हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद
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ICAR - NBSS & LUP

Land Resource and Hydrological Inventory of Hosur Sub-watershed for Watershed Planning and Development Afzalpur Taluk, Kalaburagi District, Karnataka (AESR 6.2)

Sujala – III
Karnataka Watershed Development Project- II
Funded by World Bank

The World Bank

ICAR - National Bureau of Soil Survey & Land Use Planning, Regional Centre, Bangalore
Watershed Development Department, Govt. of Karnataka, Bangalore

About ICAR-NBSS&LUP

The ICAR-National Bureau of Soil Survey and Land Use Planning (ICAR-NBSS&LUP), Nagpur, a premier Institute of the Indian Council of Agricultural Research (ICAR), was set up during 1976 with the objective to prepare soil resource maps at national, state and district levels and to provide research inputs in soil resource mapping and its applications, land evaluation, land use planning, land resource management, and database management using GIS for optimising land use on different kinds of soils in the country.

The Bureau has been engaged in carrying out soil resource survey, agro-ecological and soil degradation mapping at the country, state and district levels for qualitative assessment and monitoring the soil health towards viable land use planning. The research activities have resulted in identifying the soil potentials and problems, and the various applications of the soil surveys with the ultimate objective of sustainable agricultural development. The Bureau has the mandate to correlate and classify soils of the country and maintain a National Register of all the established soil series. The Institute is also imparting in-service training to staff of the soil survey agencies in the area of soil survey, land evaluation and soil survey interpretations for land use planning. The Bureau in collaboration with Panjabrao Krishi Vidyapeeth, Akola is running post-graduate teaching and research programme in land resource management, leading to M.Sc. and Ph.D. degrees.

Citation: Rajendra Hegde, B.A. Dhanorkar, S. Srinivas, K.M. Nair, K.V. Niranjana, R.S. Reddy and S.K. Singh (2017). "Land Resource Inventory of Hosur Sub-watershed for Watershed Planning and Development, Afzalpur Taluk, Kalaburagi District, Karnataka", Sujala LRI Atlas No.78, ICAR – NBSS & LUP, RC, Bangalore. p.37.

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PART - A

Land Resource Inventory of Hosur Sub-watershed for Watershed Planning and Development

Afzalpur Taluk, Gulbarga District, Karnataka (AESR 6.2)

CONTENTS

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How to read and use the Atlas

The Land Resource Inventory of Hosur Sub-watershed (Afzalpur taluk, Gulbarga district) for Watershed Planning (AESR 6.2) was undertaken to provide comprehensive site- specific cadastral level information useful for farm level planning and integrated development of the area under Sujala – III, Karnataka Watershed Development Project- II.

This atlas contains the basic information on kinds of soils, their geographic distribution, characteristics and classification. The soil map and soil based thematic maps derived from soils data on soil depth, soil gravelliness, slope, land suitability for various crops and land use maps are presented on 1:12,500 scale. The maps of fertility status (soil reaction, organic carbon, available phosphorus, available potassium, available sulphur, available calcium, available copper, available manganese, available zinc, available iron, available boron and salinity (EC) on 1:12,500 scale were derived from grid point sampling of the surface soils from the watershed.

The atlas illustrates maps and tables that depict the soil resources of the watershed and the need for their sustainable management.

The user, depending on his/her requirement, can refer this atlas first by identifying his/her field and survey number on the village soil map and by referring the soil legend which is provided in tabular form after the soil map for details pertaining to his/her area of interest.

The atlas explains in simple terms the different kinds of soils present in the watershed, their potentials and problems through a series of thematic maps that help to develop site-specific plans as well as the need to conserve and manage this increasingly threatened natural resource through sustainable land use management. The Land Resource Atlas contains database collected at land parcel/ survey number level on soils, climate, water, vegetation, crops and cropping patterns, socio-economic conditions, marketing facilities *etc.* helps in identifying soil and water conservation measures required, suitability for crops and other uses and finally for preparing a viable and sustainable land use options for each and every land parcel.

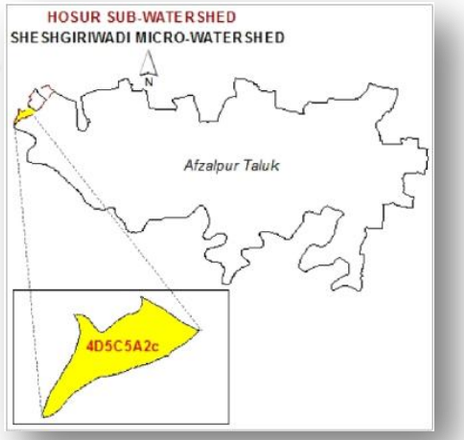
For easy map reading and understanding the information contain in different maps, the physical, cultural and scientific symbols used in the maps are illustrated in the form of colors, graphics and tables.

Physical, Cultural and Scientific symbols used in the Atlas

Each map in the atlas sheet is complemented with the physical, cultural and scientific symbols to facilitate easy map reading.

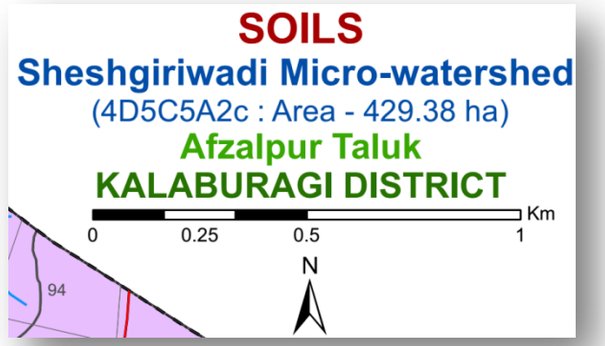
Inset map

Inset provided in each map conveys its strategic location i.e. Taluk, Sub-watershed and Micro-watershed.



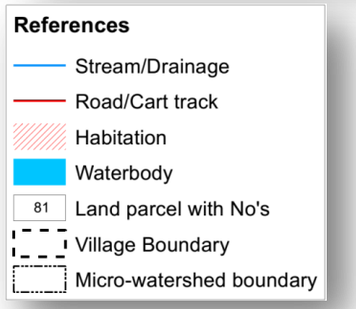
Map title

Map title conveys the relevance of thematic information presented along with a graphical scale, geographical location and watershed details in text form.



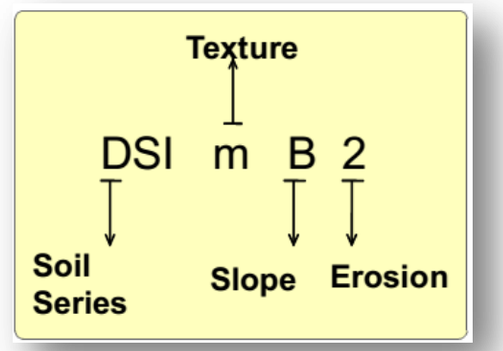
Legends and symbols

*Two legends accompany each map, a **map reference**, which depicts geographic features and a **thematic legend** which portrays spatial information. Picking up the symbol and colour of a particular enables one to go to the legends to obtain the required information.*



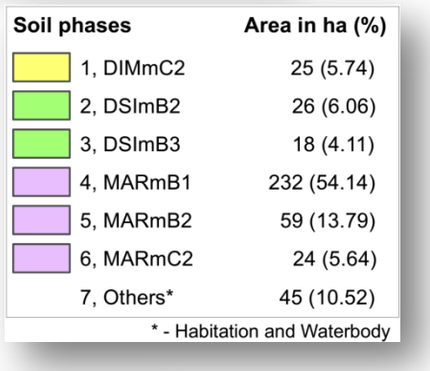
Soil Units

The soil map may be read at different levels. The most detailed level is that of the soil phase. Soil phases are distinguished within soil series mainly based on differences in surface of soil texture, slope, gravelliness , erosion ,etc.



Map colours

Different shades of colours are used as an aid to distinguish the different classes of soils, crop suitability and other maps.

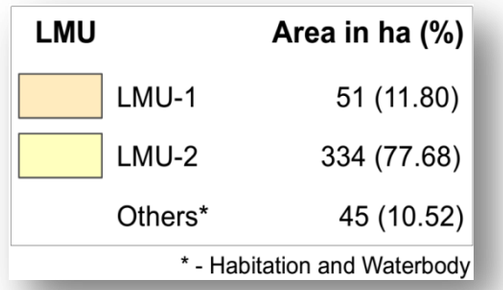


Soil phases	Area in ha (%)
1, DIMmC2	25 (5.74)
2, DSImB2	26 (6.06)
3, DSImB3	18 (4.11)
4, MARmB1	232 (54.14)
5, MARmB2	59 (13.79)
6, MARmC2	24 (5.64)
7, Others*	45 (10.52)

* - Habitation and Waterbody

Land Management Units (LMU)

Grouping of similar soil areas based on their soil-site characteristics into management units that respond similarly for a given level of management are designated as land management units

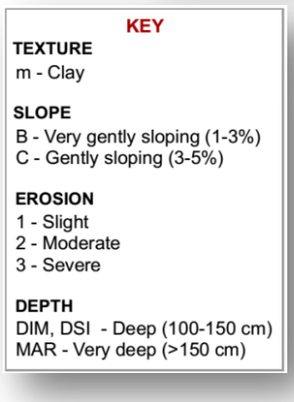


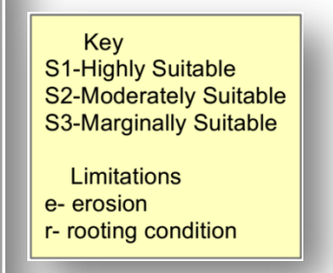
LMU	Area in ha (%)
LMU-1	51 (11.80)
LMU-2	334 (77.68)
Others*	45 (10.52)

* - Habitation and Waterbody

Map key

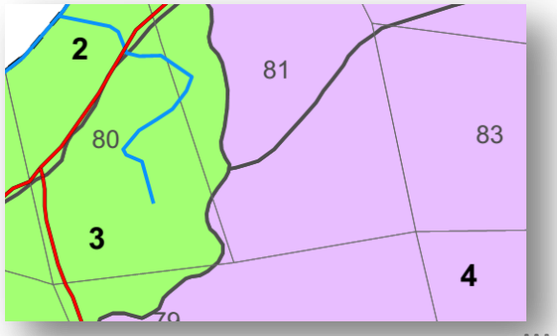
There are many thematic types to be differentiated on the map solely based on colour. Therefore soils and suitability types and their limitations are distinguished by colours with a combination of alpha-numeric characters.





Soil and plot boundaries

Soil units shown on the map are represented by both the color and a numeral. The soil boundaries are superimposed on land parcel with revenue survey number boundaries to visualize its spatial extent.



LAND RESOURCE INVENTORY OF HOSUR SUB-WATERSHED FOR PLANNING
AFZALPUR TALUK, KALABURAGI DISTRICT
A pilot study by ICAR-NBSS&LUP, Bangalore

INTRODUCTION

Land is a scarce resource and basic unit for any material production. It can support the needs of the growing population, provided they use land in a rational and judicious manner. But what is happening in many areas of the state is a cause for concern to anyone involved in the management of land resources at the grassroots level. In India the area available for agriculture is about 51 per cent of the total area and more than 60 per cent of the people are still relying on agriculture for their livelihood. The limited land area is under severe stress and strain due to increasing population pressure and competing demands of various land uses. Due to this, every year there is a significant diversion of farm lands and water resources for non-agricultural purposes. Apart from this, due to lack of interest for farming among the farmers in many areas, large tracts of cultivable lands are turning into fallows and this trend is continuing at an alarming rate.

The watershed management programs are aimed at designing suitable soil and water conservation measures, productivity enhancement of existing crops, crop diversification with horticultural species, greening the wastelands with forestry species of multiple uses and improving the livelihood opportunities for landless people.

The objectives can be met to a great extent when an appropriate Natural Resources Management (NRM) plan is prepared and implemented. It is essential to have site specific Land Resources Inventory (LRI) indicating the potentials and constraints for developing such a site specific plan. LRI can be obtained by carrying out detailed characterization and mapping of all the existing land resources like soils, climate, water, minerals and rocks, vegetation, crops, land use pattern, socio-economic conditions, infrastructure, marketing facilities and various schemes and developmental works of the government. From the data collected at farm level, the specific problems and potentials of the area can be identified and highlighted, conservation measures required for the area can be planned on a scientific footing, suitability of the area for various uses can be worked out and finally viable and sustainable land use options suitable for each and every land holding can be prescribed to the farmer and other land users of the area.

Gulbarga popularly known as Kalaburagi is located in the Northern part of the state and lies between 17 ^{o} 35’ and 17^{o} 45’ North latitude and between 76 ^{o} 10’ and 77 ^{o} 45’ east longitude. The district is biggest district in the state covering 8.49 % of the area. It has Bijapur district and Sholapur district of Maharashtra on the West, Bidar district and Osmanabad district of Maharashtra on the North, Raichur district on the South. The district has total geographical area of 16174 sq. kms. Major food crops grown in the district are pigeon pea, sorghum, bajra, and paddy. Commercial crops are sugarcane and cotton. Oilseed crops are groundnut and sunflower. The district economy is dominantly agricultural and nearly 75 per cent of population living in the rural areas are dependent on agriculture. Major geology in the district comprise of Deccan trap (basalt), followed by limestone. Laterite and shale were also noticed in patches.

As a pilot study, **ICAR-NBSS&LUP, Bangalore** carried out the generation of LRI for the Hosur Sub-watershed in Afzalpur Taluk, Gulbarga District. It was selected for data base generation under batch VI of Sujala III project. This sub-watershed encompasses of 3 MWs namely, Dimal-2 (4D5C5A2b), Hosur-2 (4D5C5A2a) and Sheshgiriwadi (4D5C5A2c) micro watersheds. Land Resource Inventory (LRI) was generated for two (Sheshgiriwadi-4D5C5A2c and Dimal-2 -4D5C5A2b), among the three micro-watersheds.

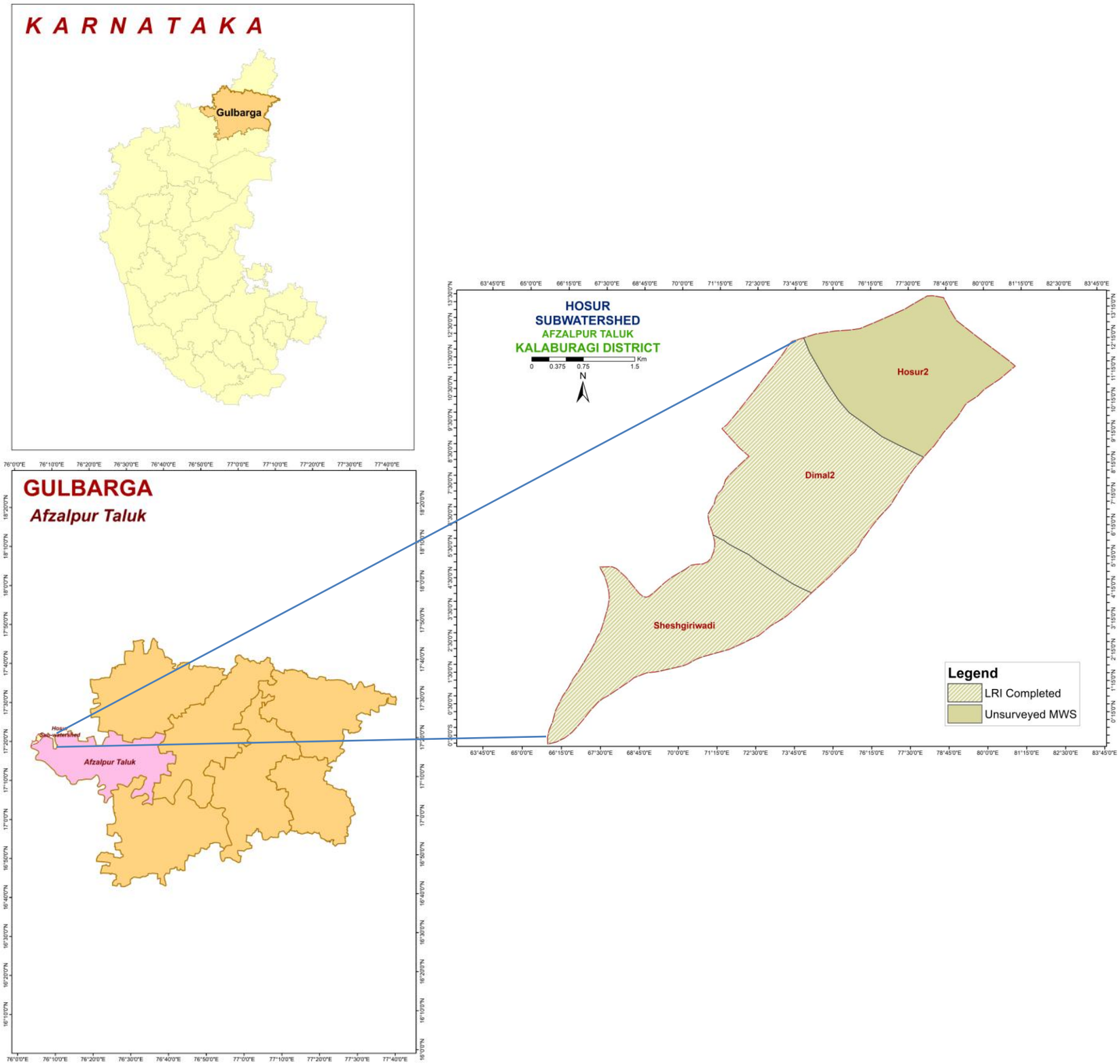
To be continued….

The major landforms identified in the micro-watersheds (Sheshgiriwadi-4D5C5A2c and Dimal-2 -4D5C5A2b) of Hosur Sub-Watershed are uplands and low lands. The database was generated by using cadastral map of the village as a base along with high resolution satellite imagery (IRS LISS IV and Cartosat-1). The objectives of the land resource survey, carried out during February-March 2015 in Hosur Sub-watershed are indicated below.

- Detailed characterization of all the land resources like soil, water, land use, cropping pattern and other resources available at parcel level in the village.
- Delineation of homogenous areas based on soil-site characteristics into management units.
- Collection and interpretation of climatic and agronomical data for crop planning.
- Identification of problems and potentials of the area and strategies for their management.
- Assessment of the suitability of land resources for various crops and other uses.
- Establishment of village level digital land resources database in a GIS framework.
- Enable the watershed and other line departments to prepare an action plan for the integrated development of the watershed.

LOCATION AND EXTENT

LOCATION MAP OF HOSUR SUB-WATERSHED



Hosur sub-watershed (Afzalpur taluk, Kalaburagi district) is located between $17^0$18'27''-$17^0$21'34'' North latitudes and $76^0$3'55''-$76^0$7'58'' East longitudes, covering an area of about 1416.93 ha.

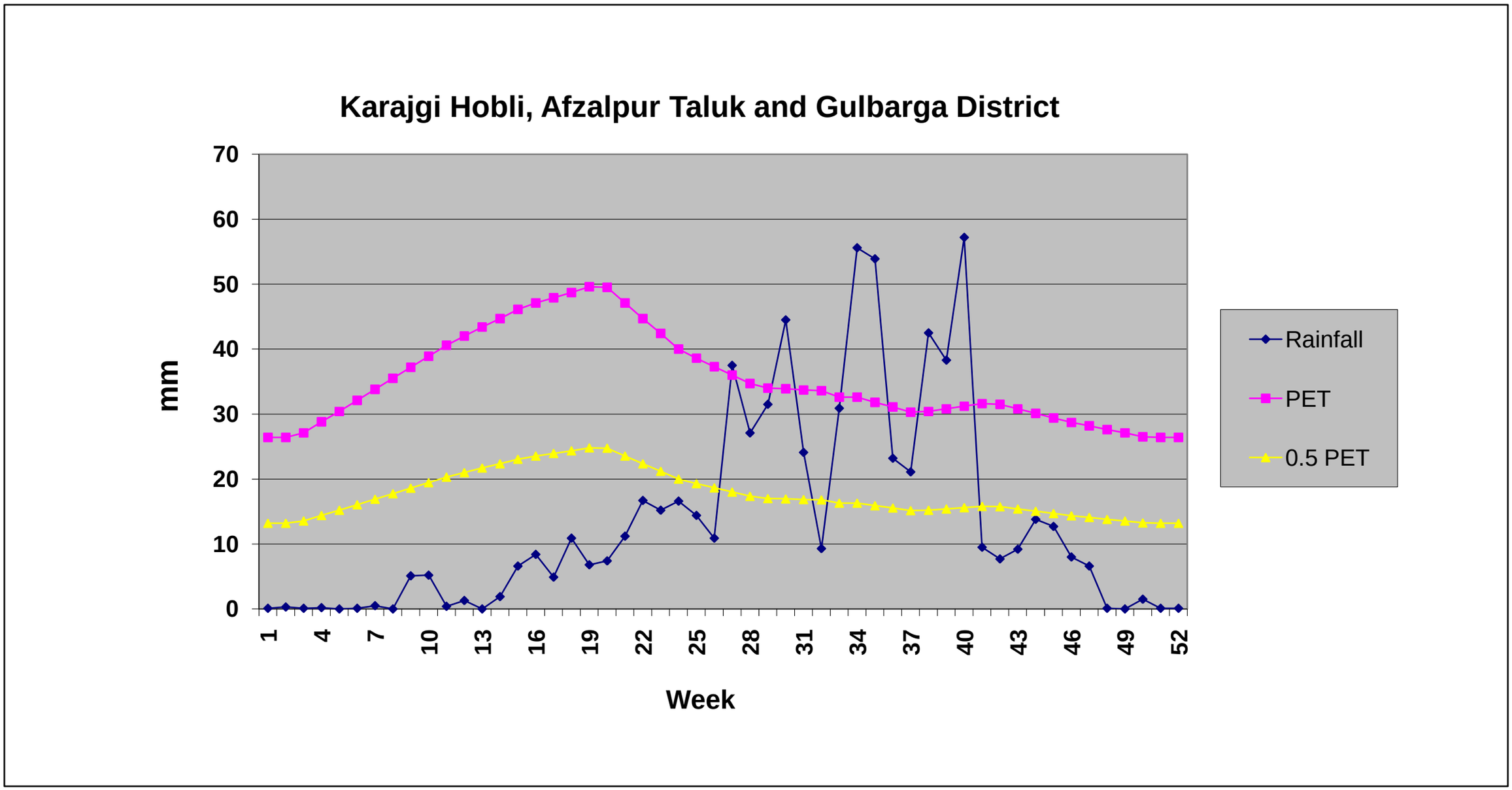
Agro Ecological Sub Region (AESR) 6.2: Central and Western Maharashtra Plateau and North Karnataka Plateau and North Western Telangana Plateau, hot moist semi-arid ESR with shallow and medium loamy to clayey Black soils (medium and deep clayey Black soils as inclusion), medium to high AWC and LGP 120-150 days.

Agro-climatic Zone 2: North-eastern Dry Zone:

The total geographic area of this zone is about 1.76 M ha covering 8 taluks of Gulbarga district and 3 taluks of Raichur. Net cultivated area in the zone is about 1.31 M ha of which about 0.09 M ha are irrigated. The mean elevation of the zone is 300-450 m MSL. The main soil type is deep to very deep soils with small pockets of shallow to medium black soils. The zone is cropped predominantly during rabi due to insufficient rainfall (465-785 mm). The principal crops of the zone are jowar, bajra, oilseeds, pulses, cotton and sugarcane.

NOTE: In this Sub-Watershed, Land Resource Inventory (LRI) was generated for two micro-watersheds (Sheshgiriwadi-4D5C5A2c and Dimal-2 -4D5C5A2b) among the three micro-watersheds.

Climate

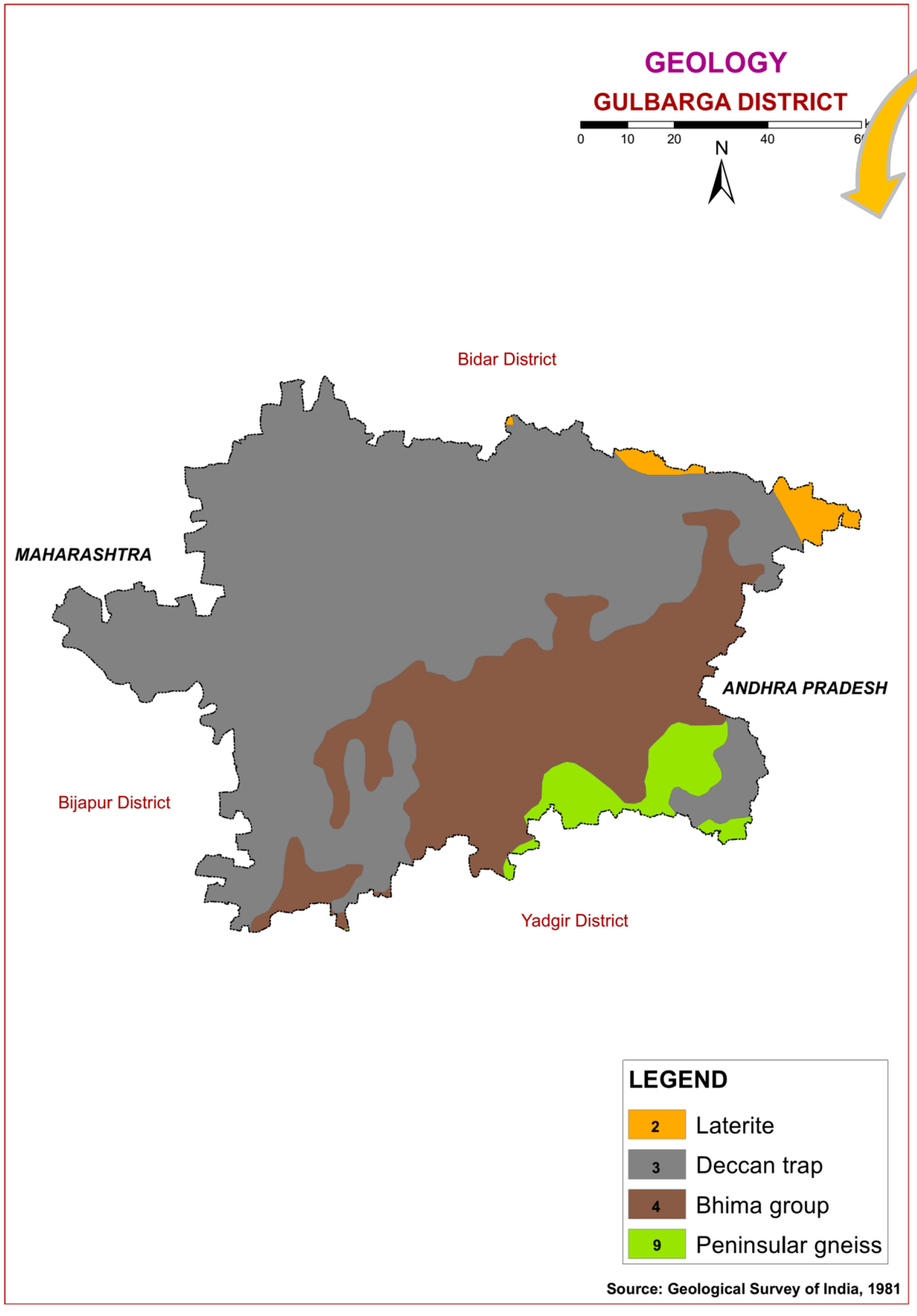


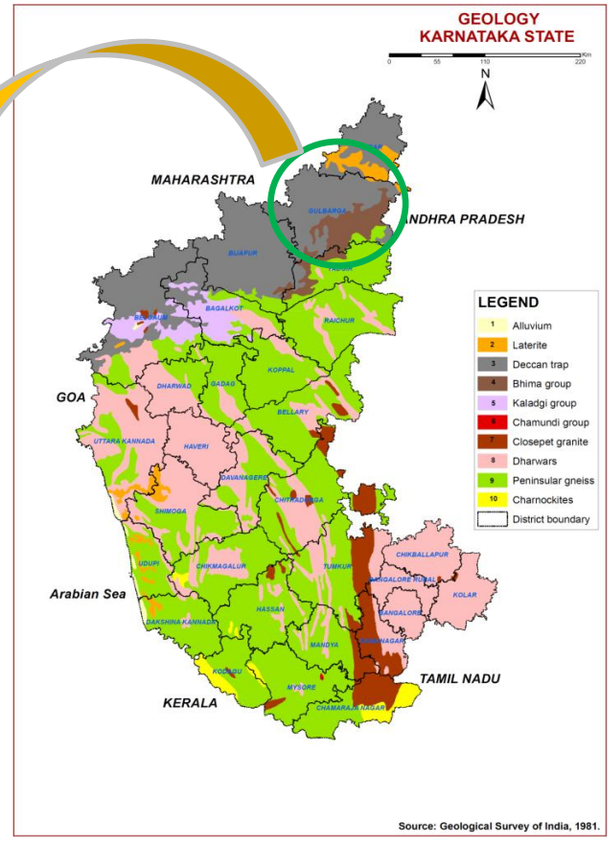
Length of Growing Period (LGP) is varying from June 4th week to 2nd week of October (120-150 days)

Annual Rainfall : 711 mm. in the Gulbarga taluk and district

Source: KSNMDC (1980-2011)

Geology





GEOLOGY - KARNATAKA STATE

Karnataka forms part of the Peninsular Shield, which is an ancient stable block of the earth's crust. The shield is composed of geologically ancient rocks of diverse origin. These rocks have undergone various degrees of metamorphism and crushing. Overlying these ancient rocks are Proterozoic, lete Creteceous to Palaeocene, Palaeocene to Recent, and Recent sediments.

In the stratigraphic succession of rocks in Karnataka the Archaean group is the oldest, followed by Proterozoic, Mesozoic and Cainozoic formations.

GEOLOGY - GULBARGA DISTRICT

Cainozoic Group

The Palaeocene and Recent formations of Karnataka are the laterites and alluvium of marine and riverine origin

Laterite: Laterite is a porous, pitted, clay-like rock with yellow, red, brown, grey and mottled colours, and is composed mainly of hydrated oxides of iron and aluminium.

Mesozoic Group

Towards the end of the Cretaceous Period there was tremendous volcanic activity in the Peninsular part of India with eruption of a series of lava flows which came out through fissures and cracks. This formation is Known as the Deccan Trap.

Deccan Trap: The Deccan Trap covers the whole of Bidar district, and parts of Gulbarga, Bijapur and Belgaum districts, occupying an area of 25,000 sq. km.

Upper Proterozoic Group

Formations of the Upper Proterozoic in Karnataka are closepet granites, Chamundi granites, Kaladgi series and Bhima series.

Bhima series: This series, equivalent to the Kurnool formations, is named after the Bhima river and occurs in Bijapur and Gulbarga districts.

Archaean Group

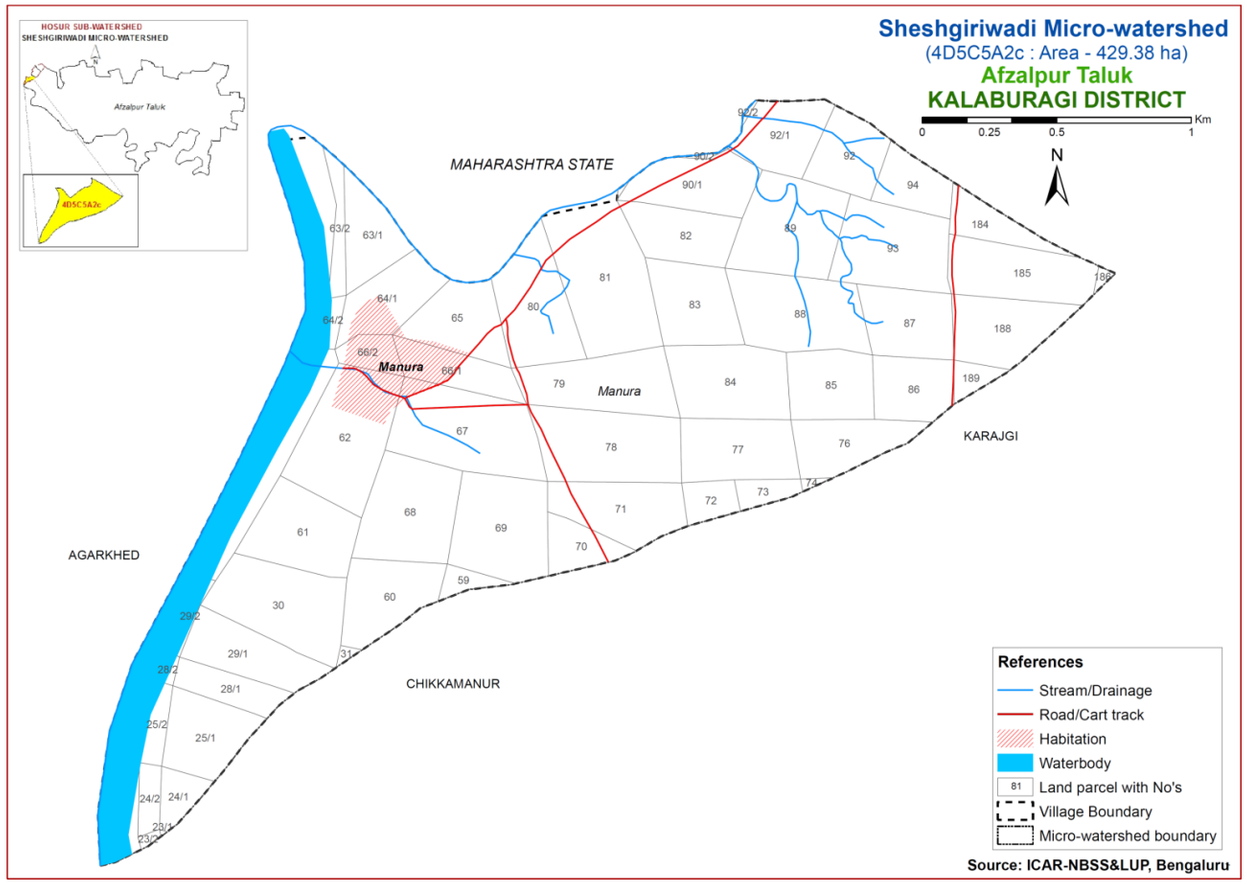
The important formations of this group are Peninsular Gneiss, Dharwar schists, and Charnockites.

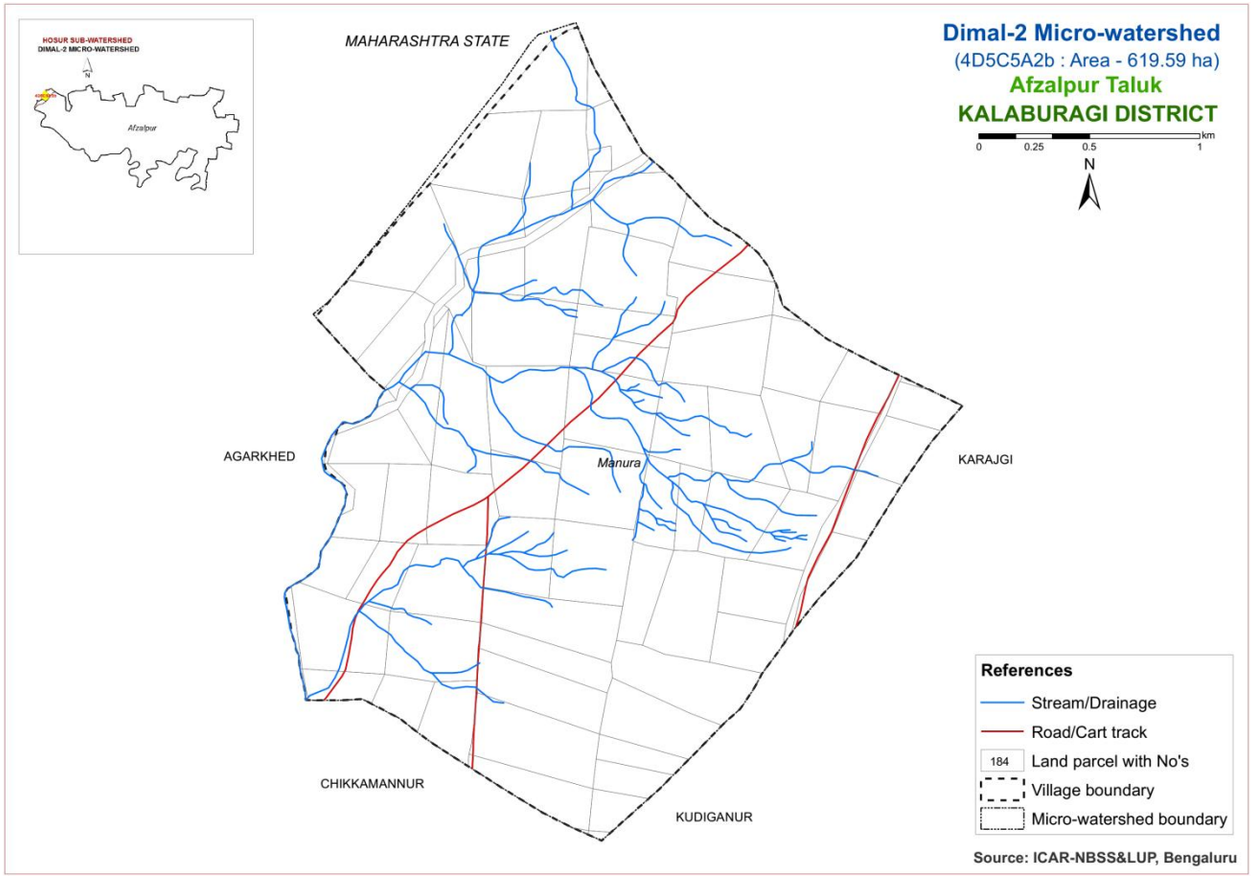
Peninsular Gneiss: Exposed over a large area of Karnataka in all the districts except Bidar is the Peninsular Gneiss which includes granites of all shades with varying composition.

SURVEY METHODOLOGY
Sequence of activities in generation of LRI

- Traversing the watershed using cadastral maps and imagery as base
- Identifying landforms, geology, land use and other features
- Selecting fields representing land units
- Opening profiles to 2 m depth
- Studying soil and site characteristics
- Grouping similar areas based on their soil-site characteristics into land management units
- Preparation of crop, soil and water conservation plan
- Socio-economic evaluation

The required site and soil characteristics are described and recorded on a standard proforma by following the protocols and guidelines given in the soil survey manual and field guide. Collection of soil samples from representative pedons for laboratory characterization and collection of surface soil samples from selected fields covering most of the management units for macro and micro-nutrient analysis is being carried out (250m grid intervals). Further processing of data at chemical lab and GIS lab are carried out to generate various thematic maps for each of the study area.


HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
Km
0
0.25
0.5
1
N
MAHARASHTRA STATE
Manura
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village Boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru


HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
km
0
0.25
0.5
1
N
MAHARASHTRA STATE
AGARKHED
Manura
KARAJGI
CHIKKAMANNUR
KUDIGANUR
References
Stream/Drainage
Road/Cart track
Land parcel with No's
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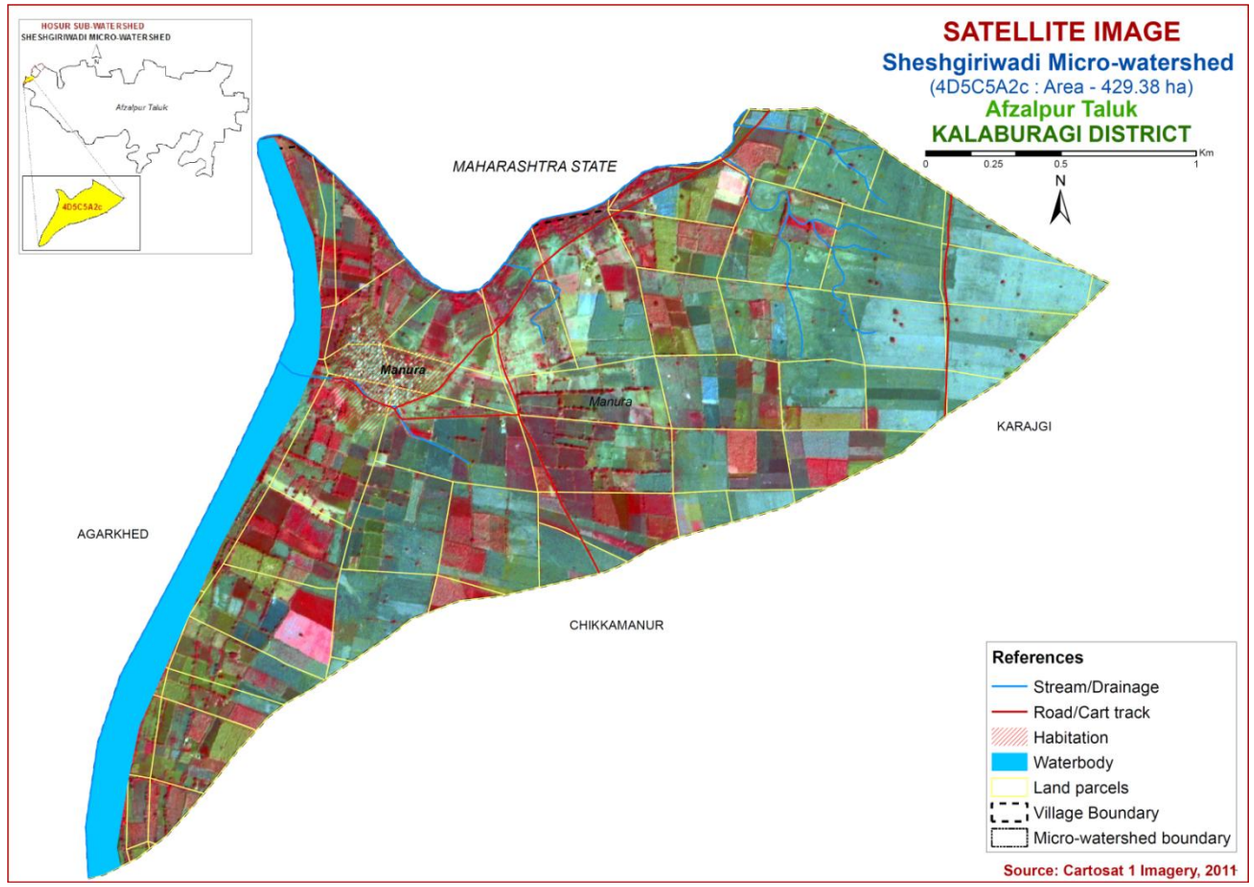
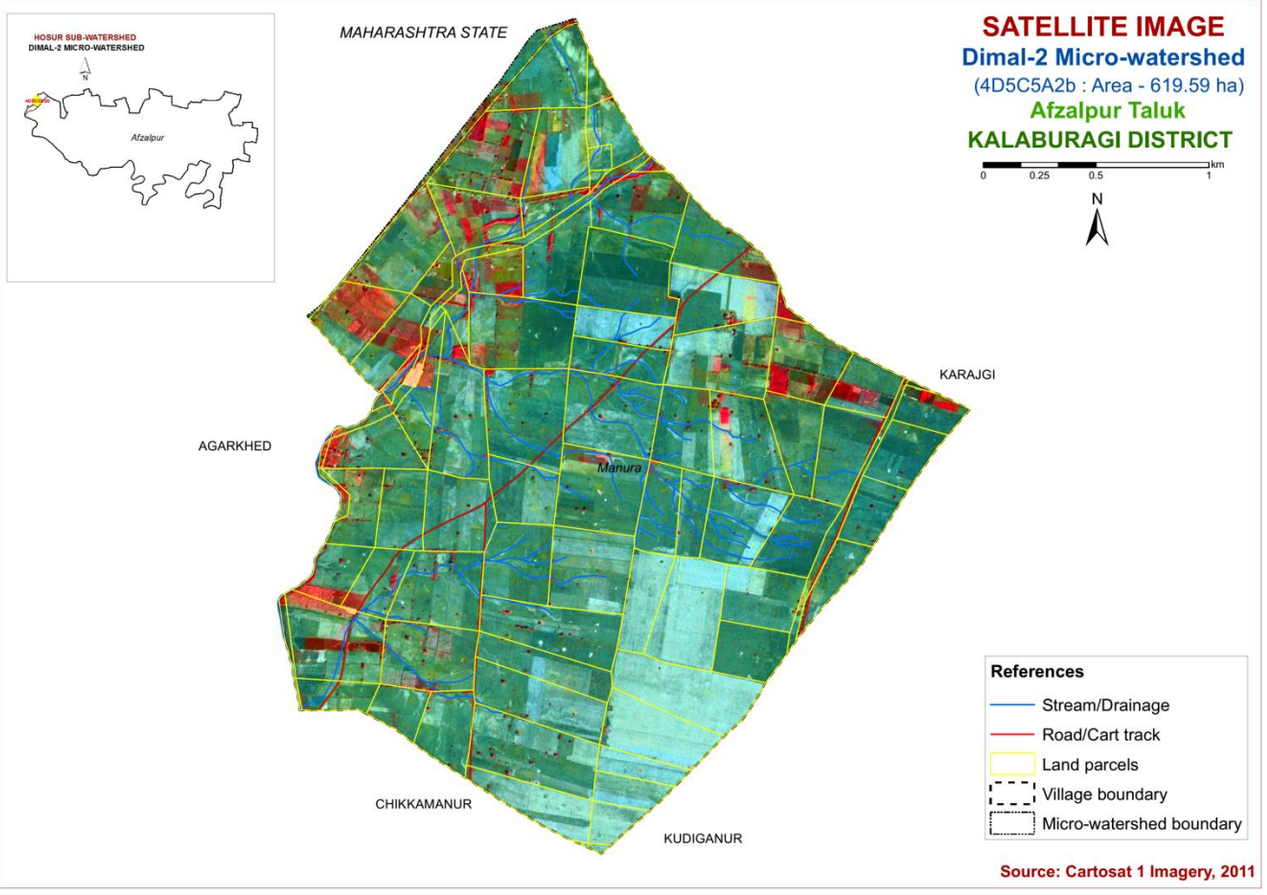
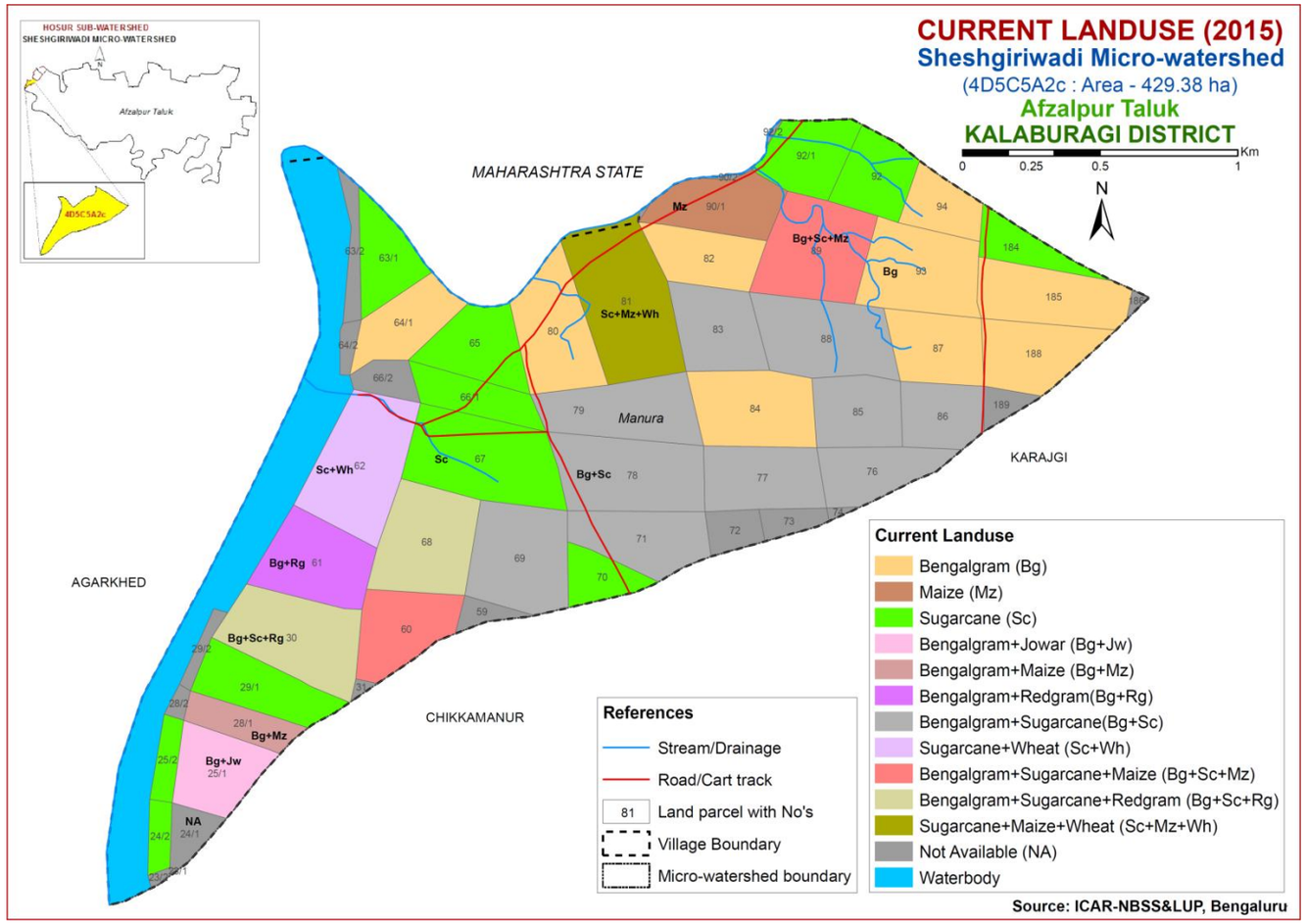
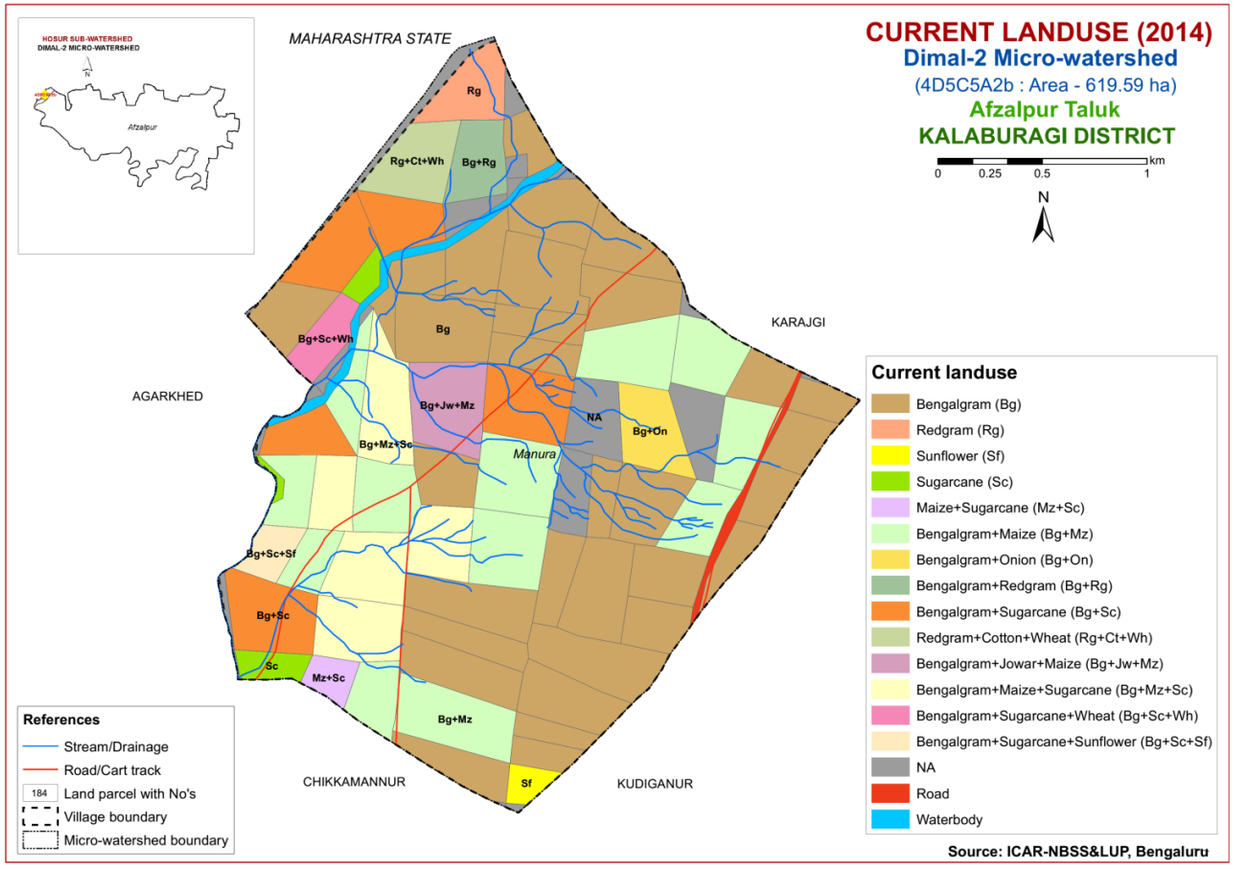
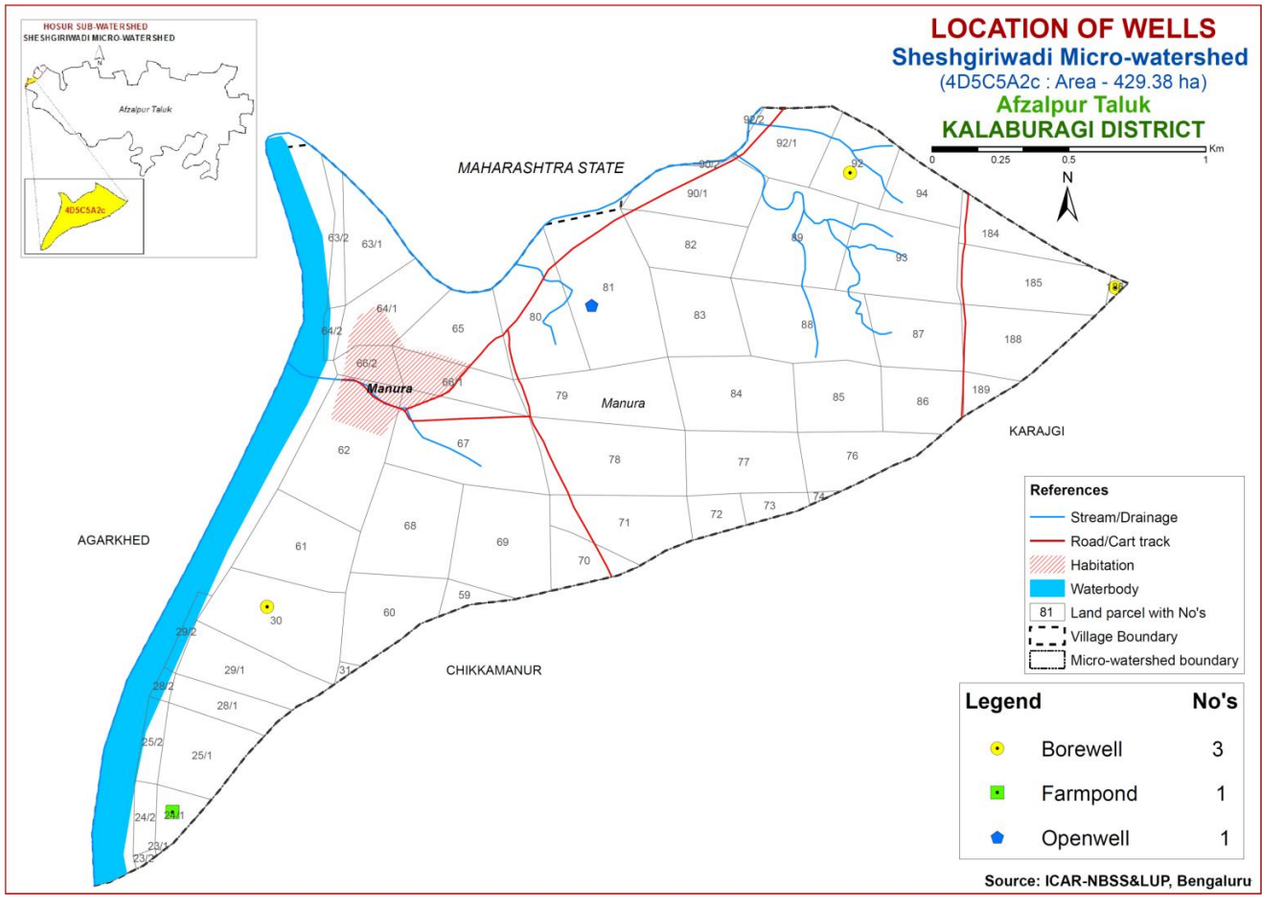
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru

