the list of standard Gender codes in Land Records.

Table 2.14.1 -Gender codes in Land Records

Gender Code	Gender name
1	Male
2	Female
3	Transgender

2.14.2 Metadata elements for Gender

```
<xs:complexType name="Gender type" >
<xs:sequence>
<xs:element name="Gender type code"     type="xs:string" maxOccurs="1"/>
<xs:restriction base="xs:string">
   <xs:pattern value="[0-9]"/>
  </xs:restriction>
<xs:element name="Gender type name”     type="xs:string" maxOccurs="1"/>
<xs:simpleType>
  <xs:restriction base="xs:string">
   <xs:pattern value="male|female|transgender"/>
  </xs:restriction>
</xs:simpleType>
</xs:sequence>
</xs:complexType>
```

2.15 ENCODING Standard

Recommendation: Since Land Records data is available in the local language, there is need for a standard encoding scheme. At present, some states are storing data in 7 bit ISCII, ISFOC and 8 bit ISCII. **Unicode and its standards fonts as available for a specific language may be adopted**. The system shall enable transliterated outputs in English in respect of vernacular data for integration of state level data at the national level.

CHAPTER 3

Summary of Study of Availability of Land Records Master Codes and Level of Homogeneity/Heterogeneity

Sl No	States	Location (1)	Crop (2)	Season (3)	Soil (4)	Source of Irrigation (5)	Land Use (6)	Area Units/Extents (7)	Ownership (8)	Size of Holding (9)	Mutation (10)	Tenancy (11)	Encroacher (12)	Caste/Tribe (13)	Gender (14)	Encoding (15)
1	Delhi	•	•	•	•	•	•	•	•	To be captured	•	To be captured	To be captured	•	To be captured	•
2	Assam	•	•	•	To be captured	•	•	To be captured	•	To be captured	•	•	•	•	To be captured	•
3	Arunachal Pradesh	•	To be captured	To be captured	To be captured	To be captured	To be captured	•	To be captured	To be captured	•	To be captured	To be captured	•	•	•
4	Gujarat	•	•	•	•	•	To be captured	•	•	To be captured	•	•	•	•	•	•
5	Orissa	•	To be captured	To be captured	To be captured	To be captured	•	•	•	To be captured	•	•	To be captured	•	•	•
6	Kerala	•	To be captured	To be captured	To be captured	To be captured	•	•	•	•	•	To be captured	To be captured	To be captured	To be captured	•
7	Manipur	•	•	•	To be captured	•	To be captured	•	•	To be captured	•	To be captured	To be captured	To be captured	To be captured	•

Table 3.1: List for the States under Category 'A'-Information Classification Scheme (Coding Scheme) is uniformly maintained across the State among all Districts and Talukas(Tehsils).

Measures to be taken:- 1. Data entry/capture has to be undertaken for the fields in standardized form
2. Uniform fields have to be standardized.

Sl No	States	Location (1)	Crop (2)	Season (3)	Soil (4)	Source of Irrigation (5)	Land Use (6)	Area Units/Extents (7)	Ownership (8)	Size of Holding (9)	Mutation (10)	Tenancy (11)	Encroacher (12)	Caste/Tribe (13)	Gender (14)	Encoding (15)
8	Uttar Pradesh	•	To be captured	To be captured	To be captured	To be captured	To be captured	•	•	•	•	To be captured	•	To be captured	To be captured	•
9	Himachal Pradesh	•	To be captured	•	•	•	To be captured	•	•	To be captured	•	•	•	•	•	•
10	Tripura	•	To be captured	To be captured	To be captured	To be captured	•	•	•	To be captured	•	•	•	•	To be captured	•
11	Chattisgarh	•	•	•	•	•	•	•	•	To be captured	•	To be captured	To be captured	•	To be captured	•
12	Puducherry	•	To be captured	To be captured	•	•	•	•	To be captured	To be captured	•	To be captured	To be captured	•	•	•
13	Andaman & Nicobar	•	To be captured	To be captured	•	•	•	•	•	To be captured	•	•	To be captured	To be captured	•	•

Table 3.1: List for the States under Category ‘A’-Information Classification Scheme (Coding Scheme) is uniformly maintained across the State among all Districts and Talukas(Tehsils).

Measures to be taken:- 1. Data entry/capture has to be undertaken for the fields in standardized form
2. Uniform fields have to be standardized.

Sl No	States	Location (1)	Crop (2)	Season (3)	Soil (4)	Source of Irrigation (5)	Land Use (6)	Area Units/Extents (7)	Ownership (8)	Size of Holding (9)	Mutation (10)	Tenancy (11)	Encroacher (12)	Caste/Tribe (13)	Gender (14)	Encoding (15)
1	Madhya Pradesh	•	•	•	•	•	•	•	•	To be captured	•	•	•	•	To be captured	•
2	Haryana	•	•	•	•	•	•	•	•	To be captured	•	To be captured	To be captured	•	To be captured	•

Table 3.2: List for the States under Category 'B'-Information Classification Scheme (Coding Scheme) is uniformly maintained among all Districts in the State

Measures to be taken:-

1. Codes to be made uniform across the State.
2. Data entry/capture has to be undertaken for the gap fields in standardized form
3. Uniform fields have to be standardized.

Sl No	States	Location (1)	Crop (2)	Season (3)	Soil (4)	Source of Irrigation (5)	Land Use (6)	Area Units/Extents (7)	Ownership (8)	Size of Holding (9)	Mutation (10)	Tenancy (11)	Encroacher (12)	Caste/Tribe (13)	Gender (14)	Encoding (15)
1	Rajasthan	•	•	•	•	•	•	To be captured	•	To be captured	•	To be captured	To be captured	To be captured	To be captured	•
2	Karnataka	•	•	•	•	•	•	To be captured	•	To be captured	•	•	To be captured	To be captured	To be captured	•
3	Maharashtra	•	•	•	To be captured	•	•	To be captured	•	To be captured	•	•	To be captured	•	To be captured	•
4	Uttarakhand	•	To be captured	To be captured	To be captured	To be captured	To be captured	•	To be captured	To be captured	To be captured	To be captured	To be captured	To be captured	To be captured	•
5	Andhra Pradesh	•	•	To be captured	To be captured	•	•	To be captured	To be captured	To be captured	To be captured	•	To be captured	To be captured	To be captured	•
6	Sikkim	•	•	To be captured	To be captured	To be captured	•	•	To be captured	To be captured	•	To be captured	To be captured	•	To be captured	•
7	West Bengal*	•	•	•	To be captured	To be captured	•	•	•	To be captured	•	•	•	•	•	•
8	Goa	•	•	•	To be captured	To be captured	•	•	•	To be captured	•	•	•	To be captured	To be captured	•
9	TamilNadu*	•	•	•	To be captured	•	•	•	•	To be captured	•	To be captured	•	To be captured	To be captured	•
10	Bihar	•	To be captured	To be captured	To be captured	To be captured	•	•	To be captured	To be captured	•	•	•	To be captured	To be captured	•
11	Jharkhand	•	To be captured	To be captured	To be captured	To be captured	•	•	•	To be captured	•	To be captured	To be captured	•	To be captured	•

Table 3.3: List for the States under Category 'C'-Information Classification Scheme (Coding Scheme) is not uniform among various Talukas (Tehsils).

Measures to be taken:-

1. Codes have to be made uniform among all the districts in the State.
2. Codes have to be made uniform across the State.
3. Uniform fields have to be standardized.
4. Data entry/capture has to be undertaken for the gap fields in standardized form *Tamil Nadu has source of irrigation variation at village level, *West Bengal has land use uniform at District level

CHAPTER 4

Reference Standards for Land Records Attributes/Parameters

During this study, it was found that reference standards existed for the land records attributes such as Location code, Crop code, Soil type, Source of irrigation, Land use, Area units/Extents, Size of holding and Encoding. Land Records master data collected, collated and compiled from all the states for the remaining parameters such as Season, Ownership code, Mutation type, Tenancy type, Encroacher type, Caste/Tribe and Gender were codified so that uniform codes could be devised for all the identified parameters applicable to Land Records. The Table 4.1 below shows the Land Records attributes and their corresponding reference standard.

Table 4.1 -List of Attribute/Parameters and the corresponding reference standard

Sl. No	Attribute/ Parameters	Reference Standard
1	Location code	Census 2001
2	Crop Code	Agriculture Census 2000-2001
3	Season	Land Records
4	Soils	All India Soil & Land Use Survey(AISLUS), National Natural Resource Management System(NNRMS of Department of Space), NRSA,National Bureau of Soil Survey and Land Use Planning, Nagpur,(NBSS & LUP), Soil Taxonomy, Sixth Edition, 1994 USDA, Soil Conservation Service
5	Source of Irrigation	Computerization of 3rd Minor Irrigation Census(Reference year 2000-2001), NIC, DIT
6	Land Use	Technical Committee on Co-ordination of Agriculture Statistics (TCCAS), Ministry of Food and Agriculture, Government of India (Nine fold Classification)
7	Area units/Extents	Metric Units
8	Ownership Code	Land Records Manual of the States
9	Size of Holding	BPL Census
10	Mutation Type	Land Records,Registration Act 1908
11	Tenancy Type	Land Records Manual of the States
12	Encroacher Type	Land Records Manual of the States
13	Caste/Tribe	Land Records Manual of the States
14	Gender	Land Records Manual of the States
15	Encoding Standard	Unicode

CHAPTER 5

Summary of Revenue Villages in Land Records Database and Census 2001

Sl. No	State	Number of Villages in LR, but not in Census	Number of Villages in Census, but not in LR	Number of Villages matching in both LR and Census	Number of Villages shown separately in LR, but shown combined in Census	Sum Total number of Villages in LR and Census
1	*Kerala*	275	6	1352	6	1639
2	*Goa*	74	0	347	0	421
3	*Puducherry*	37	0	92	0	129
4	*Lakshadweep*	0	8	0	0	8
5	*Andaman Nicobar Islands*	1	439	62	0	502
6	*Dadra Nagar Haveli*	0	70	0	0	70
7	*Daman and Diu*	0	23	0	0	23
8	*Delhi*	11	158	0	0	169
9	*Manipur*	0	2199	0	0	2199
10	*Assam*	0	25124	0	0	25124
11	*Meghalaya*	0	5782	0	0	5782
12	*Mizoram*	0	707	0	0	707
13	*Nagaland*	0	1278	0	0	1278
14	*Chandigarh*	0	23	0	0	23
15	*Punjab*	0	12278	0	0	12278
16	*Jammu and Kashmir*	0	6417	0	0	6417
17	*Tripura*	34	10	837	0	881
18	*Sikkim*	0	450	0	0	450
19	*Bihar*	5381	33220	5812	0	44413
20	*Jharkhand*	0	29354	0	0	29354
21	*Arunachal Pradesh*	222	3540	323	0	4085
22	*West Bengal*	3586	26368	11587	0	41541
23	*Haryana*	444	201	6563	0	7208
24	*Uttar Pradesh*	9089	1580	96362	0	107031
25	*Tamil Nadu*	2767	2430	12969	0	18166

Sl. No	State	Number of Villages in LR, but not in Census	Number of Villages in Census, but not in LR	Number of Villages matching in both LR and Census	Number of Villages shown separately in LR, but shown combined in Census	Sum Total number of Villages in LR and Census
26	***Andhra Pradesh***	2052	3057	23549	0	28658
27	***Himachal Pradesh***	6035	2318	15177	0	23530
28	***Rajasthan***	0	39753	0	0	39753
29	***Madhya Pradesh***	0	52117	0	0	52117
30	***Chattisgarh***	0	19744	0	0	19744
31	***Uttarakhand***	0	15968	0	0	15968
32	***Orissa***	0	47529	0	0	47529
33	***Karnataka***	0	27481	0	0	27481
34	***Gujarat***	0	2920	15146	0	18066
35	***Maharashtra***	0	41095	0	0	41095
	Total	30008	403647	190178	6	623839

CHAPTER 6

Comments/Suggestions/Feedback received from the NIC-CLR teams of States on the draft of National level Master Codes for Land Records

Sl No	States	Comments/Suggestions/Feedback	LRISD, NIC(Hqrs)
1	Andhra Pradesh	• English names for all crops, pulses, etc	Included
2	Arunachal Pradesh	• Draft is ok.	
3	Chattisgarh	• Inclusion of entries for mutation transaction types in table 8.1 • Inclusion of two equations for conversion from Acre to hectares in table 5.2	Included
4	Madhya Pradesh	• Inclusion of cereals under crops, non-agricultural types in land use, trees • For no proper English name for local crops, Romal English names can be used • Uniform codes at the district level	• Included • Botanical names have been used for trees • English names used in addition to hindi names for crops, pulses, cereals as far as possible • Uniform coding is to be completed for the entire state
5	Maharashtra	• Draft is quite exhaustive to cover the identified parameters • Uniform coding completed in two districts in the state and is in progress in 2 more districts	• Uniform coding is to be completed for all the districts and at the state level
6	Manipur	• Codes for crop, season, soil type, caste and gender are not recorded in the state	• The national codes can be used in the state

Sl No	States	Comments/Suggestions/Feedback	LRISD, NIC(Hqrs)
7	Himachal Pradesh	• Registration and Land Records are looked after by the same authority from same place(Tehsildar) • Tehsildar works in the capacity of SRO • An attempt has been made to use the same land codes in HimRis as are available in HimBhoomi • Layer of codification suggested at tehsil, district, state and national level • Uniform codes at the State level	• National codes can be used in the state for the parameters which are not codified at present in the state
8	Haryana	• Draft is ok • Uniform codes at the district level	• Uniform coding is to be completed for the entire state
9	Kerala	• Inclusion of equations for conversion factors in table 5.2 • Inclusion of Kerala Sarkar inn Ownership type in table 6 • Tree codes • Court codes	• Included • Court codes have been taken care of as judicial institutions category at the national level
10	Bihar	• Codes for crops, season and irrigation, ownership types, size of holding are not been used at present • Land Records data is being stored in Unicode format in Bhuabhilekh ver 2.0 • Included the codes in land use, area units, mutation types, tenancy and encroacher types	• Included the codes for mutation, tenancy and encroacher types

