हर कदम, हर डगर
किसानों का हमसफर
भारतीय कृषि अनुसंधान परिषद

Agrisearch with a human touch

ICAR - NBSS & LUP

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

Sujala – III
Karnataka Watershed Development Project- II
Funded by 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 (2016). "Land Resource and Hydrological Inventory of Chik Hangargi Sub-watershed for Watershed Planning and Development, Jewargi Taluk, Kalaburagi District, Karnataka", Sujala SWs-LRI Atlas No.86, ICAR – NBSS & LUP, RC, Bangalore. p.60.

TO OBTAIN COPIES,

Please write to:

Director, ICAR - NBSS & LUP,
Amaravati Road, Nagpur,
Maharashtra - 440 033, India.
Phone : +91-712-2500386, 2500545 (O)
Telefax : +91-712-2500534
E-Mail : director.nbsslup@icar.gov.in
Website URL : https://www.nbsslup.in

Or

Head, Regional Centre, ICAR - NBSS & LUP,
Hebbal, Bangalore,
Karnataka - 560 024, India.
Phone : +91-80-23412242, 23410993 (O)
Telefax : +91-80-23510350
E-Mail : hd_rcb.nbsslup@icar.gov.in
nbssrcb@gmail.com

PART - A

Land Resource Inventory of Chik Hangargi Sub-watershed for Watershed Planning and Development, Jewargi Taluk, Kalaburagi District, Karnataka (AESR 6.2)

CONTENTS

Contributors

Dr. Rajendra Hegde Principal Scientist, Head & Project Leader, Sujala-III Project ICAR-NBSS&LUP, Regional Centre, Bangalore - 24	**Dr. P. Chandran** Director, ICAR-NBSS&LUP Coordinator, Sujala-III Project Nagpur - 33
Field Work, Mapping & Report Preparation	
Dr. B.A.Dhanorkar	Sh. R.S.Reddy
Dr. K.V.Niranjana	Sh. Nagendra, B.R.
	Smt. Chaitra, S.P.
Field Work	
Sh. C.Bache Gowda	Sh. Sandesh Shastri
Sh. Somashekar	Sh. Rajeev, G.S.
Sh. Venkata Giriyappa	Sh. Balasubramanyam, M.G.
Sh. M. Jayaramaiah	Sh. Vijaya Kumar
	Sh. Kamalesh K. Avate
GIS Work	
Dr. S.Srinivas	Sh. A.G.Devendra Prasad
Sh. D.H.Venkatesh	Sh. Prakashanaik, M.K.
Smt. K.Sujatha	Sh. Abhijith Sastry, N.S.
Smt. K.V.Archana	Sh. Sudip Kumar Suklabaidya
Sh. N. Maddileti	Sh. Mahamad Ali, M.
	Sh. Avinash, K.N.
	Sh. Amar Suputhra, S
	Sh. Anudeep, Y.
	Sh. Deepak, M.J.
	Smt. K.Karunya Lakshmi
	Ms. Seema, K.V.
	Ms. A. Rajab Nisha

Laboratory Analysis	
Dr. K.M.Nair	Dr. H.R. Savitha
Smt. Arti Koyal	Ms. Steffi Peter
Smt. Parvathy	Ms. Thara, V.R
	Ms. Roopa, G.
	Ms. Swati, H.
	Sh. Shantaveera Swami
	Ms. Shwetha, N.K.
	Smt. Ishrat Haji
	Ms. P. Pavan Kumari
	Ms. Padmaja
	Ms. Veena, M.
Soil & Water Conservation	
Sh. Sunil P. Maske	
Watershed Development Department, GoK, Bangalore	
Sh. Rajeev Ranjan IFS Project Director & Commissioner, WDD	Dr. A. Natarajan NRM Consultant, Sujala-III Project
Dr. S.D. Pathak IFS Executive Director & Chief Conservator of Forests, WDD	

How to read and use the Atlas

The Land Resource Inventory of Chik Hangargi sub-watershed (Jewargi Taluk, Kalaburagi 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 management 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 watersheds.

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.

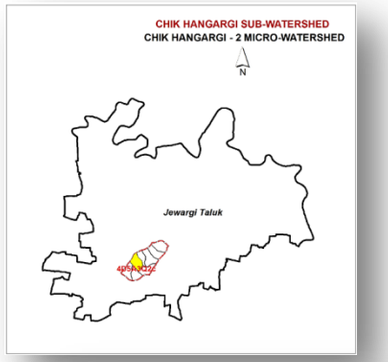
For easy map reading and understanding the information contain in different maps, the physical, cultural and scientific symbols used in the maps are illustrated in the form of colors, graphics and tables.

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.

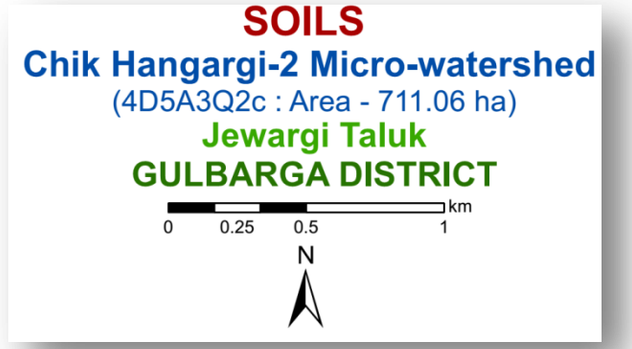
Inset map

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



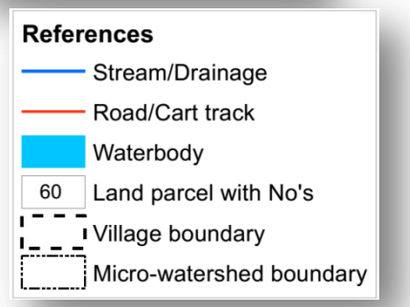
Map title

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



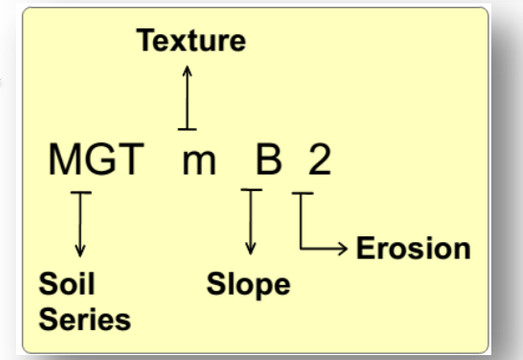
Legends and symbols

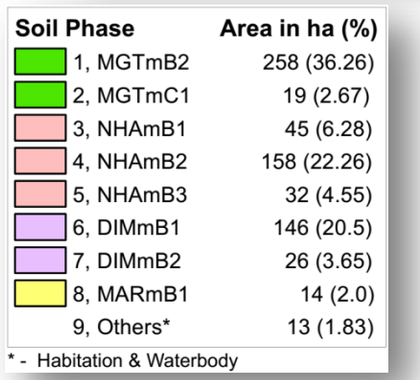
*Two legends accompany each map, a **map reference**, which depicts geographic features and a **thematic legend** which portrays spatial information. Picking up the symbol and colour of a particular enables one to go to the legends to obtain the required information.*



Soil Units

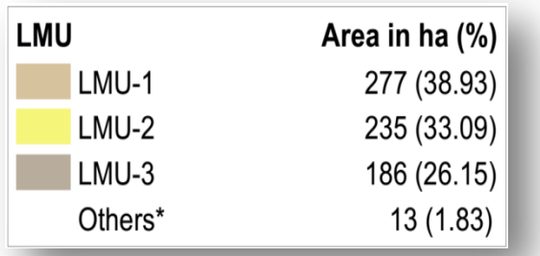
The soil map may be read at different levels. The most detailed level is that of the soil phase. Soil phases are distinguished within soil series mainly based on differences in surface of soil texture, slope, gravelliness , erosion ,etc.





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

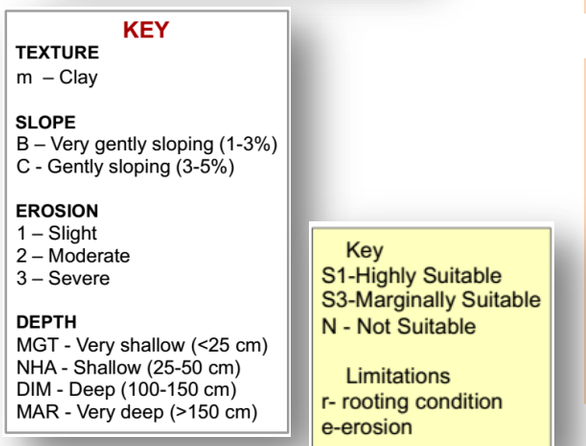


Map colours

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

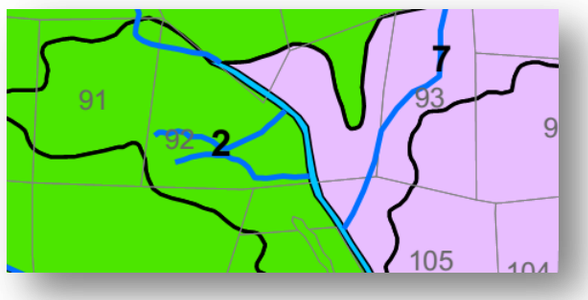
Map key

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 CHIK HANGARGI SUB-WATERSHED FOR PLANNING CHITAPUR 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 Kalaburgi 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 Maharastra on the West, Bidar district and Osmanabad district of Maharastra 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 Chik Hangargi sub-watershed in Jewargi Taluk, Kalaburagi District. It was selected for data base generation under batch V of Sujala III project. This sub-watershed encompasses of 8 MWs namely, Chik Hangargi-1 (4D5A3Q2a), Chik Hangargi-2 (4D5A3Q2c), Chik Hangargi-3 (4D5A3Q2d), Chik Hangargi-4 (4D5A3Q2e), Chik Hangargi-5 (4D5A3Q2b), Hiri Hangargi-1 (4D5A3Q1c), Hiri Hangargi-2 (4D5A3Q1b) and Hiri Hangargi-3 (4D5A3Q1a) micro watersheds. Land Resource Inventory (LRI) was generated for three micro-watersheds (Chik Hangargi 2-4D5A3Q2c, Chik Hangargi 3-4D5A3Q2d, Chik Hangargi 4- 4D5A3Q2e) among the eight micro-watersheds.

To be continued….

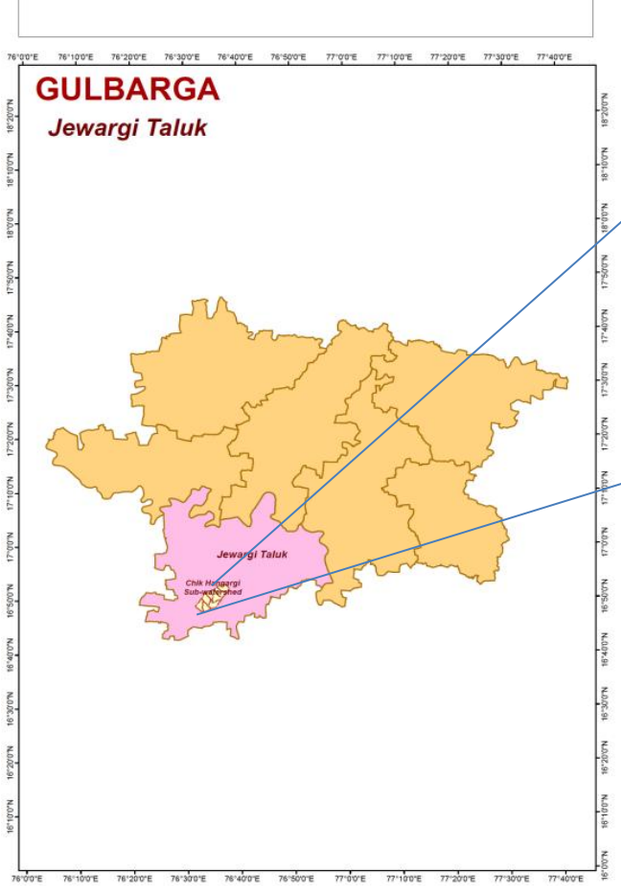
The major landforms identified in the micro-watersheds (Chik Hangargi-2 -4D5A3Q2c, Chik Hangargi-3 -4D5A3Q2d, Chik Hangargi-4 -4D5A3Q2e) of Chik Hangargi sub-watershed are uplands and low lands. The database was generated by using cadastral map of the village as a base along with high resolution satellite imagery (IRS LISS IV and Cartosat-1). The objectives of the land resource survey, carried out in the Chik Hangargi sub-watershed during February-March 2015 are indicated below.

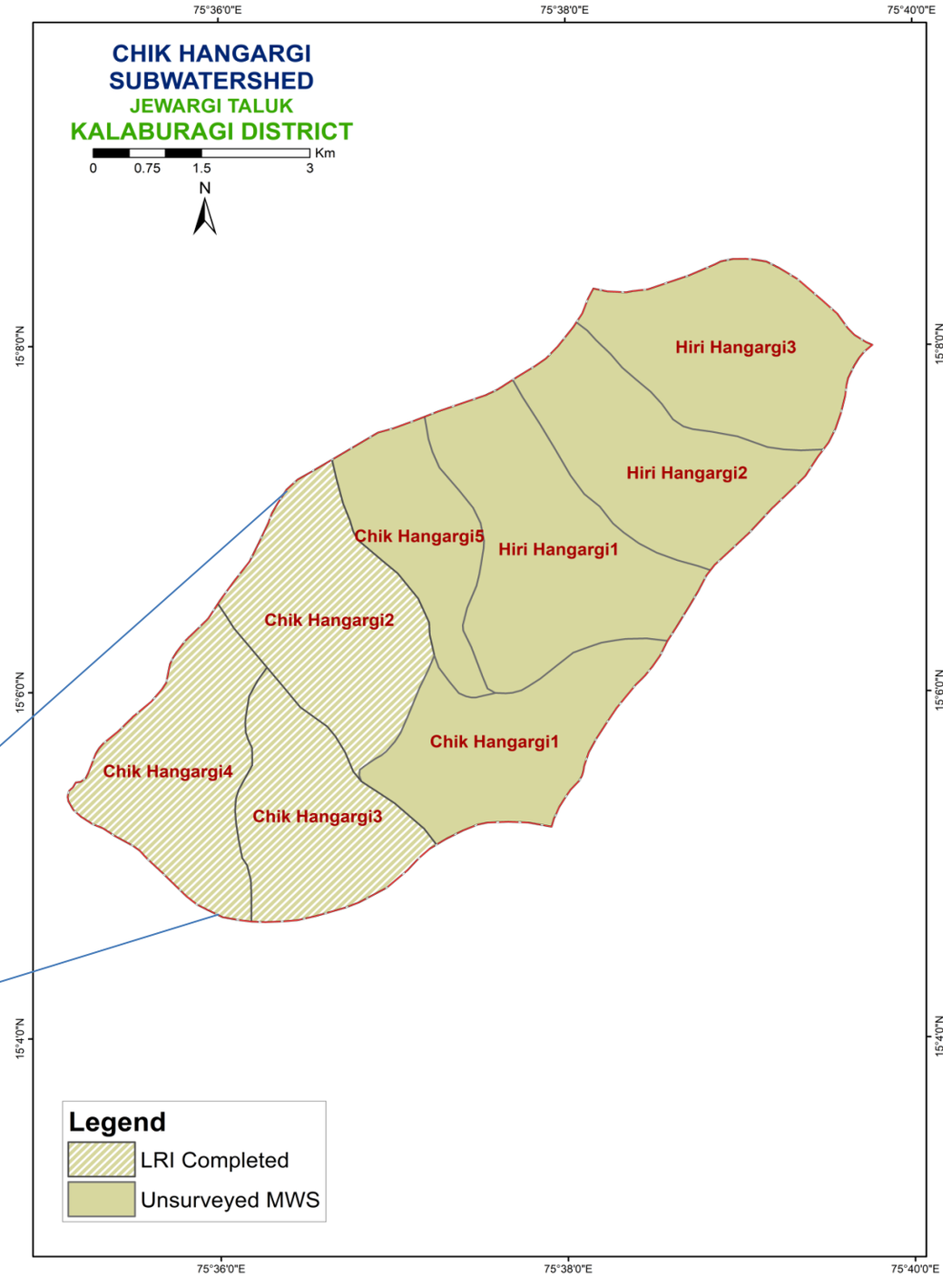
- Detailed characterization of all the land resources like soil, water, land use, cropping pattern and other resources available at parcel level in the village.
- Delineation of homogenous areas based on soil-site characteristics into management units.
- Collection and interpretation of climatic and 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

Chik Hangargi sub-watershed (Jewargi Taluk, Kalaburagi District) is located between $16^0$47’19’’–16^0 53’41’’ North latitudes and 76^0 30’38’’–76^0 38’58’’ East longitudes, covering an area of about 5158 ha.

LOCATION MAP OF CHIK HANGARGI SUB-WATERSHED



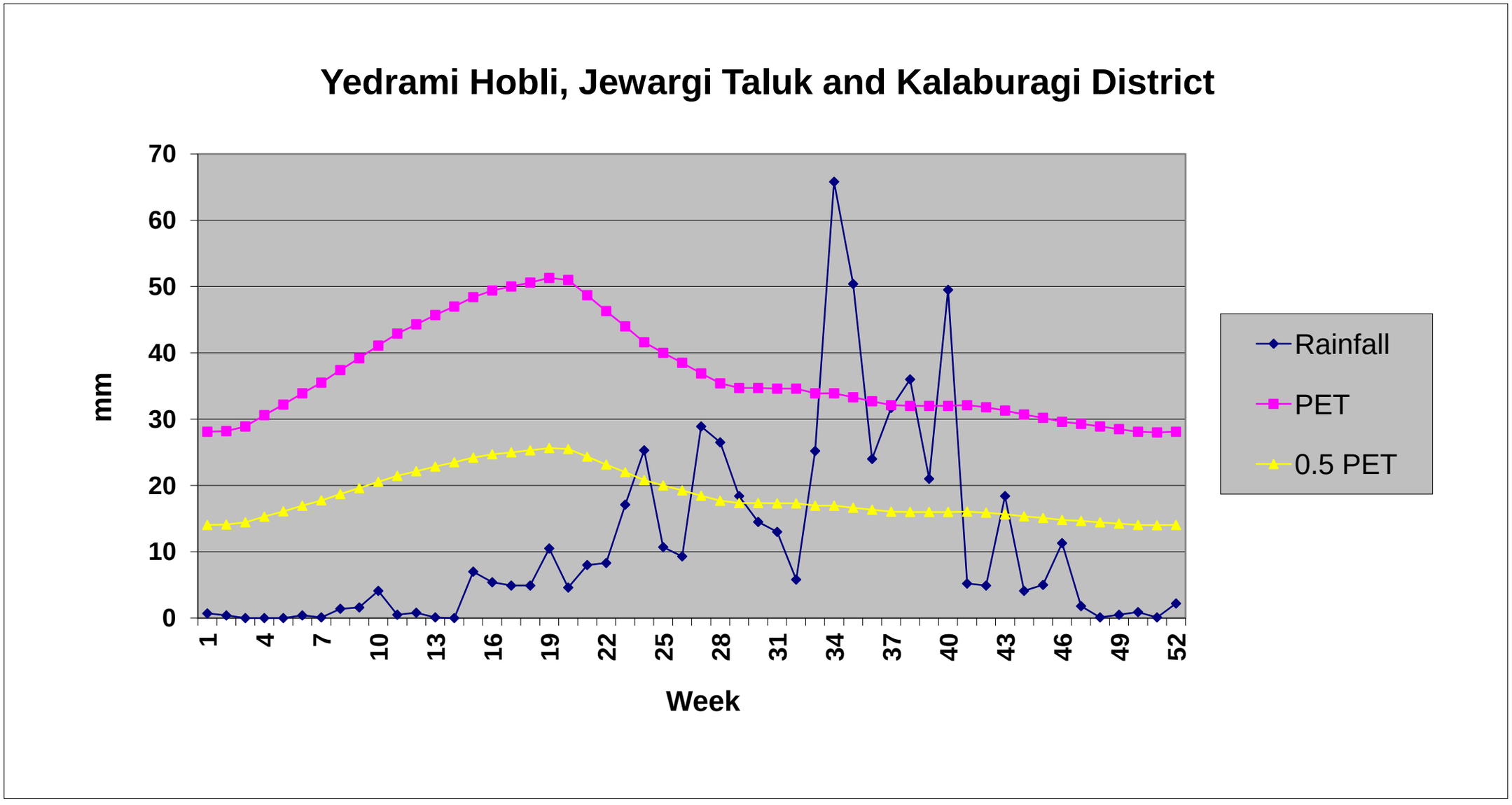


Agro Ecological Sub Region (AESR) 6.2: Central and Western Maharashtra Plateau and North Karnataka Plateau and North Western Telangana Plateau, hot moist semi-arid ESR with shallow and medium loamy to clayey Black soils (medium and deep clayey Black soils as inclusion), medium to high AWC and LGP 120-150 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 Kalaburagi 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 three (Chik Hangargi-2 (4D5A3Q2c), Chik Hangargi-3 (4D5A3Q2d) and Chik Hangargi-4 (4D5A3Q2e) among the eight micro-watersheds.

Climate

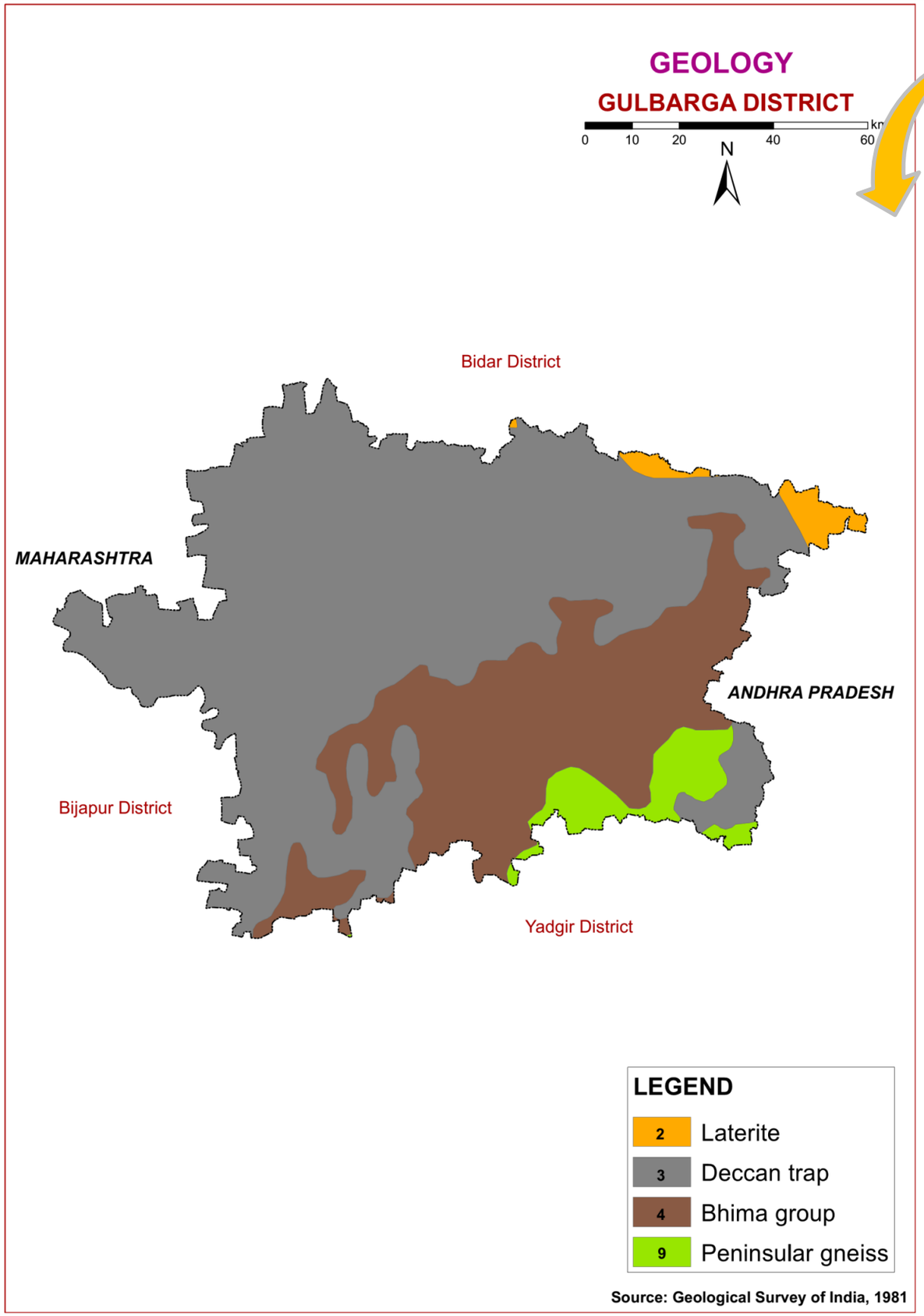


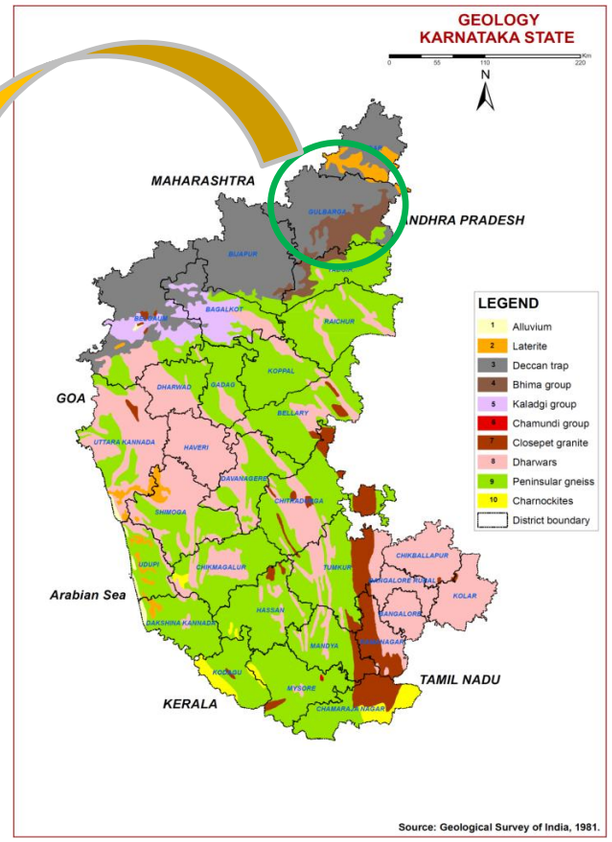
Length of Growing Period (LGP) is varying from June 1st week to October 1st week about 120-150 days.

Annual Rainfall : 592 mm. in the Yedrami Hobli, Jewargi taluk.

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 - KALABURAGI 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 Kalaburagi, 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 Kalaburagi districts.

Archaean Group

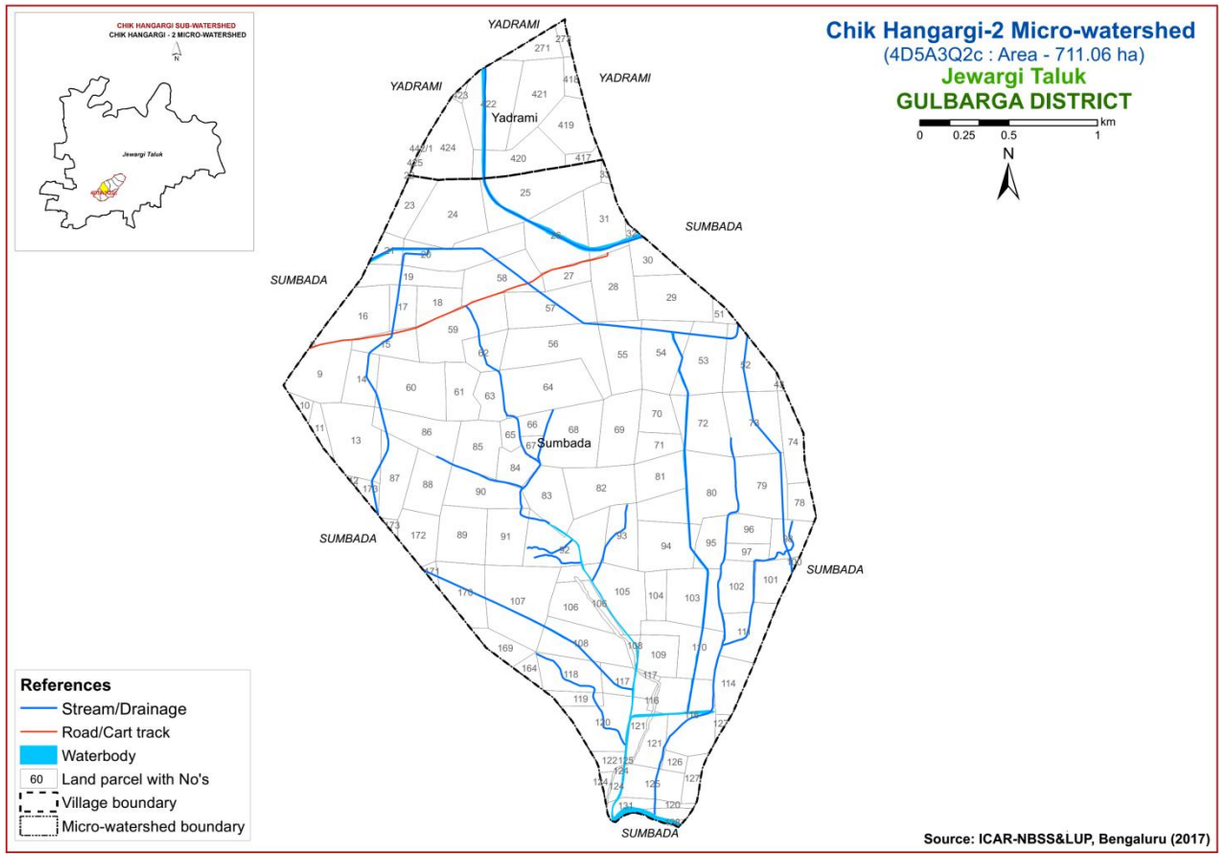
The important formations of this group are Peninsular Gneiss, Dharwar schists, and Charnockites.

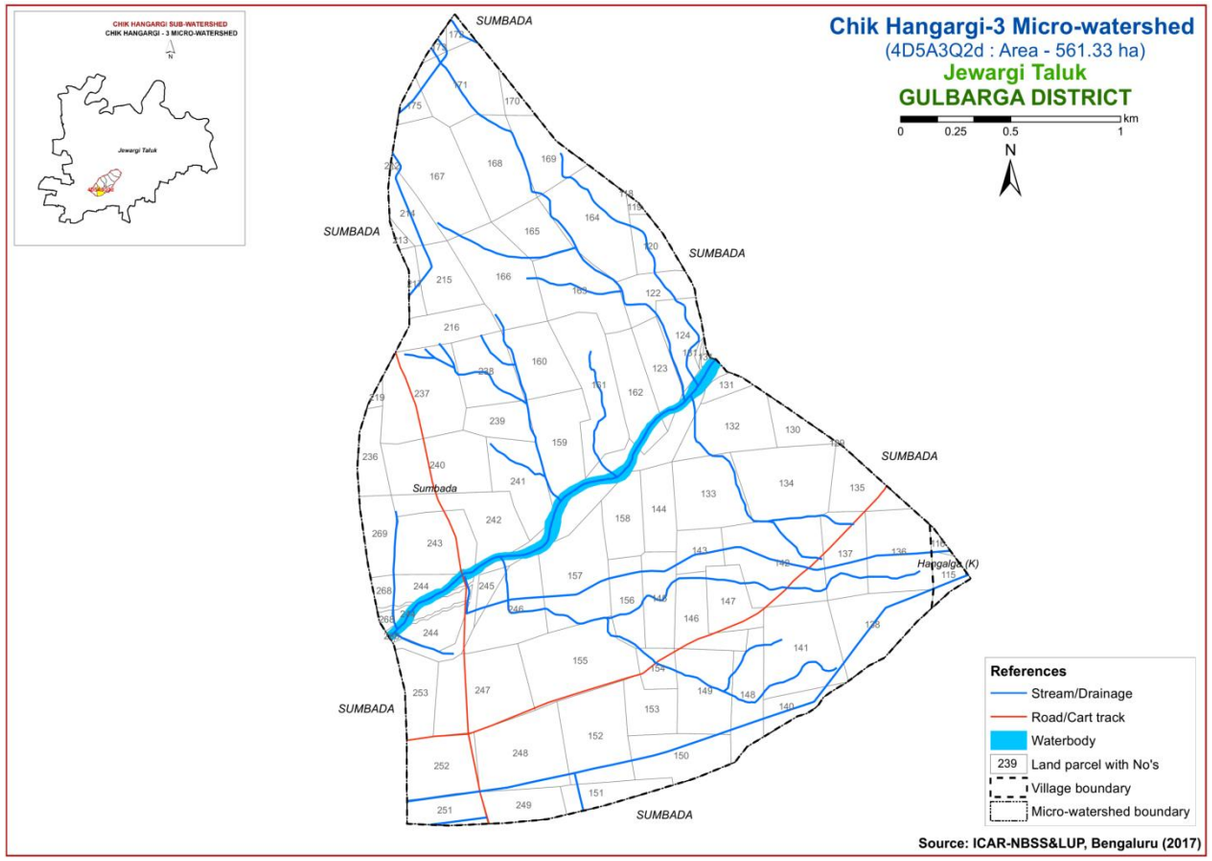
Peninsular Gneiss: Exposed over a large area of Karnataka in all the districts except Bidar is the Peninsular Gneiss which includes granites of all shades with varying composition.

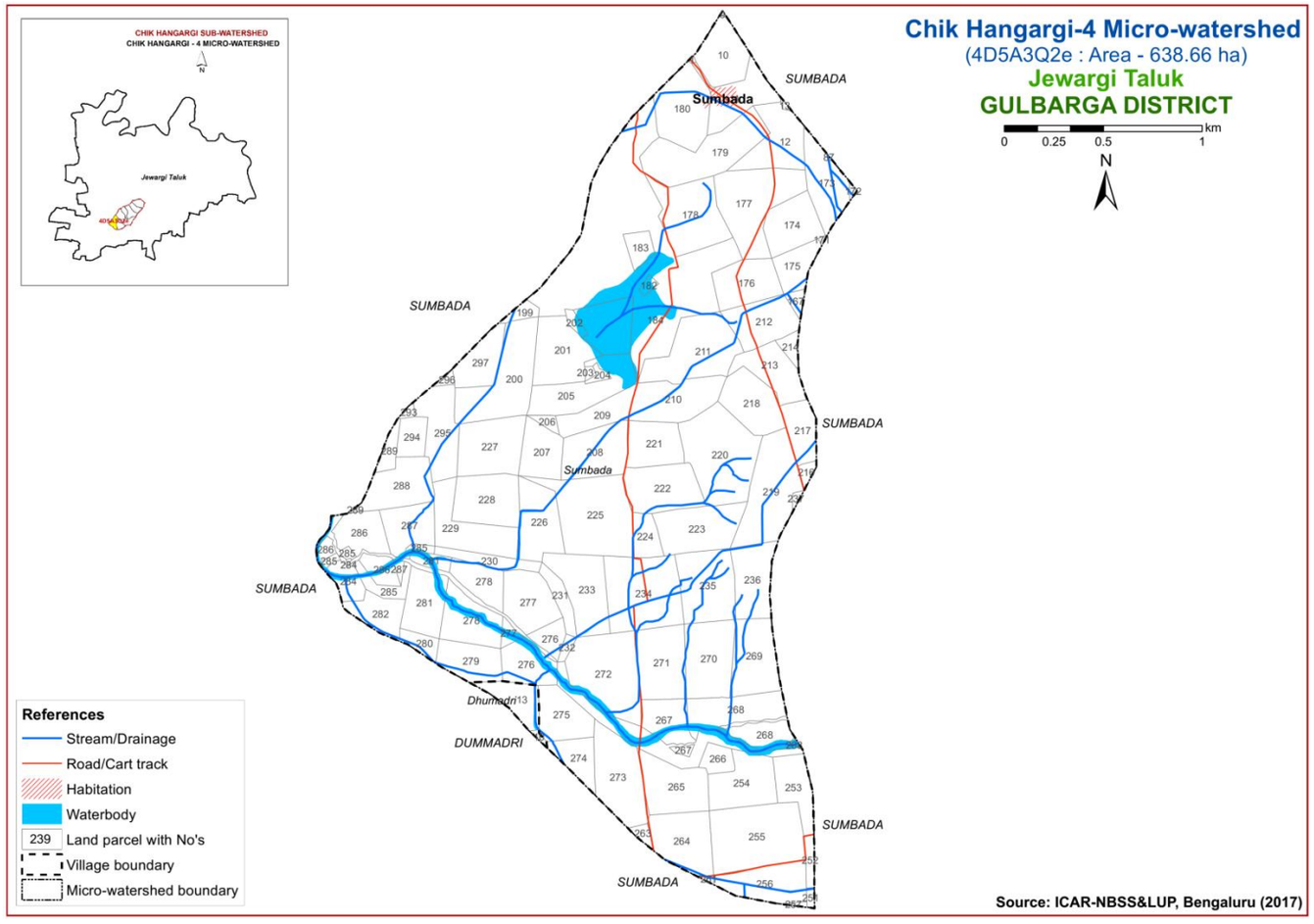
SURVEY METHODOLOGY
Sequence of activities in generation of LRI

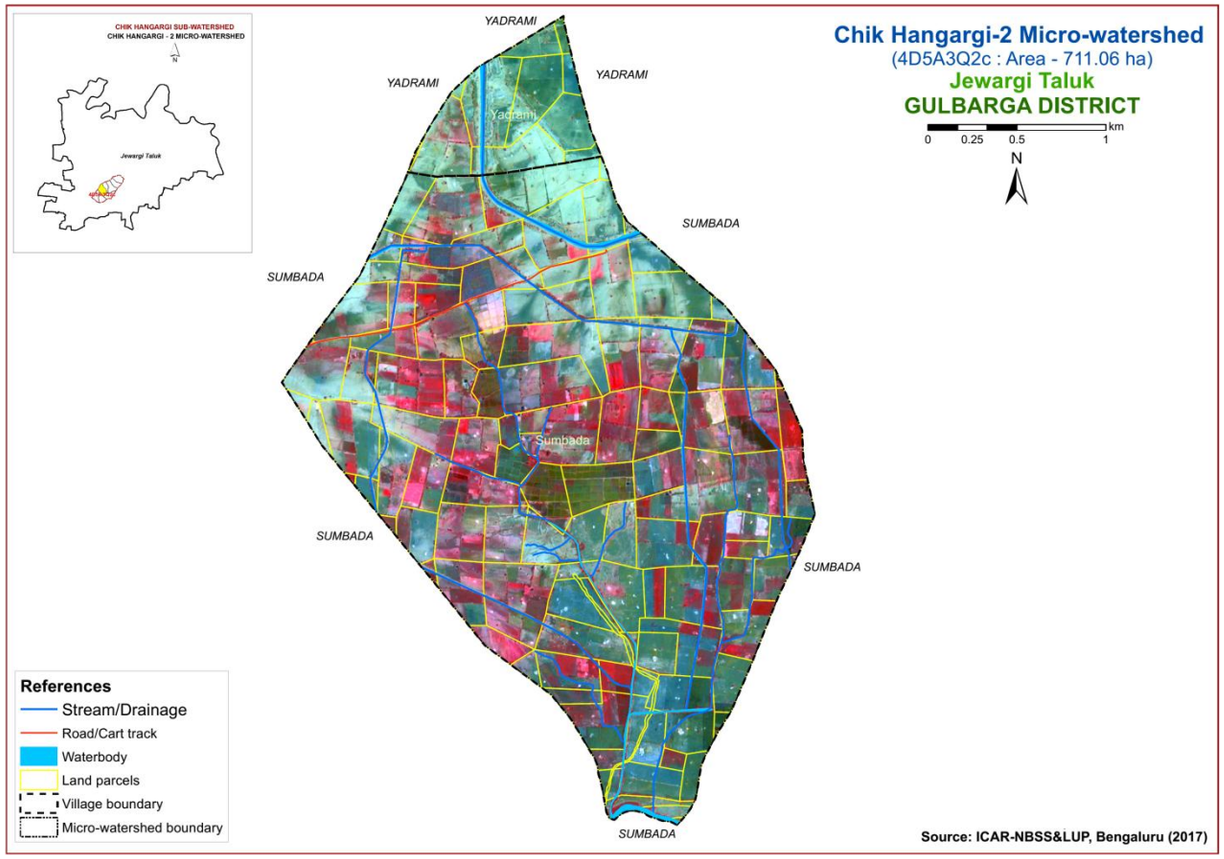
- Traversing the watershed using cadastral maps and imagery as base
- Identifying landforms, geology, land use and other features
- Selecting fields representing land units
- Opening profiles to 2 m depth
- Studying soil and site characteristics
- Grouping similar areas based on their soil-site characteristics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

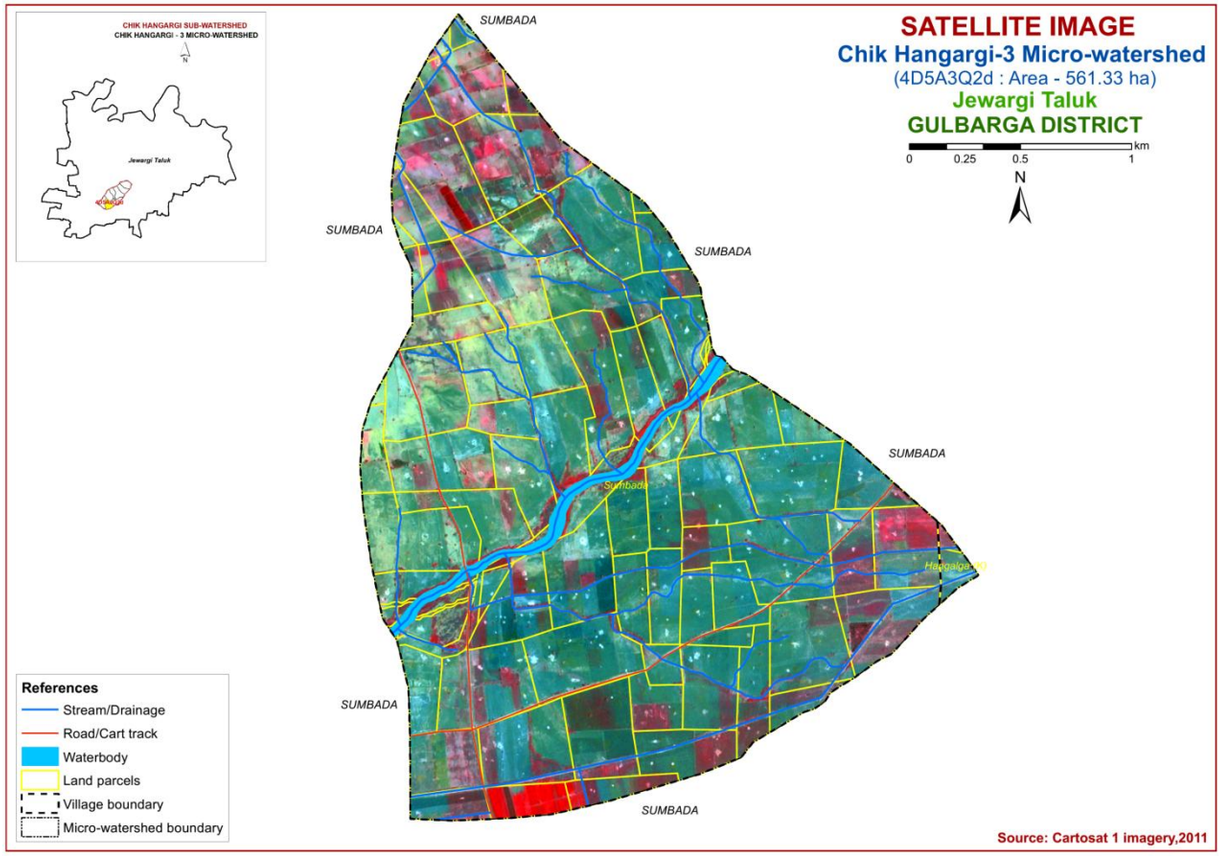
The required site and soil characteristics are described and recorded on a standard proforma by following the protocols and guidelines given in the soil survey manual and field guide. Collection of soil samples from representative pedons for laboratory characterization and collection of surface soil 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.