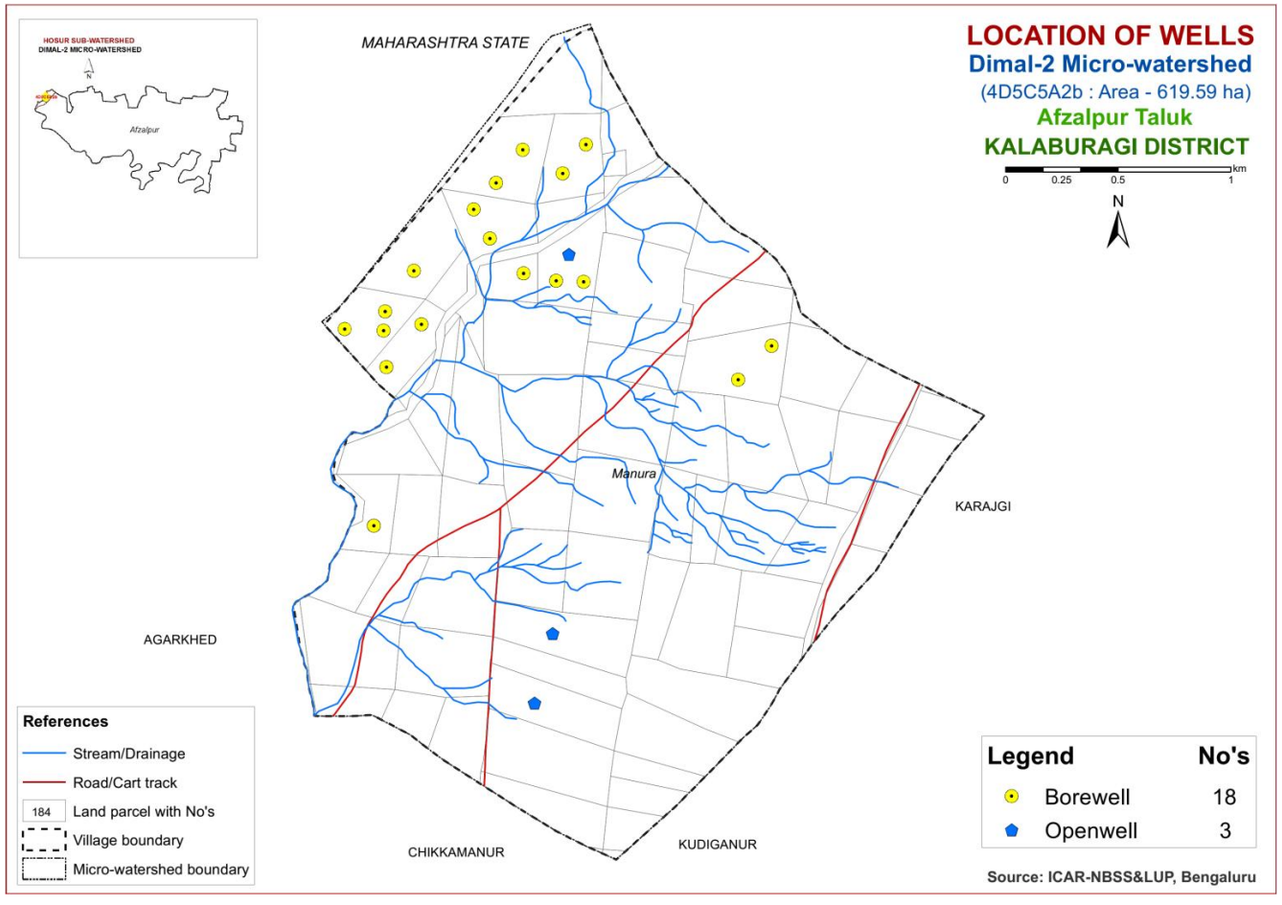

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
SATELLITE IMAGE
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcels
Village Boundary
Micro-watershed boundary
Source: Cartosat 1 Imagery, 2011


HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
N
Afzalpur
MAHARASHTRA STATE
SATELLITE IMAGE
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
KARAJGI
AGARKHED
Manura
CHIKKAMANUR
KUDIGANUR
References
Stream/Drainage
Road/Cart track
Land parcels
Village boundary
Micro-watershed boundary
Source: Cartosat 1 Imagery, 2011


CURRENT LANDUSE (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
Mz
Bg+Sc+Mz
Bg
Sc+Mz+Wh
Sc+Wh
Sc
Bg+Sc
Bg+Rg
Bg+Sc+Rg
Bg+Mz
Bg+Jw
NA
References
Stream/Drainage
Road/Cart track
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Current Landuse
Bengalgram (Bg)
Maize (Mz)
Sugarcane (Sc)
Bengalgram+Jowar (Bg+Jw)
Bengalgram+Maize (Bg+Mz)
Bengalgram+Redgram(Bg+Rg)
Bengalgram+Sugarcane(Bg+Sc)
Sugarcane+Wheat (Sc+Wh)
Bengalgram+Sugarcane+Maize (Bg+Sc+Mz)
Bengalgram+Sugarcane+Redgram (Bg+Sc+Rg)
Sugarcane+Maize+Wheat (Sc+Mz+Wh)
Not Available (NA)
Waterbody
Source: ICAR-NBSS&LUP, Bengaluru


CURRENT LANDUSE (2014)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANNUR
KUDIGANUR
KARAJGI
Manura
Rg
Rg+Ct+Wh
Bg+Rg
Bg
Bg+Sc+Wh
Bg+Jw+Mz
NA
Bg+On
Bg+Mz+Sc
Bg+Sc+Sf
Bg+Sc
Sc
Mz+Sc
Bg+Mz
Sf
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Current landuse
Bengalgram (Bg)
Redgram (Rg)
Sunflower (Sf)
Sugarcane (Sc)
Maize+Sugarcane (Mz+Sc)
Bengalgram+Maize (Bg+Mz)
Bengalgram+Onion (Bg+On)
Bengalgram+Redgram (Bg+Rg)
Bengalgram+Sugarcane (Bg+Sc)
Redgram+Cotton+Wheat (Rg+Ct+Wh)
Bengalgram+Jowar+Maize (Bg+Jw+Mz)
Bengalgram+Maize+Sugarcane (Bg+Mz+Sc)
Bengalgram+Sugarcane+Wheat (Bg+Sc+Wh)
Bengalgram+Sugarcane+Sunflower (Bg+Sc+Sf)
NA
Road
Waterbody
Source: ICAR-NBSS&LUP, Bengaluru


HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LOCATION OF WELLS
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Legend No's
Borewell 3
Farmpond 1
Openwell 1
Source: ICAR-NBSS&LUP, Bengaluru


HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LOCATION OF WELLS
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Legend No's
Borewell 18
Openwell 3
Source: ICAR-NBSS&LUP, Bengaluru

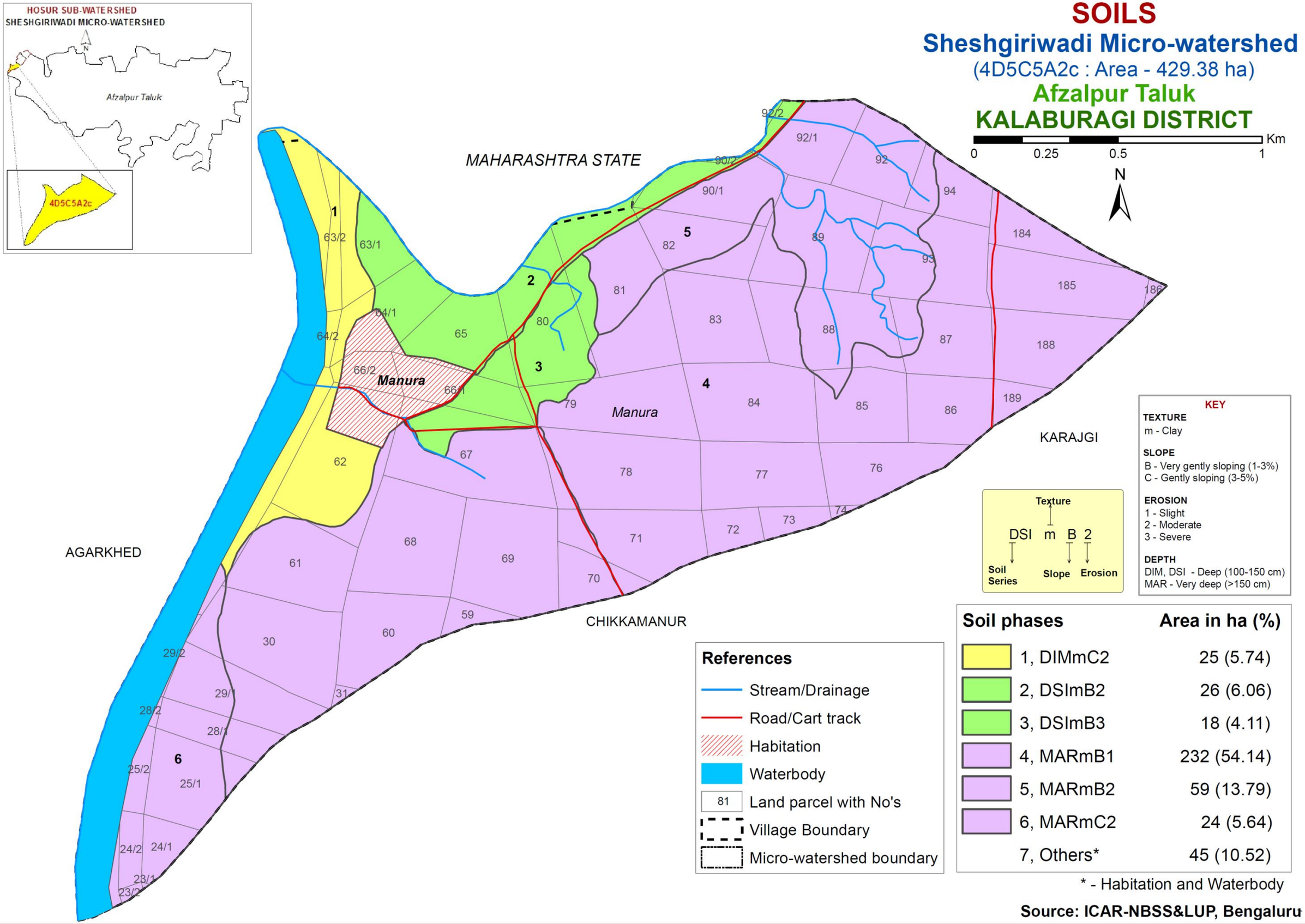
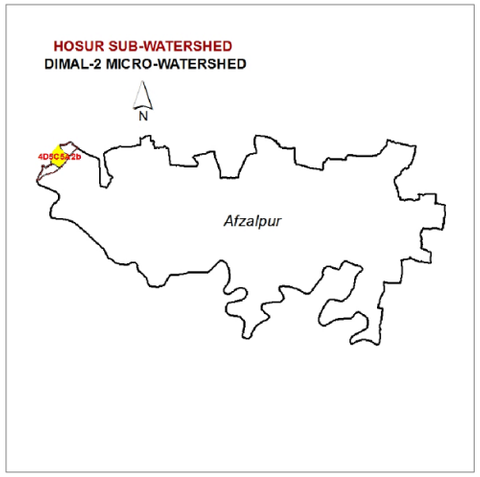

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
SOILS
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
Manura
1
2
3
4
5
6
62
63/2
63/1
64/1
64/2
65
66/2
66/1
67
68
69
70
71
72
73
74
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90/1
90/2
92/1
92/2
92
93
94
184
185
186
188
189
61
60
59
30
31
29/2
29/1
28/2
28/1
25/2
25/1
24/2
24/1
23/1
23/2
KEY
TEXTURE
m - Clay
SLOPE
B - Very gently sloping (1-3%)
C - Gently sloping (3-5%)
EROSION
1 - Slight
2 - Moderate
3 - Severe
DEPTH
DIM, DSI - Deep (100-150 cm)
MAR - Very deep (>150 cm)
Texture
DSI m B 2
Soil Series
Slope
Erosion
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Soil phases
Area in ha (%)
1, DIMmC2 25 (5.74)
2, DSImB2 26 (6.06)
3, DSImB3 18 (4.11)
4, MARmB1 232 (54.14)
5, MARmB2 59 (13.79)
6, MARmC2 24 (5.64)
7, Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

Table 1.Mapping unit description of Sheshgiriwadi Micro-watershed (4D5C5A2c) Afzalpur taluk, Kalaburagi district

Sl. No*	Map unit	Description	Area in ha. (%)
1	DSImB2	Moderately shallow, black clayey soils developed from weathered basalt on very gently sloping uplands; clay surface on 1-3% slope, moderately eroded.	26 (6.06)
2	DSImB3	Moderately shallow, black clayey soils developed from weathered basalt on very gently sloping uplands; clay surface on 1-3% slope, severely eroded	18 (4.11)
3	DIMmC2	Deep, calcareous, black clayey soils developed from weathered basalt on gently sloping uplands; clay surface on 3-5 % slope, moderately eroded	25 (5.74)
4	MARmB1	Very deep, calcareous, black clayey soils developed from weathered basalt on very gently sloping uplands; clay surface on 1-3% slope, slightly eroded	232 (54.14)
5	MARmB2	Very deep, calcareous, black clayey soils developed from weathered basalt on very gently sloping uplands; clay surface on 1-3% slope, moderately eroded	59 (13.79)
6	MARmC2	Very deep, calcareous, black clayey soils developed from weathered basalt on gently sloping uplands; clay surface on 3-5% slope, moderately eroded	24 (5.64)

*Soil map unit numbers are continuous for the taluk, not the micro-watershed



SOILS

Dimal-2 Micro-watershed

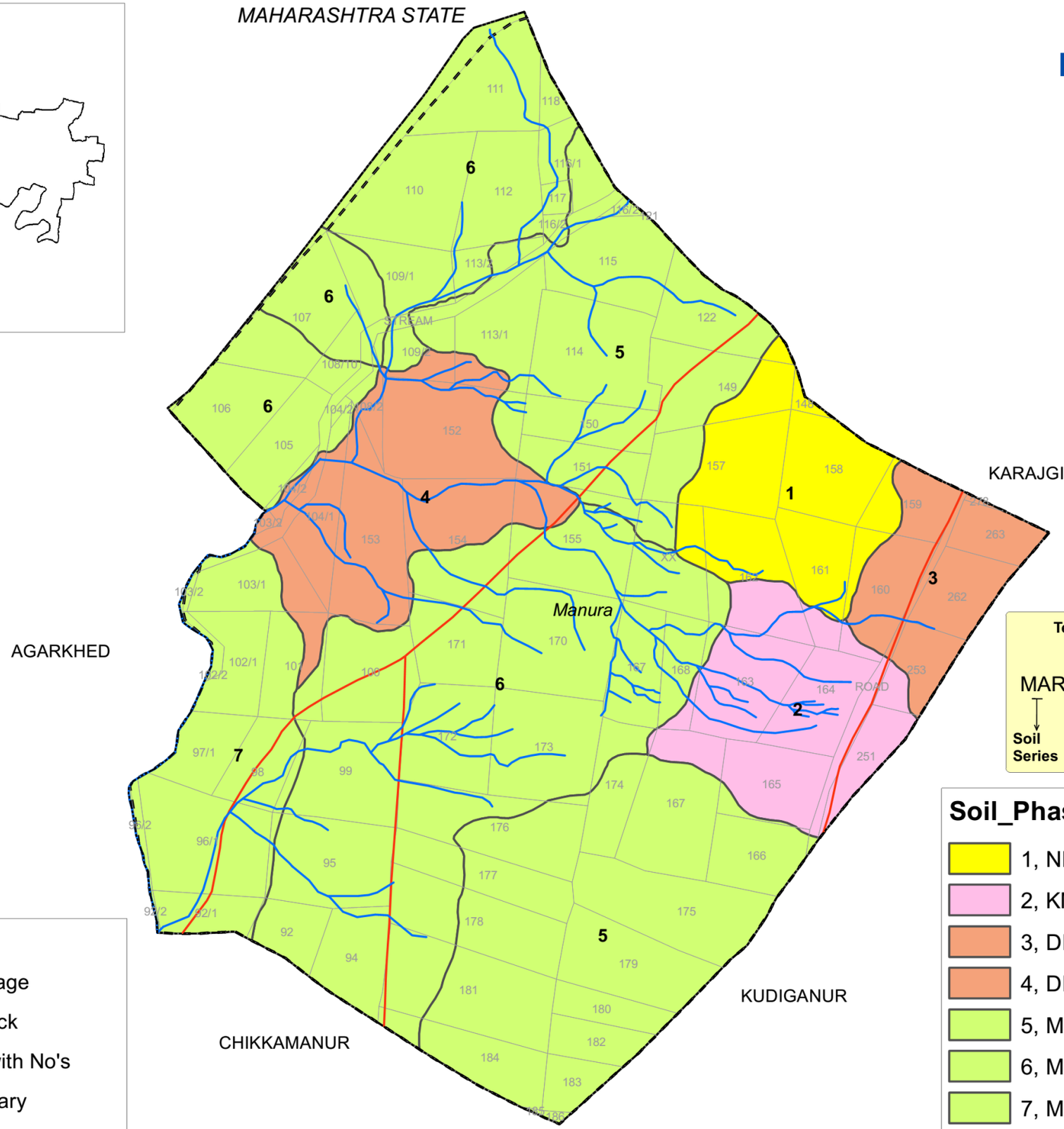
(4D5C5A2b : Area - 619.59 ha)

Afzalpur Taluk

KALABURAGI DISTRICT

0 0.25 0.5 1 km

N



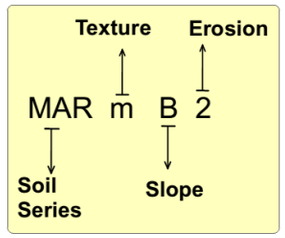
KEY

TEXTURE
m – Clay

SLOPE
B – Very gently sloping (1-3%)
C- Gently sloping (3-5%)

EROSION
1 - Slight
2 – Moderate

DEPTH
NHA- Shallow (25-50 cm)
KMP- Moderately deep (75-100 cm)
DIM- Deep (100-150 cm)
MAR- Very deep (>150 cm)



References

- Stream/Drainage
- Road/Cart track
- 184 Land parcel with No's
- Village boundary
- Micro-watershed boundary

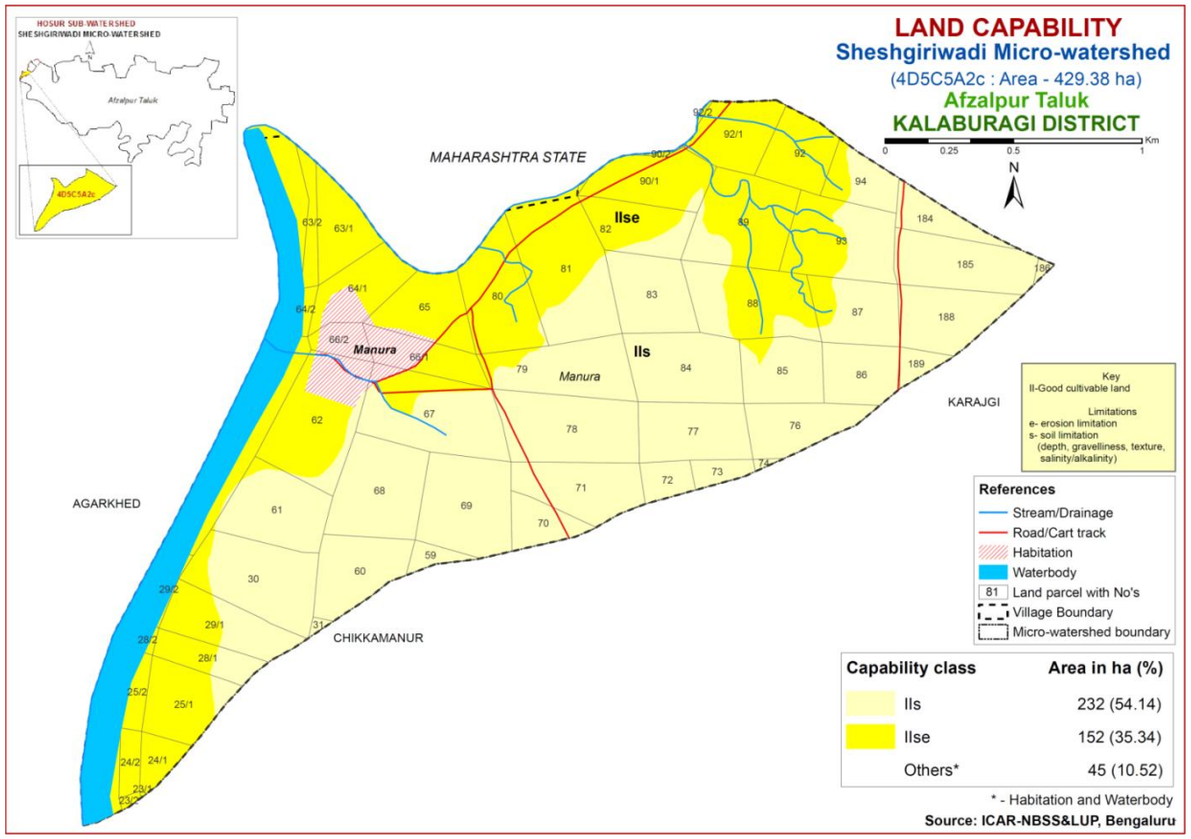
Soil_Phases	Area in ha (%)
1, NHAmB1	42 (6.7)
2, KMPmB1	45 (7.24)
3, DIMmB1	27 (4.38)
4, DIMmB2	54 (8.7)
5, MARmB1	172 (27.78)
6, MARmB2	231 (37.3)
7, MARmC2	49 (7.9)

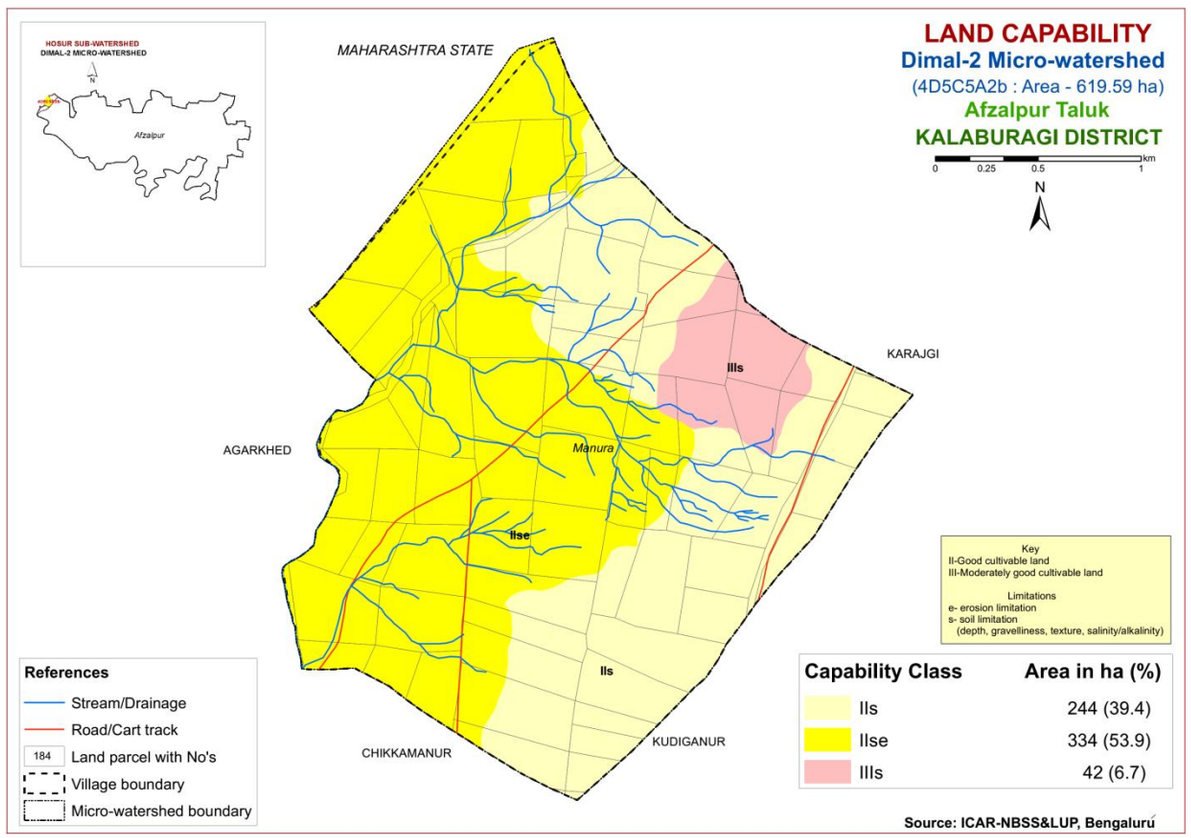
Source: ICAR-NBSS&LUP, Bengaluru

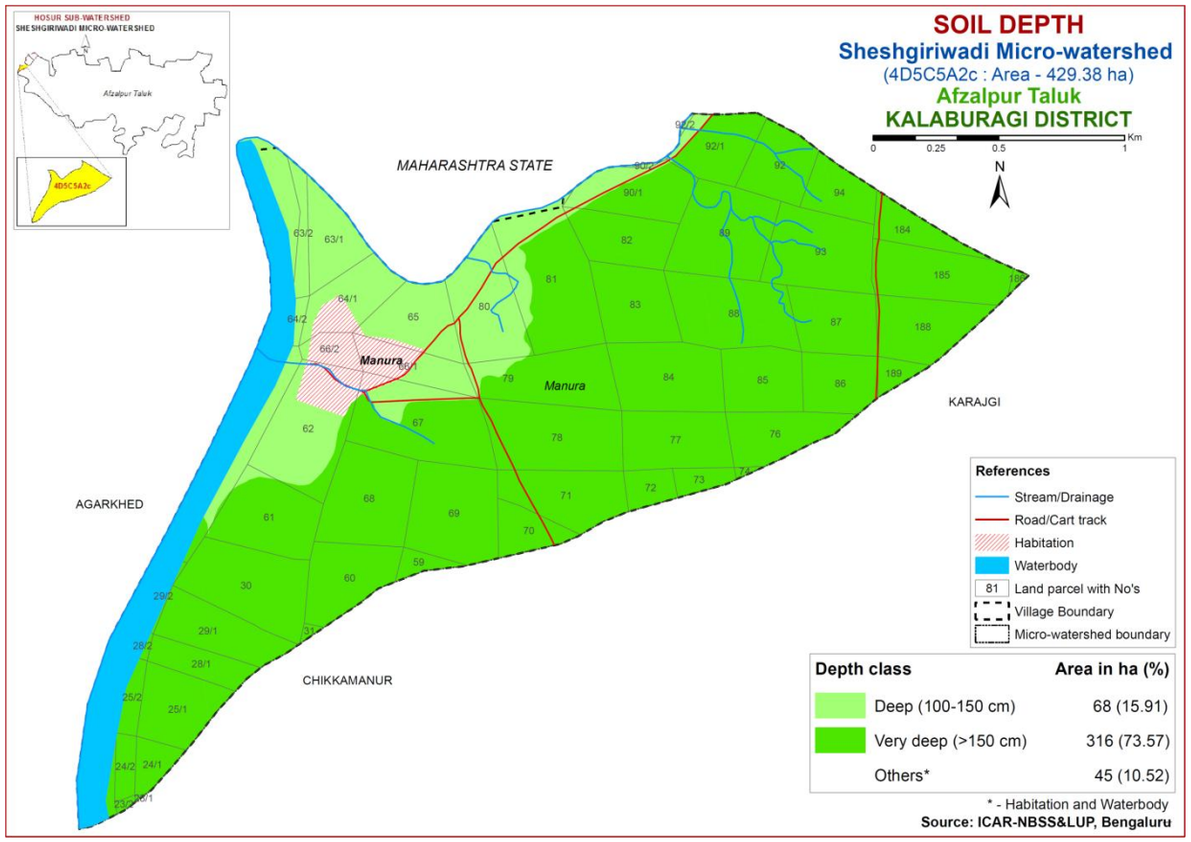
Table 2.Mapping unit description of Dimal -2 Micro-watershed (4D5C5A2b) Afzalpur taluk, Kalaburagi district

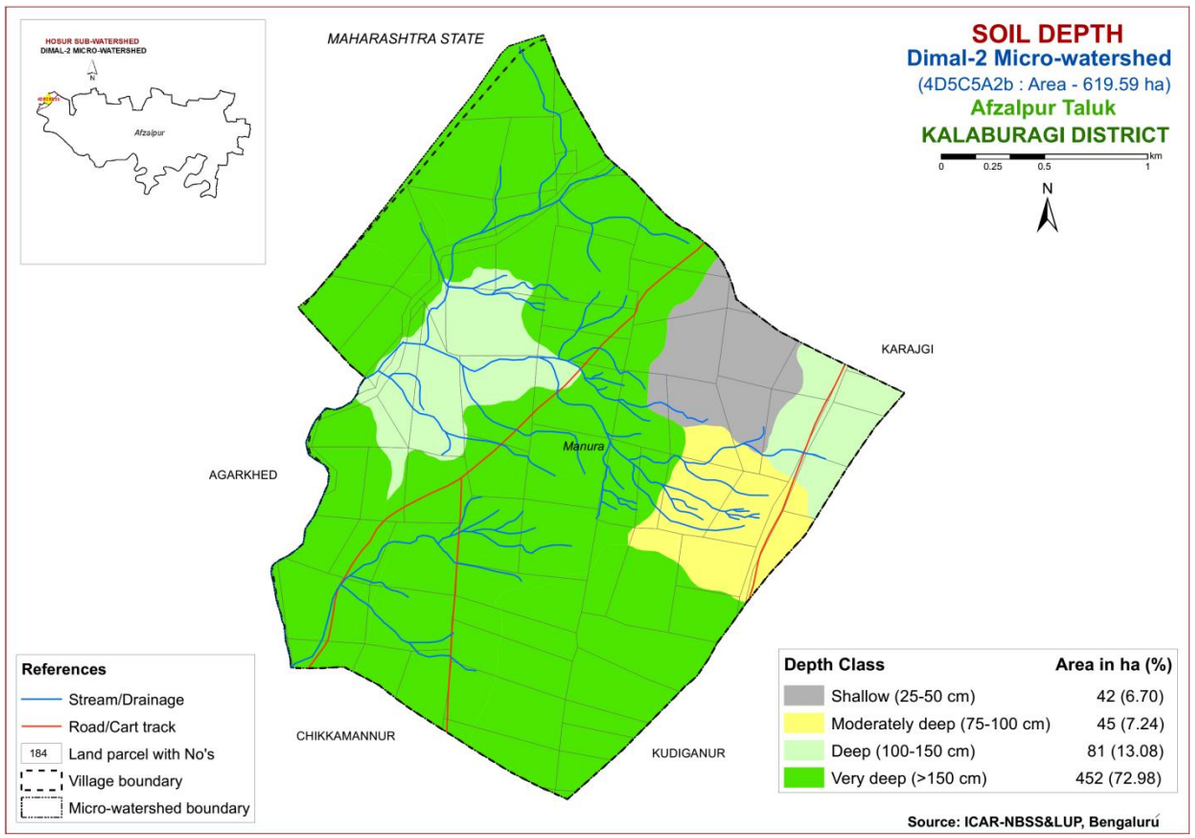
Sl. No*	Map unit	Description	Area in ha. (%)
1	NHAmB1	Shallow, black clayey soils developed from weathered basalt on very gently uplands; clay surface on 1-3% slope, moderately eroded	42 (6.7)
2	KMPmB1	Moderately deep, black clayey soils developed from weathered basalt on very gently uplands; clay surface on 1-3% slope, moderately eroded	45 (7.24)
3	DIMmB1	Deep, calcareous, black clayey soils developed from weathered basalt on very gently sloping uplands; clay surface on 1-3 % slope, slightly eroded	27 (4.38)
4	DIMmB2	Deep, calcareous, black clayey soils developed from weathered basalt on very gently sloping uplands; clay surface on 1-3 % slope, moderately eroded	54 (8.7)
5	MARmB1	Very deep, calcareous, black clayey soils developed from weathered basalt on very gently sloping uplands; clay surface on 1-3% slope, slightly eroded	172 (27.78)
6	MARmB2	Very deep, calcareous, black clayey soils developed from weathered basalt on very gently sloping uplands; clay surface on 1-3% slope, moderately eroded	231 (37.3)
7	MARmC2	Very deep, calcareous, black clayey soils developed from weathered basalt on gently sloping uplands; clay surface on 3-5% slope, moderately eroded	49 (7.9)

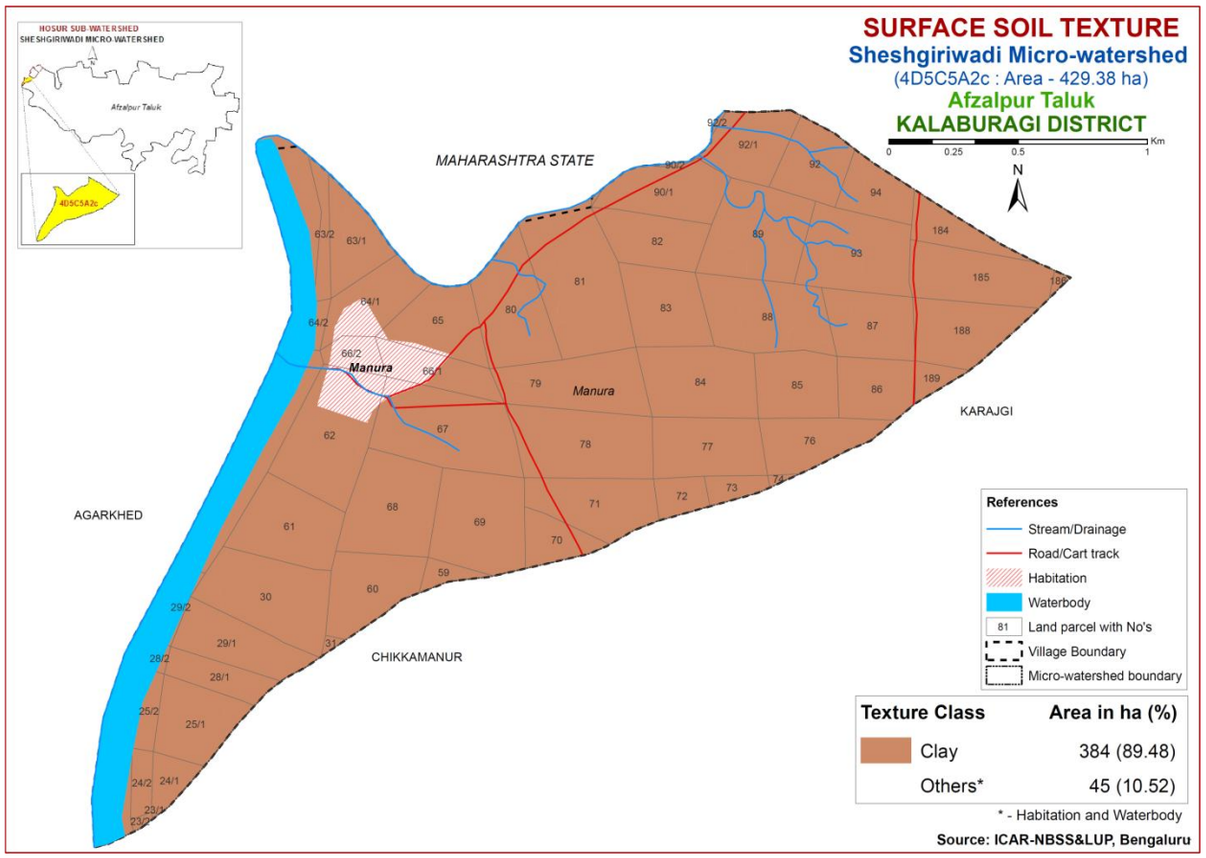
*Soil map unit numbers are continuous for the taluk, not the micro-watershed

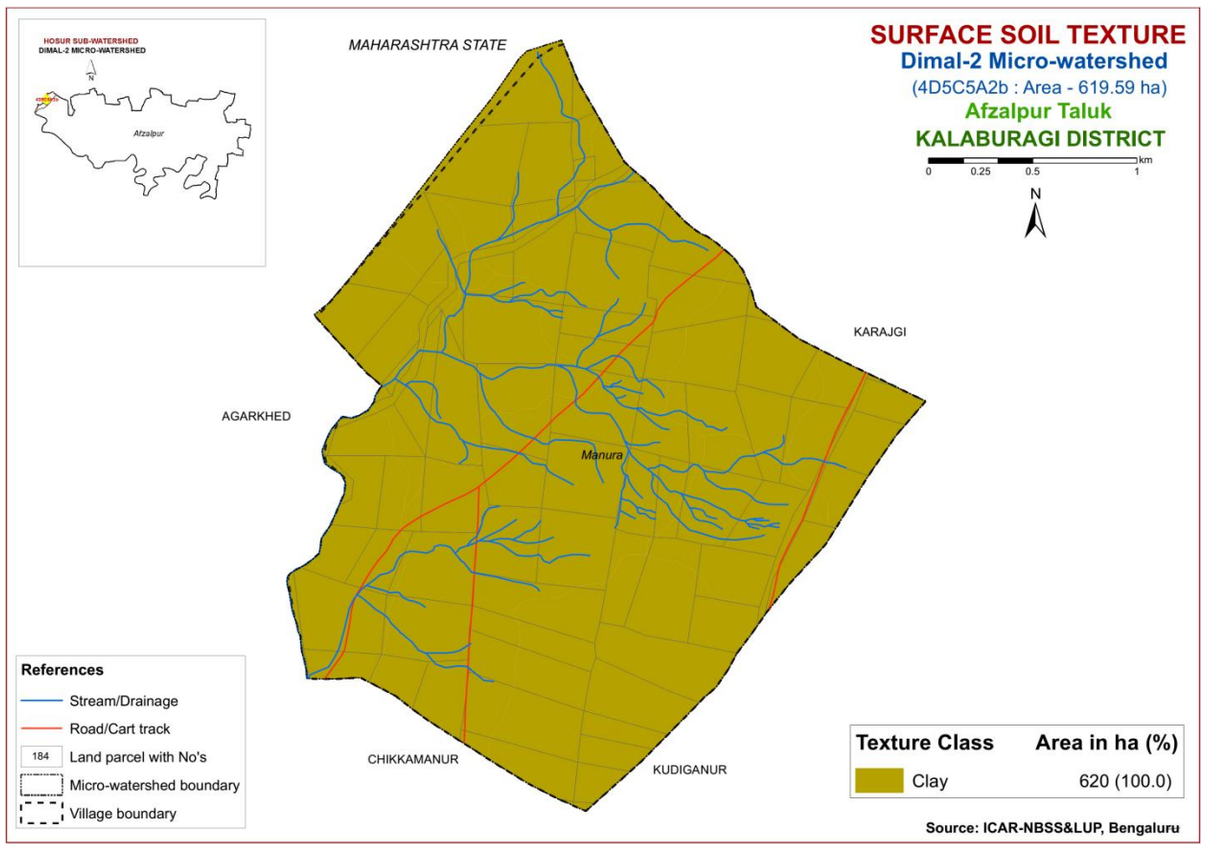

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND CAPABILITY
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
IIse
IIs
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
Key
II-Good cultivable land
Limitations
e- erosion limitation
s- soil limitation
(depth, gravelliness, texture, salinity/alkalinity)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Capability class
Area in ha (%)
IIs 232 (54.14)
IIse 152 (35.34)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

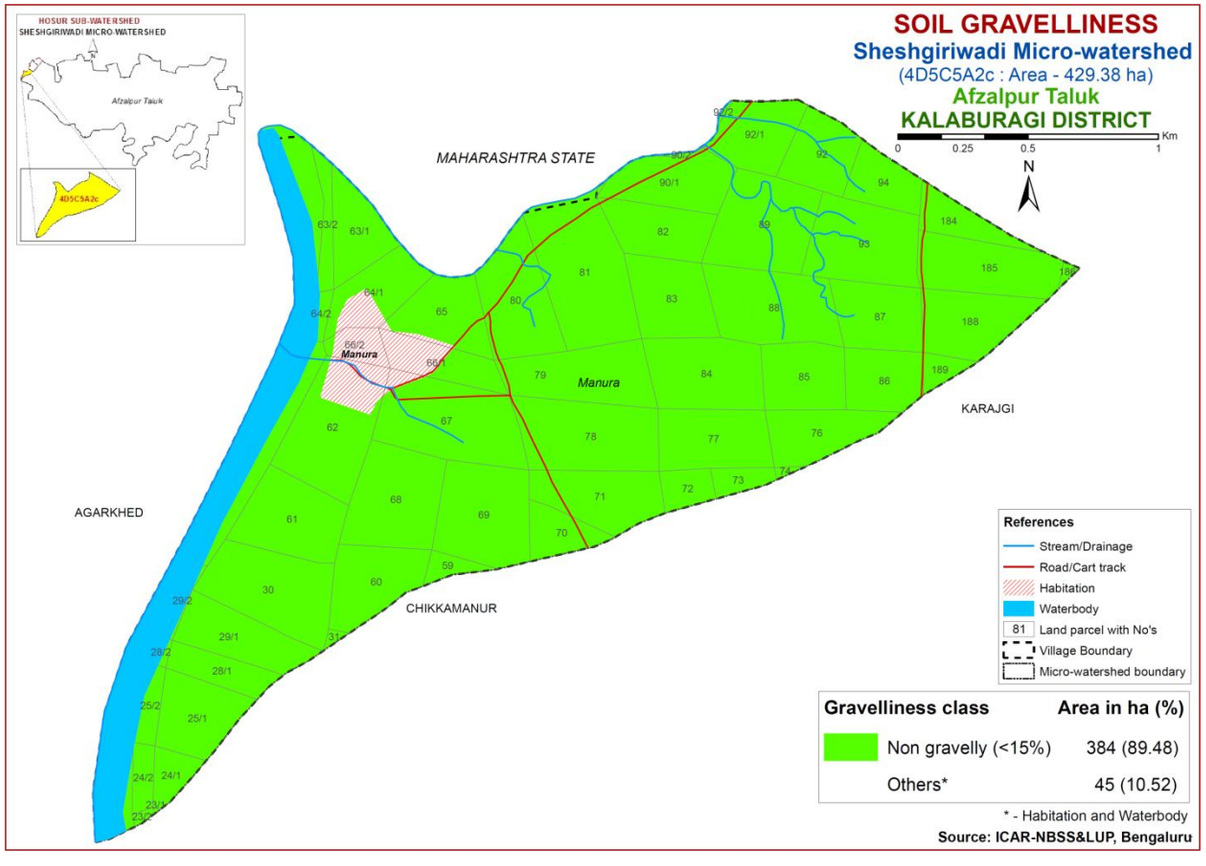

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND CAPABILITY
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
IIIs
IIse
IIs
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
KUDIGANUR
Key
II-Good cultivable land
III-Moderately good cultivable land
Limitations
e- erosion limitation
s- soil limitation
(depth, gravelliness, texture, salinity/alkalinity)
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Capability Class
Area in ha (%)
IIs 244 (39.4)
IIse 334 (53.9)
IIIs 42 (6.7)
Source: ICAR-NBSS&LUP, Bengaluru