Sl No	States	Comments/Suggestions/Feedback	LRISD, NIC(Hqrs)
11	Karnataka	• Local names should be stored along with every entry. Mapping of the local names to the standard names should be done at the State level • Synonyms must be grouped together • Many state specific crops need to be added and not categorized as other crops • Number of seasons can be reduced by clubbing similar seasons together. Practical to have 3 seasons. Some taluks in the state are having 5 seasons, people are thinking of reducing it to 3 throughout the state • Land use should not contain crop or tree details. Separate tree master may be used • Adopting metric units may be ideal. However local acceptance needs to be considered • In respect of Irrigation types(table 3.4), consider storing only the source as pond instead of pond(govt) and pond(pvt) and storing the ownership type in a separate field, since a master for ownership type is also envisaged • Size of holding cannot be derived for land records in the state as base document is RTC which is survey number wise. Khatha numbers are not written correctly	• At the national level, English equivalent to the common names are included in the draft • Accepted • Crops codification for land records at the national level is according to Agricultural census 2001 which has 19 major categories for all the crops • Seasons have to be made 3 in the state • Land use is codified at the national level following the nine fold classification • Metric units have already been adopted at the national level which is hectares. However the state may provide the conversion factors for the local units of area used such as cents, guntas to metric units. • Source of irrigation types is codified based on the major/minor irrigation census • Total size of holding can be generated from the land records data. • Each land holder can be given a khatha number or owner account number like bank account number. • We can then generate the total land holdings and the total area for each land holder. • Unicode has been suggested at the national level. Land Records data in Karnataka is in ISFOC and needs to be converted to Unicode. Problems can be addressed during implementation • Court codes have been taken care of as judicial institutions category at the national level for types of mutation

		and khatha register is not primary document. It is a derived document. • For adopting Unicode, conversion of existing data is the biggest challenge as accuracy is very important. Having some problems in conversion • Court order type of mutation also requires that the type of court be specified such as tahsildar, AC, DC, High court and Supreme court	• Master codes need to be made uniform throughout the state

Sl No	States	Comments/Suggestions/Feedback	LRISD, NIC(Hqrs)
12	Puducherry	• Draft is ok. • Directorate of Survey and Land Records, UT of Puducherry have found the uniform code scheme for CLR furnished by NIC,Hqrs contains all the particulars relevant to UT of Puducherry	
13	Delhi	• Draft is ok.	
14	Assam	• Codes are available for crops, season, irrigation source, land use type, area units, ownership type codes, mutation types, encroachers types, allottees types, encroached land use type except able for size of holding • Considerable efforts are required to convert the existing data to uniform codes for all the 24 districts in Assam	• Seven digit code used in source of irrigation types comprises of 3 digits for minor irrigation + 2 digits for ownership type of irrigation devices + 2 digits for type of lifting devices.(000+00+00) • Master codes of Dharitree need to be made uniform across the state • When the data is being sent to the national level, the codes of dharitree can be dovetailed with the national codes by means of a look up table so that the existing database structure in Dharitree need not be changed

Sl No	States	Comments/Suggestions/Feedback	LRISD, NIC(Hqrs)
15	Rajasthan	• Mapping of census code of the village to the revenue villages is in progress. Census code has been attached to the villages of 26 districts • Crop code suggested in the draft is acceptable • Given list of season codes in the draft is sufficient and will cater the need of forthcoming computerisation of Khasra Girdawari • Inclusion of owned by trust in table 3.2 for source of irrigation • Land use are of 2 types Agricultural and Non-Agricultural • Agricultural land in table 4.1 under classification “Net Area sown” should be agricultural land. • Non-Agricultural land is around 900 types in the state. • Standardization of non agricultural land is in progress and the recommendation have been made to government to reduce it to around 60 types • Area units are Bigha/Biswa/Biswansi and Hectare/Are. Before computerisation, various types of area units were used, but have been standardized to the above two units through circulars. There is difference	• Included • Master codes needs to be made uniform across the state

		in area of bigha units as it depends on the length of Jarib used in particular district/tehsil. • Five major categories of ownership is mentioned in Rajasthan Land Revenue Act 1956 which are Government Land(Siwayachak), Khatedar, Gair Khatedar, Charagah and Government institutional. Private land is not applicable as all land in Rajasthan is owned by the Government • Inclusion of Custodian Govt Land in ownership type and Gram Sabha Board for some villages which come under it called Gram Dani Villages as these are likely to be taken in LRC project • Codes given in table 7.0 for type of holding is applicable in the state as it follows the BPL census 2002 survey being used by the state for various RD Schemes. BPL census list caters to the actual need of government at various level of administration • 17 types of mutation are in practice in the state • No permanent or temporary tenancy types in table 9.0. It is only Khatedar and Ghair Khatedar. Inclusion of rented tenant • Encroachment type is defined based on type of land	

		• Caste is mentioned in the Jamabandi, but no separate attribute for caste category, written along with owner detail in regular text • No separate field where gender is mentioned, however there are special benefits which are granted to women • At present, data is stored in 8 bit ISCII. Unicode standard is a must	

Sl No	States	Comments/Suggestions/Feedback	LRISD, NIC(Hqrs)
16	Tamil Nadu	• List of mutation transactions to be included in the draft	• Included • Source of irrigation is codified villagewise and needs to be made uniform
17	West Bengal	• Draft is ok	• Master codes needs to be made uniform across the state
18	Orissa	• Followed intelligent coding, whereas the trend is towards non intelligent and permanent codes • Ensuring mutual exclusivity between the various codes pertaining to a category has to be carefully maintained, otherwise difficulty in accepting data with the right code and inaccuracy during data analysis • In table 6, 2 digits kept for detailed private ownership is not adequate as observed in the state. It must be atleast 3 digits • In table 7, classification as large, small farmer etc is based on 5 hects, 3 hects, etc is subjective and all the states may not accept it • Tenancy types are not maintained in Orissa, thus you might have to include a code for not available with a value of 99 • Caste code are not proper. Ex servicemen, physically challenged are not caste and in Orissa, caste are like Brahmin, kayastha, khandayata, dhoba, etc	• Have attempted to dovetail the master codes of land records with the standard codes of nodal agencies. • 3 digits for detailed private ownership included in table 6 for ownership type so as to accommodate 999 types of sub-categories of ownership types. • Codes given in table 7 for type of holding follows the BPL census 2002 survey being used for various RD Schemes both at the state and national level. BPL census list caters to the actual need of government at various level of administration • Included ‘not available’ in tenancy type with a value of 99 • For caste codes, the classification adopted at the national level are only the major categories from the land records database. The detailed list of castes/tribes are maintained by the respective social welfare departments of the states and the centre. Land is distributed by the Government to Ex-Servicemen, Physically Challenged, Labourers for which the land records database is being used.

Sl No	States	Comments/Suggestions/Feedback	LRISD, NIC(Hqrs)
19	Jharkhand	• Master codes used in Jharkhand to be included in the draft	• Included
20	Uttar Pradesh	• Crop statement is not so far computerised in the state • Will follow the crop codes in the new development • Mutation codes are standard and as per the needs	
21	Gujarat	• Include ayurvedic crops • Include trees • Include Farm Pond, Check dams in irrigation sources • Pumps may be transferred to lifting devices category • Include sq cms in area units • Definition of farmer can be included in table VII • Include 42 types of mutations in practice in Gujarat • Include types of other rights on land like trespassing, water taking right, as in the state there is a separate column for ROR in which other rights and liabilities details are to be written	• Included • Botanical names have been used for trees with common names in miscellaneous tree crops in land use • Seven digit code used in source of irrigation types comprises of 3 digits for major/minor irrigation + 2 digits for ownership type of irrigation devices + 2 digits for type of lifting devices.(000+00+00)

Sl No	States	Comments/Suggestions/Feedback	LRISD, NIC(Hqrs)
22	Sikkim	• Draft is ok • Include Government to Government in mutation type • Caste Classification in Land Records at present is having only 2 digits and people have included their sub-caste in the caste code.	• Included • Provision is made for sub-castes of 2 digits under main caste-category, thus having a total of 4 digits
23	Goa	• Suggestions to take care of Synonyms	• Accepted
24	Tripura	• Draft is ok • Some codes of West Bengal are common to Tripura too	

Annexure-1

Location Codification Directory

List of State Codes and Names as per Census 2001

State Code	State Name
01	Jammu and Kashmir
02	Himachal Pradesh
03	Punjab
04	Chandigarh
05	Uttaranchal
06	Haryana
07	Delhi
08	Rajasthan
09	Uttar Pradesh
10	Bihar
11	Sikkim
12	Arunachal Pradesh
13	Nagaland
14	Manipur
15	Mizoram
16	Tripura
17	Meghalaya
18	Assam
19	West Bengal
20	Jharkhand
21	Orissa
22	Chhattisgarh

23 Madhya Pradesh
24 Gujarat
25 Daman and Diu
26 Dadra and Nagar Haveli
27 Maharashtra
28 Andhra Pradesh
29 Karnataka
30 Goa
31 Lakshadweep
32 Kerala
33 Tamil Nadu
34 Pondicherry
35 Andaman and Nicobar Islands

The revenue village directory with location codes is available on the website http://www.dolr.nic.in/freport.htm

Annexure-2

Benchmark (Soil) Series codes used by National Natural Resource Management System(NNRMS), ISRO,Department of Space, Bangalore

BENCHMARK (SOIL) SERIES CODES TO BE USED IN SOIL.LUT

(-) Sign : has been embedded in soil-code for readability this should not be entered into database

BENCHMARK (SOIL) SERIES CODES TO BE USED IN SOIL.LUT			
SOIL-CODE	**SERIES**	**FAMILY**	**REMARK**
01-01-10-05-12-07-05-01	Majiara	Fine, Mixed, Hyperthermic, Aeric Endoaqualfs	West Bengal
01-01-10-08-12-07-05-01	Kanksa	Fine, Mixed, Hyperthermic, Typic Endoaqualfs	West Bengal
01-01-10-08-12-07-05-02	Kuldiha	Fine, Mixed, Hyperthermic, Typic Endoaqualfs	West Bengal
01-01-10-08-12-07-05-03	Madhpur	Fine, Mixed, Hyperthermic, Typic Endoaqualfs	West Bengal
01-01-10-08-12-07-05-04	Tanadighi	Fine, Mixed, Hyperthermic, Typic Endoaqualfs	West Bengal
01-01-10-08-12-07-05-05	Anantpur	Fine, Mixed, Hyperthermic, Typic Endoaqualfs	West Bengal
01-01-10-08-12-07-05-06	Jagadishpur	Fine, Mixed, Hyperthermic, Typic Endoaqualfs	West Bengal
01-03-02-01-03-07-05-01	Sankarpur	Loamy Skeletal, Mixed, Hyperthermic, Typic Plinthustalfs	West Bengal
01-03-02-01-03-07-05-02	Taldangra	Loamy Skeletal, Mixed, Hyperthermic, Typic Plinthustalfs	West Bengal
01-03-02-01-06-07-05-01	Laxmiprasad	Loamy, Mixed, Hyperthermic, Typic Plinthustalfs	Orissa
01-03-02-01-08-07-09-01	Chaugel	Fine Loamy, Mixed, ISO Hyperthermic, Typic Plinthustalfs	M. P.
01-03-03-04-08-07-05-01	Ghabdan	Fine Loamy, Mixed, Hyperthermic, Aquic Natrustalfs	Punjab
01-03-03-04-08-07-05-02	Kaheru	Fine Loamy, Mixed, Hyperthermic, Aquic Natrustalfs	Punjab
01-03-03-09-10-07-05-01	Zarifa Viran	Fine Silty, Mixed, Hyperthermic, Typic Natrustalfs	Haryana
01-03-04-10-12-05-09-01	Vijaypura	Fine, Kaolinitic, ISO Hyperthermic, Typic Kandiustalfs	Karnataka
01-03-06-16-04-07-09-01	Channasandra	Clayey Skeletal, Mixed, ISO Hyperthermic, Kandic Paleustalfs	Karnataka
01-03-06-16-12-07-09-01	Tyamagondalu	Fine, Mixed, ISO Hyperthermic, Kandic Paleustalfs	Karnataka
01-03-06-17-04-07-09-01	Rayalpadu	Clayey Skeletal, Mixed, ISO Hyperthermic, Rhodic Paleustalfs	Karnataka
01-03-06-18-04-07-05-01	Bistupur	Clayey Skeletal, Mixed,	West Bengal