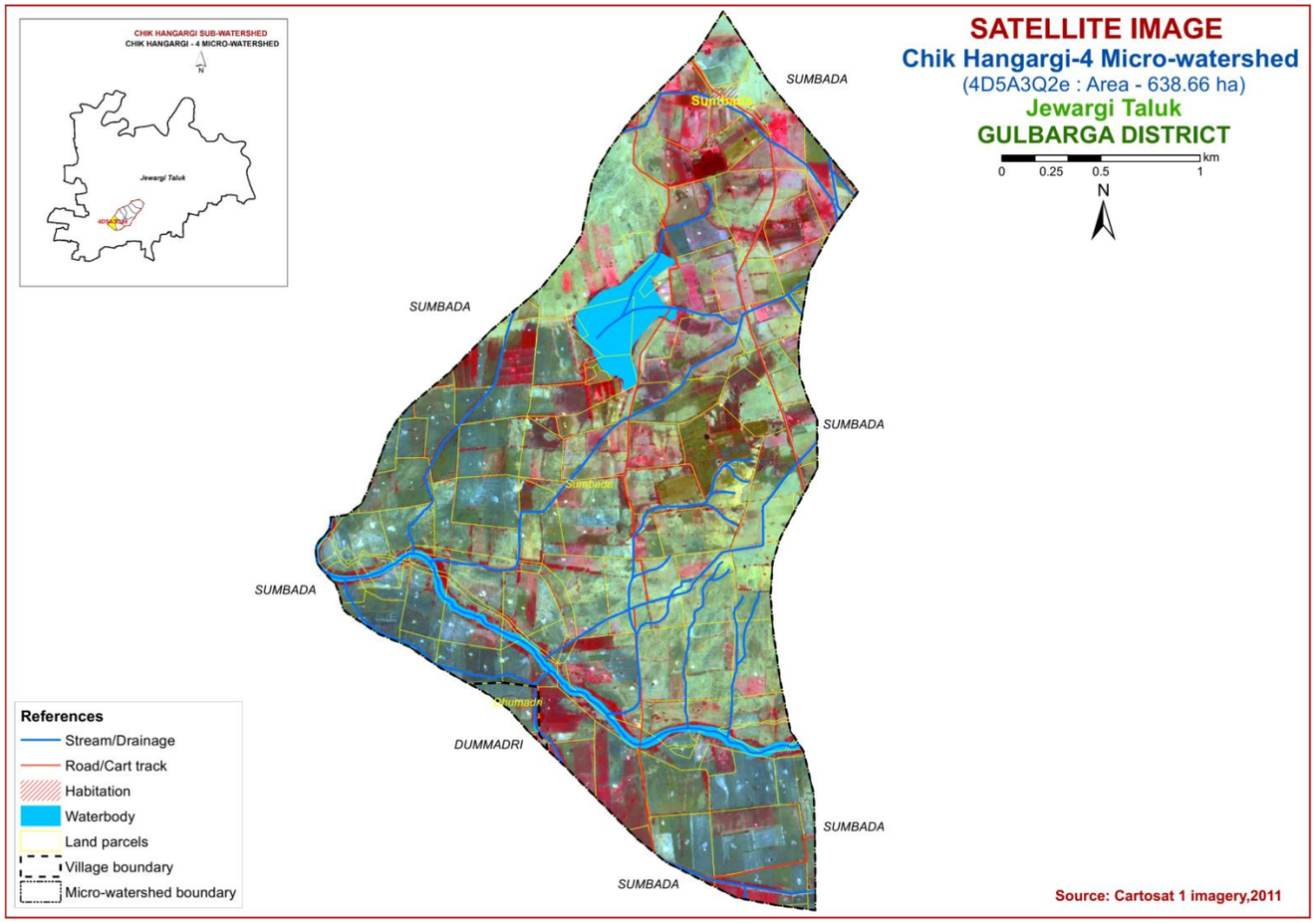

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

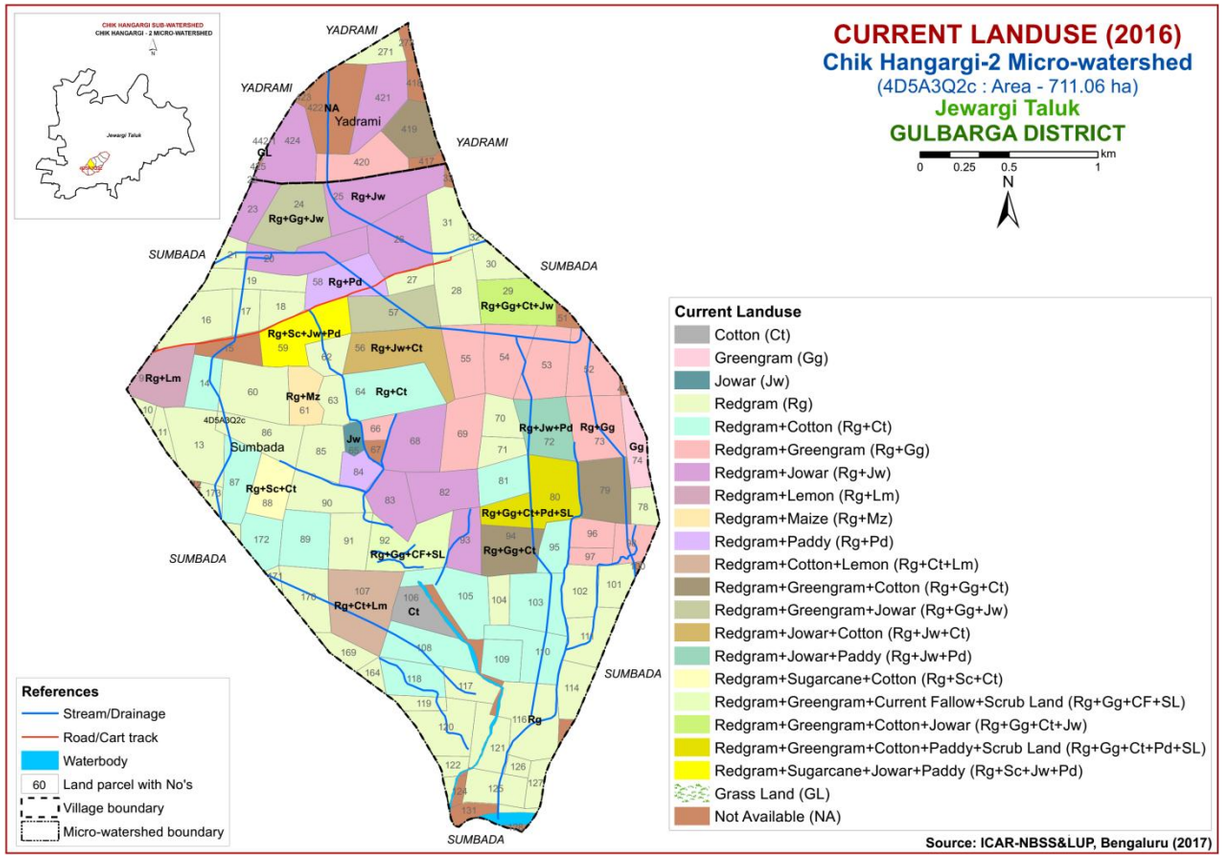

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangalga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

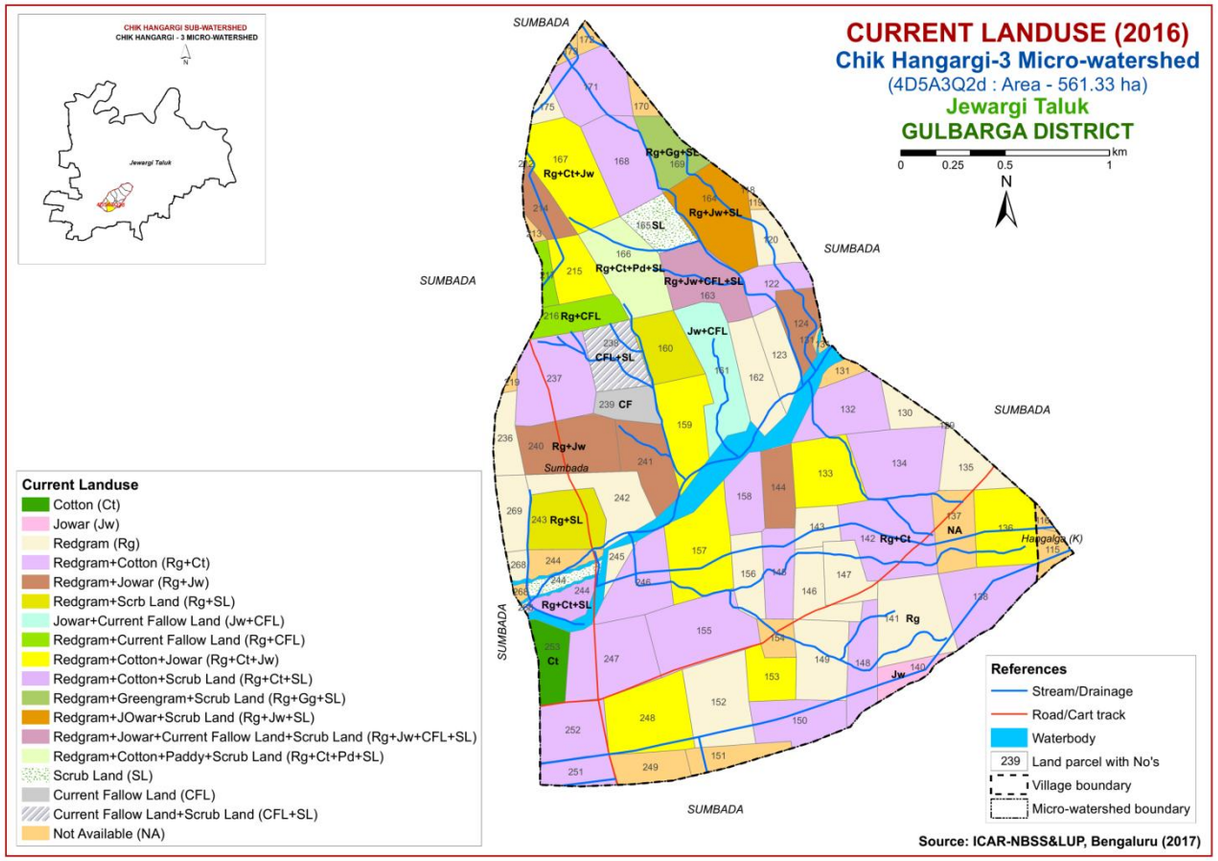

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Dhumadri
DUMMADRI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

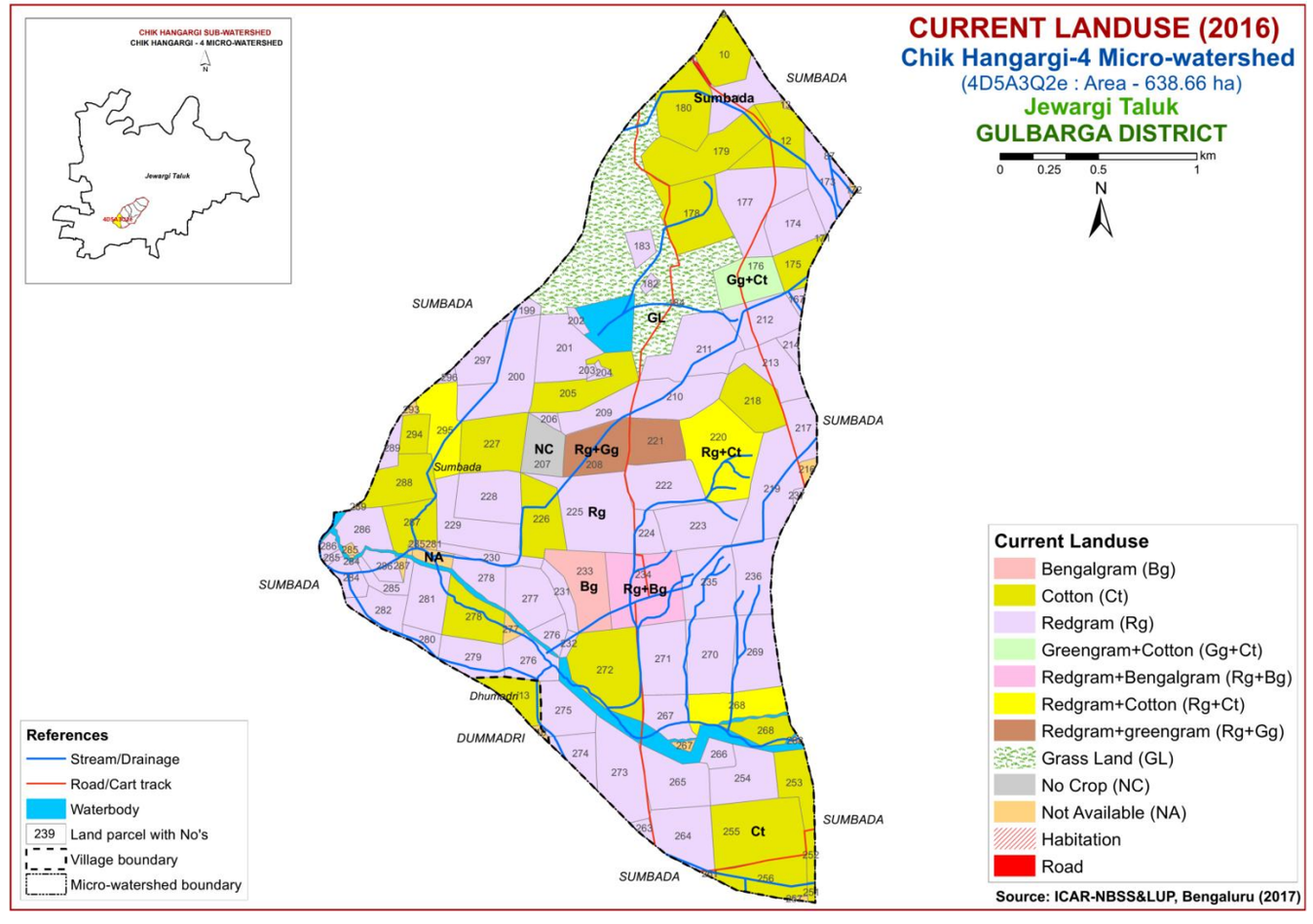

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
YADRAMI
YADRAMI
Yadrami
SUMBADA
SUMBADA
Sumbada
SUMBADA
SUMBADA
SUMBADA
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcels
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SATELLITE IMAGE
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
SUMBADA
SUMBADA
SUMBADA
Sumbada
SUMBADA
SUMBADA
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcels
Village boundary
Micro-watershed boundary
Source: Cartosat 1 imagery,2011


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SATELLITE IMAGE
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
SUMBADA
SUMBADA
Sumbada
SUMBADA
SUMBADA
Dummadri
DUMMADRI
SUMBADA
SUMBADA
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcels
Village boundary
Micro-watershed boundary
Source: Cartosat 1 imagery,2011


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
CURRENT LANDUSE (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
Rg+Jw
Rg+Gg+Jw
Rg+Pd
Rg+Gg+Ct+Jw
Rg+Sc+Jw+Pd
Rg+Jw+Ct
Rg+Lm
Rg+Mz
Rg+Ct
Rg+Jw+Pd
Rg+Gg
Rg+Sc+Ct
Rg+Gg+Ct+Pd+SL
Rg+Gg+CF+SL
Rg+Gg+Ct
Rg+Ct+Lm
Ct
Rg
Current Landuse
Cotton (Ct)
Greengram (Gg)
Jowar (Jw)
Redgram (Rg)
Redgram+Cotton (Rg+Ct)
Redgram+Greengram (Rg+Gg)
Redgram+Jowar (Rg+Jw)
Redgram+Lemon (Rg+Lm)
Redgram+Maize (Rg+Mz)
Redgram+Paddy (Rg+Pd)
Redgram+Cotton+Lemon (Rg+Ct+Lm)
Redgram+Greengram+Cotton (Rg+Gg+Ct)
Redgram+Greengram+Jowar (Rg+Gg+Jw)
Redgram+Jowar+Cotton (Rg+Jw+Ct)
Redgram+Jowar+Paddy (Rg+Jw+Pd)
Redgram+Sugarcane+Cotton (Rg+Sc+Ct)
Redgram+Greengram+Current Fallow+Scrub Land (Rg+Gg+CF+SL)
Redgram+Greengram+Cotton+Jowar (Rg+Gg+Ct+Jw)
Redgram+Greengram+Cotton+Paddy+Scrub Land (Rg+Gg+Ct+Pd+SL)
Redgram+Sugarcane+Jowar+Paddy (Rg+Sc+Jw+Pd)
Grass Land (GL)
Not Available (NA)
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
CURRENT LANDUSE (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Rg+Gg+SL
Rg+Ct+Jw
Rg+Jw+SL
SL
Rg+Ct+Pd+SL
Rg+Jw+CFL+SL
Rg+CFL
Jw+CFL
CFL+SL
CF
Rg+Jw
Rg+SL
Rg+Ct+SL
Rg+Ct
NA
Rg
Jw
Ct
Hangalga (K)
Current Landuse
Cotton (Ct)
Jowar (Jw)
Redgram (Rg)
Redgram+Cotton (Rg+Ct)
Redgram+Jowar (Rg+Jw)
Redgram+Scrb Land (Rg+SL)
Jowar+Current Fallow Land (Jw+CFL)
Redgram+Current Fallow Land (Rg+CFL)
Redgram+Cotton+Jowar (Rg+Ct+Jw)
Redgram+Cotton+Scrub Land (Rg+Ct+SL)
Redgram+Greengram+Scrub Land (Rg+Gg+SL)
Redgram+JOwar+Scrub Land (Rg+Jw+SL)
Redgram+Jowar+Current Fallow Land+Scrub Land (Rg+Jw+CFL+SL)
Redgram+Cotton+Paddy+Scrub Land (Rg+Ct+Pd+SL)
Scrub Land (SL)
Current Fallow Land (CFL)
Current Fallow Land+Scrub Land (CFL+SL)
Not Available (NA)
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
CURRENT LANDUSE (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Gg+Ct
GL
NC
Rg+Gg
Rg+Ct
Rg
NA
Bg
Rg+Bg
Ct
Dhumadri
DUMMADRI
Current Landuse
Bengalgram (Bg)
Cotton (Ct)
Redgram (Rg)
Greengram+Cotton (Gg+Ct)
Redgram+Bengalgram (Rg+Bg)
Redgram+Cotton (Rg+Ct)
Redgram+greengram (Rg+Gg)
Grass Land (GL)
No Crop (NC)
Not Available (NA)
Habitation
Road
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

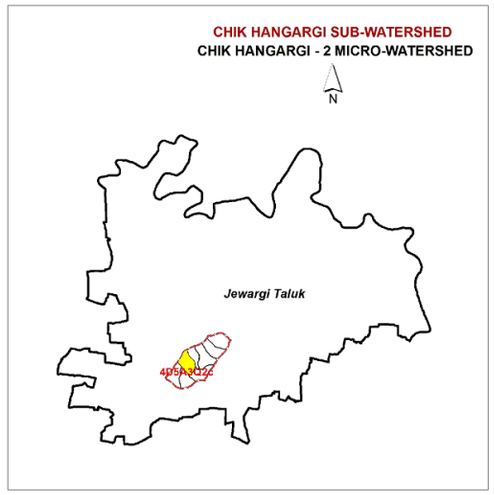
SOILS

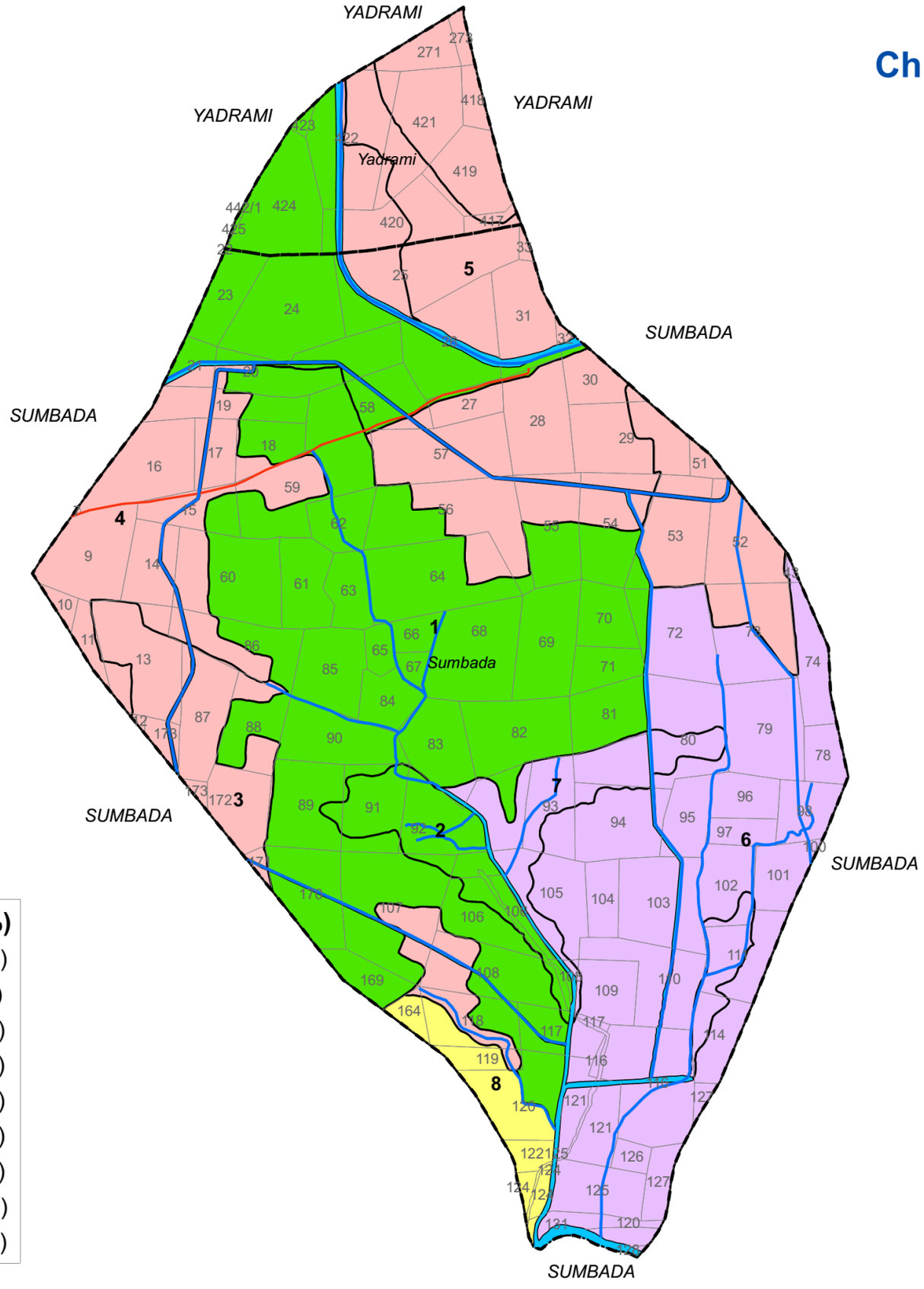
Chik Hangargi-2 Micro-watershed

(4D5A3Q2c : Area - 711.06 ha)

Jewargi Taluk

GULBARGA DISTRICT





km
0 0.25 0.5 1

N

Texture
MGT m B 2
Soil Series — Slope — Erosion

Soil Phase	Area in ha (%)
1, MGTmB2	258 (36.26)
2, MGTmC1	19 (2.67)
3, NHAmB1	45 (6.28)
4, NHAmB2	158 (22.26)
5, NHAmB3	32 (4.55)
6, DIMmB1	146 (20.5)
7, DIMmB2	26 (3.65)
8, MARmB1	14 (2.0)
9, Others*	13 (1.83)

* - Habitation & Waterbody

KEY

TEXTURE
m – Clay

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

EROSION
1 – Slight
2 – Moderate
3 – Severe

DEPTH
MGT - Very shallow (<25 cm)
NHA - Shallow (25-50 cm)
DIM - Deep (100-150 cm)
MAR - Very deep (>150 cm)

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

Source: ICAR-NBSS&LUP, Bengaluru (2017)

Mapping unit description of Chik Hangargi-2 Micro-watershed in Jewargi taluk, Kalaburagi district

Sl. No*	Map unit	Description	Area in ha (%)
	MGT	**Marguti soils are very shallow (<25cm), well drained. They have very dark grayish brown to dark brown, clayey soils and occur on very gently sloping to moderately sloping uplands**	**277 (38.93)**
1	MGTmB2	Clay surface, 1-3% slope, moderate erosion	258 (36.26)
2	MGTmC1	Clay surface, 3-5% slope, slight erosion	19 (2.67)
	NHA	**Novinihala soils are shallow (25-50 cm), well drained. They have very dark grayish brown to dark brown clayey soils and occur on very gently sloping to moderately sloping uplands**	**235 (33.09)**
3	NHAmB1	Clay surface, 1-3% slope, slight erosion	45 (6.28)
4	NHAmB2	Clay surface, 1-3% slope, moderate erosion	158 (22.26)
5	NHAmB3	Clay surface, 1-3% slope, severe erosion	32 (4.55)
	DIM	**Dimal soils are deep (100-150 cm), moderately well drained. They have very dark grayish brown to very dark gray clayey soils and occur on nearly level to very gently sloping to moderately sloping uplands**	**172 (24.15)**
6	DIMmB1	Clay surface, 1-3% slope, slight erosion	146 (20.5)
7	DIMmB2	Clay surface, 1-3% slope, moderate erosion	26 (3.65)
	MAR	**Mannur soils are very deep (>150 cm), moderately well drained. They have very dark gray to brown clayey soils and occur on nearly level to very gently sloping uplands**	**14 (2.0)**
8	MARmB1	Clay surface, 1-3% slope, slight erosion	14 (2.0)

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

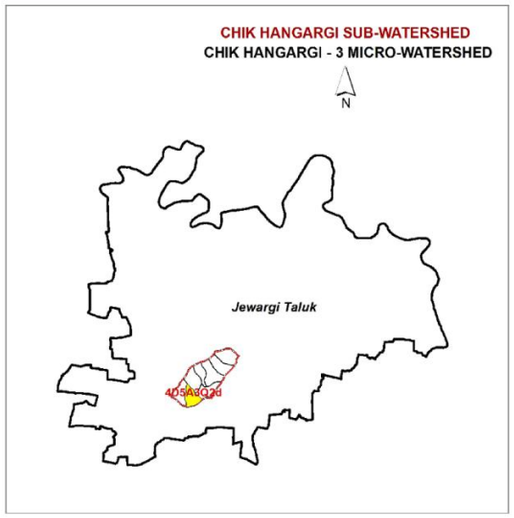
SOILS

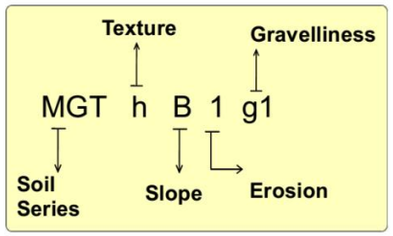
Chik Hangargi-3 Micro-watershed

(4D5A3Q2d : Area - 561.33 ha)

Jewargi Taluk

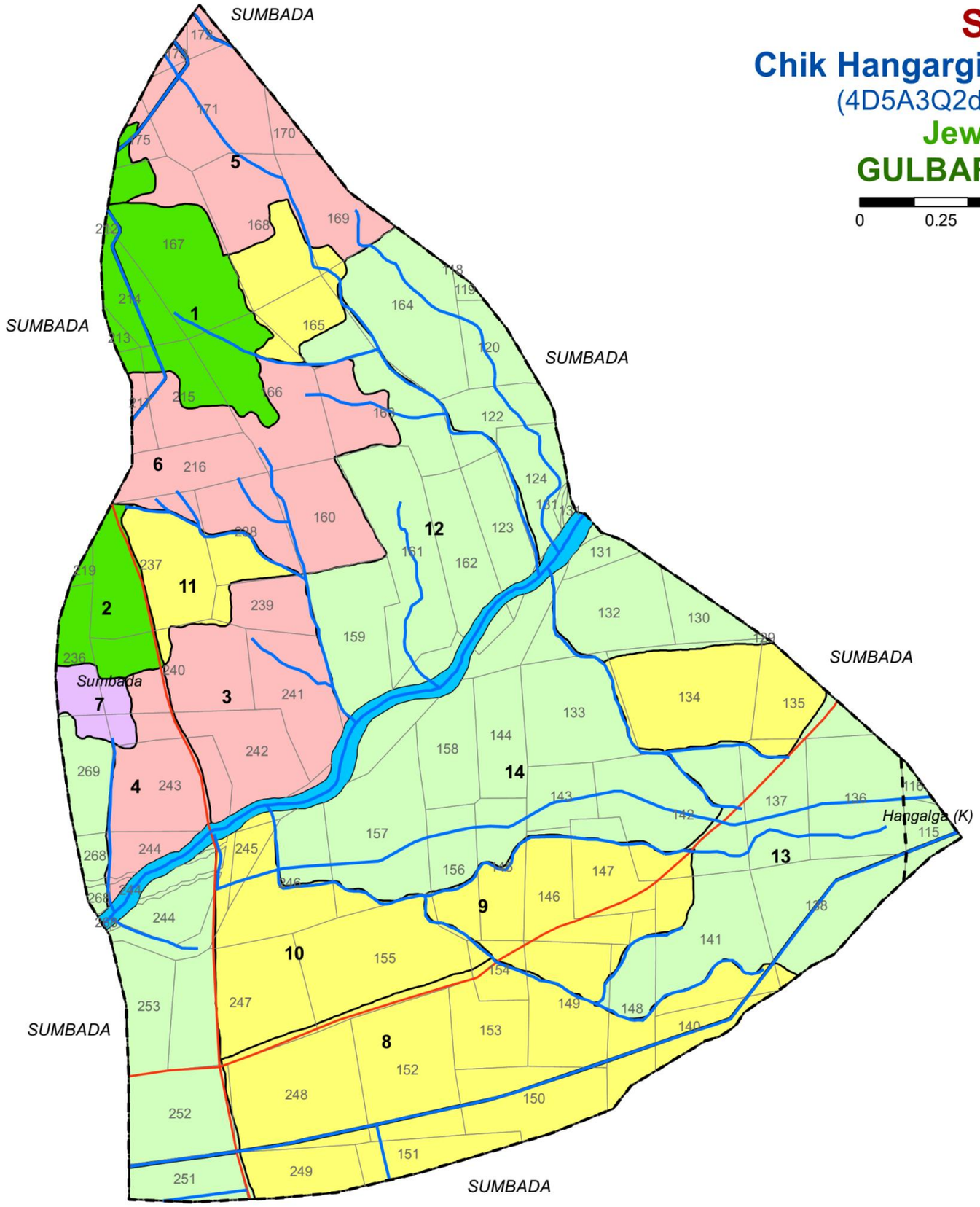
GULBARGA DISTRICT





Soil Phase	Area in ha (%)
1, MGThB1g1	26 (4.55)
2, MGTmB2g1	11 (1.9)
3, NHAmB1	29 (5.1)
4, NHAmB1g1	13 (2.4)
5, NHAmB2	29 (5.15)
6, NHAmB2g1	36 (6.39)
7, NIRmB2	4 (0.8)
8, DIMmA1	67 (11.99)
9, DIMmB1	26 (4.57)
10, DIMmB2	50 (8.86)
11, DIMmB2g1	21 (3.8)
12, MARmA1	44 (7.88)
13, MARmB1	77 (13.79)
14, MARmB2	116 (20.66)
15, Others*	12 (2.18)

* - Habitation & Waterbody



KEY

TEXTURE
h - Sandy clay loam
m – Clay

SLOPE
A - Nearly level (0-1%)
B – Very gently sloping (1-3%)

EROSION
1 – Slight
2 – Moderate

GRAVELLINESS
g1 - Gravelly (15-35 %)

DEPTH
MGT - Very shallow (<25 cm)
NHA - Shallow (25-50 cm)
NIR - Moderately deep (75-100 cm)
DIM - Deep (100-150 cm)
MAR - Very deep (>150 cm)

References

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

Source: ICAR-NBSS&LUP, Bengaluru (2017)

Mapping unit description of Chik Hangargi-3 Micro-watershed in Jewargi taluk, Kalaburagi district

Sl.No*	Map unit	Description	Area in ha (%)
	MGT	**Marguti soils are very shallow (<25cm), well drained. They have very dark grayish brown to dark brown, clayey soils and occur on very gently sloping to moderately sloping uplands**	**37 (6.45)**
1	MGThB1g1	Sandy clay loam surface, 1-3% slope, slight erosion, gravelly (15-35%)	26 (4.55)
2	MGTmB2g1	Clay surface, 1-3% slope, moderate erosion, gravelly (15-35%)	11 (1.9)
	NHA	**Novinihala soils are shallow (25-50 cm), well drained. They have very dark grayish brown to dark brown clayey soils and occur on very gently sloping to moderately sloping uplands**	**107 (19.04)**
3	NHAmB1	Clay surface, 1-3% slope, slight erosion	29 (5.1)
4	NHAmB1g1	Clay surface, 1-3% slope, slight erosion, gravelly (15-35%)	13 (2.4)
5	NHAmB2	Clay surface, 1-3% slope, moderate erosion	29 (5.15)
6	NHAmB2g1	Clay surface, 1-3% slope, moderate erosion, gravelly (15-35%)	36 (6.39)
	NIR	**Nirgudi soils are moderately deep (75-100 cm), moderately well drained. They have very dark grayish brown to very dark gray, calcareous, clayey soils and occur on nearly level to very gently sloping uplands**	**4 (0.8)**
7	NIRmB2	Clay surface, 1-3% slope, moderate erosion	4 (0.8)
	DIM	**Dimal soils are deep (100-150 cm), moderately well drained. They have very dark grayish brown to very dark gray clayey soils and occur on nearly level to very gently sloping to moderately sloping uplands**	**164 (29.22)**
8	DIMmA1	Clay surface, 0-1% slope, slight erosion	67 (11.99)
9	DIMmB1	Clay surface, 1-3% slope, slight erosion	26 (4.57)
10	DIMmB2	Clay surface, 1-3% slope, moderate erosion	50 (8.86)
11	DIMmB2g1	Clay surface, 1-3% slope, moderate erosion, gravelly (15-35%)	21 (3.8)
	MAR	**Mannur soils are very deep (>150 cm), moderately well drained. They have very dark gray to brown clayey soils and occur on nearly level to very gently sloping uplands**	**237 (42.33)**
12	MARmA1	Clay surface, 0-1% slope, slight erosion	44 (7.88)
13	MARmB1	Clay surface, 1-3% slope, slight erosion	77 (13.79)
14	MARmB2	Clay surface, 1-3% slope, moderate erosion	116 (20.66)

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

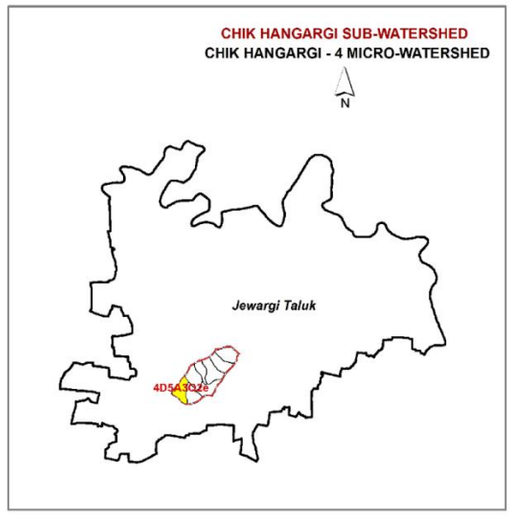
SOILS

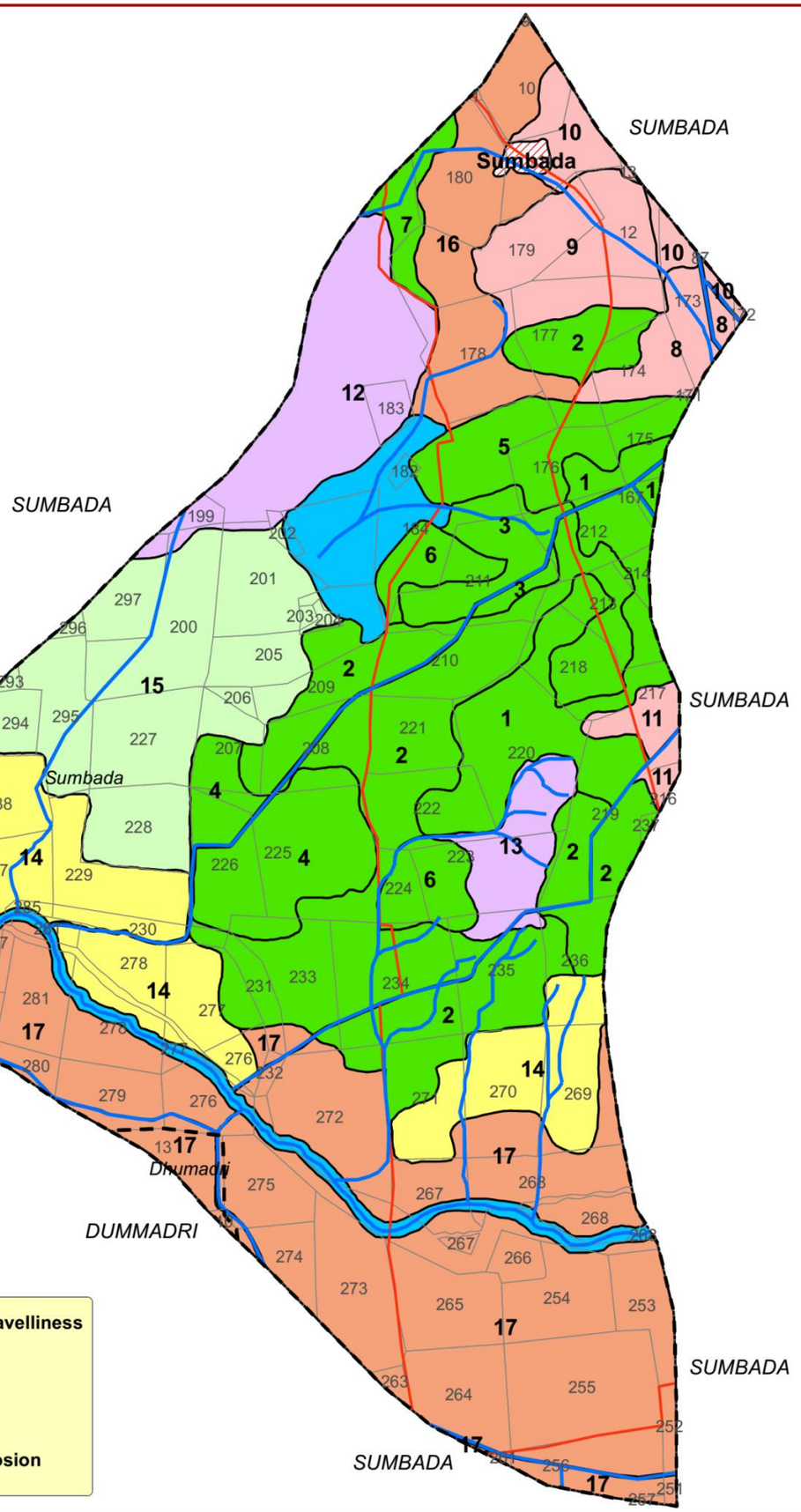
Chik Hangargi-4 Micro-watershed

(4D5A3Q2e : Area - 638.66 ha)

Jewargi Taluk

GULBARGA DISTRICT





0 0.25 0.5 1 km

N

KEY

TEXTURE
h - Sandy clay loam
i – Sandy clay
m – Clay

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

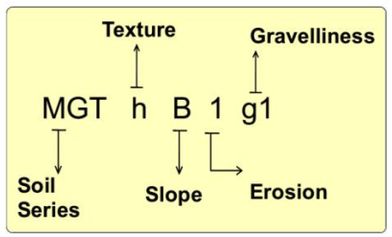
EROSION
1 – Slight
2 – Moderate
3- Severe

GRAVELLINESS
g1 - Gravelly (15-35 %)

DEPTH
MGT - Very shallow (<25 cm)
BHI, NHA - Shallow (25-50 cm)
NIR - Moderately deep (75-100 cm)
DIM - Deep (100-150 cm)
MAR - Very deep (>150 cm)

References

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



Soil Phase	Area in ha (%)
1, MGThB1g1	33 (5.12)
2, MGThB3g1	102 (16.05)
3, MGThC2g1	11 (1.7)
4, MGTiB2g1	25 (3.87)
5, MGTiB3g1	17 (2.73)
6, MGTmB2g1	12 (1.94)
7, MGTmB3	5 (0.82)
8, NHAhB2g1	9 (1.48)
9, NHAiB2	20 (3.1)
10, NHAmB1	8 (1.32)
11, NHAmB2g1	5 (0.83)
12, BHIiB3g1	33 (5.12)
13, BHImB2g1	11 (1.8)
14, NIRmB2	56 (8.72)
15, DIMmB1	63 (9.89)
16, MARmB1	41 (6.44)
17, MARmB2	151 (23.69)
18, Others*	34 (5.38)

* - Habitation & Waterbody

Source: ICAR-NBSS&LUP, Bengaluru (2017)

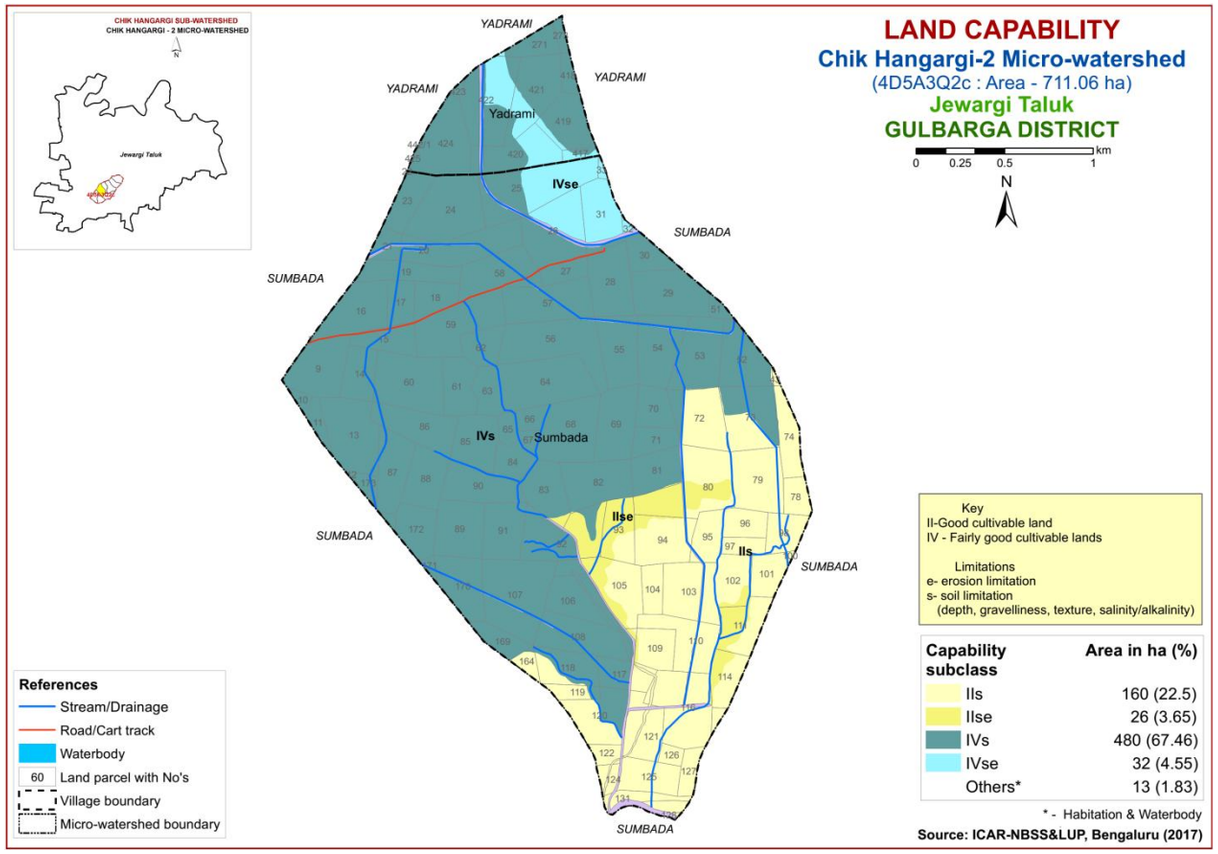
Mapping unit description of Chik Hangargi-4 Micro-watershed in Jewargi taluk, Kalaburagi district

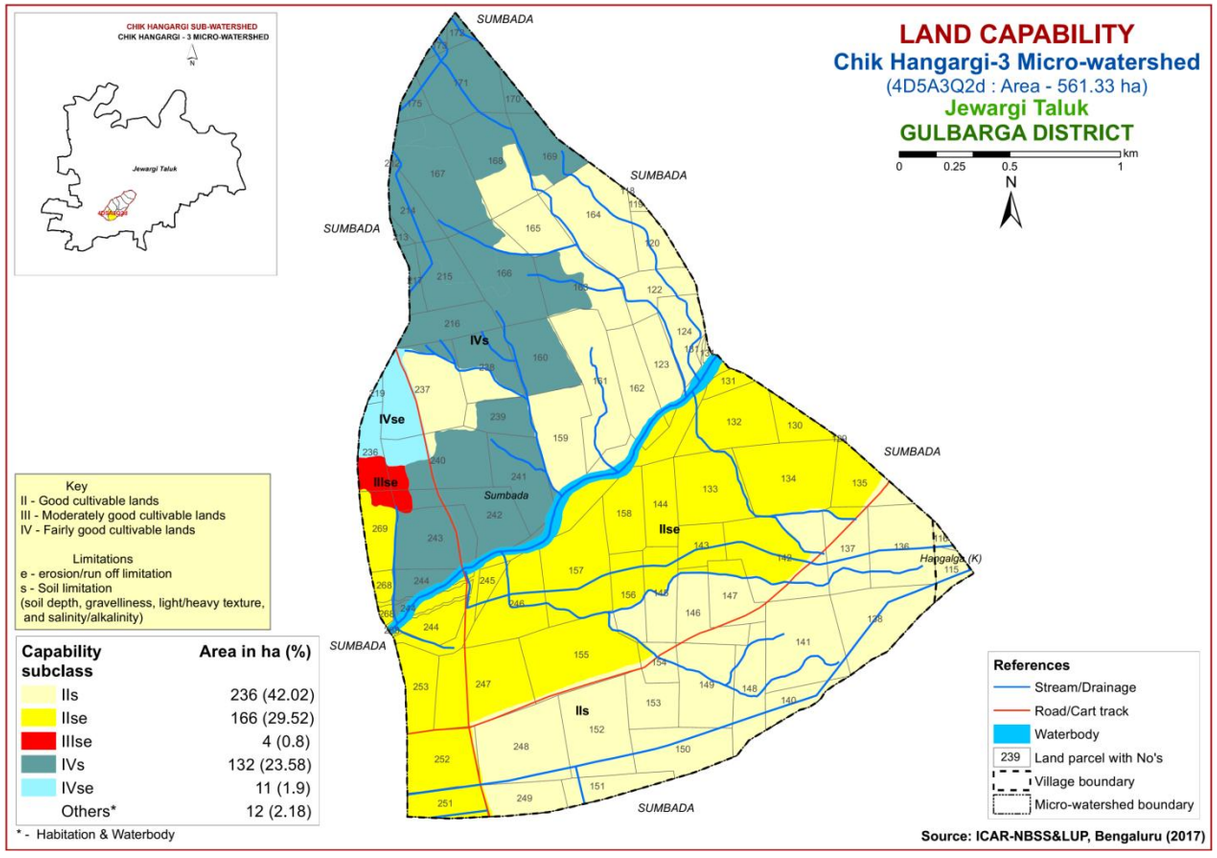
Sl.No*	Map unit	Description	Area in ha (%)
	MGT	**Marguti soils are very shallow (<25cm), well drained. They have very dark grayish brown to dark brown, clayey soils and occur on very gently sloping to moderately sloping uplands**	**205 (32.23)**
1	MGThB1g1	Sandy clay loam surface, 1-3% slope, slight erosion, gravelly (15-35%)	33 (5.12)
2	MGThB3g1	Sandy clay loam surface, 1-3% slope, severe erosion, gravelly (15-35%)	102 (16.05)
3	MGThC2g1	Sandy clay loam surface, 3-5% slope, moderate erosion, gravelly (15-35%)	11 (1.7)
4	MGTiB2g1	Sandy clay surface, 1-3% slope, moderate erosion, gravelly (15-35%)	25 (3.87)
5	MGTiB3g1	Sandy clay surface, 1-3% slope, severe erosion, gravelly (15-35%)	17 (2.73)
6	MGTmB2g1	Clay surface, 1-3% slope, moderate erosion, gravelly (15-35%)	12 (1.94)
7	MGTmB3	Clay surface, 1-3% slope, severe erosion	5 (0.82)
	NHA	**Novinihala soils are shallow (25-50 cm), well drained. They have very dark grayish brown to dark brown clayey soils and occur on very gently sloping to moderately sloping uplands**	**42 (6.73)**
8	NHAhB2g1	Sandy clay loam surface, 1-3% slope, moderate erosion, gravelly (15-35%)	9 (1.48)
9	NHAiB2	Sandy clay surface, 1-3% slope, moderate erosion	20 (3.1)
10	NHAmB1	Clay surface, 1-3% slope, slight erosion	8 (1.32)
11	NHAmB2g1	Clay surface, 1-3% slope, moderate erosion, gravelly (15-35%)	5 (0.83)
	BHI	**Bhimanahalli soils are shallow (25-50 cm), well drained. They have very dark gray to brown clay soils and occur on very gently sloping to gently sloping uplands.**	**44 (6.92)**
12	BHIiB3g1	Sandy clay surface, 1-3% slope, severe erosion, gravelly (15-35%)	33 (5.12)
13	BHImB2g1	Clay surface, 1-3% slope, moderate erosion, gravelly (15-35%)	11 (1.8)

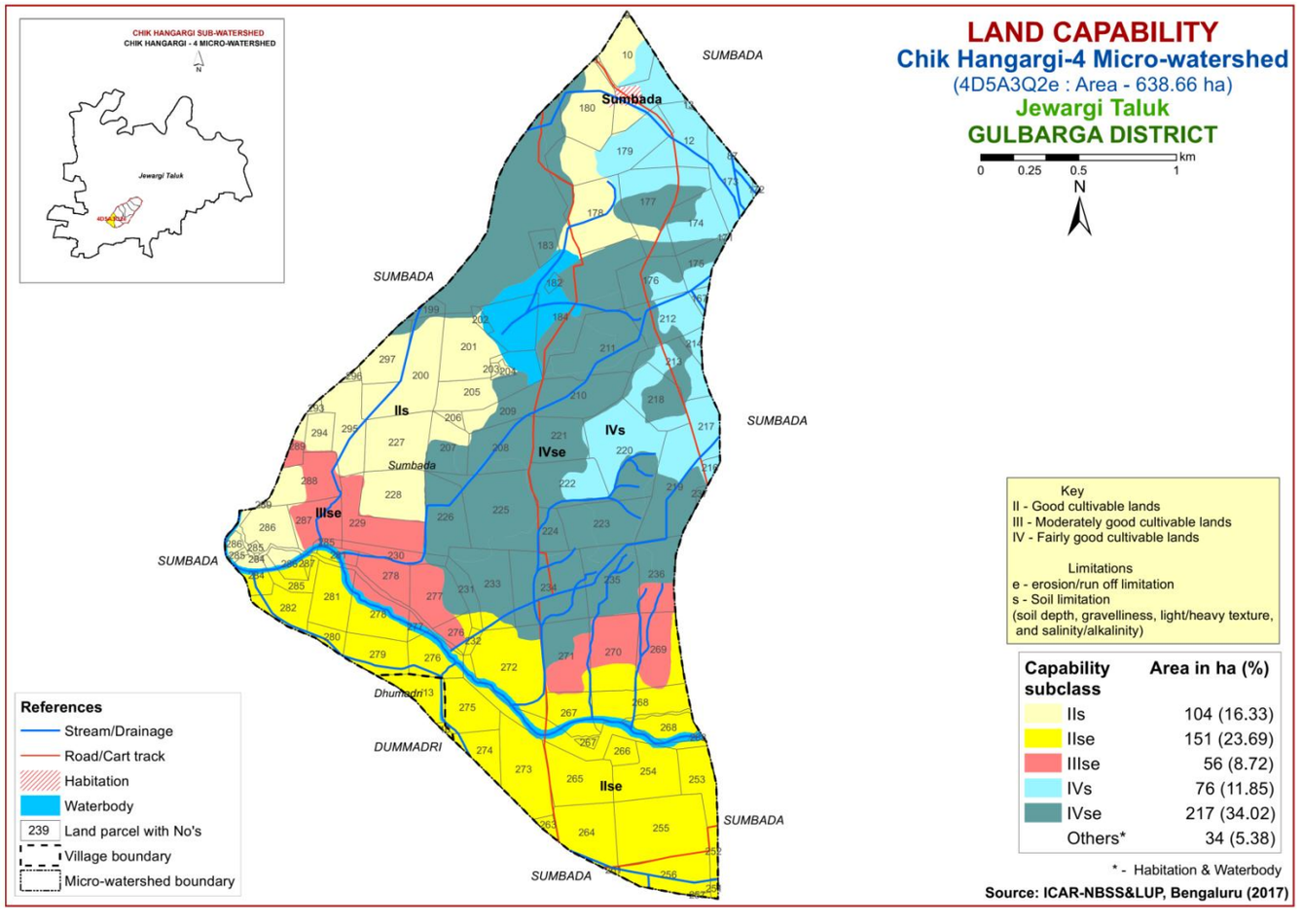
To be continued..