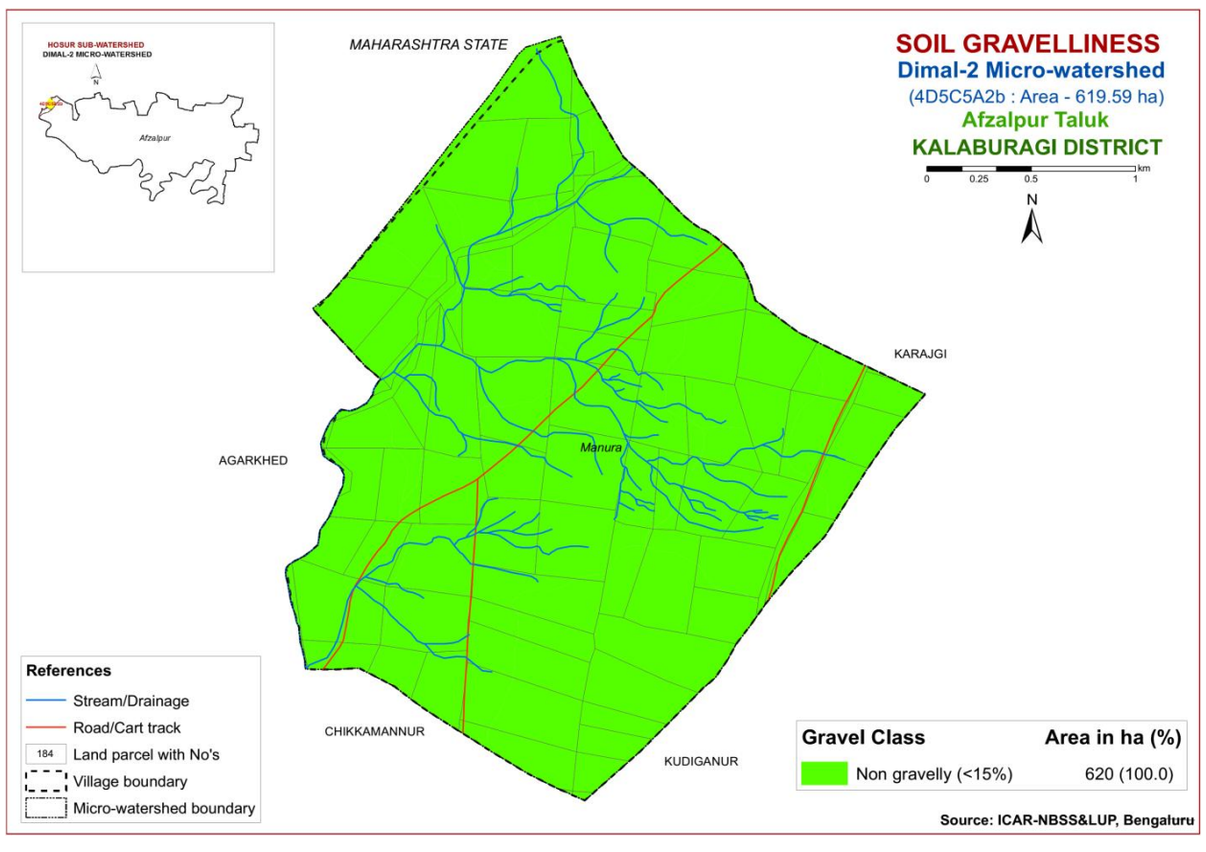

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
SOIL DEPTH
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Depth class
Area in ha (%)
Deep (100-150 cm) 68 (15.91)
Very deep (>150 cm) 316 (73.57)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

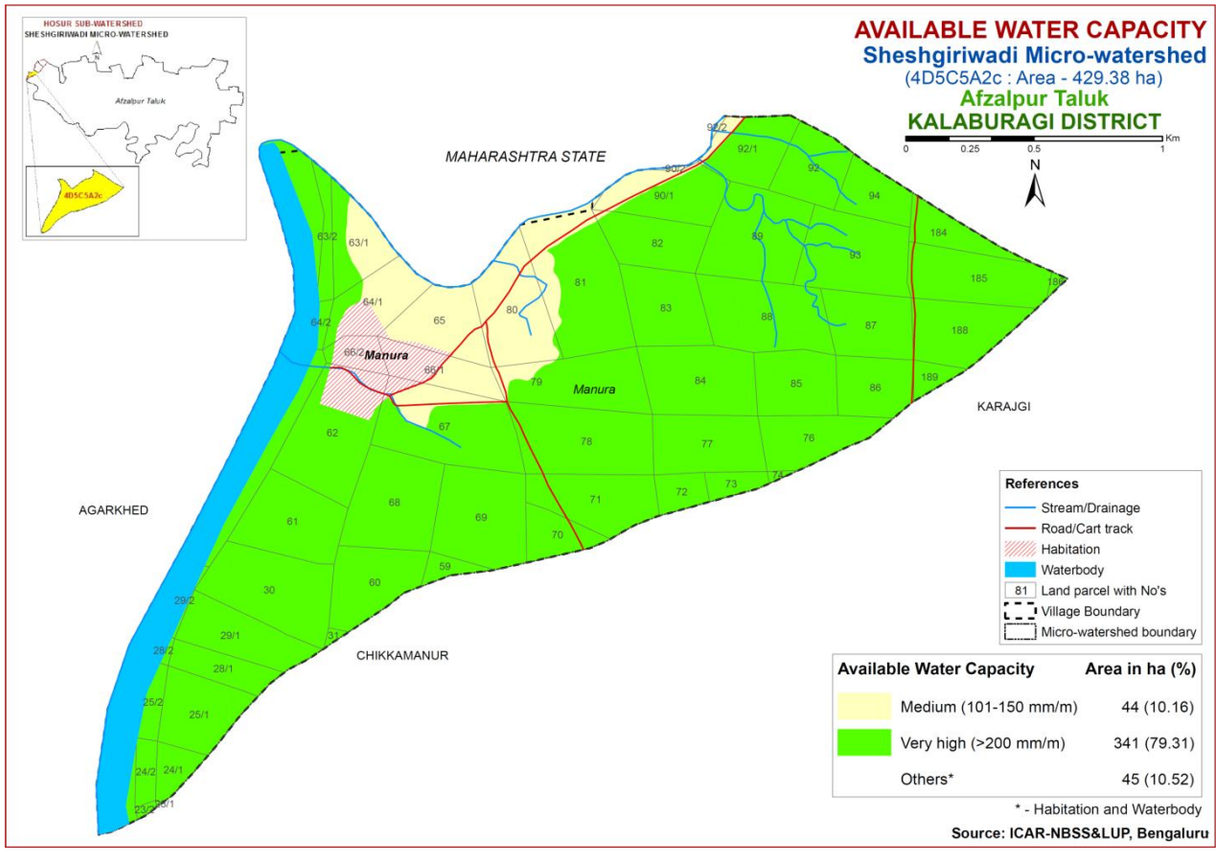

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
SOIL DEPTH
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
Manura
KARAJGI
AGARKHED
CHIKKAMANNUR
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Depth Class
Area in ha (%)
Shallow (25-50 cm) 42 (6.70)
Moderately deep (75-100 cm) 45 (7.24)
Deep (100-150 cm) 81 (13.08)
Very deep (>150 cm) 452 (72.98)
Source: ICAR-NBSS&LUP, Bengaluru

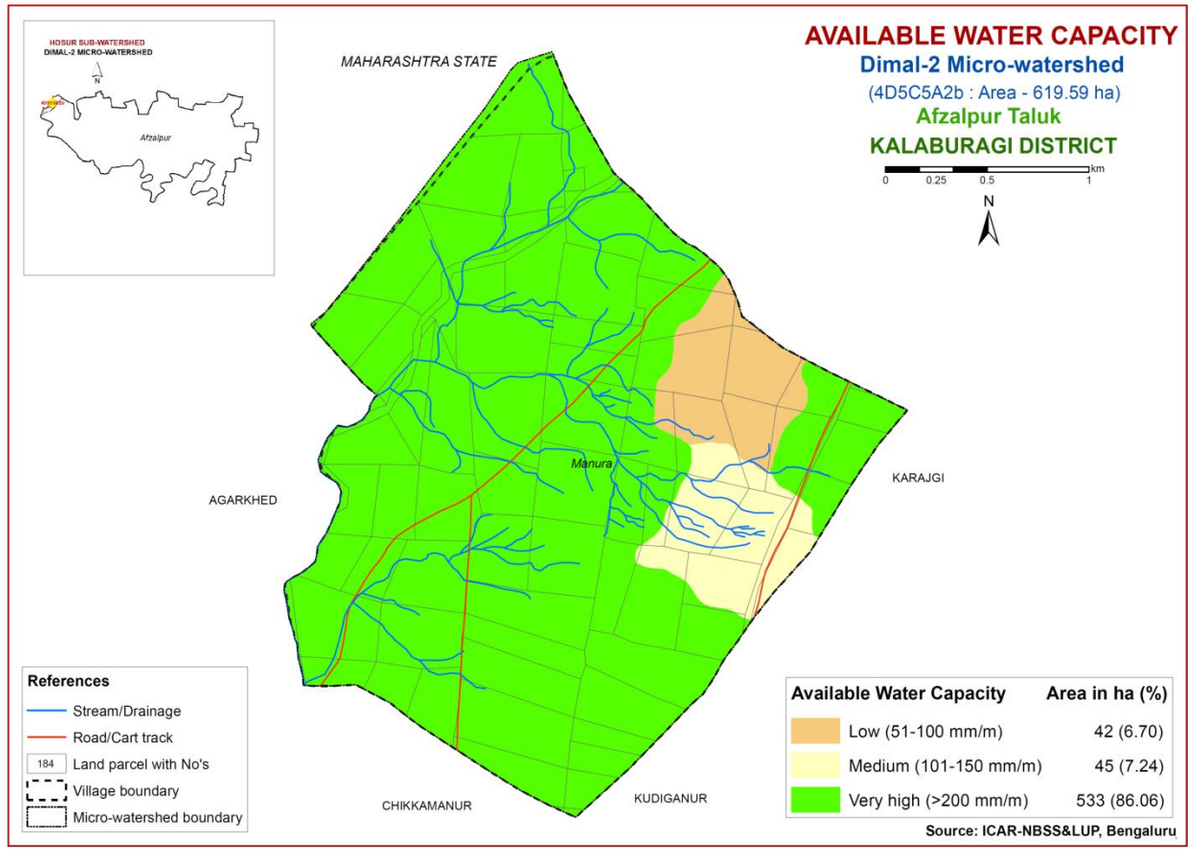

SURFACE SOIL TEXTURE
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
4D5C5A2c
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
0 0.25 0.5 1 Km
N
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Texture Class
Area in ha (%)
Clay 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

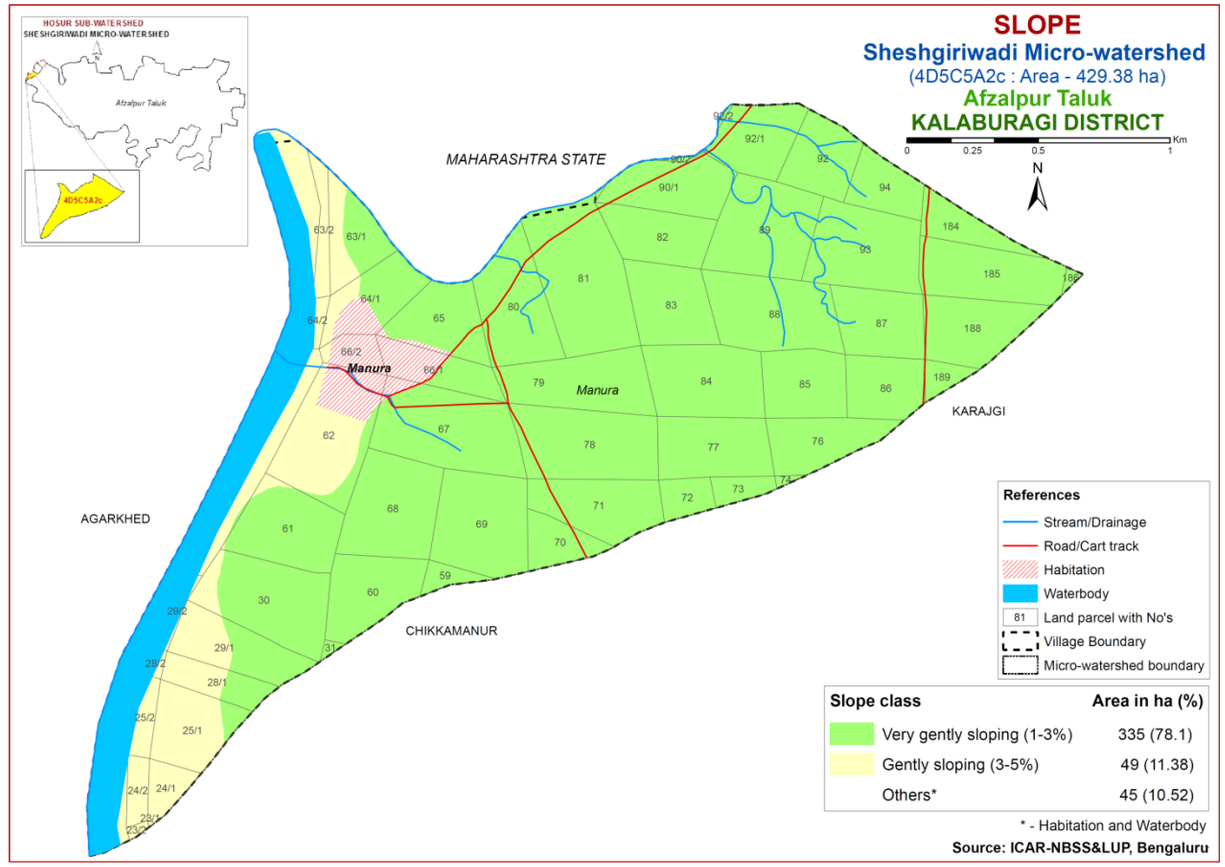

SURFACE SOIL TEXTURE
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KUDIGANUR
KARAJGI
Manura
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Micro-watershed boundary
Village boundary
Texture Class
Area in ha (%)
Clay 620 (100.0)
Source: ICAR-NBSS&LUP, Bengaluru

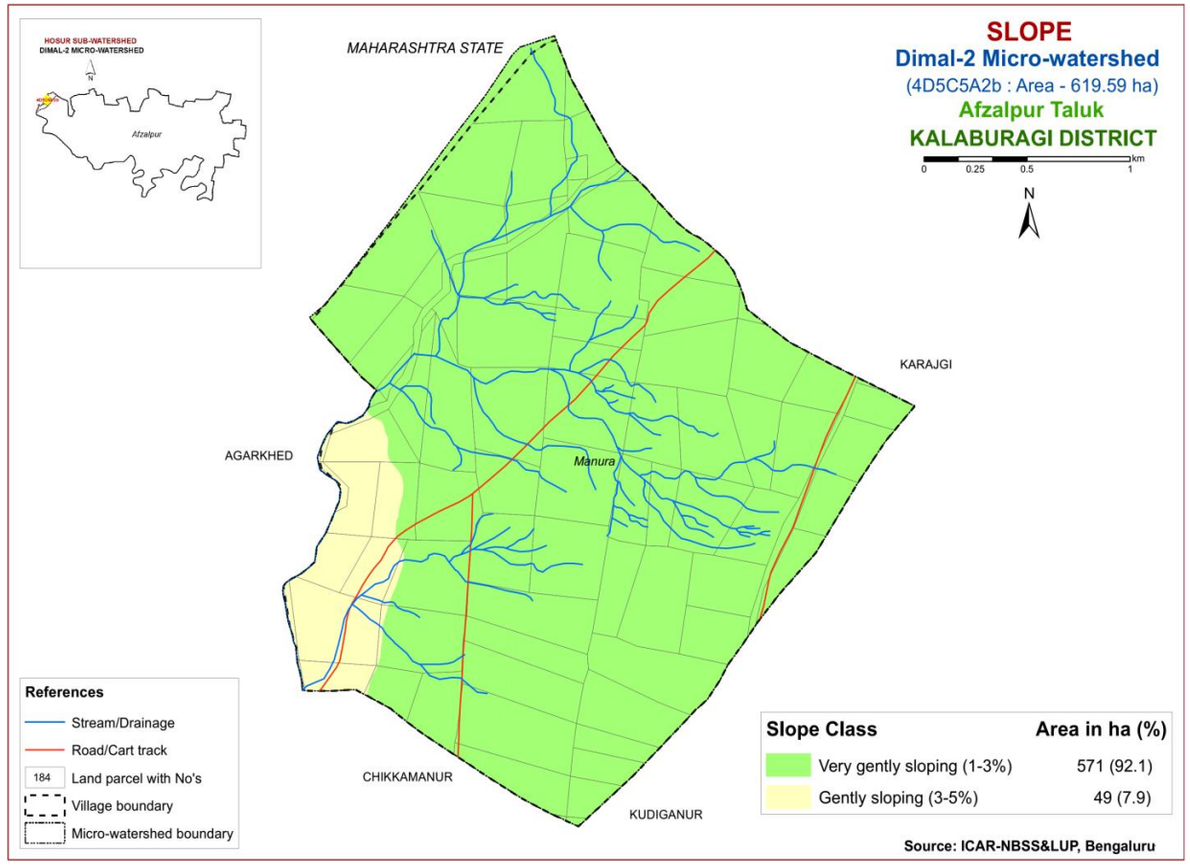

SOIL GRAVELLINESS
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
4D5C5A2c
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
0 0.25 0.5 1 Km
N
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Gravelliness class
Area in ha (%)
Non gravelly (<15%) 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

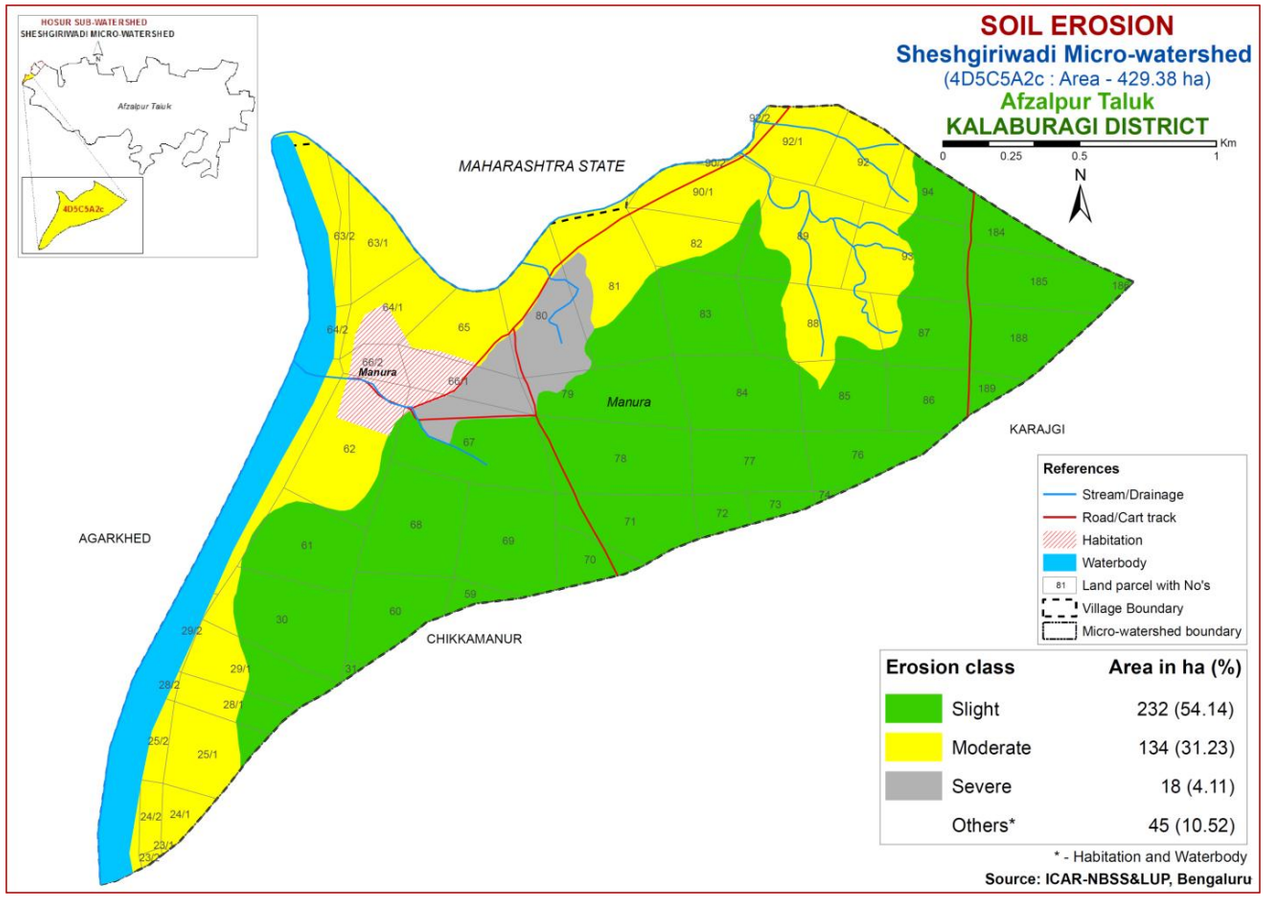

SOIL GRAVELLINESS
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
MAHARASHTRA STATE
AGARKHED
CHIKKAMANNUR
KUDIGANUR
KARAJGI
Manura
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Gravel Class
Area in ha (%)
Non gravelly (<15%) 620 (100.0)
Source: ICAR-NBSS&LUP, Bengaluru


AVAILABLE WATER CAPACITY
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
4D5C5A2c
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Available Water Capacity | Area in ha (%)
Medium (101-150 mm/m) | 44 (10.16)
Very high (>200 mm/m) | 341 (79.31)
Others* | 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

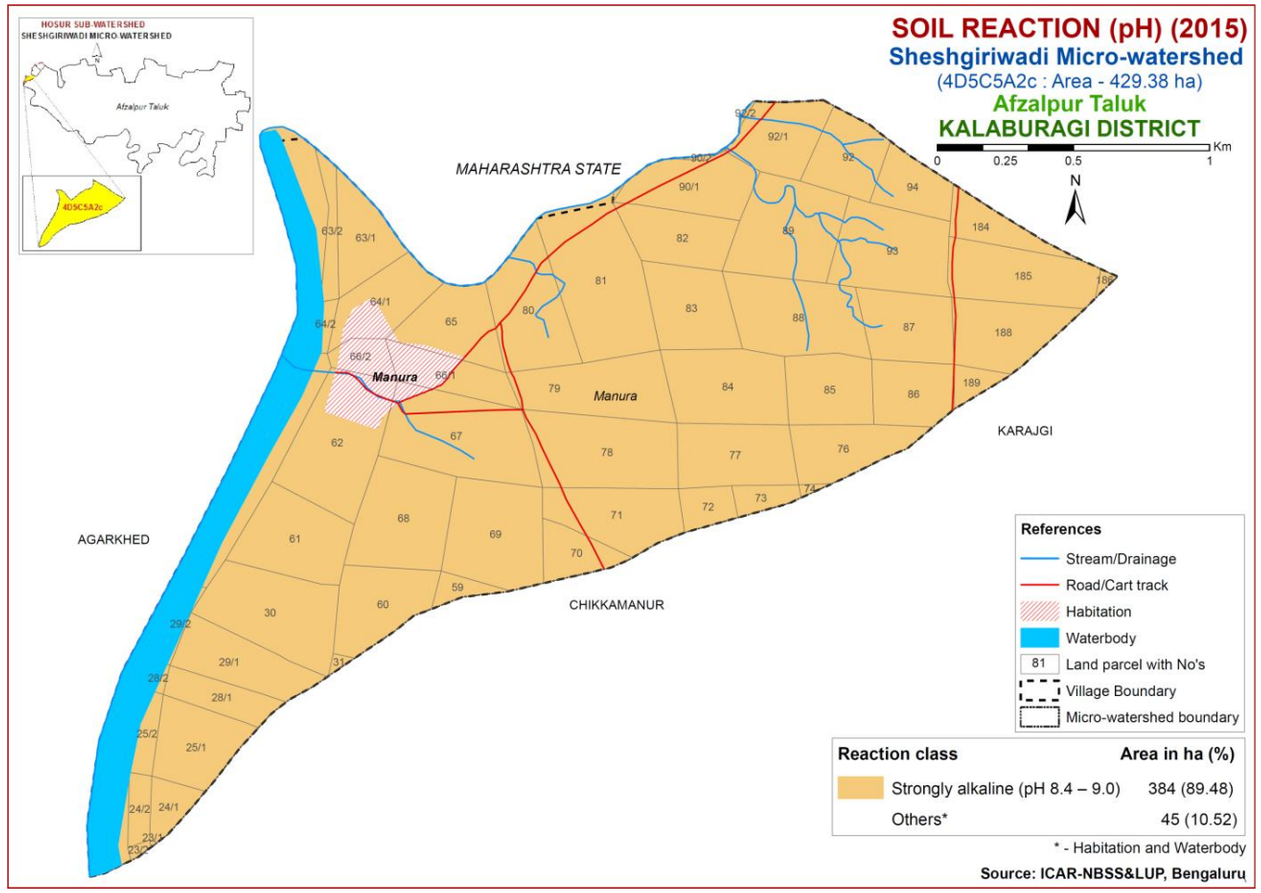

AVAILABLE WATER CAPACITY
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
KUDIGANUR
Manura
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Water Capacity | Area in ha (%)
Low (51-100 mm/m) | 42 (6.70)
Medium (101-150 mm/m) | 45 (7.24)
Very high (>200 mm/m) | 533 (86.06)
Source: ICAR-NBSS&LUP, Bengaluru

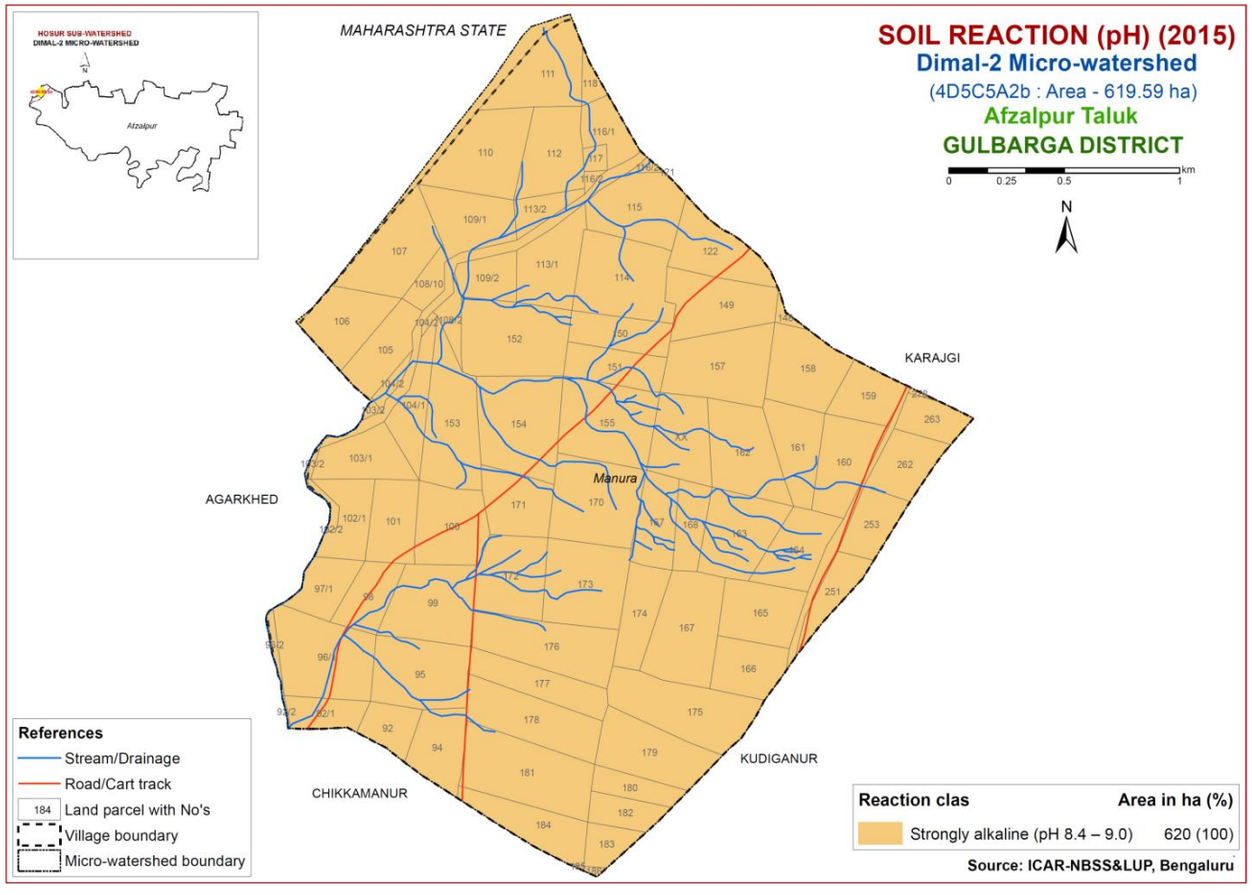

SLOPE
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
4D5C5A2c
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Slope class | Area in ha (%)
Very gently sloping (1-3%) | 335 (78.1)
Gently sloping (3-5%) | 49 (11.38)
Others* | 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

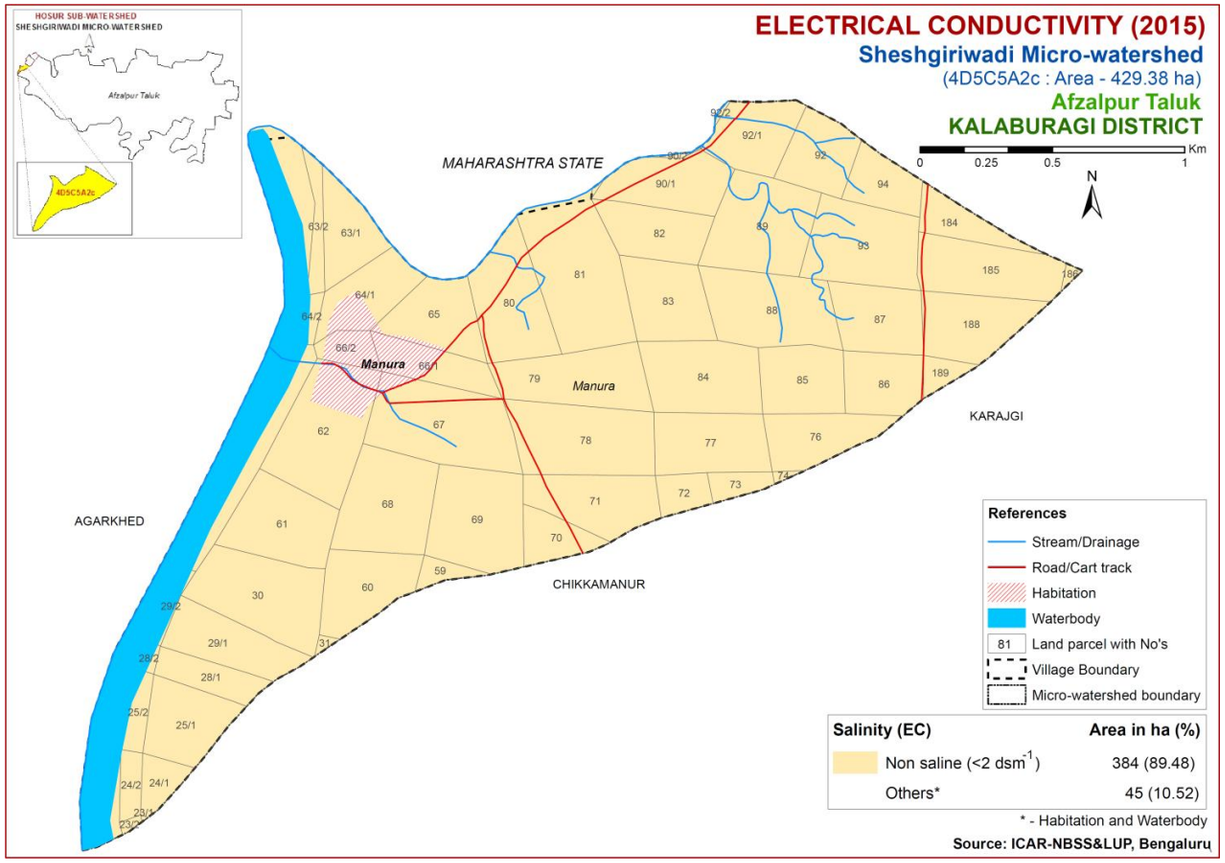

SLOPE
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
KUDIGANUR
Manura
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Slope Class | Area in ha (%)
Very gently sloping (1-3%) | 571 (92.1)
Gently sloping (3-5%) | 49 (7.9)
Source: ICAR-NBSS&LUP, Bengaluru

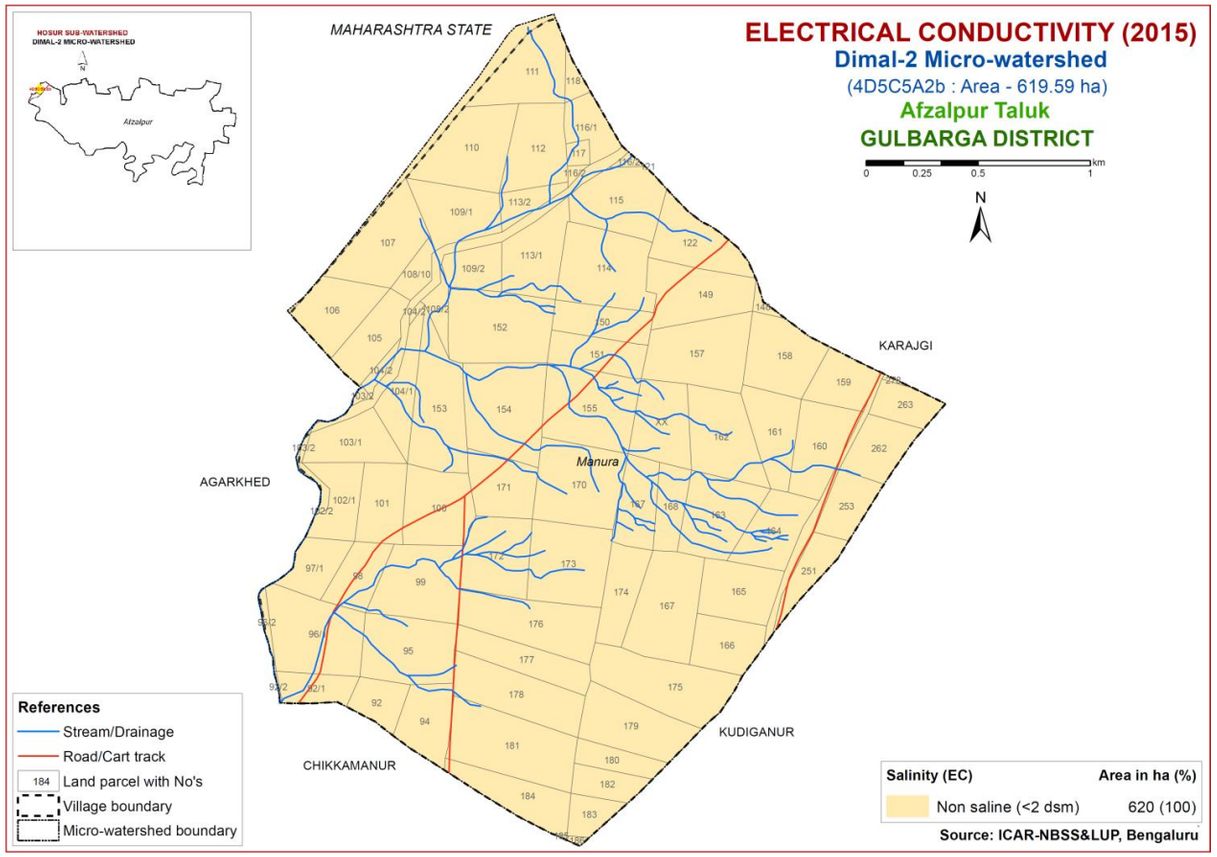

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
SOIL EROSION
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village Boundary
Micro-watershed boundary
Erosion class
Area in ha (%)
Slight
232 (54.14)
Moderate
134 (31.23)
Severe
18 (4.11)
Others*
45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

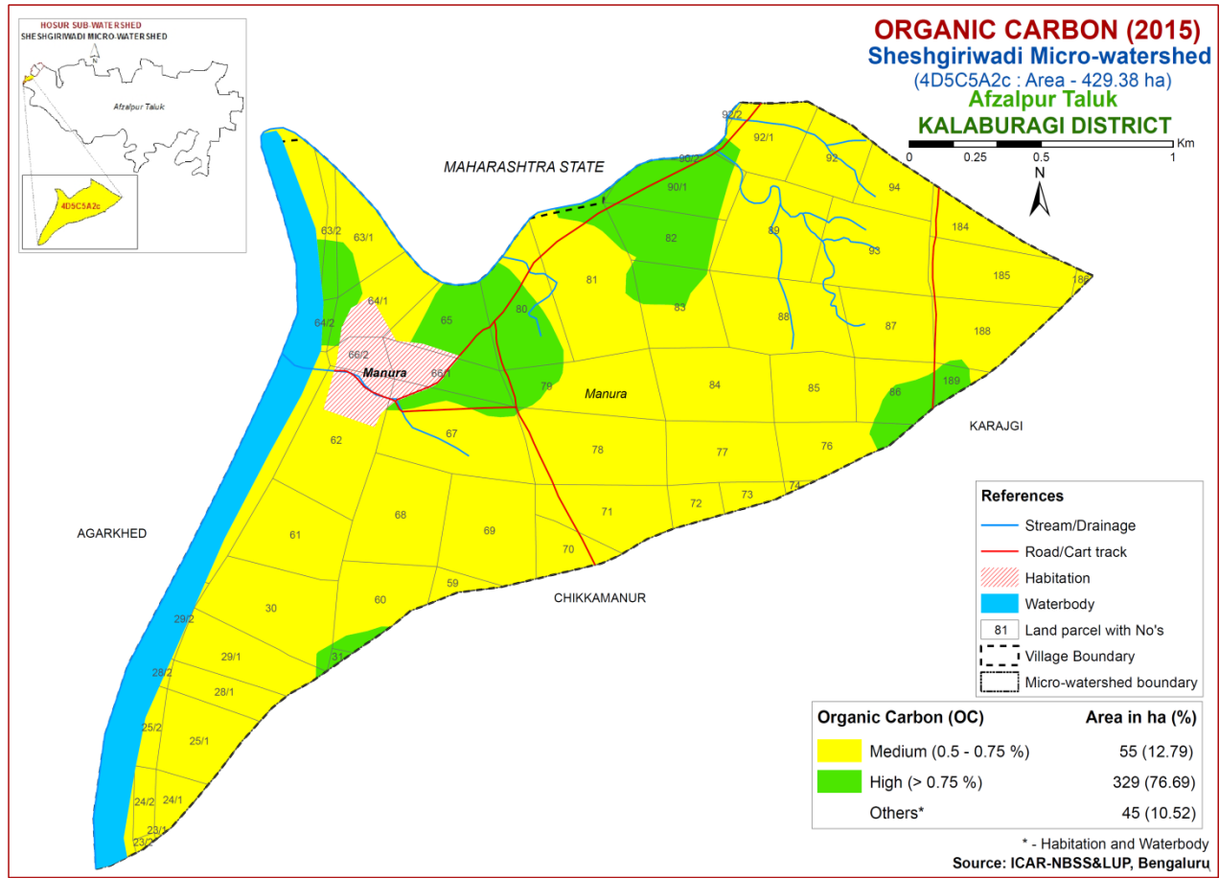

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
SOIL EROSION
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
KARAJGI
AGARKHED
Manura
CHIKKAMANNUR
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Erosion Class
Area in ha (%)
Slight
286 (46.1)
Moderate
334 (53.9)
Source: ICAR-NBSS&LUP, Bengaluru

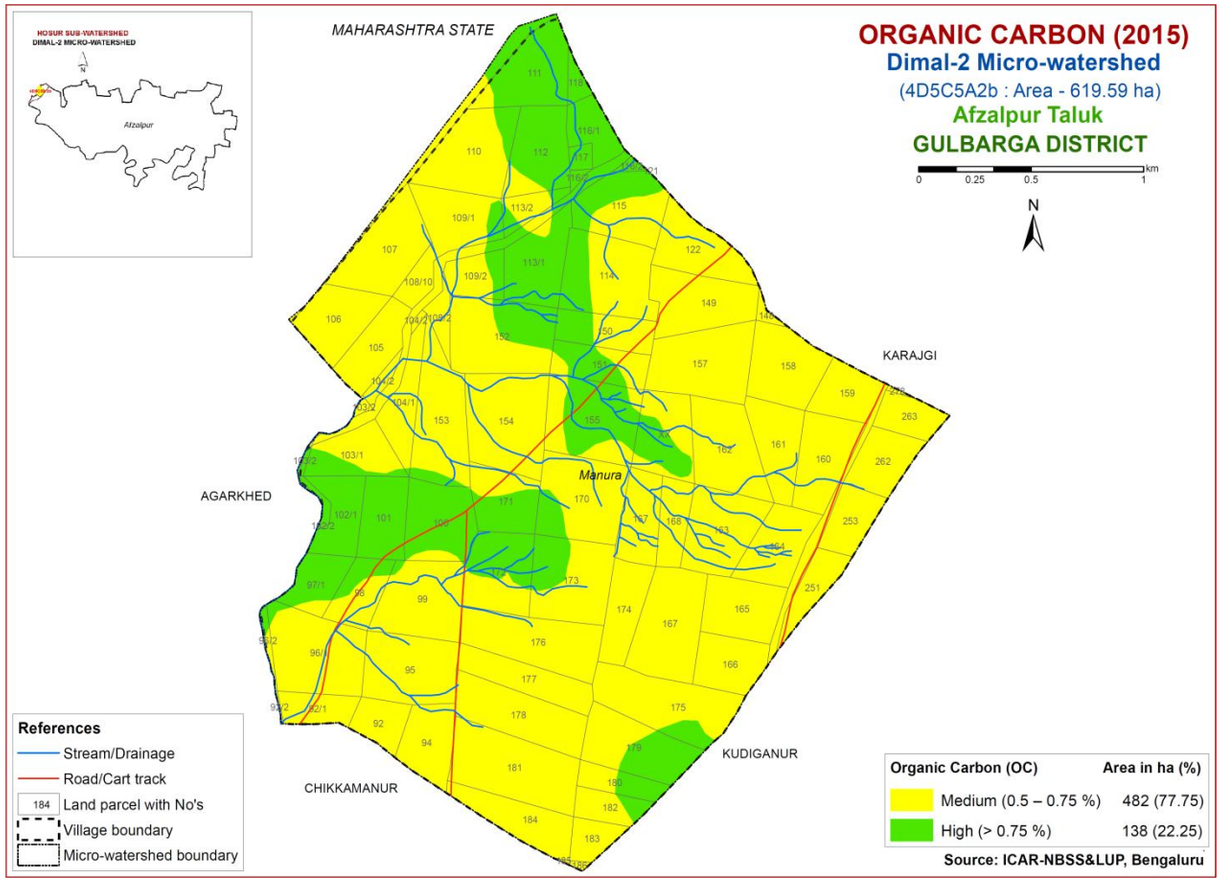

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
SOIL REACTION (pH) (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Reaction class
Area in ha (%)
Strongly alkaline (pH 8.4 – 9.0) 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

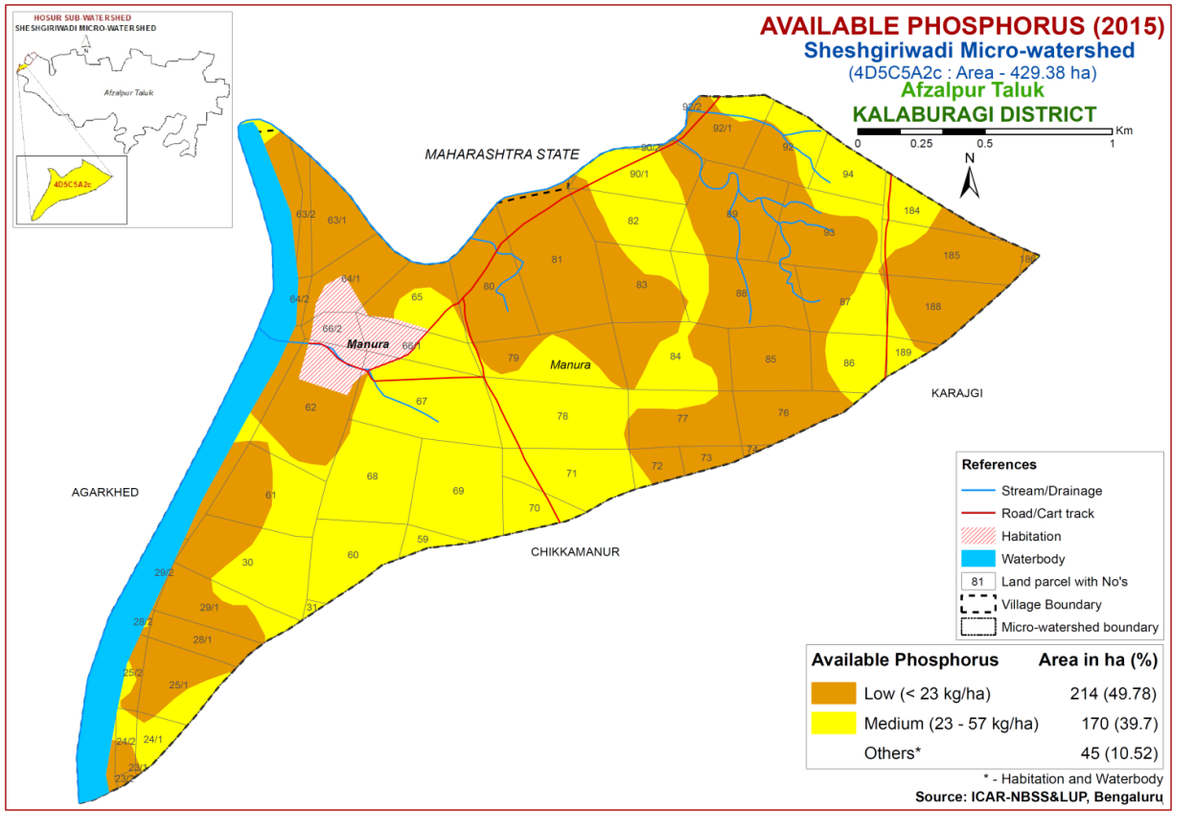

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
SOIL REACTION (pH) (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Reaction clas
Area in ha (%)
Strongly alkaline (pH 8.4 – 9.0) 620 (100)
Source: ICAR-NBSS&LUP, Bengaluru

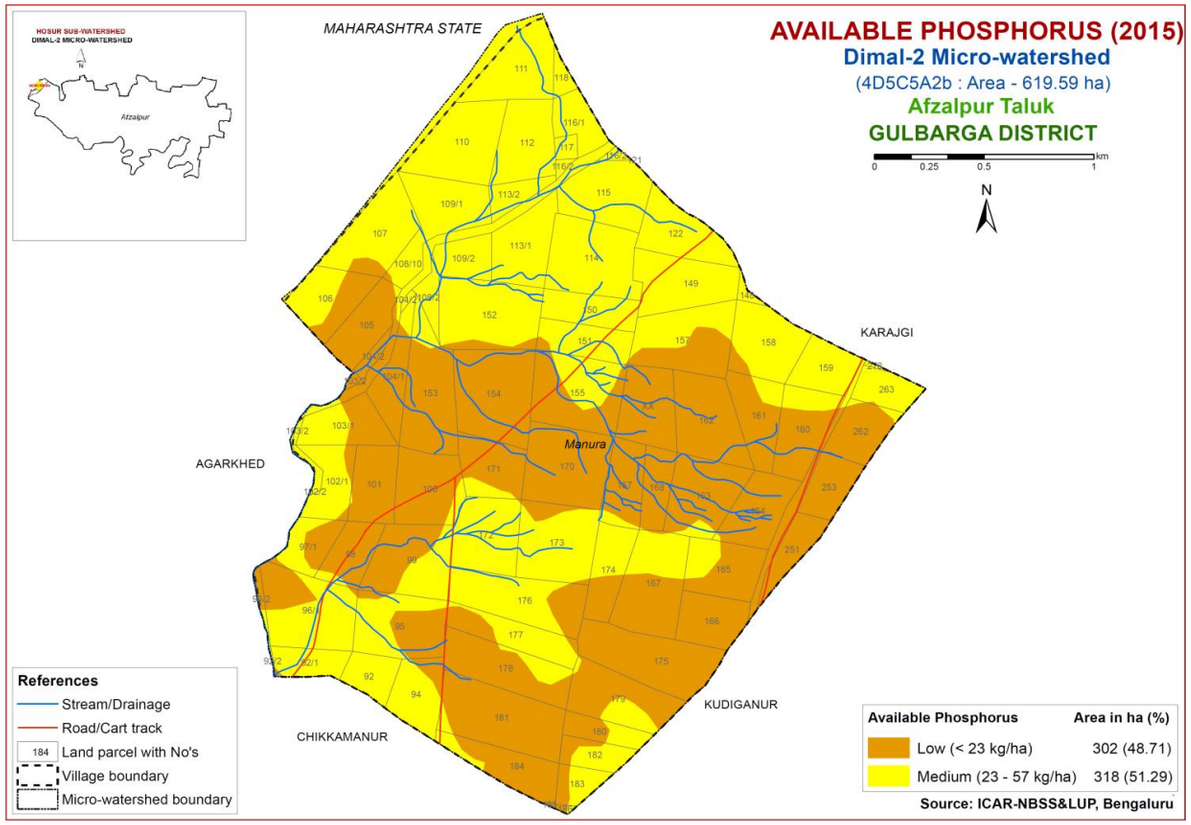

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
ELECTRICAL CONDUCTIVITY (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
AGARKHED
CHIKKAMANUR
KARAJGI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Salinity (EC) Area in ha (%)
Non saline (<2 dsm-1) 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