BENCHMARK (SOIL) SERIES CODES TO BE USED IN SOIL.LUT			
SOIL-CODE	**SERIES**	**FAMILY**	**REMARK**
01-03-07-03-08-07-05-01	Bararakham	Fine Loamy, Mixed, Hyperthermic, Udic Rhodustalfs	Orissa
01-03-08-08-12-07-05-01	Parichhal	Fine, Mixed, Hyperthermic, Aquic Haplustalfs	Orissa
01-03-08-16-08-07-05-01	Kusumi	Fine Loamy, Mixed, Hyperthermic, Udic Haplustalfs	Orissa
01-03-08-16-08-07-09-01	Durgkondal	Fine Loamy, Mixed, ISO Hyperthermic, Udic Haplustalfs	M. P.
01-03-08-17-08-07-05-01	Bhulanpur	Fine Loamy, Mixed, Hyperthermic, Typic Haplustalfs	West Bengal
01-03-08-17-08-07-05-02	Chanda	Fine Loamy, Mixed, Hyperthermic, Typic Haplustalfs	West Bengal
01-03-08-17-08-07-09-01	Palathurai	Fine Loamy, Mixed, ISO Hyperthermic, Typic Haplustalfs	Tamil Nadu
01-03-08-17-10-07-03-01	Gogji Pather	Fine Silty, Mixed, Mesic, Typic Haplustalfs	J & K.
01-03-08-17-12-07-05-01	Chalbalpur	Fine, Mixed, Hyperthermic, Typic Haplustalfs	West Bengal
01-03-08-17-12-07-05-02	Phulkusma	Fine, Mixed, Hyperthermic, Typic Haplustalfs	West Bengal
01-05-09-17-10-07-04-01	Rajpura	Fine Silty, Mixed, Thermic, Typic Paleudalfs	Himachal Pradesh
03-02-02-05-07-07-05-01	Fatehgarh	Coarse Loamy, Mixed, Hyperthermic, Typic Haplosalids	Gujarat
03-05-02-12-08-07-05-01	Jangi	Fine Loamy, Mixed, Hyperthermic, Haplic Natrargidss	Gujarat
03-05-02-18-12-07-05-01	Motichirai	Fine, Mixed, Hyperthermic, Typic Natrargids	Gujarat
03-05-02-18-12-07-05-02	Lakhpat	Fine, Mixed, Hyperthermic, Typic Natrargids	Gujarat
03-05-03-12-04-07-05-01	Desalpar	Clayey Skeletal, Mixed, Hyperthermic, Typic Paleargids	Gujarat
03-05-03-12-12-07-05-01	Adesar	Fine, Mixed, Hyperthermic, Typic Paleargids	Gujarat
03-05-06-06-12-07-05-01	Jogarimata	Fine, Mixed, Hyperthermic, Ustertic Haplargids	Gujarat
03-05-06-06-12-07-05-02	Vejapur	Fine, Mixed, Hyperthermic, Ustertic Haplargids	Gujarat
03-06-02-17-07-07-05-01	Kidana	Coarse Loamy, Mixed, Hyperthermic, Ustic Haplocalcids	Gujarat
03-06-02-18-03-07-05-01	Kavani	Loamy Skeletal, Mixed, Hyperthermic, Typic Haplocalcids	Rajasthan
03-06-02-18-07-07-05-01	Padana	Coarse Loamy, Mixed, Hyperthermic, Typic Haplocalcids	Gujarat
03-06-02-18-07-07-05-02	Panchroli	Coarse Loamy, Mixed, Hyperthermic, Typic Haplocalcids	Rajasthan
03-06-02-18-07-07-05-03	Pipar	Coarse Loamy, Mixed, Hyperthermic, Typic Haplocalcids	Rajasthan

BENCHMARK (SOIL) SERIES CODES TO BE USED IN SOIL.LUT			
SOIL-CODE	SERIES	FAMILY	REMARK
03-06-02-18-08-07-05-01	Luni	Fine Loamy, Mixed, Hyperthermic, Typic Haplocalcids	Gujarat
03-07-04-03-06-07-05-01	Pali	Loamy, Mixed, Hyperthermic, Lithic Haplocambids	Rajasthan
03-07-04-05-12-01-05-01	Bhimdevka	Fine, Montmorillonitic, Hyperthermic, Ustertic Haplocambids	Gujarat
03-07-04-17-08-07-05-01	Amliara	Fine Loamy, Mixed, Hyperthermic, Fluventic Haplocambids	Gujarat
03-07-04-17-08-07-05-02	Bhadreswar	Fine Loamy, Mixed, Hyperthermic, Fluventic Haplocambids	Gujarat
03-07-04-19-08-07-05-01	Jarpara	Fine Loamy, Mixed, Hyperthermic, Ustic Haplocambids	Gujarat
03-07-04-20-07-07-05-01	Chirai	Coarse Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
03-07-04-20-07-07-05-02	Jaitaran	Coarse Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
03-07-04-20-07-07-05-03	Kolu	Coarse Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
03-07-04-20-07-07-05-04	Pal	Coarse Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
03-07-04-20-07-07-05-05	Parbatsar	Coarse Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
03-07-04-20-07-07-05-06	Sobhasar	Coarse Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
03-07-04-20-08-07-05-01	Chandawal	Fine Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
03-07-04-20-08-07-05-02	Dhaber	Fine Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
03-07-04-20-08-07-05-03	Gajsinghpura	Fine Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
03-07-04-20-08-07-05-04	Jadan	Fine Loamy, Mixed, Hyperthermic, Typic Haplocambids	Rajasthan
04-01-04-02-12-07-05-01	Nabagram	Fine, Mixed, Hyperthermic, Vertic Fluvaquents	West Bengal
04-01-04-11-08-07-05-01	Konarpara	Fine Loamy, Mixed, Hyperthermic, Typic Fluvaquents	West Bengal
04-03-02-07-00-07-05-01	Balasar	Mixed, Hyperthermic, Typic Torripsamments	Gujarat
04-03-02-07-00-07-05-02	Shakhi	Mixed, Hyperthermic, Typic Torripsamments	Rajasthan
04-03-02-07-00-07-05-03	Dune	Mixed, Hyperthermic, Typic Torripsamments	Rajasthan
04-03-02-07-00-07-05-04	Khiran	Mixed, Hyperthermic, Typic Torripsamments	Rajasthan
04-03-02-07-00-07-05-05	Molasar	Mixed, Hyperthermic, Typic Torripsamments	Rajasthan
04-03-02-07-00-07-05-06	Kharirdhar	Mixed, Hyperthermic, Typic Torripsamments	Gujarat

BENCHMARK (SOIL) SERIES CODES TO BE USED IN SOIL.LUT			
SOIL-CODE	**SERIES**	**FAMILY**	**REMARK**
04-03-02-07-00-07-05-07	Thar	Mixed, Hyperthermic, Typic Torripsamments	Rajasthan
04-03-05-06-00-07-05-01	Palank	Mixed, Hyperthermic, Typic Ustipsamments	Orissa
04-03-05-06-00-07-05-02	Bhanra	Mixed, Hyperthermic, Typic Ustipsamments	Punjab
04-03-05-06-00-07-05-03	Chomu	Mixed, Hyperthermic, Typic Ustipsamments	Rajasthan
04-03-05-06-00-07-05-04	Deuli	Mixed, Hyperthermic, Typic Ustipsamments	West Bengal
04-03-05-06-00-07-05-05	Khoh	Mixed, Hyperthermic, Typic Ustipsamments	Haryana
04-04-03-03-07-07-05-01	Sidhamula	Coarse Loamy, Mixed, Hyperthermic, Aquic Ustifluvents	Orissa
04-04-03-03-08-07-05-01	Sardanga	Fine Loamy, Mixed, Hyperthermic, Aquic Ustifluvents	West Bengal
04-04-03-08-07-09-05-01	Ghoshat	Coarse Loamy, Micaceous, Hyperthermic, Typic Ustifluvents	West Bengal
04-04-03-08-08-07-05-01	Sasanga	Fine Loamy, Mixed, Hyperthermic, Typic Ustifluvents	West Bengal
04-04-04-11-07-07-05-01	Masitawali	Coarse Loamy, Mixed, Hyperthermic, Typic Torrifluvents	Rajasthan
04-05-05-01-03-07-05-01	Bamori	Loamy Skeletal, Mixed, Hyperthermic, Lithic Ustorthents	M. P.
04-05-05-01-03-07-09-01	Paragon	Loamy Skeletal, Mixed, ISO Hyperthermic, Lithic Ustorthents	Maharashtra
04-05-05-01-03-07-09-02	Sibnery	Loamy Skeletal, Mixed, ISO Hyperthermic, Lithic Ustorthents	Maharashtra
04-05-05-01-03-07-09-03	Sindudi	Loamy Skeletal, Mixed, ISO Hyperthermic, Lithic Ustorthents	Maharashtra
04-05-05-01-04-07-09-01	Torkewadi	Clayey Skeletal, Mixed, ISO Hyperthermic, Lithic Ustorthents	Maharashtra
04-05-05-01-06-07-05-01	Bishramganj	Loamy, Mixed, Hyperthermic, Lithic Ustorthents	M. P.
04-05-05-01-06-07-05-02	Lachhora	Loamy, Mixed, Hyperthermic, Lithic Ustorthents	M. P.
04-05-05-01-11-01-05-01	Gondal	Clayey, Montmorillonitic, Hyperthermic, Lithic Ustorthents	Gujarat
04-05-05-01-11-01-05-02	Bartuma	Clayey, Montmorillonitic, Hyperthermic, Lithic Ustorthents	M. P.
04-05-05-10-03-07-09-01	Khanapur	Loamy Skeletal, Mixed, ISO Hyperthermic, Typic Ustorthents	Maharashtra
04-05-05-10-08-07-05-01	Lohra	Fine Loamy, Mixed, Hyperthermic, Typic Ustorthents	M. P.
06-01-03-03-12-07-05-01	Jatwan	Fine, Mixed, Hyperthermic, Aeric Halaquepts	Punjab
06-01-03-04-12-07-05-01	Suniarheri	Fine, Mixed, Hyperthermic, Typic Halaquepts	Punjab

BENCHMARK (SOIL) SERIES CODES TO BE USED IN SOIL.LUT			
SOIL-CODE	**SERIES**	**FAMILY**	**REMARK**
06-01-03-05-08-07-05-01	Langrian	Fine Loamy, Mixed, Hyperthermic, Typic Halaquepts	Punjab
06-01-10-03-12-07-05-01	Hanrgram	Fine, Mixed, Hyperthermic, Vertic Endoaquepts	West Bengal
06-01-10-08-08-07-05-01	Balidanga	Fine Loamy, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-01-10-08-08-07-05-02	Banpara	Fine Loamy, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-01-10-08-08-07-05-03	Jayarambati	Fine Loamy, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-01-10-08-08-07-05-04	Totpara	Fine Loamy, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-01-10-08-12-07-05-01	Kantaban	Fine, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-01-10-08-12-07-05-02	Ramsagar	Fine, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-01-10-08-12-07-05-03	Srirampur	Fine, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-01-10-08-12-07-05-05	Rabindranagar	Fine, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-01-10-08-12-07-05-05	Rabindranagar	Fine, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-01-10-08-13-07-05-01	Multi	Very Fine, Mixed, Hyperthermic, Typic Endoaquepts	West Bengal
06-03-03-02-08-01-09-01	Dholwad	Fine Loamy, Montmorillonitic, ISO Hyperthermic, Vertic Ustropepts	Maharashtra
06-03-03-02-11-01-09-01	Wadgaon	Clayey, Montmorillonitic, ISO Hyperthermic, Vertic Ustropepts	Maharashtra
06-03-03-02-12-01-09-01	Coimbatore	Fine, Montmorillonitic, ISO Hyperthermic, Vertic Ustropepts	Tamil Nadu
06-03-03-06-08-01-09-01	Annapur	Fine Loamy, Montmorillonitic, ISO Hyperthermic, Fluventic Ustropepts	M. P.
06-03-03-07-03-07-09-01	Guttapalli	Loamy Skeletal, Mixed, ISO Hyperthermic, Typic Utropepts	Karnataka
06-03-05-09-04-05-09-01	Trivandrum	Clayey Skeletal, Kaolinitic, ISO Hyperthermic, Ustoxic Dystropepts	Kerala
06-04-05-01-03-07-05-01	Kalyaneshwar	Loamy Skeletal, Mixed, Hyperthermic, Lithic Ustochrepts	West Bengal
06-04-05-01-03-07-05-02	Ranga	Loamy Skeletal, Mixed, Hyperthermic, Lithic Ustochrepts	West Bengal
06-04-05-01-11-01-05-01	Virpur	Clayey, Montmorillonitic, Hyperthermic, Lithic Ustochrepts	Gujarat
06-04-05-04-11-01-05-01	Kamliakheri	Clayey, Montmorillonitic, Hyperthermic, Vertic Ustochrepts	M. P.
06-04-05-04-12-01-05-01	Bhola	Fine, Montmorillonitic, Hyperthermic, Vertic Ustochrepts	Gujarat
06-04-05-04-12-01-05-02	Sisodra	Fine, Montmorillonitic, Hyperthermic, Vertic Ustochrepts	Gujarat