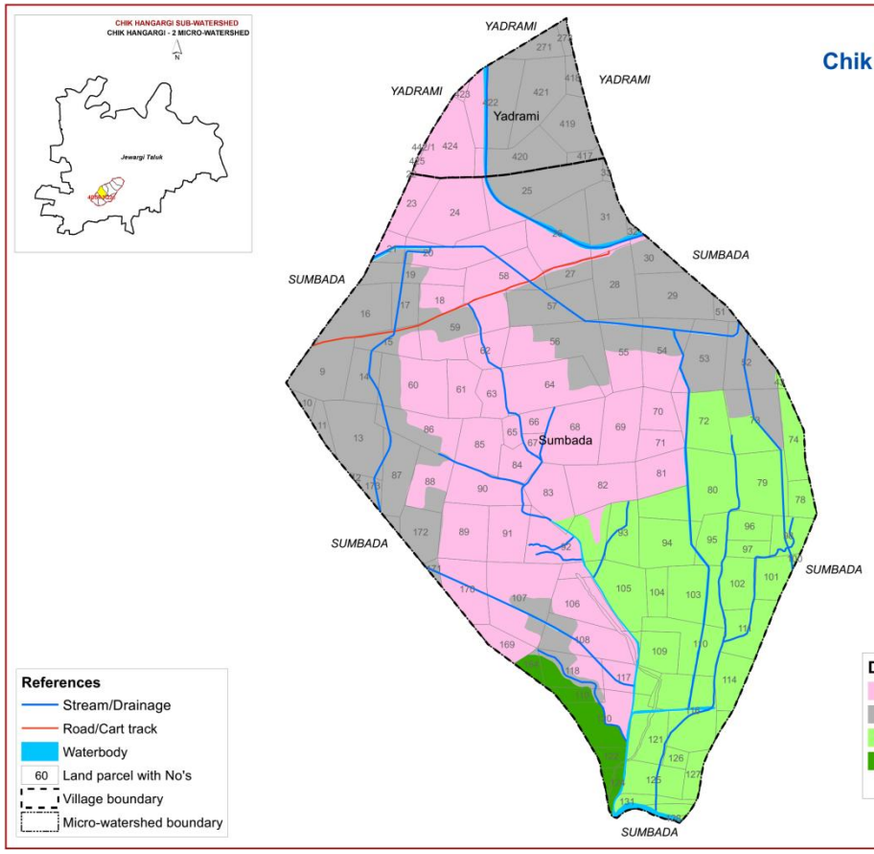
Sl. No*	Map unit	Description	Area in ha (%)
	NIR	**Nirgudi soils are moderately deep (75-100 cm), moderately well drained. They have very dark grayish brown to very dark gray, calcareous, clayey soils and occur on nearly level to very gently sloping uplands**	**56 (8.72)**
14	NIRmB2	Clay surface, 1-3% slope, moderate erosion	56 (8.72)
	DIM	**Dimal soils are deep (100-150 cm), moderately well drained. They have very dark grayish brown to very dark gray clayey soils and occur on nearly level to very gently sloping to moderately sloping uplands**	**63 (9.89)**
15	DIMmB1	Clay surface, 1-3% slope, slight erosion	63 (9.89)
	MAR	**Mannur soils are very deep (>150 cm), moderately well drained. They have very dark gray to brown clayey soils and occur on nearly level to very gently sloping uplands**	**192 (30.13)**
16	MARmB1	Clay surface, 1-3% slope, slight erosion	41 (6.44)
17	MARmB2	Clay surface, 1-3% slope, moderate erosion	151 (23.69)

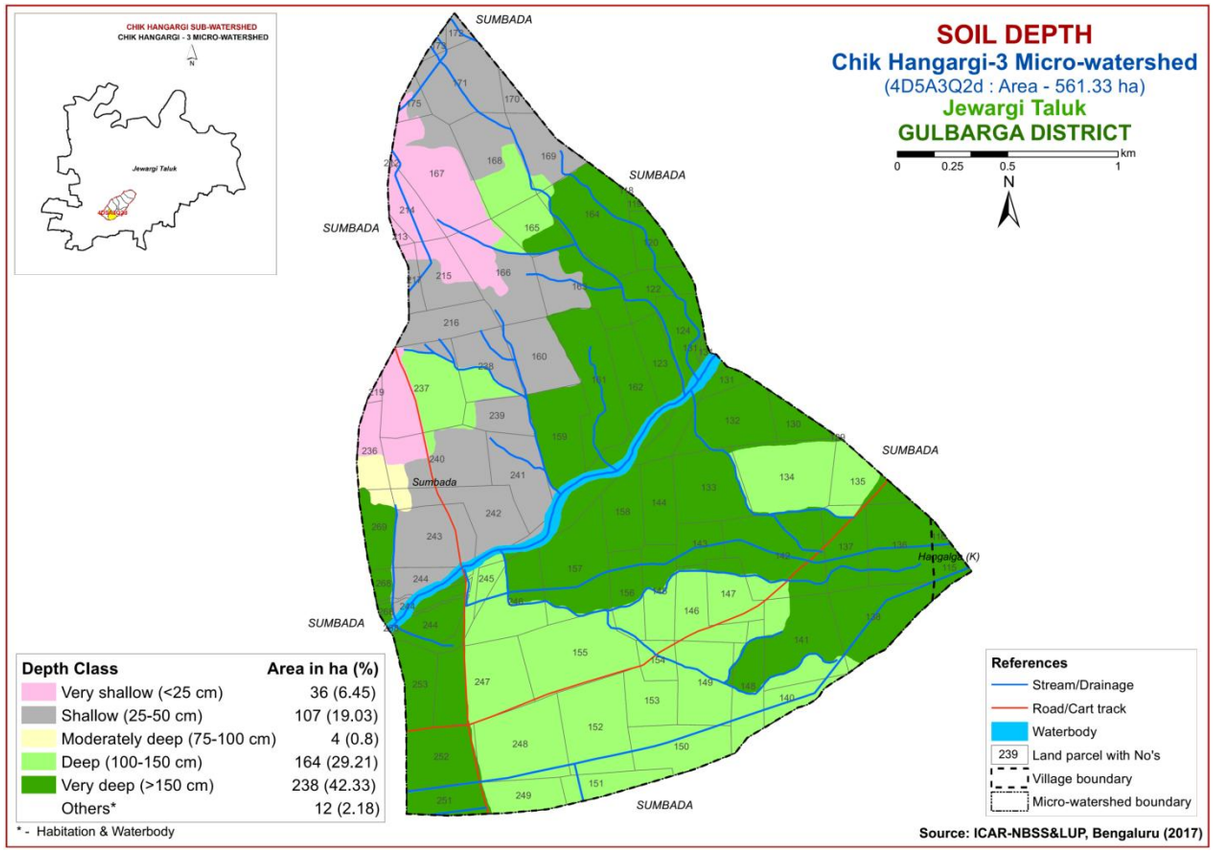
*Soil map unit numbers are continuous for the taluk, not the Micro-watershed

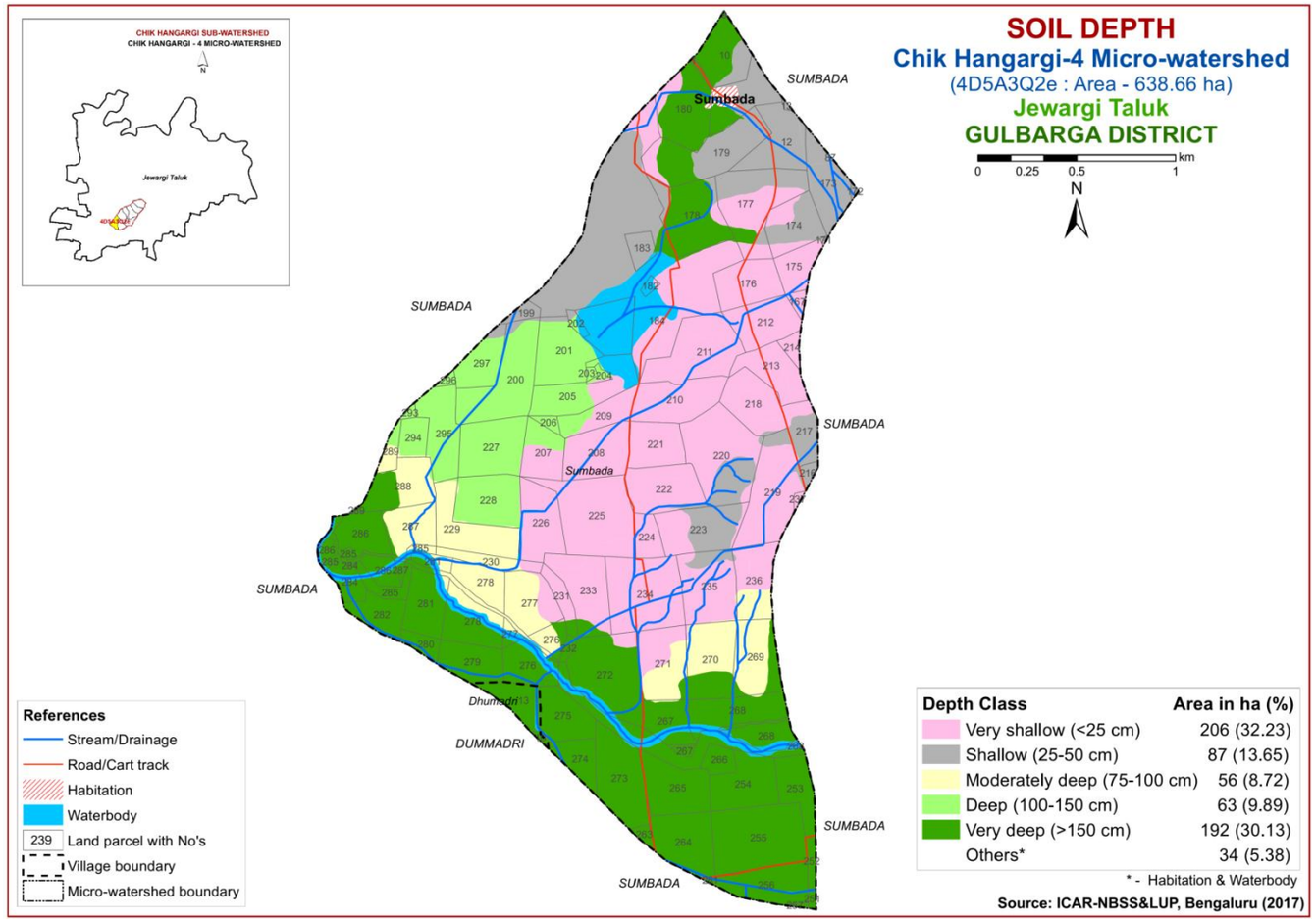

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
YADRAMI
Yadrami
IVse
SUMBADA
IVs
Sumbada
IIse
IIs
LAND CAPABILITY
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Key
II-Good cultivable land
IV - Fairly good cultivable lands
Limitations
e- erosion limitation
s- soil limitation
(depth, gravelliness, texture, salinity/alkalinity)
Capability subclass | Area in ha (%)
IIs 160 (22.5)
IIse 26 (3.65)
IVs 480 (67.46)
IVse 32 (4.55)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

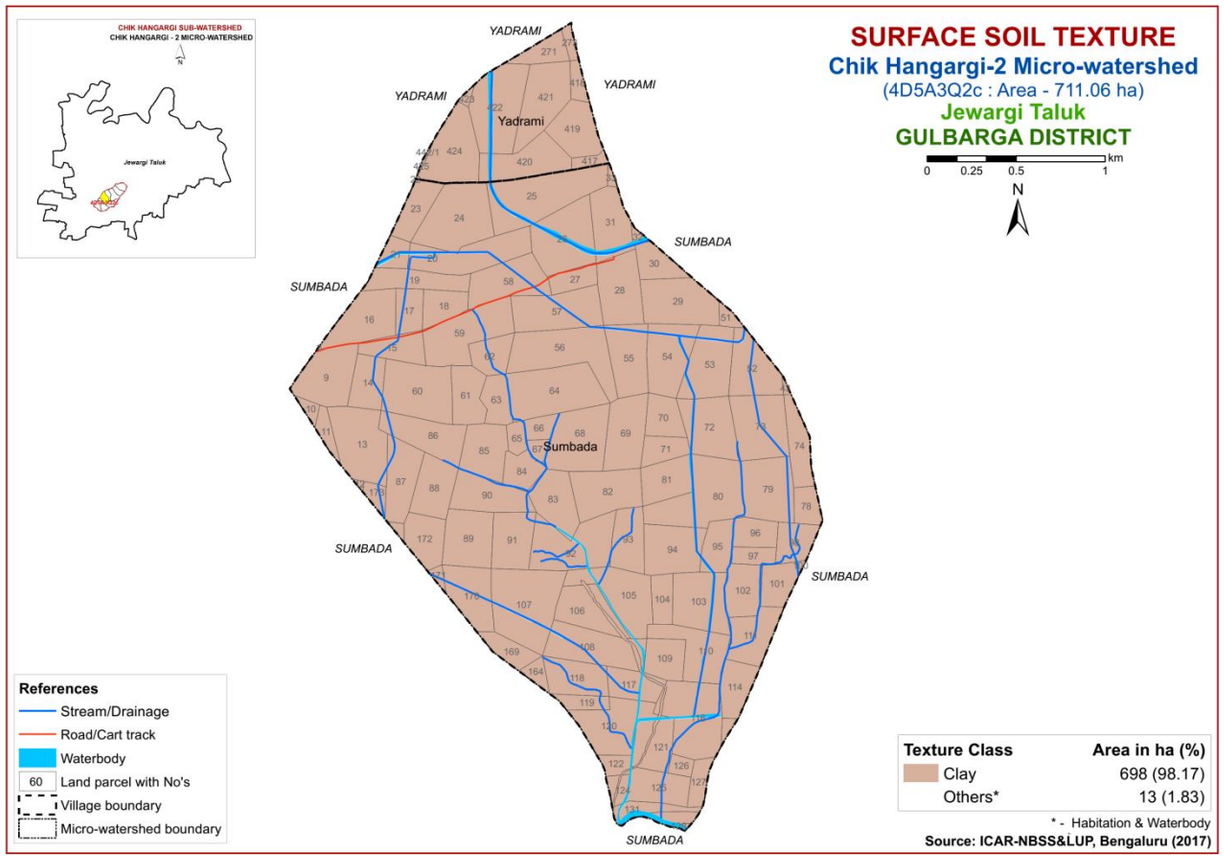

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
IVs
IVse
IIIse
Sumbada
IIse
IIs
Hangalga (K)
LAND CAPABILITY
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Key
II - Good cultivable lands
III - Moderately good cultivable lands
IV - Fairly good cultivable lands
Limitations
e - erosion/run off limitation
s - Soil limitation
(soil depth, gravelliness, light/heavy texture, and salinity/alkalinity)
Capability subclass | Area in ha (%)
IIs 236 (42.02)
IIse 166 (29.52)
IIIse 4 (0.8)
IVs 132 (23.58)
IVse 11 (1.9)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

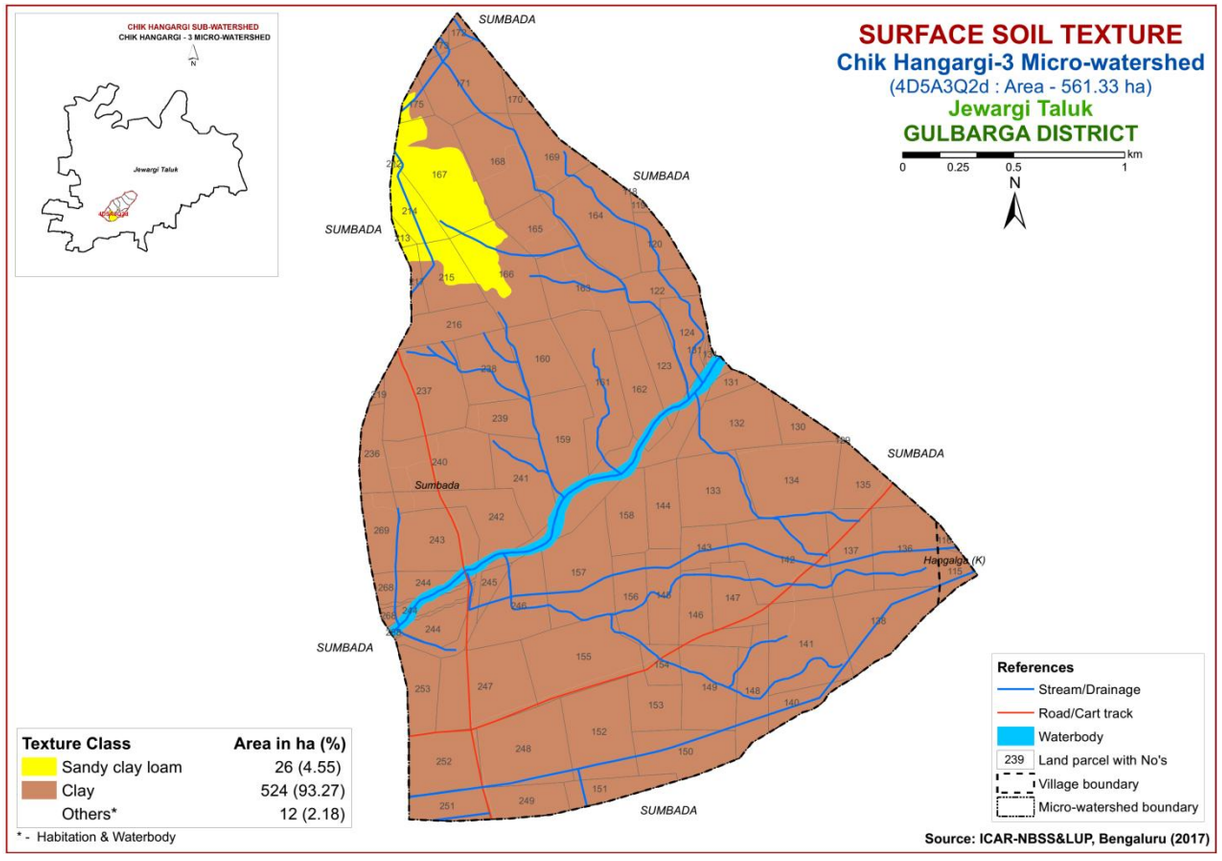

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
Sumbada
IIs
IVs
IVse
IIIse
IIse
Dhummadri
DUMMADRI
LAND CAPABILITY
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Key
II - Good cultivable lands
III - Moderately good cultivable lands
IV - Fairly good cultivable lands
Limitations
e - erosion/run off limitation
s - Soil limitation
(soil depth, gravelliness, light/heavy texture, and salinity/alkalinity)
Capability subclass | Area in ha (%)
IIs 104 (16.33)
IIse 151 (23.69)
IIIse 56 (8.72)
IVs 76 (11.85)
IVse 217 (34.02)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

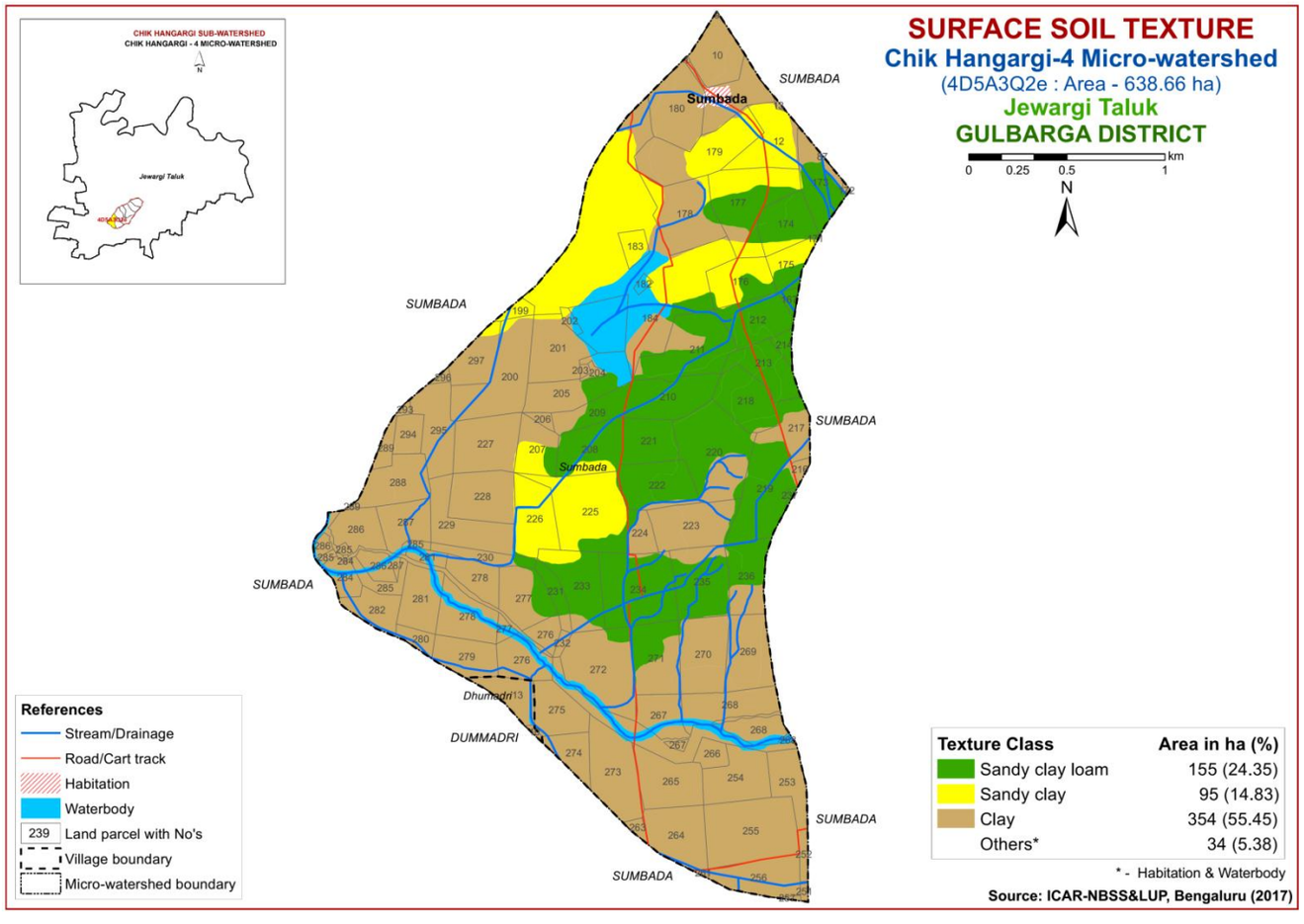

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
YADRAMI
Yadrami
SUMBADA
Sumbada
SOIL DEPTH
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Depth Class | Area in ha (%)
Very shallow (<25 cm) | 277 (38.93)
Shallow (25-50 cm) | 235 (33.09)
Deep (100-150 cm) | 172 (24.15)
Very deep (>150 cm) | 14 (2.0)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

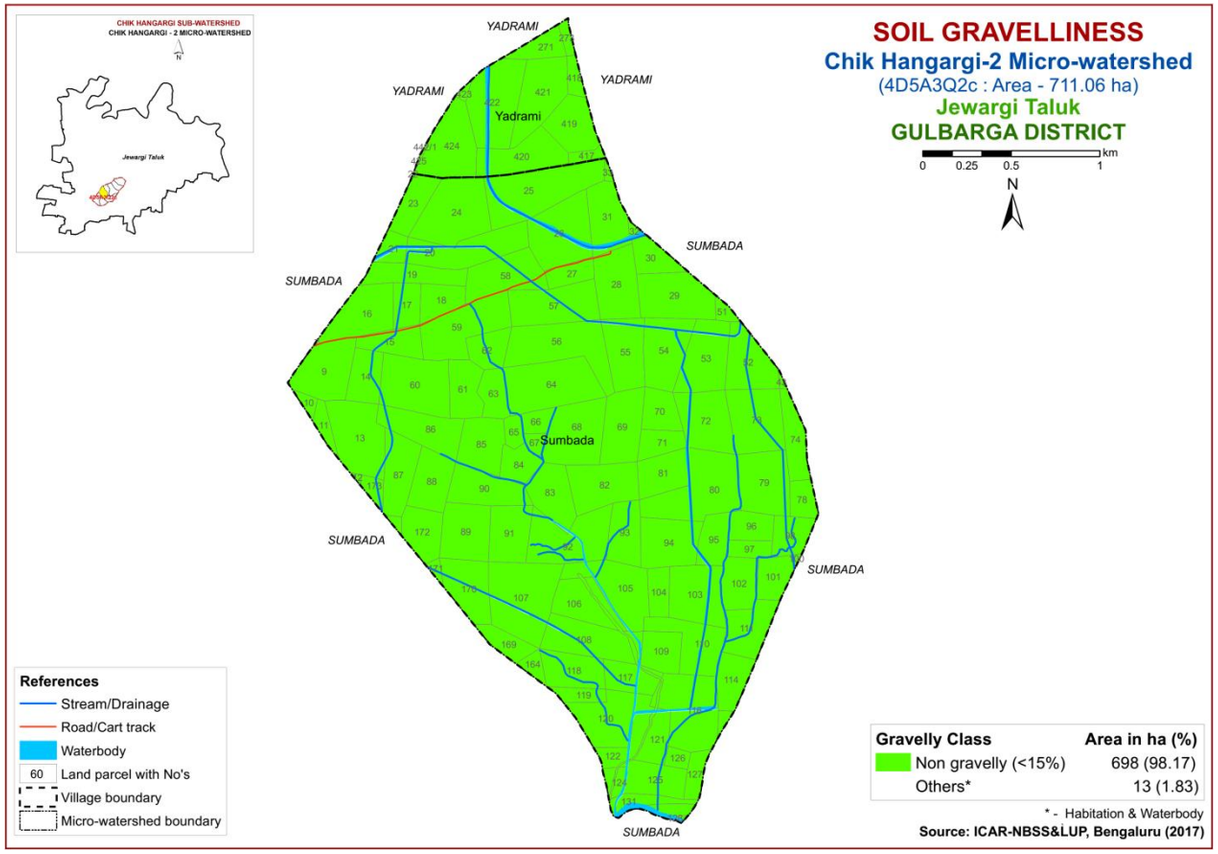

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
Sumbada
Hapgalga (K)
SOIL DEPTH
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Depth Class | Area in ha (%)
Very shallow (<25 cm) | 36 (6.45)
Shallow (25-50 cm) | 107 (19.03)
Moderately deep (75-100 cm) | 4 (0.8)
Deep (100-150 cm) | 164 (29.21)
Very deep (>150 cm) | 238 (42.33)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

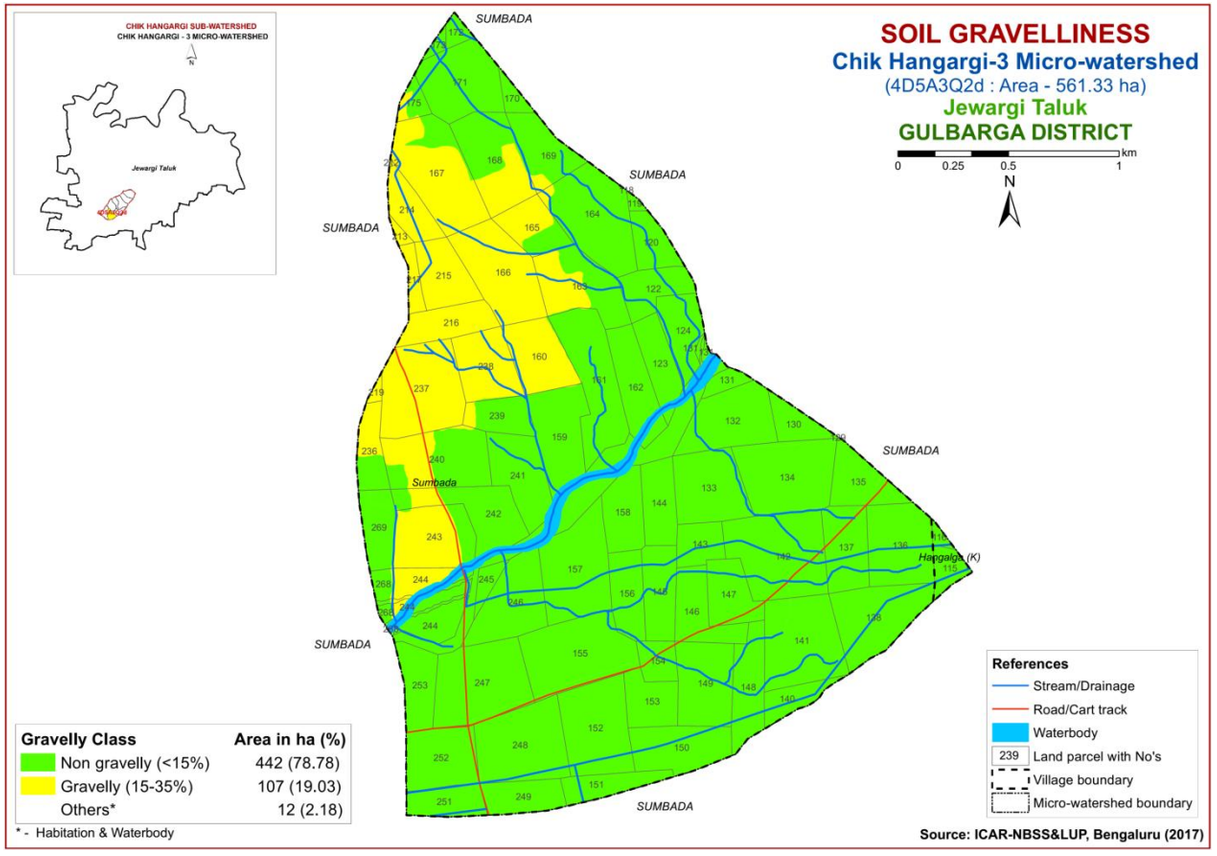

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
Sumbada
Dhummadri
DUMMADRI
SOIL DEPTH
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Depth Class | Area in ha (%)
Very shallow (<25 cm) | 206 (32.23)
Shallow (25-50 cm) | 87 (13.65)
Moderately deep (75-100 cm) | 56 (8.72)
Deep (100-150 cm) | 63 (9.89)
Very deep (>150 cm) | 192 (30.13)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

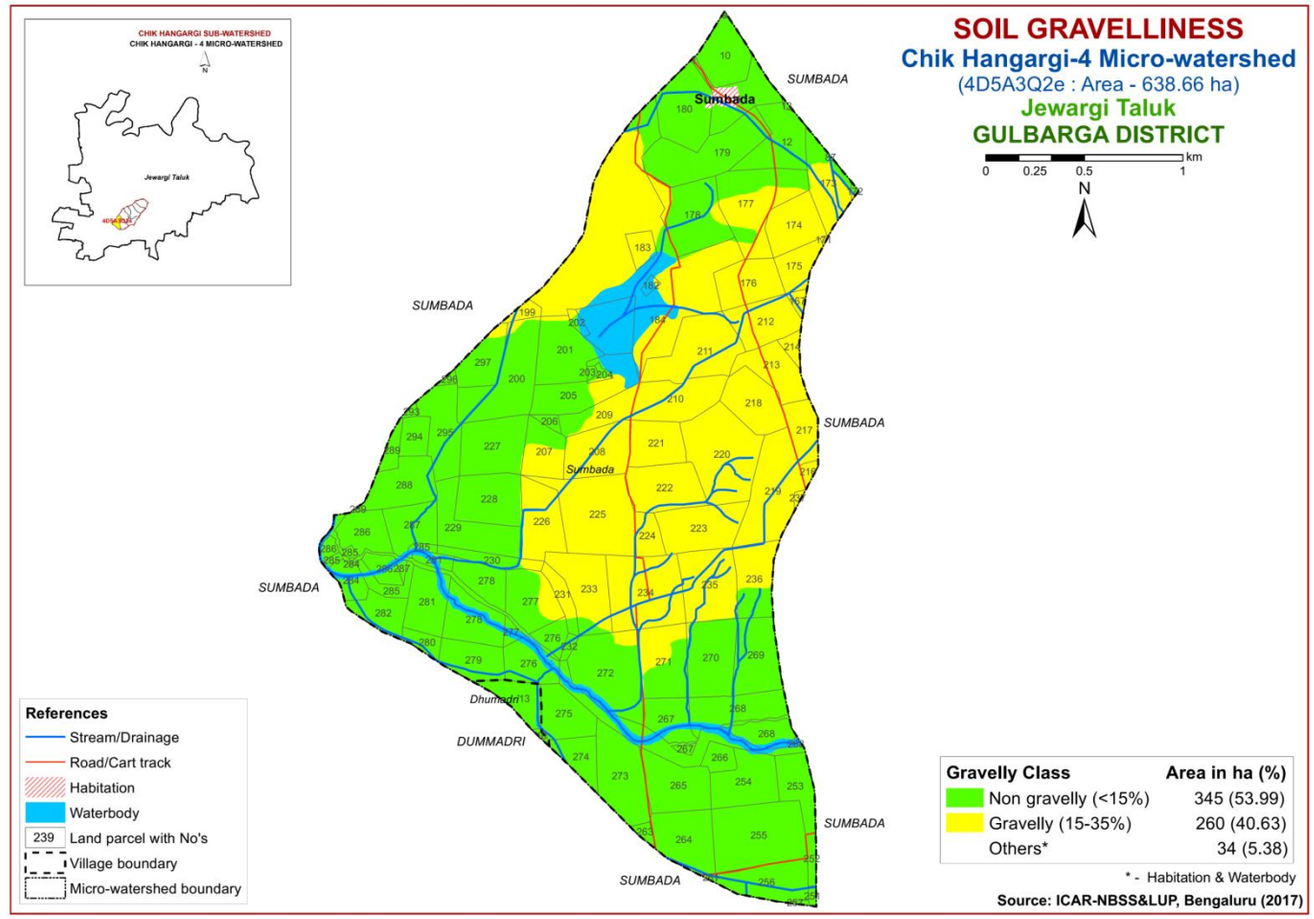

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
SURFACE SOIL TEXTURE
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Texture Class
Area in ha (%)
Clay 698 (98.17)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

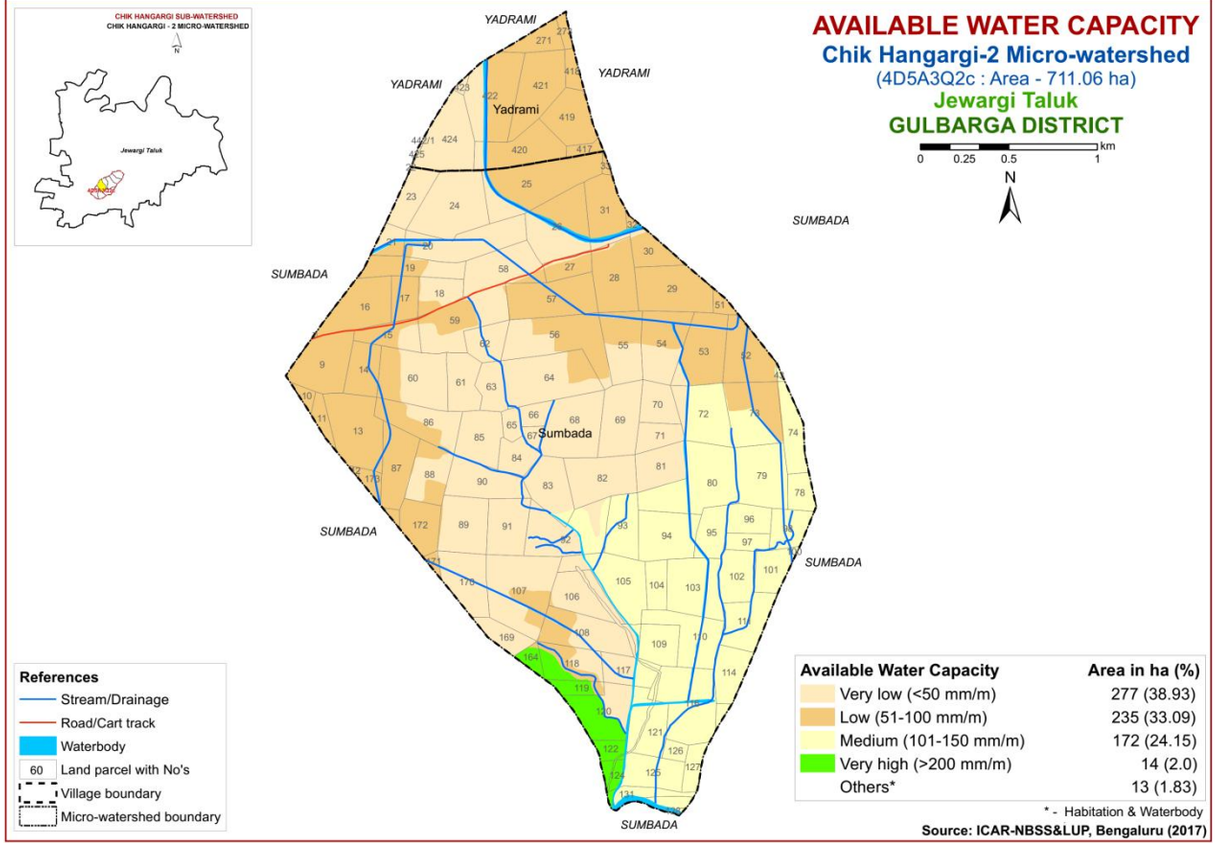

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SURFACE SOIL TEXTURE
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangalga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Texture Class
Area in ha (%)
Sandy clay loam 26 (4.55)
Clay 524 (93.27)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

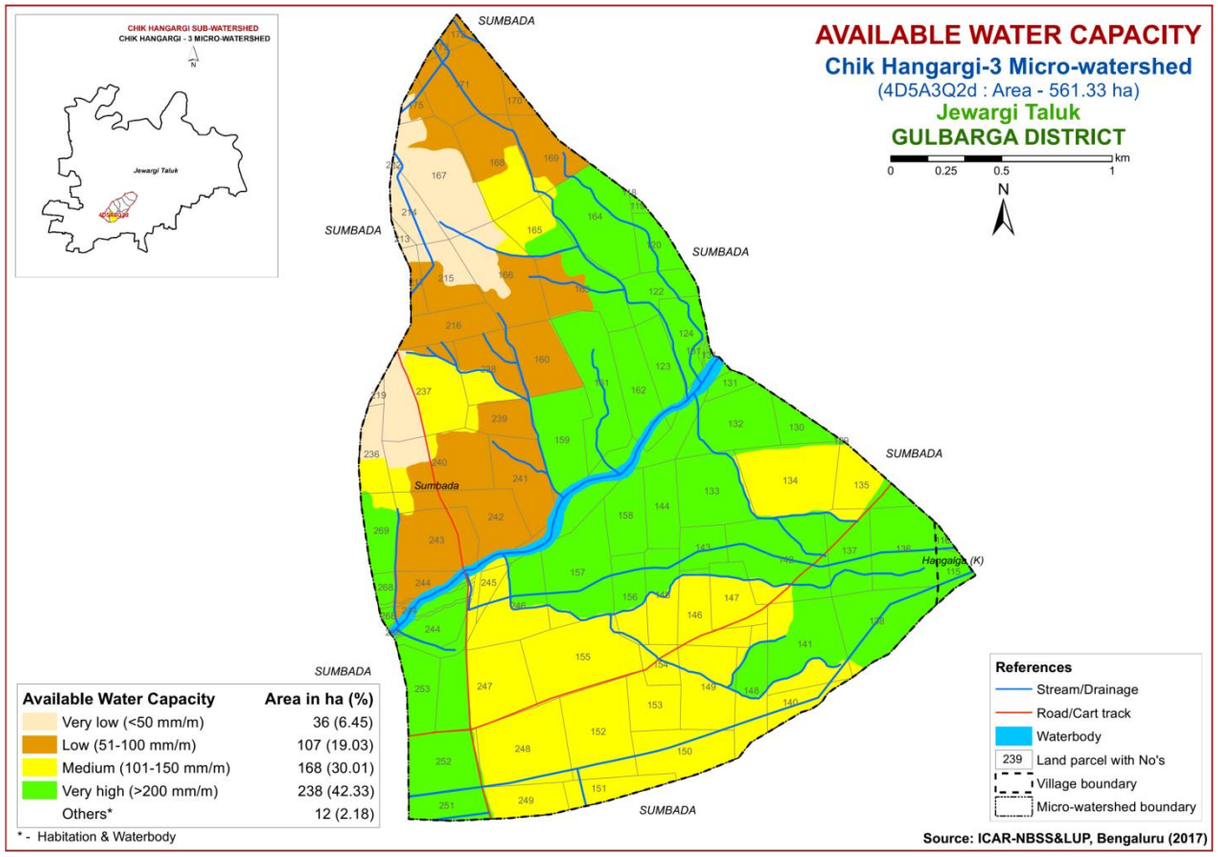

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SURFACE SOIL TEXTURE
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Dhummadri
DUMMADRI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Texture Class
Area in ha (%)
Sandy clay loam 155 (24.35)
Sandy clay 95 (14.83)
Clay 354 (55.45)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

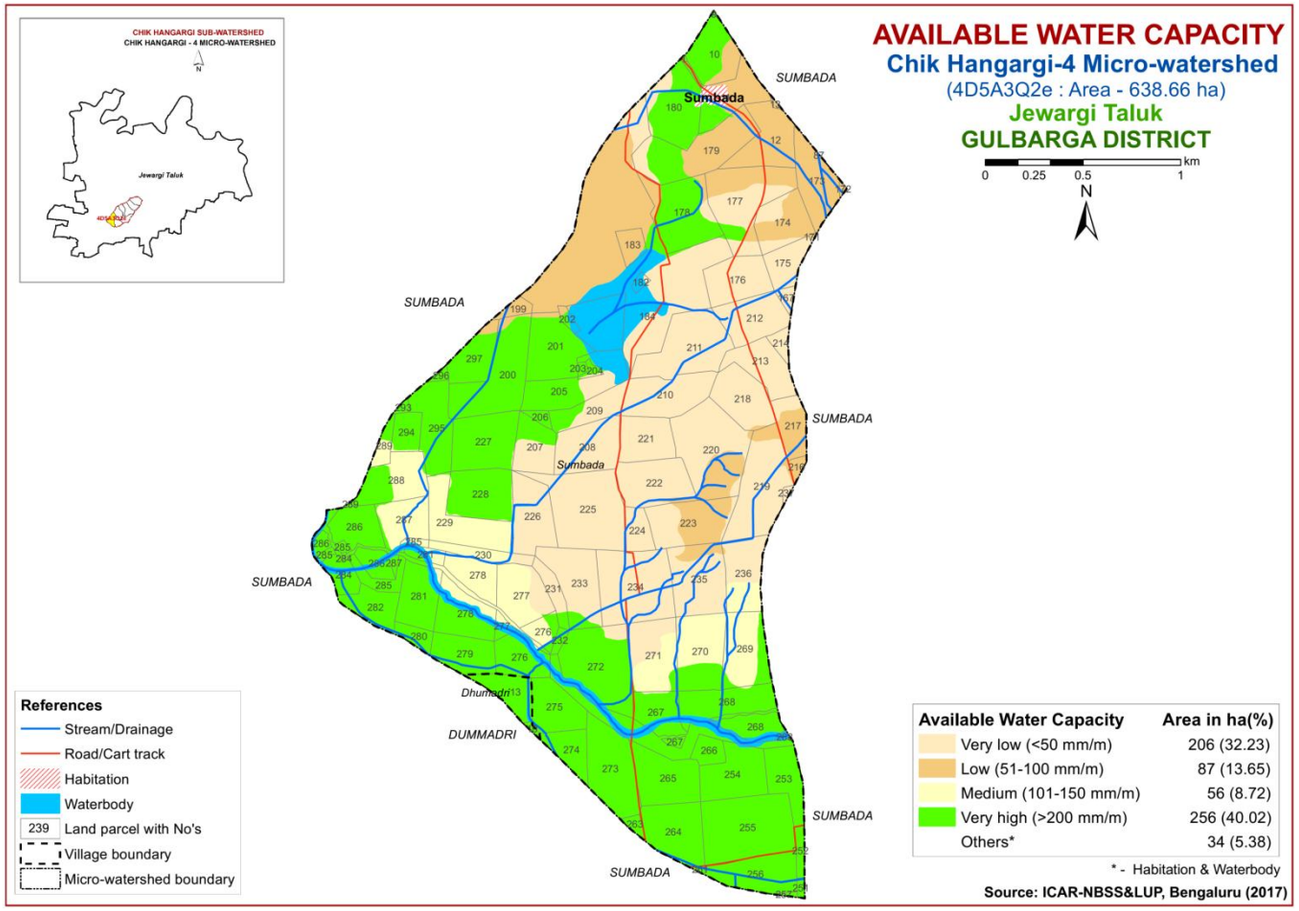

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
SOIL GRAVELLINESS
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Gravelly Class | Area in ha (%)
Non gravelly (<15%) | 698 (98.17)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

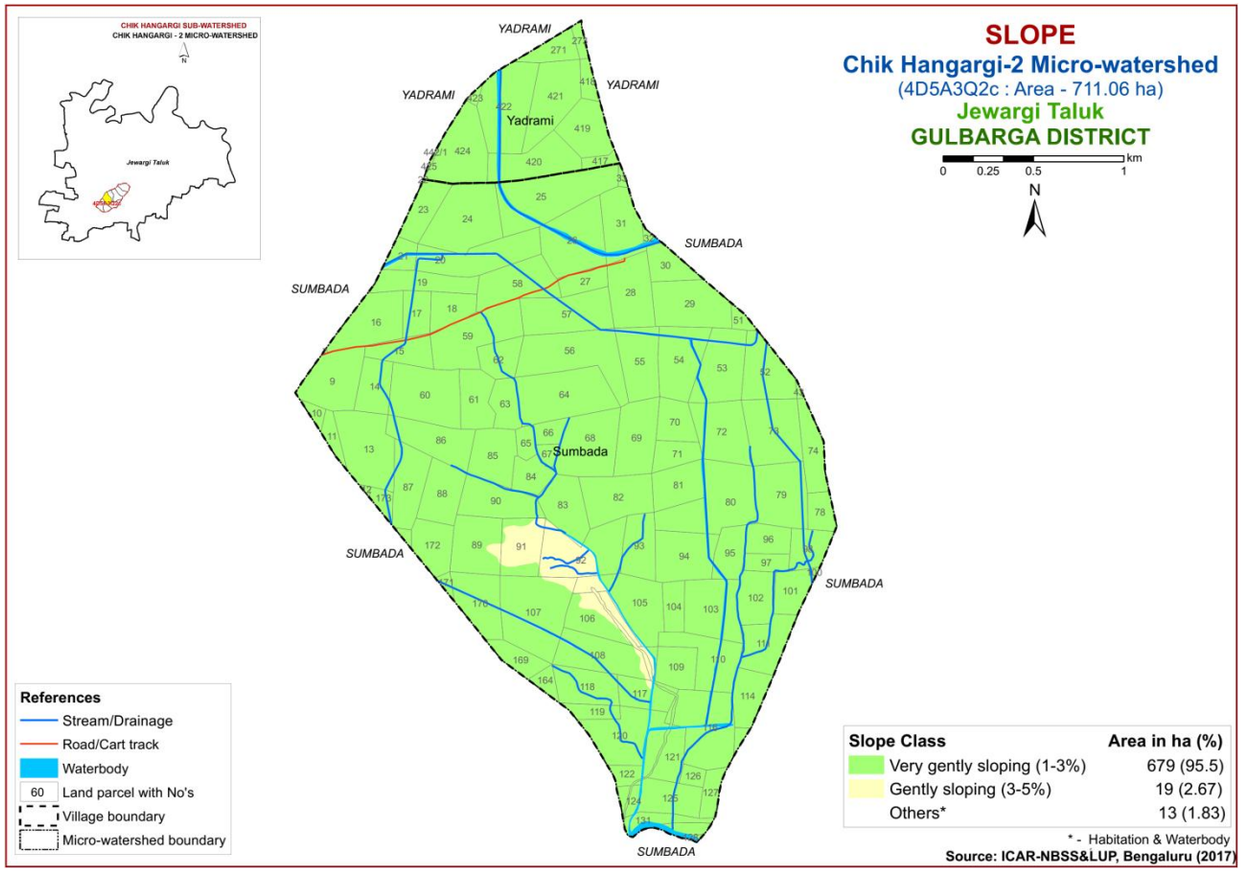

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SOIL GRAVELLINESS
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangarga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Gravelly Class | Area in ha (%)
Non gravelly (<15%) | 442 (78.78)
Gravelly (15-35%) | 107 (19.03)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

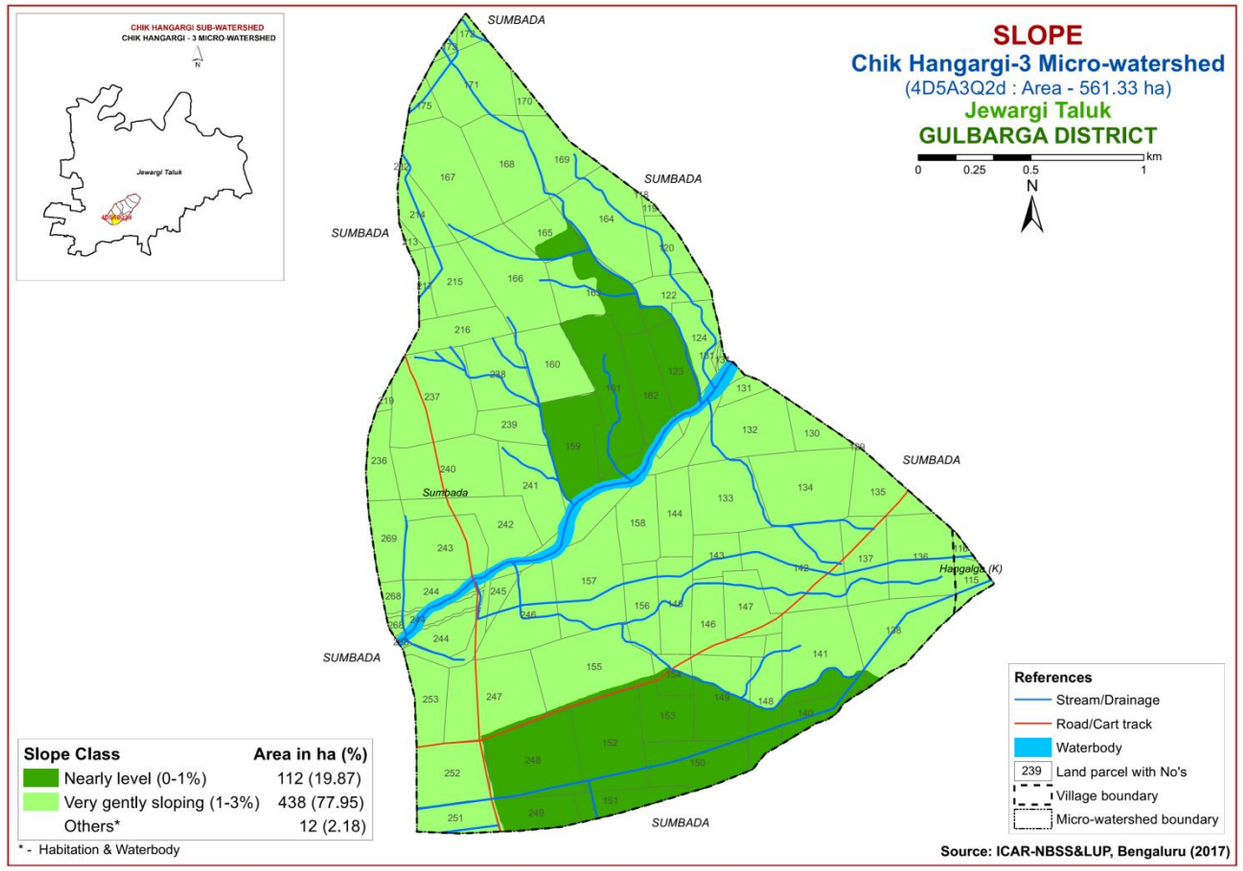

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SOIL GRAVELLINESS
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
DUMMADRI
Dhummadri
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Gravelly Class | Area in ha (%)
Non gravelly (<15%) | 345 (53.99)
Gravelly (15-35%) | 260 (40.63)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

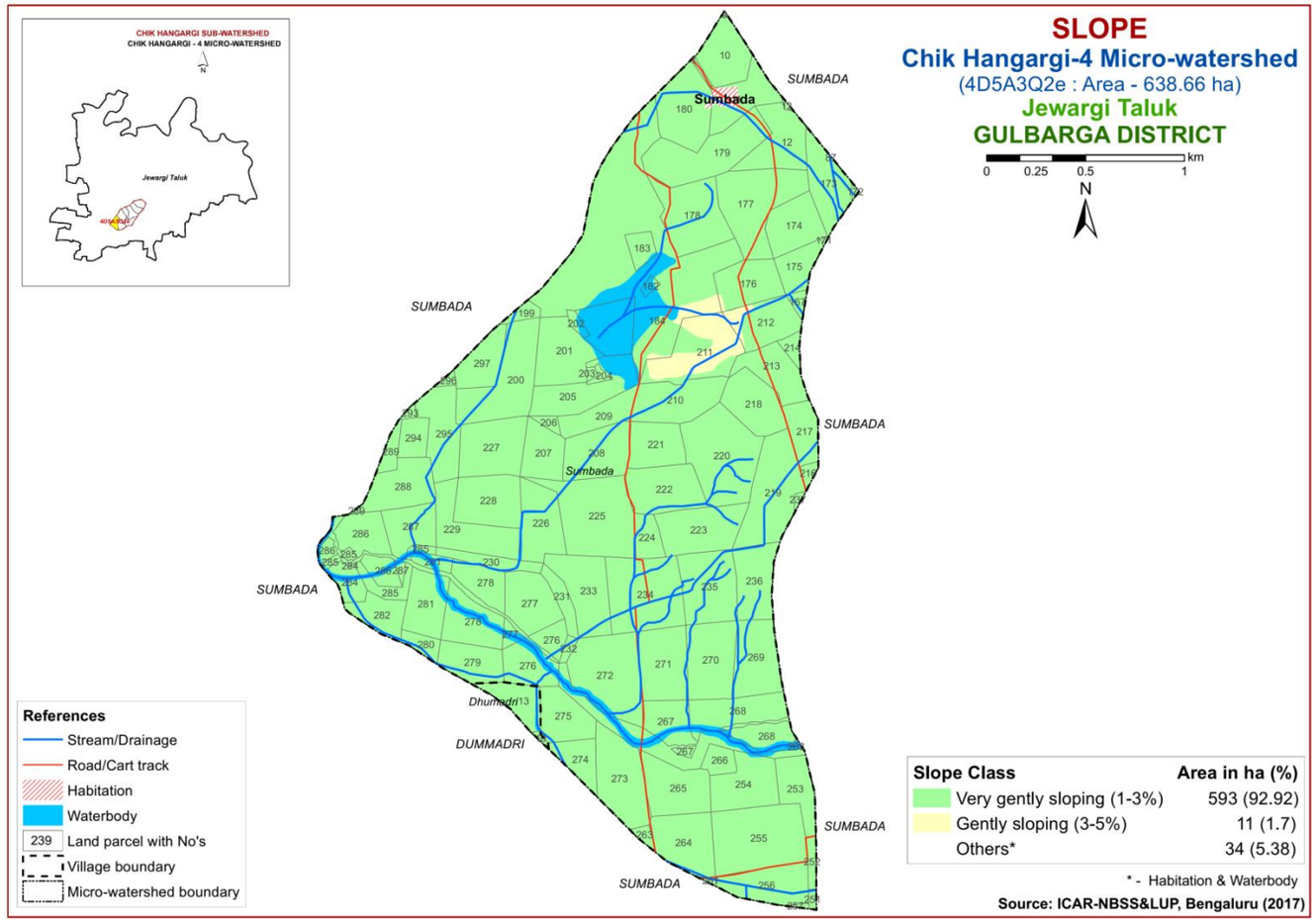

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE WATER CAPACITY
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Water Capacity | Area in ha (%)
Very low (<50 mm/m) | 277 (38.93)
Low (51-100 mm/m) | 235 (33.09)
Medium (101-150 mm/m) | 172 (24.15)
Very high (>200 mm/m) | 14 (2.0)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