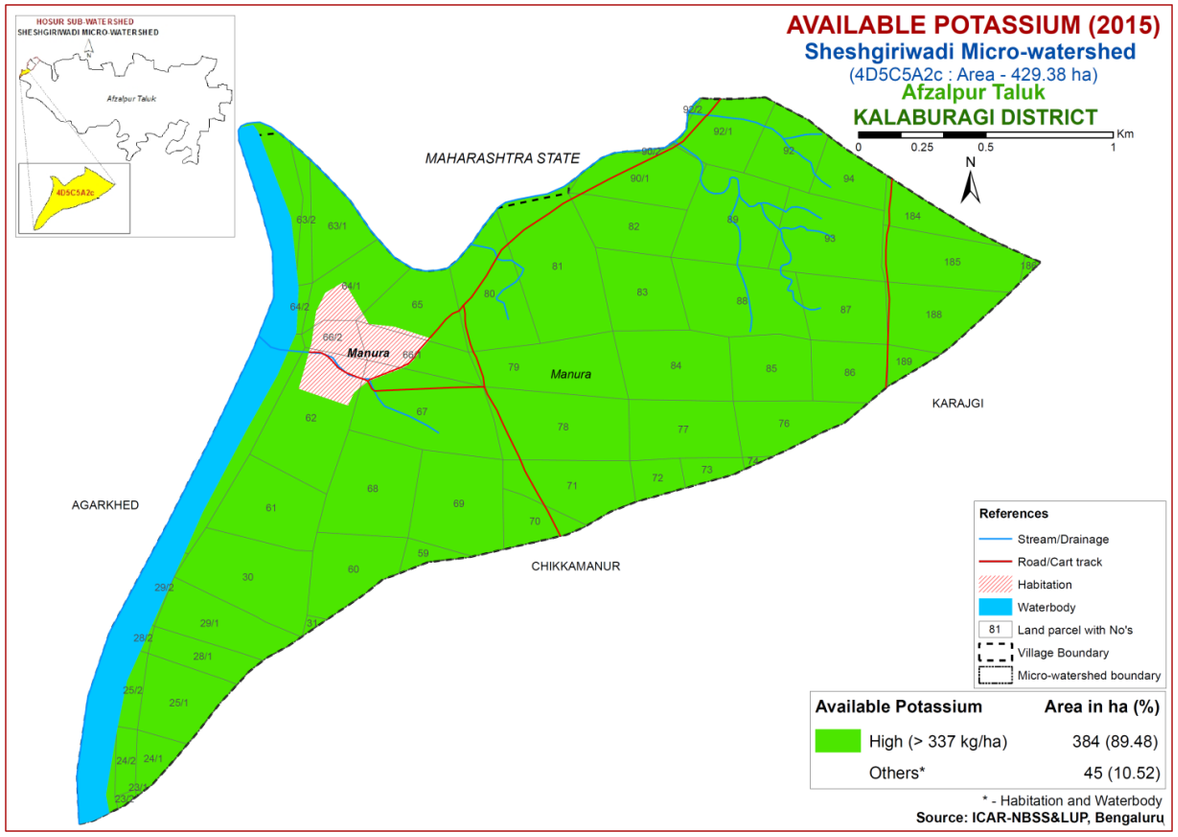

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
MAHARASHTRA STATE
ELECTRICAL CONDUCTIVITY (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Manura
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Salinity (EC) Area in ha (%)
Non saline (<2 dsm) 620 (100)
Source: ICAR-NBSS&LUP, Bengaluru

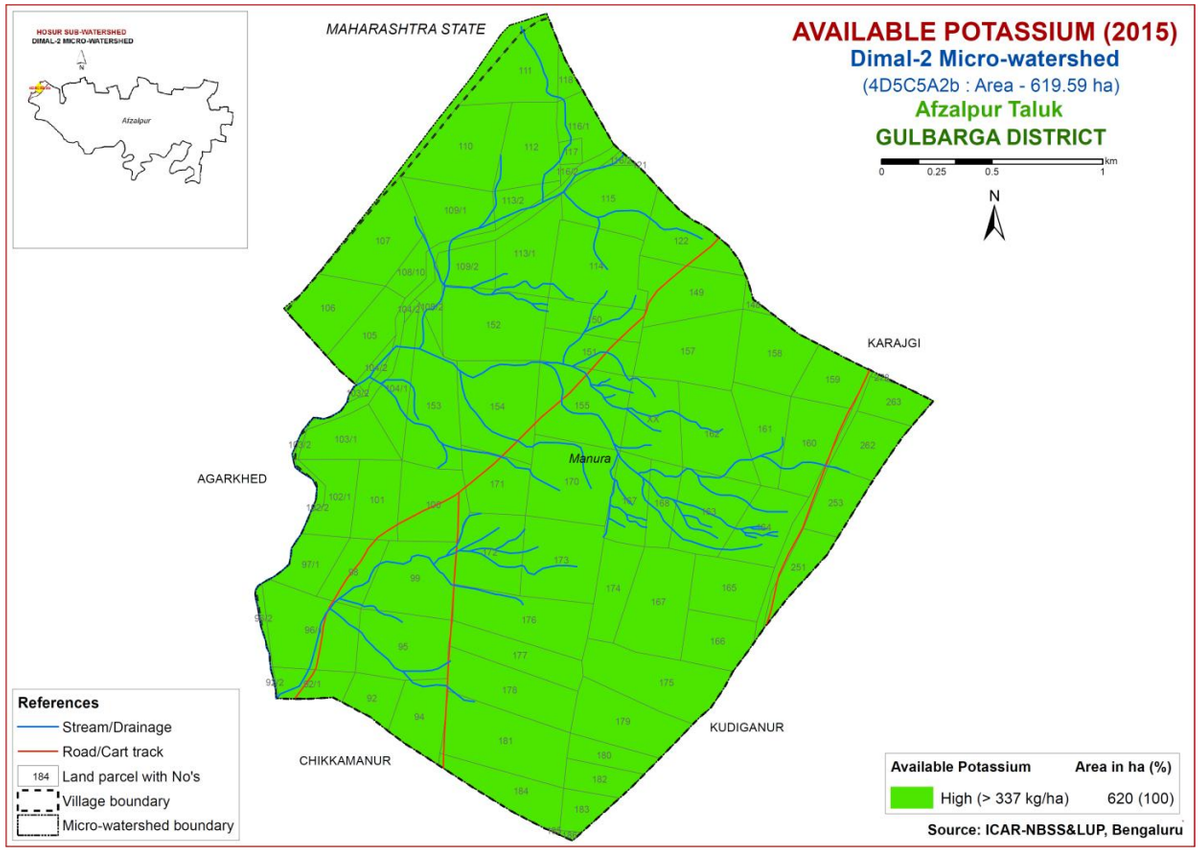

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
ORGANIC CARBON (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
AGARKHED
CHIKKAMANUR
KARAJGI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Organic Carbon (OC) Area in ha (%)
Medium (0.5 - 0.75 %) 55 (12.79)
High (> 0.75 %) 329 (76.69)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

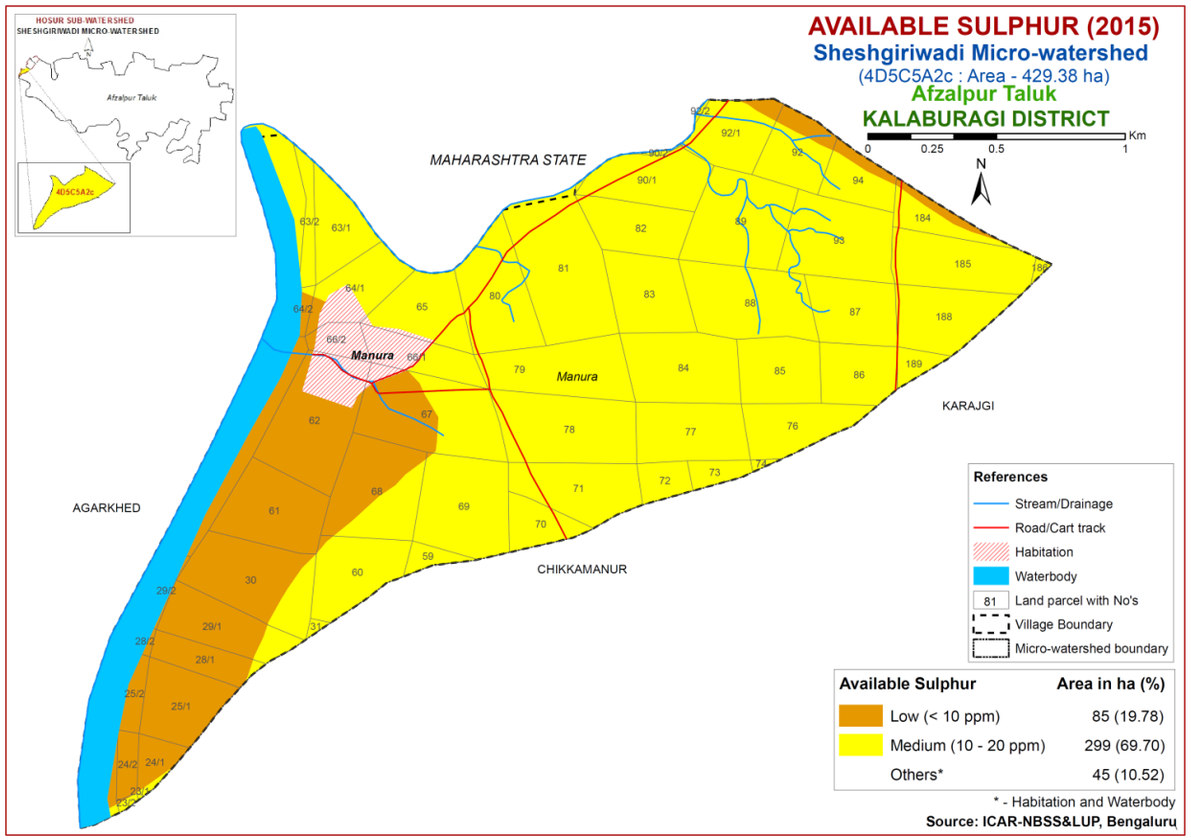

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
MAHARASHTRA STATE
ORGANIC CARBON (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Manura
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Organic Carbon (OC) Area in ha (%)
Medium (0.5 – 0.75 %) 482 (77.75)
High (> 0.75 %) 138 (22.25)
Source: ICAR-NBSS&LUP, Bengaluru

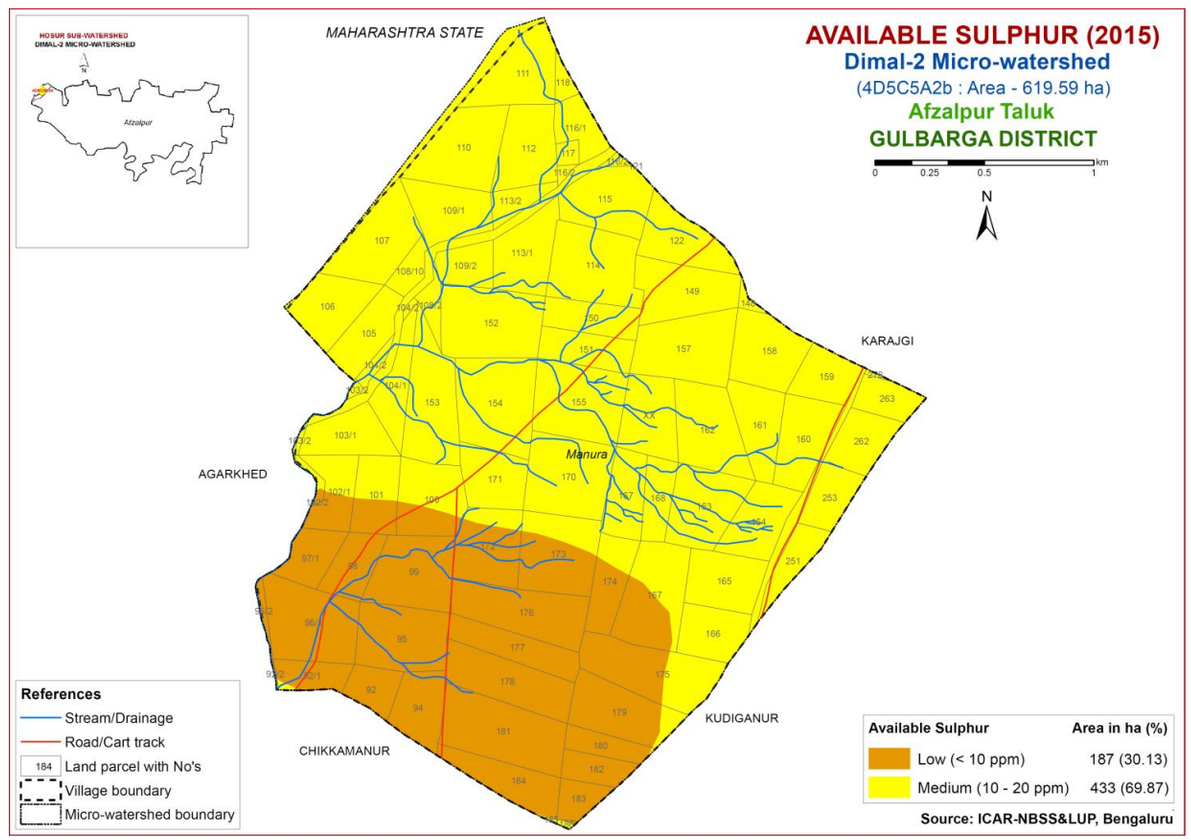

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
AVAILABLE PHOSPHORUS (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
AGARKHED
CHIKKAMANUR
KARAJGI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Available Phosphorus Area in ha (%)
Low (< 23 kg/ha) 214 (49.78)
Medium (23 - 57 kg/ha) 170 (39.7)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

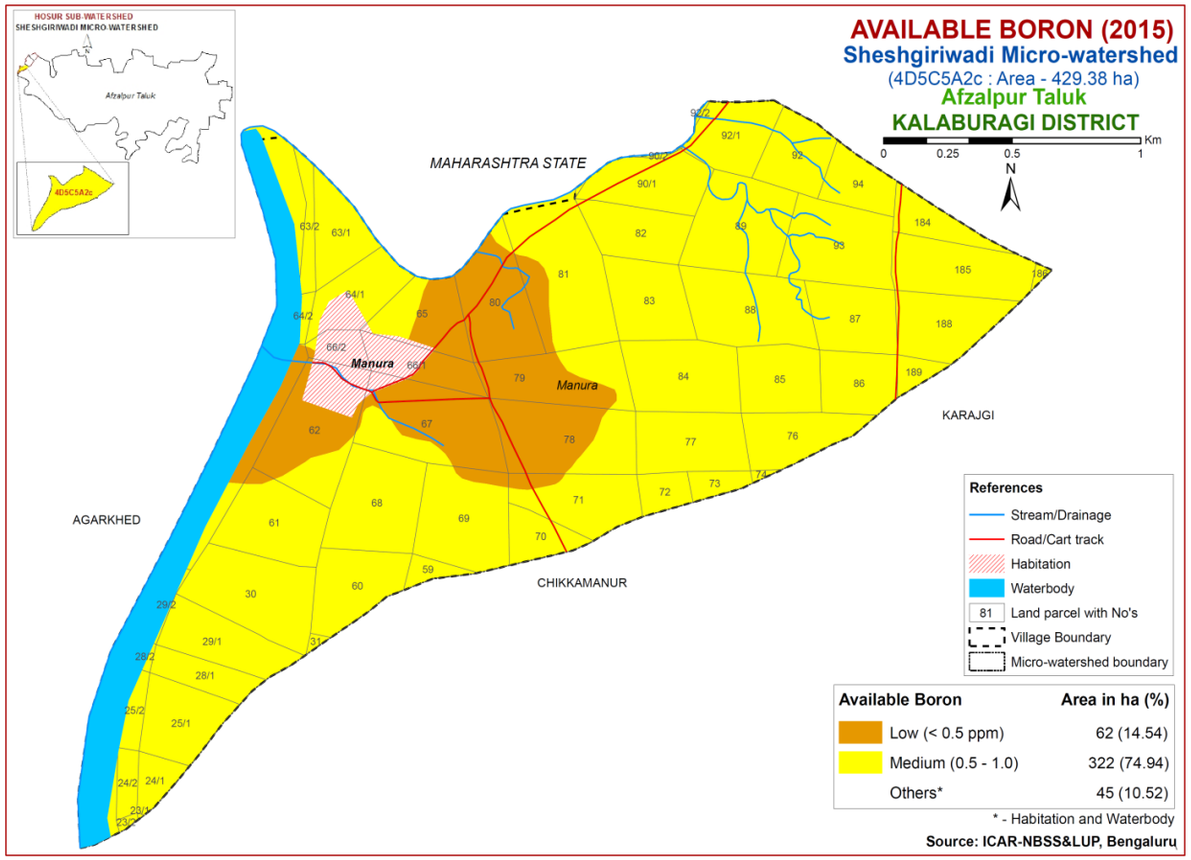

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
MAHARASHTRA STATE
AVAILABLE PHOSPHORUS (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Manura
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Phosphorus Area in ha (%)
Low (< 23 kg/ha) 302 (48.71)
Medium (23 - 57 kg/ha) 318 (51.29)
Source: ICAR-NBSS&LUP, Bengaluru

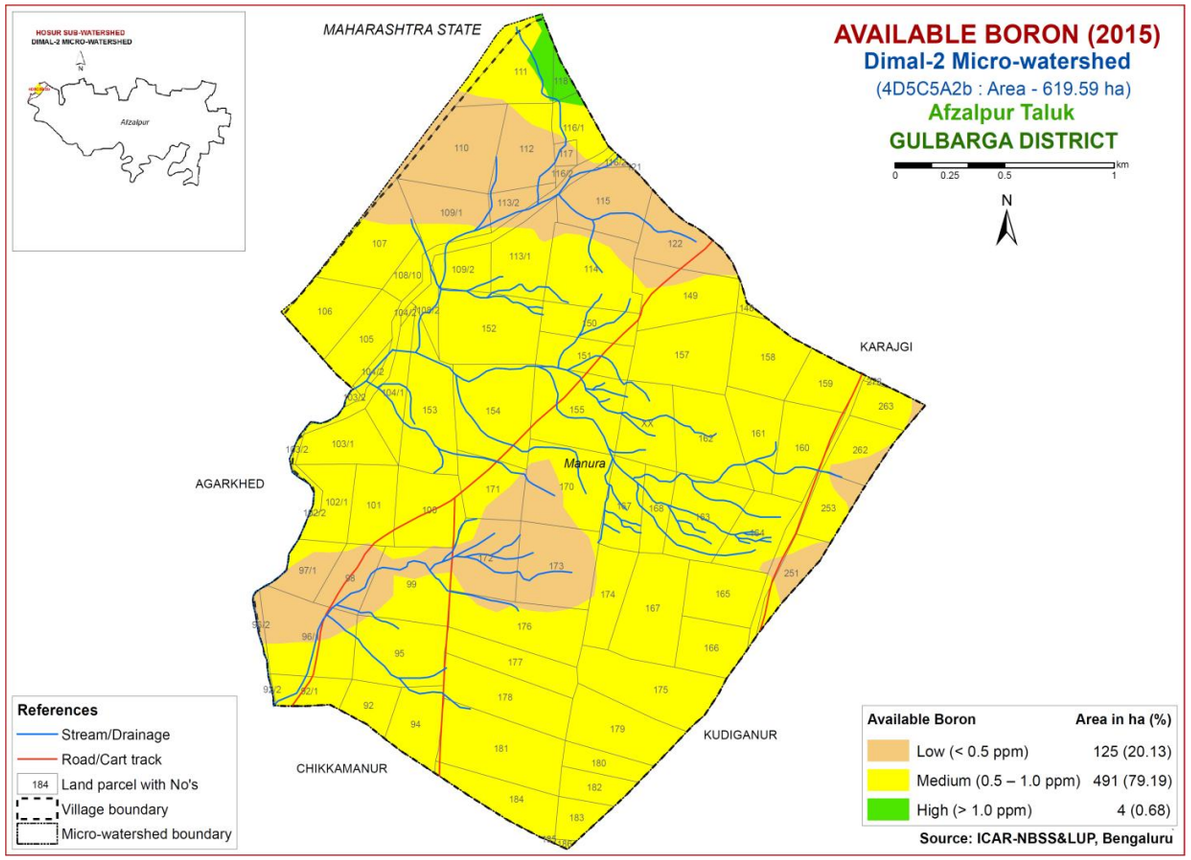

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
AVAILABLE POTASSIUM (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
AGARKHED
CHIKKAMANUR
KARAJGI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Available Potassium Area in ha (%)
High (> 337 kg/ha) 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

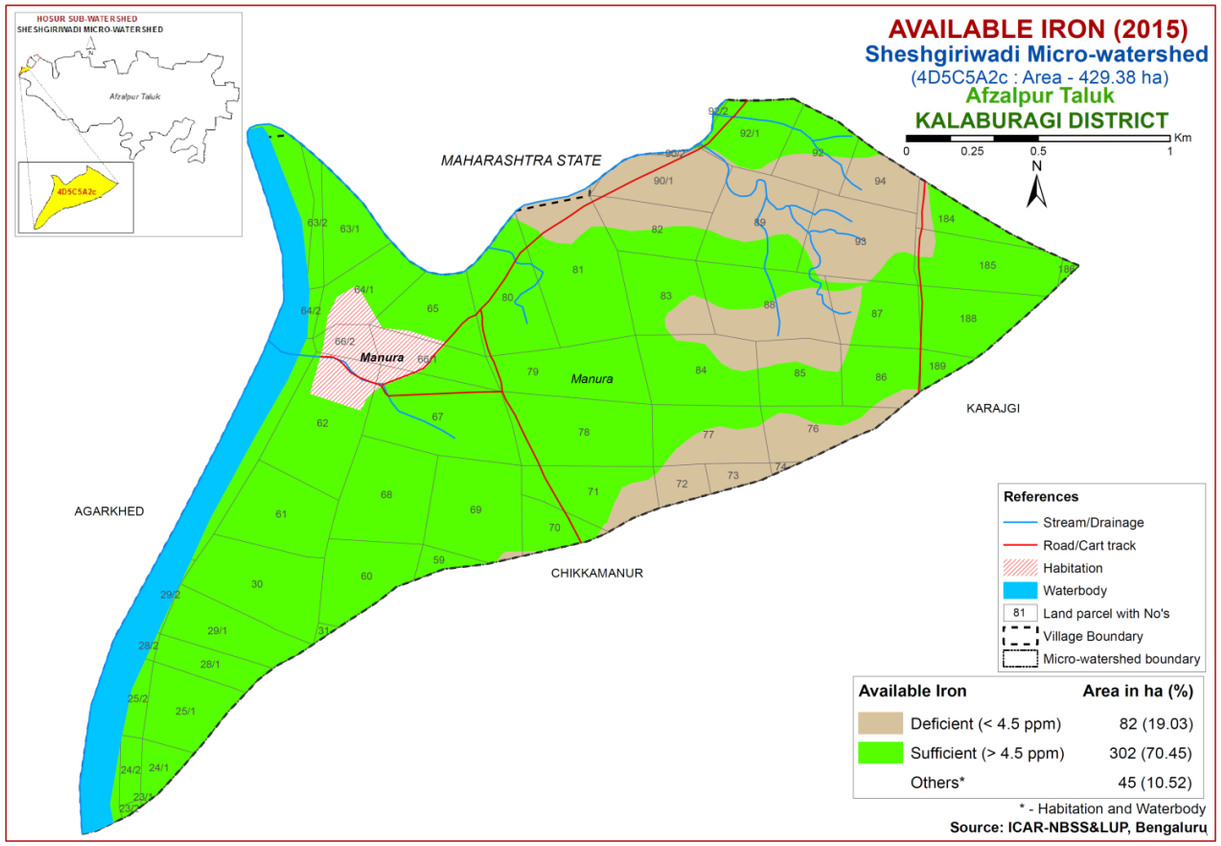

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
MAHARASHTRA STATE
AVAILABLE POTASSIUM (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Manura
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Potassium Area in ha (%)
High (> 337 kg/ha) 620 (100)
Source: ICAR-NBSS&LUP, Bengaluru

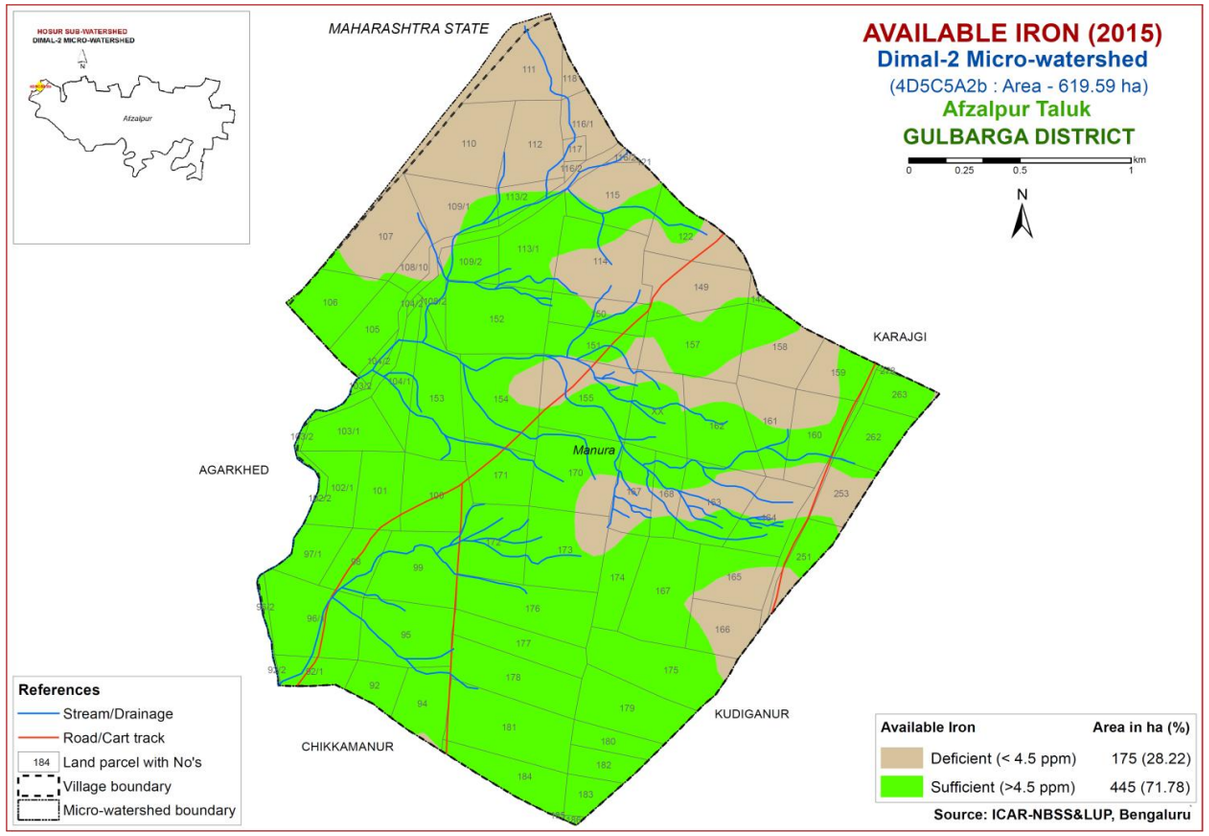

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
AVAILABLE SULPHUR (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Available Sulphur | Area in ha (%)
Low (< 10 ppm) | 85 (19.78)
Medium (10 - 20 ppm) | 299 (69.70)
Others* | 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

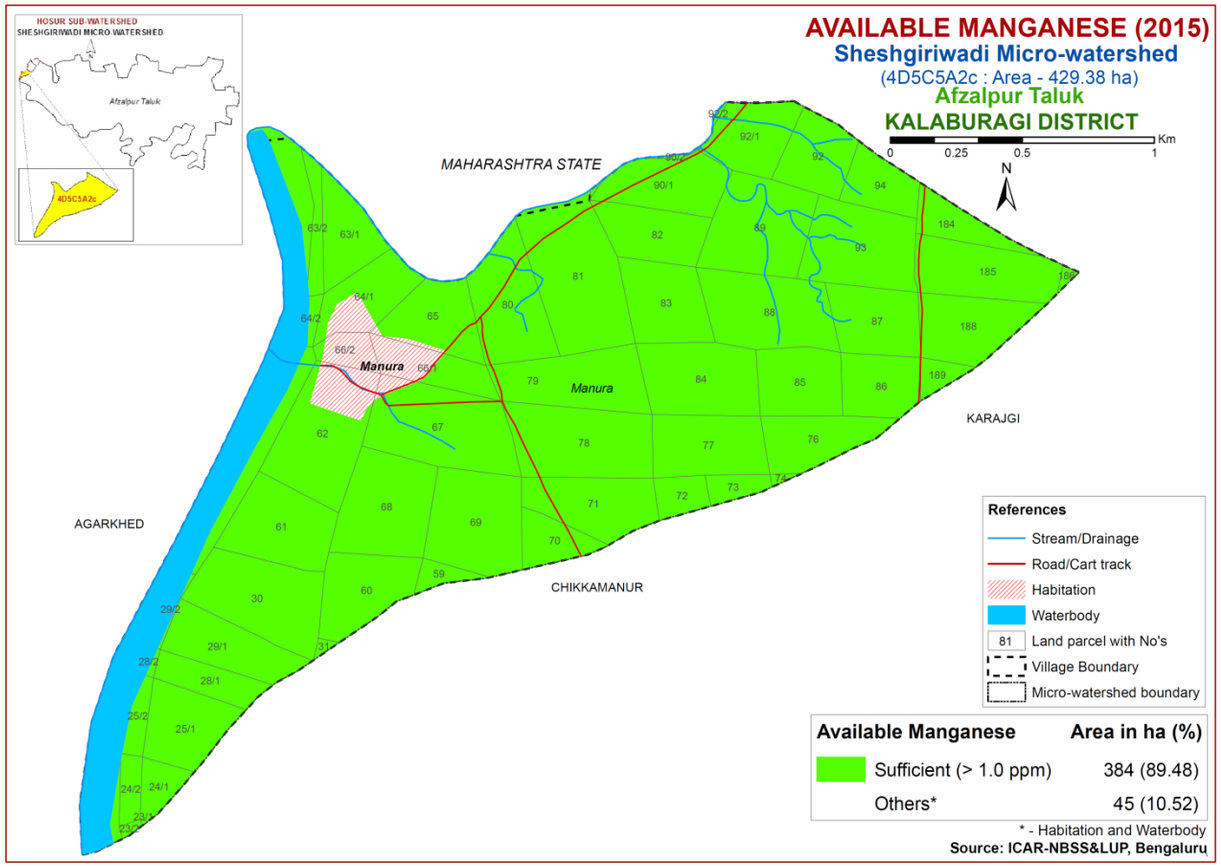

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
AVAILABLE SULPHUR (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
Manura
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Sulphur | Area in ha (%)
Low (< 10 ppm) | 187 (30.13)
Medium (10 - 20 ppm) | 433 (69.87)
Source: ICAR-NBSS&LUP, Bengaluru

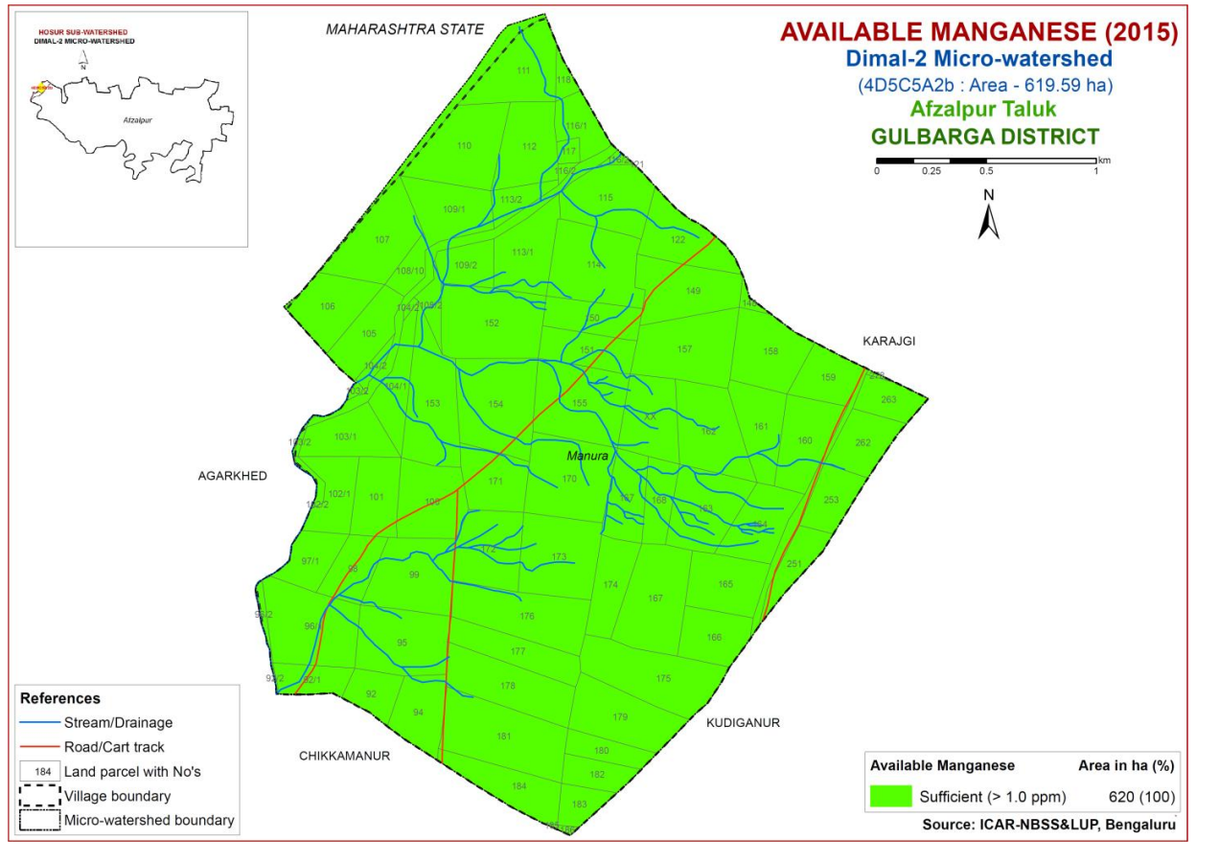

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
AVAILABLE BORON (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Available Boron | Area in ha (%)
Low (< 0.5 ppm) | 62 (14.54)
Medium (0.5 - 1.0) | 322 (74.94)
Others* | 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

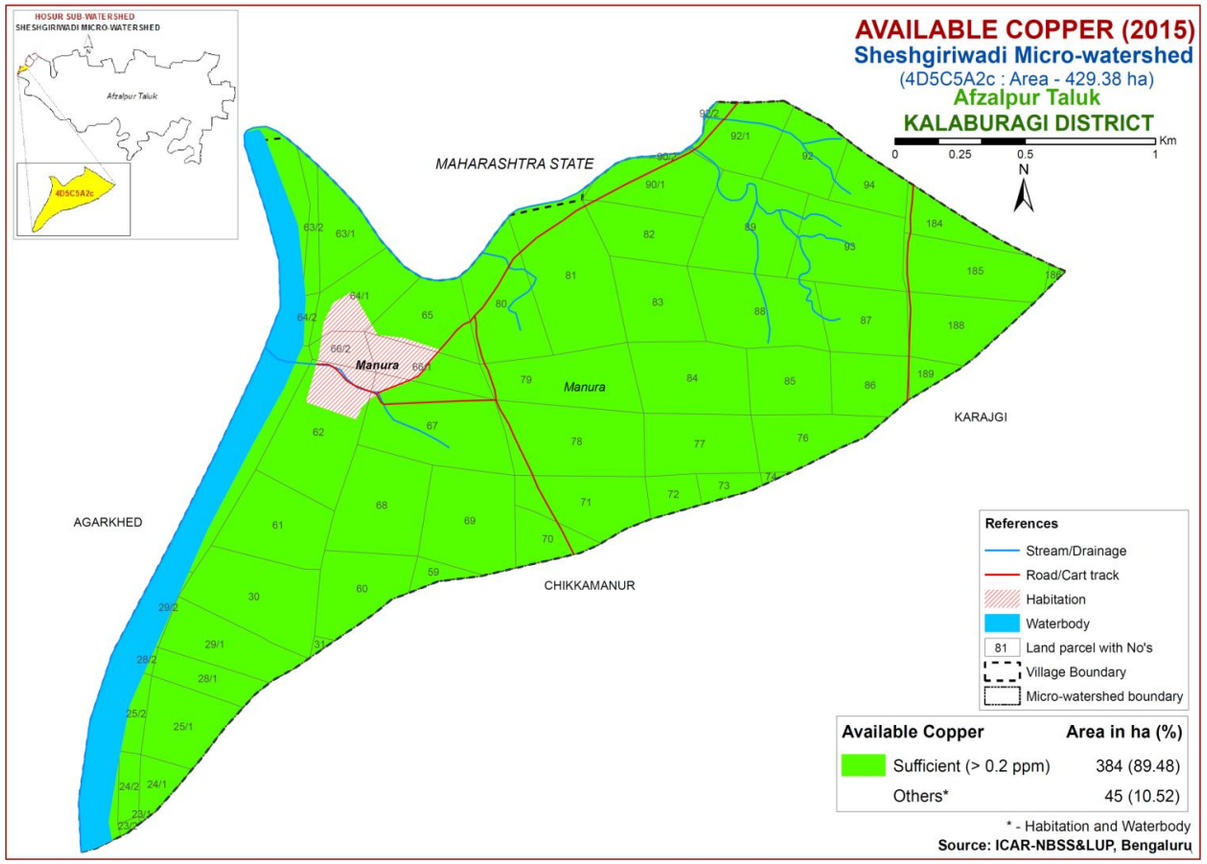

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
AVAILABLE BORON (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
Manura
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Boron | Area in ha (%)
Low (< 0.5 ppm) | 125 (20.13)
Medium (0.5 – 1.0 ppm) | 491 (79.19)
High (> 1.0 ppm) | 4 (0.68)
Source: ICAR-NBSS&LUP, Bengaluru

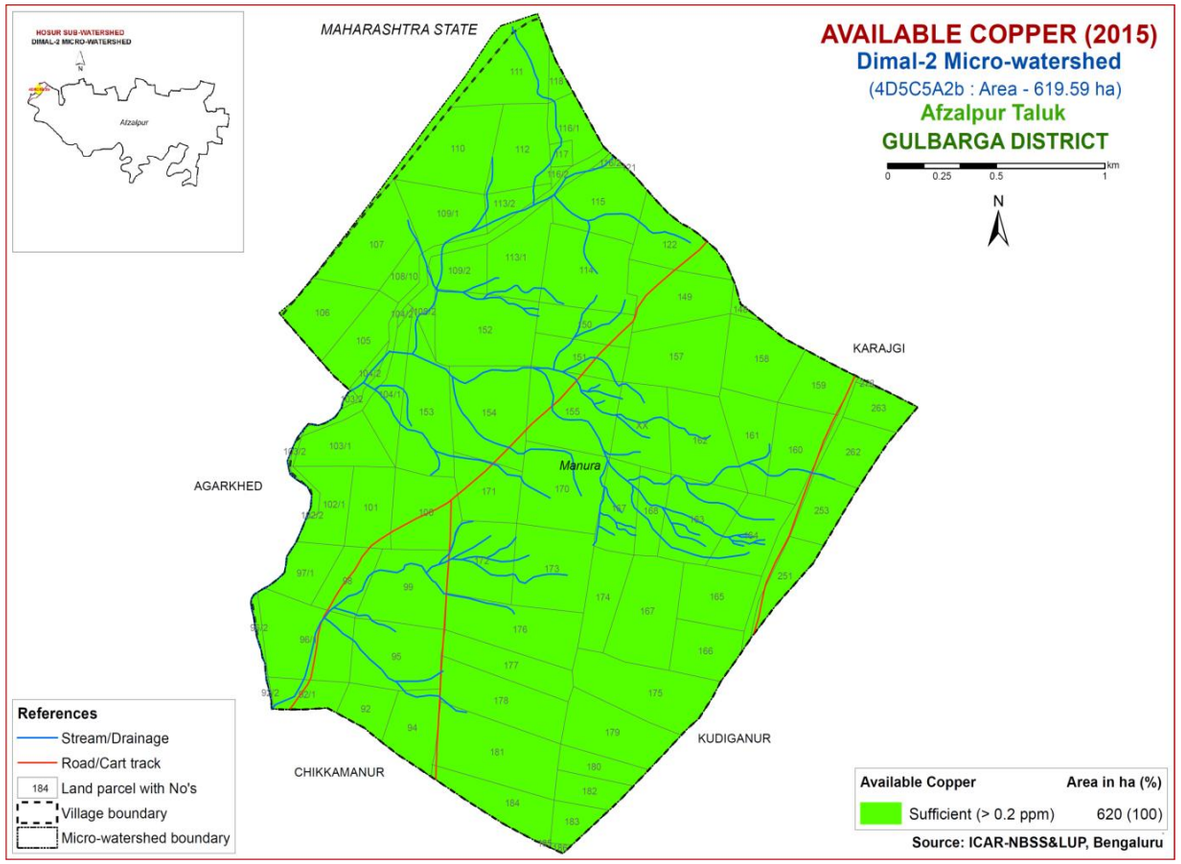

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
AVAILABLE IRON (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Available Iron
Area in ha (%)
Deficient (< 4.5 ppm) 82 (19.03)
Sufficient (> 4.5 ppm) 302 (70.45)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

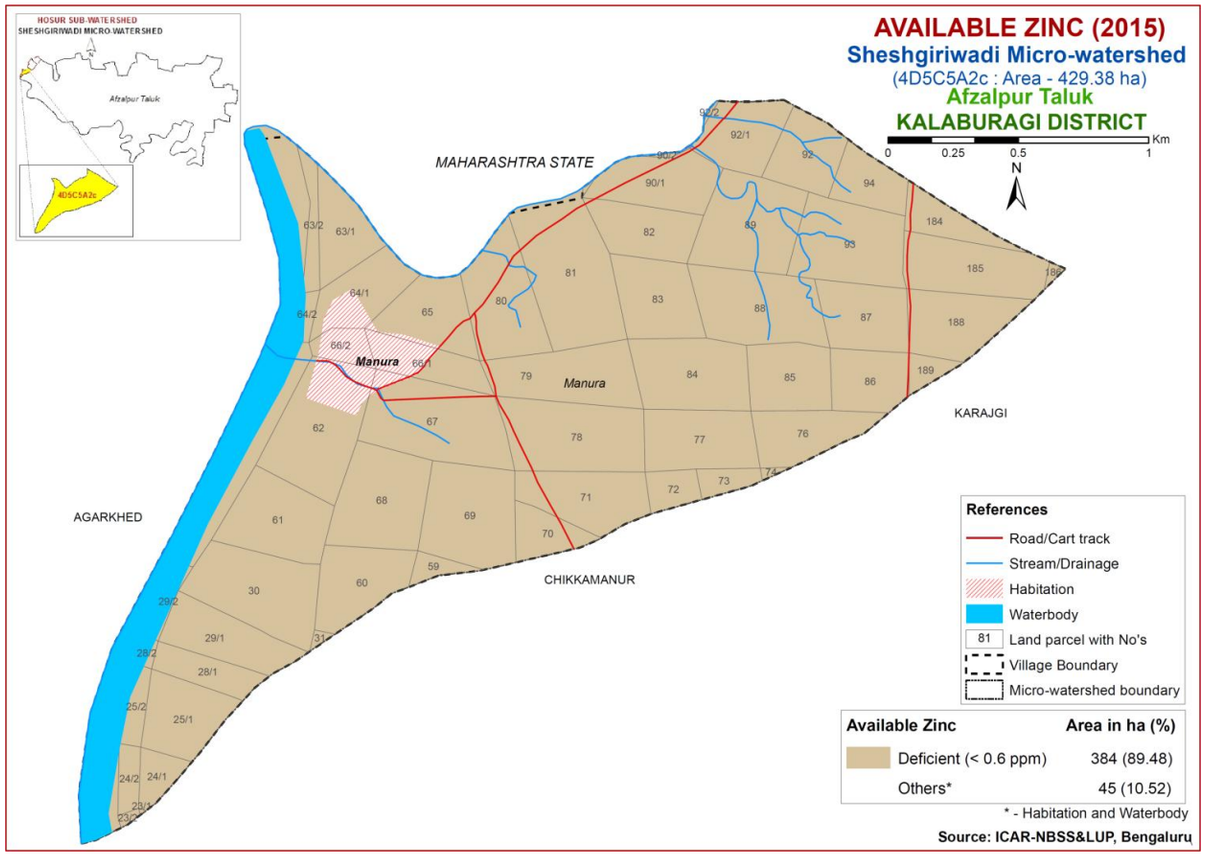

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
AVAILABLE IRON (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
Manura
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Iron
Area in ha (%)
Deficient (< 4.5 ppm) 175 (28.22)
Sufficient (>4.5 ppm) 445 (71.78)
Source: ICAR-NBSS&LUP, Bengaluru

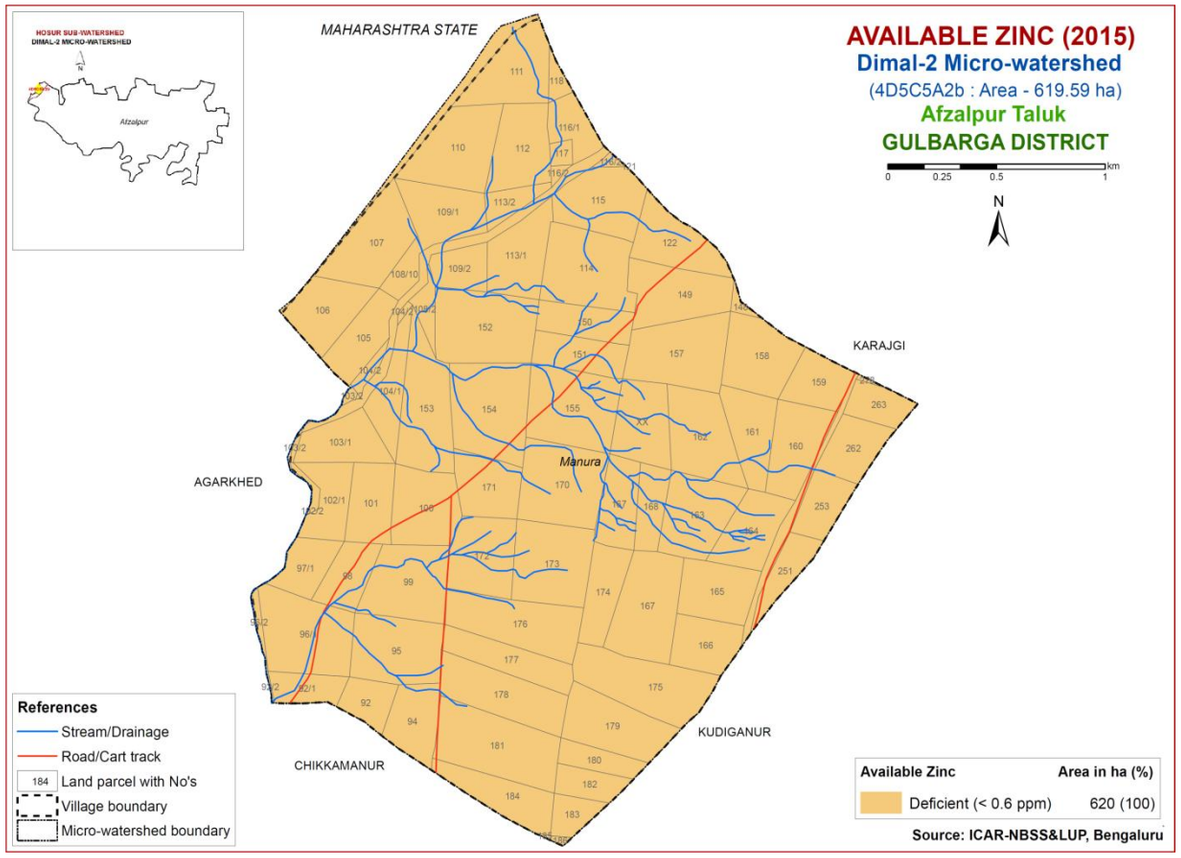

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
AVAILABLE MANGANESE (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Available Manganese
Area in ha (%)
Sufficient (> 1.0 ppm) 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