BENCHMARK (SOIL) SERIES CODES TO BE USED IN SOIL.LUT			
SOIL-CODE	**SERIES**	**FAMILY**	**REMARK**
06-04-05-04-12-01-05-03	Bajatta	Fine, Montmorillonitic, Hyperthermic, Vertic Ustochrepts	M. P.
06-04-05-04-12-01-05-04	Bhagwan	Fine, Montmorillonitic, Hyperthermic, Vertic Ustochrepts	M. P.
06-04-05-04-12-07-05-01	Haripur	Fine, Mixed, Hyperthermic, Vertic Ustochrepts	Uttar Pradesh
06-04-05-04-13-07-05-01	Sadhu	Very Fine, Mixed, Hyperthermic, Vertic Ustochrepts	Punjab
06-04-05-05-07-07-05-01	Laungowal	Coarse Loamy, Mixed, Hyperthermic, Andic Ustochrepts	Punjab
06-04-05-07-08-07-05-02	Holambi	Fine Loamy, Mixed, Hyperthermic, Udic Ustochrepts	Delhi (U. P.)
06-04-05-08-12-07-05-01	Solari	Fine, Mixed, Hyperthermic, Aquic Ustochrepts	Orissa
06-04-05-08-12-07-05-02	Sunugarh	Fine, Mixed, Hyperthermic, Aquic Ustochrepts	Orissa
06-04-05-08-12-07-05-03	Dhoda	Fine, Mixed, Hyperthermic, Aquic Ustochrepts	Punjab
06-04-05-11-08-07-05-01	Ankhi	Fine Loamy, Mixed, Hyperthermic, Fluventic Ustochrepts	Gujarat
06-04-05-11-08-07-05-02	Krishnadevpur	Fine Loamy, Mixed, Hyperthermic, Fluventic Ustochrepts	West Bengal
06-04-05-11-12-07-05-01	Patiala	Fine, Mixed, Hyperthermic, Fluventic Ustochrepts	Punjab
06-04-05-14-07-07-05-01	Isri	Coarse Loamy, Mixed, Hyperthermic, Natric Ustochrepts	Punjab
06-04-05-17-07-07-05-01	Kakra	Coarse Loamy, Mixed, Hyperthermic, Udic Ustochrepts	Delhi (U. P.)
06-04-05-17-08-07-05-01	Berpura	Fine Loamy, Mixed, Hyperthermic, Udic Ustochrepts	Haryana
06-04-05-17-08-07-05-03	Shahazadpur	Fine Silty, Mixed, Hyperthermic, Typic Ustochrepts	Haryana
06-04-05-17-10-07-05-01	Basiram	Fine Silty, Mixed, Hyperthermic, Udic Ustochrepts	Uttar Pradesh
06-04-05-18-07-07-05-01	Lukhi	Coarse Loamy, Mixed, Hyperthermic, Typic Ustochrepts	Haryana
06-04-05-18-07-07-05-02	Fatehpur	Coarse Loamy, Mixed, Hyperthermic, Typic Ustochrepts	Punjab
06-04-05-18-08-07-05-02	Hisar	Fine Loamy, Mixed, Hyperthermic, Typic Ustochrepts	Haryana
06-04-05-18-08-07-05-03	Sukali	Fine Loamy, Mixed, Hyperthermic, Typic Ustochrepts	Maharashtra
06-04-05-18-08-07-05-04	Silampur	Fine Loamy, Mixed, Hyperthermic, Typic Ustochrepts	West Bengal
06-04-05-18-08-07-05-05	Jagjitpur	Fine Loamy, Mixed, Hyperthermic, Typic Ustochrepts	Punjab
06-04-05-18-08-07-05-06	Phaguwala	Fine Loamy, Mixed, Hyperthermic, Typic Ustochrepts	Punjab

BENCHMARK (SOIL) SERIES CODES TO BE USED IN SOIL.LUT			
SOIL-CODE	SERIES	FAMILY	REMARK
06-04-05-18-08-07-05-07	Tulewal	Fine Loamy, Mixed, Hyperthermic, Typic Ustochrepts	Punjab
06-04-05-18-08-07-05-08	Balewal	Fine Loamy, Mixed, Hyperthermic, Typic Ustochrepts	Punjab
06-04-05-18-09-07-05-01	Khiranwali	Coarse Silty, Mixed, Hyperthermic, Typic Ustochrepts	Punjab
06-04-05-18-10-07-05-01	Daryapur	Fine loamy, Mixed, Hyperthermic, Udic Ustochrepts	Delhi. (U. P.)
06-04-05-18-10-07-05-02	Nabha	Fine Silty, Mixed, Hyperthermic, Typic Ustochrepts	Punjab
06-04-05-18-10-07-05-03	Amarpur	Fine Silty, Mixed, Hyperthermic, Typic Ustochrepts	West Bengal
06-04-05-18-11-01-05-01	Kagwad	Clayey, Montmorillonitic, Hyperthermic, Typic Ustochrepts	Gujarat
06-04-05-18-12-08-05-01	Kabilpur	Fine loamy, Mixed, Hyperthermic, Typic Ustochrepts	Gujarat
06-04-05-18-12-11-01-01	Meghpur	Clayey, Montmorillonitic, Hyperthermic, Typic Ustochrepts	Gujarat
06-04-07-13-08-07-04-01	Mataur	Fine Loamy, Mixed, Thermic, Dystric Eutrochrepts	Himachal Pradesh.
07-06-12-15-07-07-05-01	Haldi	Coarse Loamy, Mixed, Hyperthermic, Typic Hapludolls	Uttar Pradesh
11-05-04-10-12-01-09-01	Sawargaon	Fine, Montmorillonitic, ISO Hyperthermic, Typic Calciusterts	Maharashtra
11-05-05-03-12-01-09-01	Kashireddipalli	Fine, Montmorillonitic, ISO Hyperthermic, Sodic Haplusterts	A. P.
11-05-05-03-12-01-09-02	Kalathur	Fine, Montmorillonitic, ISO Hyperthermic, Sodic Haplusterts	Tamil Nadu
11-05-05-03-13-01-09-01	Achmatti	Very Fine, Montmorillonitic, ISO Hyperthermic, Sodic Haplusterts	Karnataka
11-05-05-03-13-01-09-01	Hungund	Very Fine, Montmorillonitic, ISO Hyperthermic, Sodic Haplusterts	Karnataka
11-05-05-09-12-01-09-01	Umbraj	Fine, Montmorillonitic, ISO Hyperthermic, Udic Haplusterts	Maharashtra
11-05-05-09-1201-05-01	Linga	Fine, Montmorillonitic, Hyperthermic, Udic Haplusterts	Maharashtra
11-05-05-09-13-01-05-01	Semla	Very Fine, Montmorillonitic, Hyperthermic, Udic Haplusterts	Gujarat
11-05-05-12-12-01-05-01	Haldar	Fine, Montmorillonitic, Hyperthermic, Chromic Haplusterts	Gujarat
11-05-05-12-12-01-05-02	Jamra	Fine, Montmorillonitic, Hyperthermic, Chromic Haplusterts	M. P.
11-05-05-12-12-01-05-03	Marha	Fine, Montmorillonitic, Hyperthermic, Chromic Haplusterts	M. P.
11-05-05-12-12-01-05-04	Chambal	Fine, Montmorillonitic, Hyperthermic, Chromic Haplusterts	Rajasthan
11-05-05-12-12-01-05-05	Otur	Fine, Montmorillonitic, Hyperthermic, Chromic Haplusterts	Maharashtra

BENCHMARK (SOIL) SERIES CODES TO BE USED IN SOIL.LUT			
SOIL-CODE	**SERIES**	**FAMILY**	**REMARK**
11-05-05-12-13-01-05-06	Sundra	Fine, Montmorillonitic, Hyperthermic, Chromic Haplusterts	M. P.
11-05-05-13-12-01-05-01	Arsia	Fine, Montmorillonitic, Hyperthermic, Typic Haplusterts	M. P.
11-05-05-13-12-01-05-02	Sarol	Fine, Montmorillonitic, Hyperthermic, Typic Haplusterts	M. P.
11-05-05-13-12-01-09-01	Hugaluru	Fine, Montmorillonitic, ISO Hyperthermic, Typic Haplusterts	Karnataka
11-05-05-13-12-01-09-02	Telegi	Fine, Montmorillonitic, ISO Hyperthermic, Typic Haplusterts	Karnataka
11-05-05-13-12-01-09-03	Nimone	Fine, Montmorillonitic, ISO Hyperthermic, Typic Haplusterts	Maharashtra
11-05-05-13-12-01-09-04	Sirasgaon	Fine, Montmorillonitic, ISO Hyperthermic, Typic Haplusterts	Maharashtra
11-05-05-13-12-01-09-05	Telegaon	Fine, Montmorillonitic, ISO Hyperthermic, Typic Haplusterts	Maharashtra
11-05-05-13-13-01-05-01	Saunther	Very Fine, Montmorillonitic, Hyperthermic, Typic Haplusterts	M. P.
11-05-05-13-13-01-05-02	Jambha	Very Fine, Montmorillonitic, Hyperthermic, Typic Haplusterts	Maharashtra
11-05-05-13-13-01-05-03	Raichur	Very Fine, Montmorillonitic, Hyperthermic, Typic Haplusterts	Karnataka
11-05-05-13-13-01-05-04	Kheri	Very Fine, Montmorillonitic, Hyperthermic, Typic Haplusterts	M. P.
11-05-05-13-13-01-05-05	Nunsar	Very Fine, Montmorillonitic, Hyperthermic, Typic Haplusterts	M. P.
11-05-05-13-13-01-05-06	Jalalpur	Very Fine, Montmorillonitic, Hyperthermic, Typic Haplusterts	Gujarat

Annexure-3

Procedure for creating the uniform code for Location

We have considered Census 2001 database as the Base. Various states have different hierarchy being followed. Some states have four levels like State, District, Taluk and Village. Some states are having six levels like State, District, Tehsil, RI Circle, Patwar Halka and Village. Some states are having five levels like State, District, Tehsil, Hobli and Village. At the national level, we have made four levels such as State, District, Sub-District and Village which were common in all the states. The Sub-District level is known as Tehsil, Taluk, Revenue Circle or Mandal depending on the State.

Hence, we have created four master tables such as mststatecensus, mstdistrictcensus, msttehsilcensus and mstvillagecensus from the Census 2001 database.

The Location master tables used in Land Records were collected from all the states. Some states had different tables for storing location code of district, sub-district, village, while some states stored them in a single master table. The data collected from the states were mostly in database format (SQL Server) in English since the storage of LR data in the operational database is in 7/8 bit ISCII/ISFOC with local language interface to input the data in local language. Some states gave the input to us in pdf, excel, doc. All of them were ported to SQL Server 2000 database. The database created for this purpose was called lrclocationcodes. This was the destination database. This also had tables such as mststatecensus, mstdistrictcensus, msttehsilcensus and mstvillagecensus. Each state had three tables for district, tehsil and village in this destination database. The state names were prefixed to each of them creating unique names for the three tables. These tables were the look up tables which were created for each state. More detailed description is given in Chapter 2 of this document.

The location master tables received from the states was treated as the source databases. The name of the database was state_location. For Example, West Bengal location master database had the name as westbengal_location, Karnataka had the name karnataka_location and so on..

Stored Procedures were written for all the three levels of district, sub-district and village. The stored procedure would compare both the databases and generate scripts. Manual intervention was necessary for comparing the district or sub-district or village names of both the source and destination databases. The total number of sub-districts are around 6000 in number and number of revenue villages were around 6.40 lakhs in the entire country when the land records databases were studied. The total number of villages according to census 2001 database was around 5.9 lakhs. The total number of revenue villages was more than the census 2001 villages. Also, since new districts were being added in the states and also some tehsils were upgraded to districts, hence their number used to be more than census 2001 data. The stored procedures had to be executed for each state at three levels which amounted to 108 times (35 states x 3 levels=108). Thus the steps being followed were of semi-automatic in nature.

Annexure 4

Description of the Stored Procedure used

An example of how the lookup table was created for the location code based on Census 2001 is described below by taking an example of a state, say **West Bengal.**

Land Records(LR) Database(source)----- westbengal_location database which has three tables named dcode, bcode, moucode

Platform:

Windows 2003 Server with Service Pack 2
SQL Server 2000 with Service Pack 4

For district level

We are using two databases namely lrclocationcodes(destination) and westbengal_location(source). The lrclocationcodes are having three tables for West Bengal such as westbengaldistrictcensus, westbengaltehsilcensus and westbengalvillagecensus in addition to the mstdistrictcensus, msttehsilcensus and mstvillagecensus.

Following five stored procedures were used for district level

1 sp_helptext updtTmpDistrictMatch1_2_08
2 sp_helptext updtSpDistrictTmpNew
3 sp_helptext updtLrDistrictSpCheck
4 sp_helptext insertSpDistrictTmpNew
5 sp_helptext updtDistrictspCheck