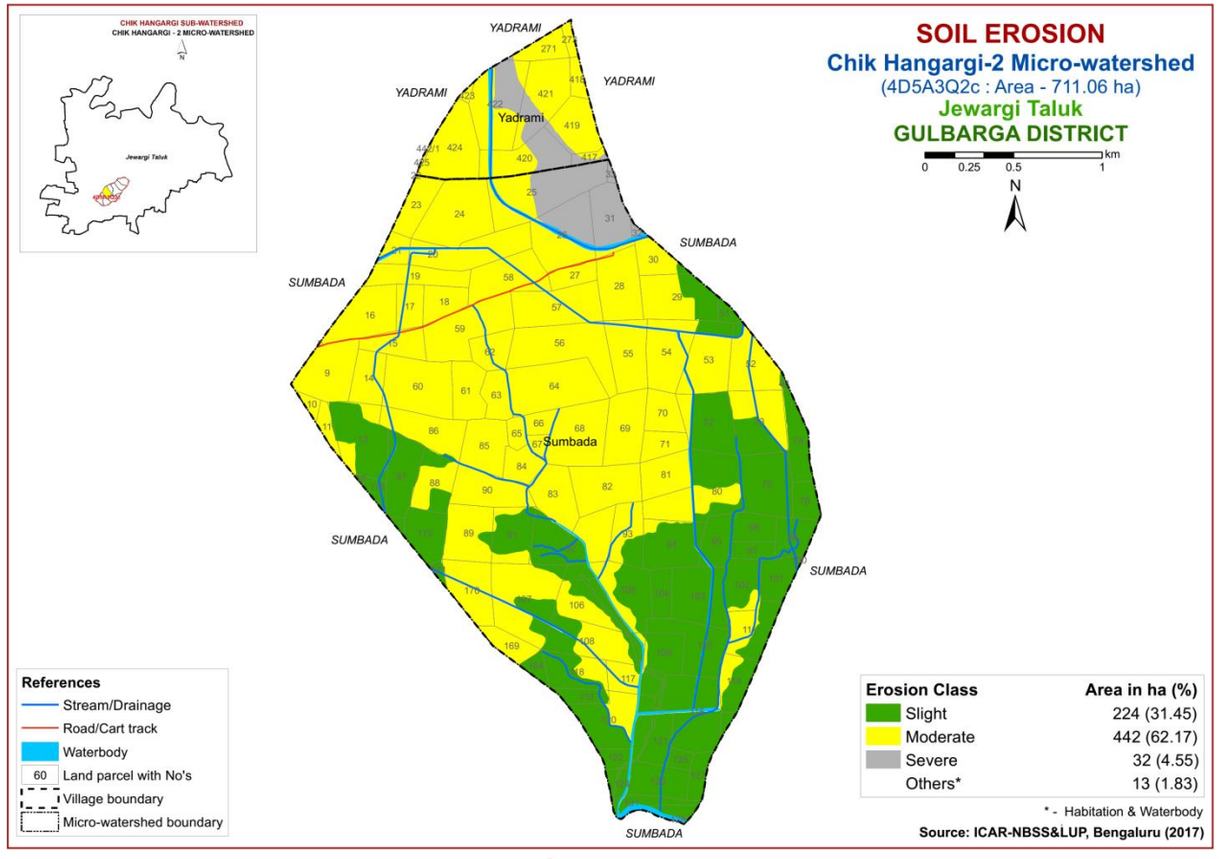

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE WATER CAPACITY
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangalgi (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Water Capacity | Area in ha (%)
Very low (<50 mm/m) | 36 (6.45)
Low (51-100 mm/m) | 107 (19.03)
Medium (101-150 mm/m) | 168 (30.01)
Very high (>200 mm/m) | 238 (42.33)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

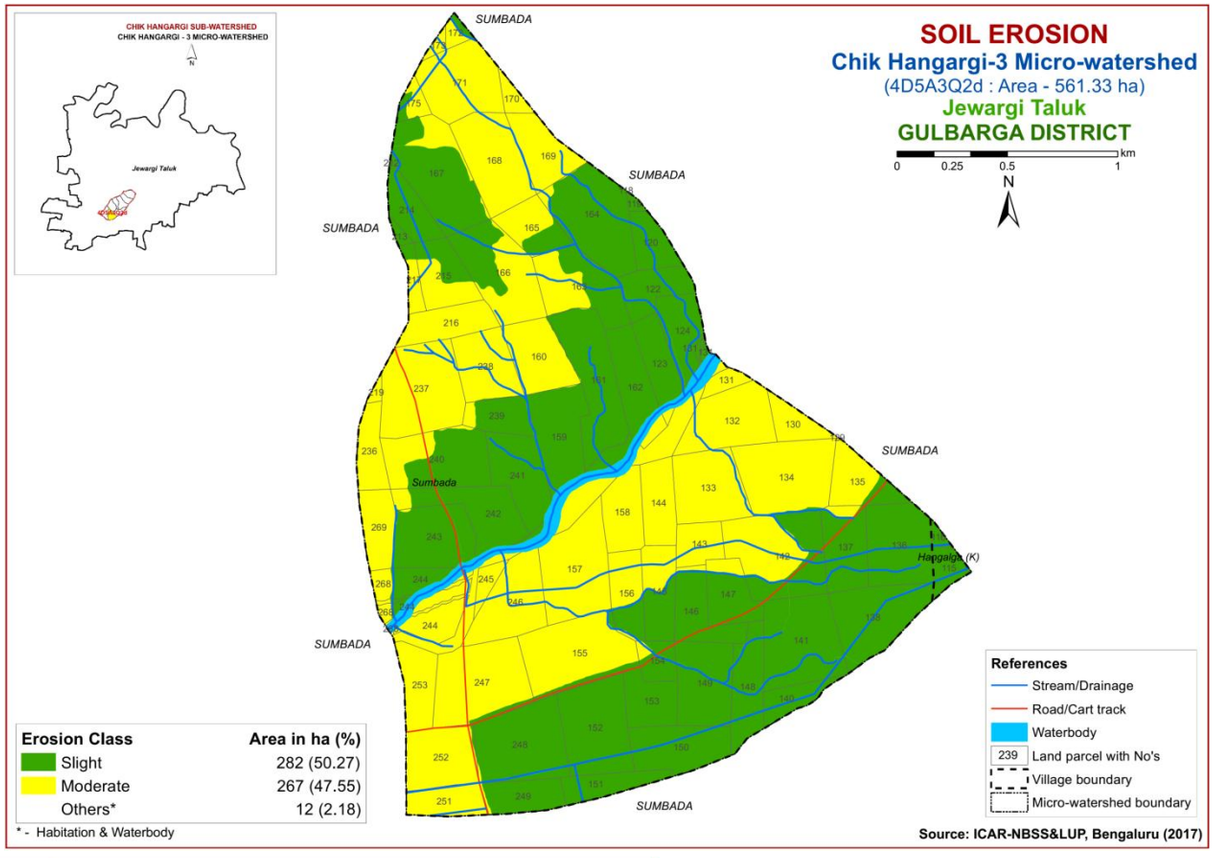

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE WATER CAPACITY
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
DUMMADRI
Dhumadri
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Water Capacity | Area in ha(%)
Very low (<50 mm/m) | 206 (32.23)
Low (51-100 mm/m) | 87 (13.65)
Medium (101-150 mm/m) | 56 (8.72)
Very high (>200 mm/m) | 256 (40.02)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

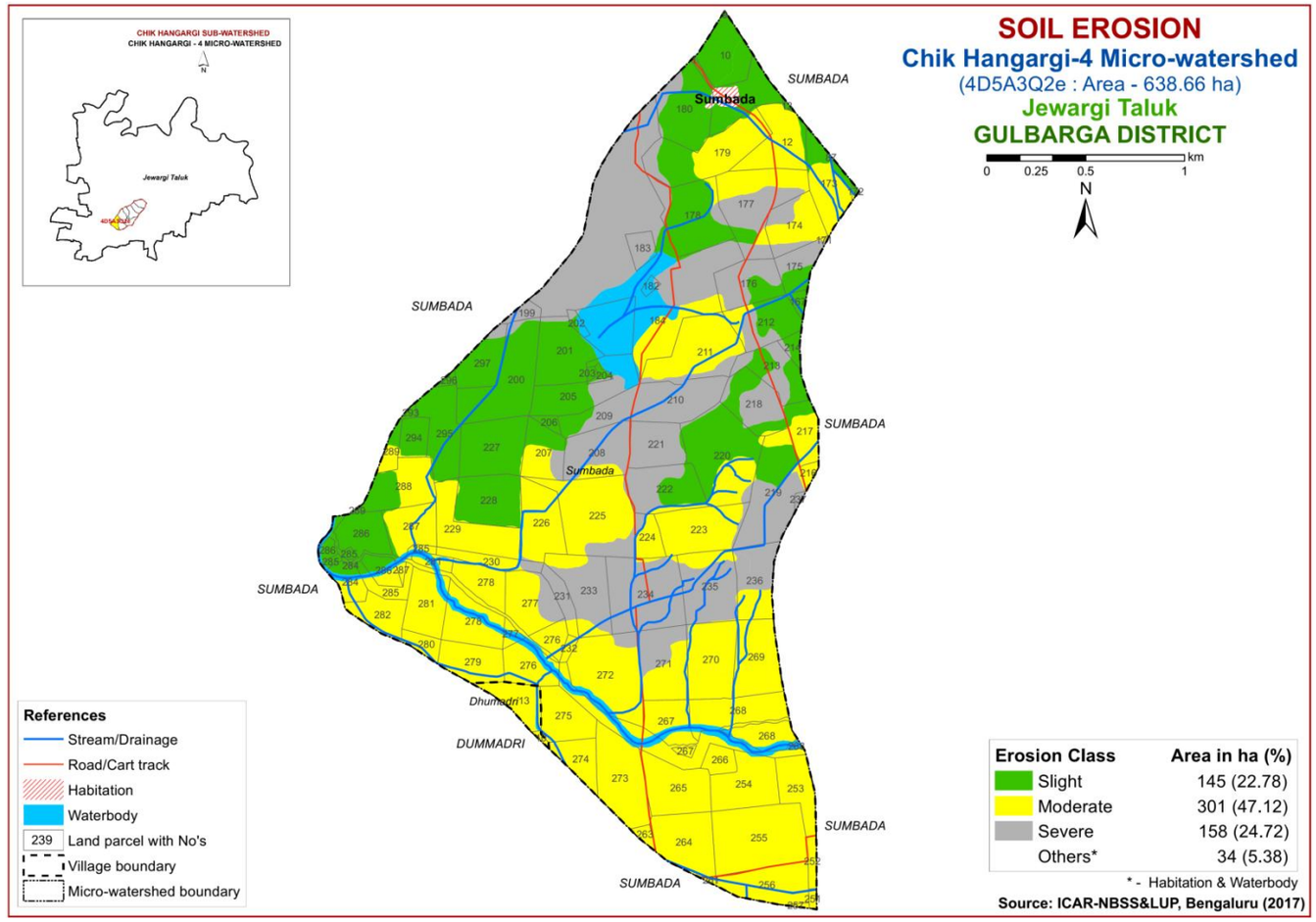

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
SLOPE
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
km
0 0.25 0.5 1
N
YADRAMI
Yadrami
SUMBADA
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Slope Class
Area in ha (%)
Very gently sloping (1-3%) 679 (95.5)
Gently sloping (3-5%) 19 (2.67)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

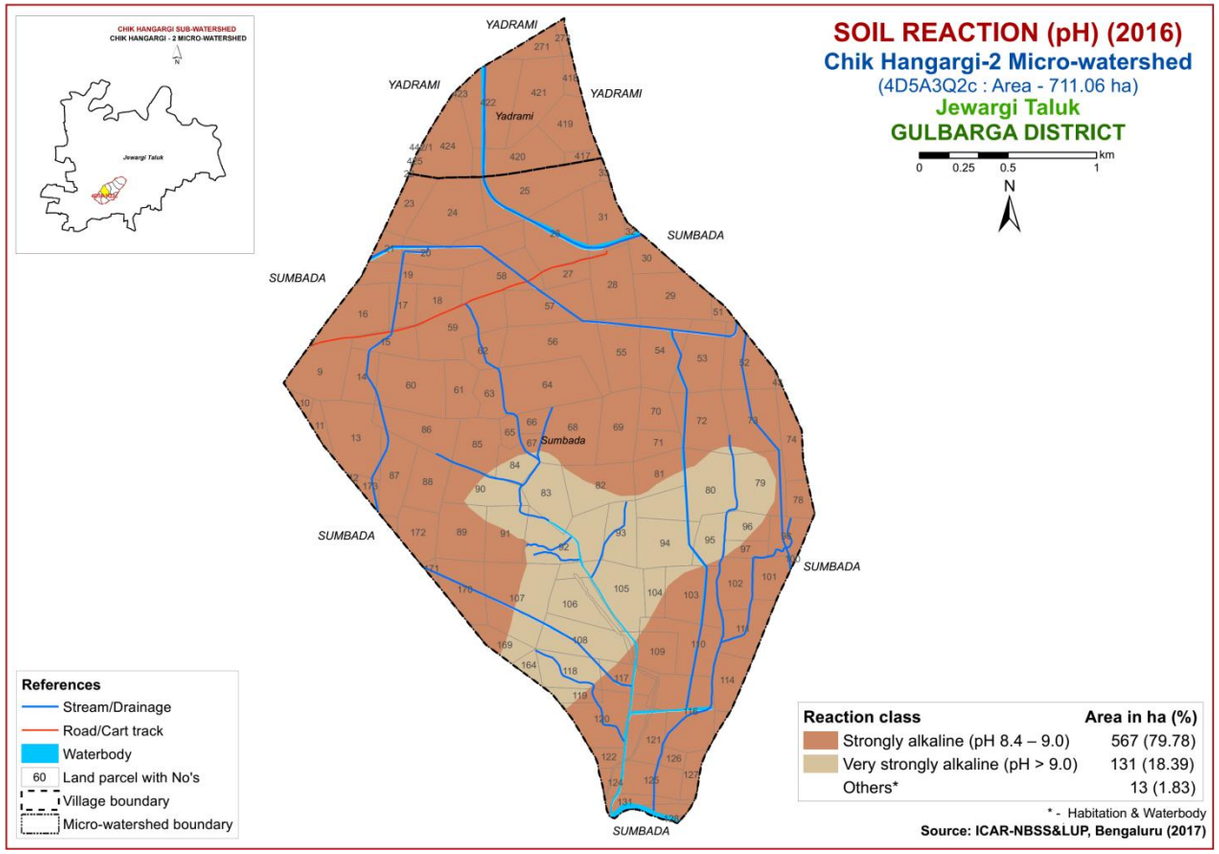

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SLOPE
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
km
0 0.25 0.5 1
N
SUMBADA
Sumbada
Hangalga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Slope Class
Area in ha (%)
Nearly level (0-1%) 112 (19.87)
Very gently sloping (1-3%) 438 (77.95)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

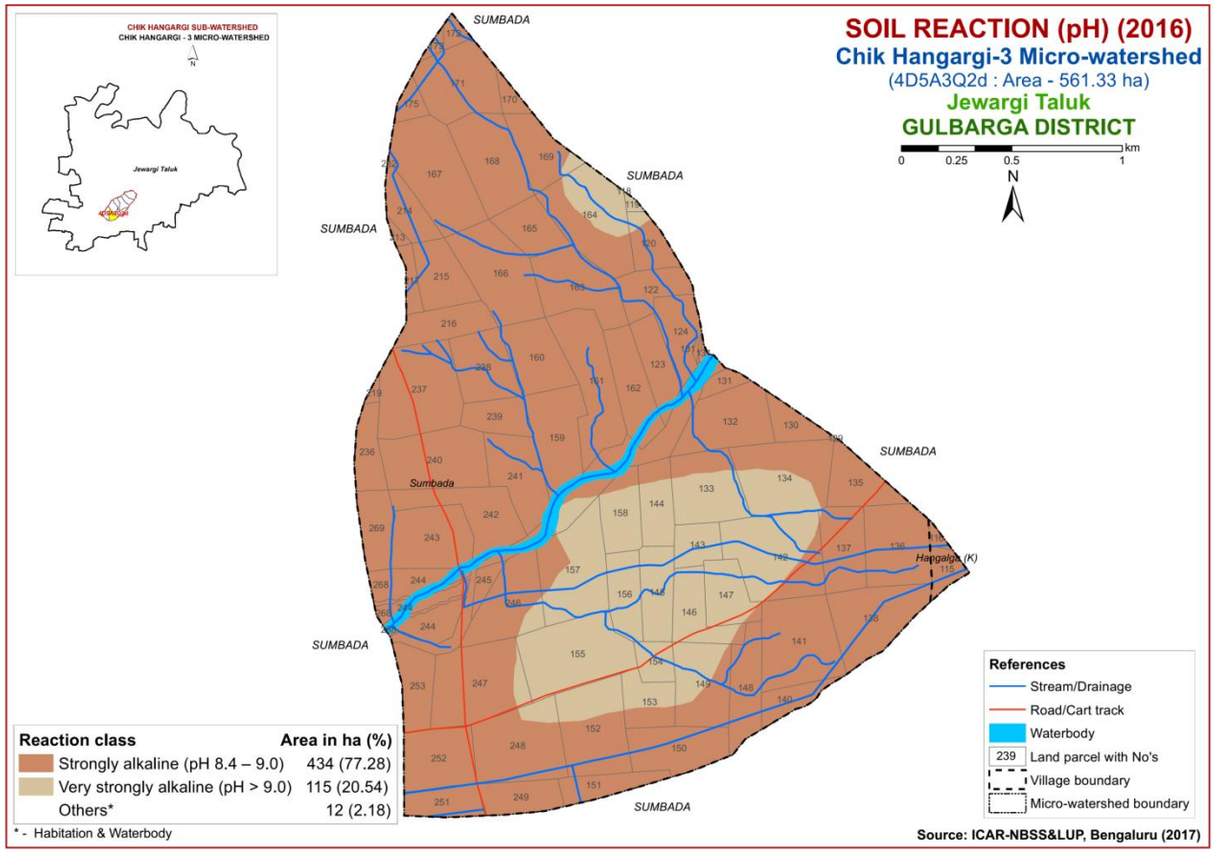

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SLOPE
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
km
0 0.25 0.5 1
N
SUMBADA
Sumbada
DUMMADRI
Dhumadri
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Slope Class
Area in ha (%)
Very gently sloping (1-3%) 593 (92.92)
Gently sloping (3-5%) 11 (1.7)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

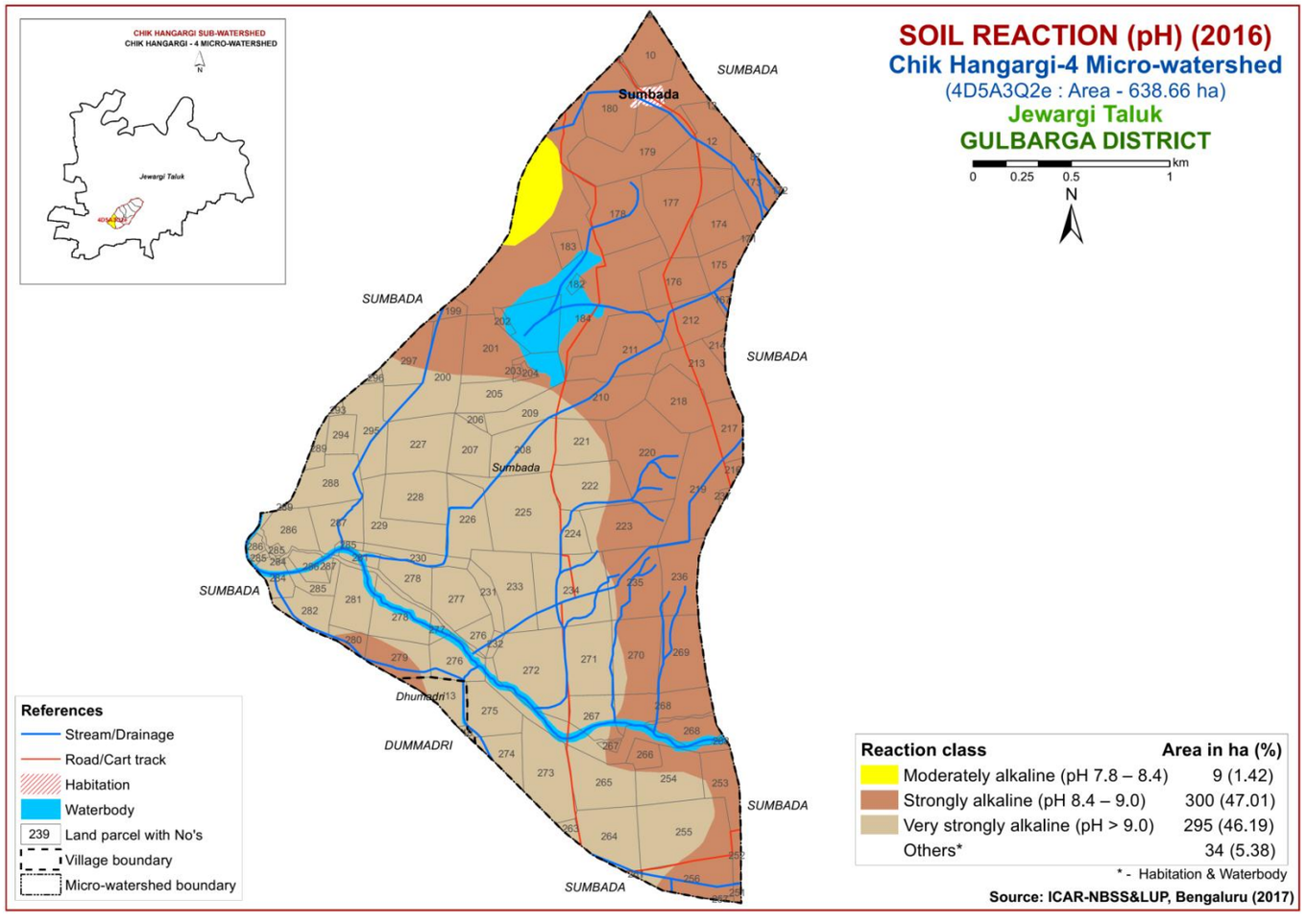

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
SOIL EROSION
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Erosion Class | Area in ha (%)
Slight | 224 (31.45)
Moderate | 442 (62.17)
Severe | 32 (4.55)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

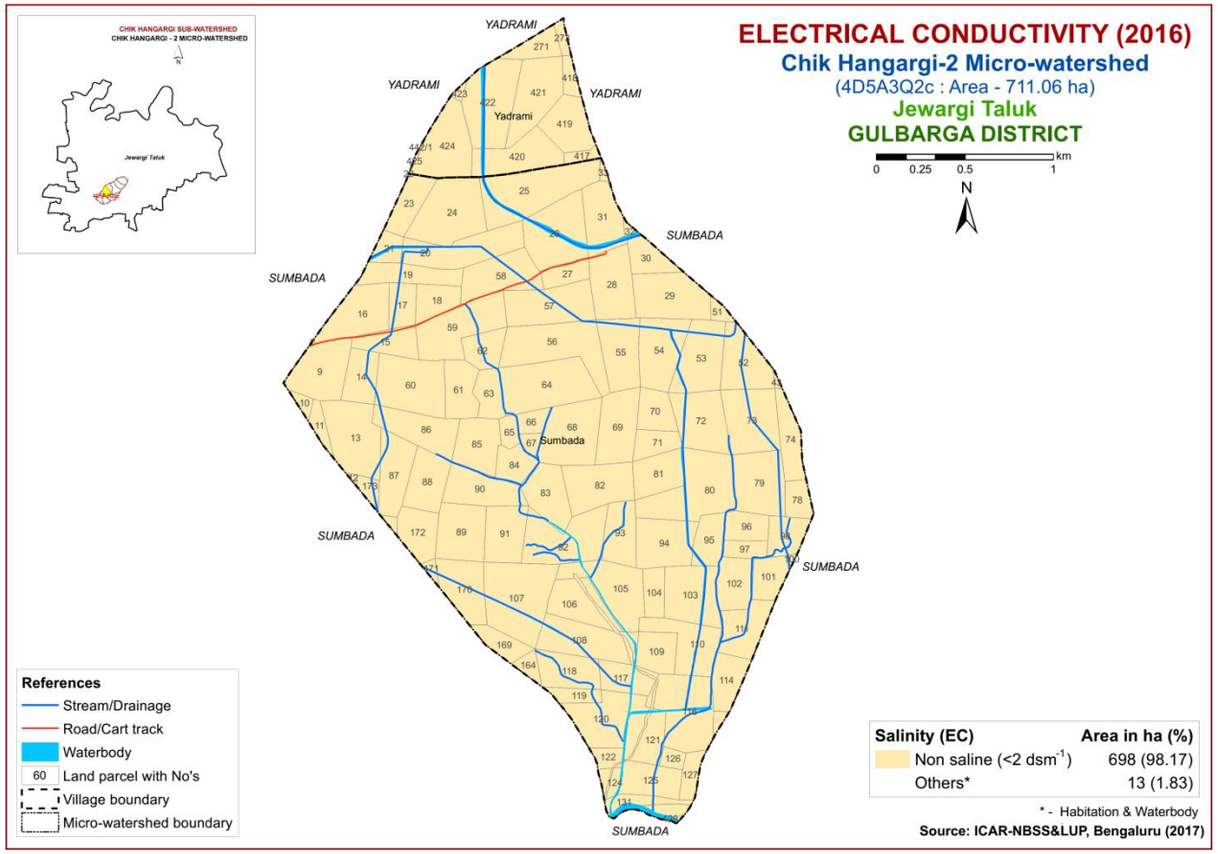

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SOIL EROSION
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangarga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Erosion Class | Area in ha (%)
Slight | 282 (50.27)
Moderate | 267 (47.55)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

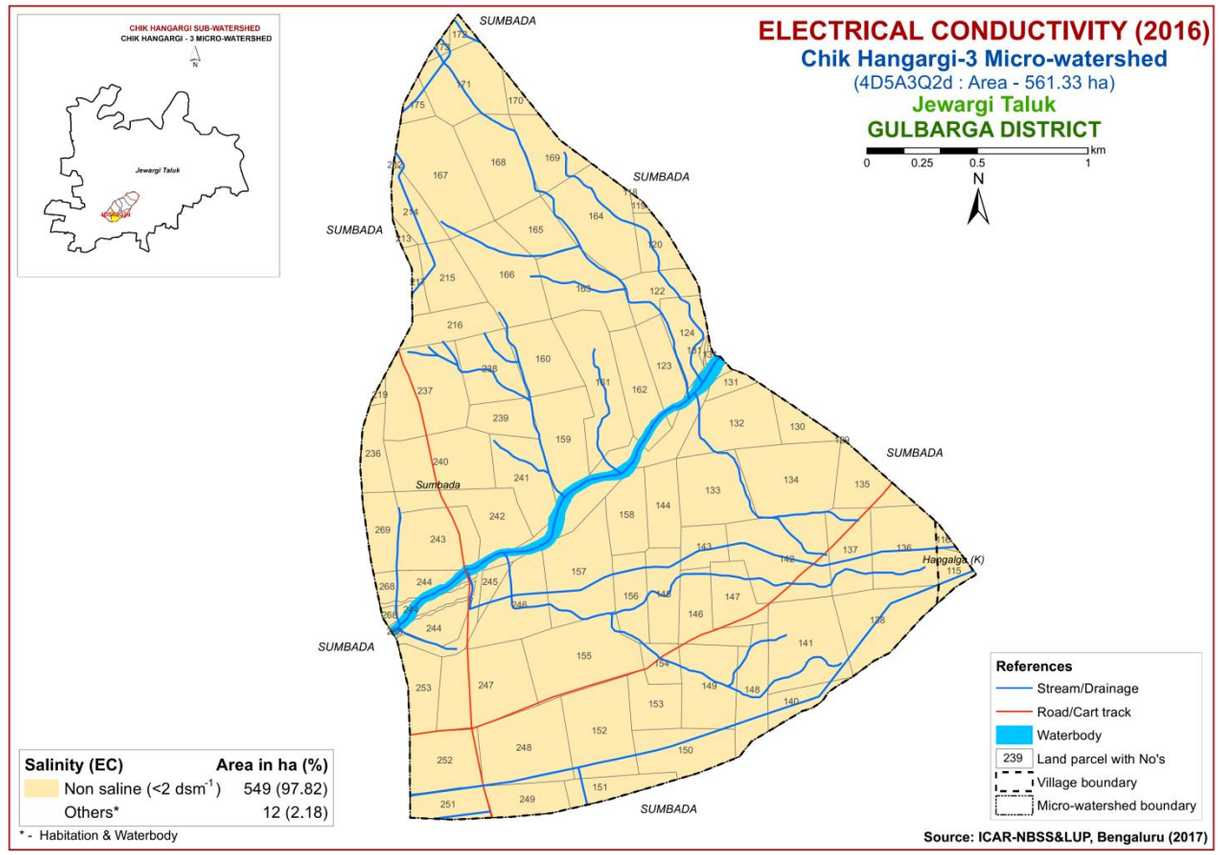

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SOIL EROSION
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
DUMMADRI
Dhumadri
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Erosion Class | Area in ha (%)
Slight | 145 (22.78)
Moderate | 301 (47.12)
Severe | 158 (24.72)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

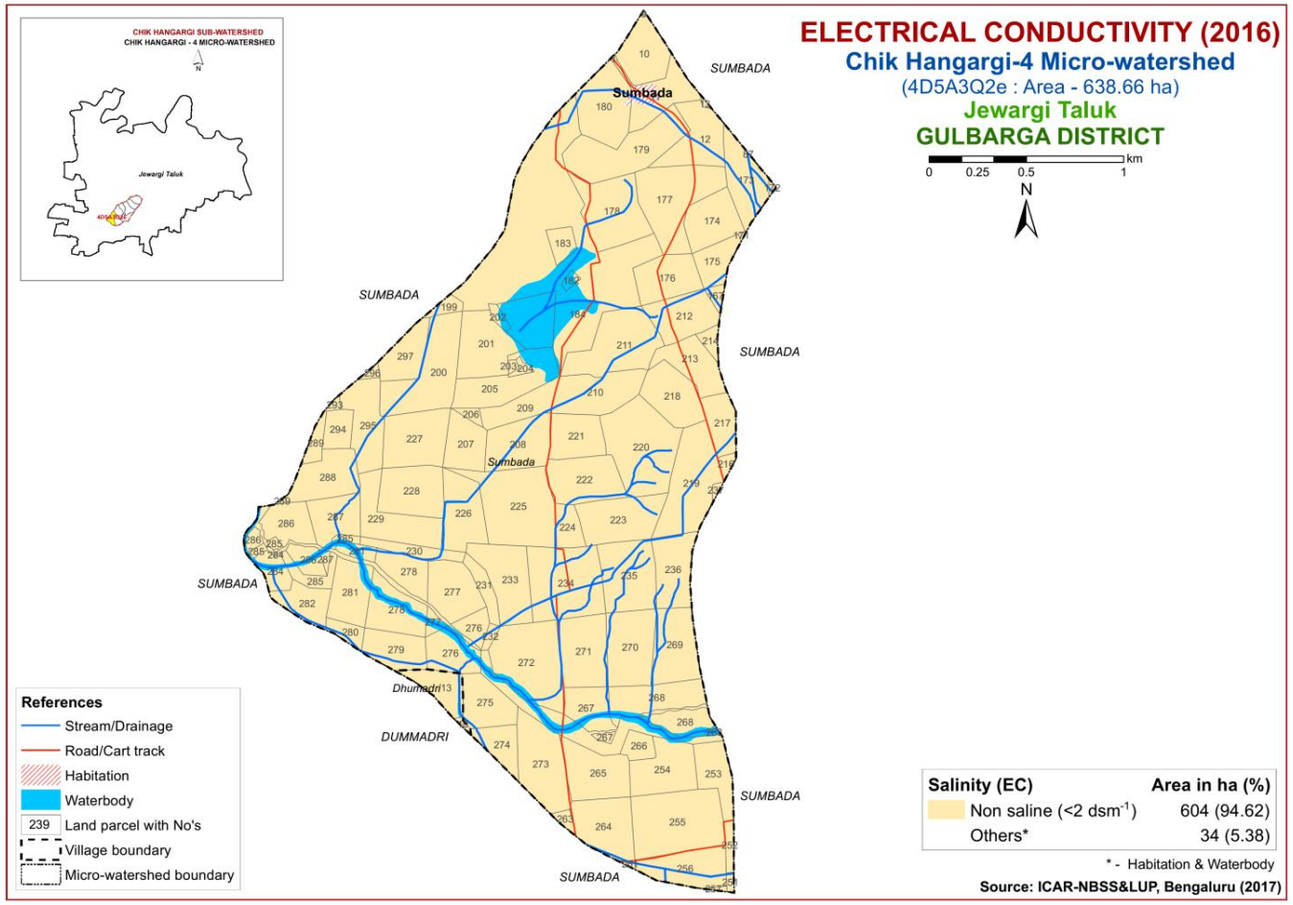

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
SOIL REACTION (pH) (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Reaction class
Area in ha (%)
Strongly alkaline (pH 8.4 – 9.0) 567 (79.78)
Very strongly alkaline (pH > 9.0) 131 (18.39)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

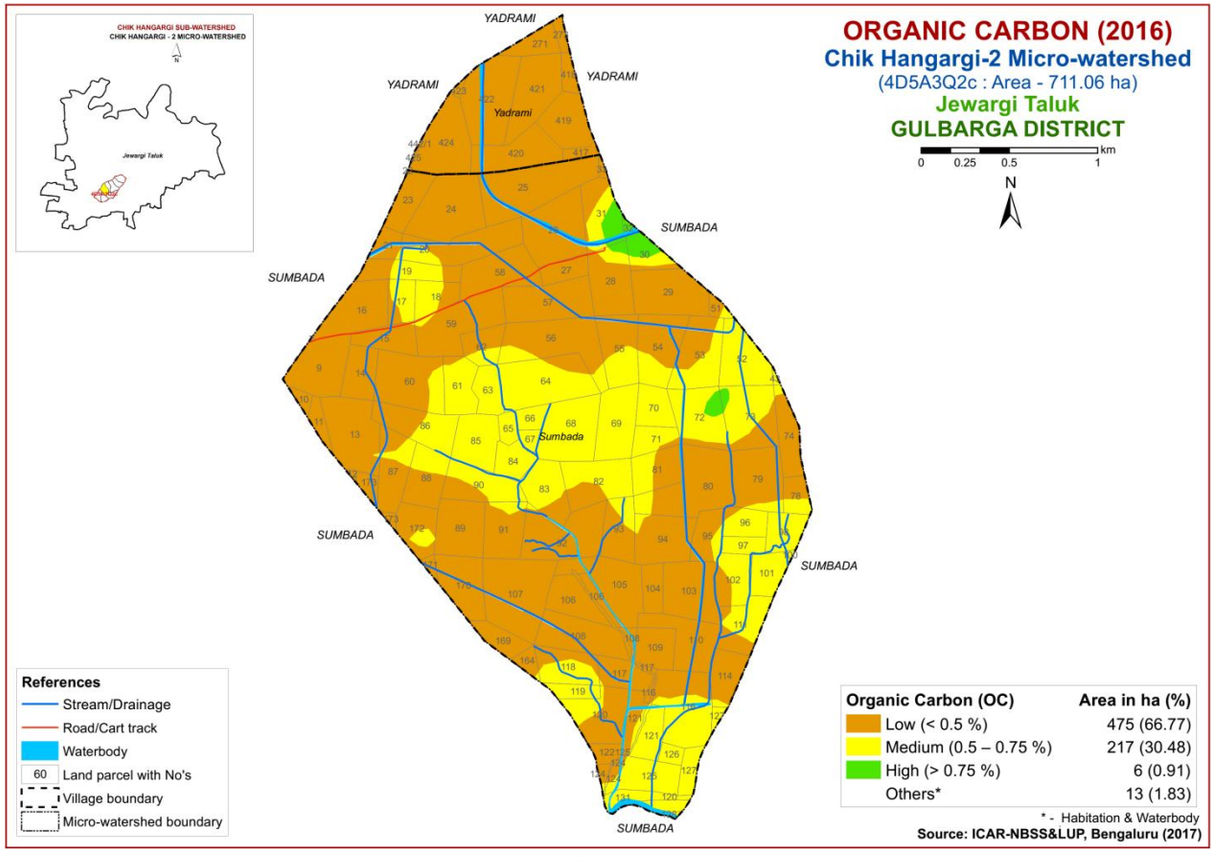

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SOIL REACTION (pH) (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hapgalga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Reaction class
Area in ha (%)
Strongly alkaline (pH 8.4 – 9.0) 434 (77.28)
Very strongly alkaline (pH > 9.0) 115 (20.54)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

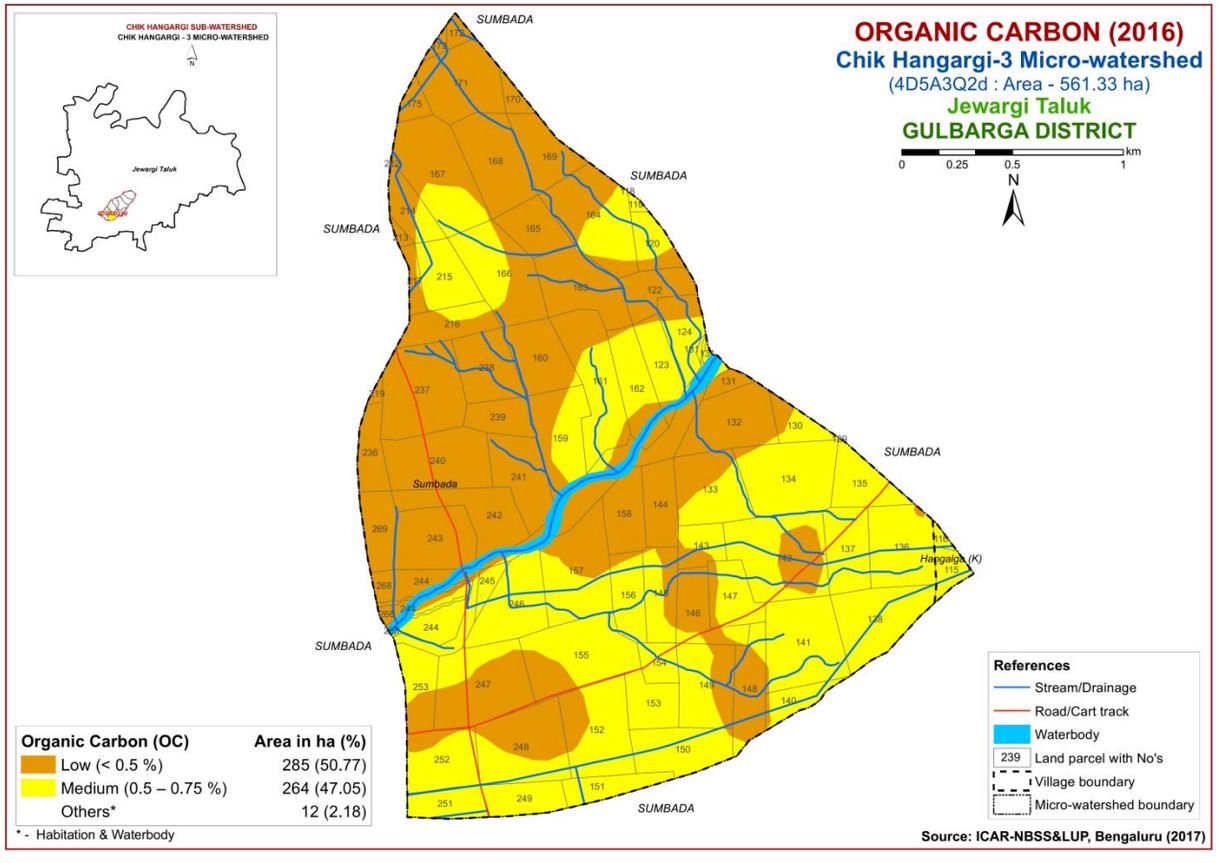

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SOIL REACTION (pH) (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Dhumadri
DUMMADRI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Reaction class
Area in ha (%)
Moderately alkaline (pH 7.8 – 8.4) 9 (1.42)
Strongly alkaline (pH 8.4 – 9.0) 300 (47.01)
Very strongly alkaline (pH > 9.0) 295 (46.19)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

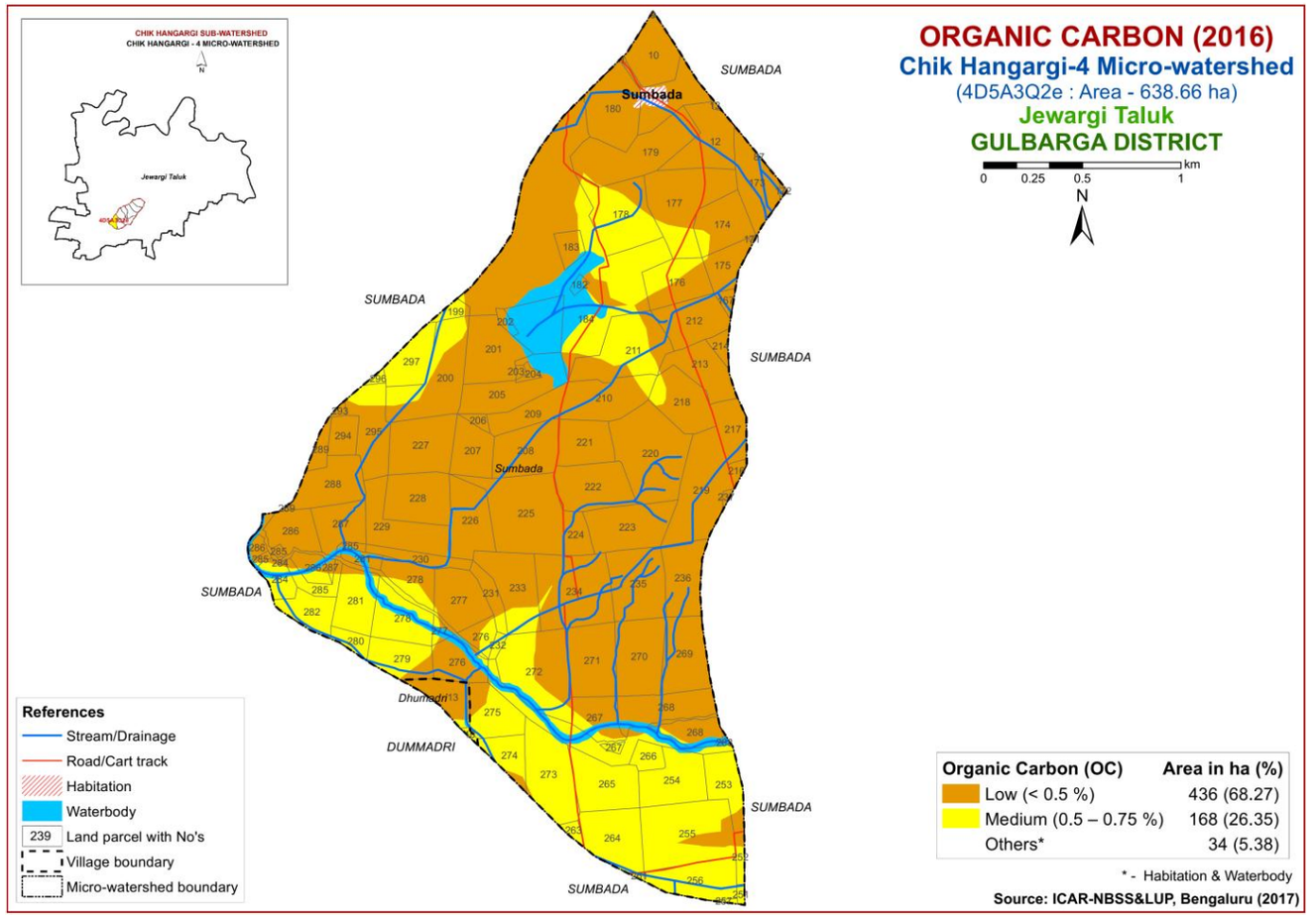

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
ELECTRICAL CONDUCTIVITY (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Salinity (EC) Area in ha (%)
Non saline (<2 dsm-1) 698 (98.17)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

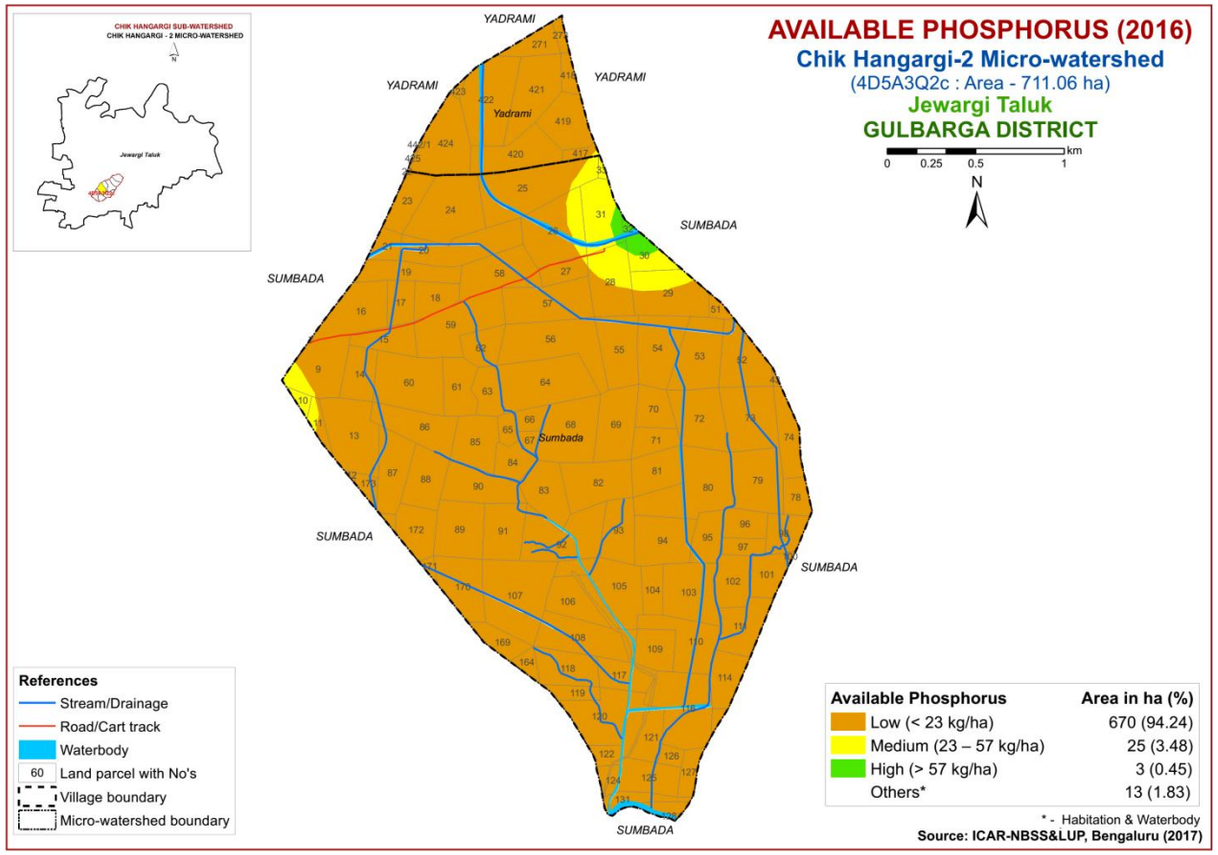

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
ELECTRICAL CONDUCTIVITY (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangalga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Salinity (EC) Area in ha (%)
Non saline (<2 dsm-1) 549 (97.82)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

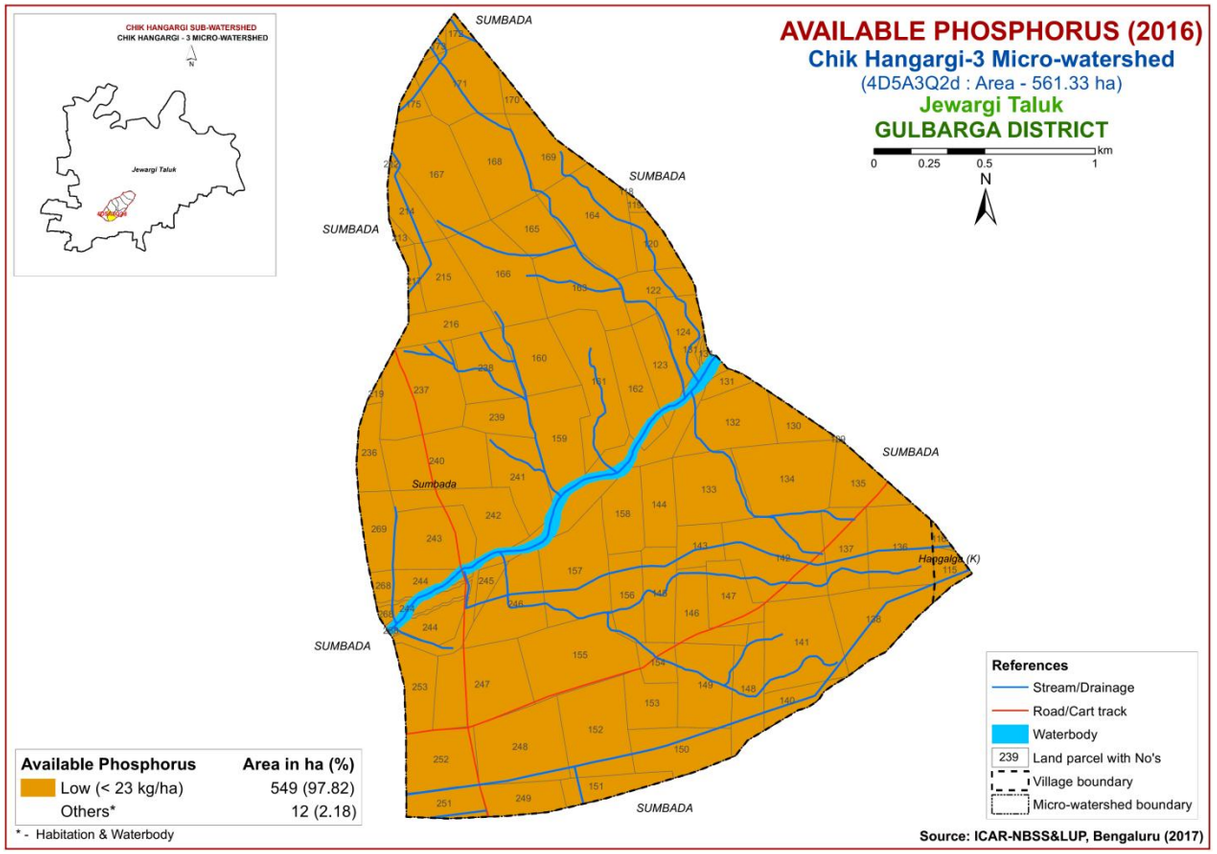

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
ELECTRICAL CONDUCTIVITY (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Dhumadri
DUMMADRI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Salinity (EC) Area in ha (%)
Non saline (<2 dsm-1) 604 (94.62)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