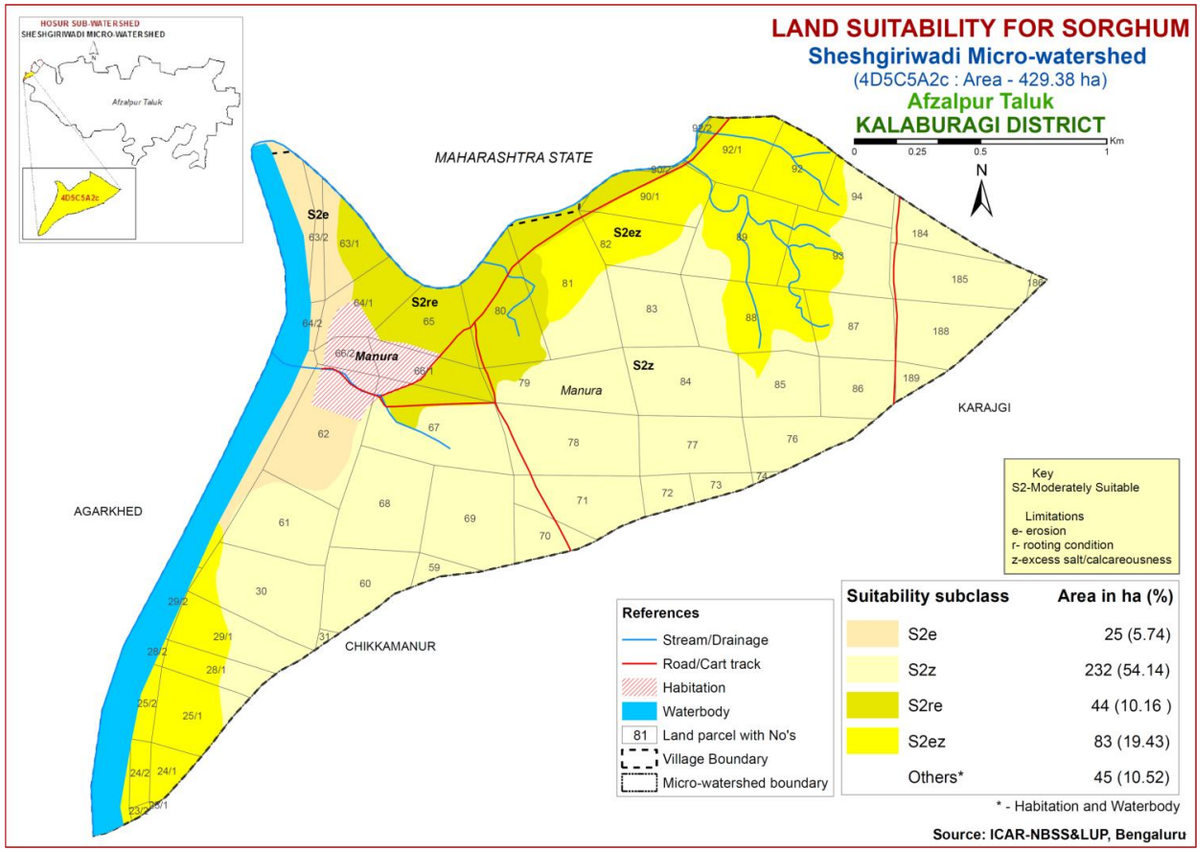

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
AVAILABLE MANGANESE (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
Manura
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Manganese
Area in ha (%)
Sufficient (> 1.0 ppm) 620 (100)
Source: ICAR-NBSS&LUP, Bengaluru

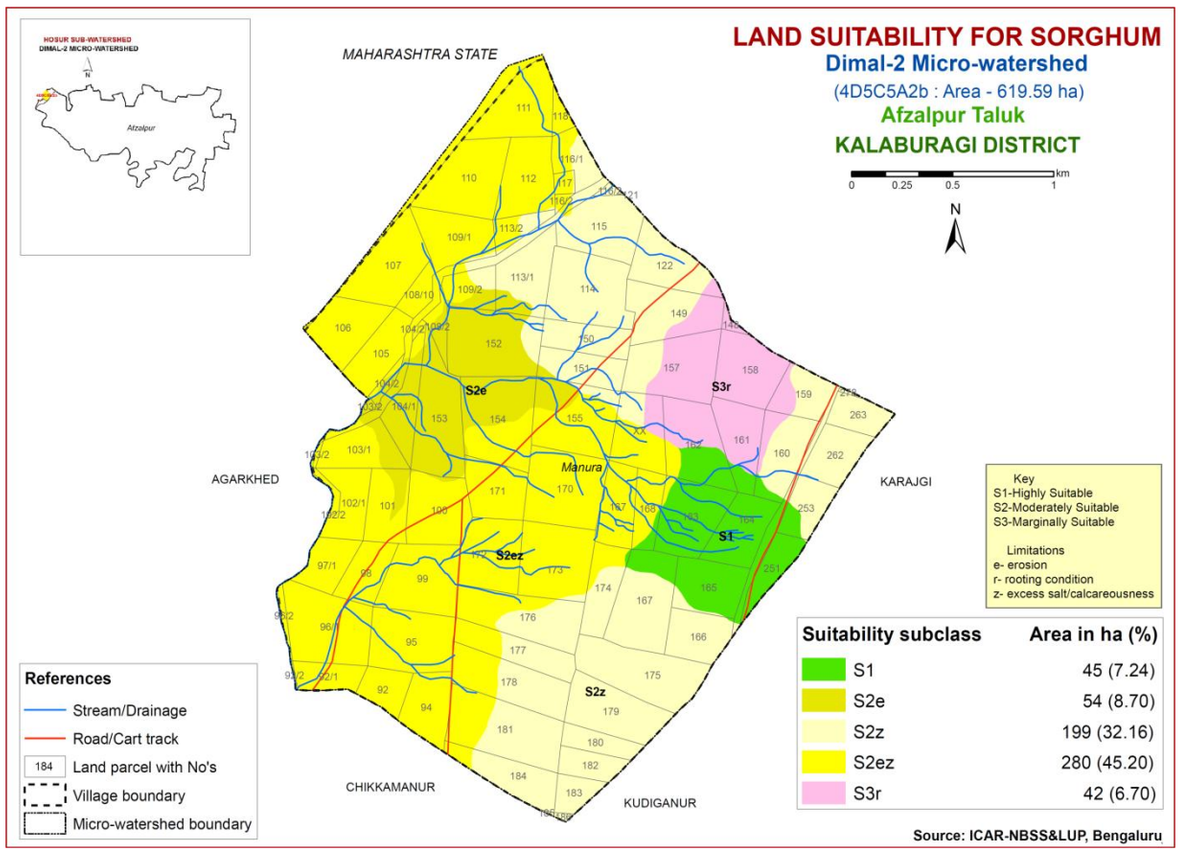

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
AVAILABLE COPPER (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Available Copper
Area in ha (%)
Sufficient (> 0.2 ppm) 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

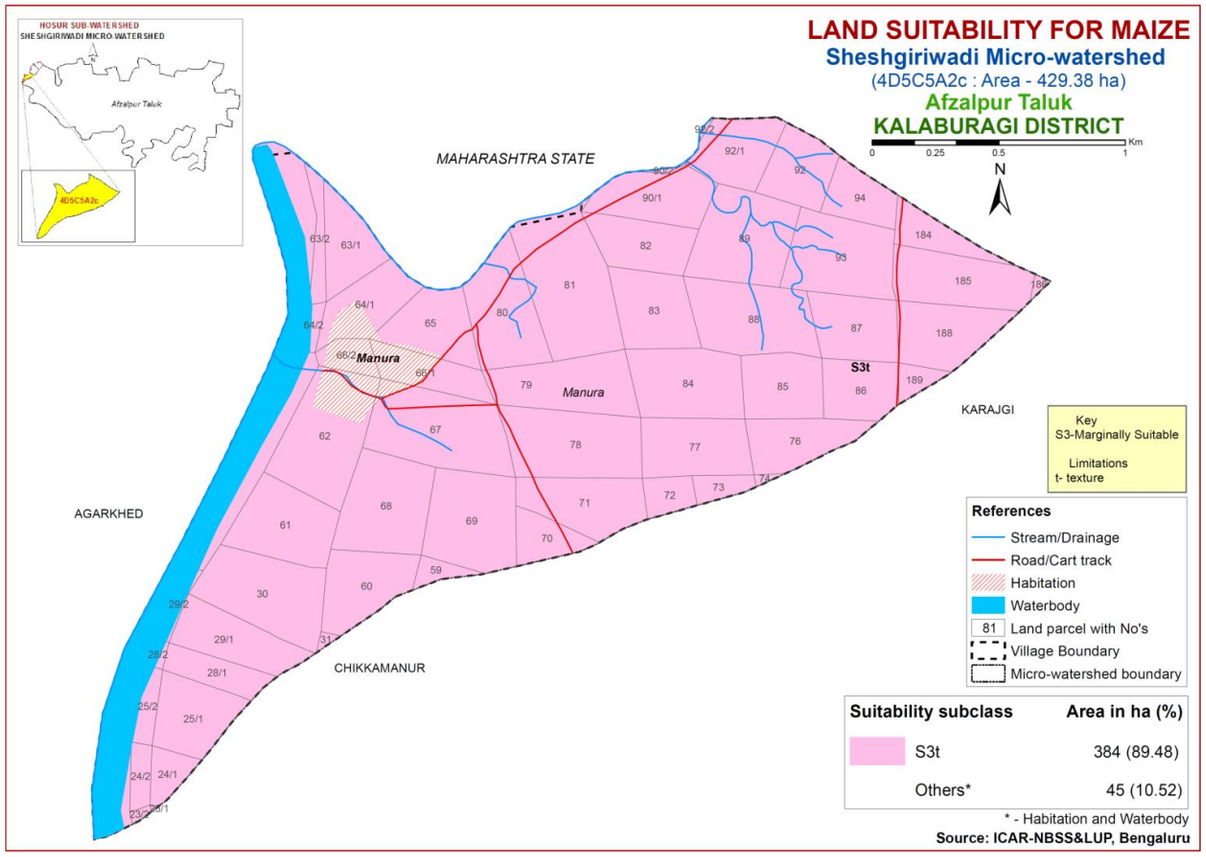

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
AVAILABLE COPPER (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Copper
Area in ha (%)
Sufficient (> 0.2 ppm) 620 (100)
Source: ICAR-NBSS&LUP, Bengaluru

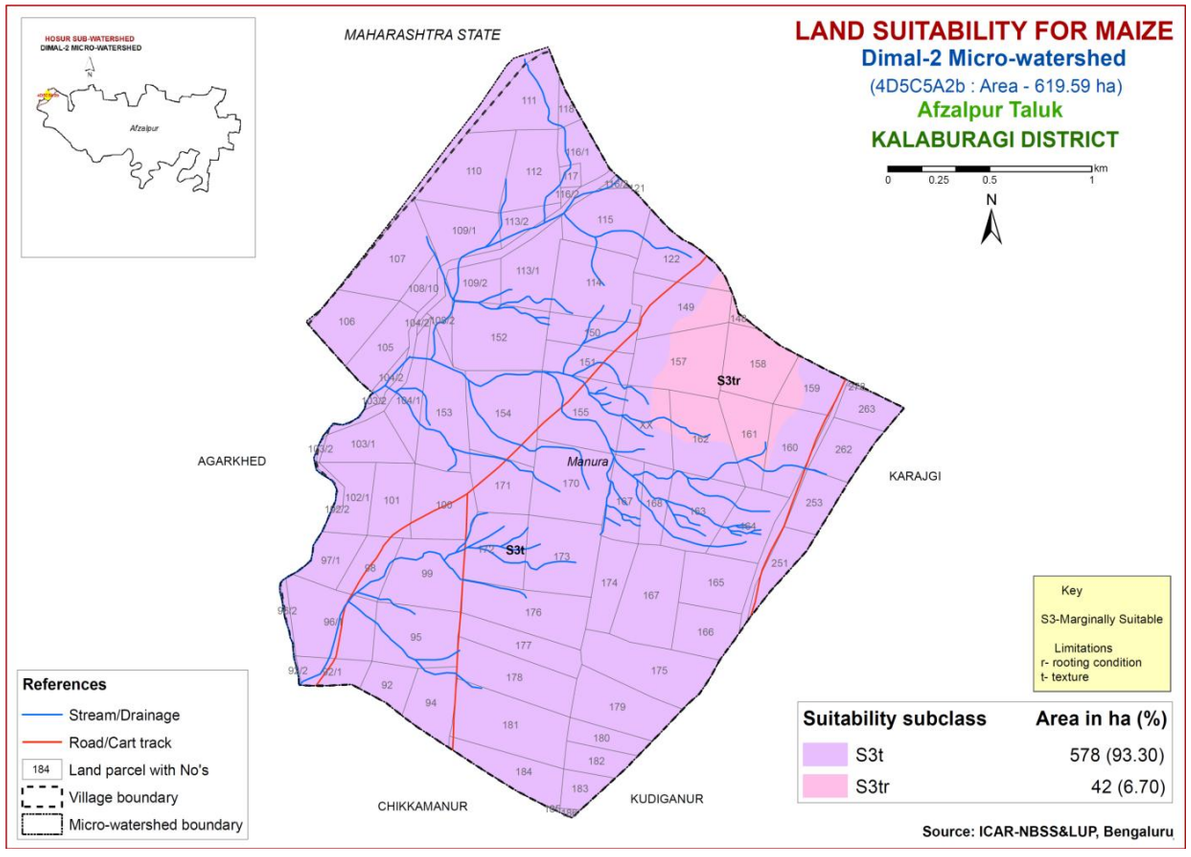

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
AVAILABLE ZINC (2015)
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
References
Road/Cart track
Stream/Drainage
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Available Zinc
Area in ha (%)
Deficient (< 0.6 ppm) 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

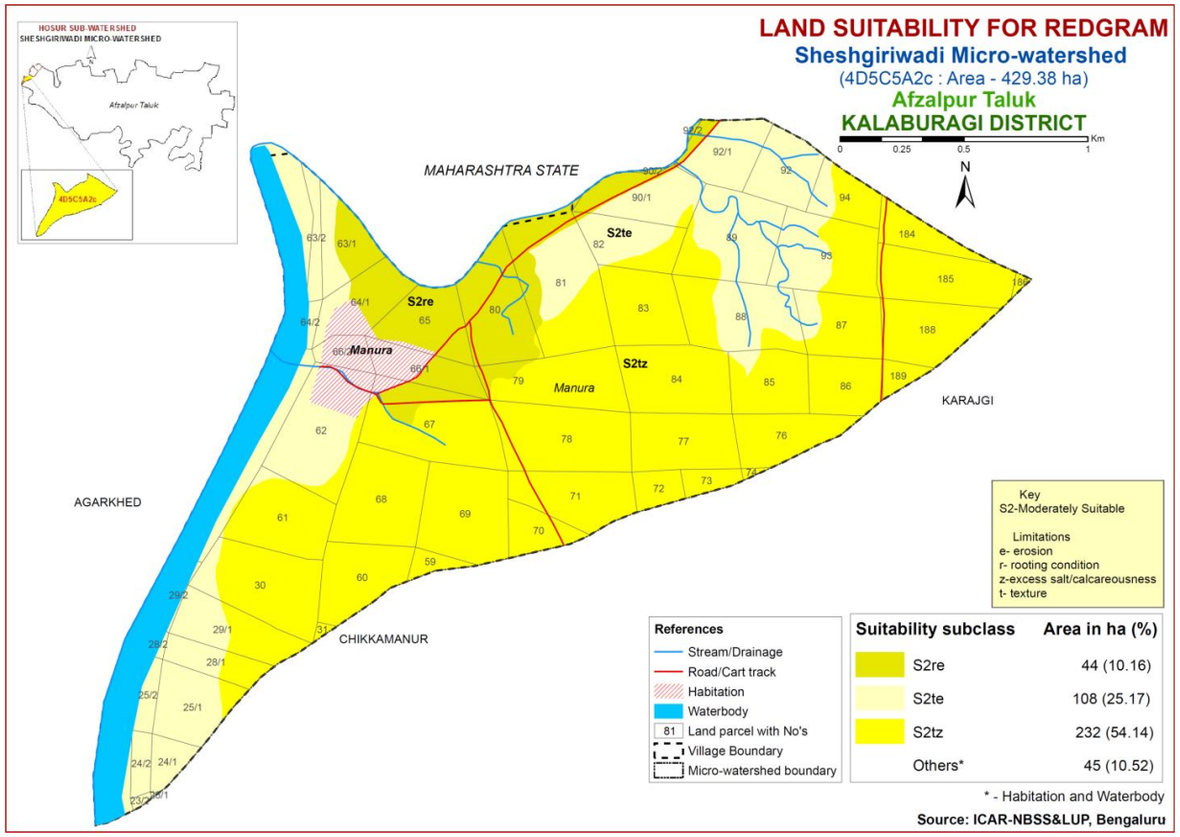

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
AVAILABLE ZINC (2015)
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Zinc
Area in ha (%)
Deficient (< 0.6 ppm) 620 (100)
Source: ICAR-NBSS&LUP, Bengaluru

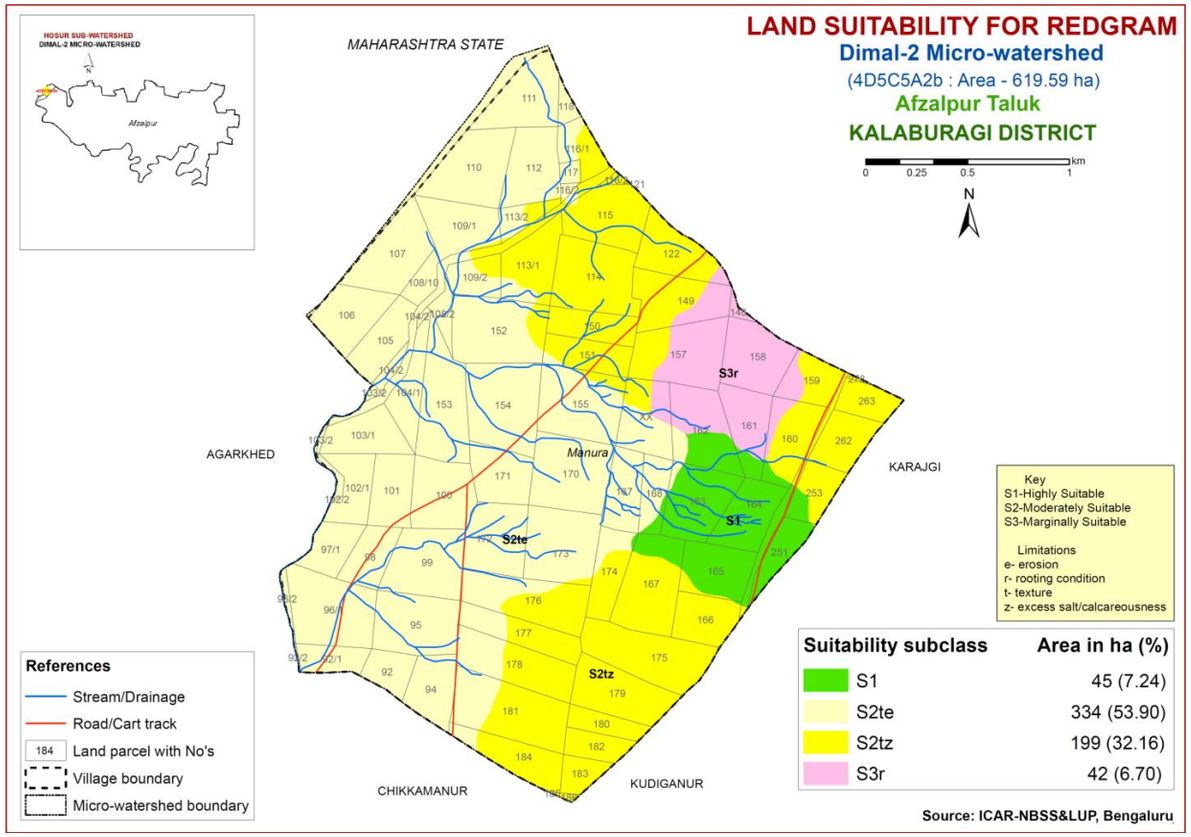

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR SORGHUM
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
S2e
S2ez
S2re
S2z
Manura
Key
S2-Moderately Suitable
Limitations
e- erosion
r- rooting condition
z-excess salt/calcareousness
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S2e 25 (5.74)
S2z 232 (54.14)
S2re 44 (10.16)
S2ez 83 (19.43)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

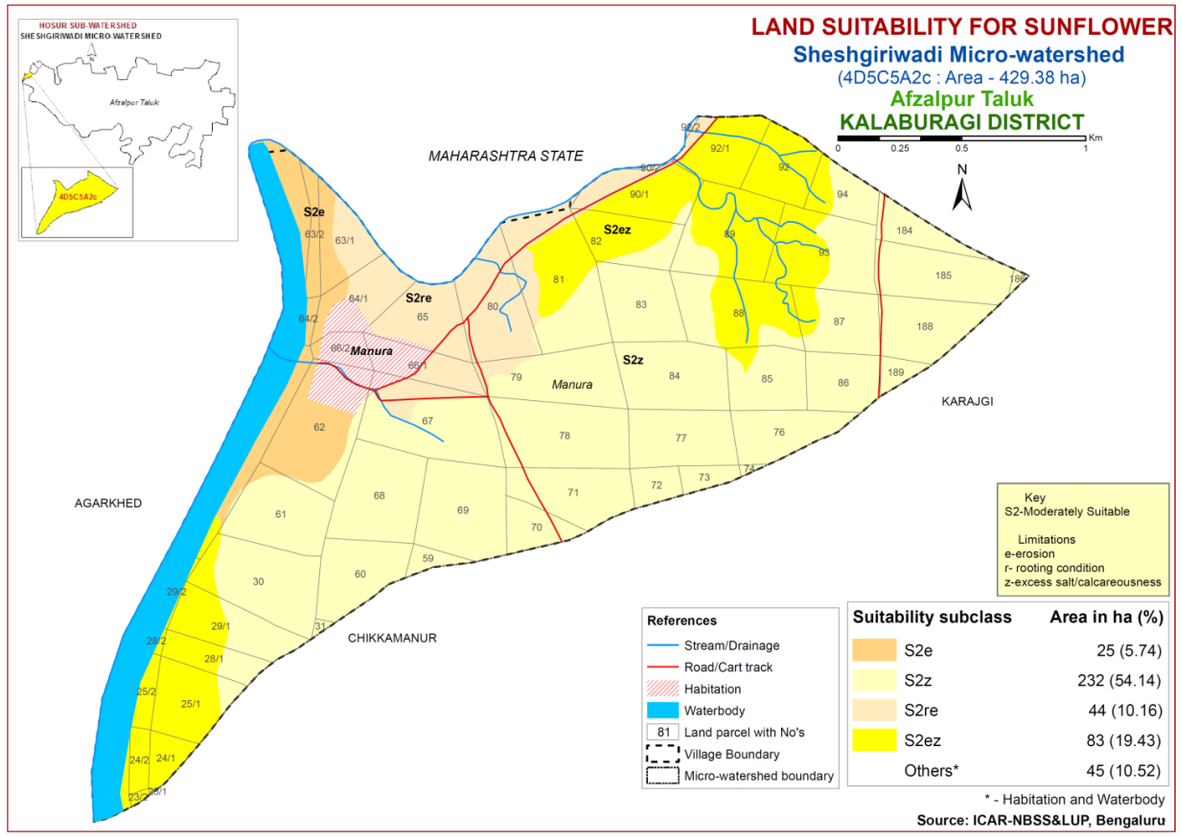

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR SORGHUM
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
KUDIGANUR
S2e
S2ez
S3r
S1
S2z
Manura
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
z- excess salt/calcareousness
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 45 (7.24)
S2e 54 (8.70)
S2z 199 (32.16)
S2ez 280 (45.20)
S3r 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

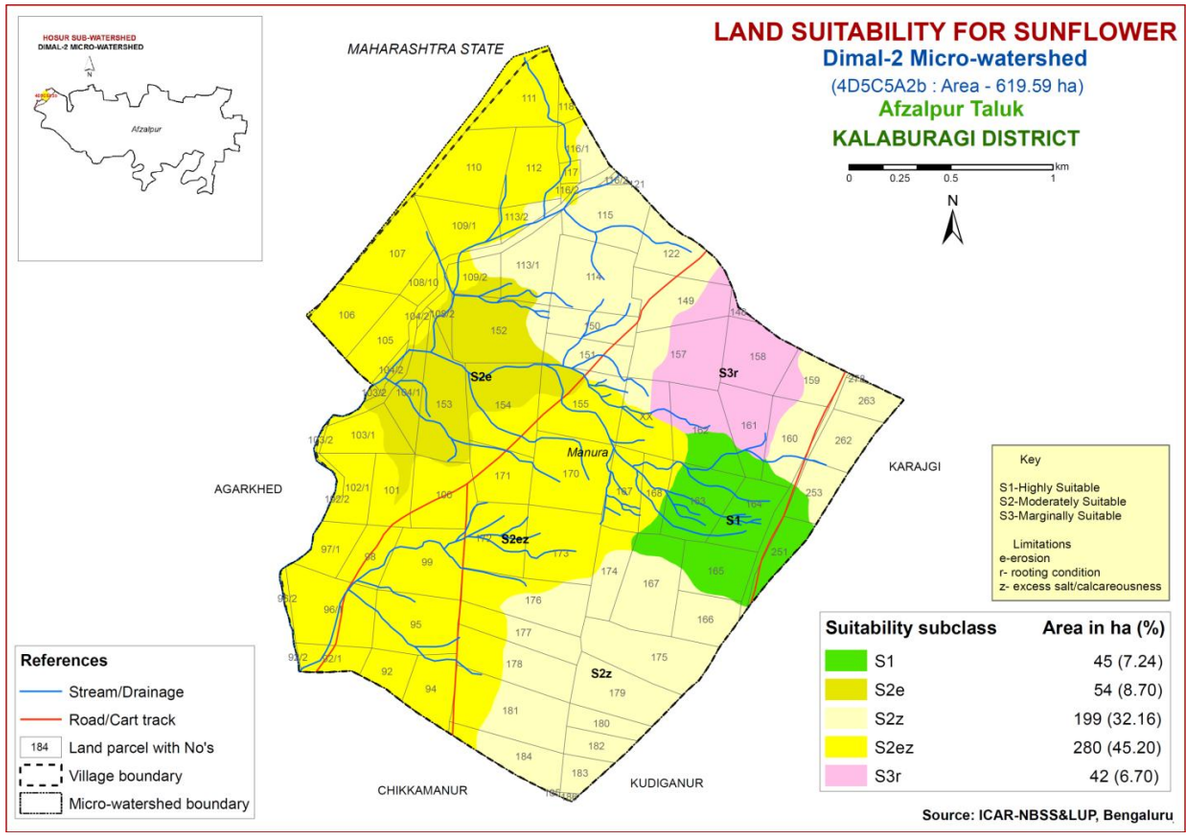

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR MAIZE
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
S3t
Manura
Key
S3-Marginally Suitable
Limitations
t- texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

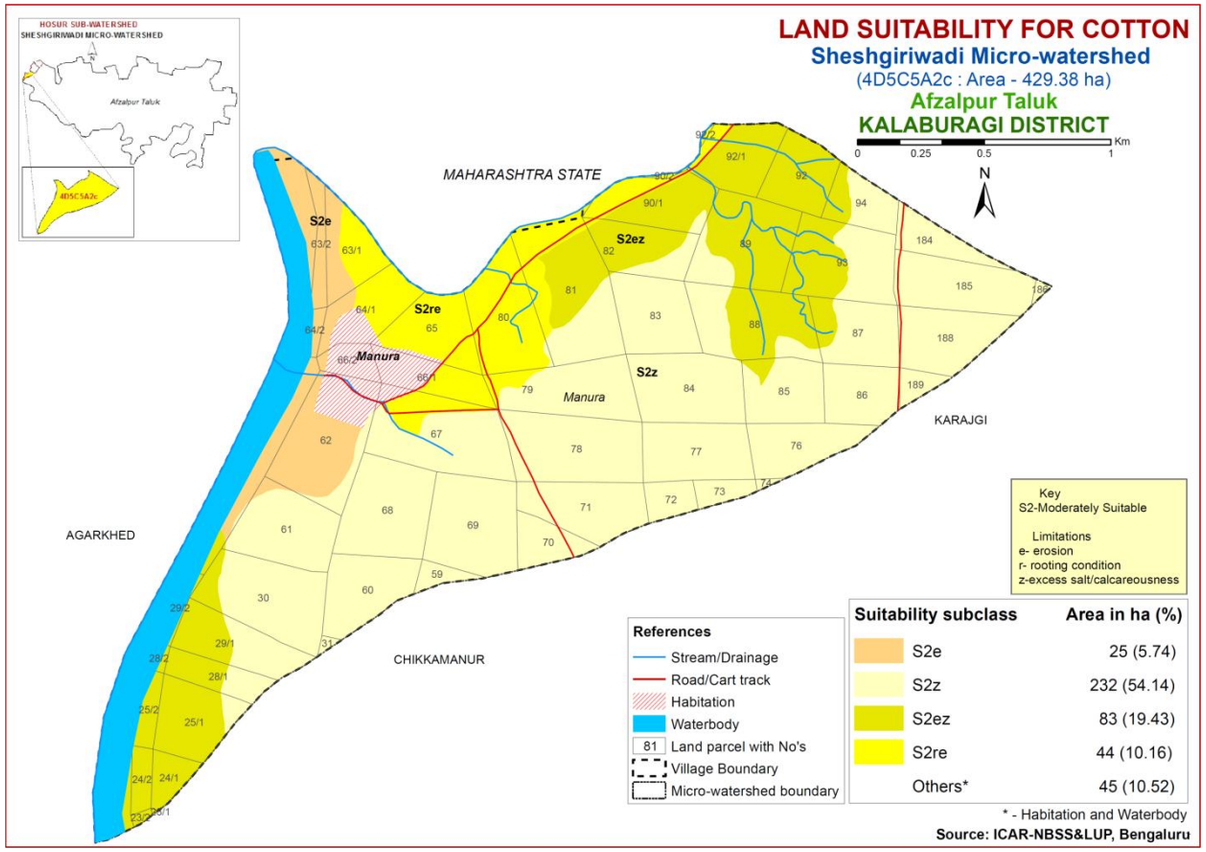

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR MAIZE
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
KUDIGANUR
S3t
S3tr
Manura
Key
S3-Marginally Suitable
Limitations
r- rooting condition
t- texture
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 578 (93.30)
S3tr 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

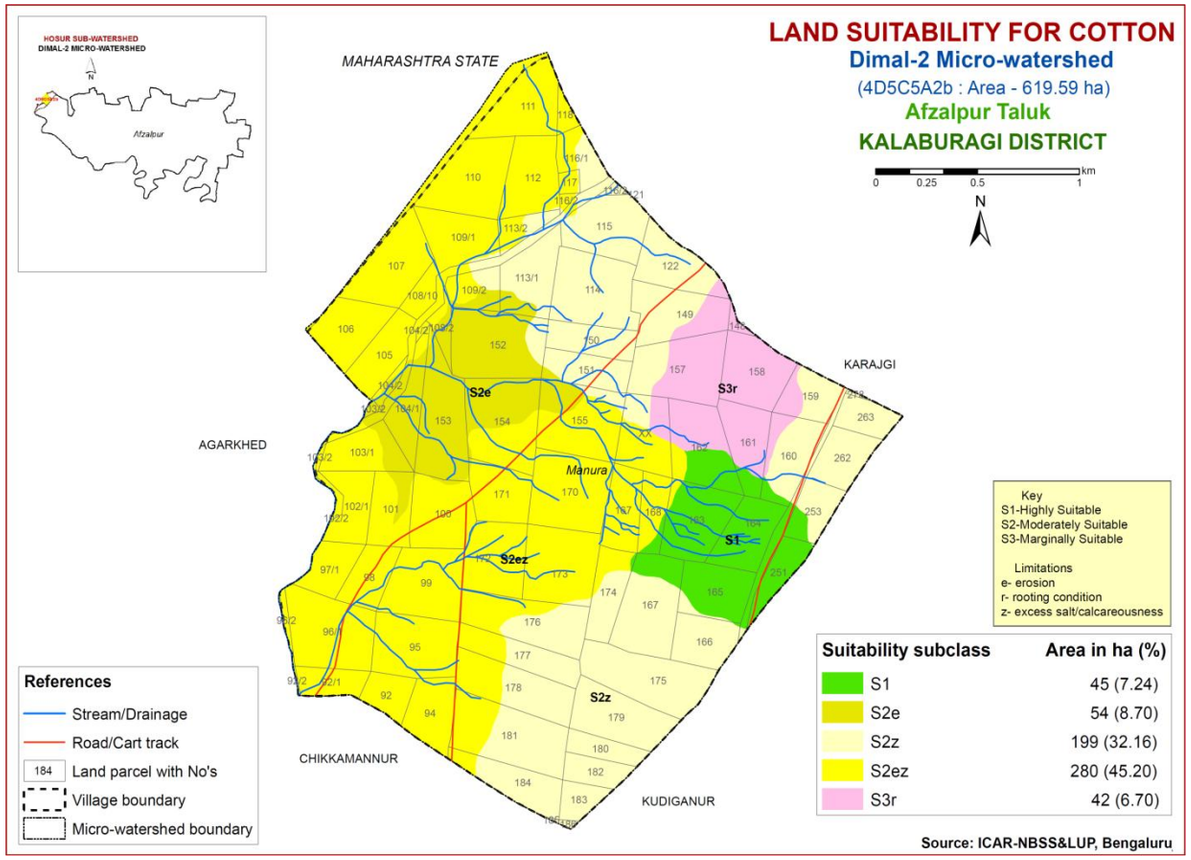

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR REDGRAM
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
S2re
S2te
S2tz
Key
S2-Moderately Suitable
Limitations
e- erosion
r- rooting condition
z-excess salt/calcareousness
t- texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S2re 44 (10.16)
S2te 108 (25.17)
S2tz 232 (54.14)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

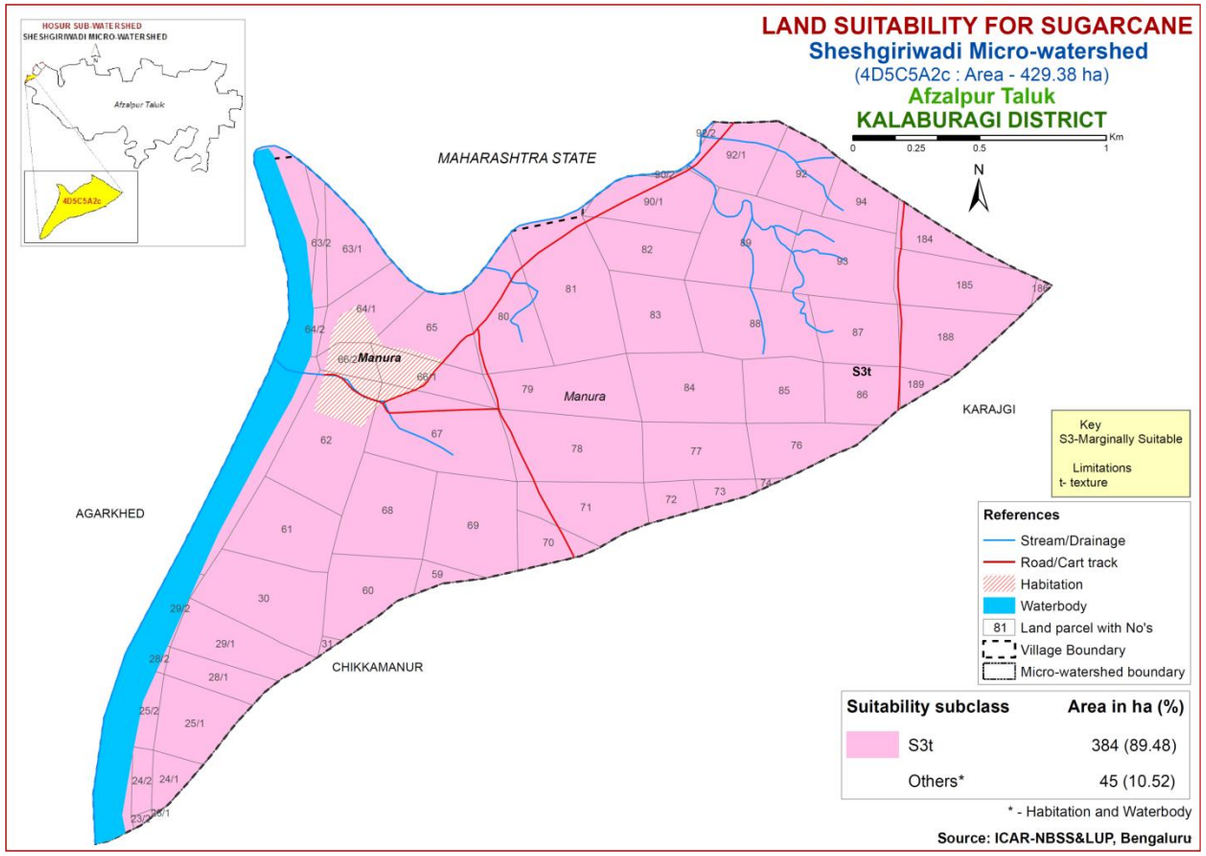

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR REDGRAM
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
KUDIGANUR
Manura
S1
S2te
S2tz
S3r
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
t- texture
z- excess salt/calcareousness
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 45 (7.24)
S2te 334 (53.90)
S2tz 199 (32.16)
S3r 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

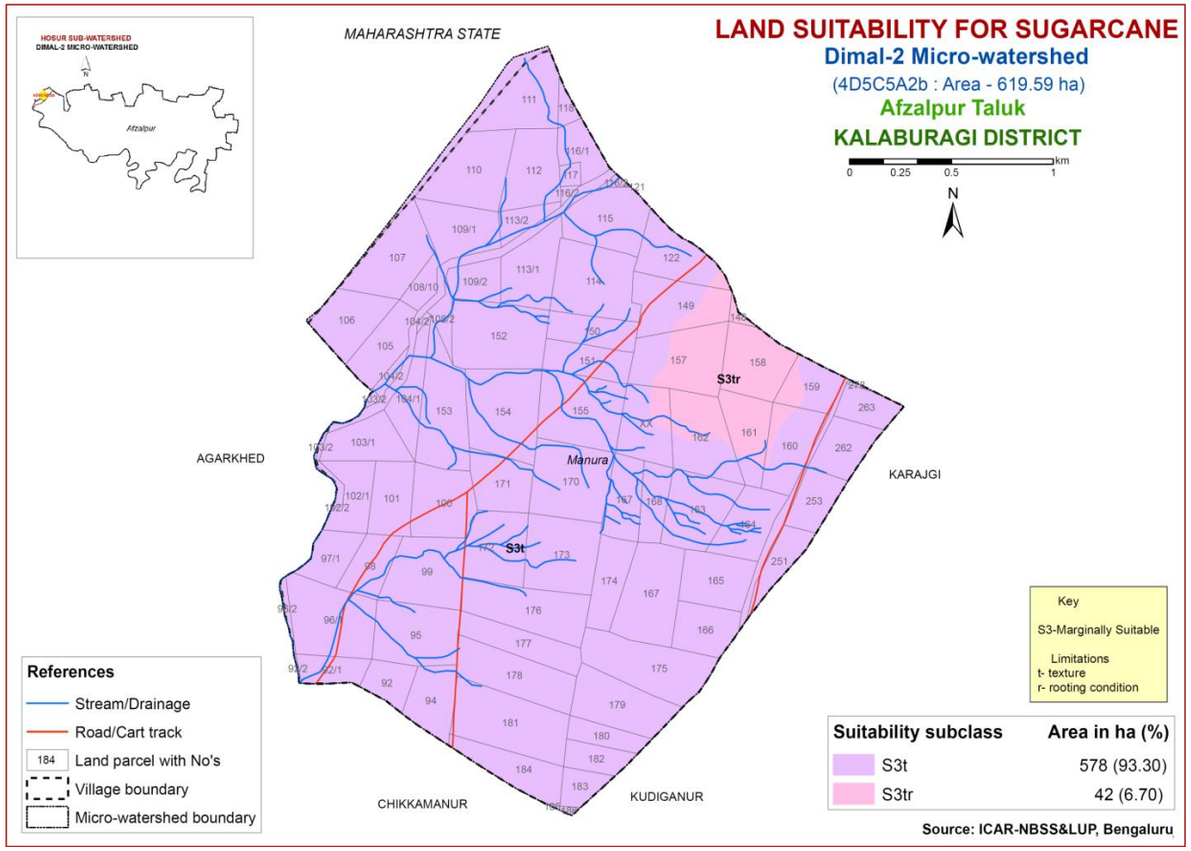

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR SUNFLOWER
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
S2e
S2ez
S2re
S2z
Key
S2-Moderately Suitable
Limitations
e-erosion
r- rooting condition
z-excess salt/calcareousness
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S2e 25 (5.74)
S2z 232 (54.14)
S2re 44 (10.16)
S2ez 83 (19.43)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

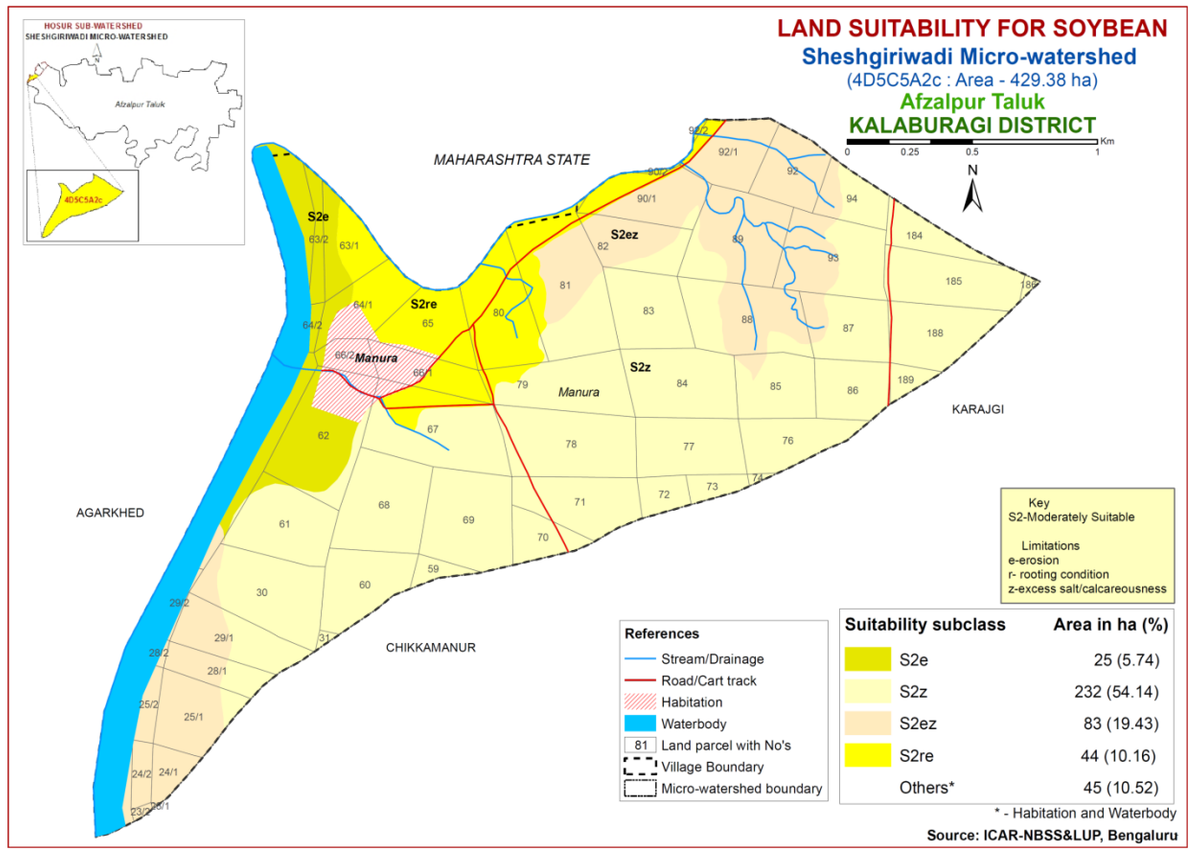

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR SUNFLOWER
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
KUDIGANUR
Manura
S1
S2e
S2ez
S2z
S3r
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e-erosion
r- rooting condition
z- excess salt/calcareousness
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 45 (7.24)
S2e 54 (8.70)
S2z 199 (32.16)
S2ez 280 (45.20)
S3r 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

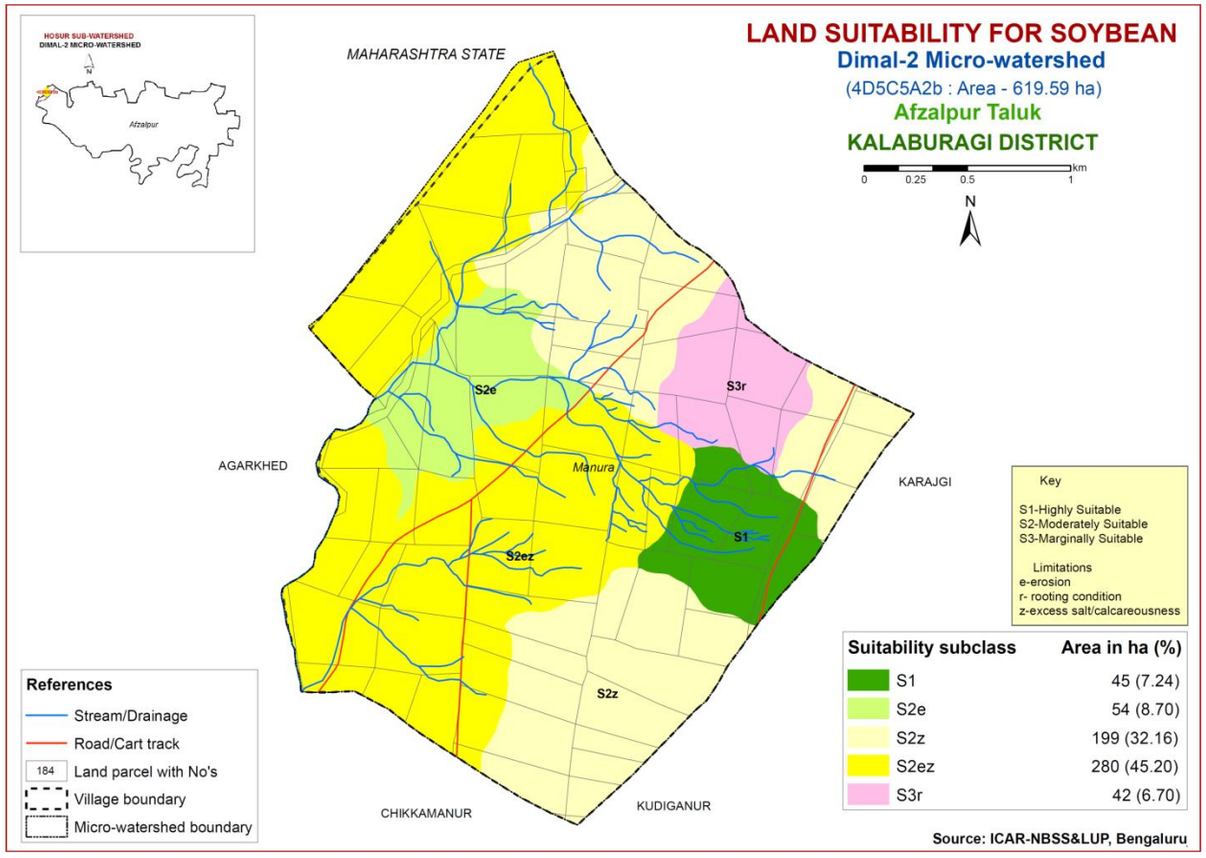

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR COTTON
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
S2e
S2z
S2ez
S2re
Manura
Key
S2-Moderately Suitable
Limitations
e- erosion
r- rooting condition
z-excess salt/calcareousness
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S2e 25 (5.74)
S2z 232 (54.14)
S2ez 83 (19.43)
S2re 44 (10.16)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

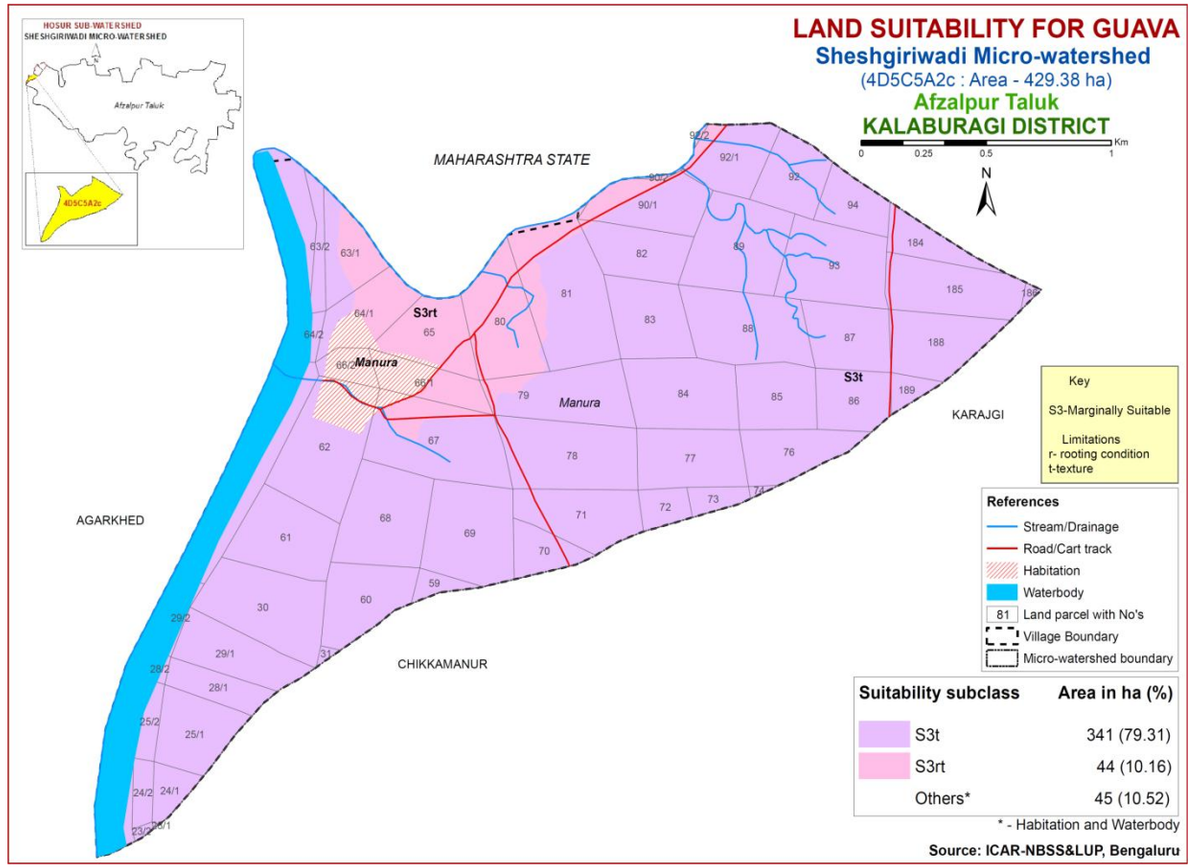

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR COTTON
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANNUR
KUDIGANUR
S2e
S2z
S2ez
S3r
S1
Manura
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
z- excess salt/calcareousness
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 45 (7.24)
S2e 54 (8.70)
S2z 199 (32.16)
S2ez 280 (45.20)
S3r 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