The execution of each of the above mentioned stored procedure and the outputs are explained in detail below:

sp_helptext updtTmpDistrictMatch1_2_08

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

create procedure updtTmpDistrictMatch1_2_08
@tmpTblName varchar(30),
@localTblName varchar(30),
@stCd varchar(10) ,
@updtColName varchar(50),

```
@valColName varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@sql nvarchar(1000),
@col1 varchar(50),
@col2 varchar(50),
@number numeric,
@distCd varchar(50),
@distName varchar(50)
 Set @str='if exists(SELECT name FROM sysobjects WHERE name ='''' +
 @tmpTblName + ''' AND type =''U'') drop table ' + @tmpTblName
  print(@str)
  exec (@str)
  set @str='Select * into ' +  @tmpTblName + ' from ' + @localTblName + ' where
stCsCode=''' + @stCd+''''
 print(@str)
  exec (@str)
set @str='alter table '+@tmpTblName+ ' add remark varchar(50)'
exec(@str)
set @str='update '+@tmpTblName +' set '+@updtColName + ' = (select '
+@srcDBName+'..'+@srcTbl+'.'+@valColName+
 ' from ' + @srcDBName+'..'+@srcTbl + ' where replace(ltrim(rtrim('
+@srcDBName+'..'+@srcTbl+'.'+@lrNameCol+')),''
'','''')=replace(ltrim(rtrim('+@csNameCol+
 ')),'' '','')) where replace(ltrim(rtrim('+@tmpTblName+'.'+@csNameCol+')),'' '','')  in
(select replace(ltrim(rtrim('+@lrNameCol+')),'' '','') from
'+@srcDBName+'..'+@srcTbl+')'
print @str
exec (@str)
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtTmpDistrictMatch1_2_08
'westbengalTmp','mstDistrictCensus','19','distCodeLocal','dcode','westbengal_location','dcode','eng_dname','distNameEng'

This will compare both the source and destination databases and match the district level records. This will also create the lookup table for the state (here for example, West

Bengal) with the district level records. The name of the lookup table is **westbengaltmp.(**District level).The lookup table will have the names and codes of districts for a particular state.(here for example, West Bengal).

sp_helptext updtSpDistrictTmpNew

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE  procedure updtSpDistrictTmpNew
 @tmpTbl  varchar(50),
 @updtCol  varchar(50),
--@distTmpTbl varchar(50),
--@tehsilTmpTbl varchar(50),
 @srcDBName  varchar(50),
 @srcTbl  varchar(50),
--@lrDCdCol varchar(50),
--@lrTCdCol varchar(50),
 @lrNameCol  varchar(50),
 @csNameCol  varchar(50)
as
begin
 declare @str varchar(1000),
 --@str1 varchar(1000),
 --@dCode varchar(50),
 @dName varchar(50)
 --set @str='declare lr_cursor CURSOR FOR select distinct tehsilcode from
'+@tmpTbl+ ' order by tehsilcode'
 --print @str
 --exec (@str)
 --OPEN lr_cursor
 --FETCH NEXT FROM lr_cursor into @dCode
 --WHILE @@FETCH_STATUS = 0
 --BEGIN
 --print @dCode
 set @str='declare nmatchDistrict_cursor CURSOR FOR  select
ltrim(rtrim(distNameEng)) from ' +@tmpTbl+ ' where
 replace(ltrim(rtrim(' +@csNameCol+ ')),'' '','''')  not in (select replace(ltrim(rtrim('
+@lrNameCol+ ')),'' '','''')
 from '+@srcDBName+'..'+@srcTbl+')'
 print @str
 exec (@str)
 OPEN nmatchDistrict_cursor
 FETCH NEXT FROM nmatchDistrict_cursor into @dName
 WHILE @@FETCH_STATUS = 0
```

```
 BEGIN
  --print @dName
  /*set @str='update ' +@tmpTbl+ ' set ' +@updtCol+ '=NULL where
tehsilcode='+@dCode+' and
  replace(ltrim(rtrim(' +@csNameCol+ ')),'' '','''')   IN (select villagename from '
+@tmpTbl+ '
  where tehsilcode=''' +@dCode+ ''' and  replace(ltrim(rtrim(' +@csNameCol+ ')),''
'','''')
  not in (select replace(ltrim(rtrim(' +@lrNameCol+ ')),'' '','''') from
'+@srcDBName+'..'+@srcTbl+'
  where ' +@lrDCdCol+ ' = (select distCodeLocal from ' +@distTmpTbl+ ' where
distcode=substring(''' +@dCode+ ''',1,4))
  and ' +@lrTCdCol+ '=(select tehsilCodeLocal from ' +@tehsilTmpTbl+  ' where
tehsilcode=''' +@dCode+ '''))*/
  set @str='update ' +@tmpTbl+ ' set ' +@updtCol+ ' = ''1'' where distNameEng='''
+@dName+ ''''
  print @str
  FETCH NEXT FROM nmatchDistrict_cursor into @dName
 end
 CLOSE nmatchDistrict_cursor
 DEALLOCATE nmatchDistrict_cursor
 --exec (@str)
 --FETCH NEXT FROM lr_cursor into @dCode
 --end
 --CLOSE lr_cursor
 --DEALLOCATE lr_cursor
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtSpDistrictTmpNew
westbengalTmp','distCodeLocal','westbengal_location','dcode','eng_dname','distNameEng'

After execution, this will display the output(result) which generates the update statement script. Here we have to replace the distcodelocal with the local district code used in a particular state. Here, manual intervention is required.

```
update westbengalTmp set distCodeLocal = '15' where distNameEng='24 PARAGANAS
NORTH'
update westbengalTmp set distCodeLocal = '16' where distNameEng='24 PARAGANAS
SOUTH'
update westbengalTmp set distCodeLocal = '02' where distNameEng='BARDHAMAN'
update westbengalTmp set distCodeLocal = '08' where distNameEng='COOCHBEHAR'
```

update westbengalTmp set distCodeLocal = '17' where distNameEng='DINAJPUR DAKSHIN'
update westbengalTmp set distCodeLocal = '18' where distNameEng='DINAJPUR UTTAR

sp_helptext updtLrDistrictSpCheck

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE procedure updtLrDistrictSpCheck
@tmpTblName varchar(30),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000)
set @str='select * from ' +@srcDBName+'..'+@srcTbl+ ' where replace(ltrim(rtrim(' +@lrNameCol+ ')),'' '','''')
not in(select replace(ltrim(rtrim(distNameEng)),'' '','''') from ' +@tmpTblName+ ')
order by replace(ltrim(rtrim(' +@lrNameCol+ ')),'' '','''')'
print @str
exec (@str)
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtLrDistrictSpCheck
'westbengalTmp','westbengal_location','dcode','eng_dname','distNameEng'

After execution, this will display the output(result) which will display the records of a particular state's land records database, here for example West Bengal with the spelling check. Thus by the above two stored procedures 2 and 3, we match the records in our created **lookuptable(westbengaltmp)**. For those records, which are found in census, but not in lr, we flag the remark column of the lookuptable as 'CS'.

sp_helptext insertSpDistrictTmpNew

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
create procedure insertSpDistrictTmpNew
@tmpTbl varchar(50),
@stCsCode varchar(50),
@updtCol varchar(50),
@valCol varchar(50),
--@distTmpTbl varchar(50),
--@tehsilTmpTbl varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
--@lrDCdCol varchar(50),
--@lrTCdCol varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
--@str1 varchar(1000),
@sql nvarchar(1000),
--@tCode varchar(50),
@dCode varchar(50),
@dName varchar(50),
@distCsCd varchar(50),
--@tLrCode varchar(50),
--@tCsCode varchar(50),
@tCombCode varchar(50),
@number numeric

--set @str='declare lr_cursor CURSOR FOR select distinct tehsilcode from '+@tmpTbl+
' order by tehsilcode'
--print @str
--exec (@str)
--OPEN lr_cursor
--FETCH NEXT FROM lr_cursor into @tCode
--WHILE @@FETCH_STATUS = 0
--BEGIN
--print @tCode
set @str='declare nmatchLrDistrict_cursor CURSOR FOR  select ' +@valCol+ ',
ltrim(rtrim(' +@lrNameCol+ ')) from ' +@srcDBName+ '..' +@srcTbl+ '
where replace(ltrim(rtrim(' +@lrNameCol+ ')),'' '','''') not in(select
replace(ltrim(rtrim(distNameEng)),'' '','''')
```

```
from ' +@tmpTbl+ ')'
print @str
exec (@str)
OPEN nmatchLrDistrict_cursor
FETCH NEXT FROM nmatchLrDistrict_cursor into @dCode,@dName
WHILE @@FETCH_STATUS = 0
BEGIN
--print @vCode
--print @vName

set @sql='select @distCsCd=max(distCsCode) from ' +@tmpTbl
EXEC SP_EXECUTESQL @sql,N'@distCsCd varchar(50) OUTPUT', @distCsCd
OUTPUT
set @number=cast(@distCsCd  as numeric)+100
set @distCsCd=cast(@number as varchar(50))
if len(@distCsCd)<>2
begin
set @number=(2 - len(@distCsCd))
while  @number >0
begin
set @distCsCd='0'+@distCsCd
set @number=@number-1
end
end
set @str='insert into ' +@tmpTbl+ ' values('''+@stCsCode+ ''',''' +@distCsCd+ ''','''
+@dName+ ''','''' +@dCode+ ''', ''' +@stCsCode+@distCsCd+ ''',''I'')'

print @str
FETCH NEXT FROM nmatchLrDistrict_cursor into @dCode,@dName
end
CLOSE nmatchLrDistrict_cursor
DEALLOCATE nmatchLrDistrict_cursor
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

insertSpDistrictTmpNew
'westbengalTmp','19','distCodeLocal','dcode','westbengal_location','dcode','eng_dname','distNameEng'

After execution, this will display the output(result) which will generate the script of **insert** statement of particular state's land records database records.

sp_helptext updtDistrictspCheck

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE procedure updtDistrictspCheck
@tmpTblName varchar(30),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000)
set @str='select *,distNameEng from ' +@tmpTblName+ ' where replace(ltrim(rtrim('
+@csNameCol+ ')),'' '','''')
 not in (select replace(ltrim(rtrim(' +@lrNameCol+ ')),'' '','''')
from '+@srcDBName+'..'+@srcTbl+') order by distNameEng'
print @str
exec (@str)
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtDistrictspCheck
'westbengalTmp','westbengal_location','dcode','eng_dname','distNameEng'

These are the records which need to be appended to the destination database table(**westbengaltmp**) with remark column as ‘I’. New code is also given to those records following the same logic used in Census database. These records are not found in the census database 2001, but found in particular state’s land records database as they may be new districts created after 2001 census. Thus our lookup table is completed for the district level. An example is given below for West Bengal.