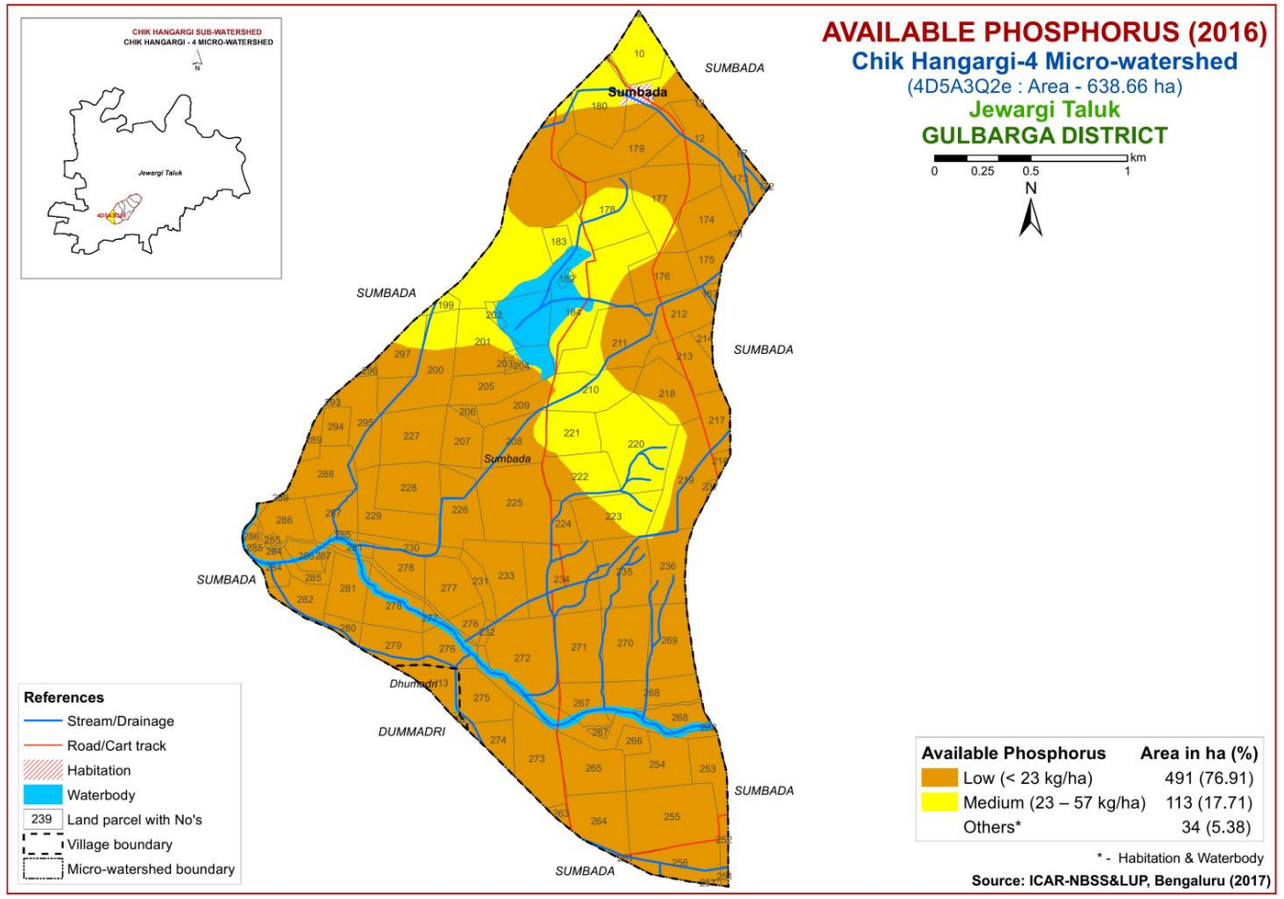

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
YADRAMI
Yadrami
SUMBADA
Sumbada
ORGANIC CARBON (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Organic Carbon (OC) Area in ha (%)
Low (< 0.5 %) 475 (66.77)
Medium (0.5 – 0.75 %) 217 (30.48)
High (> 0.75 %) 6 (0.91)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

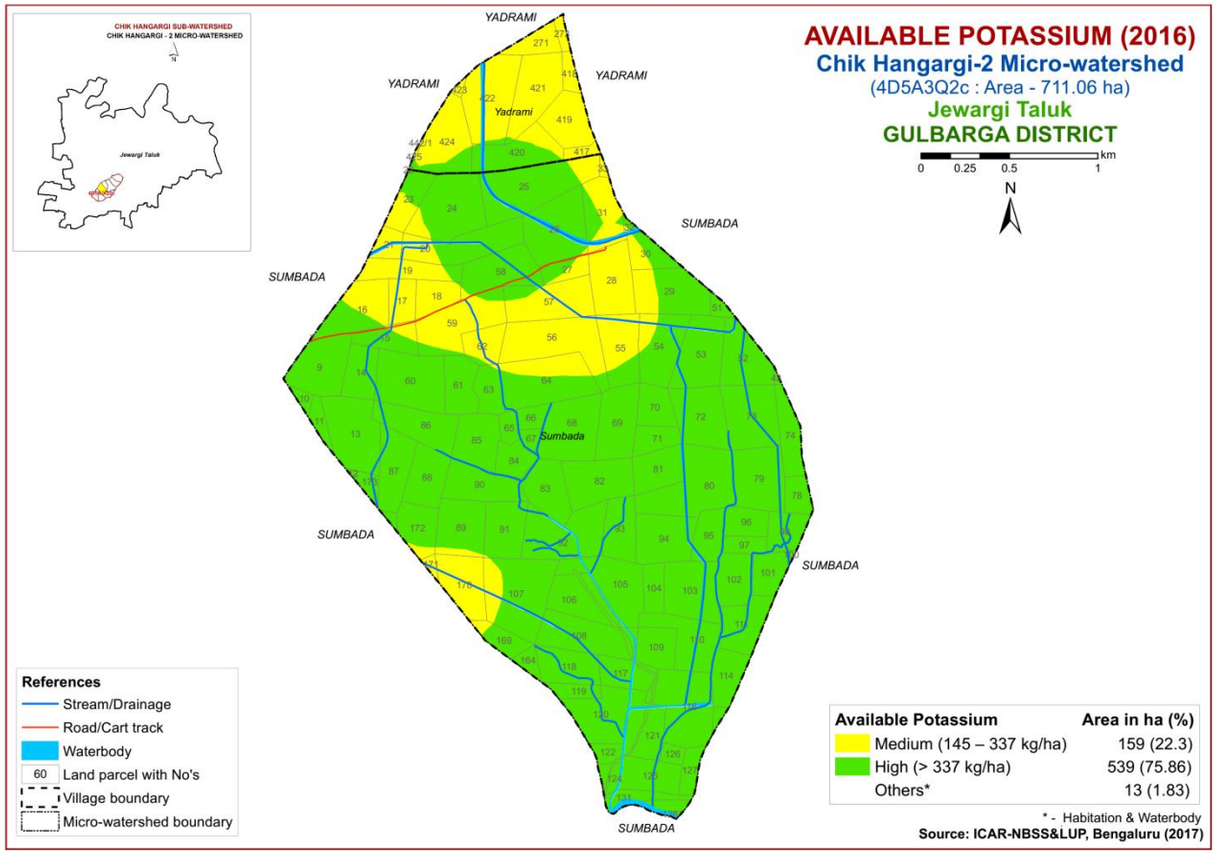

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
Sumbada
Hangalga (K)
ORGANIC CARBON (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Organic Carbon (OC) Area in ha (%)
Low (< 0.5 %) 285 (50.77)
Medium (0.5 – 0.75 %) 264 (47.05)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

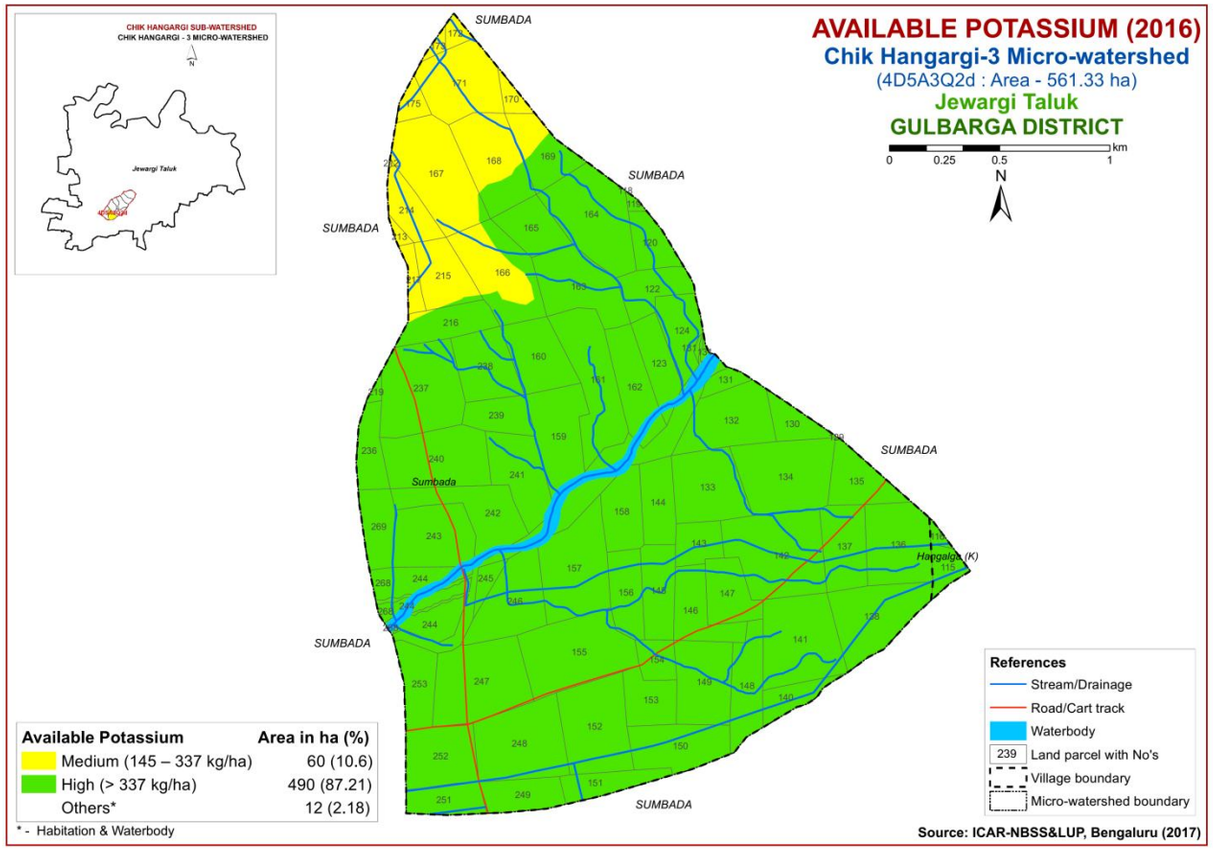

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
Sumbada
DUMMADRI
Dhummadri
ORGANIC CARBON (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Organic Carbon (OC) Area in ha (%)
Low (< 0.5 %) 436 (68.27)
Medium (0.5 – 0.75 %) 168 (26.35)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

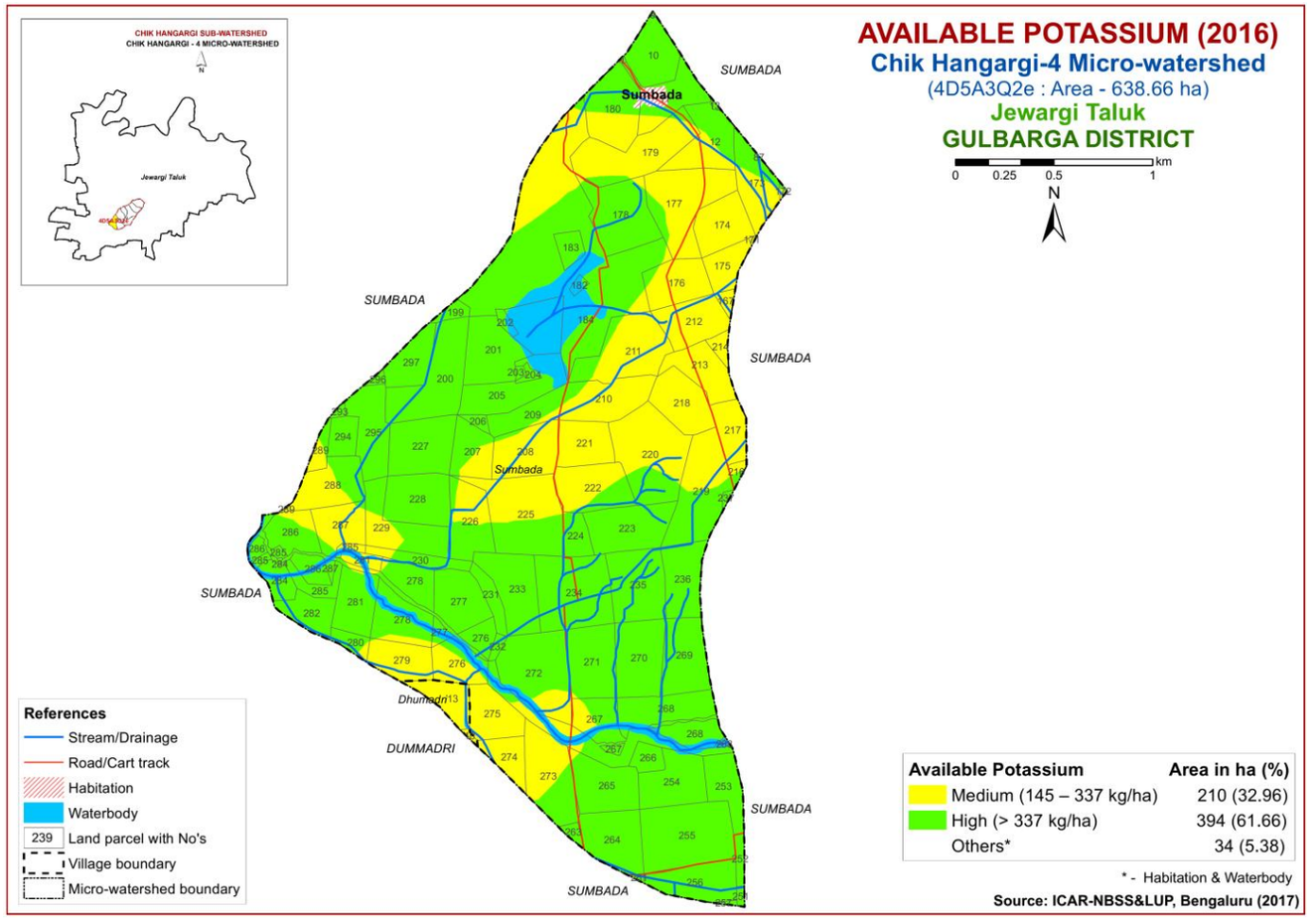

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE PHOSPHORUS (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Phosphorus | Area in ha (%)
Low (< 23 kg/ha) | 670 (94.24)
Medium (23 – 57 kg/ha) | 25 (3.48)
High (> 57 kg/ha) | 3 (0.45)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

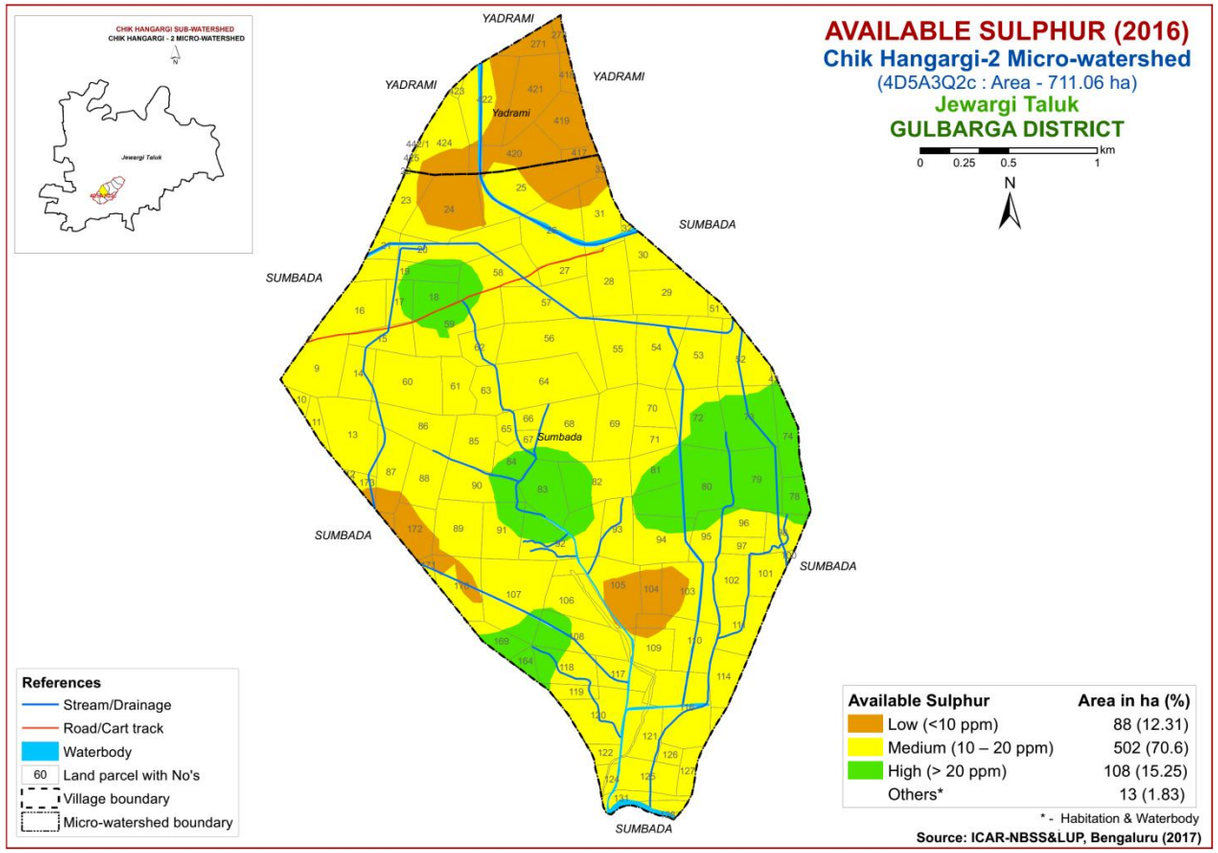

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE PHOSPHORUS (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangalga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Phosphorus | Area in ha (%)
Low (< 23 kg/ha) | 549 (97.82)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

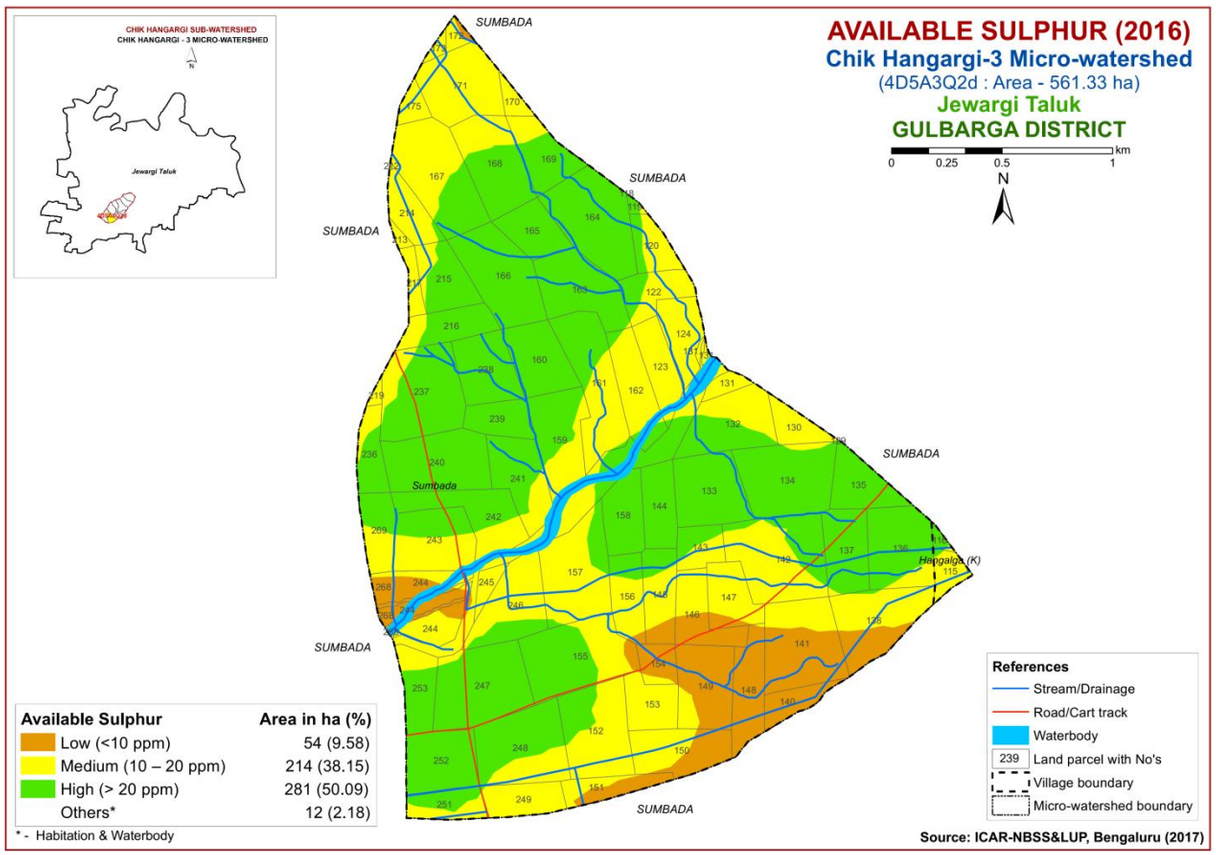

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE PHOSPHORUS (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Dhummadri
DUMMADRI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Phosphorus | Area in ha (%)
Low (< 23 kg/ha) | 491 (76.91)
Medium (23 – 57 kg/ha) | 113 (17.71)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

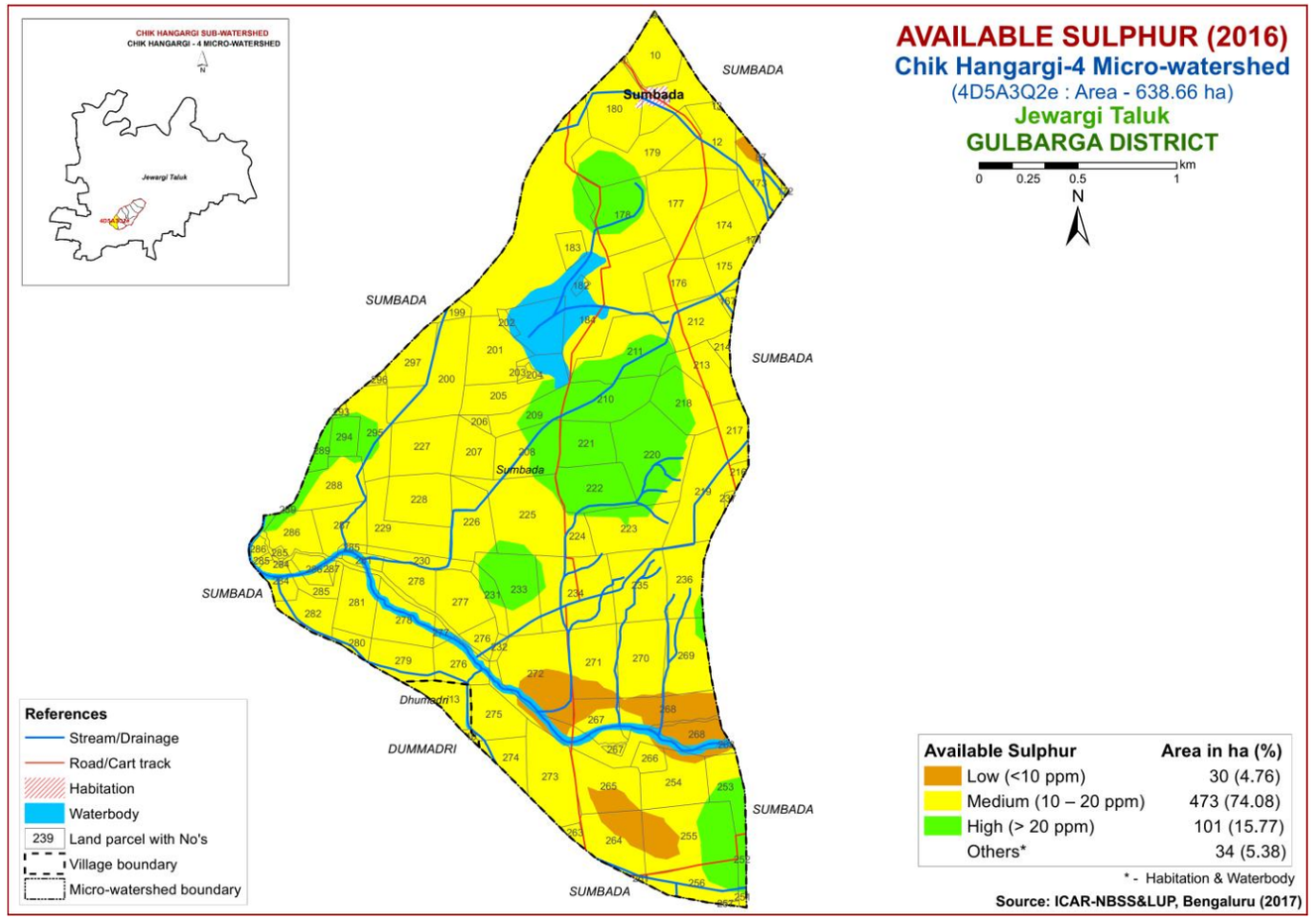

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE POTASSIUM (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Potassium | Area in ha (%)
Medium (145 – 337 kg/ha) | 159 (22.3)
High (> 337 kg/ha) | 539 (75.86)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

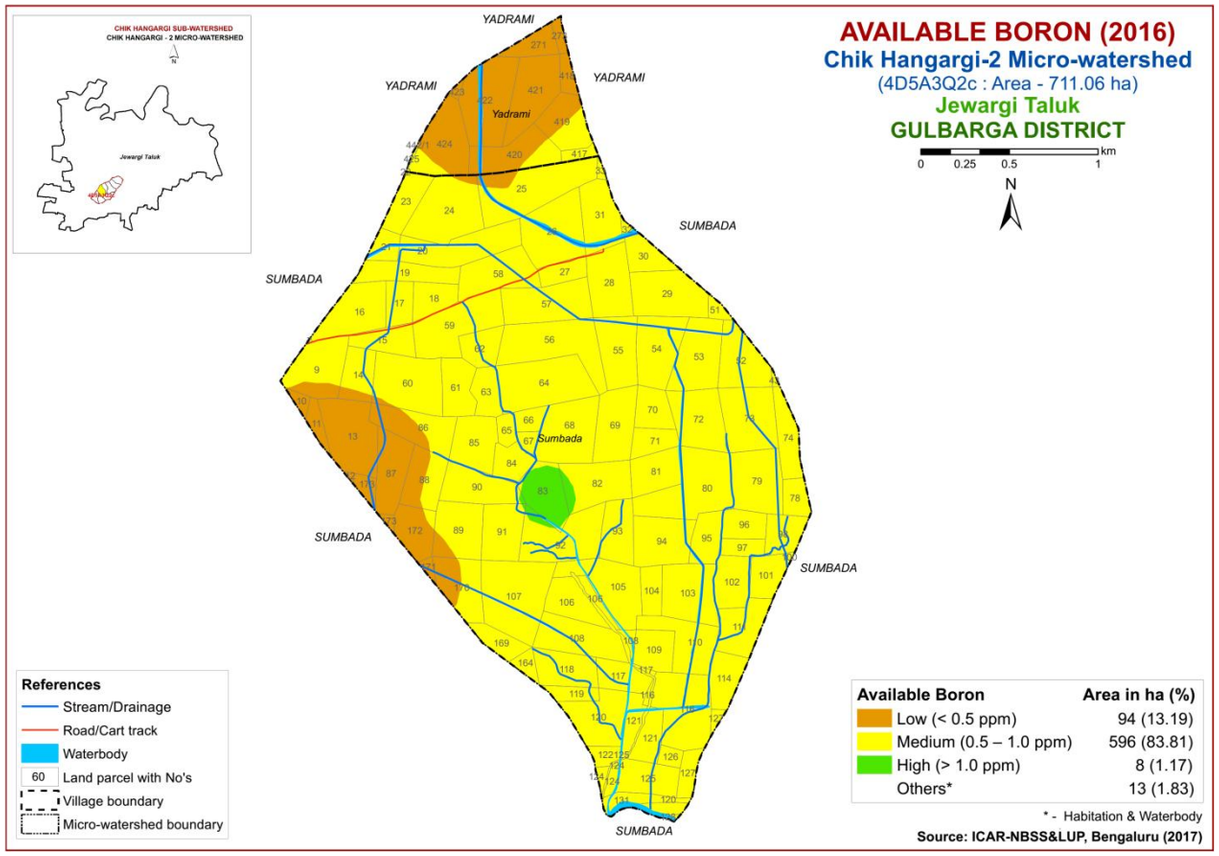

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE POTASSIUM (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangalga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Potassium | Area in ha (%)
Medium (145 – 337 kg/ha) | 60 (10.6)
High (> 337 kg/ha) | 490 (87.21)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

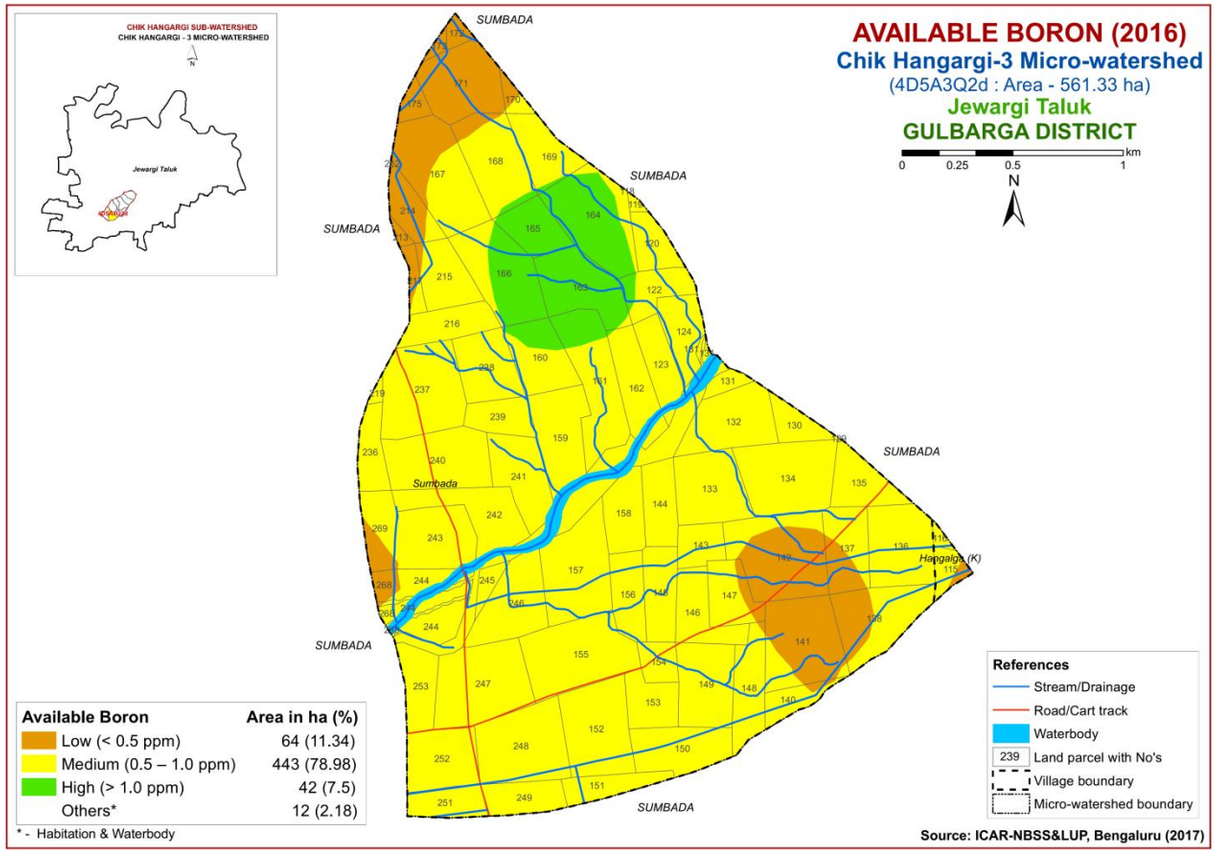

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE POTASSIUM (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
DUMMADRI
Dhummadri
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Potassium | Area in ha (%)
Medium (145 – 337 kg/ha) | 210 (32.96)
High (> 337 kg/ha) | 394 (61.66)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

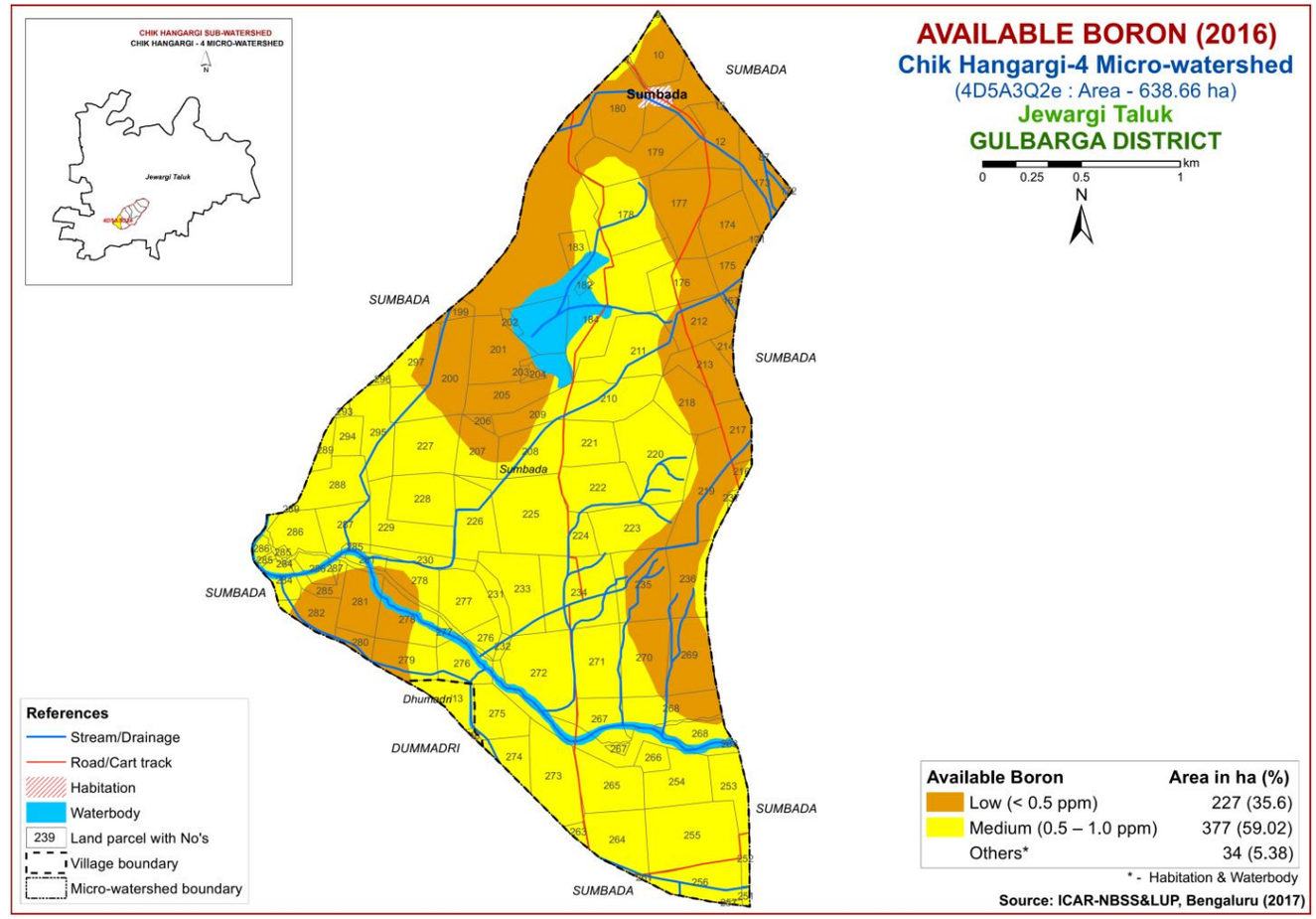

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
YADRAMI
SUMBADA
Yadrami
Sumbada
AVAILABLE SULPHUR (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Sulphur | Area in ha (%)
Low (<10 ppm) | 88 (12.31)
Medium (10 – 20 ppm) | 502 (70.6)
High (> 20 ppm) | 108 (15.25)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

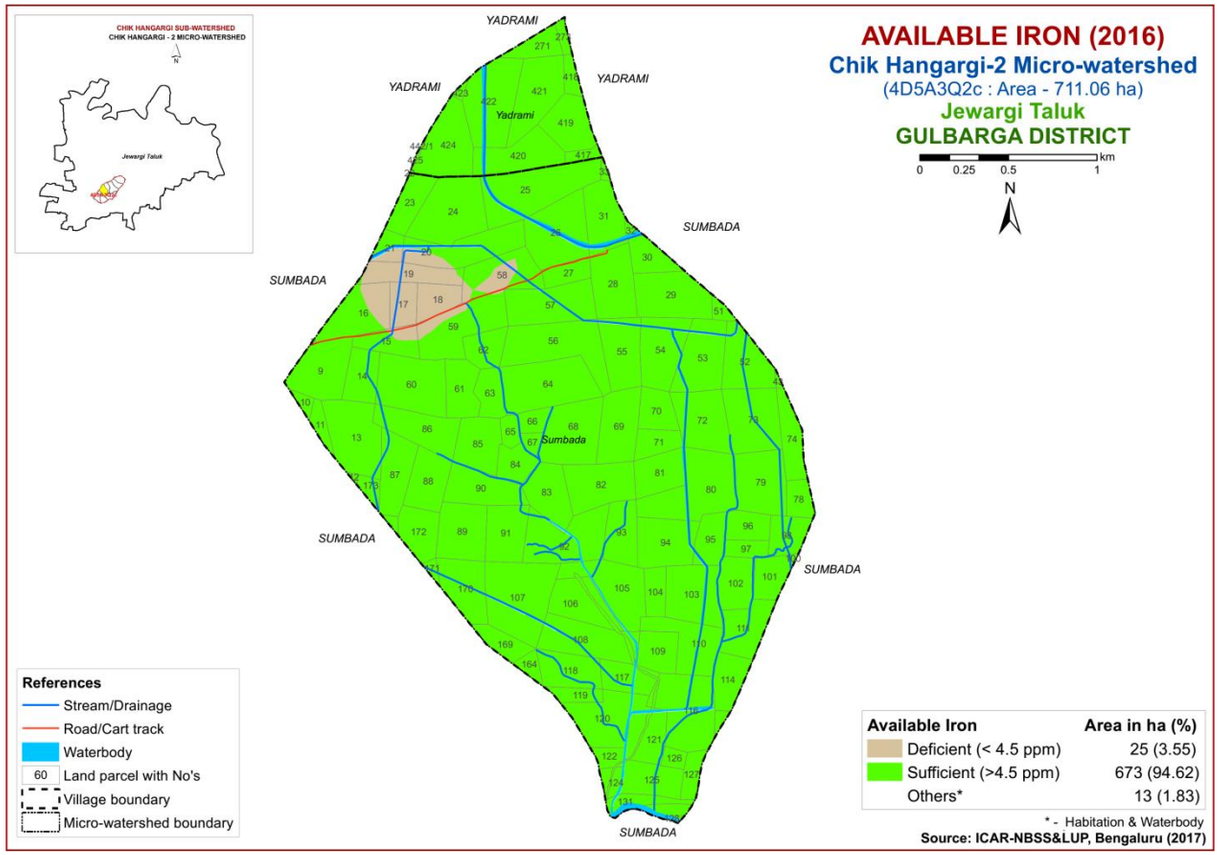

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
Sumbada
Hangarga (K)
AVAILABLE SULPHUR (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Sulphur | Area in ha (%)
Low (<10 ppm) | 54 (9.58)
Medium (10 – 20 ppm) | 214 (38.15)
High (> 20 ppm) | 281 (50.09)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

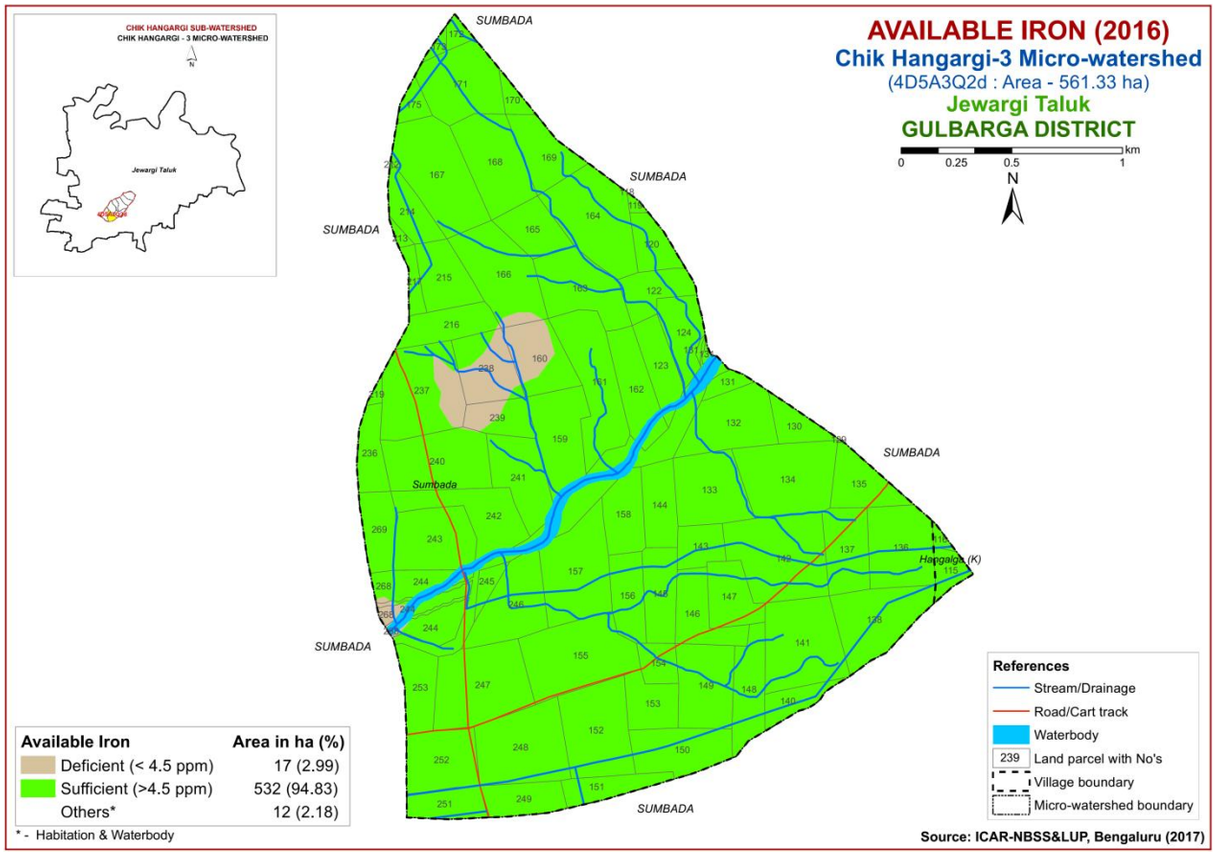

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
Sumbada
DUMMADRI
Dhummadri
AVAILABLE SULPHUR (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Sulphur | Area in ha (%)
Low (<10 ppm) | 30 (4.76)
Medium (10 – 20 ppm) | 473 (74.08)
High (> 20 ppm) | 101 (15.77)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

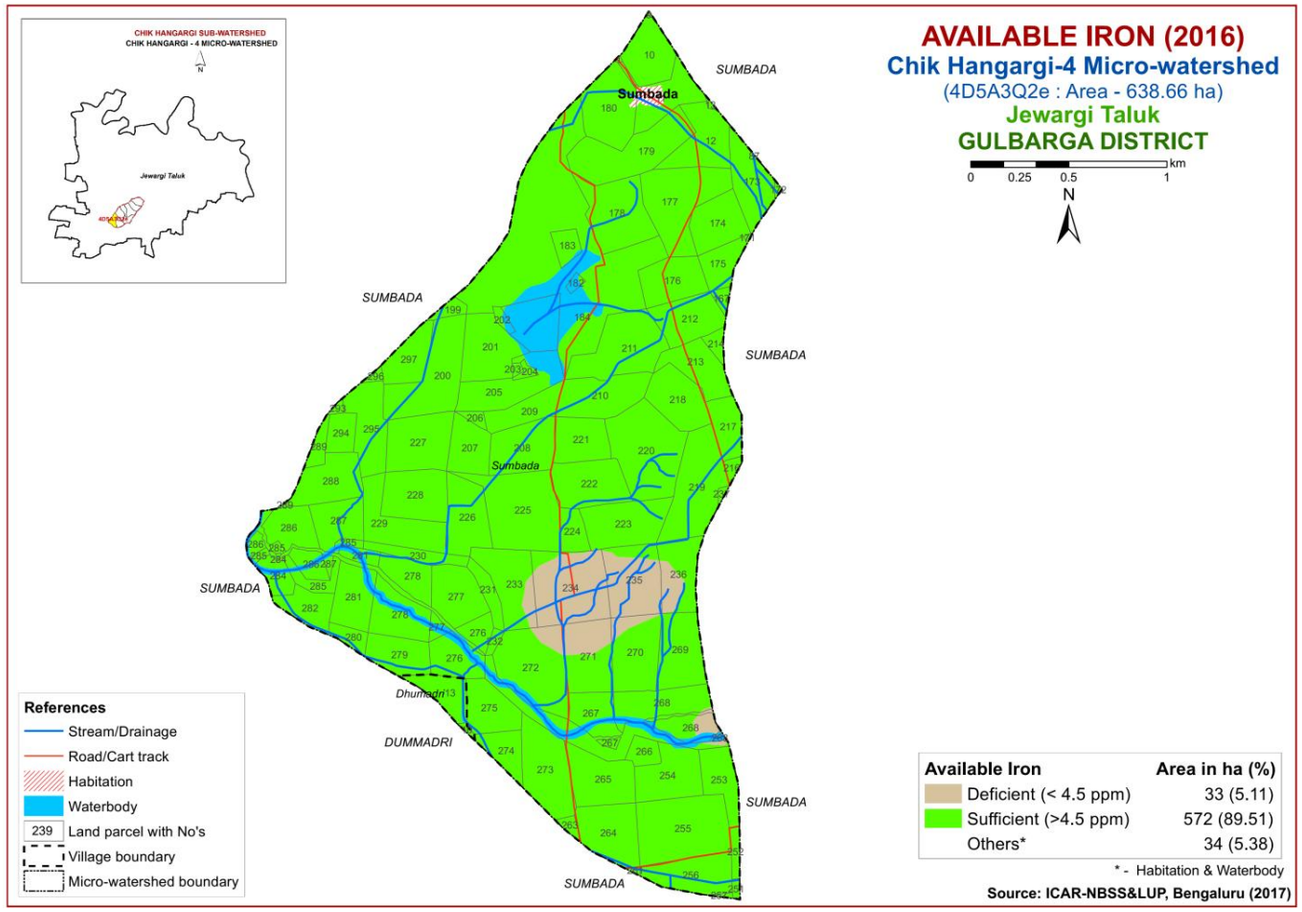

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE BORON (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Boron | Area in ha (%)
Low (< 0.5 ppm) | 94 (13.19)
Medium (0.5 – 1.0 ppm) | 596 (83.81)
High (> 1.0 ppm) | 8 (1.17)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

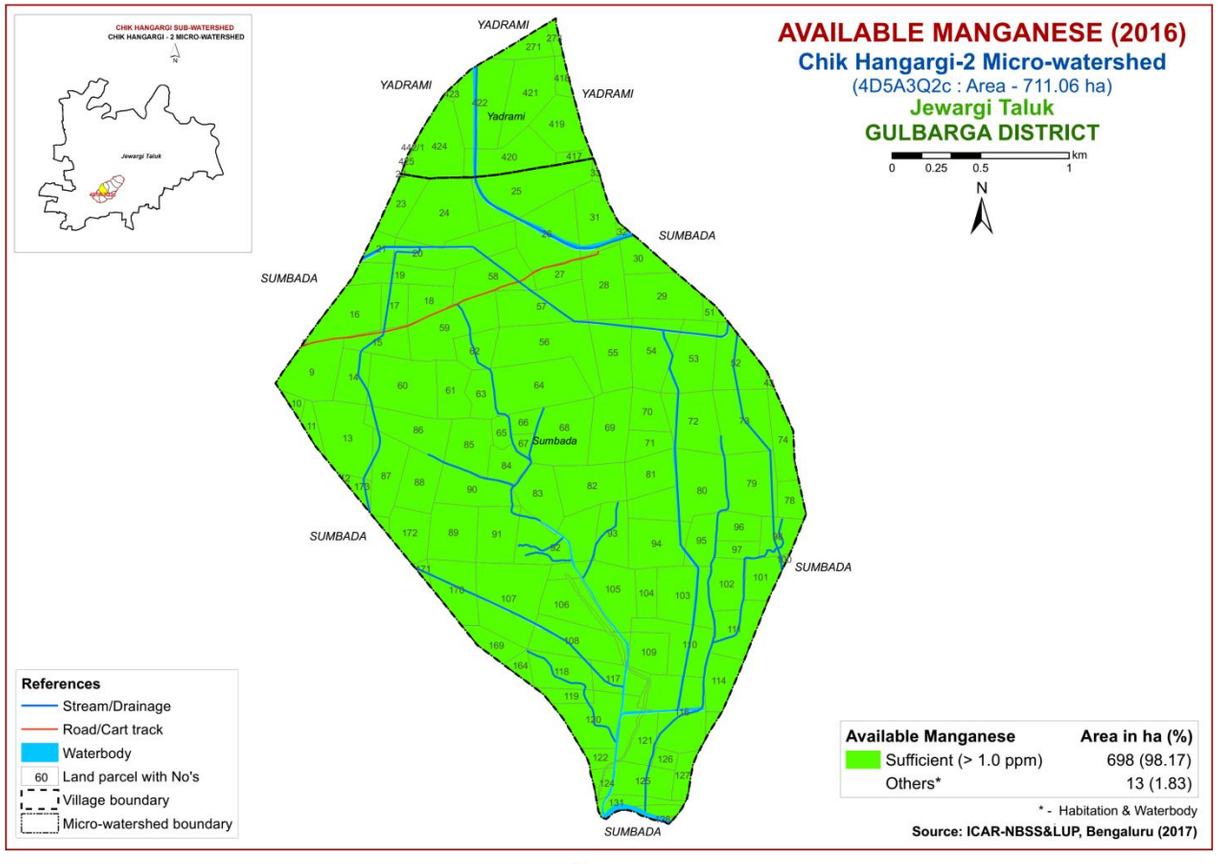

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE BORON (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangalga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Boron | Area in ha (%)
Low (< 0.5 ppm) | 64 (11.34)
Medium (0.5 – 1.0 ppm) | 443 (78.98)
High (> 1.0 ppm) | 42 (7.5)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