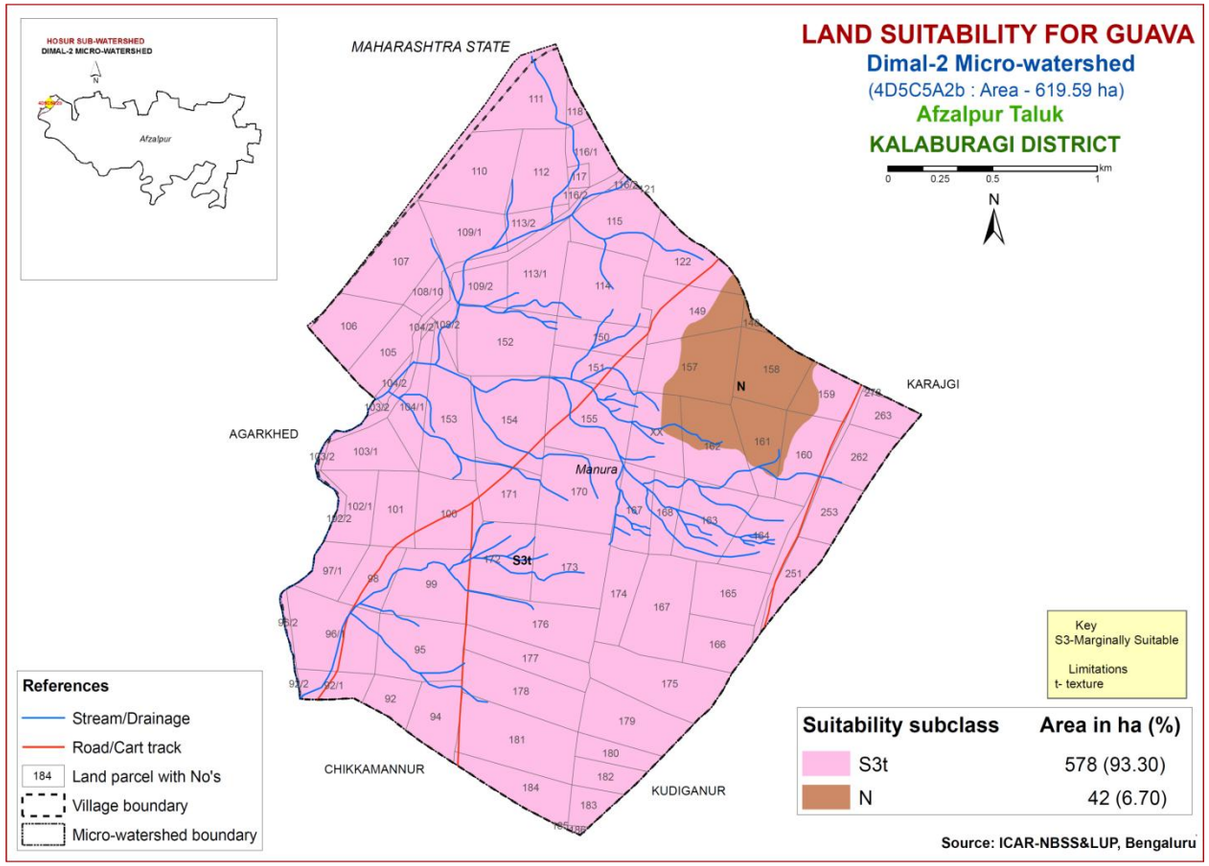

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR SUGARCANE
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
S3t
Manura
Key
S3-Marginally Suitable
Limitations
t- texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 384 (89.48)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

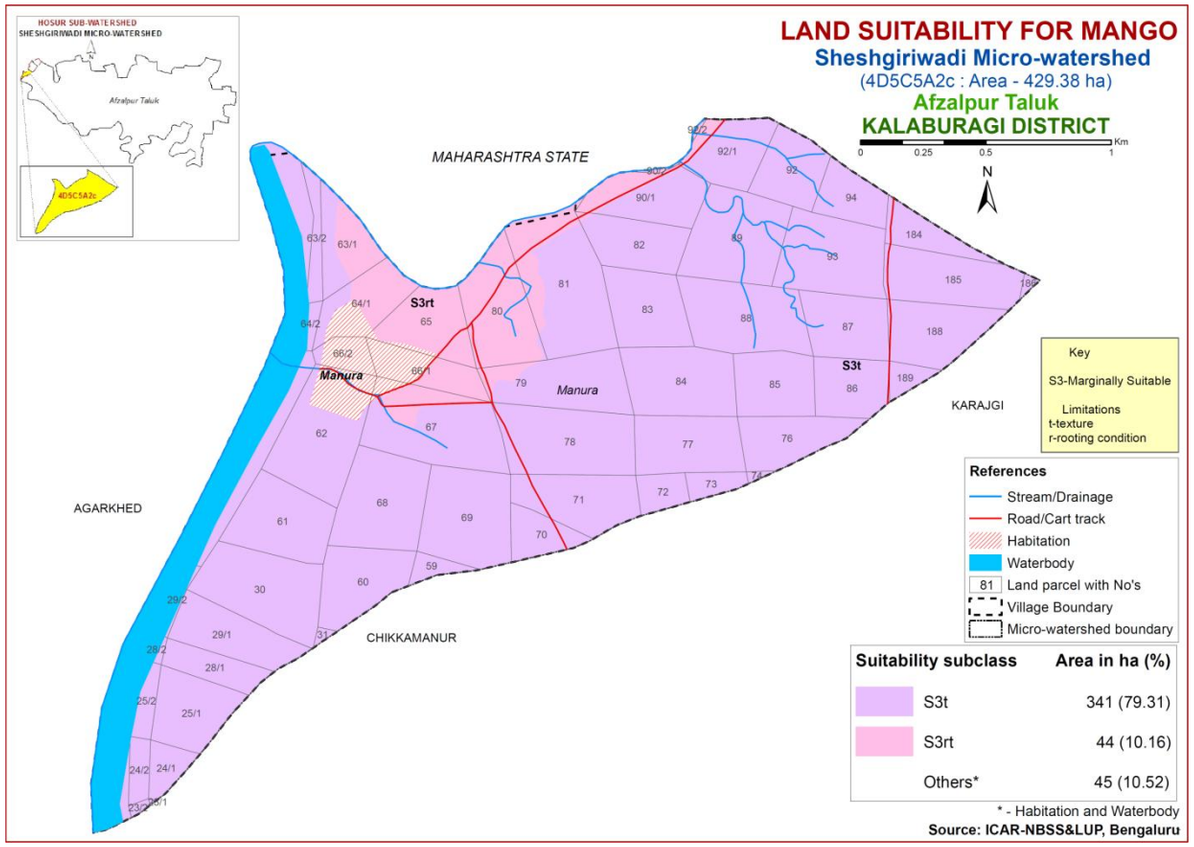

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR SUGARCANE
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANNUR
KUDIGANUR
S3t
S3tr
Manura
Key
S3-Marginally Suitable
Limitations
t- texture
r- rooting condition
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 578 (93.30)
S3tr 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

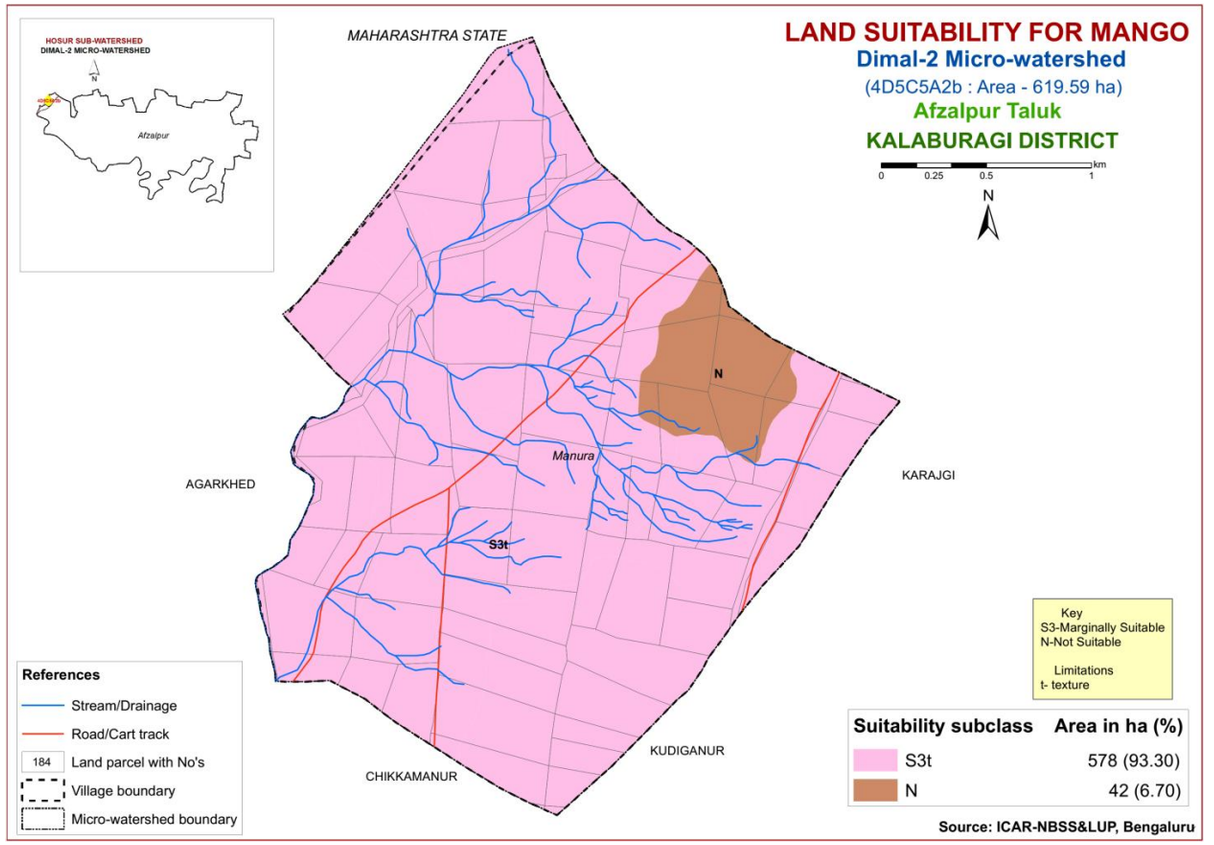

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR SOYBEAN
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
KARAJGI
AGARKHED
CHIKKAMANUR
S2e
S2ez
S2re
S2z
Manura
Key
S2-Moderately Suitable
Limitations
e-erosion
r- rooting condition
z-excess salt/calcareousness
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S2e 25 (5.74)
S2z 232 (54.14)
S2ez 83 (19.43)
S2re 44 (10.16)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

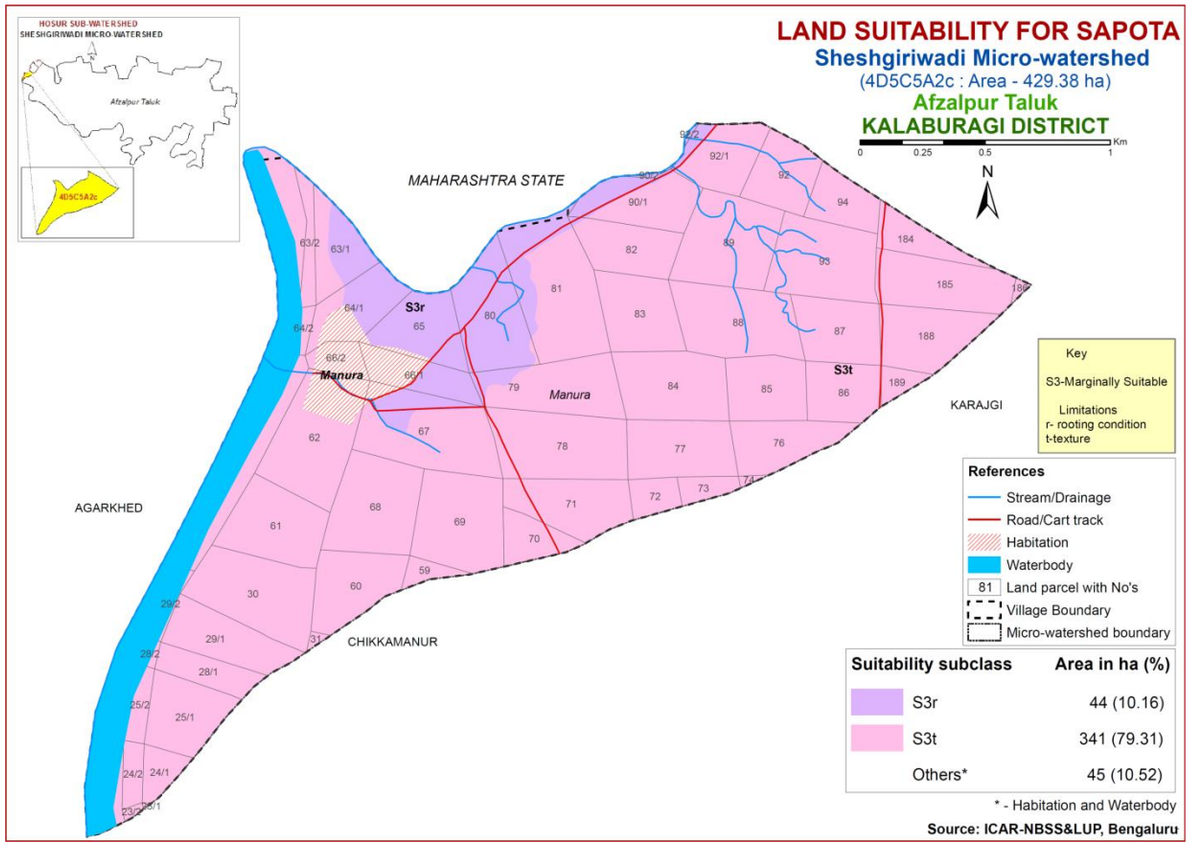

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR SOYBEAN
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
KARAJGI
AGARKHED
CHIKKAMANUR
KUDIGANUR
S2e
S3r
S1
S2ez
S2z
Manura
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e-erosion
r- rooting condition
z-excess salt/calcareousness
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 45 (7.24)
S2e 54 (8.70)
S2z 199 (32.16)
S2ez 280 (45.20)
S3r 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

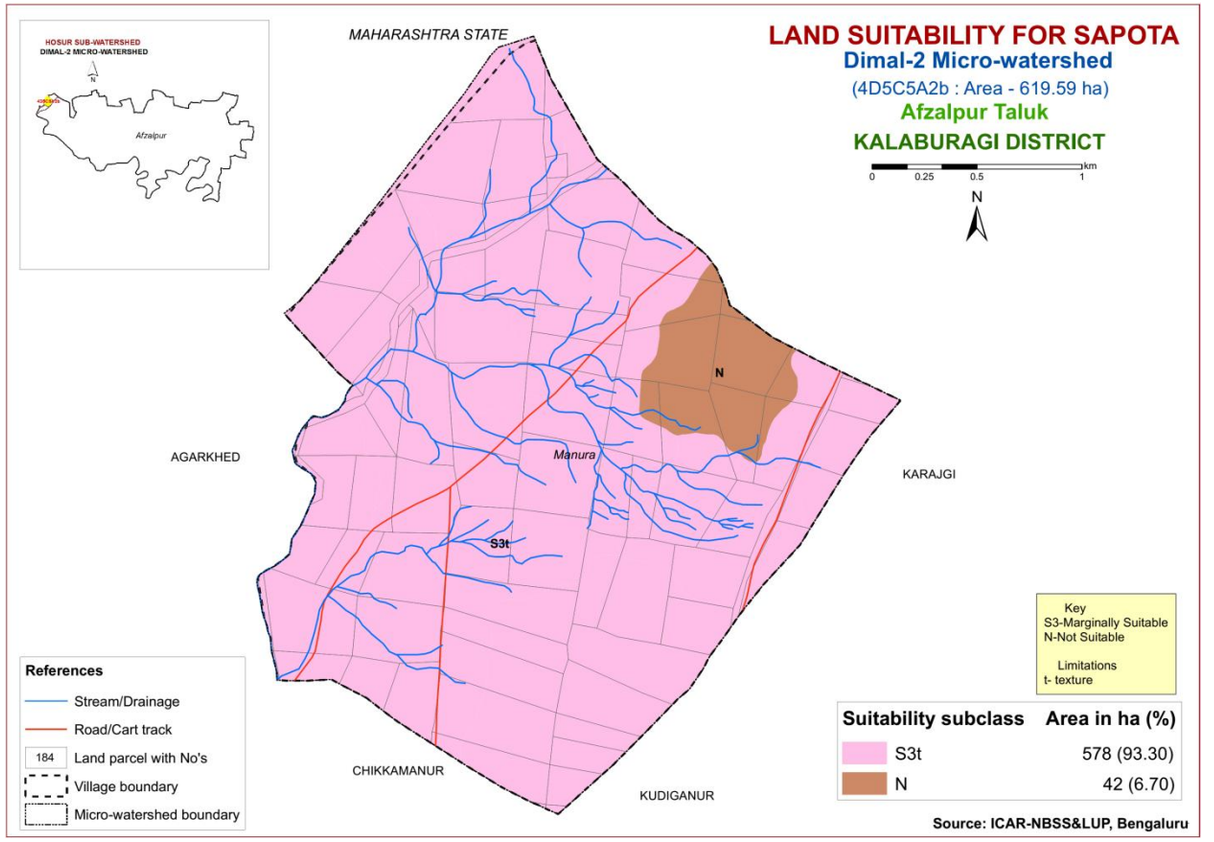

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR GUAVA
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
KARAJGI
AGARKHED
CHIKKAMANUR
S3rt
S3t
Manura
Key
S3-Marginally Suitable
Limitations
r- rooting condition
t-texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 341 (79.31)
S3rt 44 (10.16)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

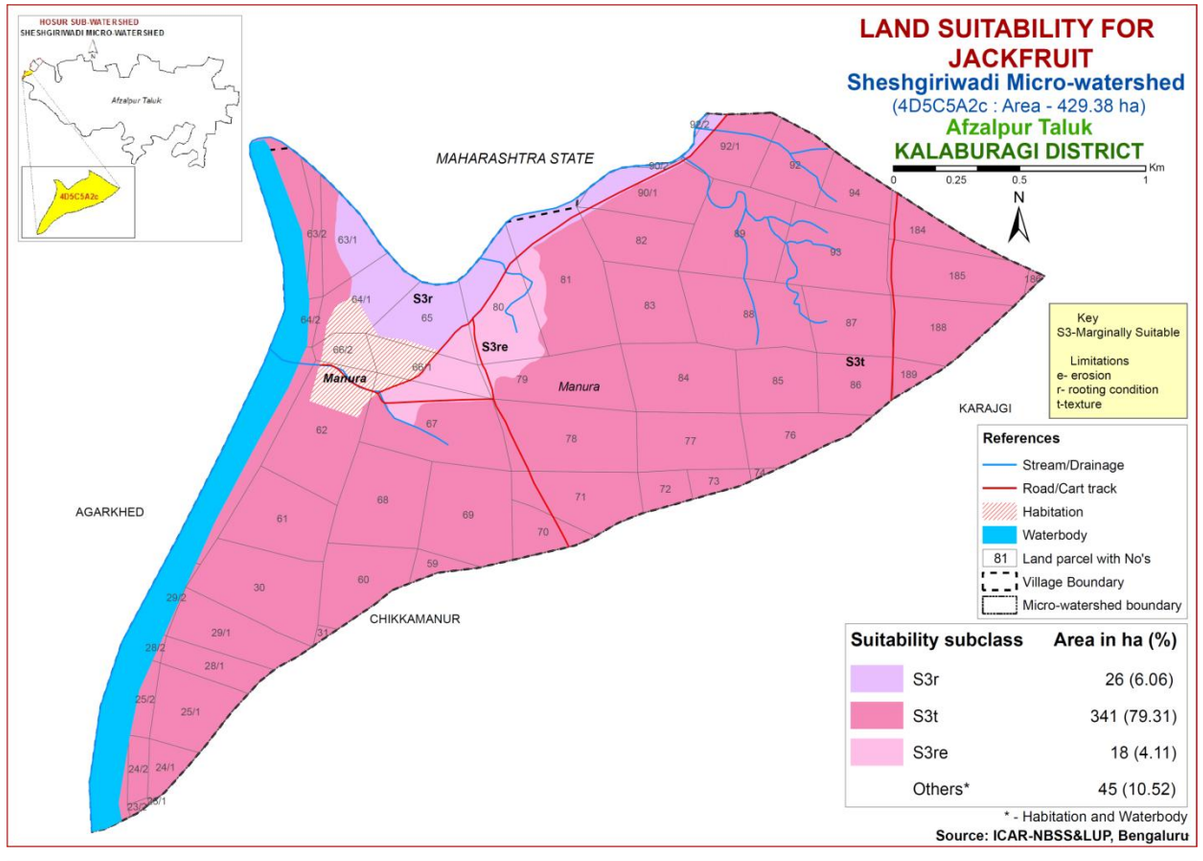

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR GUAVA
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
KARAJGI
AGARKHED
CHIKKAMANNUR
KUDIGANUR
S3t
N
Manura
Key
S3-Marginally Suitable
Limitations
t- texture
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 578 (93.30)
N 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

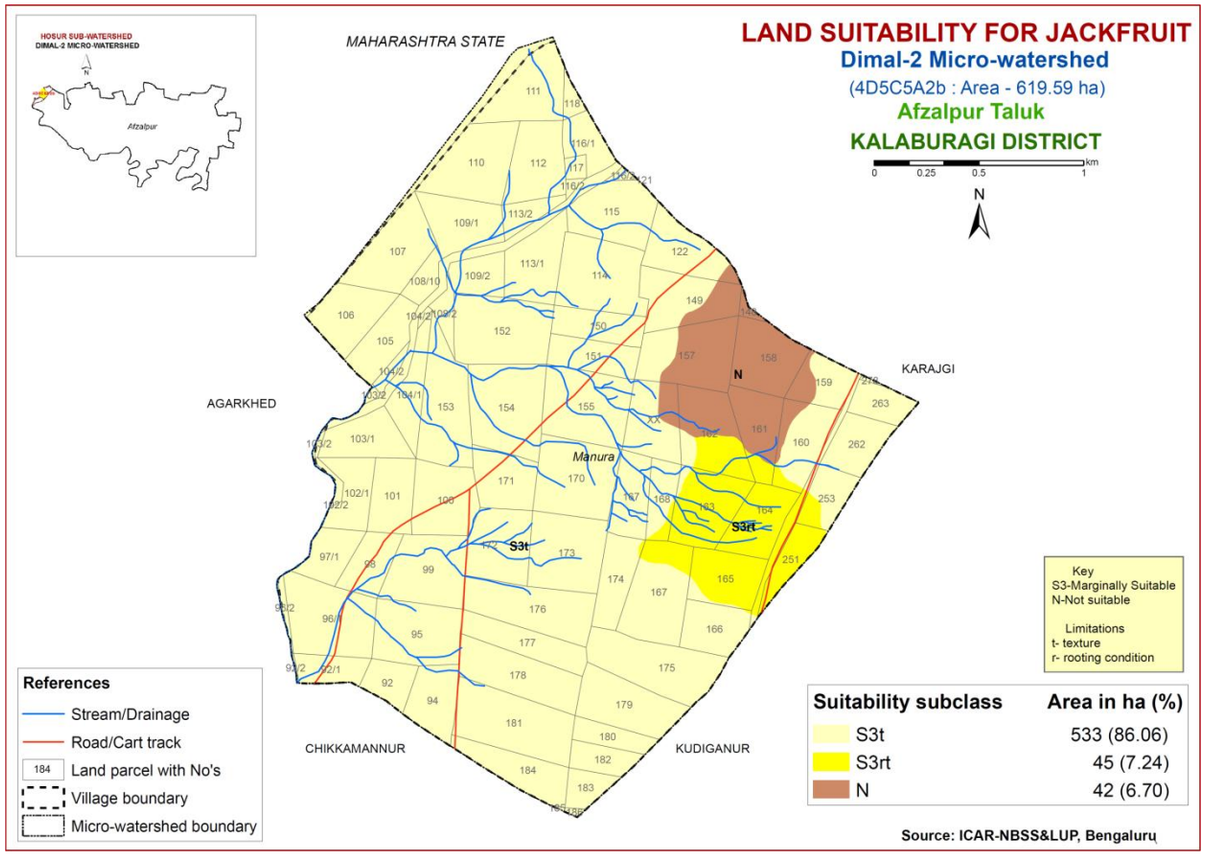

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR MANGO
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
S3rt
S3t
Key
S3-Marginally Suitable
Limitations
t-texture
r-rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 341 (79.31)
S3rt 44 (10.16)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

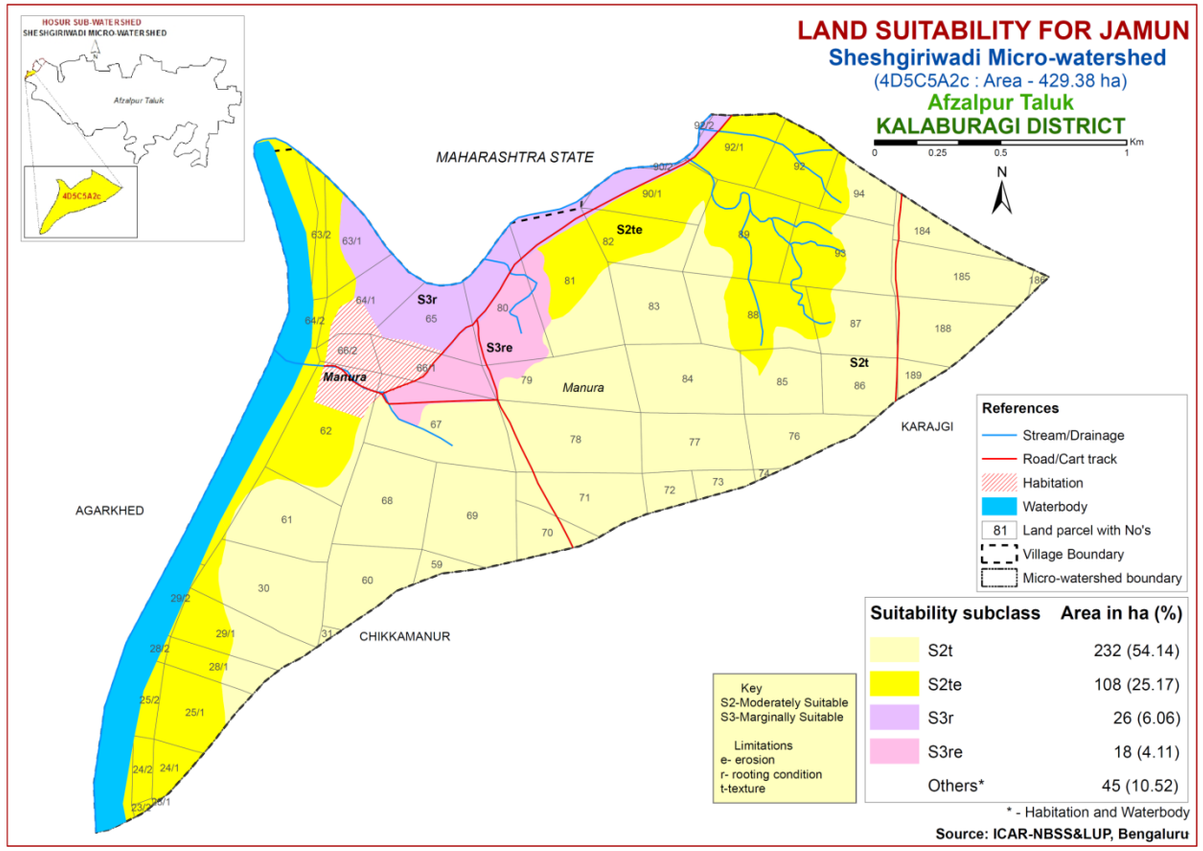

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR MANGO
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
Manura
N
S3t
Key
S3-Marginally Suitable
N-Not Suitable
Limitations
t- texture
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 578 (93.30)
N 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

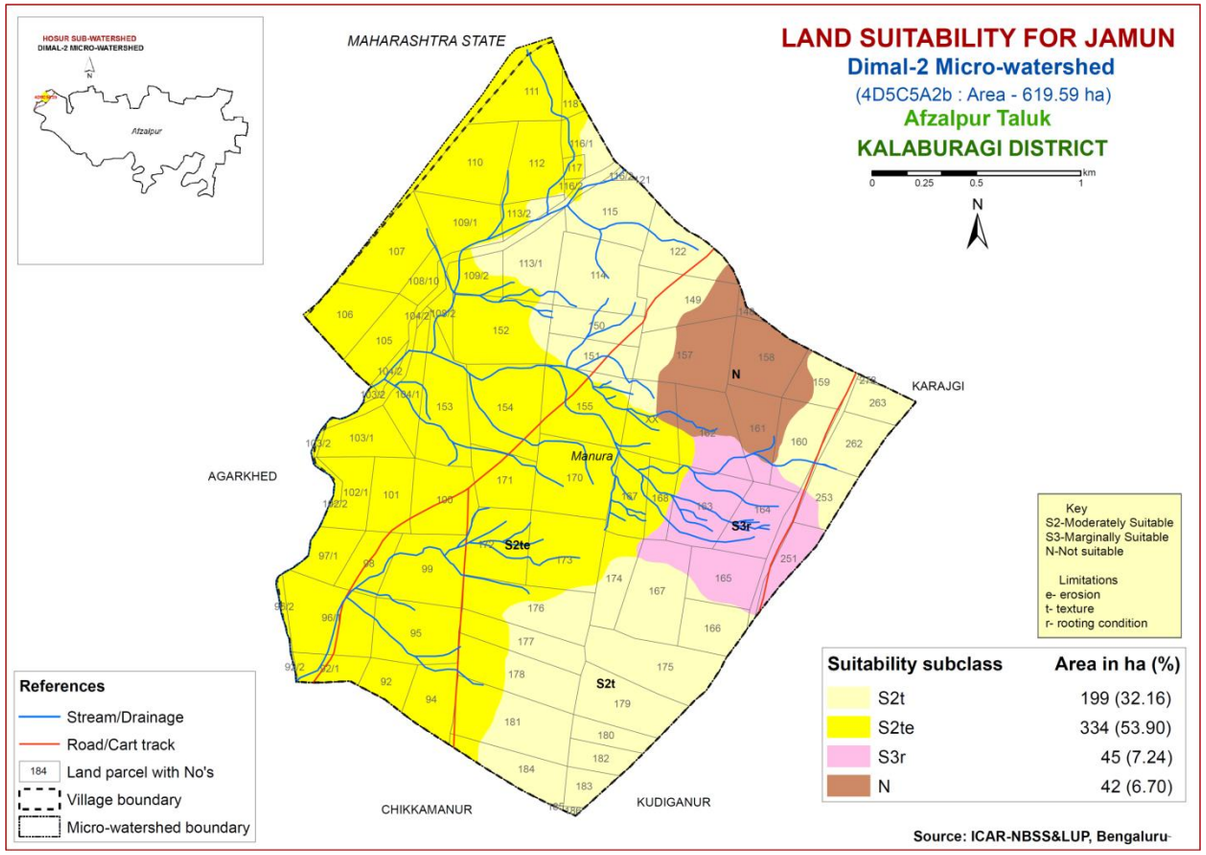

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR SAPOTA
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
S3r
S3t
Key
S3-Marginally Suitable
Limitations
r- rooting condition
t-texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3r 44 (10.16)
S3t 341 (79.31)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

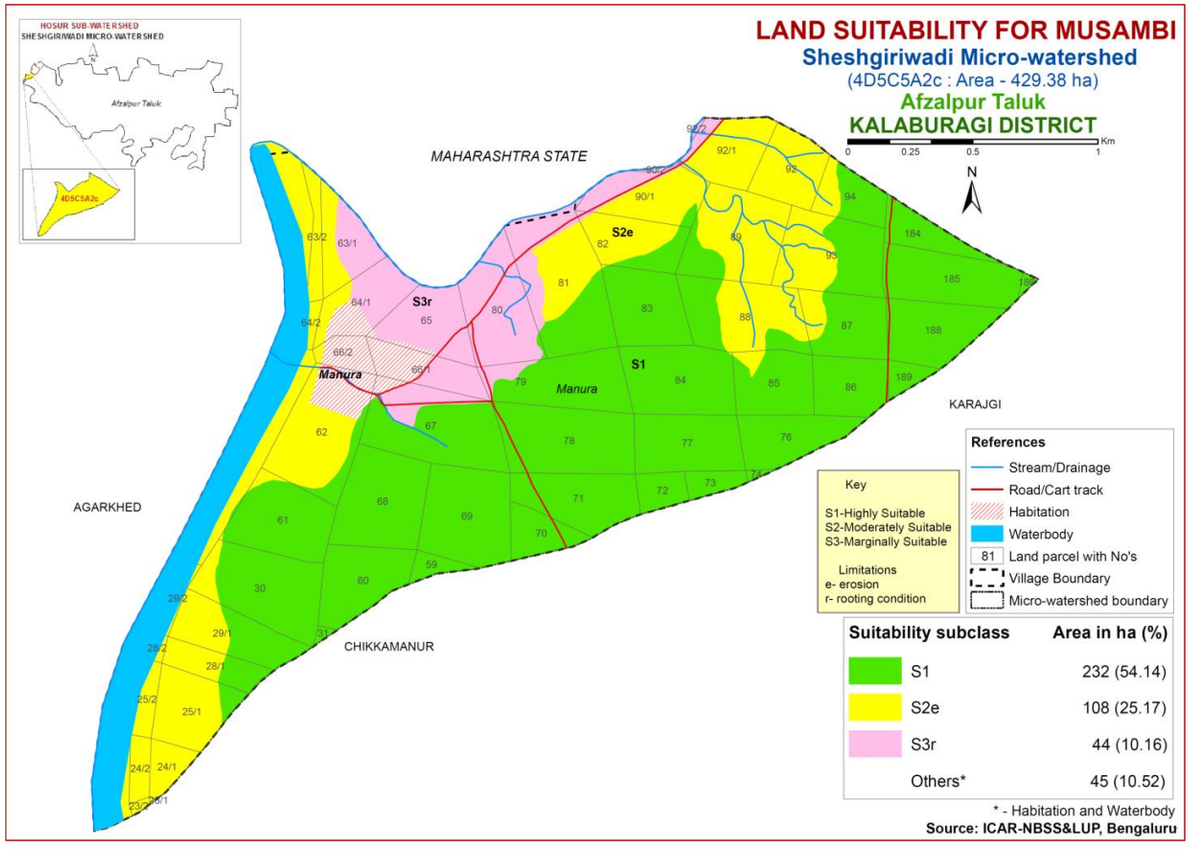

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR SAPOTA
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
Manura
N
S3t
Key
S3-Marginally Suitable
N-Not Suitable
Limitations
t- texture
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 578 (93.30)
N 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

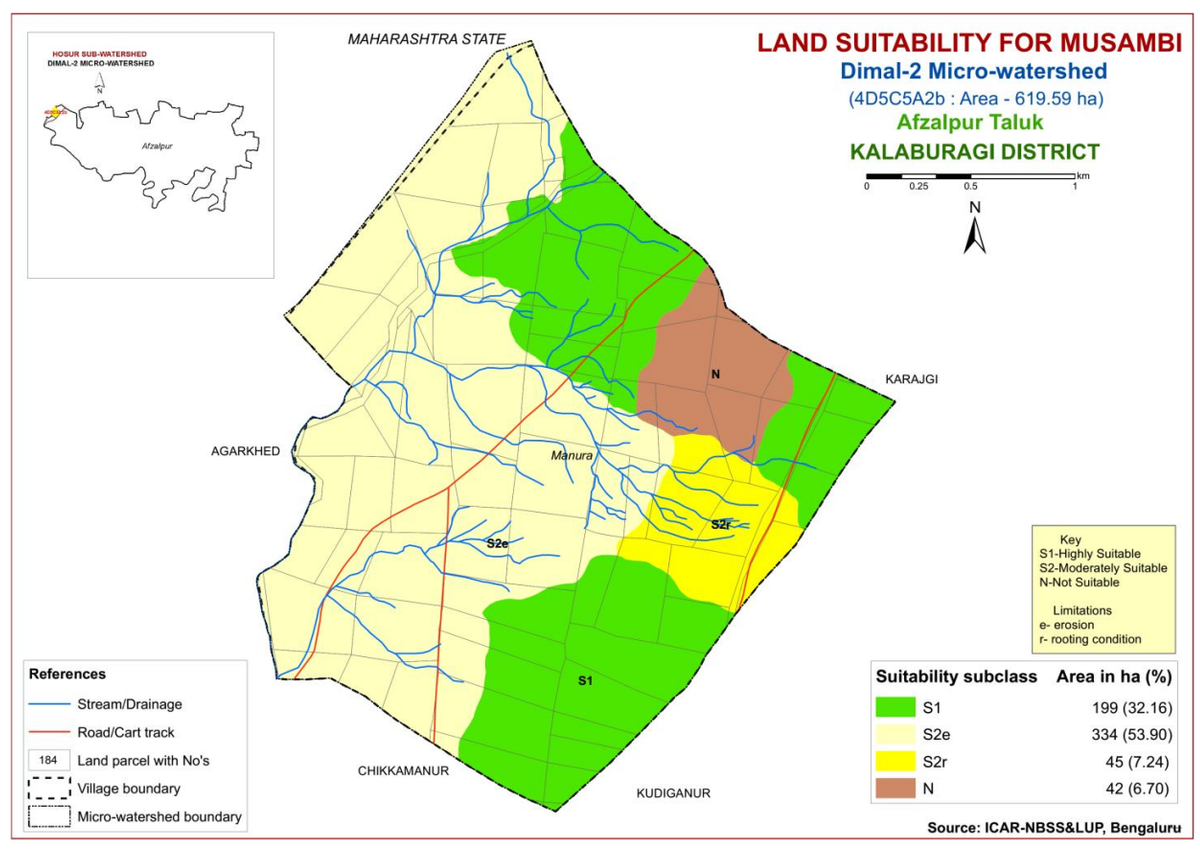

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR JACKFRUIT
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
S3r
S3re
S3t
Key
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
t-texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3r 26 (6.06)
S3t 341 (79.31)
S3re 18 (4.11)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

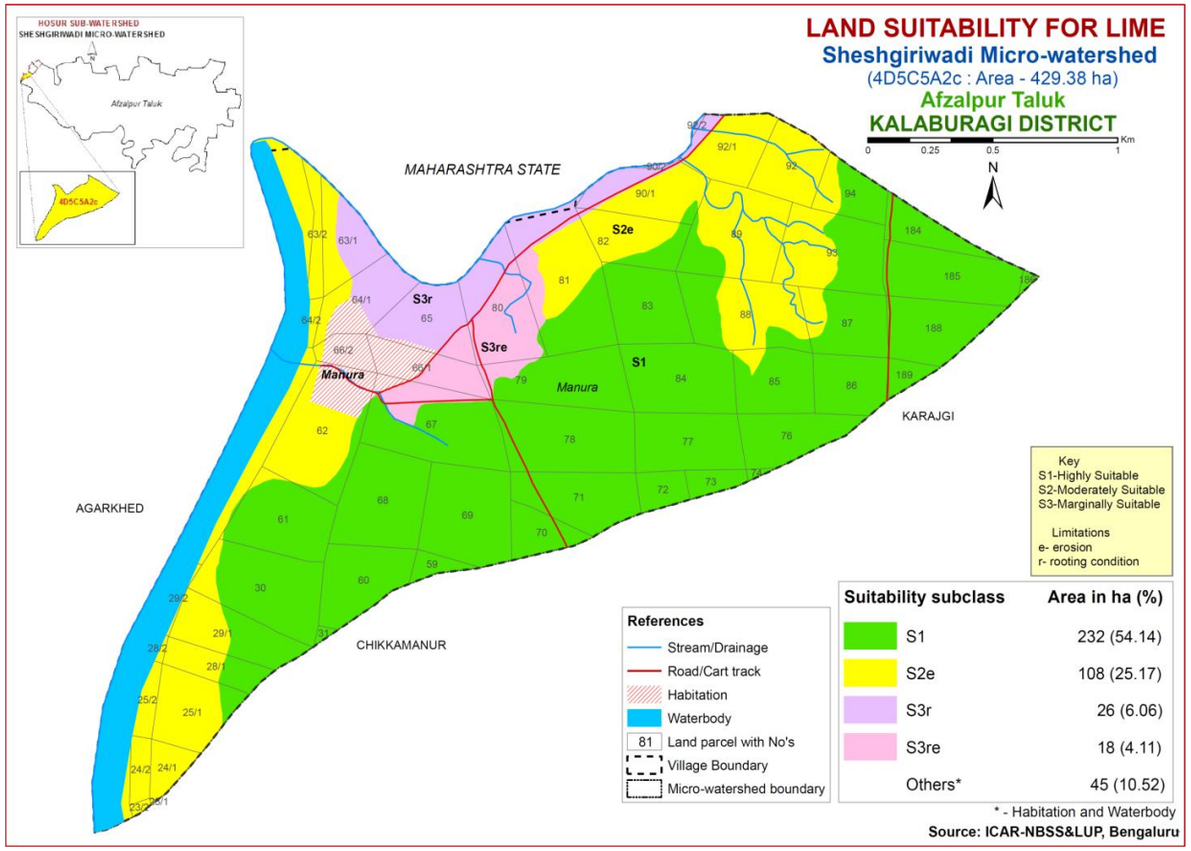

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR JACKFRUIT
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANNUR
KUDIGANUR
Manura
N
S3t
S3rt
Key
S3-Marginally Suitable
N-Not suitable
Limitations
t- texture
r- rooting condition
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S3t 533 (86.06)
S3rt 45 (7.24)
N 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

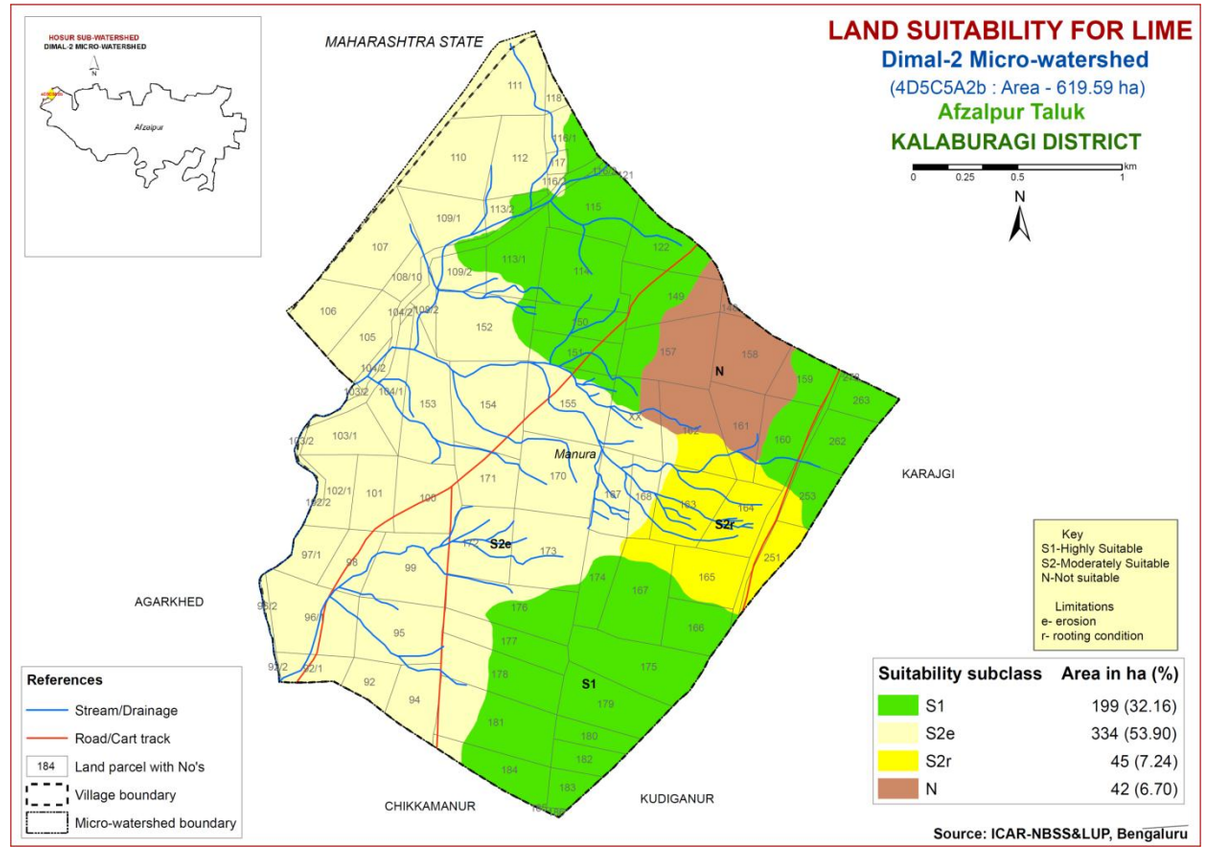

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR JAMUN
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
S3r
S3re
S2te
S2t
Key
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
t-texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S2t 232 (54.14)
S2te 108 (25.17)
S3r 26 (6.06)
S3re 18 (4.11)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

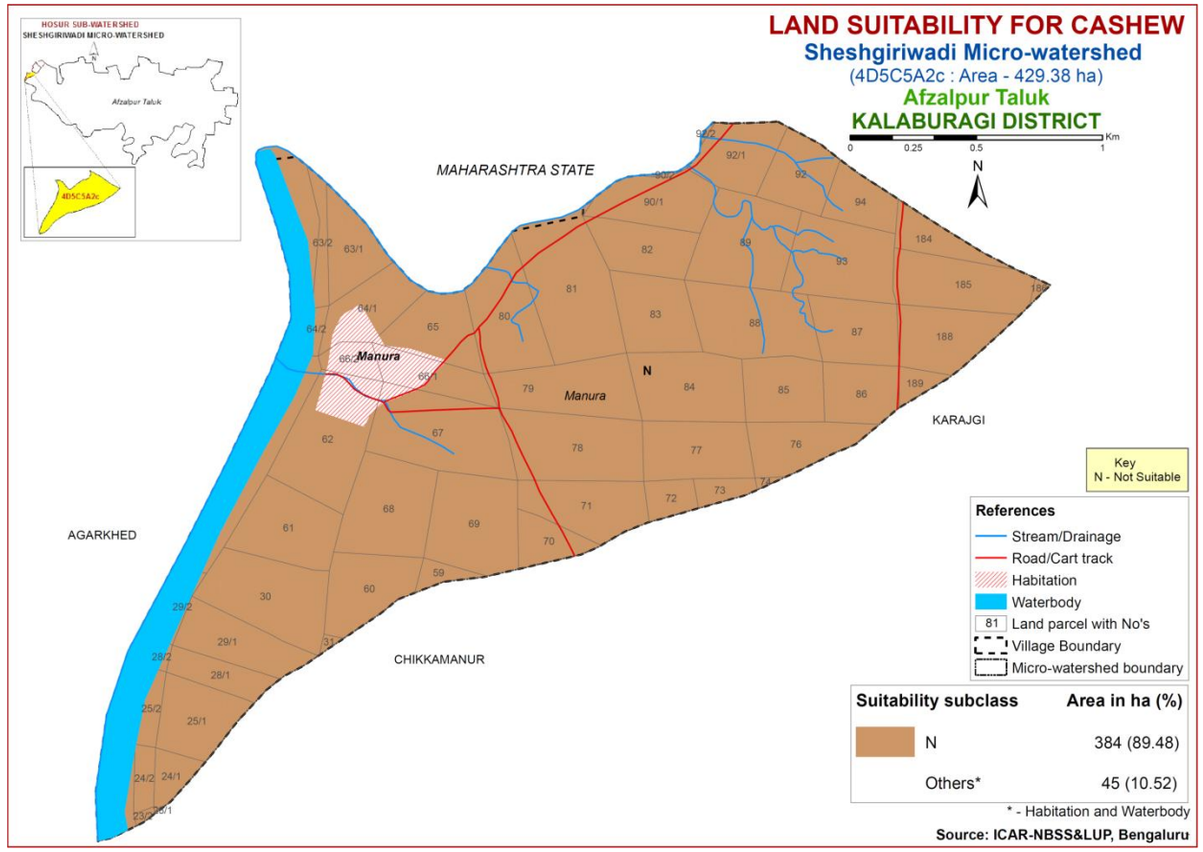

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR JAMUN
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
KUDIGANUR
Manura
N
S2te
S3r
S2t
Key
S2-Moderately Suitable
S3-Marginally Suitable
N-Not suitable
Limitations
e- erosion
t- texture
r- rooting condition
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S2t 199 (32.16)
S2te 334 (53.90)
S3r 45 (7.24)
N 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