```
insert into westbengaltmp values('19','119','DAKSHIN 24 PARGANAS','16', '19119','I')
insert into westbengaltmp values('19','119','DAKSHIN DINAJPUR','17', '19119','I')
insert into westbengaltmp values('19','119','UTTAR DINAJPUR','18', '19119','I')
```

For Sub-district level

Following five stored procedures were used for sub-district level

1 sp_helptext updtTmpTehsil14_1_08
2 sp_helptext updtSpTehsilTmpNew
3 sp_helptext updtLrTehsilSpCheck
4 sp_helptext insertSpTehsilTmpNew1
5 sp_helptext updtTehsilSpCheck

The execution of each of the above mentioned stored procedure and the outputs are explained in detail below:

sp_helptext updtTmpTehsil14_1_08

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE  procedure updtTmpTehsil14_1_08
 @tmpTblName  varchar(30),
 @localTblName  varchar(30),
 @distTmpTbl  varchar(30),
 @stCd   varchar(10) ,
 @updtColName  varchar(50),
 @valColName  varchar(50),
 @srcDBName  varchar(50),
 @srcTbl  varchar(50),
 @lrdCdCol  varchar(50),
 @lrNameCol  varchar(50),
 @csNameCol  varchar(50)
as
begin
 declare @str varchar(1000),
 @str1 varchar(1000),
 @dCode varchar(50)
 Set @str='if exists(SELECT name FROM sysobjects WHERE name ='" +@tmpTblName
+ '" AND type ="U") drop table ' + @tmpTblName
   print(@str)
   exec (@str)
   set @str='Select * into ' +  @tmpTblName + ' from ' + @localTblName + ' where
substring(distcode,1,2)='" + @stCd+""
  print(@str)
   exec (@str)
 set @str='alter table '+@tmpTblName+ ' add remark varchar(50)'
 exec(@str)
```

```
 --declaring the cursor to select distinct district code for looping through the district code
 set @str='declare lr_cursor CURSOR FOR select distinct distcode from
'+@tmpTblName
 print @str
 exec (@str)
 OPEN lr_cursor
 FETCH NEXT FROM lr_cursor into @dCode
 WHILE @@FETCH_STATUS = 0
 BEGIN
 print @dCode
 --Code to update the Temporary table where CsTehsilName = LrTehsilName
 set @str='update '+@tmpTblName +' set '+@updtColName + ' = (select '
+@srcDBName+'..'+@srcTbl+'.'+@valColName+
  ' from ' + @srcDBName+'..'+@srcTbl + ' where replace(ltrim(rtrim('
+@srcDBName+'..'+@srcTbl+'.'+@lrNameCol+')),''
'','')=replace(ltrim(rtrim('+@csNameCol+
  ')),'' '','') and ' +@lrdCdCol+ ' = (select distCodeLocal from ' +@distTmpTbl+ ' where
distcode=''' +@dCode+ ''')) where
replace(ltrim(rtrim('+@tmpTblName+'.'+@csNameCol+')),'' '','')  in (select
replace(ltrim(rtrim('+@lrNameCol+')),'' '','') from
 '+@srcDBName+'..'+@srcTbl+')
 and distcode='''+@dCode+''''
 print @str
 exec (@str)
 FETCH NEXT FROM lr_cursor into @dCode
 end
 CLOSE lr_cursor
 DEALLOCATE lr_cursor
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtTmpTehsil14_1_08
'westbengalTehsilTmp','mstTehsilCensus','westbengalTmp','19','tehsilcodelocal','bcode','westbengal_location','bcode','dcode','eng_bname','tehsilname'

This will compare both the source and destination databases and match the sub-district level records. This will also create the lookup table for the state (here for example, West Bengal) with the sub-district level records. The name of the lookup table is **westbengaltehsiltmp.(**Sub-District level).The lookup table will have the names and codes of sub-districts for a particular state.(here for example, West Bengal).

sp_helptext updtSpTehsilTmpNew

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE  procedure updtSpTehsilTmpNew
@tmpTbl varchar(50),
@updtCol varchar(50),
@distTmpTbl varchar(50),
--@tehsilTmpTbl varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrDCdCol varchar(50),
--@lrTCdCol varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@dCode varchar(50),
@tName varchar(50)
set @str='declare lr_cursor CURSOR FOR select distinct distcode from '+@tmpTbl+ '
order by distcode'
--print @str
exec (@str)
OPEN lr_cursor
FETCH NEXT FROM lr_cursor into @dCode
WHILE @@FETCH_STATUS = 0
BEGIN
print @dCode
/*set @str1='declare nmatchTehsil_cursor CURSOR FOR  select tehsilname from '
+@tmpTbl+
' where distcode=''' +@dCode+ ''' and  replace(ltrim(rtrim(' +@csNameCol+ ')),'' '','''')
not in (select replace(ltrim(rtrim(' +@lrNameCol+ ')),'' '','''')
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode=''' +@dCode+ ''')' */
set @str1='declare nmatchTehsil_cursor CURSOR FOR  select tehsilname from '
+@tmpTbl+
' where distcode=''' +@dCode+ ''' and  tehsilCodeLocal is NULL'
--print @str1
exec (@str1)
OPEN nmatchTehsil_cursor
FETCH NEXT FROM nmatchTehsil_cursor into @tName
```

```
WHILE @@FETCH_STATUS = 0
BEGIN
--print @vName
/*set @str='update ' +@tmpTbl+ ' set ' +@updtCol+ '=NULL where
tehsilcode='+@dCode+' and
replace(ltrim(rtrim(' +@csNameCol+ ')),'' '','''')   IN (select villagename from '
+@tmpTbl+ '
where tehsilcode=''' +@dCode+ ''' and  replace(ltrim(rtrim(' +@csNameCol+ ')),'' '','''')
not in (select replace(ltrim(rtrim(' +@lrNameCol+ ')),'' '','''') from
'+@srcDBName+'..'+@srcTbl+'
where ' +@lrDCdCol+ ' = (select distCodeLocal from ' +@distTmpTbl+ ' where
distcode=substring(''' +@dCode+ ''',1,4))
and ' +@lrTCdCol+ '=(select tehsilCodeLocal from ' +@tehsilTmpTbl+  ' where
tehsilcode=''' +@dCode+ '''))))*/
set @str='update ' +@tmpTbl+ ' set ' +@updtCol+ ' = ''1'' where
distcode='''+@dCode+''' and
tehsilname=''' +@tName+ ''''
print @str
FETCH NEXT FROM nmatchTehsil_cursor into @tName
end
CLOSE nmatchTehsil_cursor
DEALLOCATE nmatchTehsil_cursor
--exec (@str)
FETCH NEXT FROM lr_cursor into @dCode
end
CLOSE lr_cursor
DEALLOCATE lr_cursor
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtSpTehsilTmpNew
'westbengalTehsilTmp','tehsilCodeLocal','westbengalTmp','westbengal_location','bcode','dcode','eng_bname','tehsilname'

After execution, this will display the output(result) which generates the ***update*** statement script. Here we have to replace the tehsilcodelocal with the local sub-district code used in a particular state. Here, manual intervention is required.

sp_helptext updtLrTehsilSpCheck

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE procedure updtLrTehsilSpCheck
@tmpTblName varchar(30),
--@localTblName varchar(30),
@distTmpTbl varchar(30),
--@tehsilTmpTbl varchar(30),
--@stCd varchar(10) ,
--@updtColName varchar(50),
--@valColName varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrDCdCol varchar(50),
--@lrTCdCol varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@sql nvarchar(1000),
@strTot varchar(1500),
@dCode varchar(50),
@col1 varchar(50),
@col2 varchar(50),
@col3 varchar(50),
@col4 varchar(50)
--set @str='declare lr_cursor CURSOR FOR select distinct '+@lrTCdCol+ ' from '
+@srcDBName+ '..' +@srcTbl+
--' where  ' +@lrTCdCol+ ' in (select distinct tehsilcode from '+@tmpTblName+ ' order
by tehsilcode)'
set @str='declare lr_cursor CURSOR FOR select distinct distcode from
'+@tmpTblName+ ' order by distcode'
--print @str
exec (@str)
OPEN lr_cursor
FETCH NEXT FROM lr_cursor into @dCode
WHILE @@FETCH_STATUS = 0
BEGIN
print @dCode
--set @str1='select tehsilCodeLocal from ' +@tehsilTmpTbl+ ' where tehsilcode='
+@dCode
--select @sql='select @col1=tehsilCodeLocal,@col2=tehsilName from
'+quotename(@tehsilTmpTbl) + ' where tehsilcode='' +@dCode+ ''
--EXEC SP_EXECUTESQL @sql,N'@COL1 VARCHAR(50) OUTPUT, @COL2
VARCHAR(50) OUTPUT', @COL1 OUTPUT,@COL2 OUTPUT
--print @sql
```

```
--print @col1
--print @col2
/*select @sql='select @col3=distCodeLocal, @col4=distNameEng from
'+quotename(@distTmpTbl) +
'where distcode=''' +@dCode+ ''''
EXEC SP_EXECUTESQL @sql,N'@COL3 VARCHAR(50) OUTPUT, @COL4
VARCHAR(50) OUTPUT', @COL3 OUTPUT,@COL4 OUTPUT*/
--print @sql
--print @col3
--print @col4
 /*set @strTot='select * from ' +@srcDBName+'..'+@srcTbl+
'minus
select * from ' +@srcDBName+'..'+@srcTbl+ ' where replace(ltrim(rtrim('
+@lrNameCol+ ')),'' '','''')
not in(select replace(ltrim(rtrim(villagename)),'' '','''') from ' +@tmpTblName+ '
where tehsilcode=''' +@dCode+ ''') and ' +@lrDCdCol+ '=''' +@col3+ ''' and '
+@lrTCdCol+ '=''' +@col1+ ''''*/
set @str='select * from ' +@srcDBName+'..'+@srcTbl+ ' where replace(ltrim(rtrim('
+@lrNameCol+ ')),'' '','''')
not in(select replace(ltrim(rtrim(tehsilname)),'' '','''') from ' +@tmpTblName+ '
where distcode=''' +@dCode+ ''') and ' +@lrDCdCol+ '=(select distCodeLocal from '
+@distTmpTbl+
' where distcode='''+@dCode+ ''')  order by replace(ltrim(rtrim(' +@lrNameCol+ ')),''
'','''')'
--print @str
exec (@str)
FETCH NEXT FROM lr_cursor into @dCode
end
CLOSE lr_cursor
DEALLOCATE lr_cursor
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtLrTehsilSpCheck
'westbengalTehsilTmp','westbengalTmp','westbengal_location','bcode','dcode','eng_bname','tehsilname'

After execution, this will display the output(result) which will display the records of a particular state's land records database, here for example West Bengal with the spelling check. Thus by the above two stored procedures 2 and 3, we match the records in our created **lookuptable(westbengaltehsiltmp)**. For those records, which are found in census, but not in lr, we flag the remark column of the lookuptable as 'CS'.

sp_helptext insertSpTehsilTmpNew1

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE procedure insertSpTehsilTmpNew1
@tmpTbl varchar(50),
@updtCol varchar(50),
@valCol varchar(50),
@distTmpTbl varchar(50),
--@tehsilTmpTbl varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrDCdCol varchar(50),
--@lrTCdCol varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@sql nvarchar(1000),
@dCode varchar(50),
@tCode varchar(50),
@tName varchar(50),
@tehsilCsCd varchar(50),
@dLrCode varchar(50),
@dCsCode varchar(50),
@dCombCode varchar(50),
--@tLrCode varchar(50),
--@tCsCode varchar(50),
--@tCombCode varchar(50),
@number numeric
set @str='declare lr_cursor CURSOR FOR select distinct distcode from '+@tmpTbl+ '
order by distcode'
--print @str
exec (@str)
OPEN lr_cursor
FETCH NEXT FROM lr_cursor into @dCode
WHILE @@FETCH_STATUS = 0
BEGIN
print @dCode
set @str1='declare nmatchLrTehsil_cursor CURSOR FOR  select ' +@valCol+ ',
ltrim(rtrim(' +@lrNameCol+ ')) from ' +@srcDBName+ '..' +@srcTbl+ '
where replace(ltrim(rtrim(' +@lrNameCol+ ')),'' '','''') not in(select
replace(ltrim(rtrim(tehsilname)),'' '','''')
```

```
from ' +@tmpTbl+ ' where distcode='" +@dCode+ "') and ' +@lrDCdCol+ '= (select
distCodeLocal from ' +@distTmpTbl+ '
where distcode='" +@dCode+ "')'
--print @str1
exec (@str1)
OPEN nmatchLrTehsil_cursor
FETCH NEXT FROM nmatchLrTehsil_cursor into @tCode,@tName
WHILE @@FETCH_STATUS = 0
BEGIN
--print @vCode
--print @vName
set @sql='select @tehsilCsCd=max(tehsilCsCode) from ' +@tmpTbl+ ' where
distcode='" +@dCode+ ""
EXEC SP_EXECUTESQL @sql,N'@tehsilCsCd varchar(50) OUTPUT', @tehsilCsCd
OUTPUT
set @number=cast(@tehsilCsCd  as numeric)+100
set @tehsilCsCd=cast(@number as varchar(50))
if len(@tehsilCsCd)<>4
begin
set @number=(4 - len(@tehsilCsCd))
while  @number >0
begin
set @tehsilCsCd='0'+@tehsilCsCd
set @number=@number-1
end
end
if @tehsilCsCd is null
begin
 set @tehsilCsCd=0
end

set @str='insert into ' +@tmpTbl+ ' values('"+@dCode+ '","'
+@dCode+@tehsilCsCd+ '","' +@tName+ '",' +@tehsilCsCd+ ',"'
 +@tCode+ '","I")'
print @str
FETCH NEXT FROM nmatchLrTehsil_cursor into @tCode,@tName
end
CLOSE nmatchLrTehsil_cursor
DEALLOCATE nmatchLrTehsil_cursor
--exec (@str)
FETCH NEXT FROM lr_cursor into @dCode
end
CLOSE lr_cursor
DEALLOCATE lr_cursor
```

```
/*set @str='declare lrOnlyDistrict_cursor CURSOR FOR select distinct
distCodeLocal,distCsCode,distcode from '+@distTmpTbl+ ' where remark="I" order by
distcode'
exec(@str)
OPEN lrOnlyDistrict_cursor
FETCH NEXT FROM lrOnlyDistrict_cursor into @dLrCode,@dCsCode,@dCombCode
WHILE @@FETCH_STATUS = 0
BEGIN
--print 'hello'
--print @tLrCode
--print @tCsCode
set @str1='declare lronlyTehsil_cursor CURSOR FOR select ' +@valCol+ ',
ltrim(rtrim(' +@lrNameCol+ '))
 from ' +@srcDBName+ '..' +@srcTbl+ 'where ' +@lrDCdCol+ '=' +@dLrCode+ ')'
exec (@str1)
OPEN lronlyTehsil_cursor
FETCH NEXT FROM lronlyTehsil_cursor into @tCode,@tName
WHILE @@FETCH_STATUS = 0
BEGIN
set @sql='select @tehsilCsCd=max(tehsilCsCode) from ' +@tmpTbl+ ' where
distcode=' +@dCombCode
EXEC SP_EXECUTESQL @sql,N'@tehsilCsCd varchar(50) OUTPUT', @tehsilCsCd
OUTPUT
if @tehsilCsCd=''
begin
set @tehsilCsCd='0'
end
set @number=cast(@tehsilCsCd  as numeric)+1
set @tehsilCsCd=cast(@number as varchar(50))
if len(@tehsilCsCd)<>4
begin
set @number=(4 - len(@tehsilCsCd))
while  @number >0
begin
set @tehsilCsCd='0'+@tehsilCsCd
set @number=@number-1
end
end
--set @str='insert into ' +@tmpTbl+ ' values("'+@tCsCode+ '","'
+@tCsCode+@villCsCd+ '","' +@vName+ '",substring("' +@tCode+@villCsCd+
'",9,8),"'
-- +@vCode+ '","I")'
set @str='insert into ' +@tmpTbl+ ' values("'+@dCombCode+ '","'
+@dCombCode+@tehsilCsCd+ '","' +@tName+ '","' +@tehsilCsCd+ '","'
 +@tCode+ '","I")'
print @str
```

FETCH NEXT FROM lronlyTehsil_cursor into @tCode,@tName
end
CLOSE lronlyTehsil_cursor
DEALLOCATE lronlyTehsil_cursor
FETCH NEXT FROM lrOnlyDistrict_cursor into @dLrCode,@dCsCode,@dCombCode
end
CLOSE lrOnlyDistrict_cursor
DEALLOCATE lrOnlyDistrict_cursor/*
END

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

insertSpTehsilTmpNew1 'westbengalTehsilTmp','tehsilcodelocal','bcode','westbengaltmp','westbengal_location','bcode','dcode','eng_bname','tehsilname'

After execution, this will display the output(result) which will generate the script of **insert** statement of particular state's land records database records.