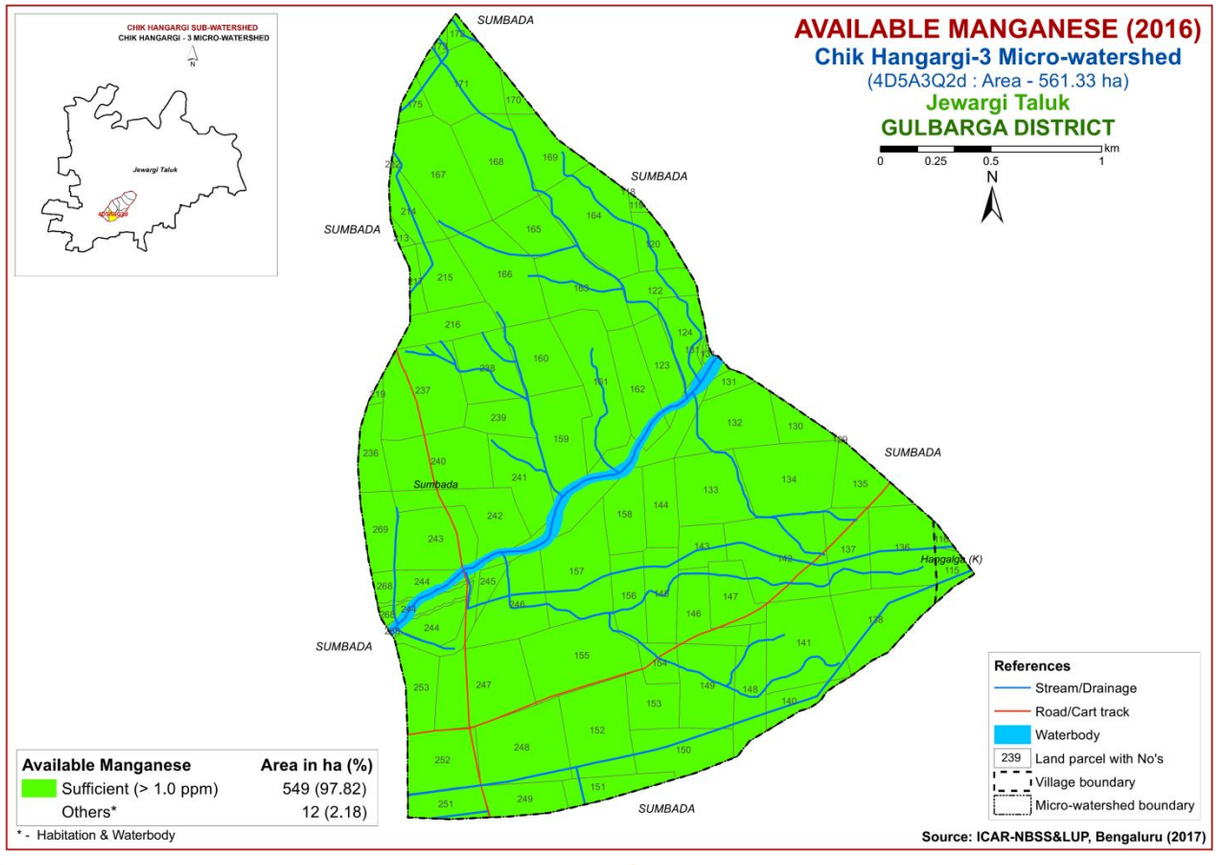

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE BORON (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
DUMMADRI
Dhummadri
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Boron | Area in ha (%)
Low (< 0.5 ppm) | 227 (35.6)
Medium (0.5 – 1.0 ppm) | 377 (59.02)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

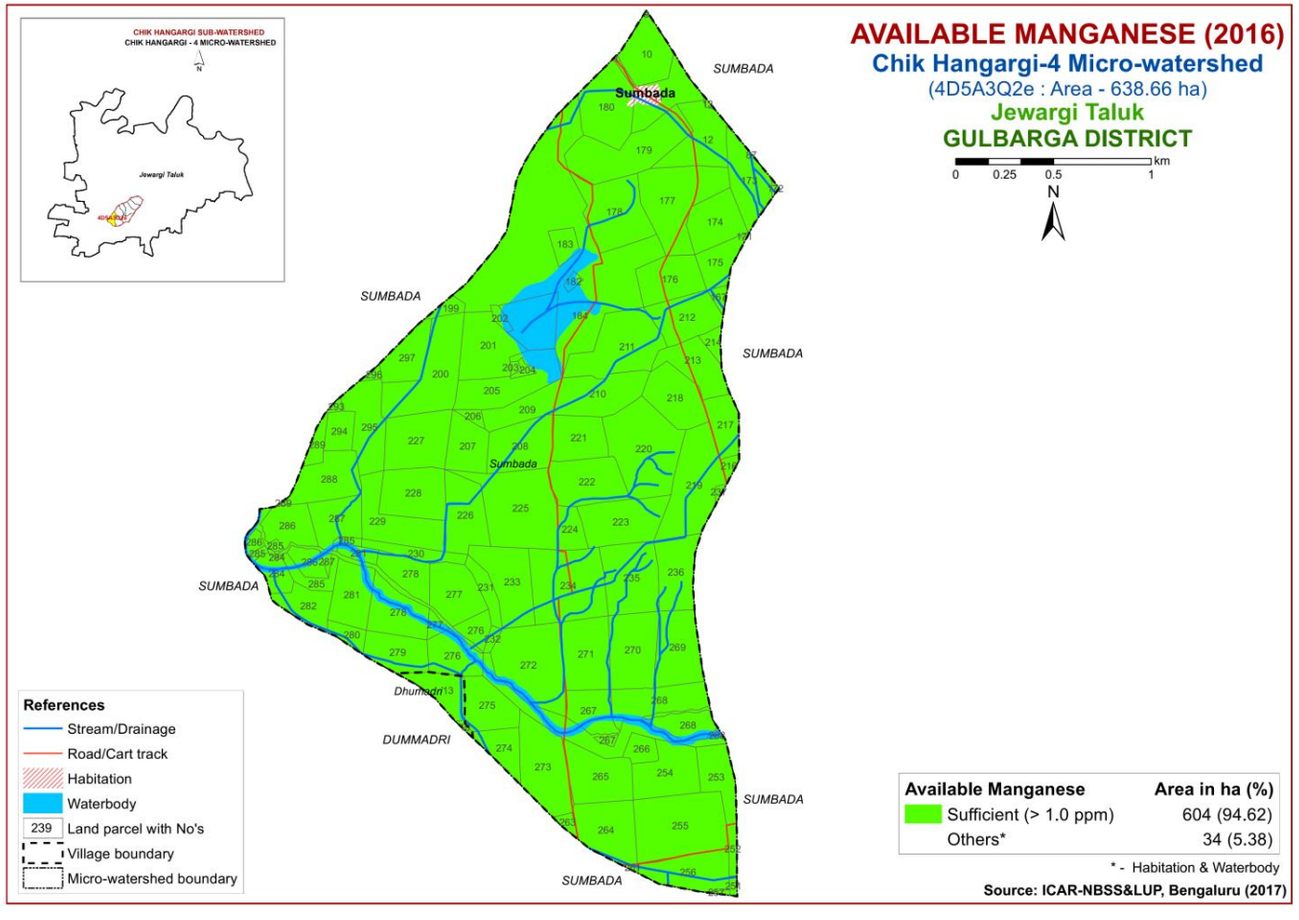

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE IRON (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Iron | Area in ha (%)
Deficient (< 4.5 ppm) | 25 (3.55)
Sufficient (>4.5 ppm) | 673 (94.62)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

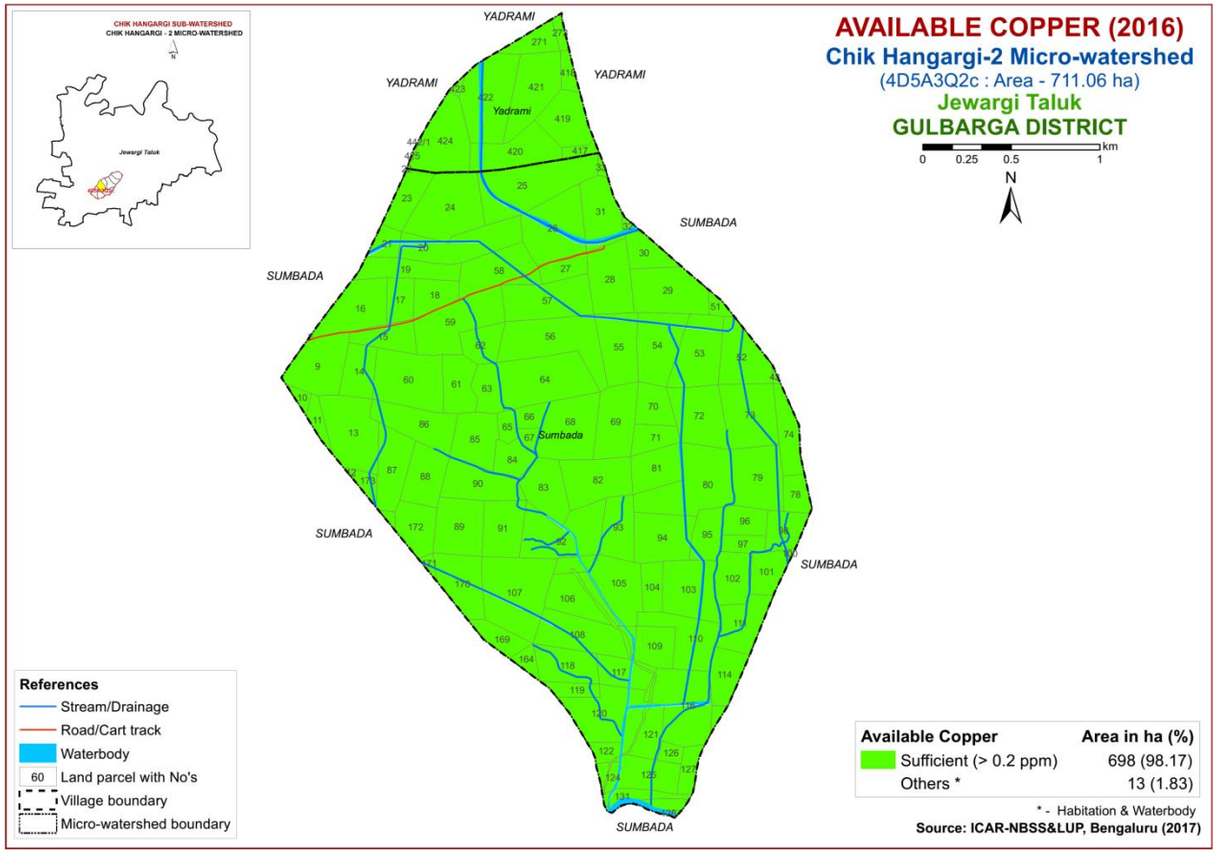

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE IRON (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangaiga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Iron | Area in ha (%)
Deficient (< 4.5 ppm) | 17 (2.99)
Sufficient (>4.5 ppm) | 532 (94.83)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

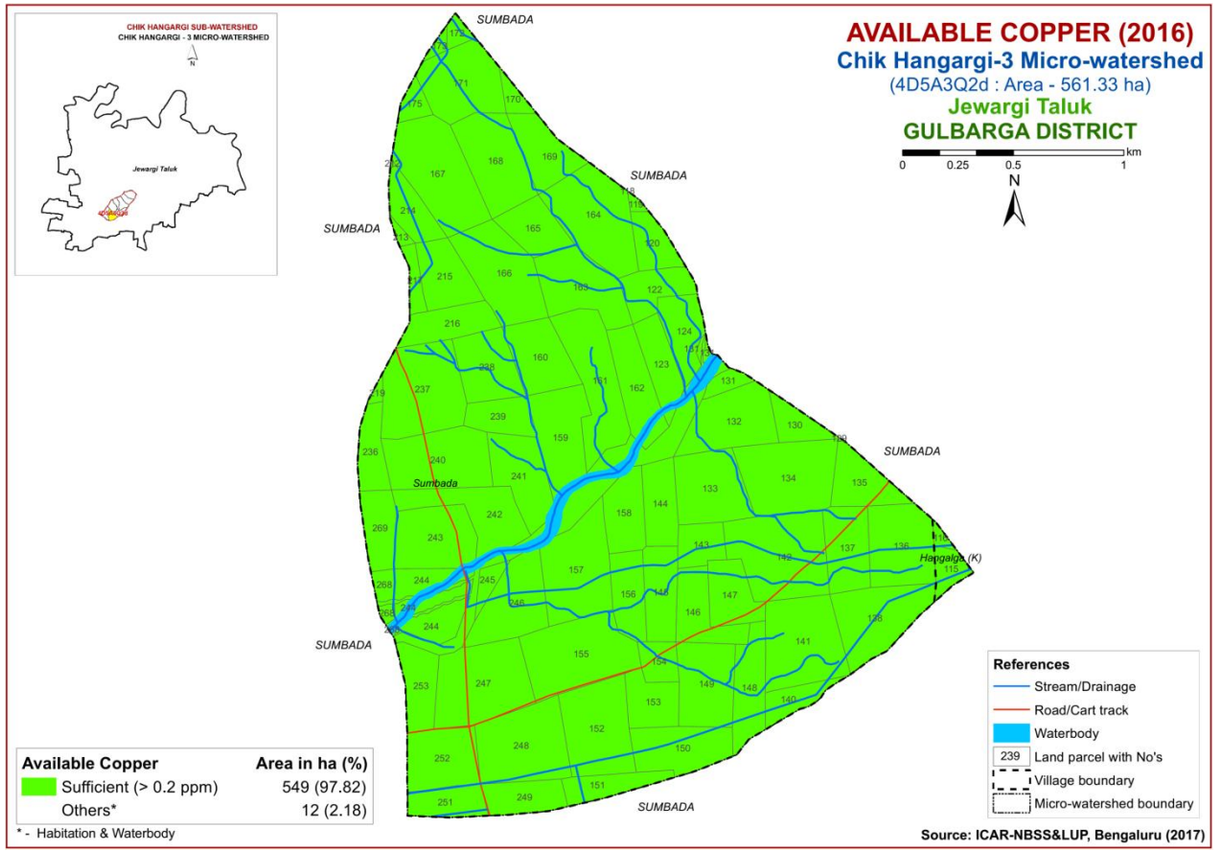

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE IRON (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
DUMMADRI
Dhumadri
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Iron | Area in ha (%)
Deficient (< 4.5 ppm) | 33 (5.11)
Sufficient (>4.5 ppm) | 572 (89.51)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

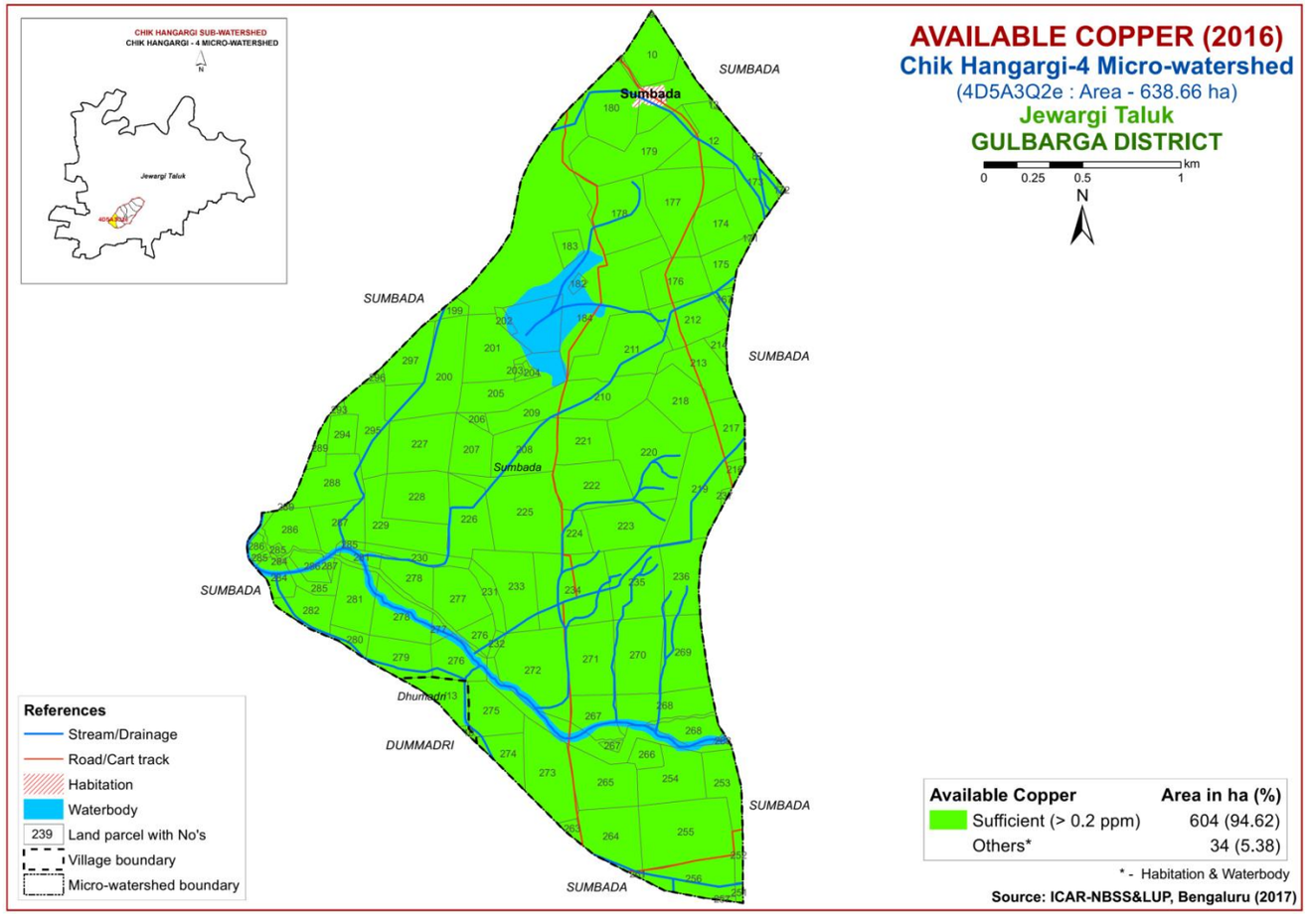

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE MANGANESE (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Manganese | Area in ha (%)
Sufficient (> 1.0 ppm) | 698 (98.17)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

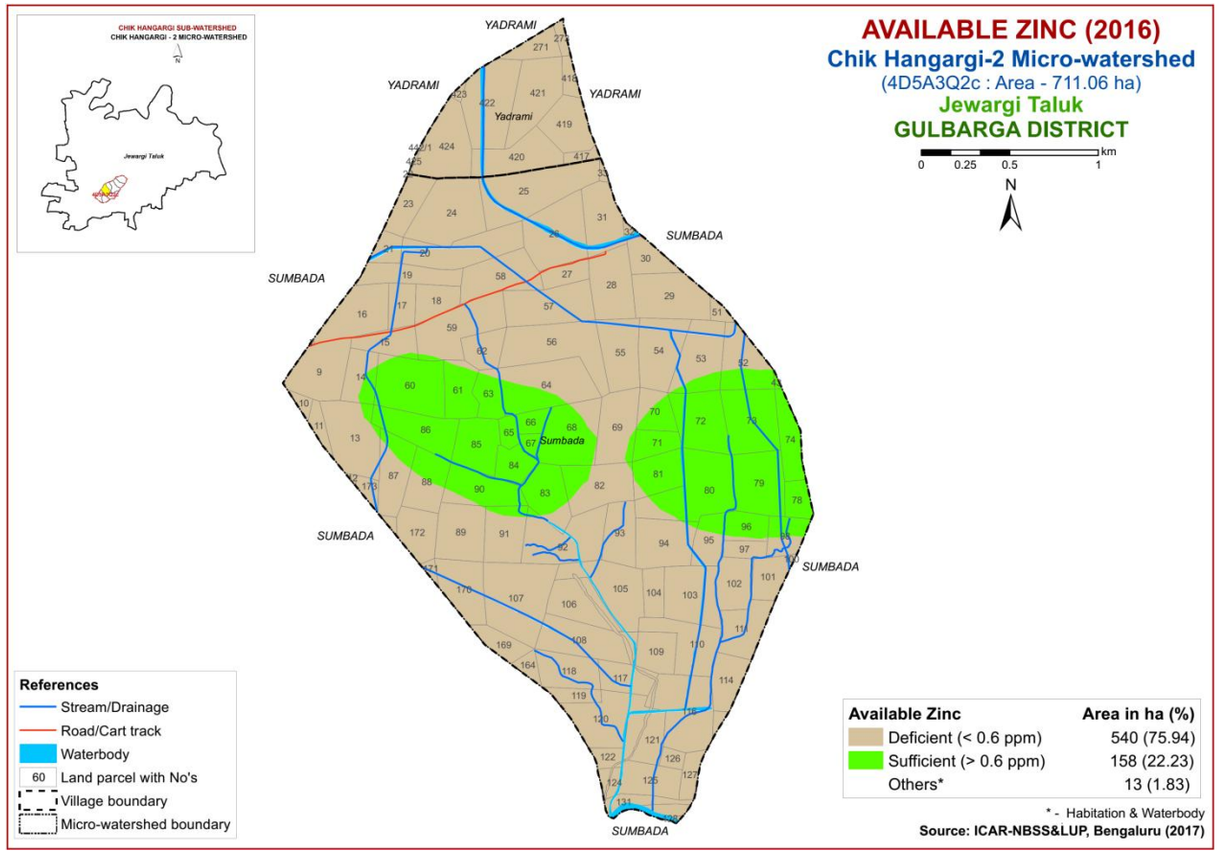

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE MANGANESE (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangalga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Manganese | Area in ha (%)
Sufficient (> 1.0 ppm) | 549 (97.82)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

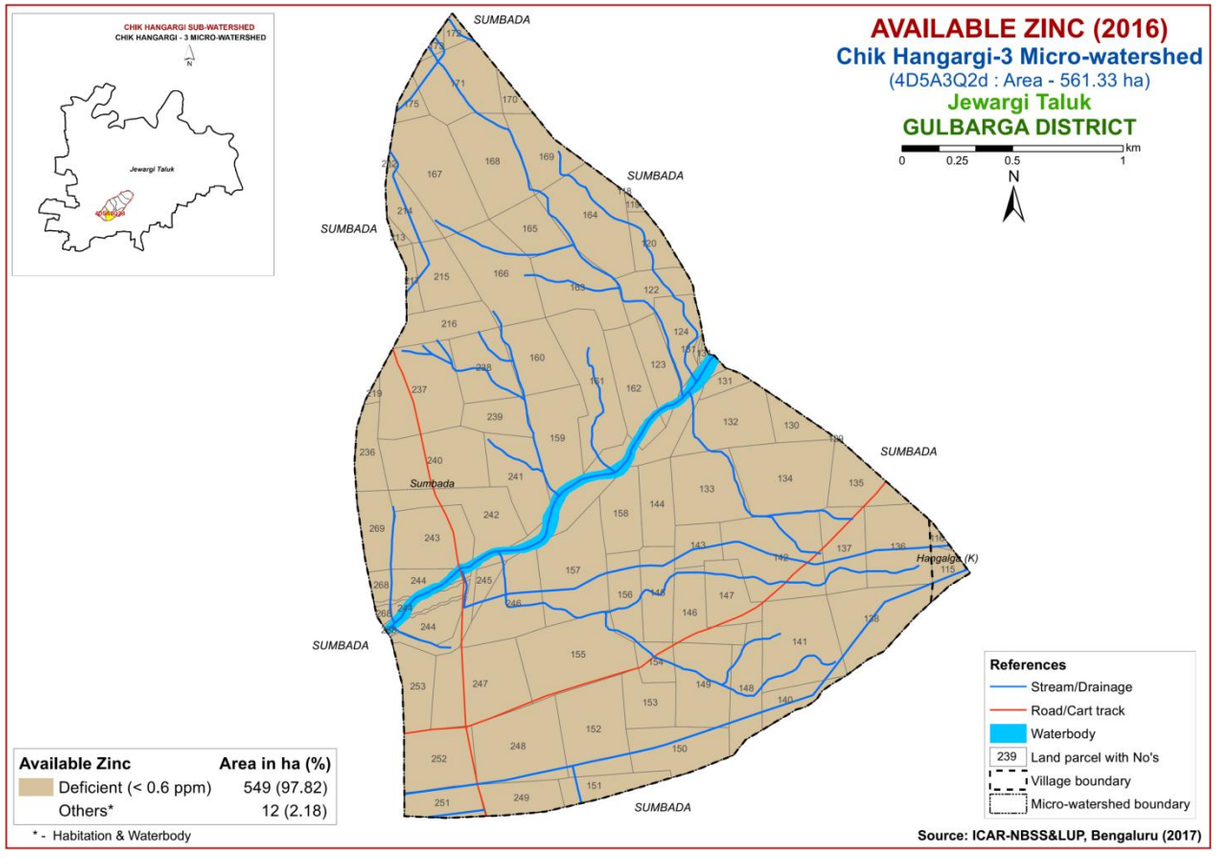

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE MANGANESE (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Dhummadri
DUMMADRI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Manganese | Area in ha (%)
Sufficient (> 1.0 ppm) | 604 (94.62)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

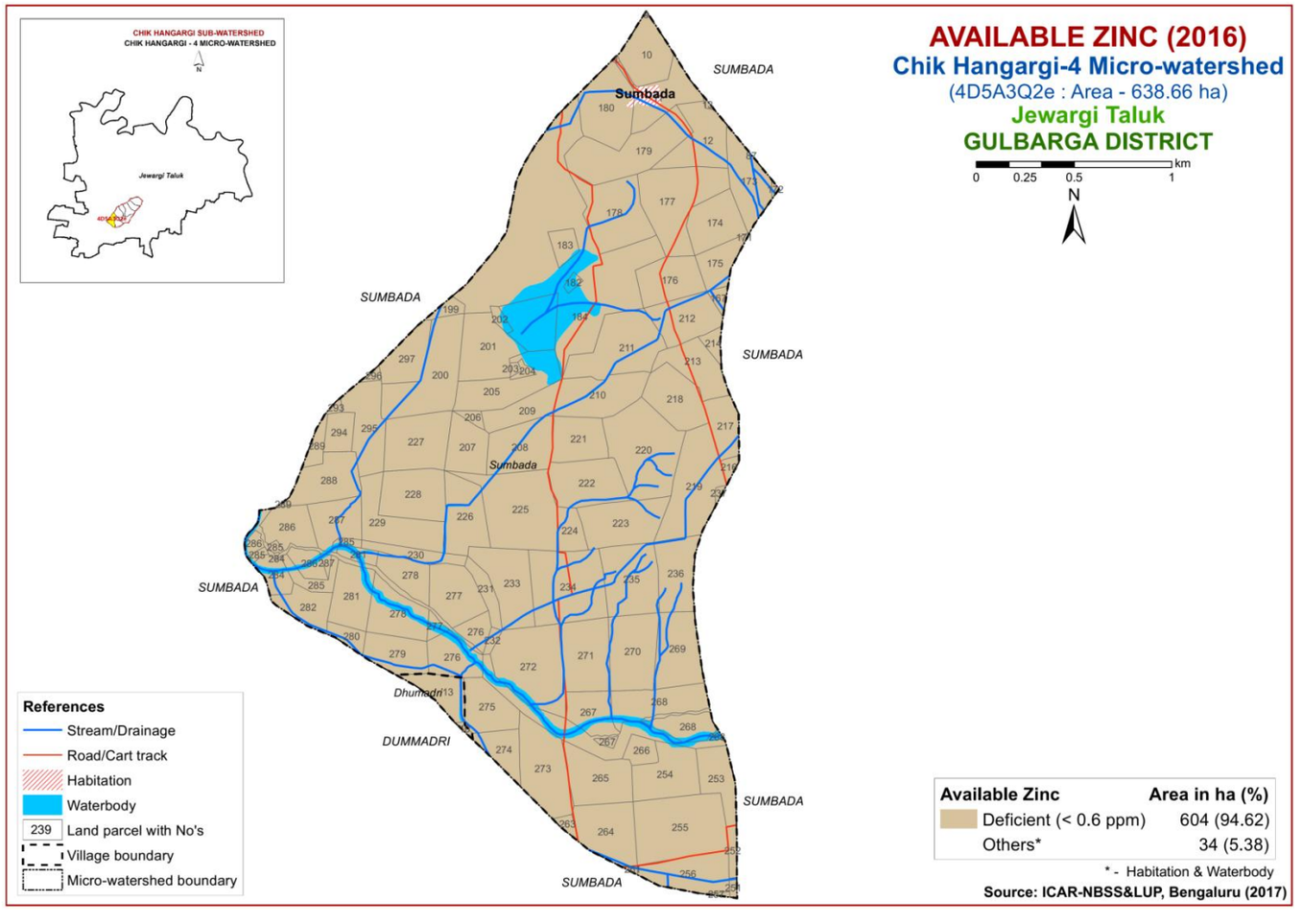

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE COPPER (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Copper
Area in ha (%)
Sufficient (> 0.2 ppm) 698 (98.17)
Others * 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

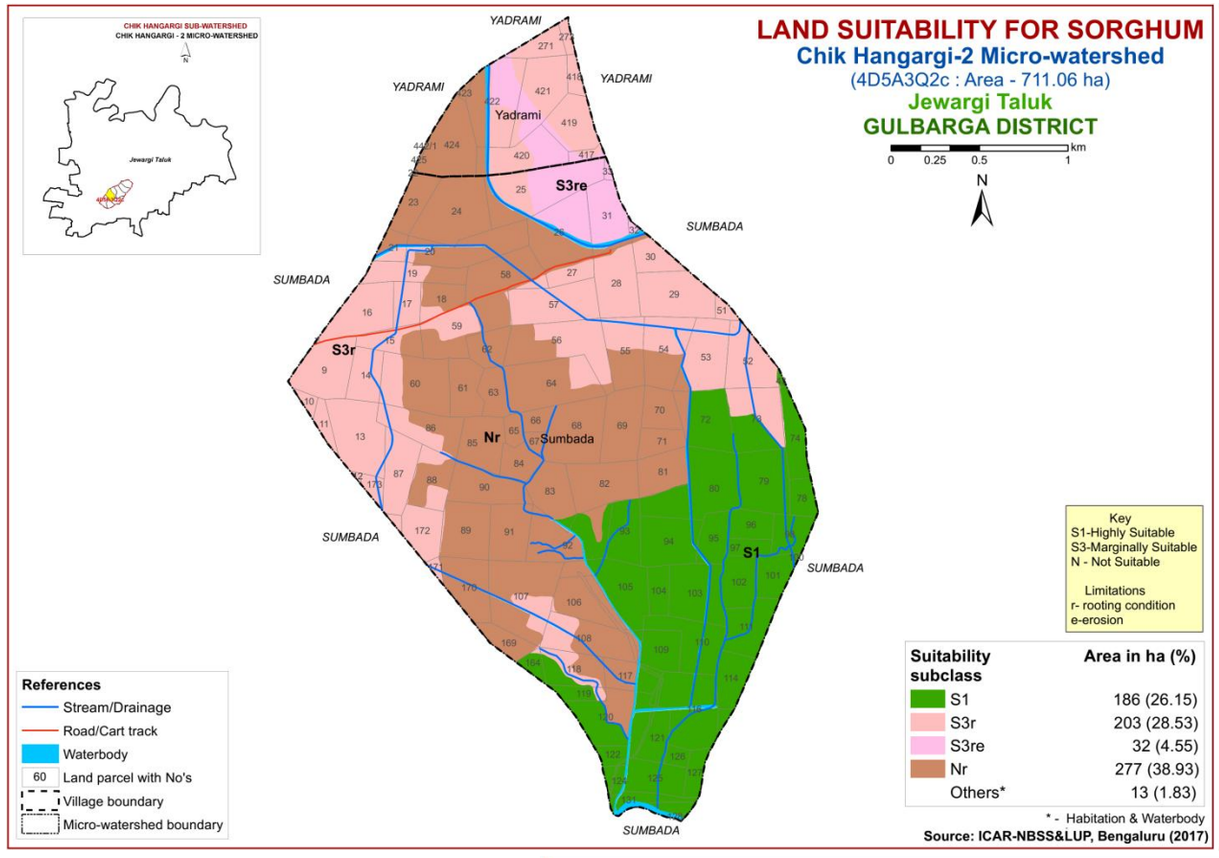

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE COPPER (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hegargi (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Copper
Area in ha (%)
Sufficient (> 0.2 ppm) 549 (97.82)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

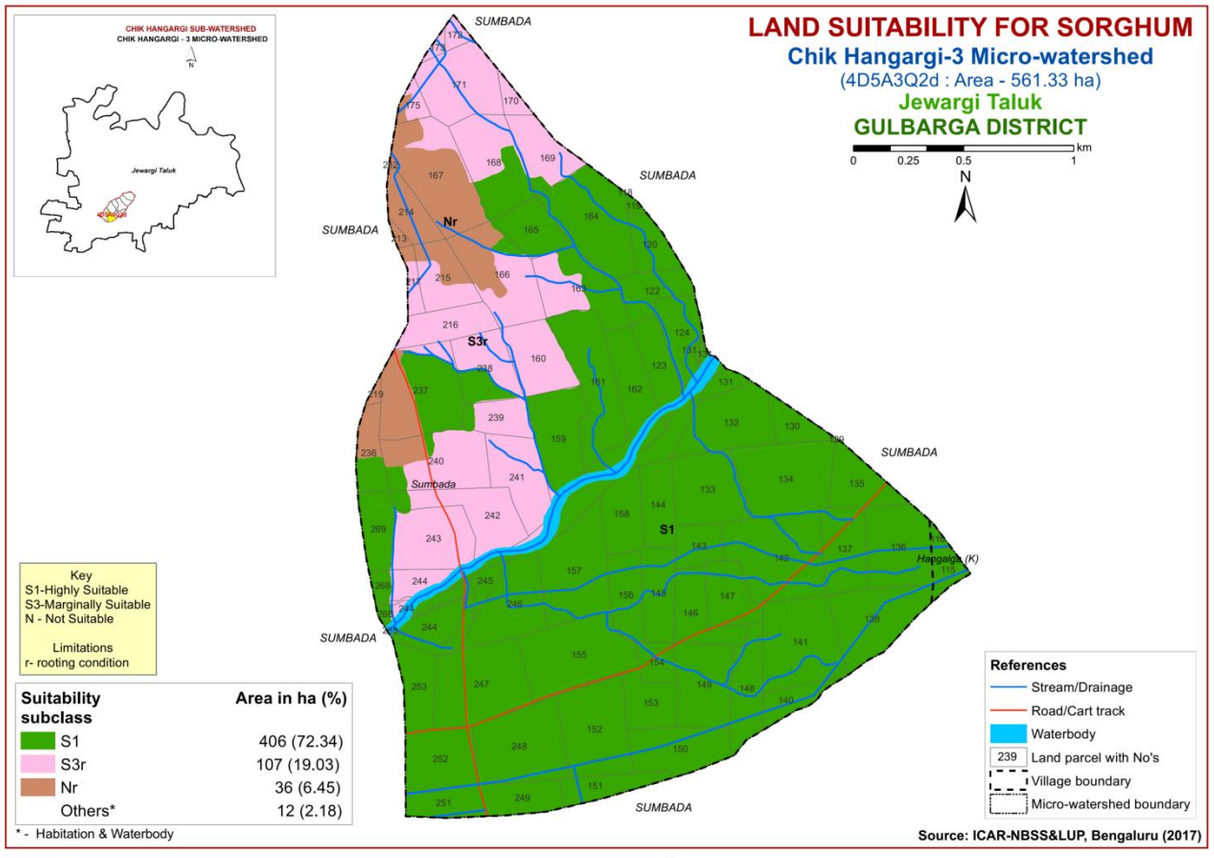

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE COPPER (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
DUMMADRI
Dhummadri
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Copper
Area in ha (%)
Sufficient (> 0.2 ppm) 604 (94.62)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

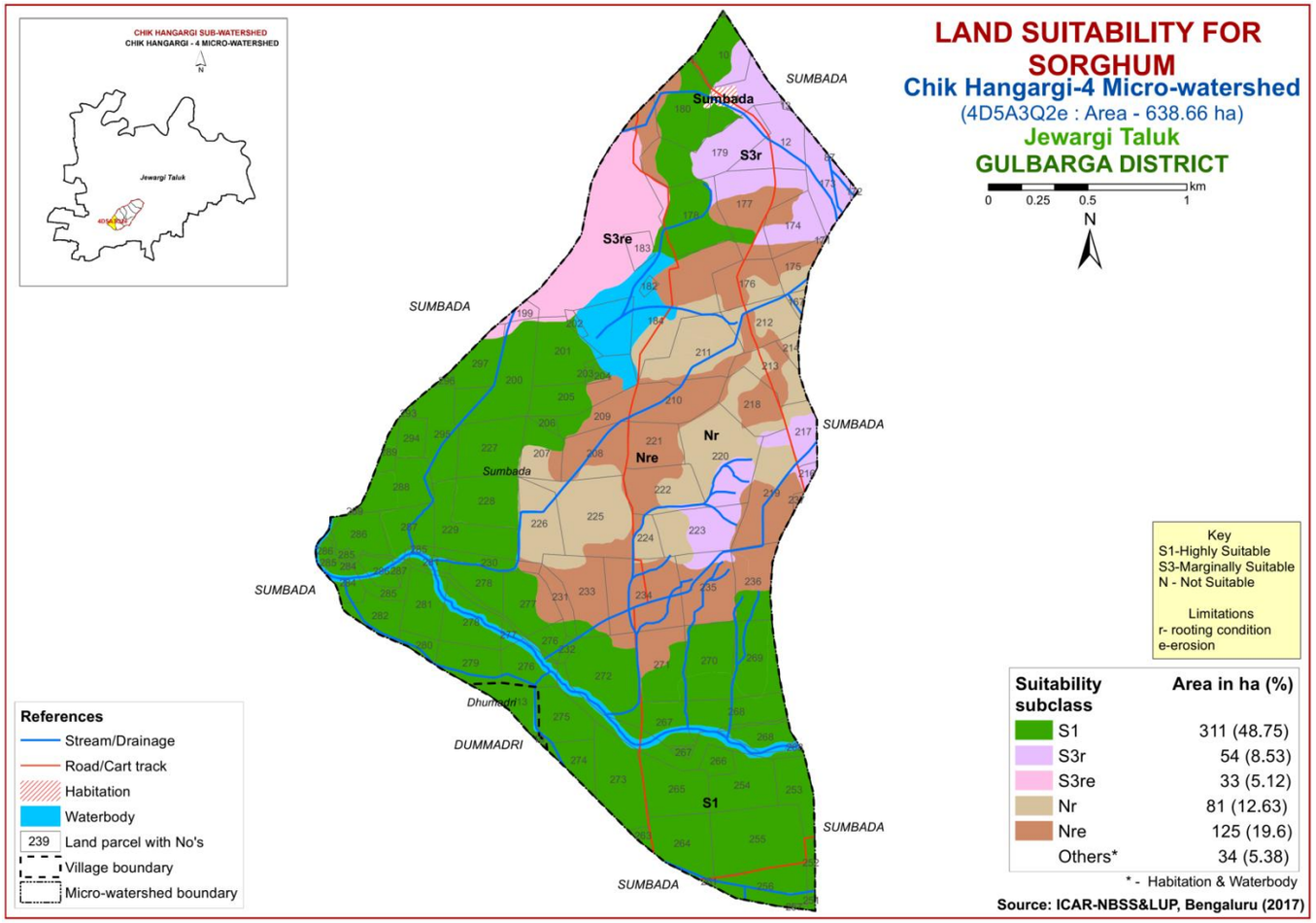

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE ZINC (2016)
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Zinc | Area in ha (%)
Deficient (< 0.6 ppm) | 540 (75.94)
Sufficient (> 0.6 ppm) | 158 (22.23)
Others* | 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

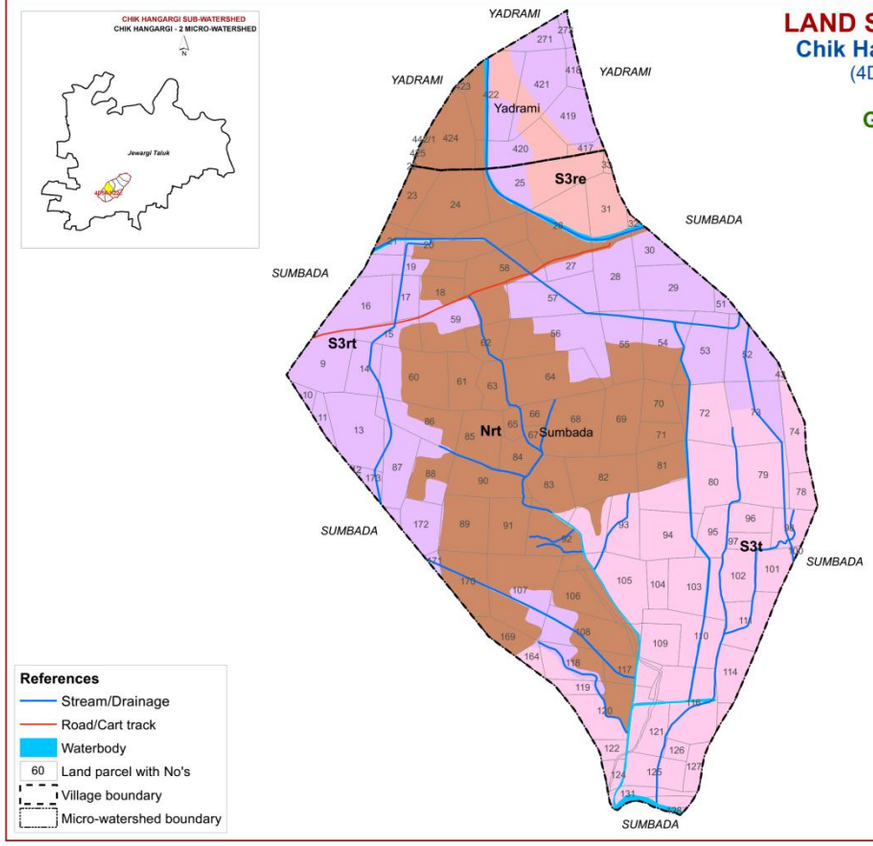

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE ZINC (2016)
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangaiga (K)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Zinc | Area in ha (%)
Deficient (< 0.6 ppm) | 549 (97.82)
Others* | 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

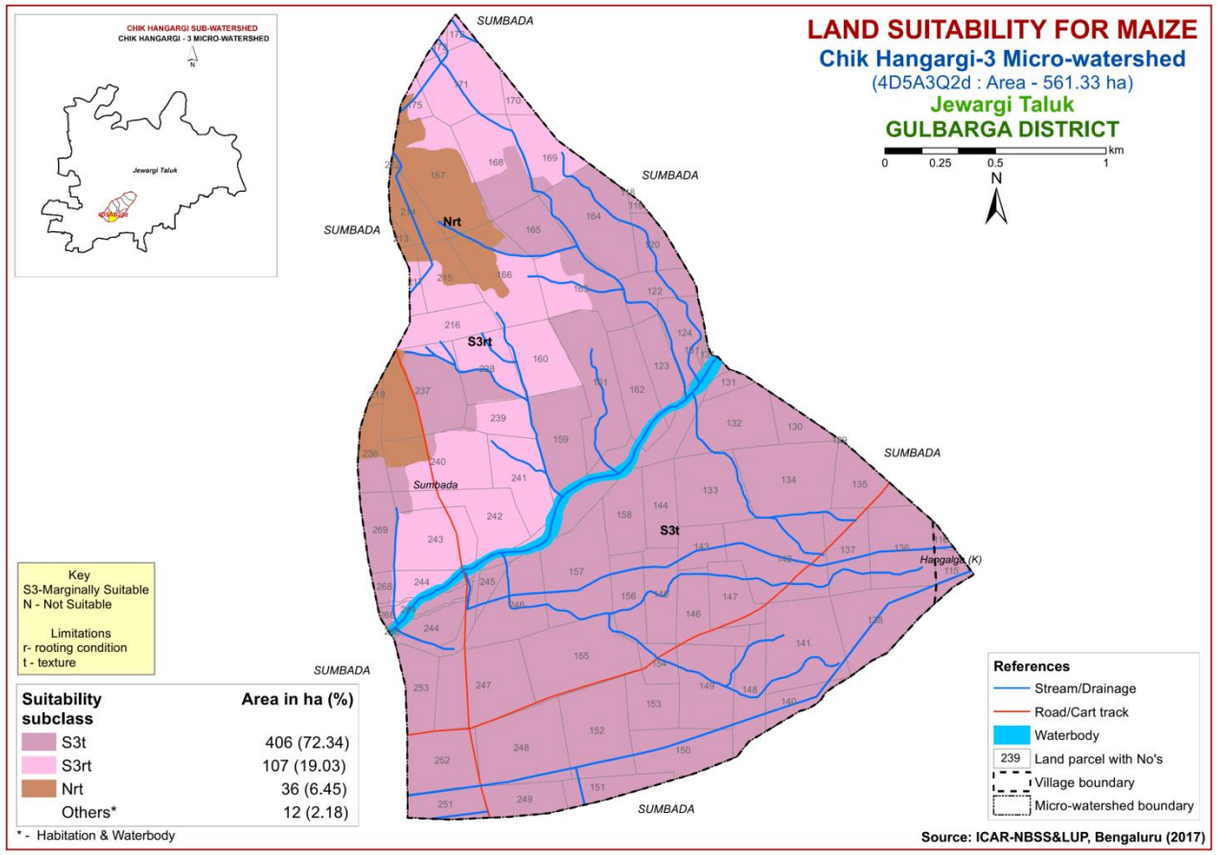

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
AVAILABLE ZINC (2016)
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Dhumadri
DUMMADRI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Available Zinc | Area in ha (%)
Deficient (< 0.6 ppm) | 604 (94.62)
Others* | 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

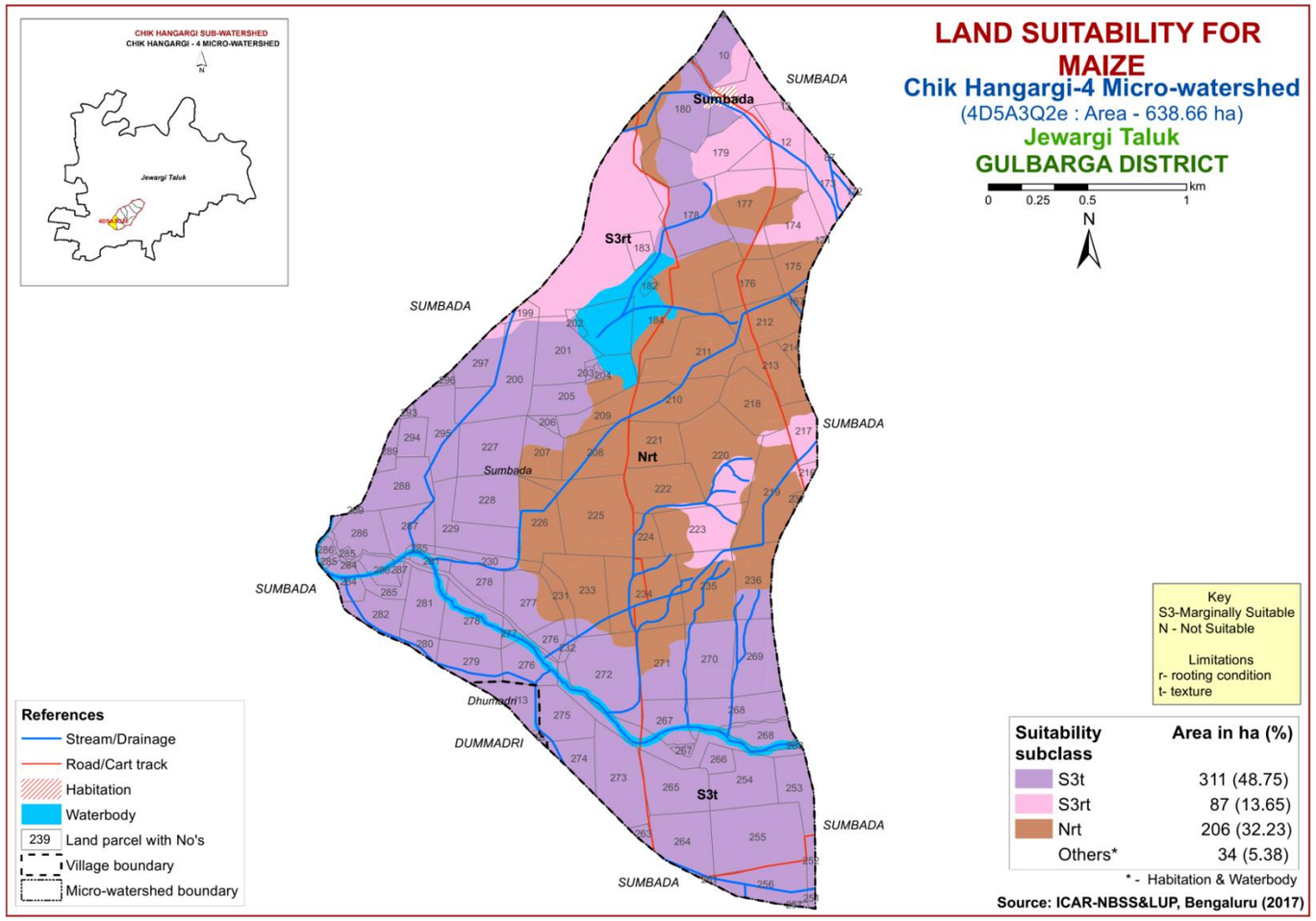

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SORGHUM
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
S3r
S3re
Nr
Sumbada
S1
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 186 (26.15)
S3r 203 (28.53)
S3re 32 (4.55)
Nr 277 (38.93)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary