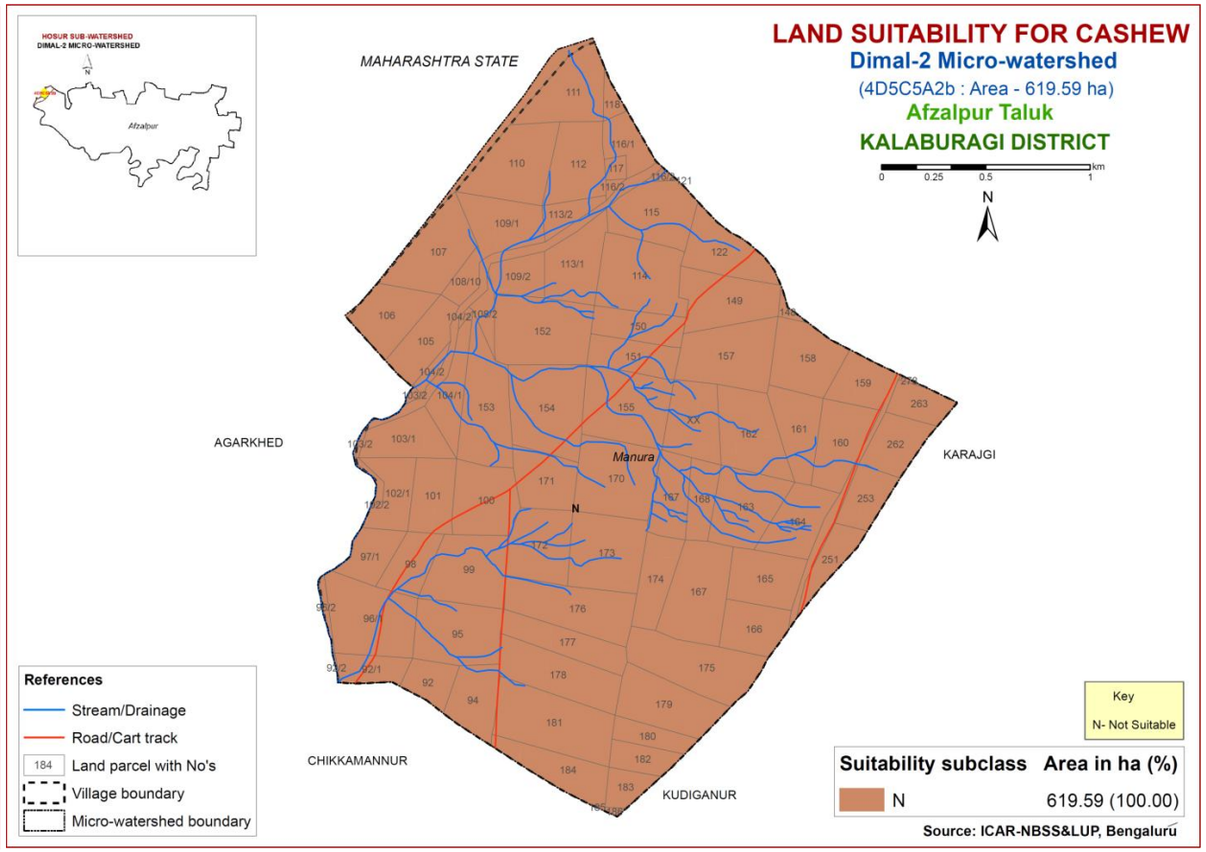

LAND SUITABILITY FOR MUSAMBI
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
4D5C5A2c
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
S1
S2e
S3r
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 232 (54.14)
S2e 108 (25.17)
S3r 44 (10.16)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

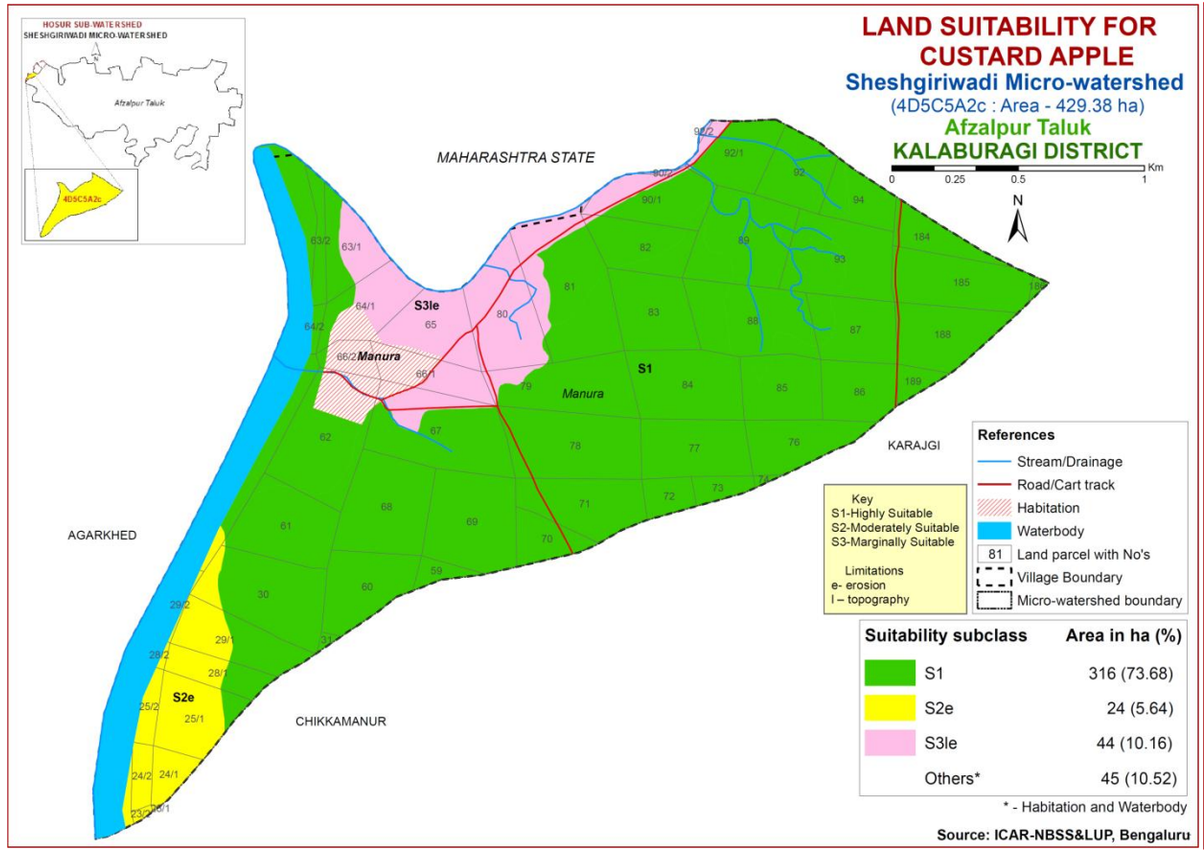

LAND SUITABILITY FOR MUSAMBI
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
Manura
N
S1
S2e
S2r
Key
S1-Highly Suitable
S2-Moderately Suitable
N-Not Suitable
Limitations
e- erosion
r- rooting condition
References
Stream/Drainage
Road/Cart track
Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 199 (32.16)
S2e 334 (53.90)
S2r 45 (7.24)
N 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

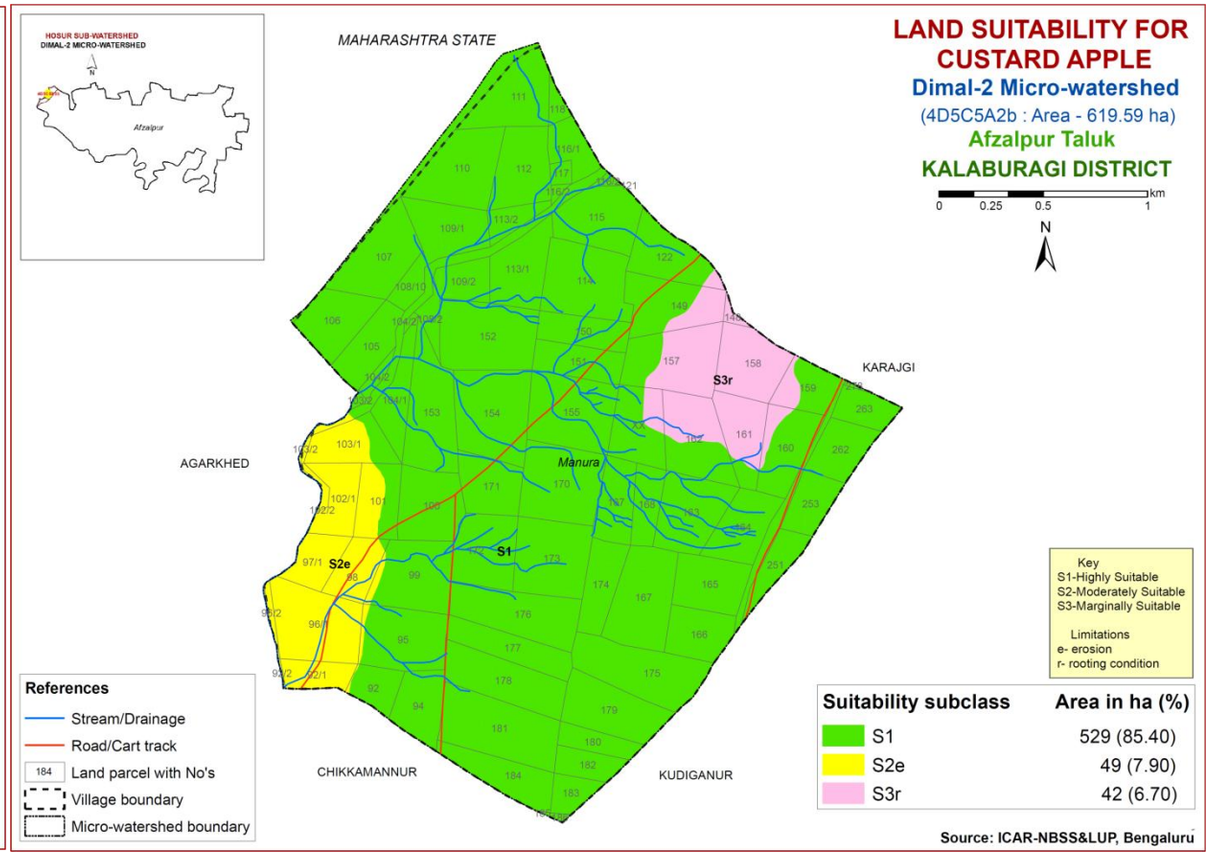

LAND SUITABILITY FOR LIME
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
4D5C5A2c
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
Manura
S1
S2e
S3r
S3re
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 232 (54.14)
S2e 108 (25.17)
S3r 26 (6.06)
S3re 18 (4.11)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

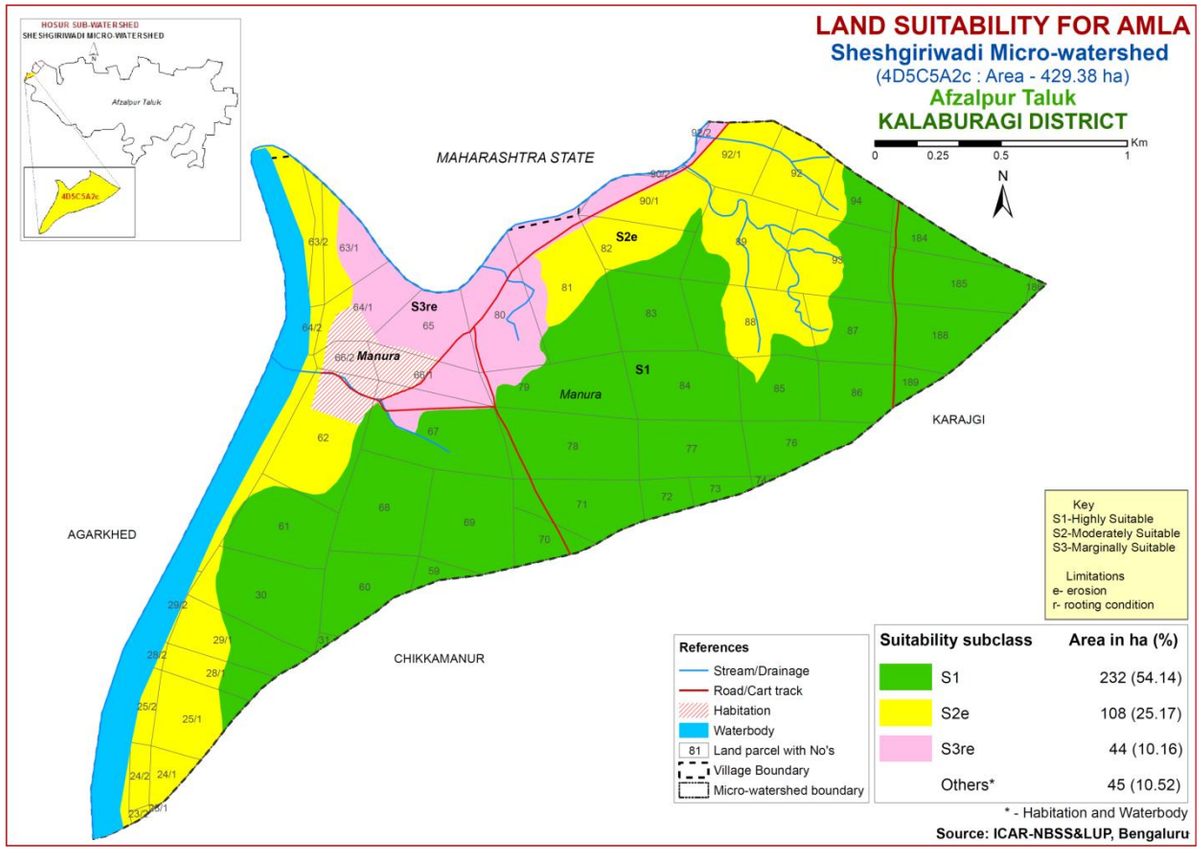

LAND SUITABILITY FOR LIME
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
MAHARASHTRA STATE
AGARKHED
CHIKKAMANUR
KARAJGI
KUDIGANUR
Manura
N
S1
S2e
S2r
Key
S1-Highly Suitable
S2-Moderately Suitable
N-Not suitable
Limitations
e- erosion
r- rooting condition
References
Stream/Drainage
Road/Cart track
Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 199 (32.16)
S2e 334 (53.90)
S2r 45 (7.24)
N 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

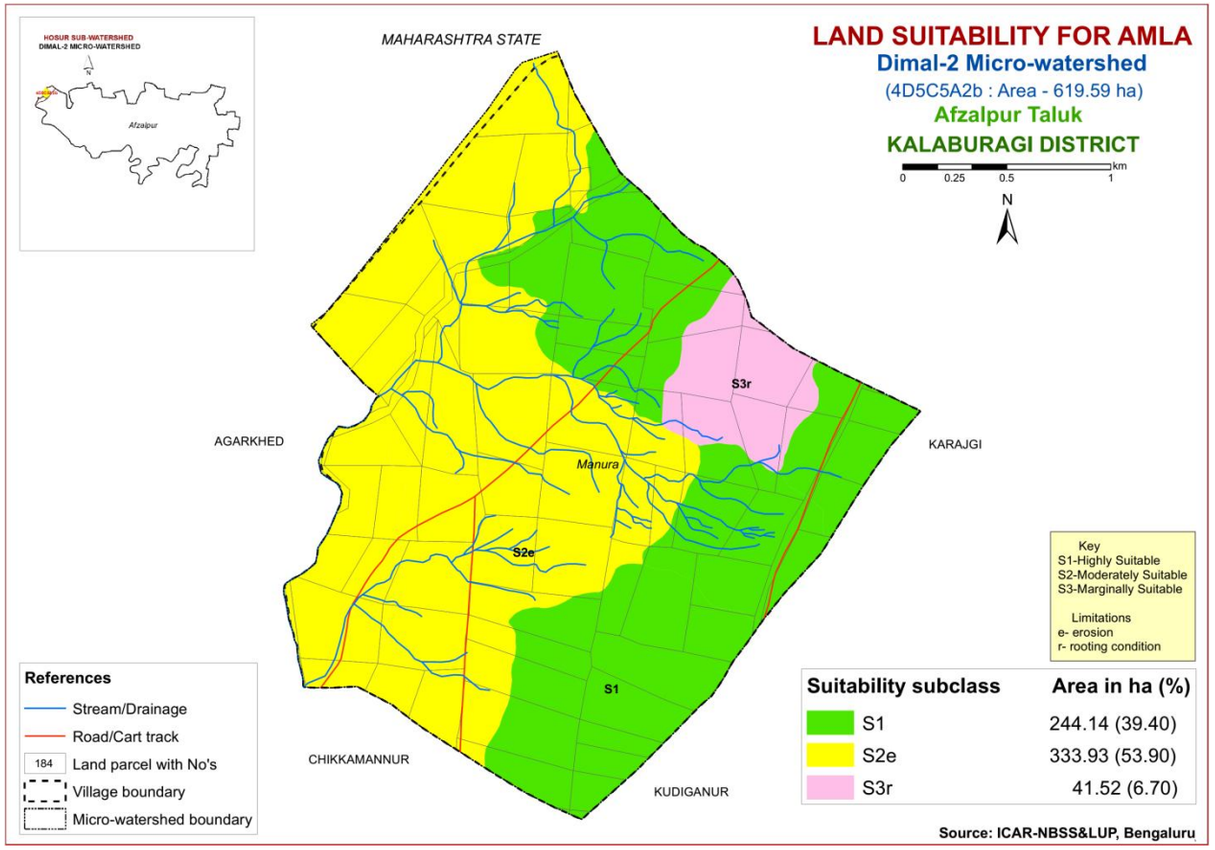

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR CASHEW
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
Key
N - Not Suitable
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
N
384 (89.48)
Others*
45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

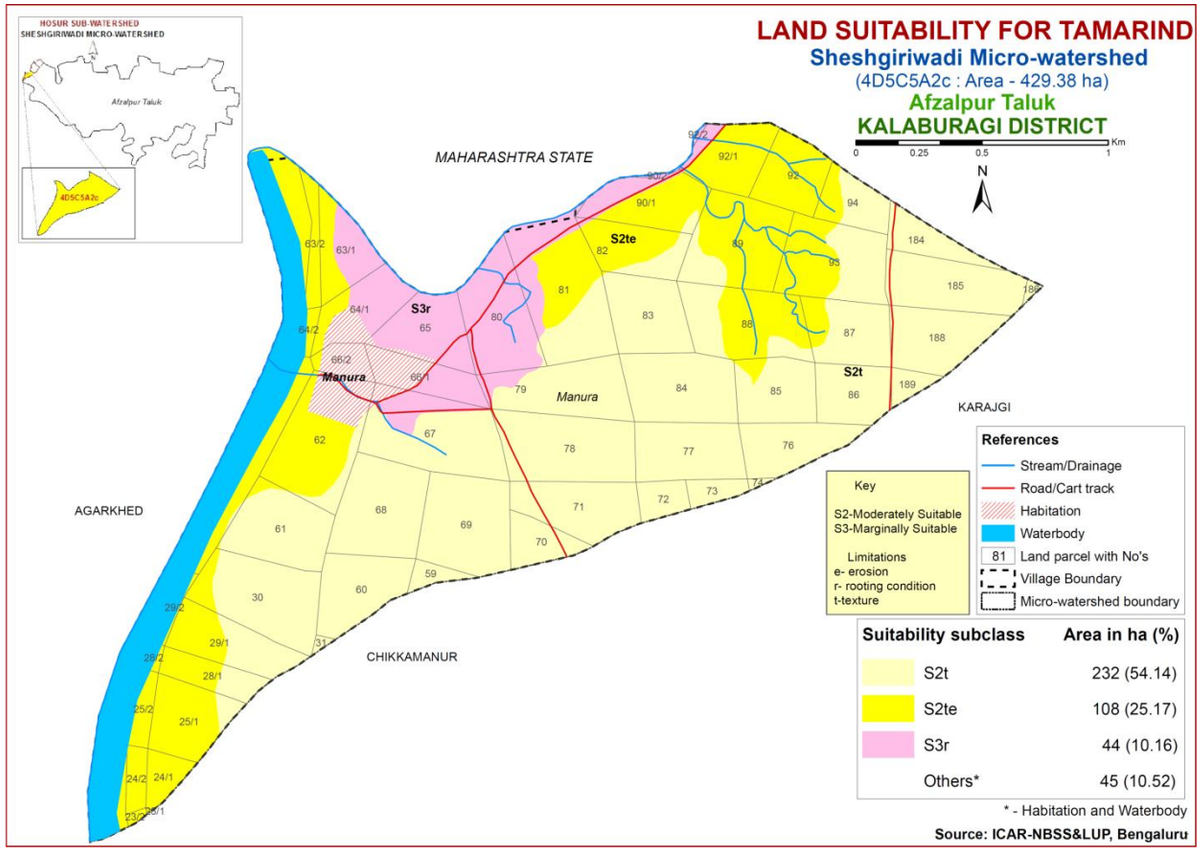

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR CASHEW
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANNUR
KUDIGANUR
Manura
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Key
N- Not Suitable
Suitability subclass
Area in ha (%)
N
619.59 (100.00)
Source: ICAR-NBSS&LUP, Bengaluru

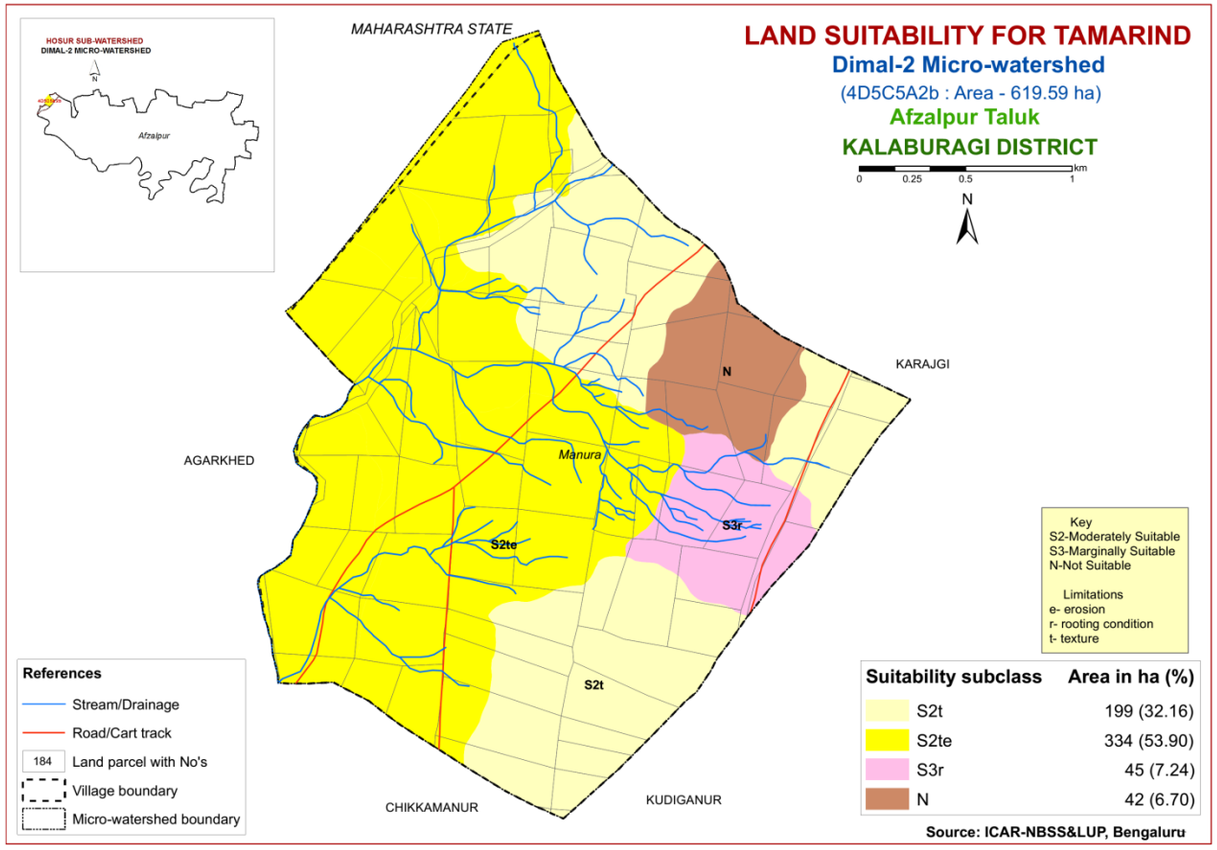

HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
LAND SUITABILITY FOR CUSTARD APPLE
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
S1
S2e
S3le
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
l – topography
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1
316 (73.68)
S2e
24 (5.64)
S3le
44 (10.16)
Others*
45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru

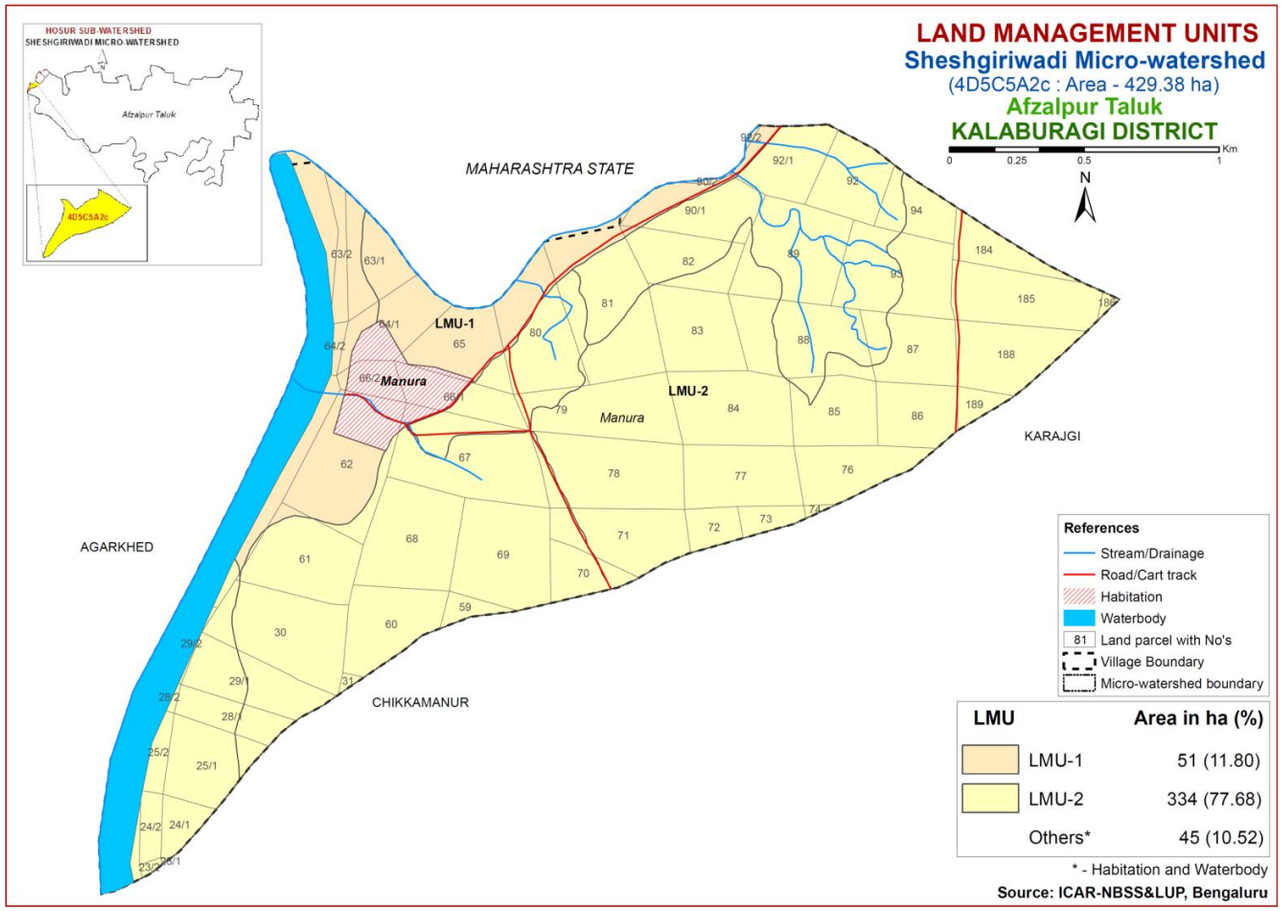

HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
LAND SUITABILITY FOR CUSTARD APPLE
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANNUR
KUDIGANUR
Manura
S1
S2e
S3r
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1
529 (85.40)
S2e
49 (7.90)
S3r
42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

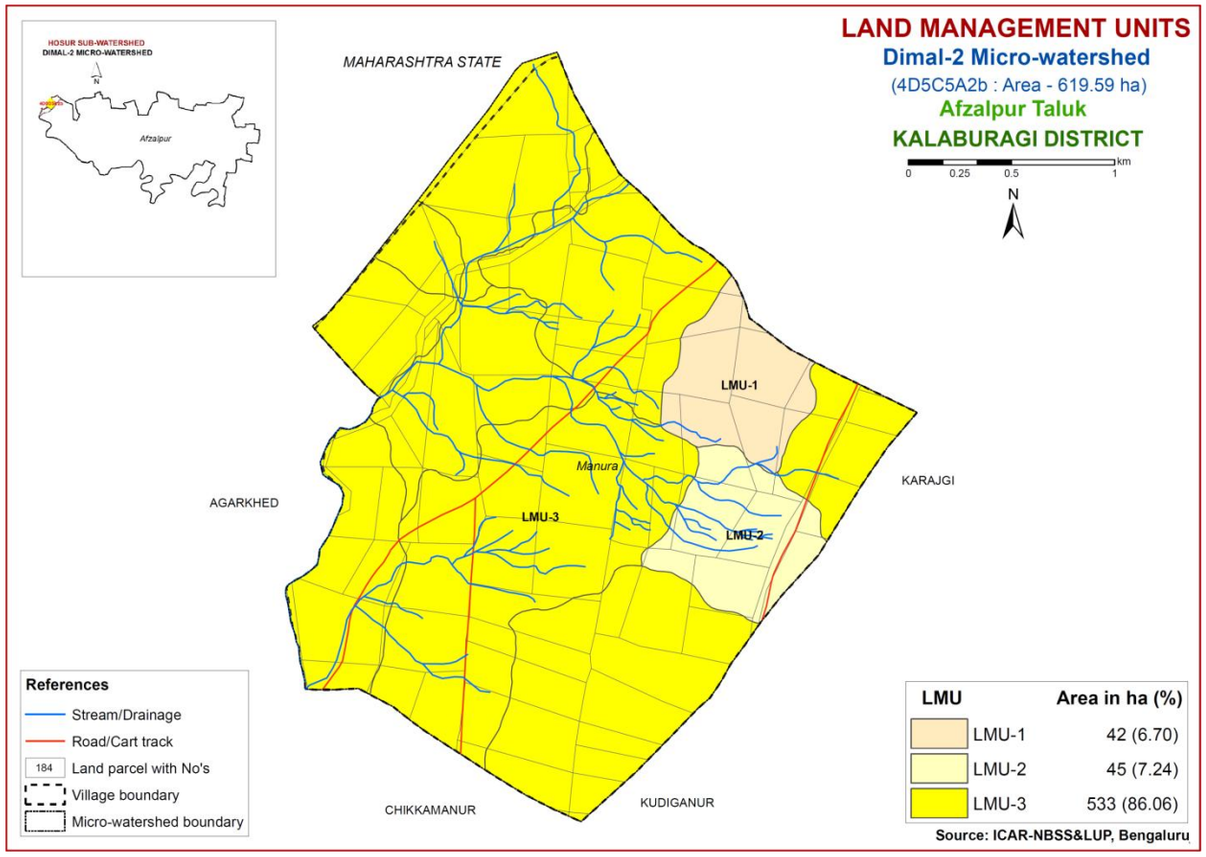

LAND SUITABILITY FOR AMLA
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
4D5C5A2c
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
S1
S2e
S3re
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 232 (54.14)
S2e 108 (25.17)
S3re 44 (10.16)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru


LAND SUITABILITY FOR AMLA
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANNUR
KUDIGANUR
Manura
S1
S2e
S3r
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
References
Stream/Drainage
Road/Cart track
Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 244.14 (39.40)
S2e 333.93 (53.90)
S3r 41.52 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru


LAND SUITABILITY FOR TAMARIND
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
4D5C5A2c
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
Manura
S2t
S2te
S3r
Key
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
e- erosion
r- rooting condition
t-texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village Boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S2t 232 (54.14)
S2te 108 (25.17)
S3r 44 (10.16)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru


LAND SUITABILITY FOR TAMARIND
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
MAHARASHTRA STATE
AGARKHED
KARAJGI
CHIKKAMANUR
KUDIGANUR
Manura
S2t
S2te
S3r
N
Key
S2-Moderately Suitable
S3-Marginally Suitable
N-Not Suitable
Limitations
e- erosion
r- rooting condition
t- texture
References
Stream/Drainage
Road/Cart track
Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S2t 199 (32.16)
S2te 334 (53.90)
S3r 45 (7.24)
N 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru





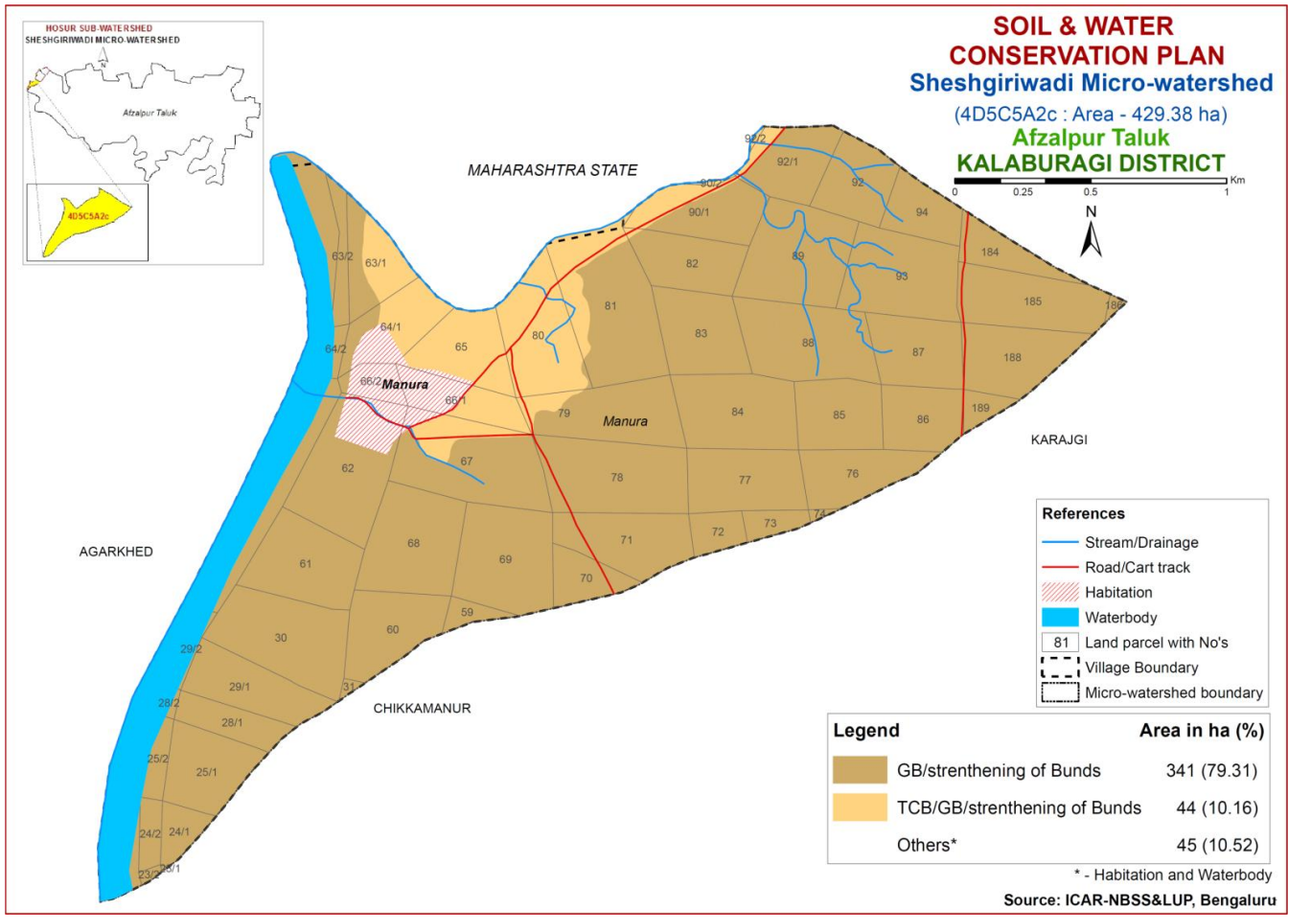
NOTE: *Proposed Crop Plan for LMU's are given in Table*

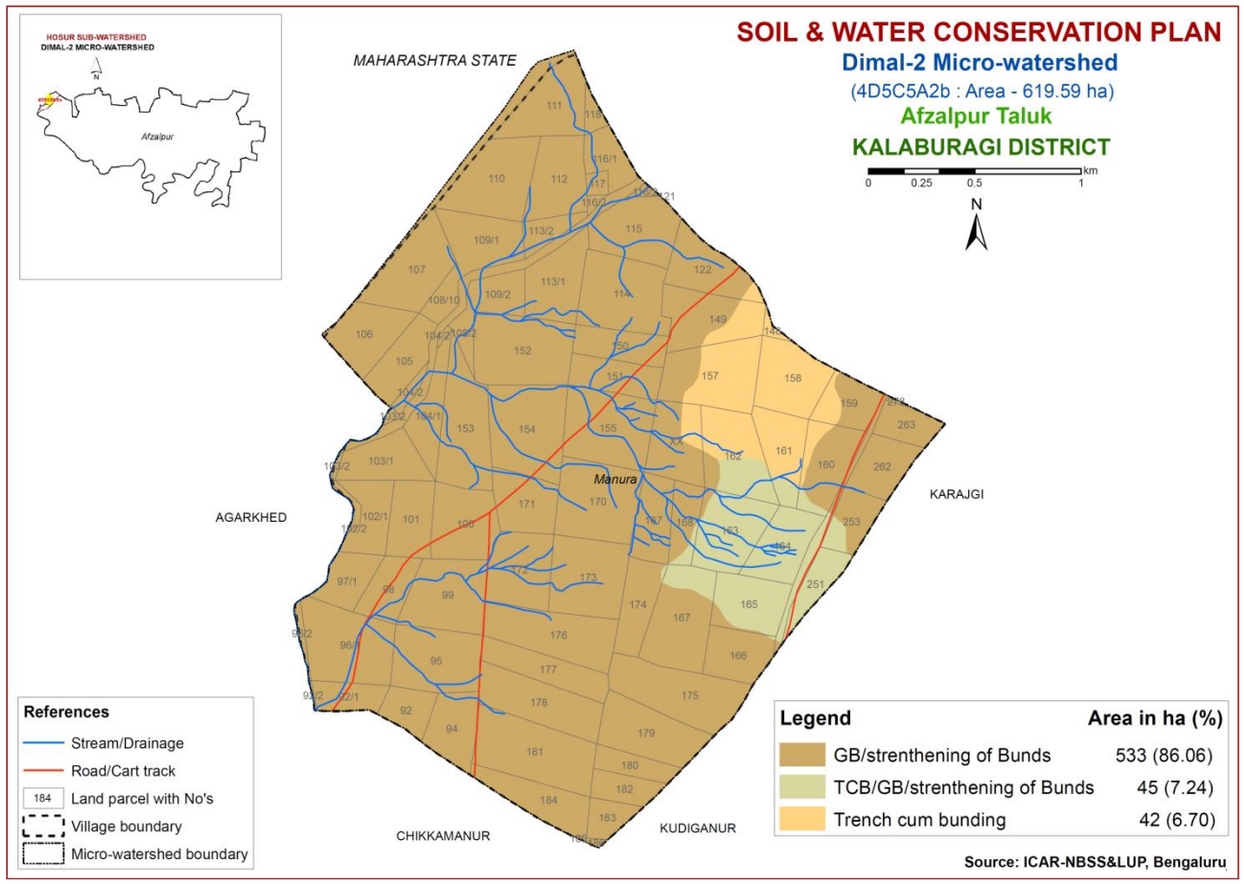
Table 3. Proposed Crop Plan for Sheshgiriwadi Micro-watershed, Hosur Sub-watershed Afzalpur Taluk and Kalaburagi District based on soil-site–crop suitability Assessment

Mapping unit	Survey No	Characters	Crops proposed				
			Field crops	Forestry Crop/Grasses	Horticulture crops (Rainfed Condition)	Horticulture crops with suitable intervention	Suitable Intervention
1 DSImB2 2 DSImB3	Manura: 62,63/1,63/2,64/1,64/2,65, 90/2,92/2	Moderately shallow black soil (50-75 cm), 1-3 % slope, moderate to severely eroded.	Sorghum, Cotton, Red gram, Black gram, Green gram, Soybean, Sesame, Sunflower, Safflower Rabi: Sorghum, Chickpea	Subabhul, Neem, Teak	Custard apple, Charoli, Ber, Amla Vegetable: Ladies finger, Brinjal, Cowpea, Flower: Marigold, Chrysanthemum	Custard apple, Charoli, Ber, Amla, Papaya, Banana, Lime, Citrus Vegetable: Onion, Tomato, Brinjal, Chillies, Bhendi Flower: Marigold, Chrysanthemum	-do- Graded bunds, Strengthening of field bunds
3 DIMmC2 4 MARmB1 5 MARmB2 6 MARmC2	Manura: 23/1,23/2,24/1,24/2,25/1, 25/2,28/1,29/1,30,31,59, 60,61,67,68,69,70,71,72, 73,74,76,77,78,79,80,81, 82,83,84, 85,86,87,88,89, 90/1,92,92/1,93,94,184, 185,186, 188,189	Deep to very deep Black soil (100-150 & >150 cm), 1-5 % slope, slight to moderate erosion	Sorghum, Cotton, Red gram, Black gram, Green gram, Soybean, Sunflower, Safflower, Sesame, Rabi: Sorghum, wheat, Chickpea Mixed cropping: Redgram+Cotton Pulses+Sorghum	-	Vegetable: Ladies finger, Brinjal, Cowpea, coriander Field crops: Sorghum, Cotton, Red Gram, Sunflower, Safflower, Perennial component: Guava, Tamarind, Sapota, Lime, Musambi Flower: Marigold, Chrysanthemum	Banana, Papaya, Lime. Musambi, Guava, Tamarind Vegetable: Onion, Tomato, Brinjal, Chillies, Bhendi Flower: Marigold, Chrysanthemum	-do- Graded bunds, Strengthening of field bunds

Table 4. Proposed Crop Plan for Dimal - 2 Micro-watershed, Hosur Sub-watershed Afzalpur Taluk and Kalaburagi District based on soil-site–crop suitability Assessment

Mapping unit	Survey No	Characters	Crops proposed				Suitable Intervention
			Field crops	Forestry Crop/Grasses	Horticulture crops (Rainfed Condition)	Horticulture crops with suitable intervention	
1 NHAmB1	Manura: 148,157,158,161, 162	Shallow black soil (25-50 cm) 1-3 % slope, slight . to moderately eroded, slight Gravelly.	Bajra, Linseed, Green gram, Black gram, Chick pea	Subabhul, Neem, Teak	Custard apple, Charoli, Ber, Amla Vegetable: Ladies finger, Brinjal, Cowpea, Flower: Marigold, Chrysanthemum	Custard apple, Charoli, Ber, Amla Vegetable: Onion, Tomato, Brinjal, Chillies, Bhendi Flower: Marigold, Chrysanthemum	Drip irrigation, suitable soil and water conservations like cultivation on raised beds with mulches and drip
2 KMPmB2	Manura: 163,164,165,251	Moderately deep black soil (75-100 cm),1-3 % slope, slightly to moderately eroded.	Sorghum, Cotton, Red Gram, Black gram, Green gram, Soybean, Sesame, Sunflower, Safflower Rabi: Sorghum, Chickpea	Subabhul, Neem, Teak	Custard apple, Charoli, Ber, Amla Vegetable: Ladies finger, Brinjal, Cowpea, Flower: Marigold, Chrysanthemum	Custard apple, Charoli, Ber, Amla, Papaya, Banana, Lime, Citrus Vegetable: Onion, Tomato, Brinjal, Chillies, Bhendi Flower: Marigold, Chrysanthemum	-do- Graded bunds, Strengthening of field bunds
3 DIMmB1 4 DIMmB2 5 MARmB1 6 MARmB2 7 MARmC2	Manura: 92,92/1,92/2,94,95,96/1,96/2,97/1,98,99, 100,101,102/1,102/2,103/1,103/2,104/1, 104/2,105,106,107,108/10,108/2,109/1, 109/2,110,111,112,113/1,113/2,114,115, 116/1,116/2,117,118,122,149,150,151, 152,153,154,155,159,160,166,167,168, 170,171,172,173,174,175,176, 177,178, 179,180,181,182,183,184,185,186,253, 262,263,278.	Deep to very deep Black soil (100-150 & >150 cm), 1-3 % slope, slight to moderate erosion	Sorghum, Cotton, Red Gram,Black gram, Green gram, Soybean,Sunflower, Safflower, Sesame, Rabi: Sorghum, wheat, Chickpea Mixed cropping: Red gram-cotton Pulses+sorghum	-	Vegetable: Ladies finger, Brinjal, Cowpea, coriander Field crops: Sorghum, Cotton, Red Gram, Sunflower, Safflower, Perennial component: Guava, Tamarind, Sapota, Lime, Mosambi Flower: Marigold, Chrysanthemum	Banana, Papaya, Lime. Mosambi, Guava, Tamrind Vegetable: Onion, Tomato, Brinjal, Chillies, Bhendi Flower: Marigold, Chrysanthemum	-do- Graded bunds, Strengthening of field bunds


HOSUR SUB-WATERSHED
SHESHGIRIWADI MICRO-WATERSHED
Afzalpur Taluk
4D5C5A2c
SOIL & WATER CONSERVATION PLAN
Sheshgiriwadi Micro-watershed
(4D5C5A2c : Area - 429.38 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 Km
N
MAHARASHTRA STATE
Manura
Manura
KARAJGI
AGARKHED
CHIKKAMANUR
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
81 Land parcel with No's
Village Boundary
Micro-watershed boundary
Legend
Area in ha (%)
GB/strenthening of Bunds 341 (79.31)
TCB/GB/strenthening of Bunds 44 (10.16)
Others* 45 (10.52)
* - Habitation and Waterbody
Source: ICAR-NBSS&LUP, Bengaluru


HOSUR SUB-WATERSHED
DIMAL-2 MICRO-WATERSHED
Afzalpur
SOIL & WATER CONSERVATION PLAN
Dimal-2 Micro-watershed
(4D5C5A2b : Area - 619.59 ha)
Afzalpur Taluk
KALABURAGI DISTRICT
0 0.25 0.5 1 km
N
MAHARASHTRA STATE
Manura
AGARKHED
KARAJGI
CHIKKAMANUR
KUDIGANUR
References
Stream/Drainage
Road/Cart track
184 Land parcel with No's
Village boundary
Micro-watershed boundary
Legend
Area in ha (%)
GB/strenthening of Bunds 533 (86.06)
TCB/GB/strenthening of Bunds 45 (7.24)
Trench cum bunding 42 (6.70)
Source: ICAR-NBSS&LUP, Bengaluru

PART - B

Hydrological Inventory of Hosur Sub-watershed, Afzalpur Taluk, Kalaburagi District, Karnataka for Watershed Planning and Development

Sujala - III
Karnataka Watershed Development Project-II
Watershed Development Department
Government of Karnataka

THE WORLD BANK

Hydrological Inventory of Hosur Sub-watershed, Afzalpur Taluk, Kalaburagi District, Karnataka for Watershed Planning and Development

Prepared by
ICAR-National Bureau of Soil Survey and Land Use Planning
Regional Centre, Hebbal, Bangalore - 560 024

ICAR - NBSS & LUP

Phone:080-23412242

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Dr. K .V. Niranjana	Chief Technical Officer
Sh. R.S.Reddy	Consultant
Sh. A.G.Devendra Prasad	Consultant
Smt. K.Karunya Lakshmi	Research Associate
Ms. Seema, K.V.	Senior Research Fellow
Dr. Sekhar Muddu (Reviewed and approved)	Professor & Lead Scientist, Dept. of Civil Engineering & ICWaR, IISc, Bangalore
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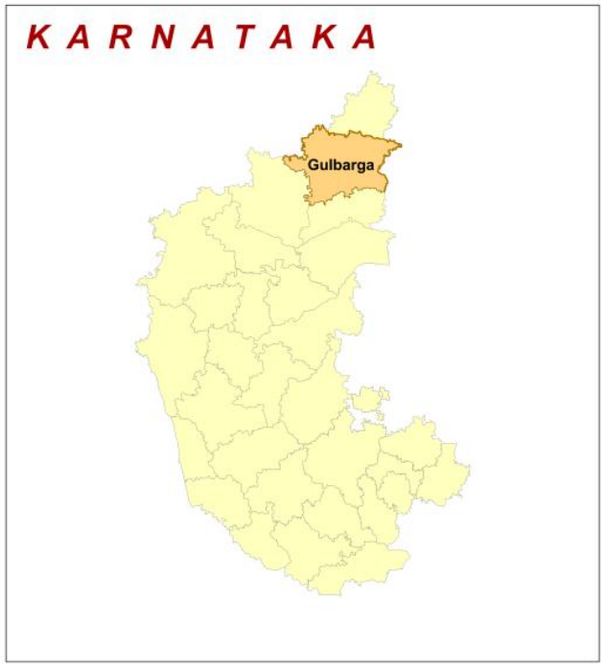
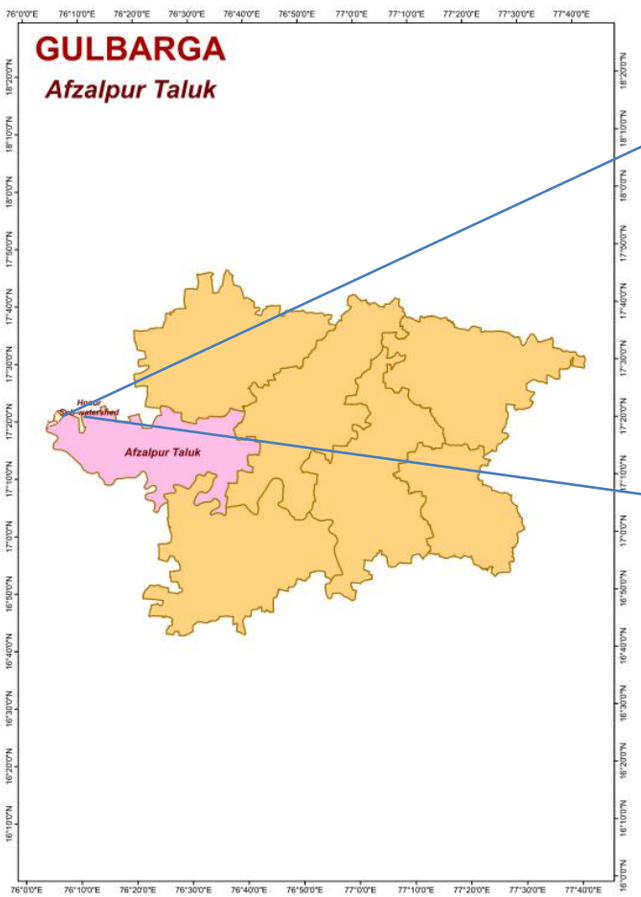
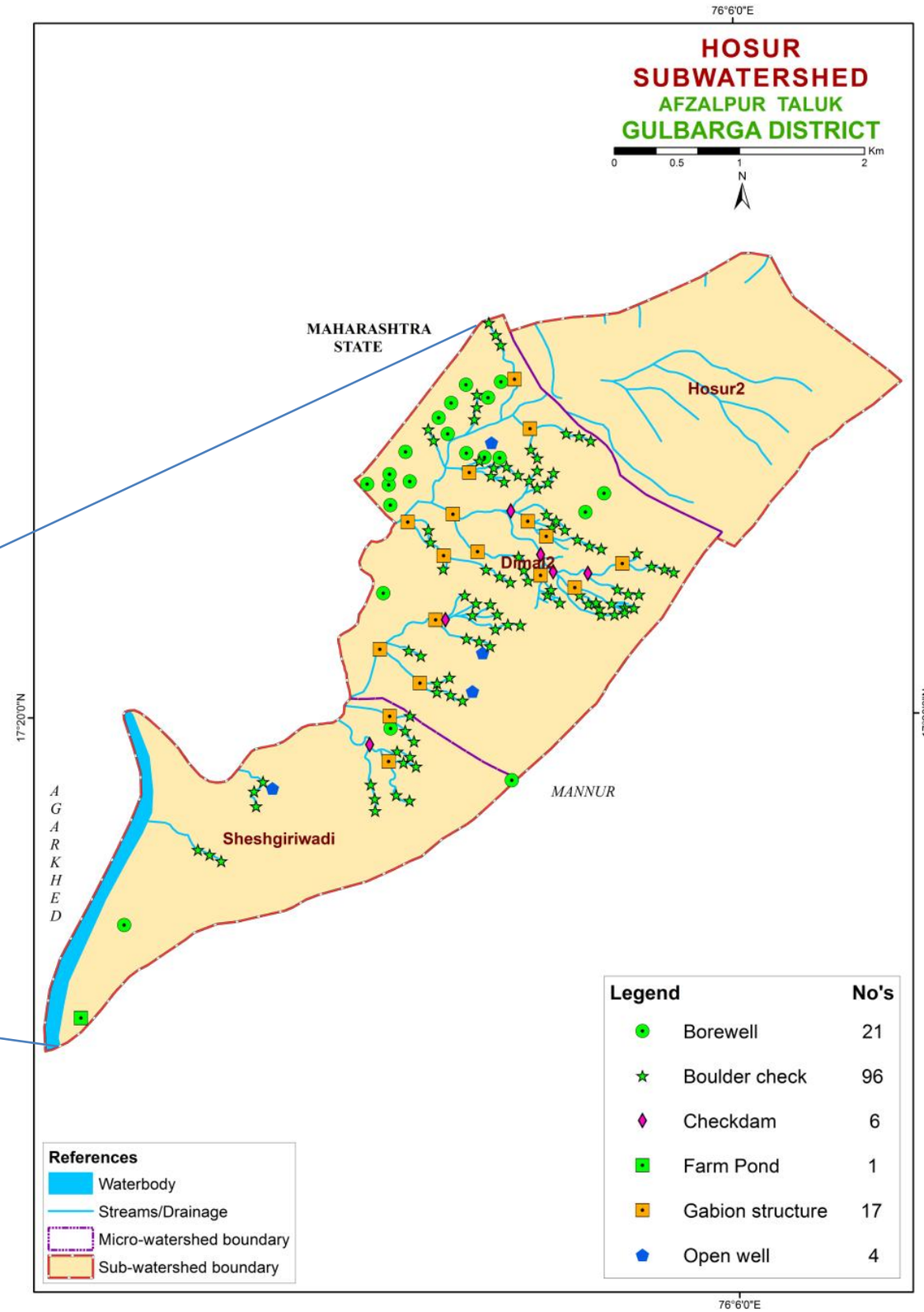
INTRODUCTION

- The inventory and documentation of spatial and temporal changes in hydrological components of Hosur sub-watershed (4D5C5A) in Afzalpur taluk, Kalaburagi district, has been undertaken for integrated planning, development and management at the level of soil mapping units.
- Hosur sub-watershed (Afzalpur taluk, Kalaburagi district) is located between $17^0$18'27''-$17^0$21'34'' North latitudes and $76^0$3'55''-$76^0$7'58'' East longitudes, covering an area of about 1416.93 ha.
- This sub-watershed encompasses of 3 MWs namely, Dimal-2 (4D5C5A2b), Hosur-2 (4D5C5A2a) and Sheshgiriwadi (4D5C5A2c) micro watersheds. Land Resource Inventory (LRI) was generated for all the three micro-watersheds.
- Average annual rainfall (1960-2014) of the Hobli (Block) pertaining to the sub-watershed is 665 mm.
- In this sub-watershed major *kharif* crops grown are Maize, Soyabean, Red gram, Sugarcane, Sunflower, Cotton and major *rabi* crops are Sorghum and Bengal gram.
- Hydrological components namely rainfall (annual, *kharif*, *rabi* and summer), PET, AET, runoff, surface soil moisture, ground water status and water balance are presented.