sp_helptext updtTehsilSpCheck

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

CREATE procedure updtTehsilspCheck
@tmpTblName varchar(30),
--@localTblName varchar(30),
@distTmpTbl varchar(30),
--@tehsilTmpTbl varchar(30),
--@stCd varchar(10) ,
--@updtColName varchar(50),
--@valColName varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrDCdCol varchar(50),
--@lrTCdCol varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@dCode varchar(50)
*/*Set @str='if exists(SELECT name FROM sysobjects WHERE name ='' +*

```
 @tmpTblName + ''' AND type =''U'') drop table ' + @tmpTblName
  print(@str)
  exec (@str)
  set @str='Select * into ' +  @tmpTblName + ' from ' + @localTblName + ' where
substring(tehsilcode,1,2)=''' + @stCd+''''
 print(@str)
  exec (@str) */
--set @str='alter table '+@tmpTblName+ ' add remark varchar(50)'
--exec(@str)
--declaring the cursor to select distinct district code for looping through the district code
set @str1='0'
set @str='declare lr_cursor CURSOR FOR select distinct distcode from
'+@tmpTblName+ ' order by distcode'
print @str
exec (@str)
OPEN lr_cursor
FETCH NEXT FROM lr_cursor into @dCode
WHILE @@FETCH_STATUS = 0
BEGIN
--print @dCode
--Code to update the Temporary table where CsTehsilName = LrTehsilName
--set @str=select distCodeLocal from ' +@distTmpTbl+ ' where distcode=''substring('
+@dCode+ ')'')
/*set @str='update '+@tmpTblName +' set '+@updtColName + ' = (select '
+@srcDBName+'..'+@srcTbl+'.'+@valColName+
 ' from ' + @srcDBName+'..'+@srcTbl +
' where replace(ltrim(rtrim(' +@srcDBName+'..'+@srcTbl+'.'+@lrNameCol+')),''
'','''')=replace(ltrim(rtrim('+@csNameCol+
 ')),'' '','''') and ' +@lrDCdCol+ ' = (select distCodeLocal from ' +@distTmpTbl+
' where distcode = substring(''' +@dCode+ ''',1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode=''' +@dCode+ ''')) where tehsilcode=''' +@dCode+ ''' and
replace(ltrim(rtrim(' +@csNameCol+ ')),'' '','''')  in (select replace(ltrim(rtrim('
+@lrNameCol+ ')),'' '','''')
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode=substring(''' +@dCode+ ''',1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode=''' +@dCode+ ''')' */
--print @str1
--if @str1='0'
--begin
set @str1='select * from ' +@tmpTblName+ ' where distcode=''' +@dCode+ ''' and
replace(ltrim(rtrim(' +@csNameCol+ ')),'' '','''')  not in (select replace(ltrim(rtrim('
+@lrNameCol+ ')),'' '','''')
```

```
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode='" +@dCode+ "' )) order by distcode,tehsilname'
--set @str1='select * from ' +@tmpTblName+ ' where distcode='" +@dCode+ "' order
by distcode,tehsilname'
print @str1
 exec (@str1)
/*end
else
begin
set @str1='union (select *,villagename from ' +@tmpTblName+ ' where tehsilcode='"
+@dCode+ "' and
replace(ltrim(rtrim(' +@csNameCol+ ')),'' ','')  not in (select replace(ltrim(rtrim('
+@lrNameCol+ ')),'' ','')
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode=substring('" +@dCode+ "',1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode='" +@dCode+ "'))'
print @str1
exec(@str1)
end
print (@str1)
exec (@str1)*/
--set @str='update '+@tmpTblName+ 'set ' +@updtColName+ '=
FETCH NEXT FROM lr_cursor into @dCode
end
CLOSE lr_cursor
DEALLOCATE lr_cursor
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtTehsilSpCheck
'westbengalTehsilTmp','westbengalTmp','westbengal_location','bcode','dcode','eng_bname','tehsilname'

These are the records which need to be appended to the destination database table(**westbengaltehsiltmp**) with remark column as ‘I’. New code is also given to those records following the same logic used in Census database. These records are not found in the census database 2001, but found in particular state’s land records database as they may be new sub-districts created after 2001 census. Thus our lookup table is completed for the sub-district level.

For Village level

Following five stored procedures were used for the village level:

1 sp_helptext updtTmpVillage18_1_08
2 sp_helptext updtSpVillageTmpnew
3 sp_helptext updtLrVillageSpcheck
4 sp_helptext insertSpVillageTmpNew
5 sp_helptext updtVillageSpCheck

The execution of each of the above mentioned stored procedure and the outputs are explained in detail below:

sp_helptext updtTmpVillage18_1_08

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE  procedure updtTmpVillage18_1_08
@tmpTblName varchar(30),
@localTblName varchar(30),
@distTmpTbl varchar(30),
@tehsilTmpTbl varchar(30),
@stCd varchar(10) ,
@updtColName varchar(50),
@valColName varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrDCdCol varchar(50),
@lrTCdCol varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@dCode varchar(50)
Set @str='if exists(SELECT name FROM sysobjects WHERE name ='" +
 @tmpTblName + "' AND type ="U") drop table ' + @tmpTblName
  print(@str)
  exec (@str)
  set @str='Select * into ' +  @tmpTblName + ' from ' + @localTblName + ' where
substring(tehsilcode,1,2)="' + @stCd+""
 print(@str)
  exec (@str)
--set @str='alter table '+@tmpTblName+ ' add remark varchar(50)'
```

```
--exec(@str)
--declaring the cursor to select distinct district code for looping through the district code
set @str='declare lr_cursor CURSOR FOR select distinct tehsilcode from
'+@tmpTblName+ ' order by tehsilcode'
print @str
exec (@str)
OPEN lr_cursor
FETCH NEXT FROM lr_cursor into @dCode
WHILE @@FETCH_STATUS = 0
BEGIN
print @dCode
--Code to update the Temporary table where CsTehsilName = LrTehsilName
--set @str=select distCodeLocal from ' +@distTmpTbl+ ' where distcode=''substring('
+@dCode+ ')'')
set @str='update '+@tmpTblName +' set '+@updtColName + ' = (select '
+@srcDBName+'..'+@srcTbl+'.'+@valColName+
 ' from ' + @srcDBName+'..'+@srcTbl +
' where replace(ltrim(rtrim(' +@srcDBName+'..'+@srcTbl+'.'+@lrNameCol+')),''
'','''')=replace(ltrim(rtrim(' +@tmpTblName + '.' +@csNameCol+
 ')),'' '','''') and ' +@lrDCdCol+ ' = (select distCodeLocal from ' +@distTmpTbl+
' where distcode = substring(''' +@dCode+ ''',1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode=''' +@dCode+ ''')) where tehsilcode=''' +@dCode+ ''' and
replace(ltrim(rtrim(' +@csNameCol+ ')),'' '','''')  = (select replace(ltrim(rtrim('
+@lrNameCol+ ')),'' '','''')
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode=substring(''' +@dCode+ ''',1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode=''' +@dCode+ ''') and replace(ltrim(rtrim(' +@lrNameCol+ ')),''
'','''')=replace(ltrim(rtrim(' +@tmpTblName +'.' +@csNameCol+ ')),'' '',''''))'
print @str
exec (@str)
/*set @str='select '+@csNameCol+ ' from '+@tmpTblName+ ' where '+@csNameCol+
' in
(select '+@lrNameCol+ ' from '+@srcDBName+ '..' +@srcTbl+ ') order by '
+@csNameCol + '
select '+@lrNameCol+ ' from ' +@srcDBName+ '..' +@srcTbl+ ' where
'+@lrNameCol+ ' in
(select '+@csNameCol+ ' from ' +@tmpTblName+ ') order by ' +@lrNameCol
print @str*/
--exec(@str)
/*set @str='select '+@lrNameCol+ ' from ' +@srcDBName+ '..' +@srcTbl+ ' where
'+@lrNameCol+ ' in
(select '+@csNameCol+ ' from ' +@tmpTblName+ ')'
print @str*/
```

FETCH NEXT FROM lr_cursor into @dCode
end
CLOSE lr_cursor
DEALLOCATE lr_cursor
end

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtTmpVillage18_1_08
'westbengalvillageTmp','mstVillageCensus','westbengalTmp','westbengalTehsilTmp','19','VillageCodeLocal','moucode','westbengal_location','moucode','dcode','bcode','eng_mouname','villageName'

This will compare both the source and destination databases and match the village level records. This will also create the lookup table for the state (here for example, West Bengal) with the village level records. The name of the lookup table is **westbengalvillagetmp.(**Village level).The lookup table will have the names and codes of villages for a particular state.(here for example, West Bengal).

sp_helptext updtSpVillageTmpnew

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

CREATE procedure updtTmpVillage18_1_08
@tmpTblName varchar(30),
@localTblName varchar(30),
@distTmpTbl varchar(30),
@tehsilTmpTbl varchar(30),
@stCd varchar(10) ,
@updtColName varchar(50),
@valColName varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrDCdCol varchar(50),
@lrTCdCol varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@dCode varchar(50)
Set @str='if exists(SELECT name FROM sysobjects WHERE name ='' +

```
 @tmpTblName + ''' AND type =''U'') drop table ' + @tmpTblName
  print(@str)
  exec (@str)
  set @str='Select * into ' +  @tmpTblName + ' from ' + @localTblName + ' where
substring(tehsilcode,1,2)=''' + @stCd+''''
 print(@str)
  exec (@str)
--set @str='alter table '+@tmpTblName+ ' add remark varchar(50)'
--exec(@str)
--declaring the cursor to select distinct district code for looping through the district code
set @str='declare lr_cursor CURSOR FOR select distinct tehsilcode from
'+@tmpTblName+ ' order by tehsilcode'
print @str
exec (@str)
OPEN lr_cursor
FETCH NEXT FROM lr_cursor into @dCode
WHILE @@FETCH_STATUS = 0
BEGIN
print @dCode
--Code to update the Temporary table where CsTehsilName = LrTehsilName
--set @str=select distCodeLocal from ' +@distTmpTbl+ ' where distcode=''substring('
+@dCode+ ')'')
set @str='update '+@tmpTblName +' set '+@updtColName + ' = (select '
+@srcDBName+'..'+@srcTbl+'.'+@valColName+
 ' from ' + @srcDBName+'..'+@srcTbl +
' where replace(ltrim(rtrim(' +@srcDBName+'..'+@srcTbl+'.'+@lrNameCol+')),''
'','''')=replace(ltrim(rtrim(' +@tmpTblName + '.' +@csNameCol+
 ')),'' '','''') and ' +@lrDCdCol+ ' = (select distCodeLocal from ' +@distTmpTbl+
' where distcode = substring(''' +@dCode+ ''',1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode=''' +@dCode+ ''')) where tehsilcode=''' +@dCode+ ''' and
replace(ltrim(rtrim(' +@csNameCol+ ')),'' '','''')  = (select replace(ltrim(rtrim('
+@lrNameCol+ ')),'' '','''')
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode=substring(''' +@dCode+ ''',1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode=''' +@dCode+ ''') and replace(ltrim(rtrim(' +@lrNameCol+ ')),''
'','''')=replace(ltrim(rtrim(' +@tmpTblName +'.' +@csNameCol+ ')),'' '',''''))'
print @str
exec (@str)
/*set @str='select '+@csNameCol+ ' from '+@tmpTblName+ ' where '+@csNameCol+
' in
(select '+@lrNameCol+ ' from '+@srcDBName+ '..' +@srcTbl+ ') order by '
+@csNameCol + '
```

```
select '+@lrNameCol+ ' from ' +@srcDBName+ '..' +@srcTbl+ ' where
'+@lrNameCol+ ' in
(select '+@csNameCol+ ' from ' +@tmpTblName+ ') order by ' +@lrNameCol
print @str*/
--exec(@str)
/*set @str='select '+@lrNameCol+ ' from ' +@srcDBName+ '..' +@srcTbl+ ' where
'+@lrNameCol+ ' in
(select '+@csNameCol+ ' from ' +@tmpTblName+ ')'
print @str*/
FETCH NEXT FROM lr_cursor into @dCode
end
CLOSE lr_cursor
DEALLOCATE lr_cursor
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtSpVillageTmpnew
'westbengalvillageTmp','VillageCodeLocal','westbengalTmp','westbengalTehsilTmp','westbengal_location','moucode','dcode','bcode','eng_mouname','villagename'

After execution, this will display the output(result) which generates the ***update*** statement script. Here we have to replace the villagecodelocal with the local village code used in a particular state. Here, manual intervention is required.

sp_helptext updtLrVillageSpcheck

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE  procedure updtTmpVillage18_1_08
@tmpTblName varchar(30),
@localTblName varchar(30),
@distTmpTbl varchar(30),
@tehsilTmpTbl varchar(30),
@stCd varchar(10) ,
@updtColName varchar(50),
@valColName varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrDCdCol varchar(50),
@lrTCdCol varchar(50),
@lrNameCol varchar(50),
```

```
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@dCode varchar(50)
Set @str='if exists(SELECT name FROM sysobjects WHERE name ='" +
 @tmpTblName + "' AND type ="U") drop table ' + @tmpTblName
  print(@str)
  exec (@str)
  set @str='Select * into ' +  @tmpTblName + ' from ' + @localTblName + ' where
substring(tehsilcode,1,2)='" + @stCd+""
 print(@str)
  exec (@str)
--set @str='alter table '+@tmpTblName+ ' add remark varchar(50)'
--exec(@str)
--declaring the cursor to select distinct district code for looping through the district code
set @str='declare lr_cursor CURSOR FOR select distinct tehsilcode from
'+@tmpTblName+ ' order by tehsilcode'
print @str
exec (@str)
OPEN lr_cursor
FETCH NEXT FROM lr_cursor into @dCode
WHILE @@FETCH_STATUS = 0
BEGIN
print @dCode
--Code to update the Temporary table where CsTehsilName = LrTehsilName
--set @str=select distCodeLocal from ' +@distTmpTbl+ ' where distcode="substring('
+@dCode+ ')")
set @str='update '+@tmpTblName +' set '+@updtColName + ' = (select '
+@srcDBName+'..'+@srcTbl+'.'+@valColName+
 ' from ' + @srcDBName+'..'+@srcTbl +
' where replace(ltrim(rtrim(' +@srcDBName+'..'+@srcTbl+'.'+@lrNameCol+')),"
","")=replace(ltrim(rtrim(' +@tmpTblName + '.' +@csNameCol+
 ')),"  ","") and ' +@lrDCdCol+ ' = (select distCodeLocal from ' +@distTmpTbl+
' where distcode = substring('" +@dCode+ "',1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode="' +@dCode+ '")) where tehsilcode="' +@dCode+ "' and
replace(ltrim(rtrim(' +@csNameCol+ ')),"  ","")  = (select replace(ltrim(rtrim('
+@lrNameCol+ ')),"  ","")
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode=substring('" +@dCode+ "',1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode="' +@dCode+ '") and replace(ltrim(rtrim(' +@lrNameCol+ ')),"
","")=replace(ltrim(rtrim(' +@tmpTblName +'.' +@csNameCol+ ')),"  ",""))'
```

```
print @str
exec (@str)
/*set @str='select '+@csNameCol+ ' from '+@tmpTblName+ ' where '+@csNameCol+
' in
(select '+@lrNameCol+ ' from '+@srcDBName+ '..' +@srcTbl+ ') order by '
+@csNameCol + '
select '+@lrNameCol+ ' from ' +@srcDBName+ '..' +@srcTbl+ ' where
'+@lrNameCol+ ' in
(select '+@csNameCol+ ' from ' +@tmpTblName+ ') order by ' +@lrNameCol
print @str*/
--exec(@str)
/*set @str='select '+@lrNameCol+ ' from ' +@srcDBName+ '..' +@srcTbl+ ' where
'+@lrNameCol+ ' in
(select '+@csNameCol+ ' from ' +@tmpTblName+ ')'
print @str*/
FETCH NEXT FROM lr_cursor into @dCode
end
CLOSE lr_cursor
DEALLOCATE lr_cursor
end
```