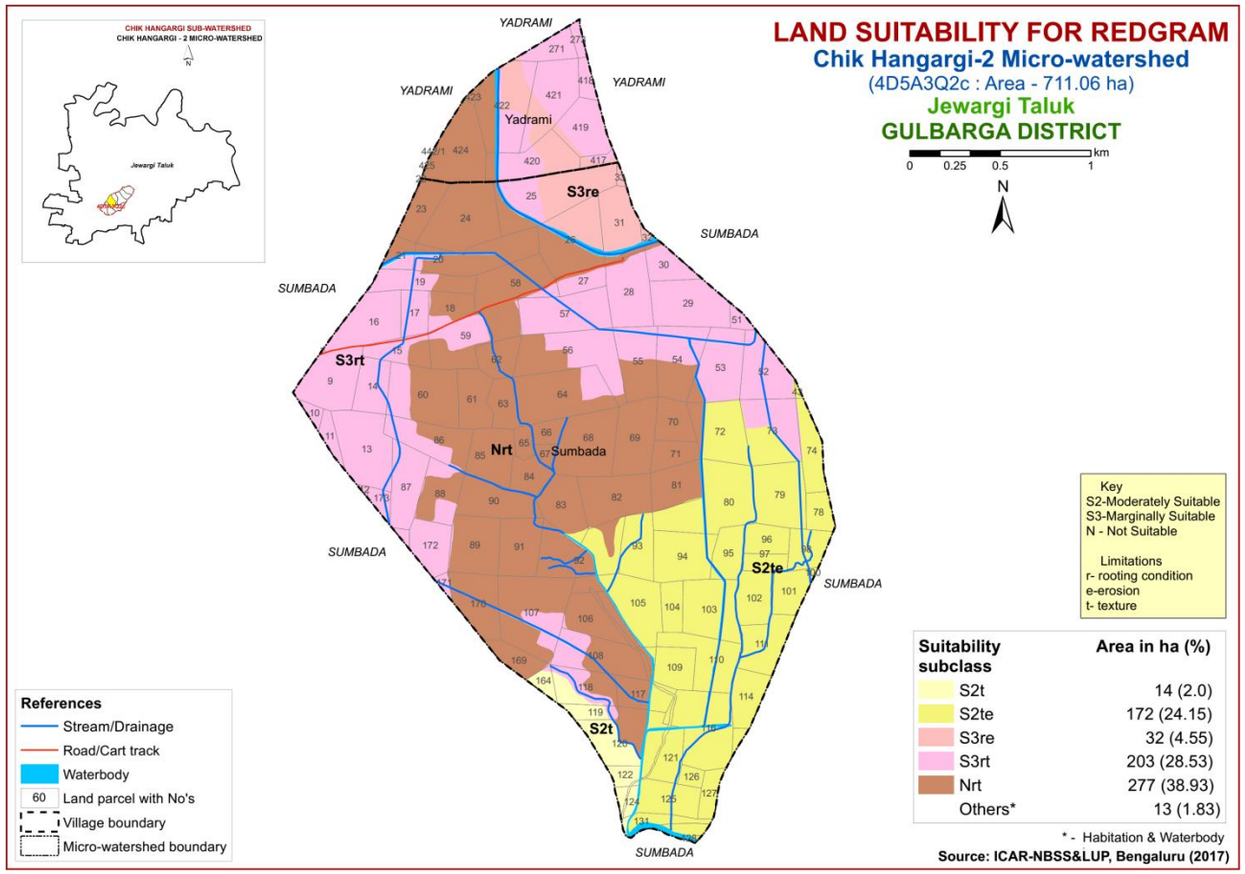

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SORGHUM
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nr
S3r
Sumbada
S1
Hanagalgi (K)
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
Suitability subclass
Area in ha (%)
S1 406 (72.34)
S3r 107 (19.03)
Nr 36 (6.45)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary

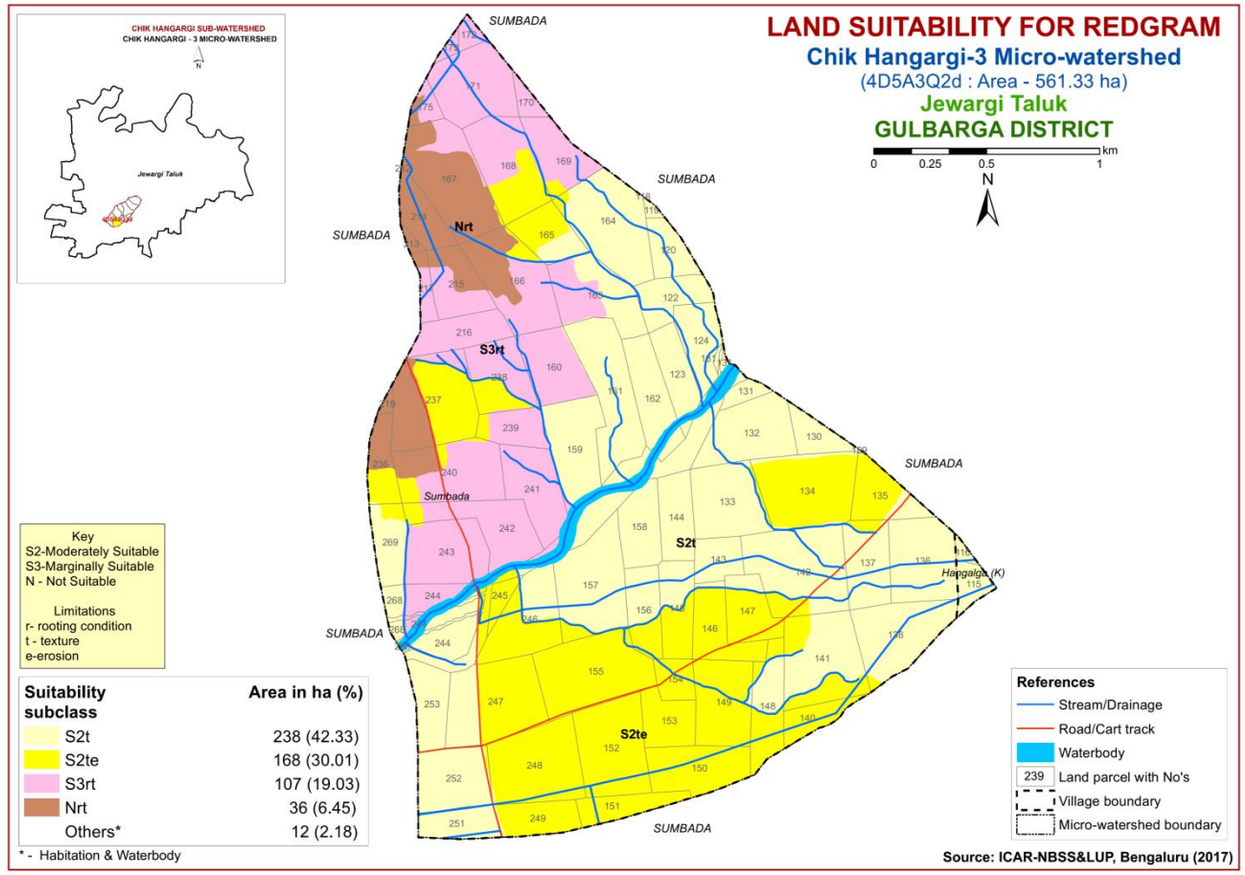

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SORGHUM
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
S3r
S3re
Nr
Nre
S1
DUMMADRI
Dhumadri
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 311 (48.75)
S3r 54 (8.53)
S3re 33 (5.12)
Nr 81 (12.63)
Nre 125 (19.6)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary

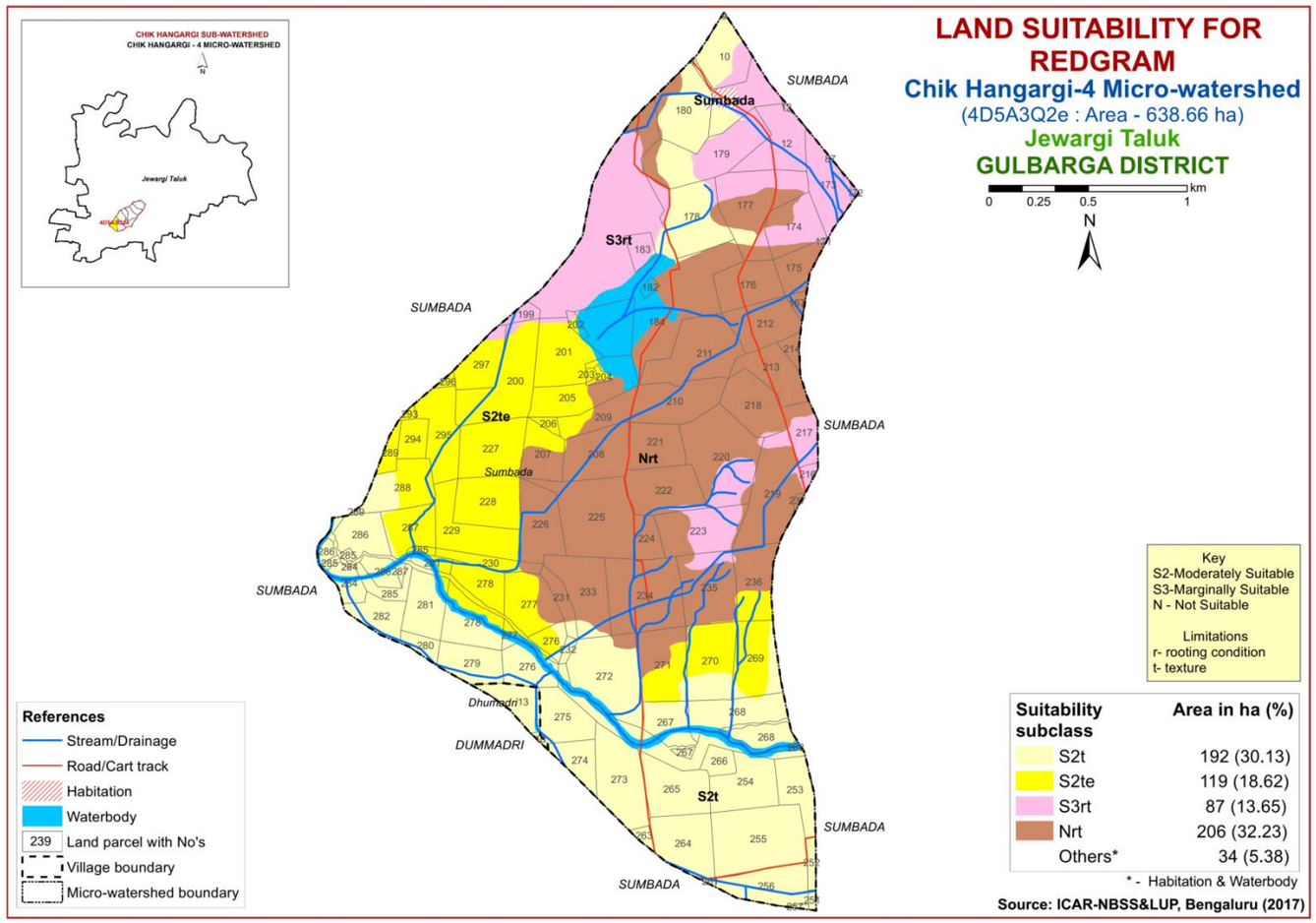

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR MAIZE
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
S3re
S3rt
Nrt
Sumbada
S3t
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
e-erosion
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S3re 32 (4.55)
S3rt 203 (28.53)
S3t 186 (26.15)
Nrt 277 (38.93)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary

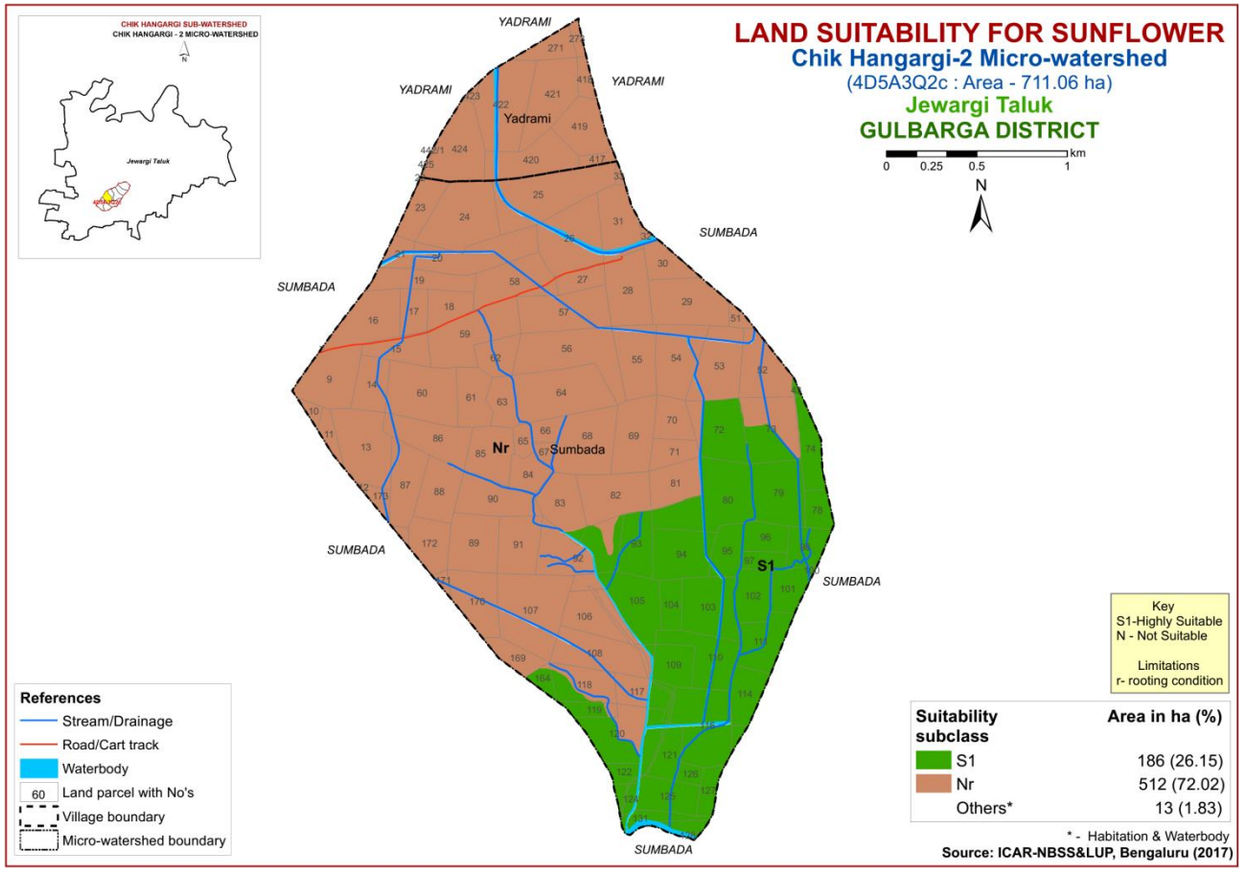

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR MAIZE
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nrt
S3rt
Sumbada
S3t
Hangalga (K)
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t - texture
Suitability subclass
Area in ha (%)
S3t 406 (72.34)
S3rt 107 (19.03)
Nrt 36 (6.45)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary

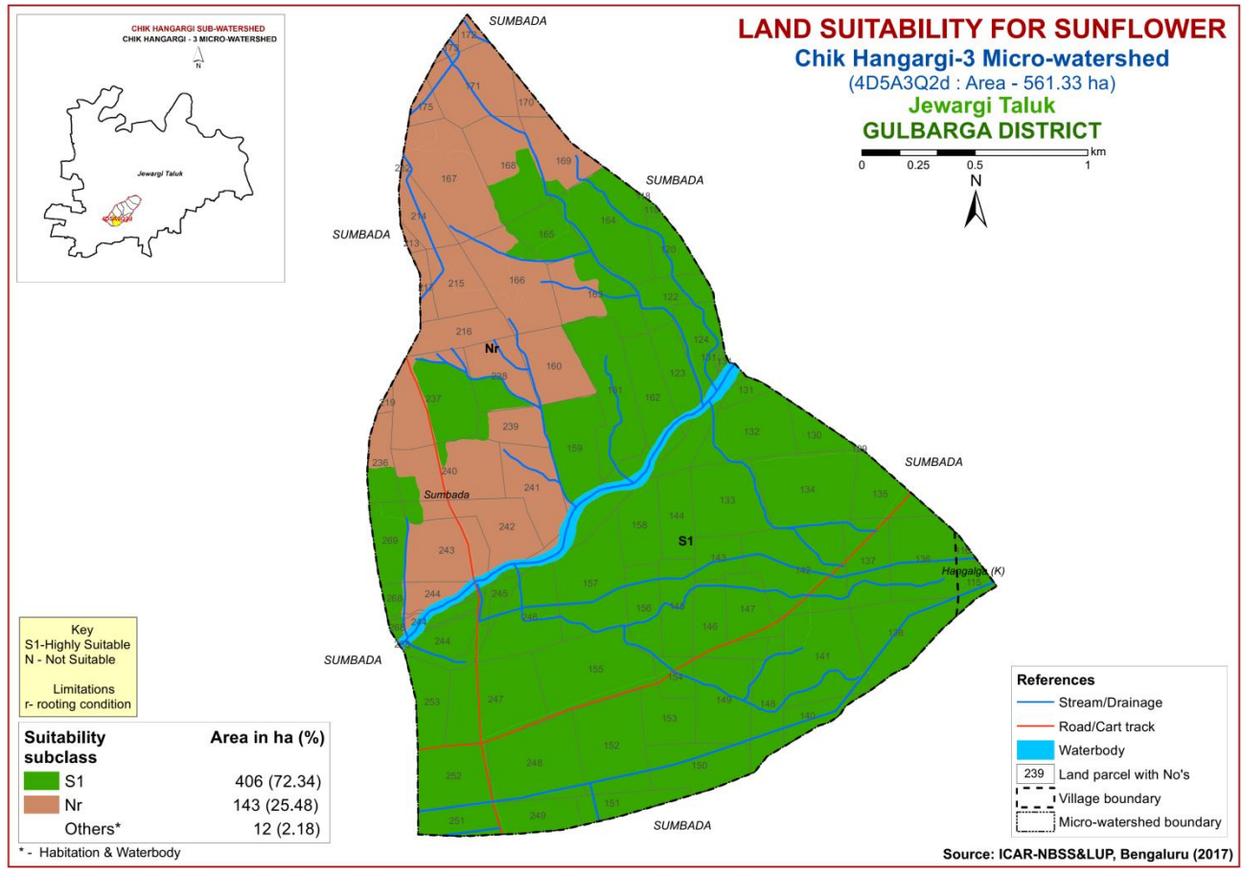

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR MAIZE
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
S3rt
Nrt
S3t
Dhumadri
DUMMADRI
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S3t 311 (48.75)
S3rt 87 (13.65)
Nrt 206 (32.23)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary

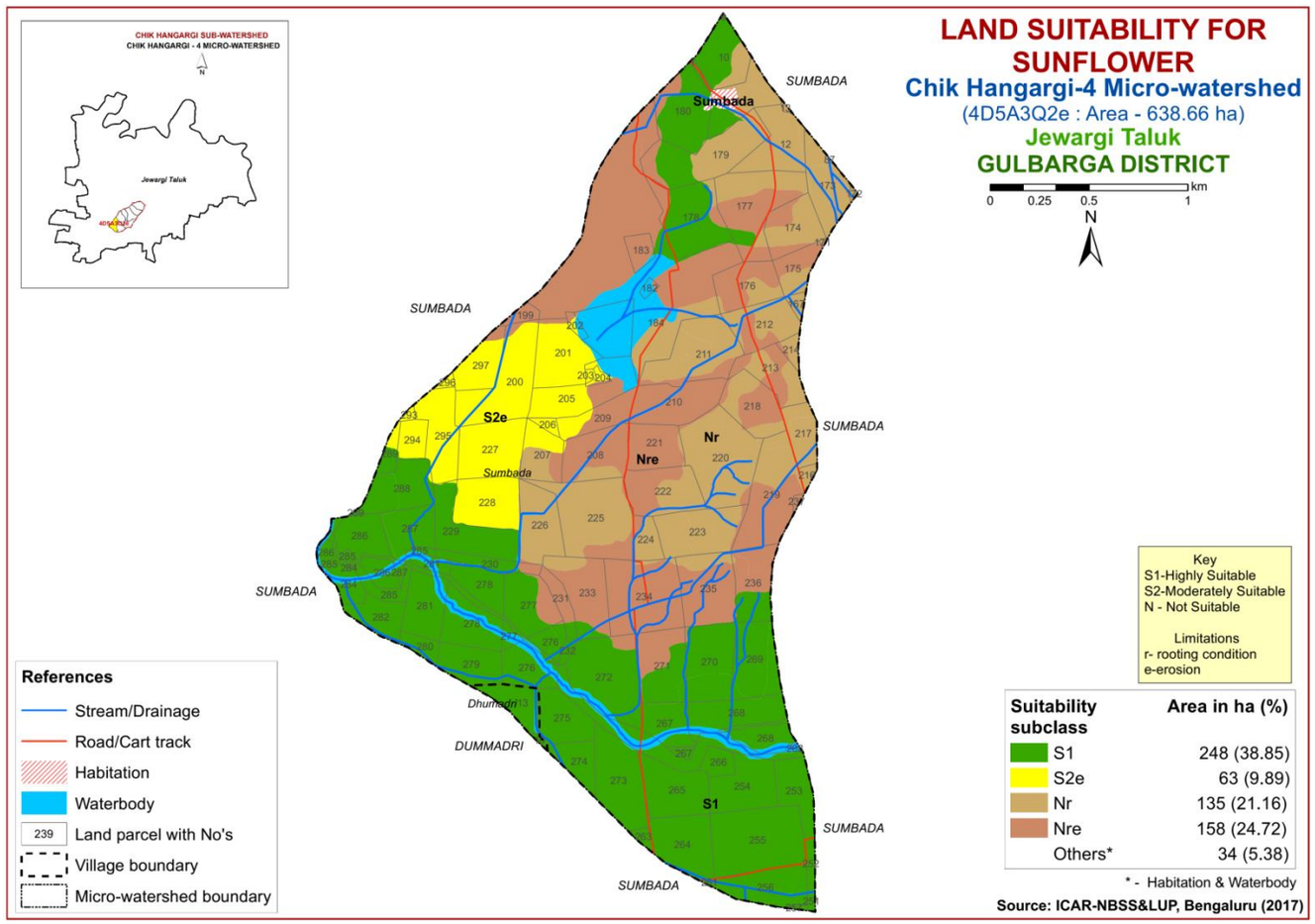

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR REDGRAM
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
S3re
S3rt
Nrt
Sumbada
S2te
S2t
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
t- texture
Suitability subclass | Area in ha (%)
S2t 14 (2.0)
S2te 172 (24.15)
S3re 32 (4.55)
S3rt 203 (28.53)
Nrt 277 (38.93)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

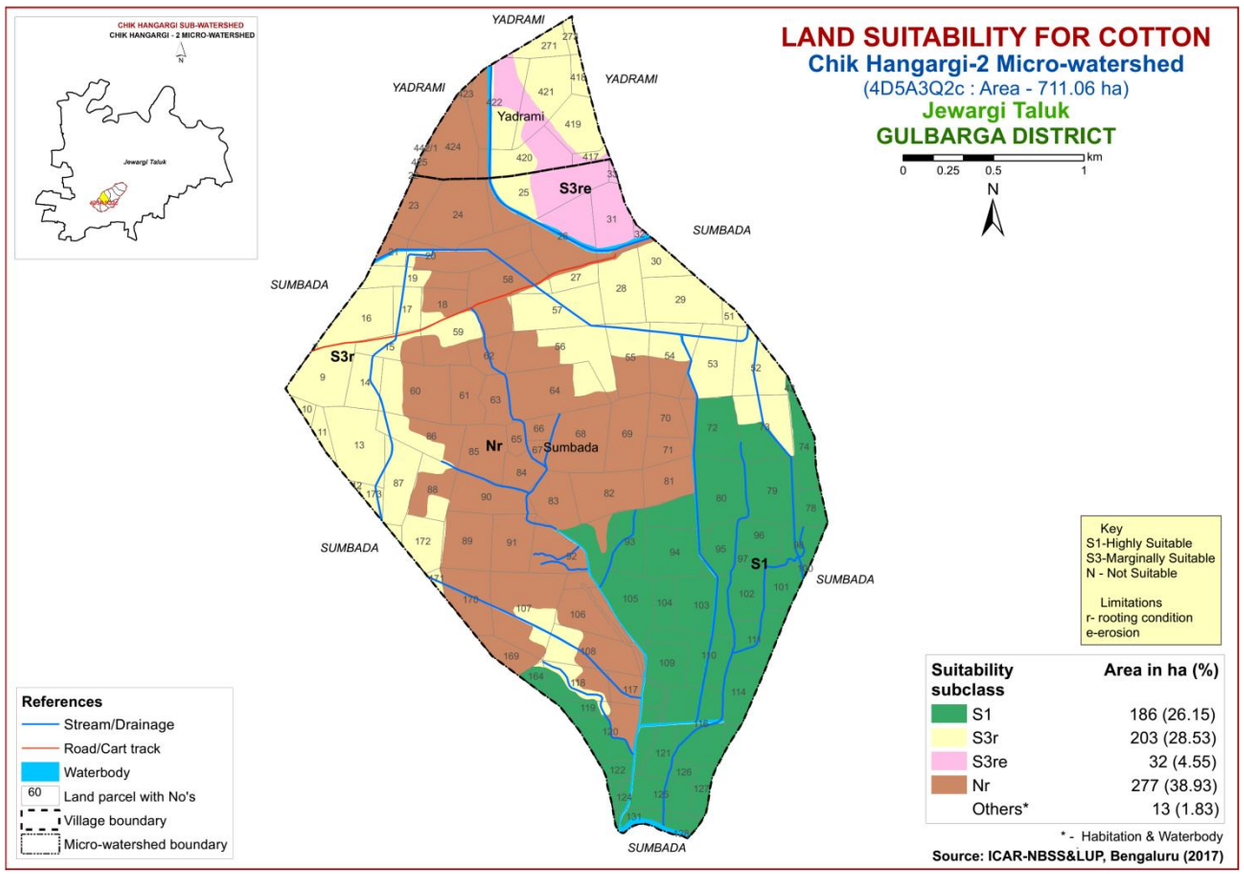

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR REDGRAM
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nrt
S3rt
Sumbada
S2t
S2te
Hangalga (K)
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t - texture
e-erosion
Suitability subclass | Area in ha (%)
S2t 238 (42.33)
S2te 168 (30.01)
S3rt 107 (19.03)
Nrt 36 (6.45)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

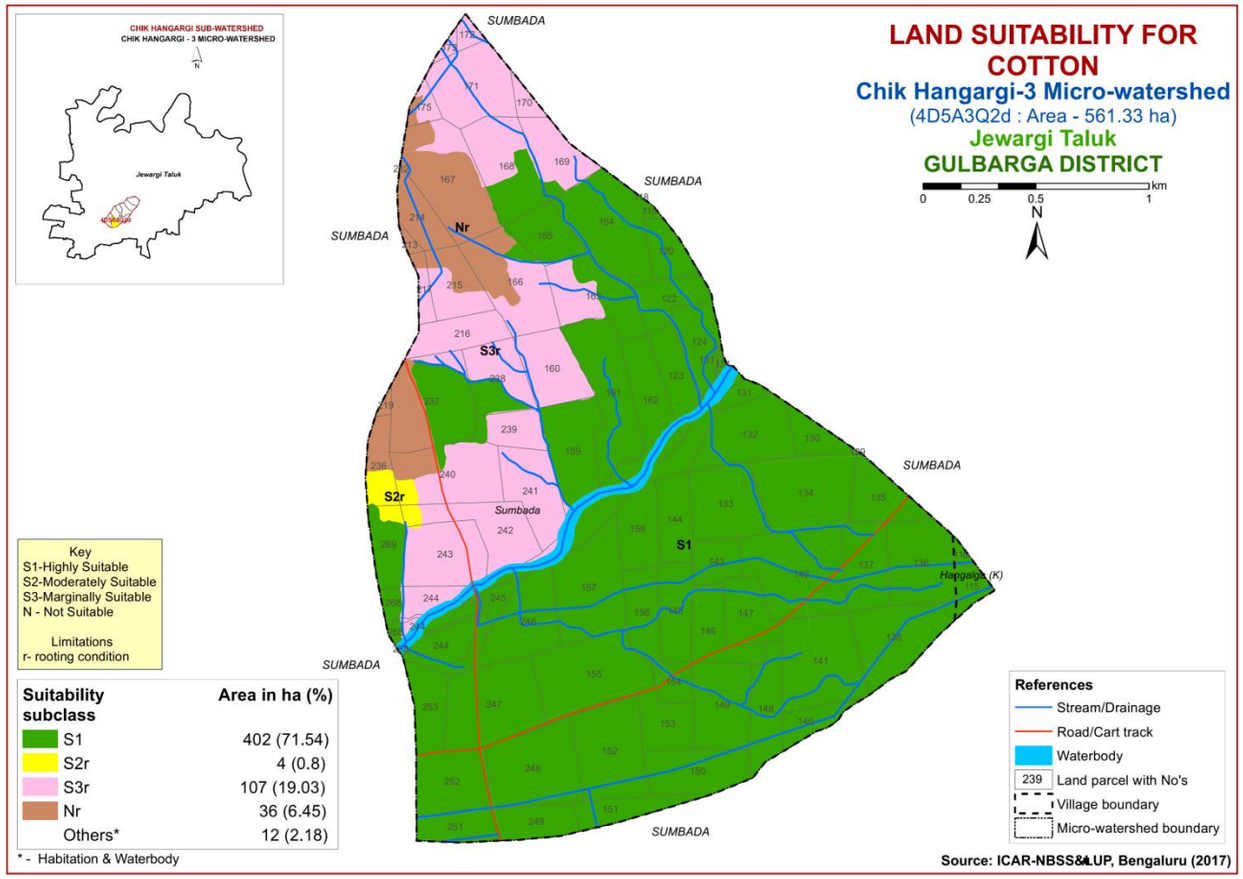

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR REDGRAM
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
S3rt
S2te
Nrt
S2t
DUMMADRI
Dhumadri
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass | Area in ha (%)
S2t 192 (30.13)
S2te 119 (18.62)
S3rt 87 (13.65)
Nrt 206 (32.23)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

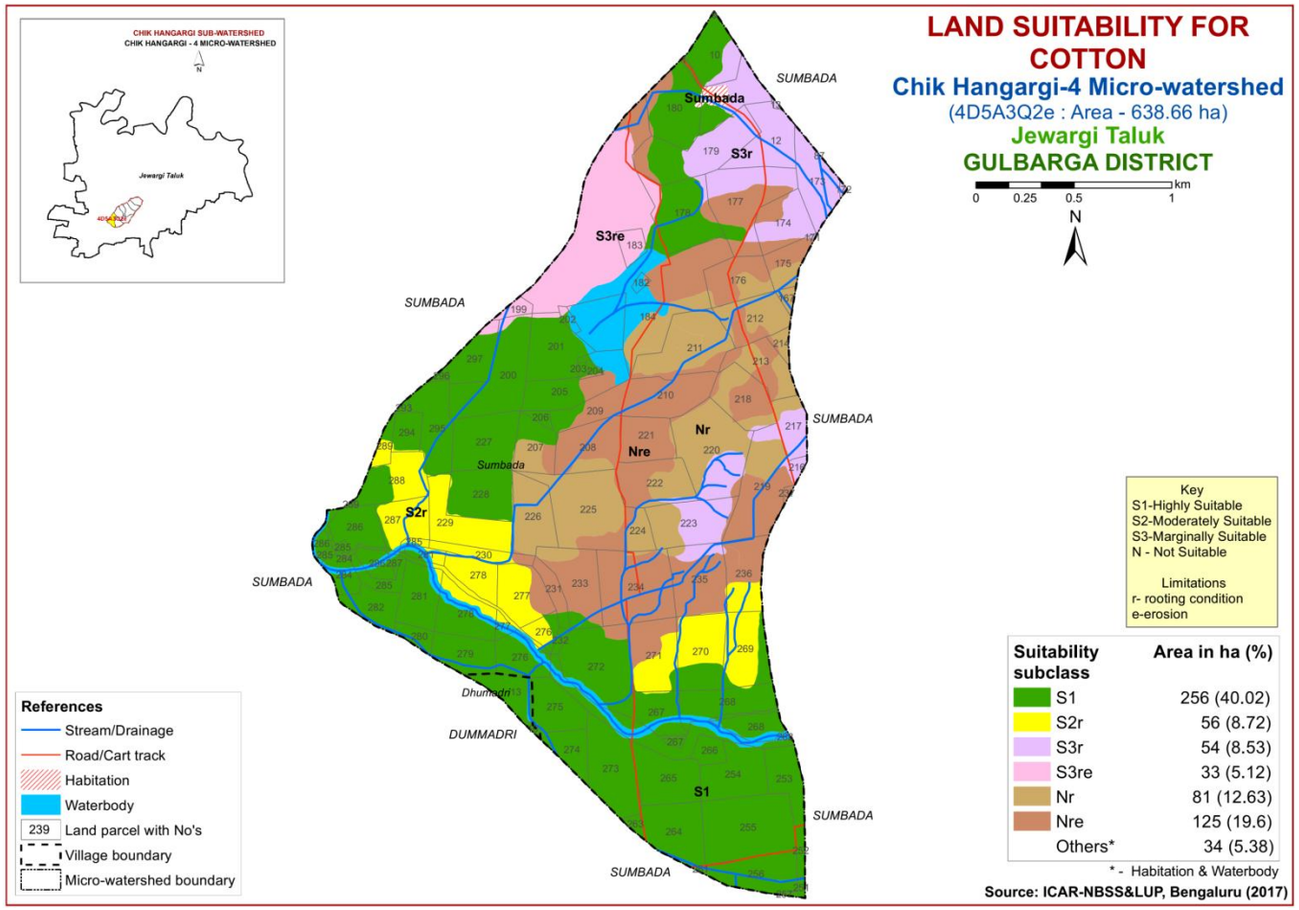

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SUNFLOWER
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Nr
Sumbada
S1
Key
S1-Highly Suitable
N - Not Suitable
Limitations
r- rooting condition
Suitability subclass
Area in ha (%)
S1 186 (26.15)
Nr 512 (72.02)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

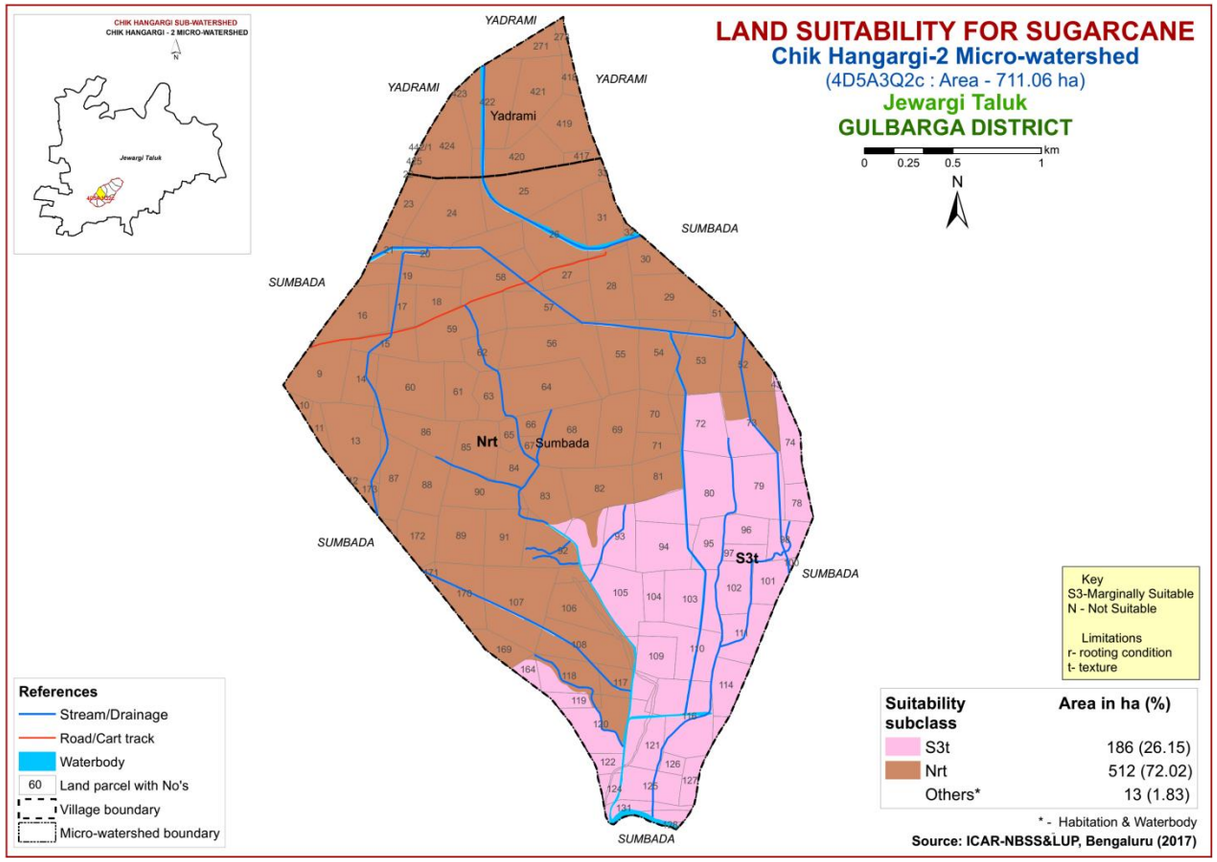

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SUNFLOWER
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nr
Sumbada
S1
Hangalgi (K)
Key
S1-Highly Suitable
N - Not Suitable
Limitations
r- rooting condition
Suitability subclass
Area in ha (%)
S1 406 (72.34)
Nr 143 (25.48)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

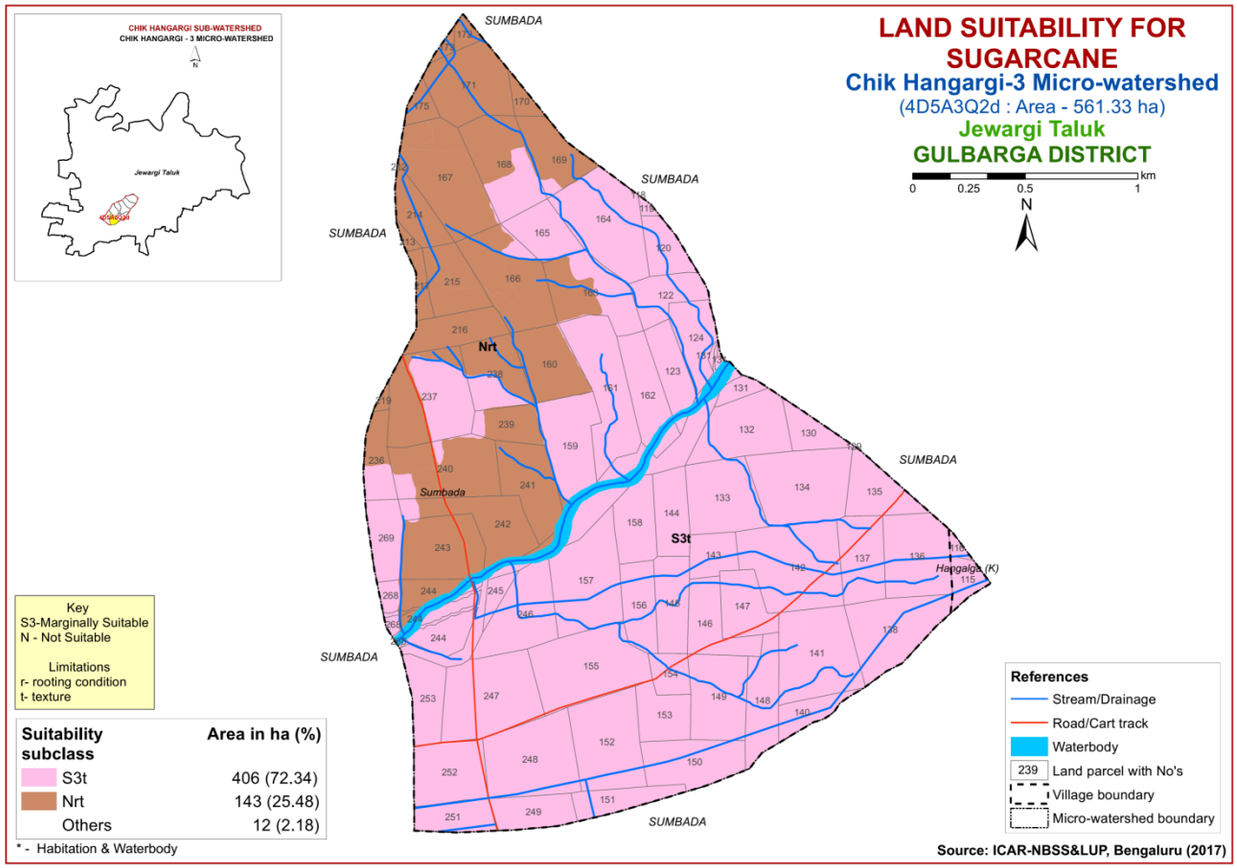

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SUNFLOWER
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
S2e
Nr
Nre
S1
Dhummadri
DUMMADRI
Key
S1-Highly Suitable
S2-Moderately Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 248 (38.85)
S2e 63 (9.89)
Nr 135 (21.16)
Nre 158 (24.72)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

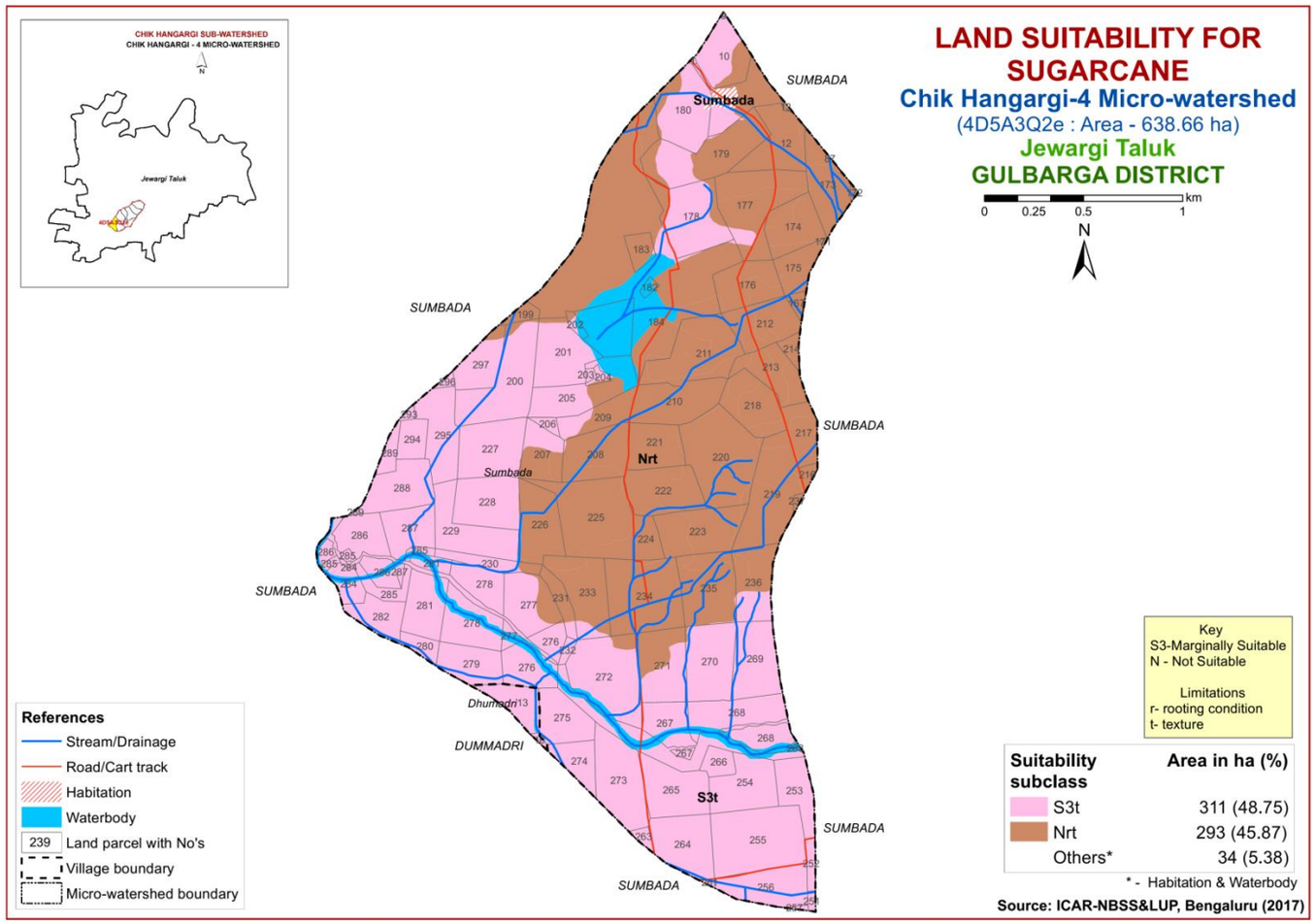

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR COTTON
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Sumbada
S3r
S3re
Nr
S1
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 186 (26.15)
S3r 203 (28.53)
S3re 32 (4.55)
Nr 277 (38.93)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

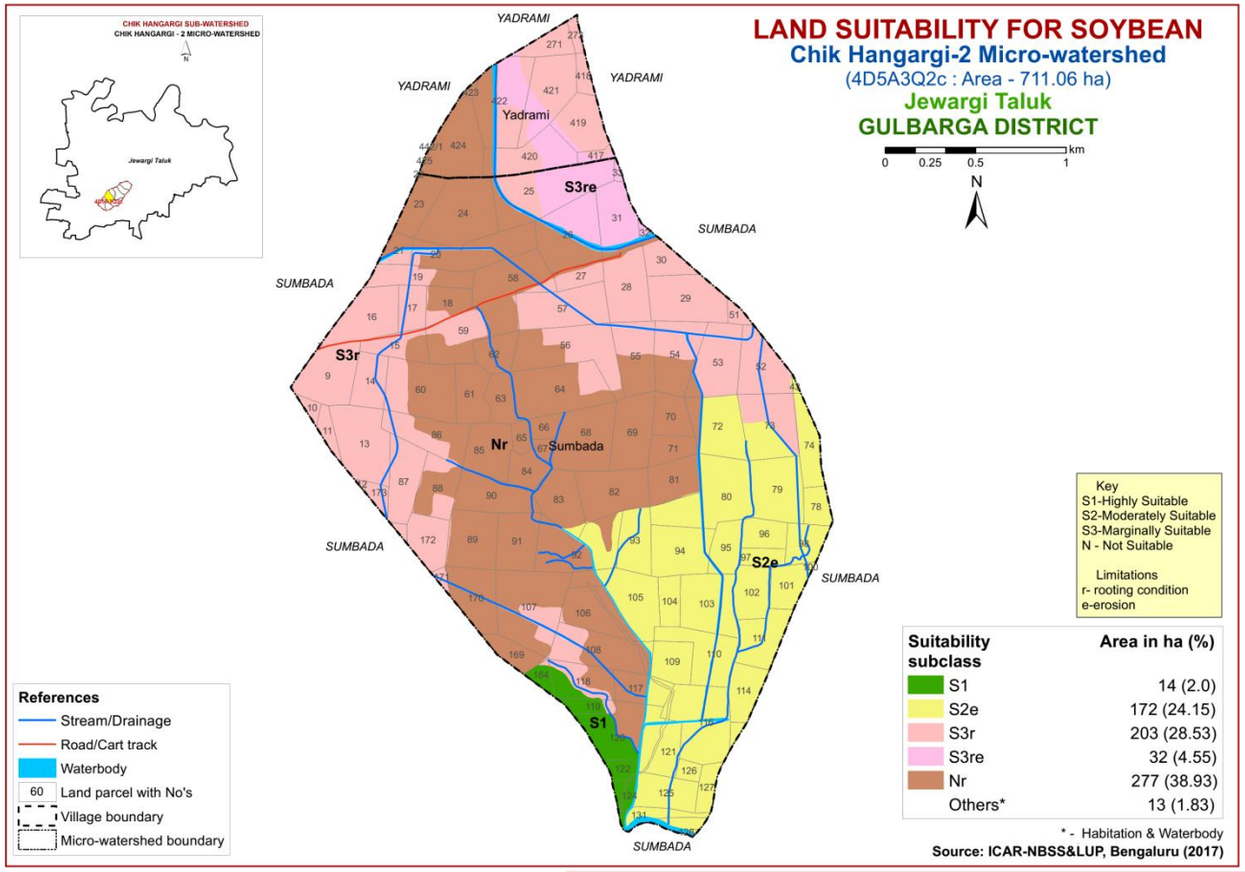

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR COTTON
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Nr
S3r
S2r
S1
Hapgalgi (K)
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
Suitability subclass
Area in ha (%)
S1 402 (71.54)
S2r 4 (0.8)
S3r 107 (19.03)
Nr 36 (6.45)
Others* 12 (2.18)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