LOCATION MAP OF HOSUR SUB-WATERSHED

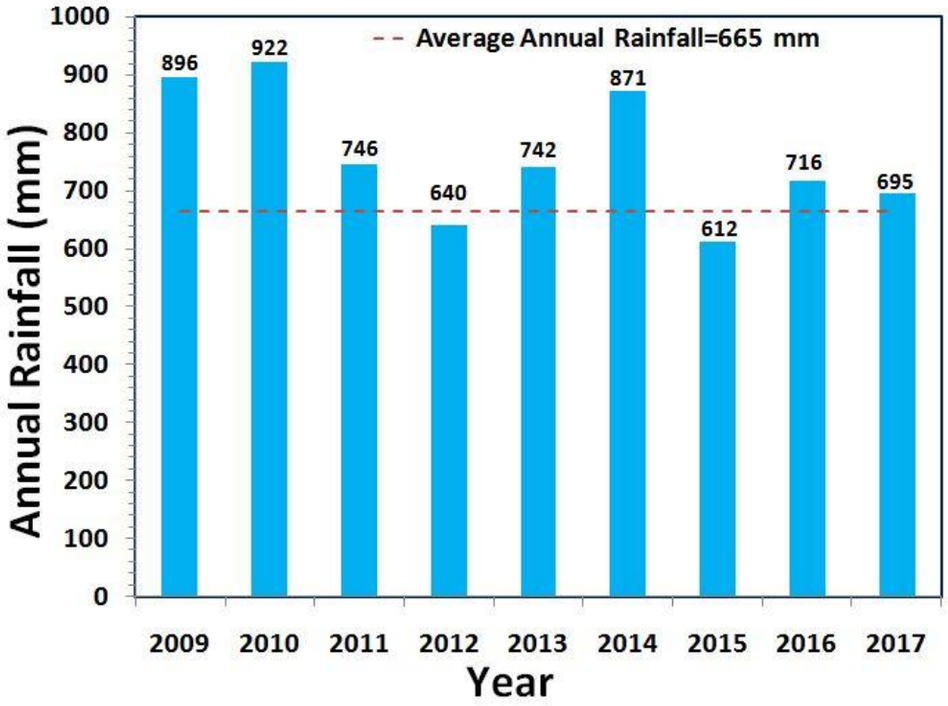






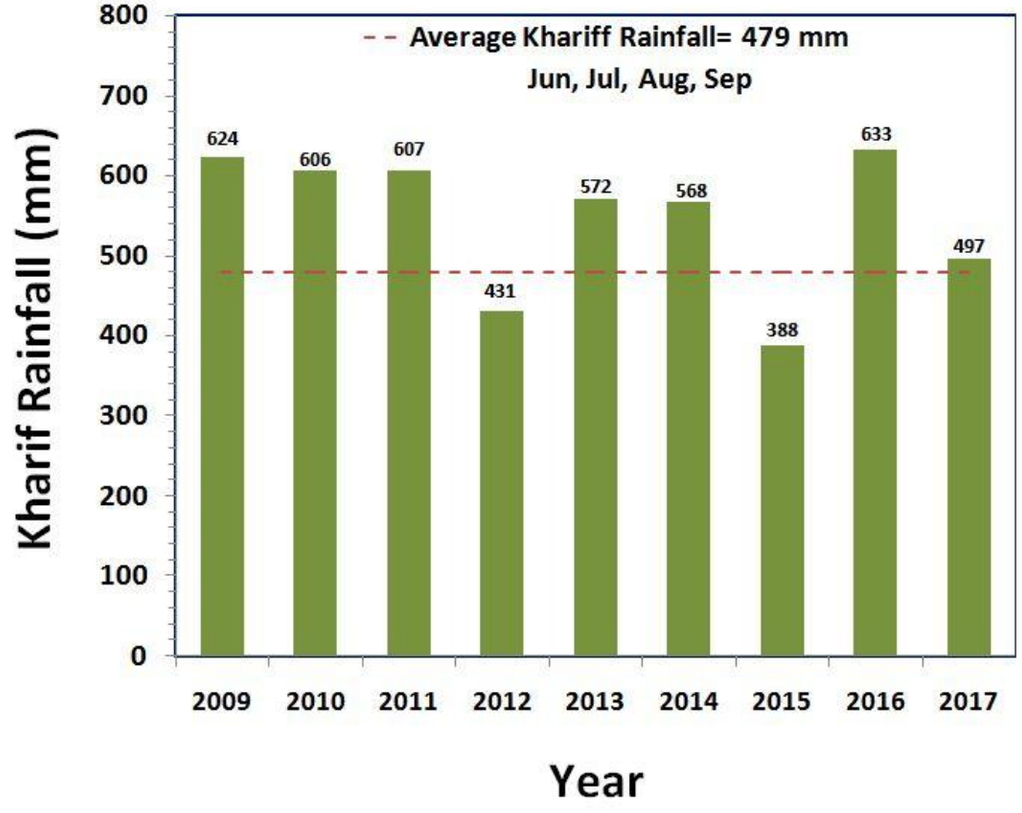
Soil & Water Conservation Structures in Hosur Sub-watershed, Afzalpur Taluk, Kalaburagi District

RAINFALL INDEX

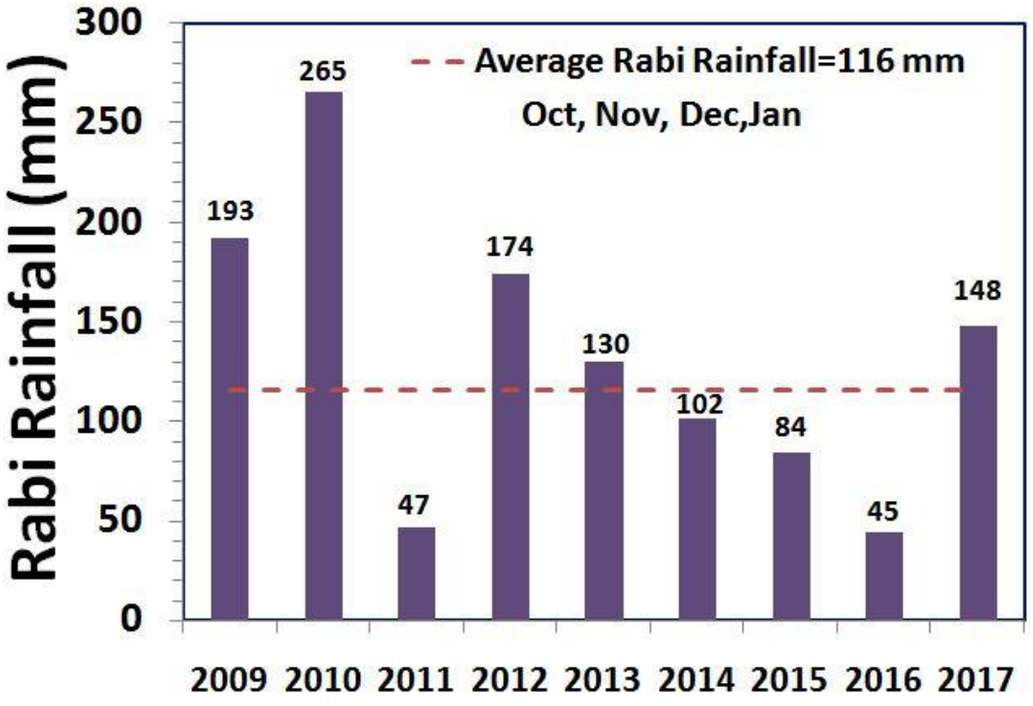


The average annual rainfall (1960-2014) recorded at the Afzalpur station in Afzalpur taluk of Gulbarga district is 665 mm. The annual rainfall at Karajgi station (Hobli H.Q.) is presented. During the years 2012 and 2015 the annual rainfall was deficient by 4% and 8% respectively.

The Kharif rainfall (Jun–Sep) is an average about 72% of the annual rainfall and it typically follows the annual rainfall patterns. During the years 2012 and 2015 the annual rainfall was deficient by 10% and 19% respectively.

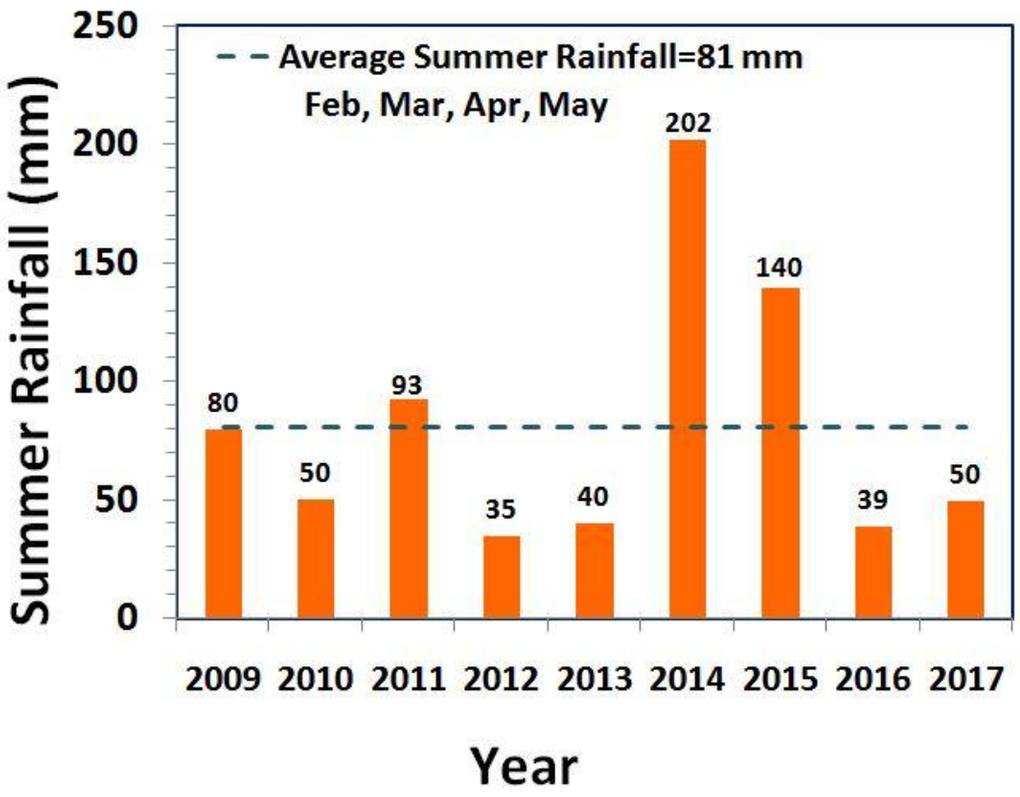


RAINFALL INDEX

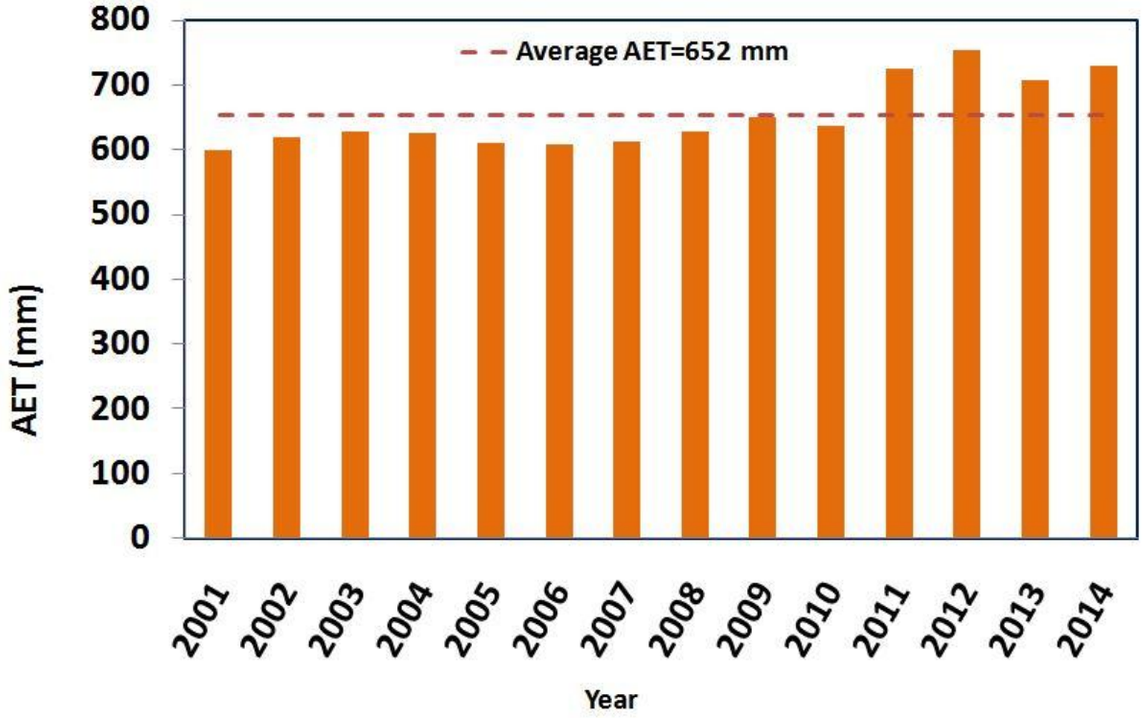


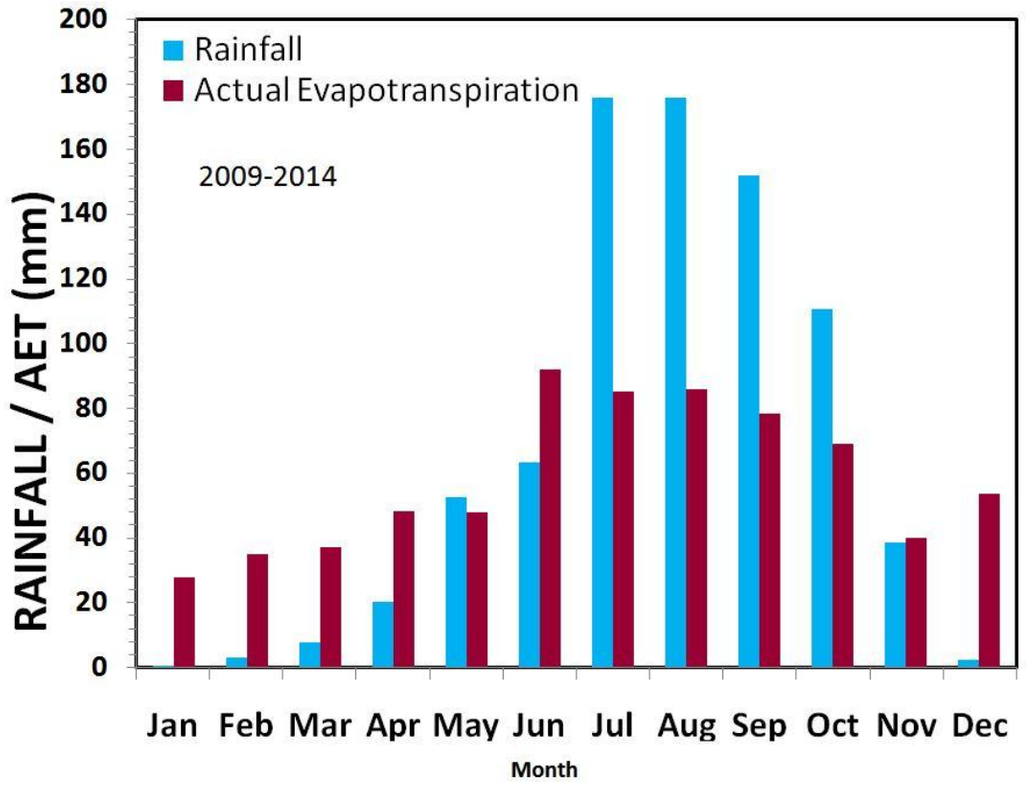
The average *rabi* rainfall (Oct-Jan) is about 17% of the average annual rainfall. During the years 2011, 2014, 2015 and 2016 the annual rainfall was deficient by 59%, 12%, 28% and 61% respectively.

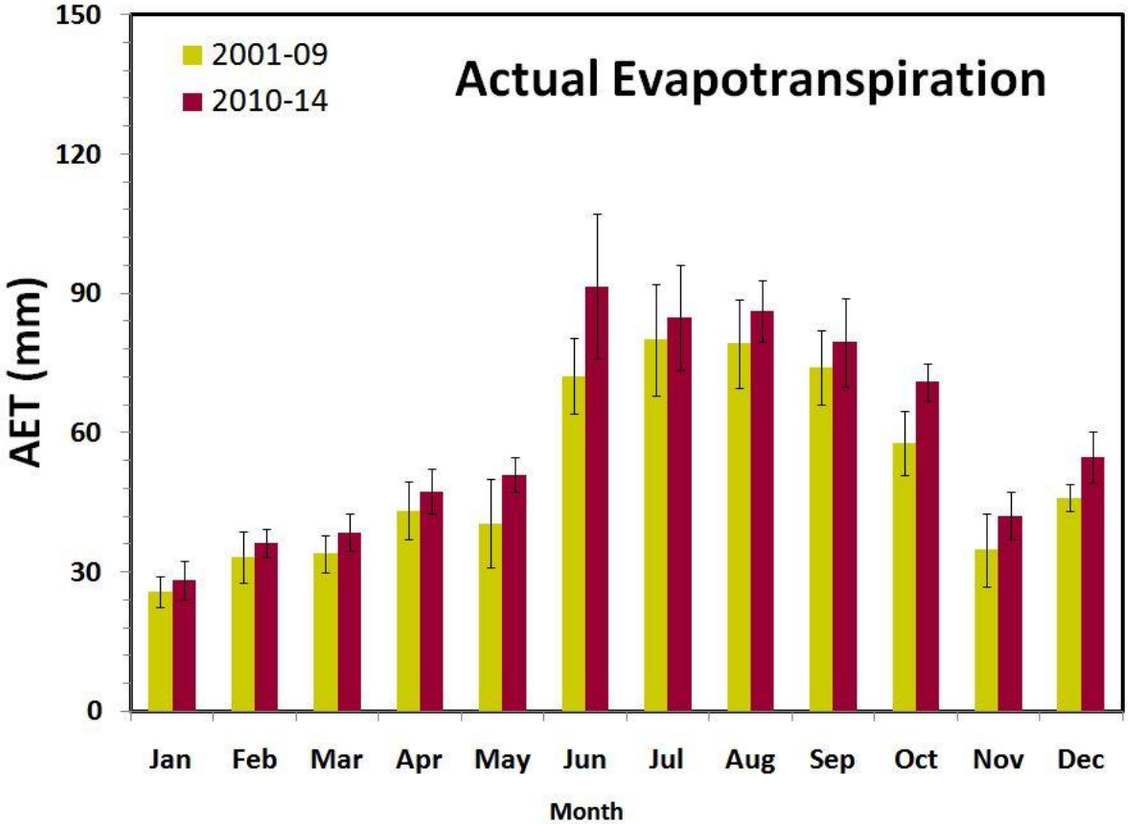
The average summer rainfall (Feb-May) is about 11% of the average annual rainfall.



EVAPOTRANSPIRATION

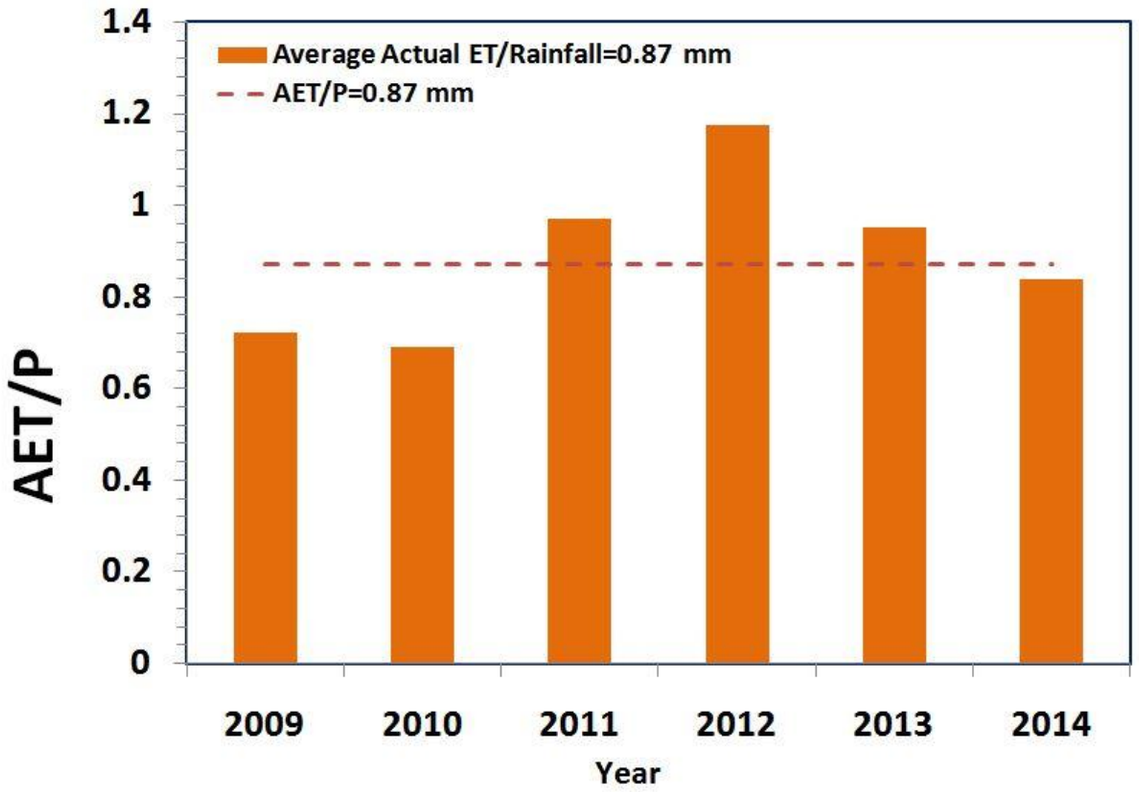




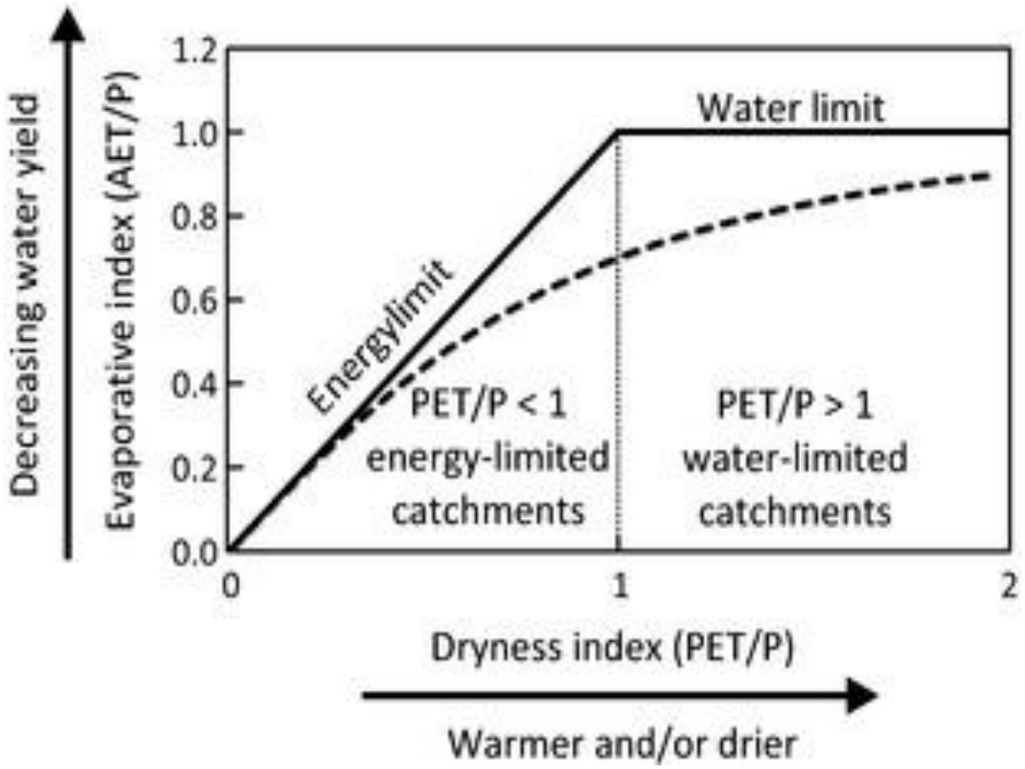


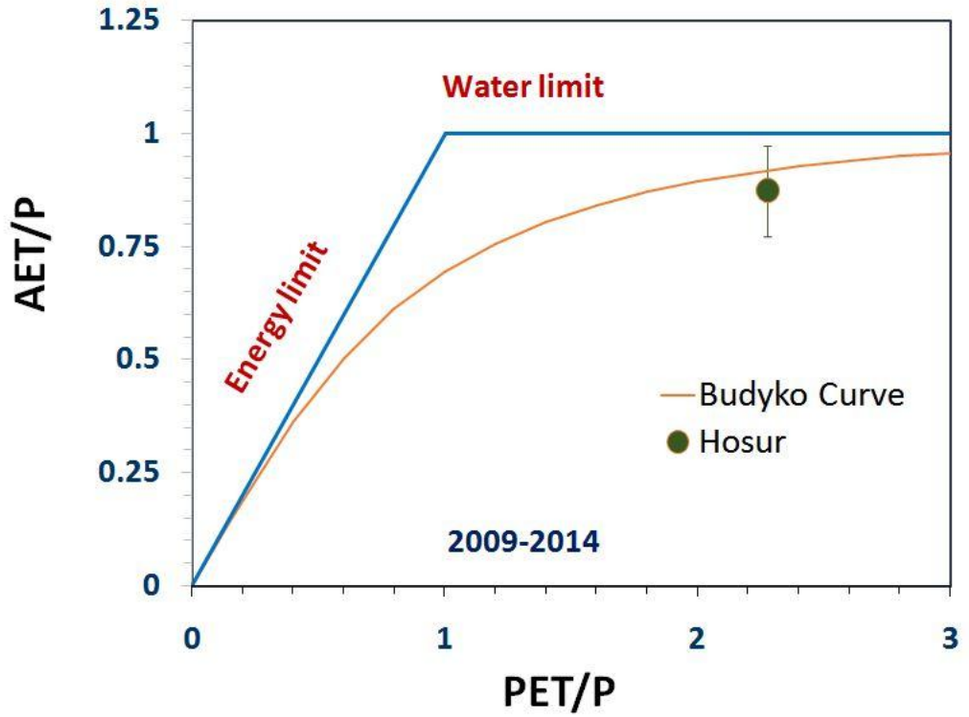
The average annual actual ET is lower than the average rainfall. During *kharif*, average rainfall and ET was found to be 547 mm and 342 mm respectively, whereas in *rabi* it was about 132 mm and 191 mm. In comparison to the 2001-2009, the annual ET increased by 13% during 2010-2014.

EVAPOTRANSPIRATION INDEX

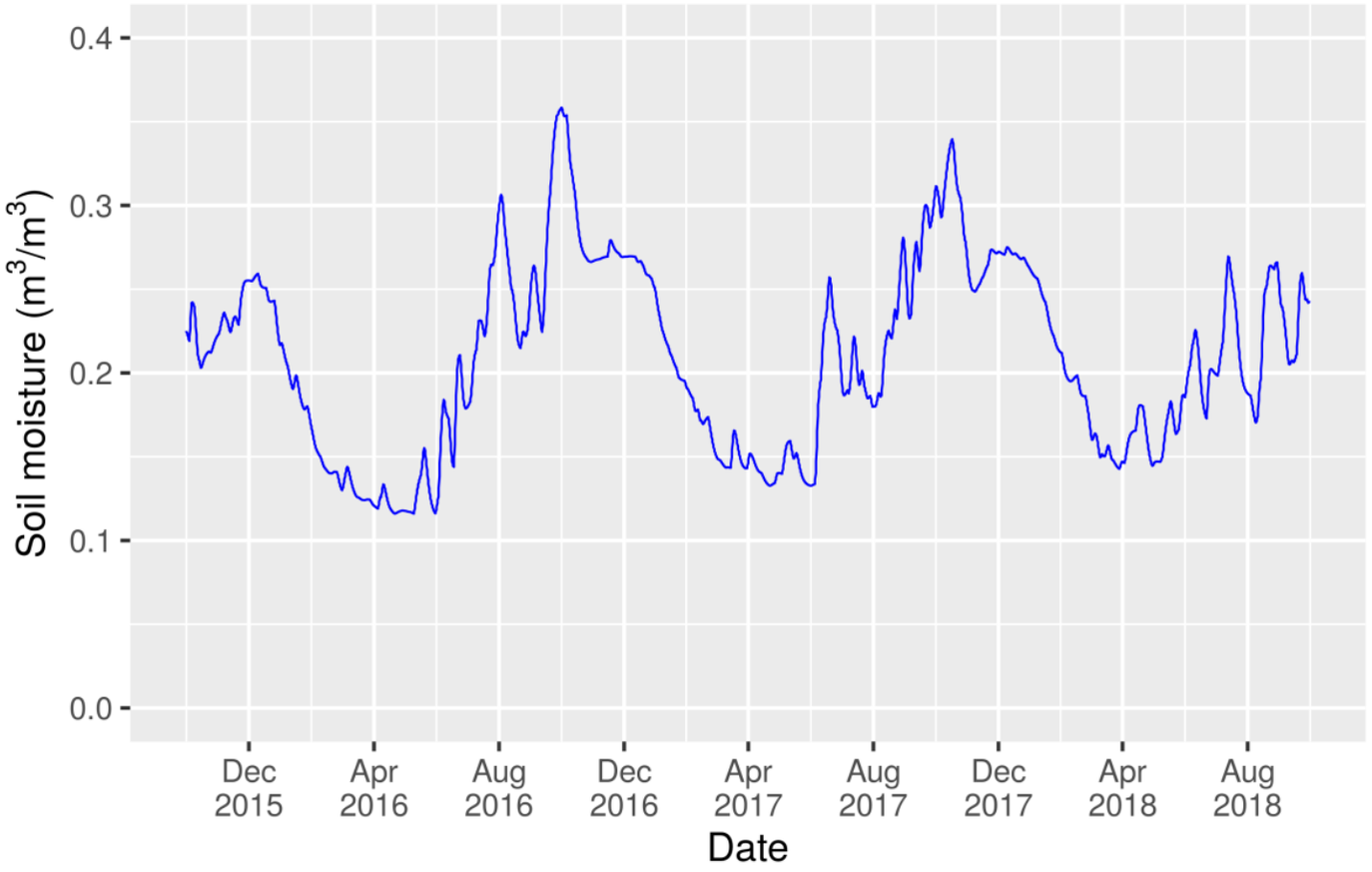


The average AET/P ratio was about 87%, which is slightly higher than the sustainable limit of about 80%. Even during extremely lower rainfall year of 2012, AET was 650 mm. This suggests the presence of water storage and utilization from other sources such as groundwater, which buffered the lower rainfall.

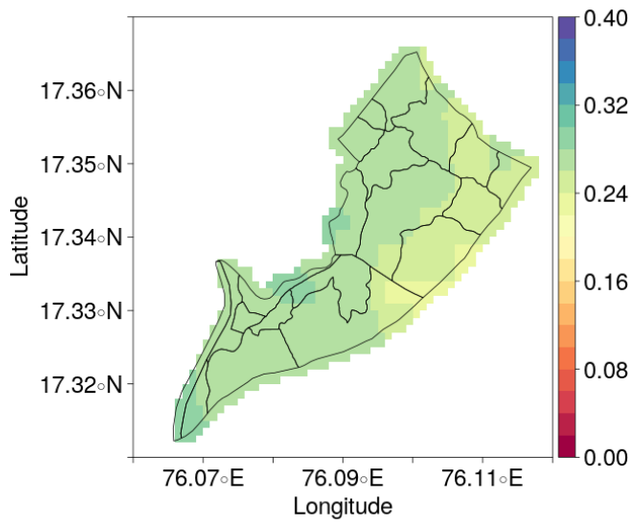




SATELLITE RETRIEVED SOIL MOISTURE

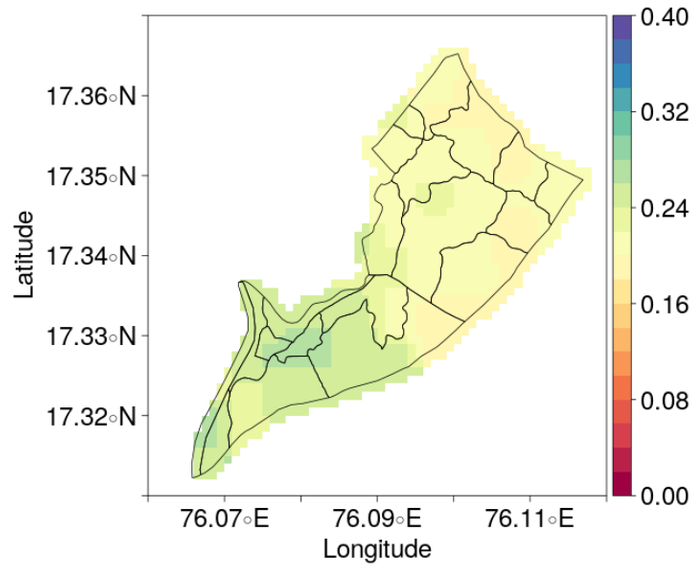


Hosur– *Rabi* Soil Moisture



The method developed for retrieving soil moisture from multi-satellite observations allowed to map surface soil moisture behavior in the micro-watershed. The available surface moisture was varied in the range of 12-35% in *kharif* and 26-37% in *rabi* seasons of 2016 and 14-29 % in *kharif* and 27-31% in *rabi* seasons of 2017.

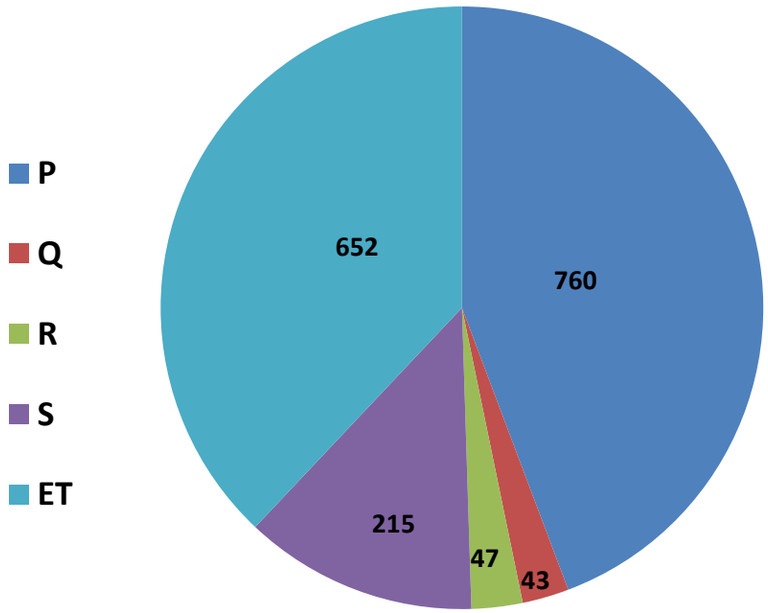
Hosur– *Kharif* Soil Moisture



WATER BALANCE

$$Q = P - E - R - S$$

- Q = Runoff
- P = Precipitation
- E = Evapotranspiration
- R = Groundwater recharge
- S = Soil moisture storage change

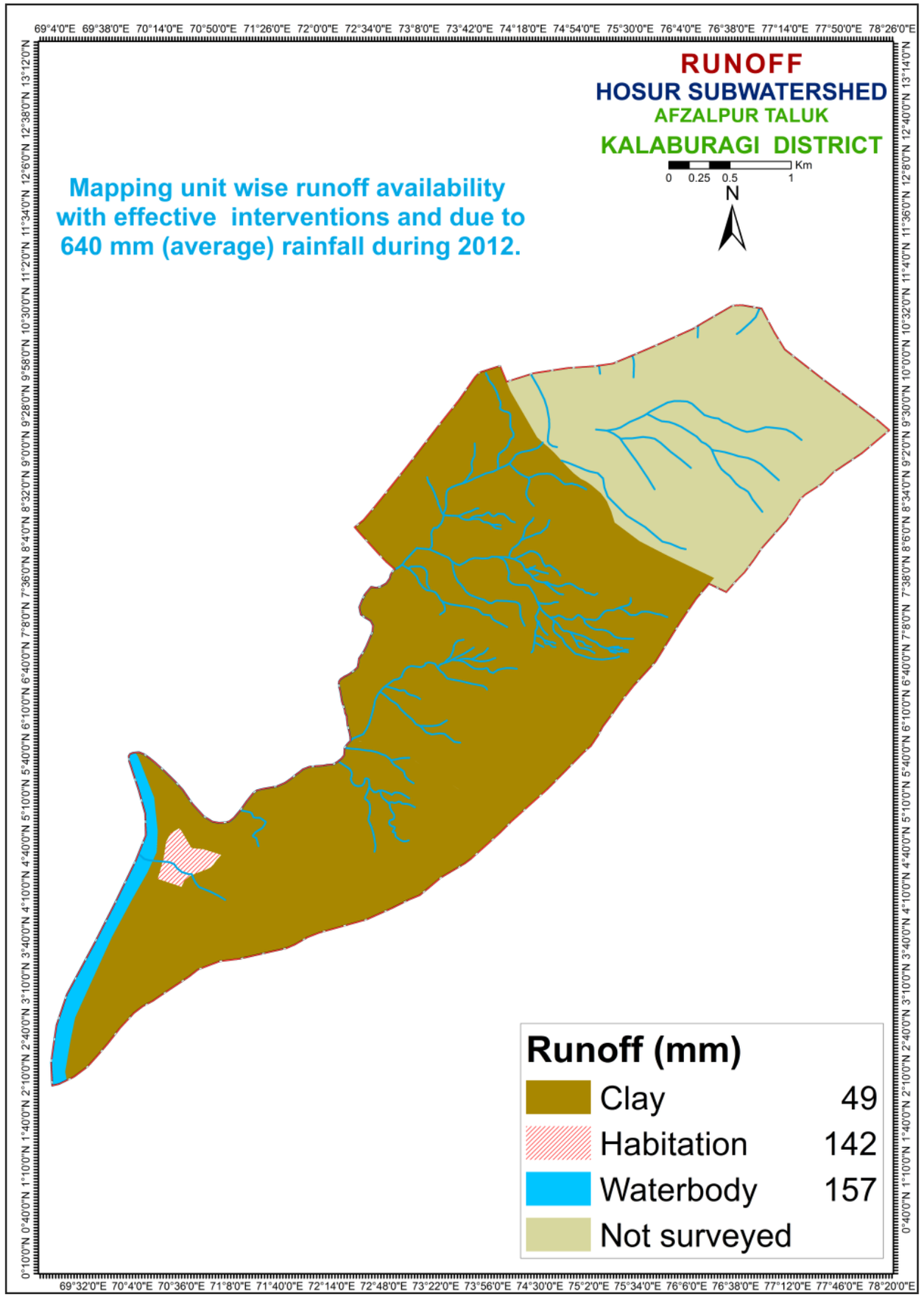


During July-October months, Precipitation is higher than Evapotranspiration, hence Runoff can occur in the watershed.

P = 760 mm (average of 2009-2017) ET = 652 mm R = 47 mm S = 215 mm Q = 43 mm

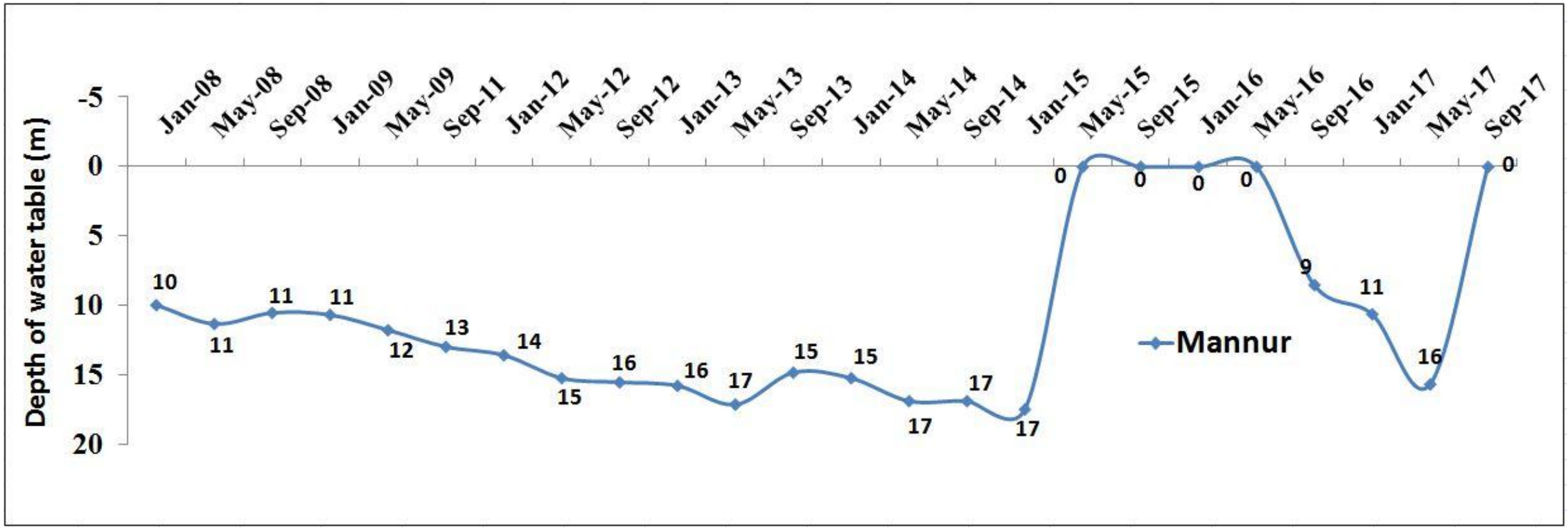
Sl. No.	Parameters	Average_ 2012 (mm)
1.	Rainfall	640
2.	Runoff availability with existing conditions	126
3.	Runoff availability with effective interventions	53
4.	Runoff allowed as environmental flow at the outlet	10
5.	Runoff excess for harvesting by construction of structures	43

RUNOFF


RUNOFF
HOSUR SUBWATERSHED
AFZALPUR TALUK
KALABURAGI DISTRICT
Km
0 0.25 0.5 1
N
Mapping unit wise runoff availability with effective interventions and due to 640 mm (average) rainfall during 2012.
Runoff (mm)
Clay 49
Habitation 142
Waterbody 157
Not surveyed

GROUND WATER STATUS

MANNUR STATION



The total number of wells present in Hosur Sub-watershed as per LRI data are 25 (21 Borewells and 4 Openwells). The groundwater level was found from the data obtained from KSNDMC for the nearest station Mannur. The above graph depicts the groundwater levels during the years 2008-2014 were slightly varying. Whereas groundwater levels during the years 2015-2016 were Constant Except year 2017. Deepest level was found in 2014 year.

SUMMARY

- The average annual rainfall of 665 mm in the Hosur sub-watershed as recorded from the Karajgi station data by KSNDMC.

- 72%, 17% and 11% of the annual rainfall occurs during *kharif*, *rabi* and summer seasons respectively and exhibited a higher temporal variability.

- The evapotranspiration estimation tool developed indicates that the watershed water balance is in deficit. The cropping & irrigation choices are not appropriate and need to be altered to shift the deficit water balance.

- The estimated runoff available to use is 43 mm for an average annual rainfall of 760 mm (2009-2017). The utilizable groundwater is 33 mm (70% of 47 mm recharge estimated). This means the total available water resource combining the soil moisture store for kharif & rabi (215 mm) and utilizable runoff plus recharge is 291 (=215+33+43)

- The average actual evapotranspiration estimated in the watershed based on the current land use and irrigation practices for the kharif and rabi seasons is 532 mm. Hence the amount of water use for kharif and rabi seasons may be estimated as 665 mm (i.e 125% of AET). This demand for the two seasons is higher by 374 mm, i.e. (665-291). The AET in June-Sept months is only 60% of rainfall. Hence, there is a good opportunity to harvest the excess water through watershed management practices for utilizing during rabi season.

- The total number of wells present in Hosur Sub-watershed as per LRI data are 25 (21 Borewells and 4 Openwells). The groundwater level was found from the data obtained from KSNDMC for the nearest station Mannur. Deepest level was found in 2014 year.