Next we have to pass the parameters to the stored procedure. For this, execute the following lines:

updtLrVillageSpcheck
'westbengalvillageTmp','westbengalTmp','westbengaltehsilTmp','westbengal_location','moucode','dcode','bcode','eng_mouname','villagename'

After execution, this will display the output(result) which will display the records of a particular state's land records database, here for example West Bengal with the spelling check. Thus by the above two stored procedures 2 and 3, we match the records in our created **lookuptable(westbengalvillagetmp)**. For those records, which are found in census, but not in lr, we flag the remark column of the lookuptable as 'CS'.

sp_helptext insertSpVillageTmpNew

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE procedure insertSpVillageTmpNew
@tmpTbl varchar(50),
@updtCol varchar(50),
@valCol varchar(50),
@distTmpTbl varchar(50),
```

```
@tehsilTmpTbl varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrDCdCol varchar(50),
@lrTCdCol varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@sql nvarchar(1000),
@tCode varchar(50),
@vCode varchar(50),
@vName varchar(50),
@villCsCd varchar(50),
@tLrCode varchar(50),
@tCsCode varchar(50),
@tCombCode varchar(50),
@number numeric

set @str='declare lr_cursor CURSOR FOR select distinct tehsilcode from '+@tmpTbl+ '
order by tehsilcode'
--print @str
exec (@str)
OPEN lr_cursor
FETCH NEXT FROM lr_cursor into @tCode
WHILE @@FETCH_STATUS = 0
BEGIN
print @tCode
set @str1='declare nmatchLrVillage_cursor CURSOR FOR  select ' +@valCol+ ',
ltrim(rtrim(' +@lrNameCol+ ')) from ' +@srcDBName+ '..' +@srcTbl+ '
where replace(ltrim(rtrim(' +@lrNameCol+ ')),'' '','''') not in(select
replace(ltrim(rtrim(villagename)),'' '','''')
from ' +@tmpTbl+ ' where tehsilcode=''' +@tCode+ ''') and ' +@lrDCdCol+ '= (select
distCodeLocal from ' +@distTmpTbl+ '
where distcode=substring(''' +@tCode+ ''',1,4)) and ' +@lrTCdCol+ ' = (select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode=''' +@tCode+ ''') order by ' +@lrNameCol
--print @str1
exec (@str1)
OPEN nmatchLrVillage_cursor
FETCH NEXT FROM nmatchLrVillage_cursor into @vCode,@vName
WHILE @@FETCH_STATUS = 0
BEGIN
--print @vCode
```

```
--print @vName
set @sql='select @villCsCd=max(villageCsCode) from ' +@tmpTbl+ ' where
tehsilcode=' +@tCode
EXEC SP_EXECUTESQL @sql,N'@villCsCd varchar(50) OUTPUT', @villCsCd
OUTPUT
set @number=cast(@villCsCd  as numeric)+100
set @villCsCd=cast(@number as varchar(50))
if len(@villCsCd)<>8
begin
set @number=(8 - len(@villCsCd))
while  @number >0
begin
set @villCsCd='0'+@villCsCd
set @number=@number-1
end
end
set @str='insert into ' +@tmpTbl+ ' values('''+@tCode+ ''',''' +@tCode+@villCsCd+
''',''' +@vName+ ''',substring(''' +@tCode+@villCsCd+ ''',9,8),'''
 +@vCode+ ''',''I'')'
print @str
FETCH NEXT FROM nmatchLrVillage_cursor into @vCode,@vName
end
CLOSE nmatchLrVillage_cursor
DEALLOCATE nmatchLrVillage_cursor
--exec (@str)
FETCH NEXT FROM lr_cursor into @tCode
end
CLOSE lr_cursor
DEALLOCATE lr_cursor
/*set @str='declare lrOnlyTehsil_cursor CURSOR FOR select distinct
tehsilCodeLocal,tehsilCsCode,tehsilcode from '+@tehsilTmpTbl+ ' where remark=''I''
order by tehsilcode'
exec(@str)
OPEN lrOnlyTehsil_cursor
FETCH NEXT FROM lrOnlyTehsil_cursor into @tLrCode,@tCsCode,@tCombCode
WHILE @@FETCH_STATUS = 0
BEGIN
--print 'hello'
--print @tLrCode
--print @tCsCode
set @str1='declare lronlyVillage_cursor CURSOR FOR select ' +@valCol+ ',
ltrim(rtrim(' +@lrNameCol+ '))
 from ' +@srcDBName+ '..' +@srcTbl+ 'where ' +@lrTCdCol+ '=' +@tLrCode+ ' and '
+@lrDCdCol+ '=
(select distCodeLocal from '+@distTmpTbl+ ' where distcode=substring('''
+@tCombCode+ ''',1,4) order by ' +@lrTCdCol+ ',ltrim(rtrim(' +@lrNameCol+ '))'
```

```
OPEN lronlyVillage_cursor
FETCH NEXT FROM lronlyVillage_cursor into @vCode,@vName
WHILE @@FETCH_STATUS = 0
BEGIN
set @sql='select @villCsCd=max(villageCsCode) from ' +@tmpTbl+ ' where
tehsilcode=' +@tCode
EXEC SP_EXECUTESQL @sql,N'@villCsCd varchar(50) OUTPUT', @villCsCd
OUTPUT
set @number=cast(@villCsCd  as numeric)+100
set @villCsCd=cast(@number as varchar(50))
if len(@villCsCd)<>8
begin
set @number=(8 - len(@villCsCd))
while  @number >0
begin
set @villCsCd='0'+@villCsCd
set @number=@number-1
end
end
--set @str='insert into ' +@tmpTbl+ ' values('''+@tCsCode+ ''','''
+@tCsCode+@villCsCd+ ''','' +@vName+ ''',substring('' +@tCode+@villCsCd+
'',9,8),'''
-- +@vCode+ ''',''I'')'
set @str='insert into ' +@tmpTbl+ ' values('''+@tCsCode+ ''','''
+@tCsCode+@villCsCd+ ''','' +@vName+ ''','' +@villCsCd+ ''','''
 +@vCode+ ''',''I'')'
print @str
FETCH NEXT FROM lronlyVillage_cursor into @vCode,@vName
end
CLOSE lronlyVillage_cursor
DEALLOCATE lronlyVillage_cursor
FETCH NEXT FROM lrOnlyTehsil_cursor into @tLrCode,@tCsCode,@tCombCode
end
CLOSE lrOnlyTehsil_cursor
DEALLOCATE lrOnlyTehsil_cursor */
end
```

After execution, this will display the output(result) which will generate the script of **insert** statement of particular state's land records database records.

sp_helptext updtVillageSpCheck

After executing the above stored procedure in SQL Query Analyser with lrclocationcodes as database(destination), it generates the following output:

```
CREATE procedure updtVillagespCheck
@tmpTblName varchar(30),
--@localTblName varchar(30),
@distTmpTbl varchar(30),
@tehsilTmpTbl varchar(30),
--@stCd varchar(10) ,
--@updtColName varchar(50),
--@valColName varchar(50),
@srcDBName varchar(50),
@srcTbl varchar(50),
@lrDCdCol varchar(50),
@lrTCdCol varchar(50),
@lrNameCol varchar(50),
@csNameCol varchar(50)
as
begin
declare @str varchar(1000),
@str1 varchar(1000),
@dCode varchar(50)
/*Set @str='if exists(SELECT name FROM sysobjects WHERE name ='" +
 @tmpTblName + "' AND type ="U") drop table ' + @tmpTblName
  print(@str)
  exec (@str)
  set @str='Select * into ' +  @tmpTblName + ' from ' + @localTblName + ' where
substring(tehsilcode,1,2)='" + @stCd+""
 print(@str)
  exec (@str) */
--set @str='alter table '+@tmpTblName+ ' add remark varchar(50)'
--exec(@str)
--declaring the cursor to select distinct district code for looping through the district code
set @str1='0'
set @str='declare lr_cursor CURSOR FOR select distinct tehsilcode from
'+@tmpTblName+ ' order by tehsilcode'
print @str
exec (@str)
OPEN lr_cursor
FETCH NEXT FROM lr_cursor into @dCode
WHILE @@FETCH_STATUS = 0
BEGIN
--print @dCode
--Code to update the Temporary table where CsTehsilName = LrTehsilName
```

```
--set @str=select distCodeLocal from ' +@distTmpTbl+ ' where distcode="substring('
+@dCode+ ')")
/*set @str='update '+@tmpTblName +' set '+@updtColName + ' = (select '
+@srcDBName+'..'+@srcTbl+'.'+@valColName+
 ' from ' + @srcDBName+'..'+@srcTbl +
' where replace(ltrim(rtrim(' +@srcDBName+'..'+@srcTbl+'.'+@lrNameCol+')),"
","")=replace(ltrim(rtrim('+@csNameCol+
 ')),"","") and ' +@lrDCdCol+ ' = (select distCodeLocal from ' +@distTmpTbl+
' where distcode = substring('" +@dCode+ '",1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode='" +@dCode+ '")) where tehsilcode='" +@dCode+ '" and
replace(ltrim(rtrim(' +@csNameCol+ ')),"","")  in (select replace(ltrim(rtrim('
+@lrNameCol+ ')),"","")
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode=substring('" +@dCode+ '",1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode='" +@dCode+ '"))' */
--print @str1
--if @str1='0'
--begin
set @str1='select *,villagename from ' +@tmpTblName+ ' where tehsilcode='"
+@dCode+ '" and
replace(ltrim(rtrim(' +@csNameCol+ ')),"","")  not in (select replace(ltrim(rtrim('
+@lrNameCol+ ')),"","")
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode=substring('" +@dCode+ '",1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode='" +@dCode+ '")) order by tehsilcode,villagename'
print @str1
exec (@str1)
/*end
else
begin
set @str1='union (select *,villagename from ' +@tmpTblName+ ' where tehsilcode='"
+@dCode+ '" and
replace(ltrim(rtrim(' +@csNameCol+ ')),"","")  not in (select replace(ltrim(rtrim('
+@lrNameCol+ ')),"","")
from '+@srcDBName+'..'+@srcTbl+'  where ' +@lrDCdCol+ ' = (select distCodeLocal
from ' +@distTmpTbl+
' where distcode=substring('" +@dCode+ '",1,4)) and ' +@lrTCdCol+ '=(select
tehsilCodeLocal from ' +@tehsilTmpTbl+
' where tehsilcode='" +@dCode+ '")))'
print @str1
exec(@str1)
```

```
end
print (@str1)
exec (@str1)*/
--set @str='update '+@tmpTblName+ 'set ' +@updtColName+ '=
FETCH NEXT FROM lr_cursor into @dCode
end
CLOSE lr_cursor
DEALLOCATE lr_cursor
end
```

These are the records which need to be appended to the destination database table(**westbengalvillagetmp**) with remark column as ‘I’. New code is also given to those records following the same logic used in Census database. These records are not found in the census database 2001, but found in particular state’s land records database.Thus our lookup table is completed for the village level.

Annexure-5

List of various officials from whom Feedback, Suggestions and Comments were received

Department of Land Resources: Consultations were held with

1. Smt Rita Sinha, Secretary, Department of Land Resources
2. Shri Chinmay Basu, Additional Secretary, Department of Land Resources
3. Dr. Ajay Kumar Singh, Director & Head of Land Resources Division, Department of Land Resources
4. Sh A K Sahu, Director, NLRMP, Department of Land Resources
5. Sh S K Narula, Assistant Commissioner, Department of Land Resources
6. Sh. G.B.Upadhyaya, Deputy Secretary, Department of Land Resources
7. Sh Sunil Kumar, Techical Officer, Department of Land Resources

Feedback, Comments and suggestions received from NIC-LR teams of

Andaman & Nicobar
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2. Sh. Murugesh, Asst Programmer

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2. Sh. G.N.Mallesh, Technical Director
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Mizoram

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West Bengal

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Feedback, Suggestions, Comments received from State Revenue Departments of

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   Asst Inspector General,
   Registrar and Stamps Department.

Bihar

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Madhya Pradesh

1. Sh.Sandeep Makhan,
   Deputy Commissioner,
   Land Records, Gwalior.

Maharashtra

1. Sh. Girish Rao,
   Superintendent, Land Records,
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2. Sh. K.S.Shinde,
   Office Supdt, Computer
   Settlement Commissioner, Maharashtra

Himchal Pradesh

1. Sh. Kashmir Chand,
   Director, Land Records
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2. Sh. Vijay Kapoor,
   A.R.O (CLR), Land Records Department,
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Puducherry

1. Sh. N.Udaya Kumar,
   Tahsildar,
   Revenue Department,
   Government of Puducherry
2. Sh.Sandirakumaran,
   Jt.Sub Registrar
   Registration Department,
   Government of Puducherry
3. Sh.R.Muniswamy,
   Tahsildar (Settlement)
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