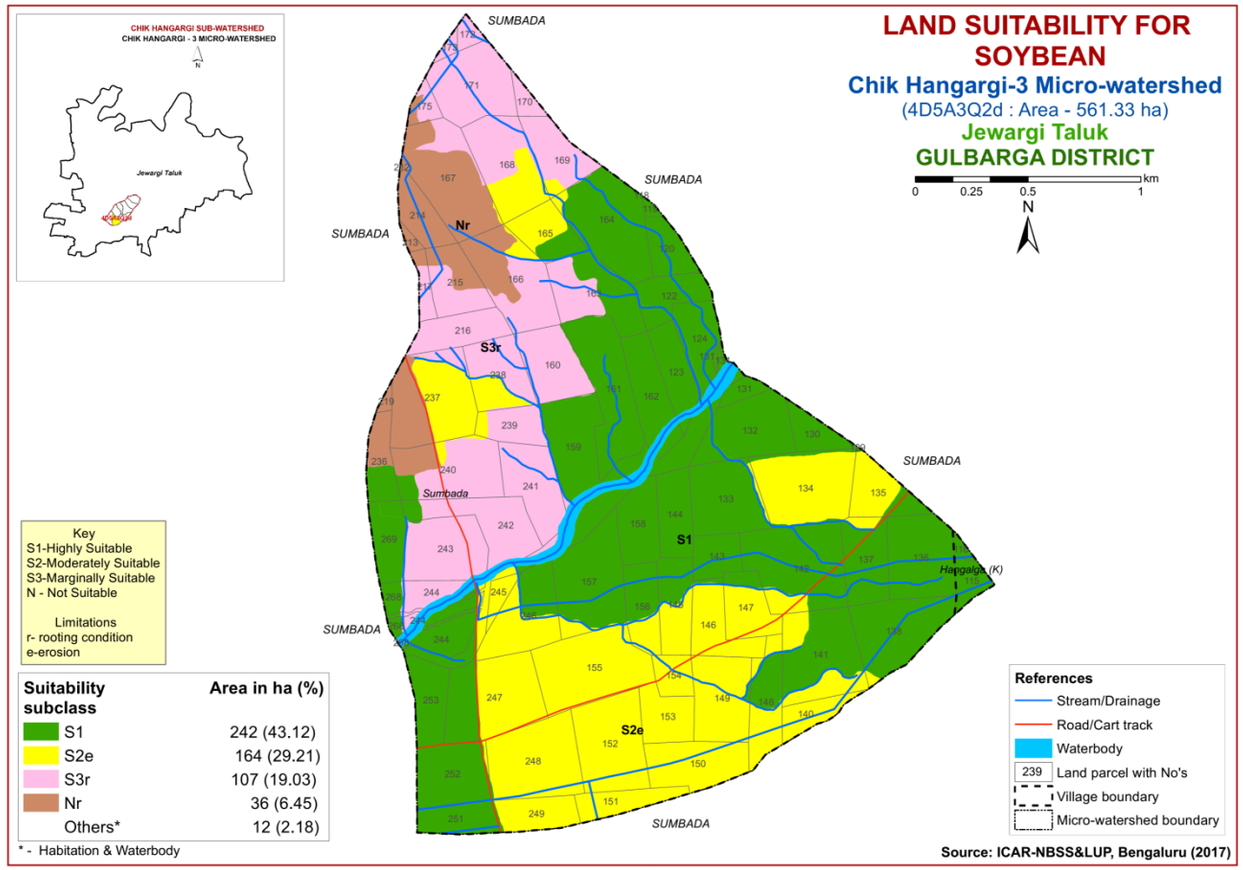

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR COTTON
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
S3r
S3re
Nr
Nre
S2r
S1
Dhumadri
DUMMADRI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 256 (40.02)
S2r 56 (8.72)
S3r 54 (8.53)
S3re 33 (5.12)
Nr 81 (12.63)
Nre 125 (19.6)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

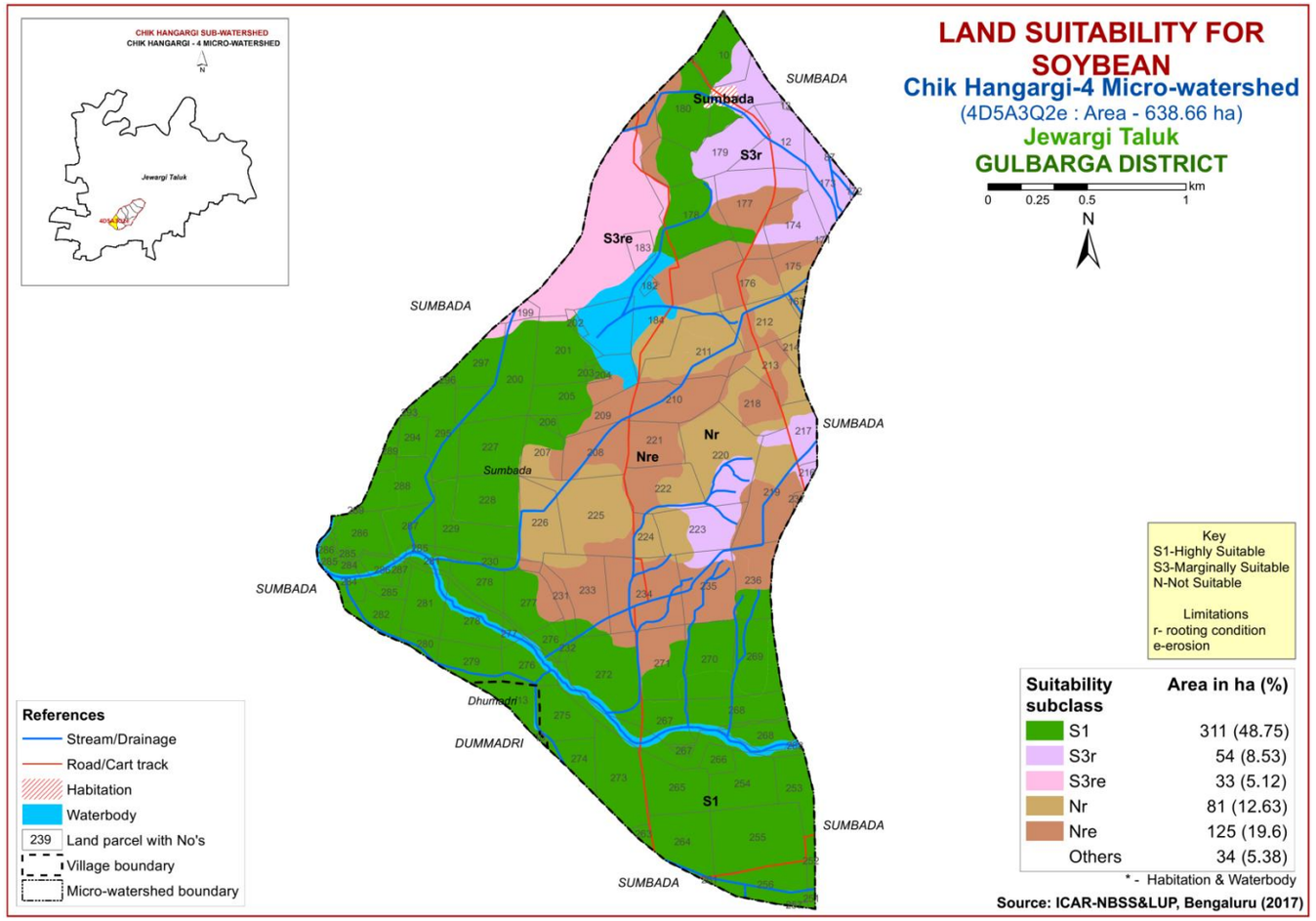

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SUGARCANE
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Nrt
Sumbada
S3t
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S3t 186 (26.15)
Nrt 512 (72.02)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

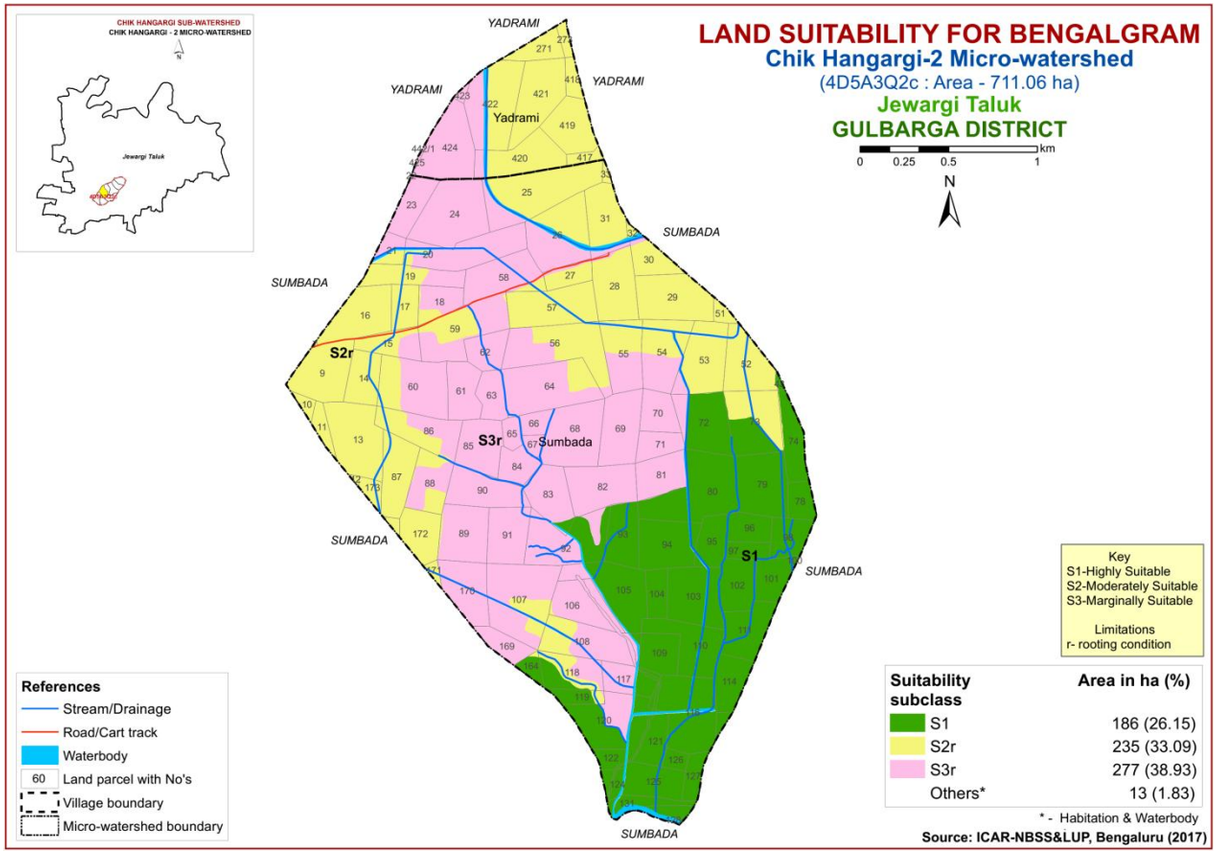

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SUGARCANE
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nrt
Sumbada
S3t
Hangalga (K)
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S3t 406 (72.34)
Nrt 143 (25.48)
Others 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

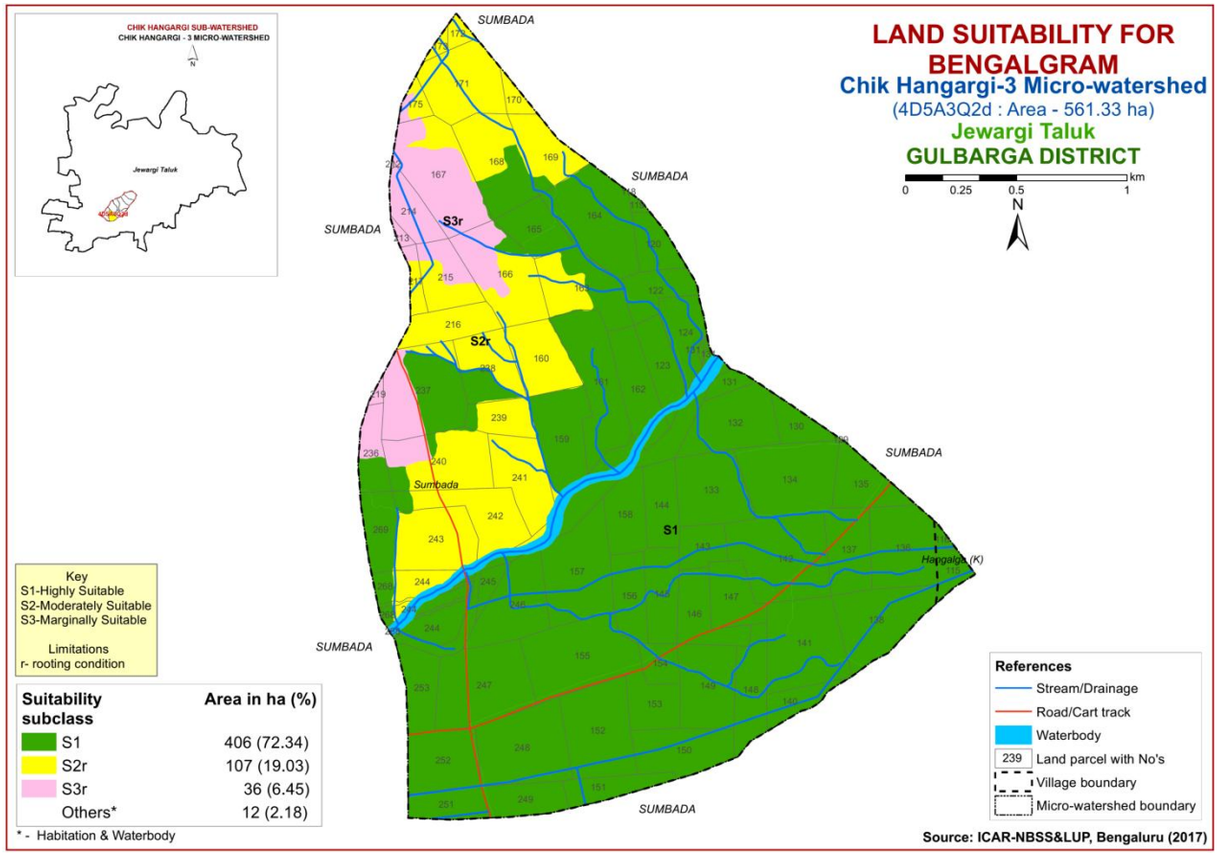

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SUGARCANE
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Nrt
S3t
Dhumadri
DUMMADRI
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S3t 311 (48.75)
Nrt 293 (45.87)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

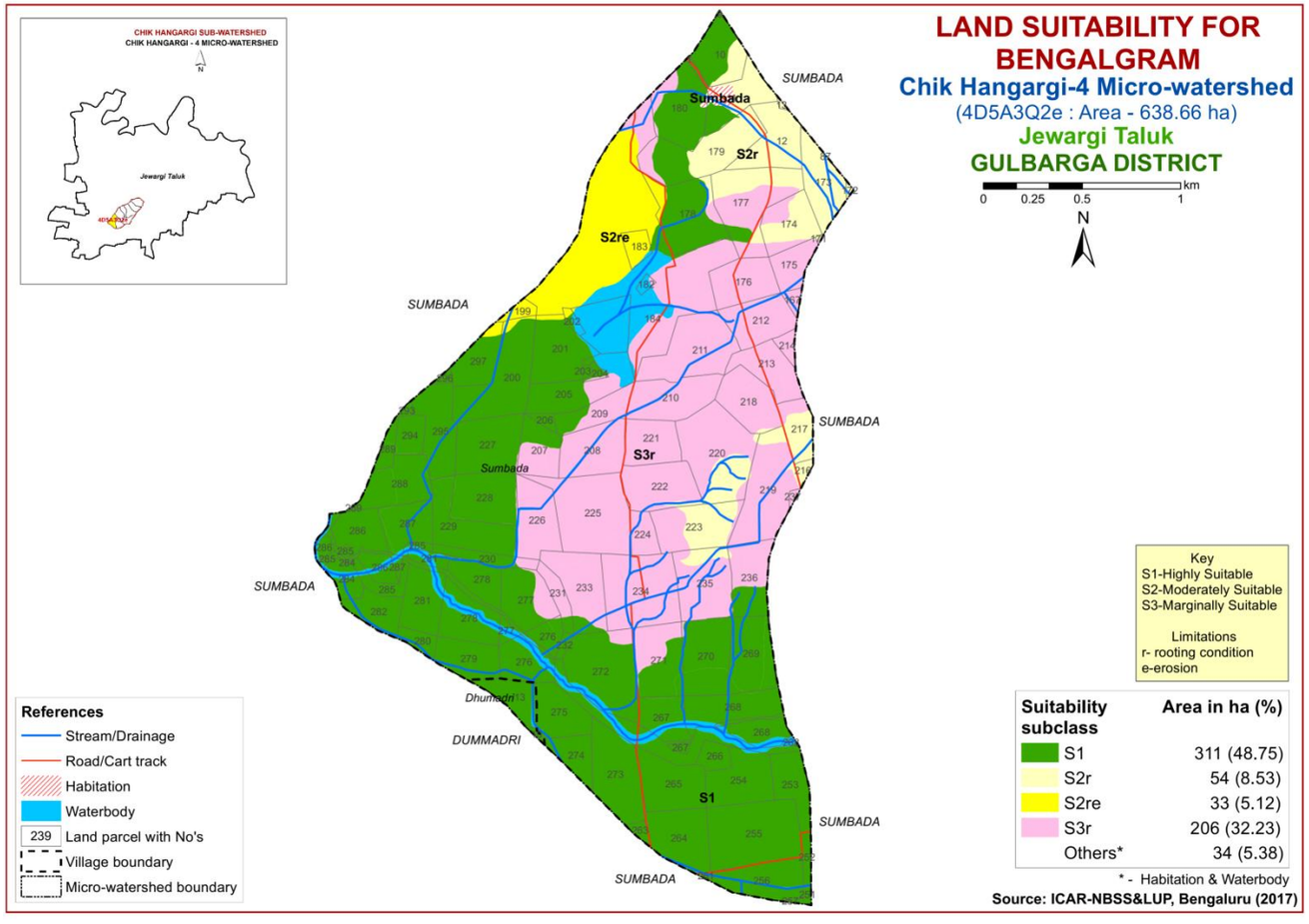

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SOYBEAN
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
S3re
S3r
Nr
S2e
S1
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass | Area in ha (%)
S1 14 (2.0)
S2e 172 (24.15)
S3r 203 (28.53)
S3re 32 (4.55)
Nr 277 (38.93)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary

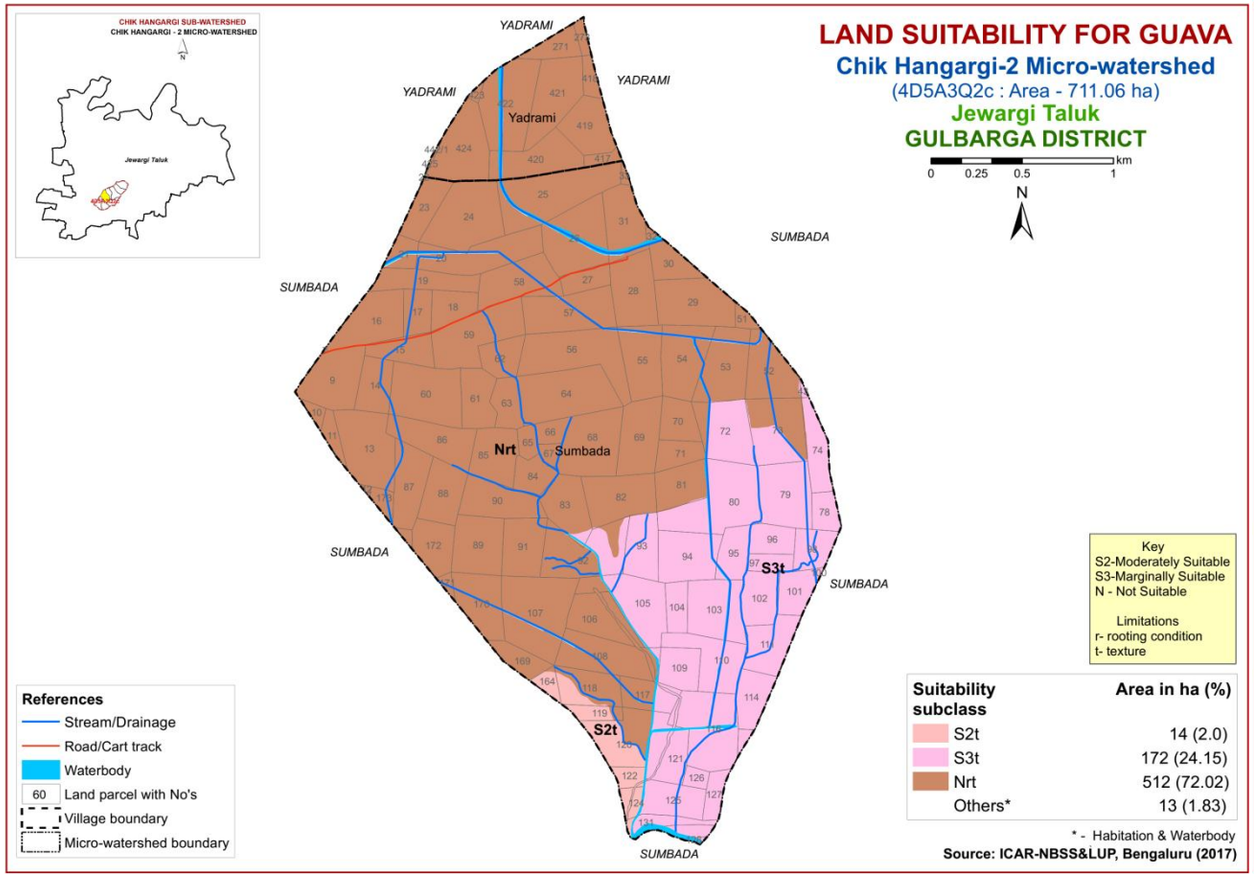

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SOYBEAN
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nr
S3r
Sumbada
S1
S2e
Hanggalgi (K)
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass | Area in ha (%)
S1 242 (43.12)
S2e 164 (29.21)
S3r 107 (19.03)
Nr 36 (6.45)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary

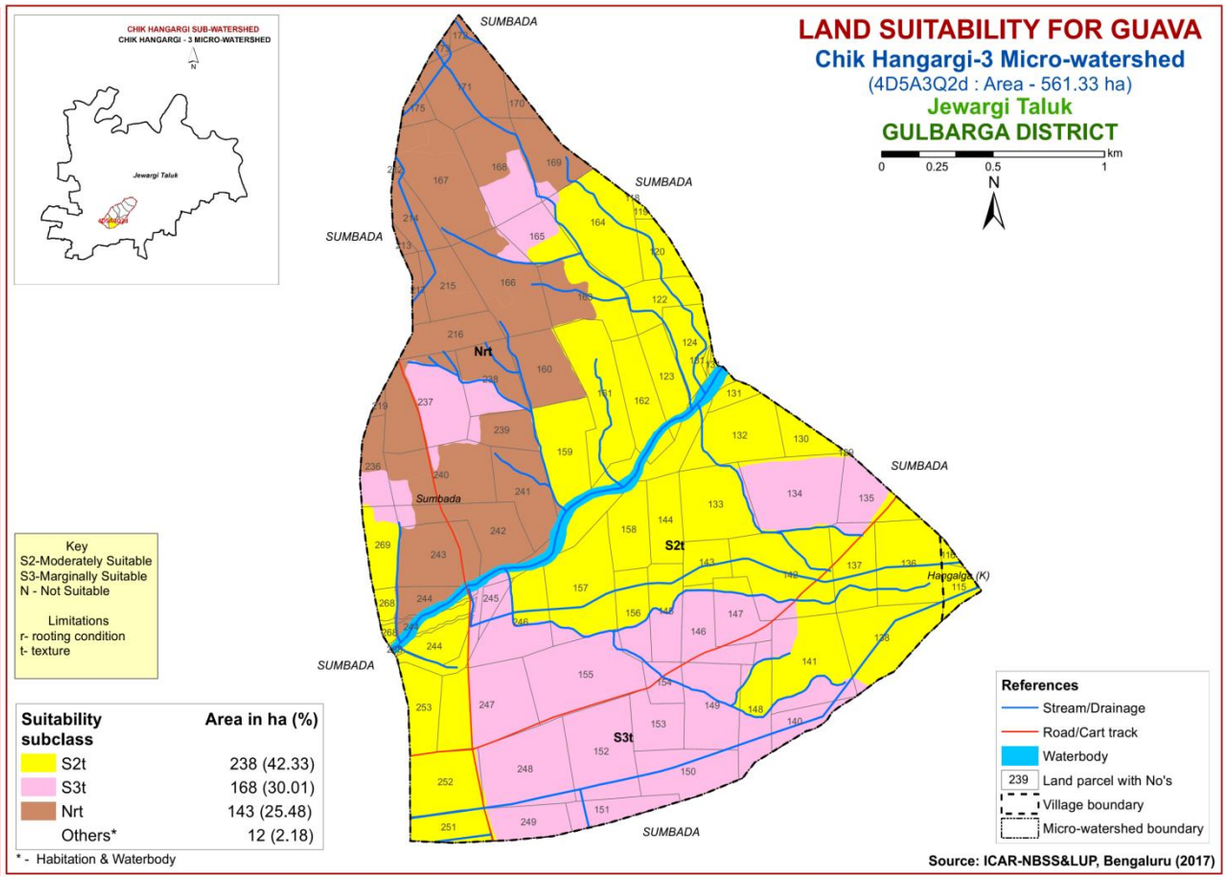

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR SOYBEAN
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
S3r
S3re
Nr
Nre
S1
DUMMADRI
Dhumadri
Key
S1-Highly Suitable
S3-Marginally Suitable
N-Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass | Area in ha (%)
S1 311 (48.75)
S3r 54 (8.53)
S3re 33 (5.12)
Nr 81 (12.63)
Nre 125 (19.6)
Others 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village boundary
Micro-watershed boundary

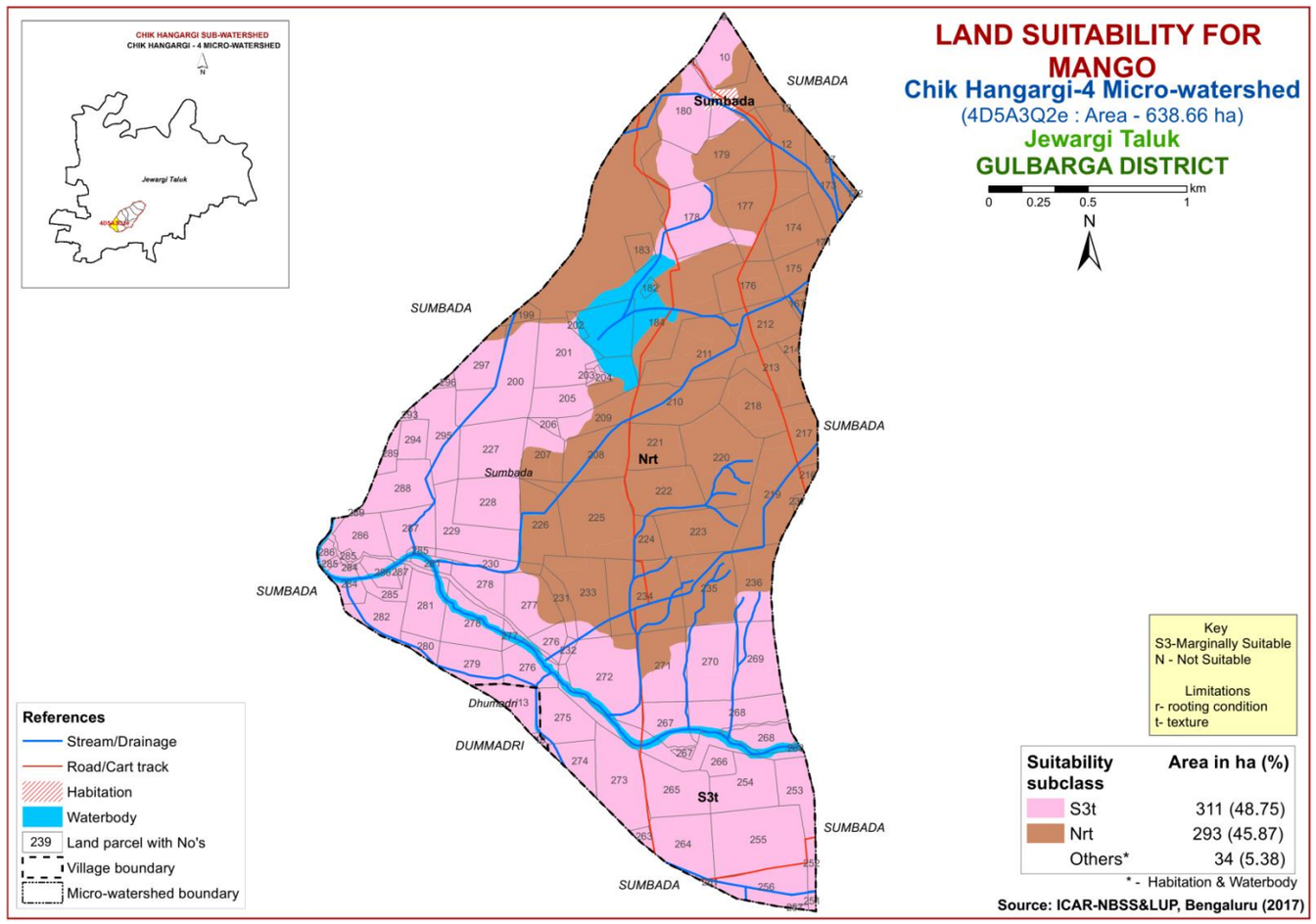

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR BENGALGRAM
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
S2r
S3r
S1
Sumbada
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
r- rooting condition
Suitability subclass | Area in ha (%)
S1 186 (26.15)
S2r 235 (33.09)
S3r 277 (38.93)
Others* 13 (1.83)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

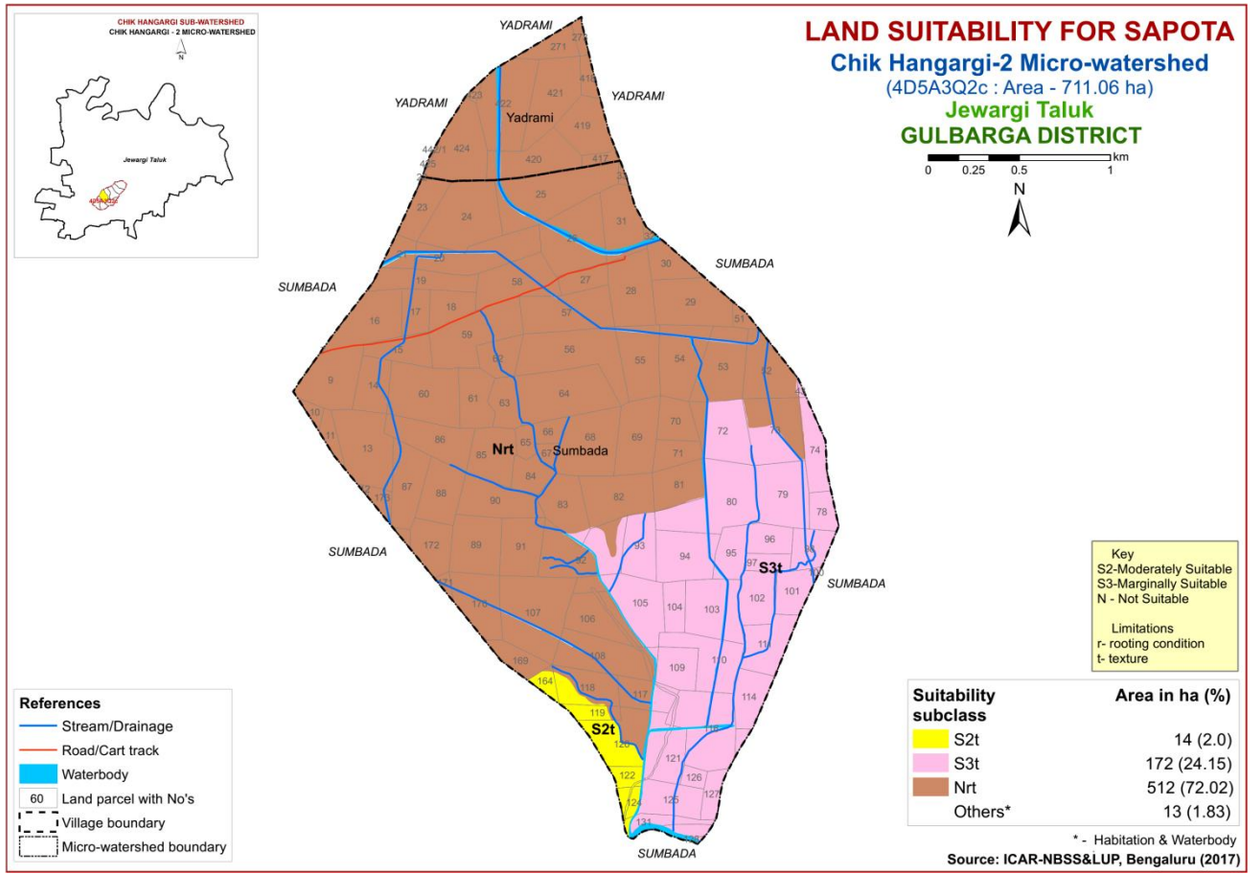

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR BENGALGRAM
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
S3r
S2r
S1
Sumbada
Hangalgi (K)
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
r- rooting condition
Suitability subclass | Area in ha (%)
S1 406 (72.34)
S2r 107 (19.03)
S3r 36 (6.45)
Others* 12 (2.18)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

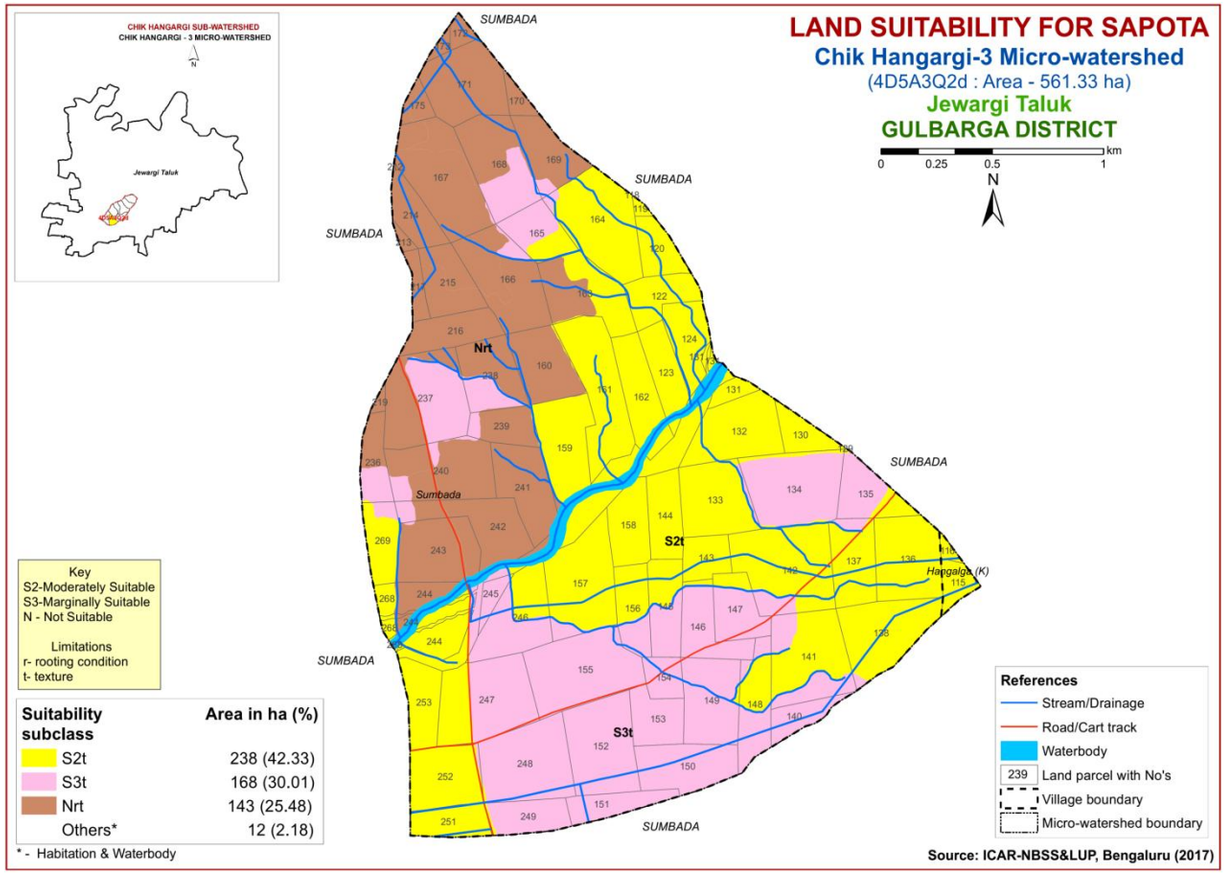

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR BENGALGRAM
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
S2r
S2re
S3r
S1
Dhummadri
DUMMADRI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass | Area in ha (%)
S1 311 (48.75)
S2r 54 (8.53)
S2re 33 (5.12)
S3r 206 (32.23)
Others* 34 (5.38)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

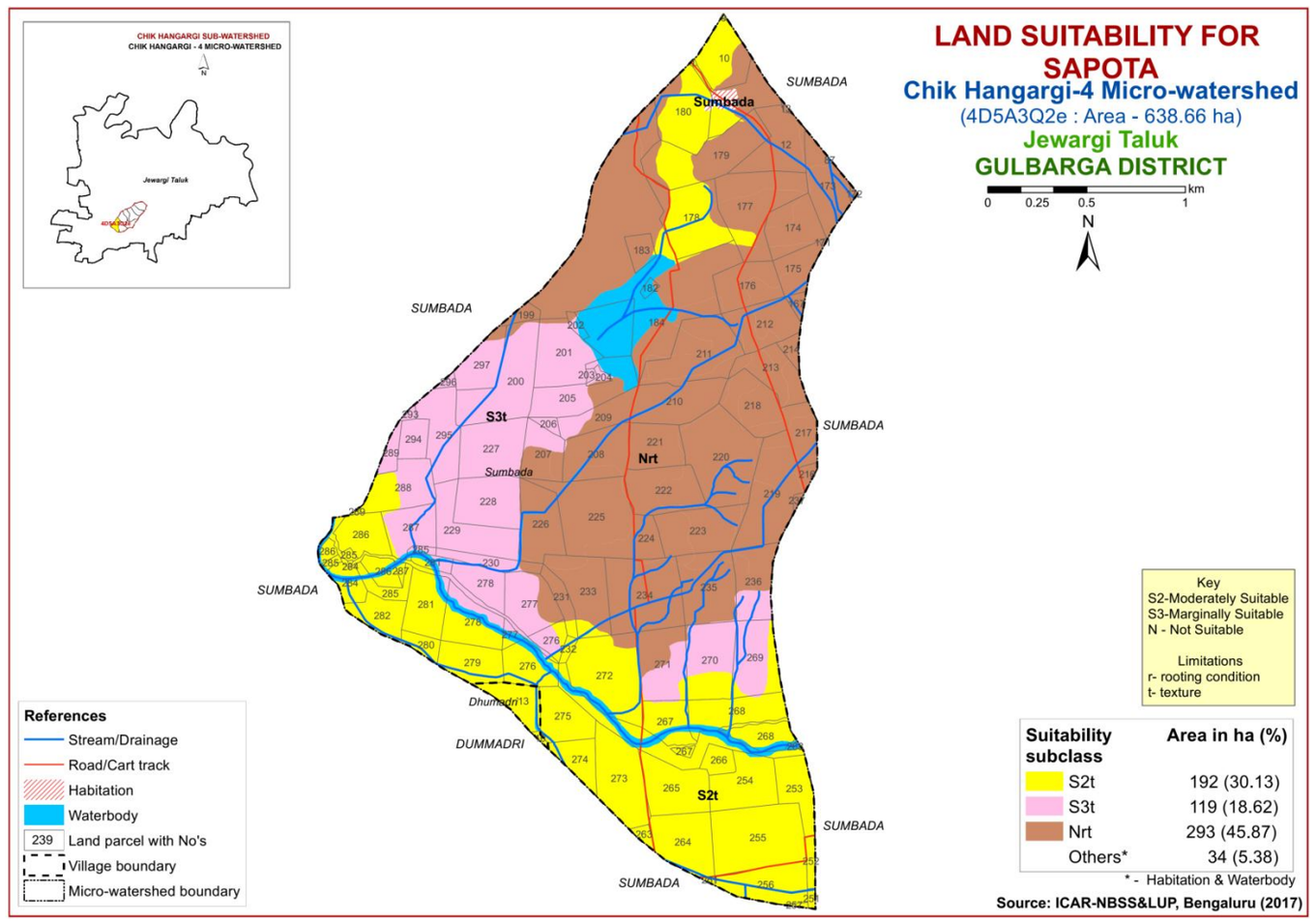

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR GUAVA
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Nrt
Sumbada
S3t
S2t
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S2t 14 (2.0)
S3t 172 (24.15)
Nrt 512 (72.02)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

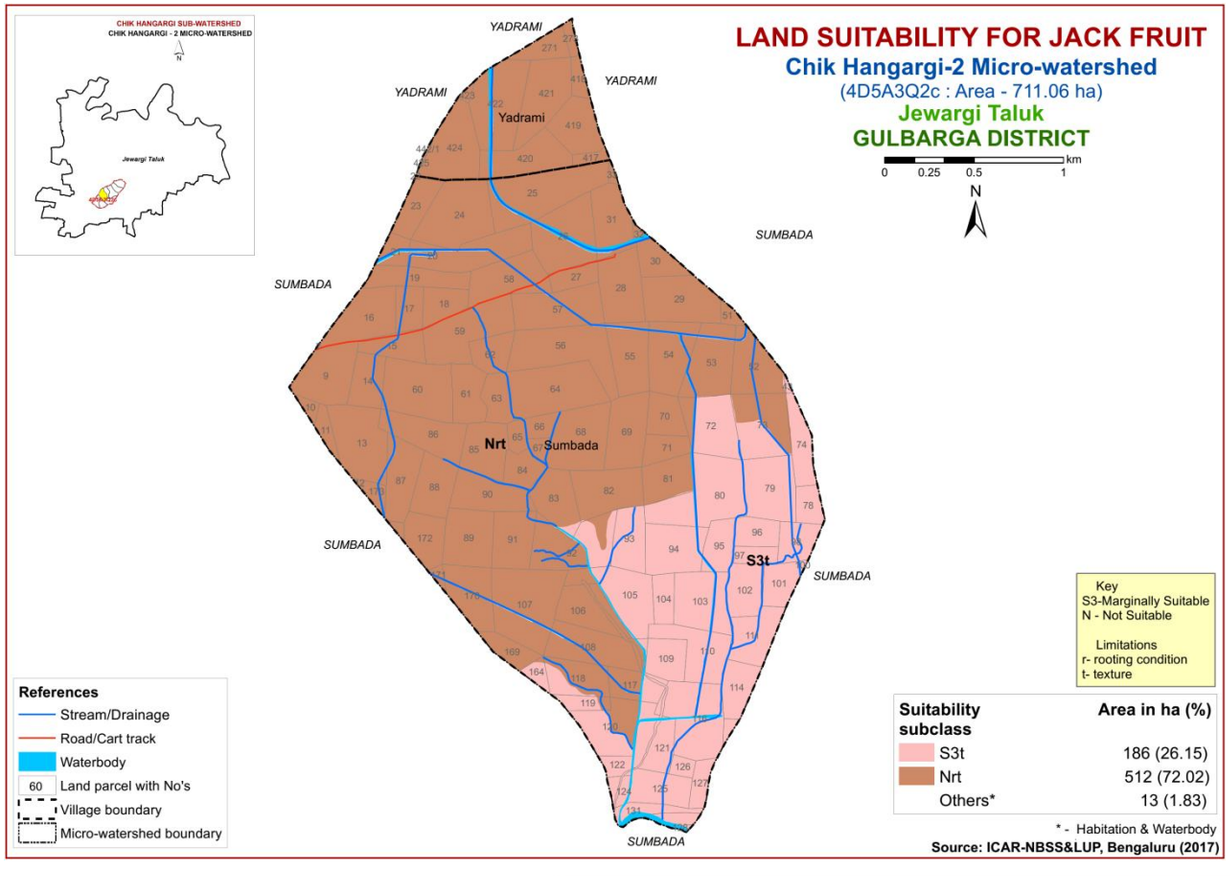

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR GUAVA
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nrt
Sumbada
S2t
S3t
Hangarga (K)
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S2t 238 (42.33)
S3t 168 (30.01)
Nrt 143 (25.48)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

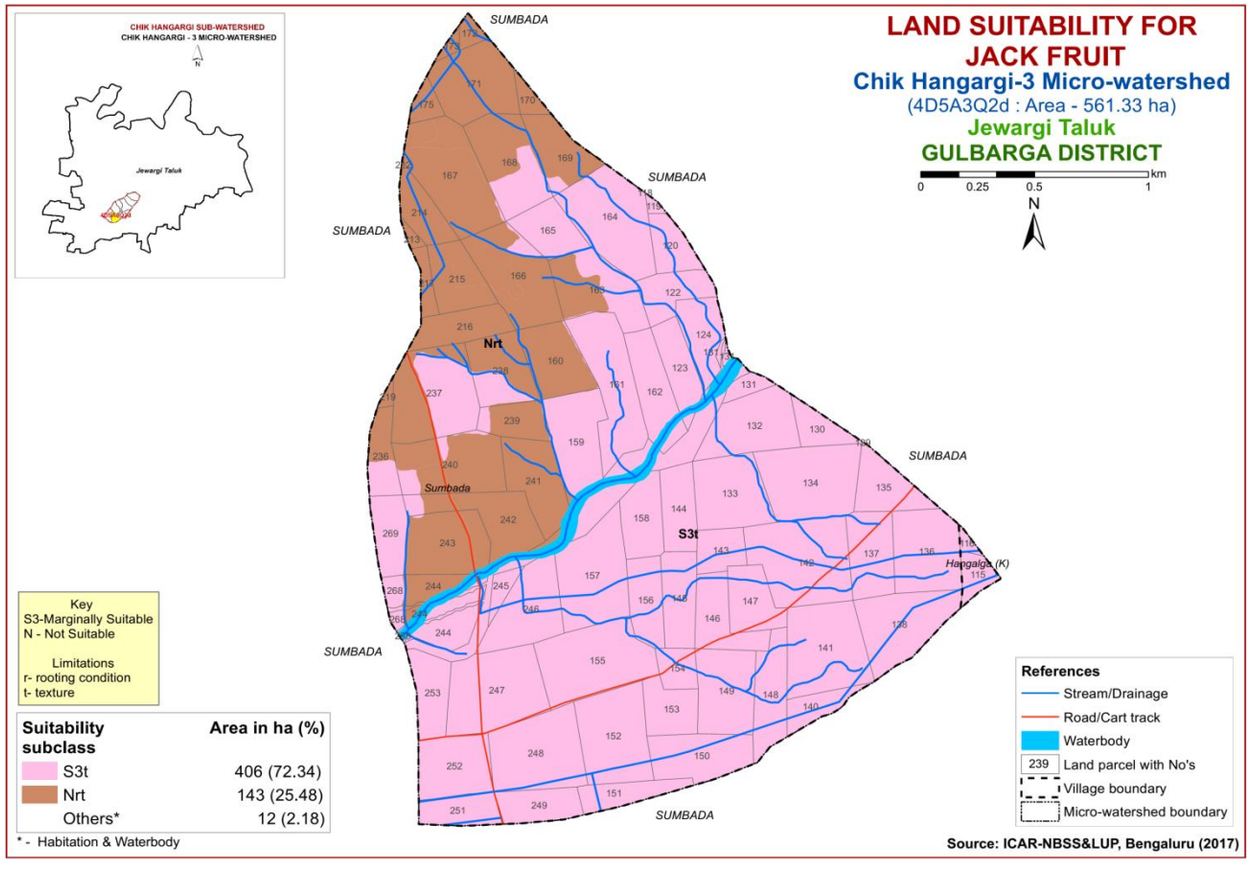

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR MANGO
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Nrt
S3t
Dhummadri
DUMMADRI
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S3t 311 (48.75)
Nrt 293 (45.87)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

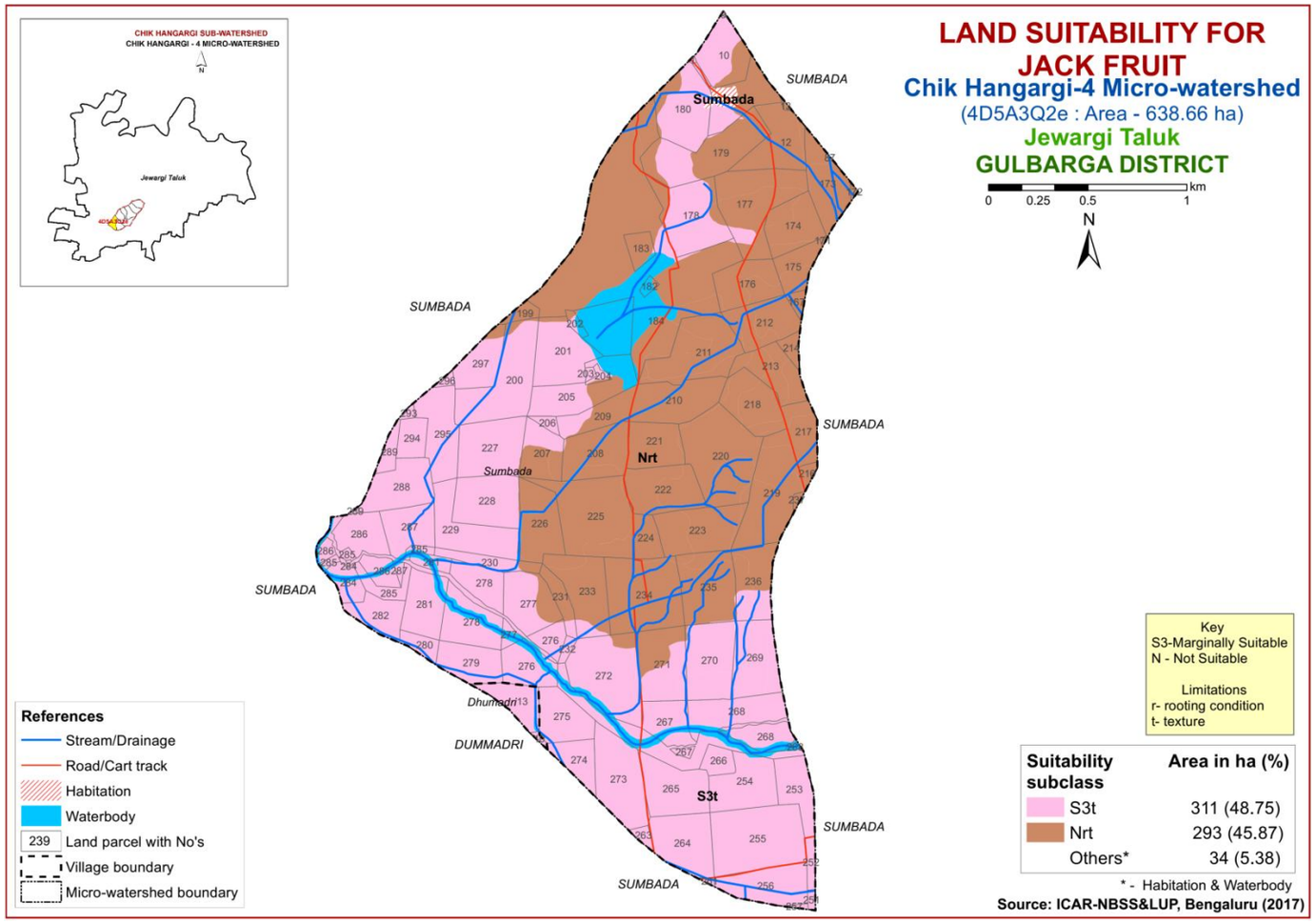

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
YADRAMI
Yadrami
SUMBADA
Nrt
Sumbada
S3t
S2t
LAND SUITABILITY FOR SAPOTA
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass | Area in ha (%)
S2t | 14 (2.0)
S3t | 172 (24.15)
Nrt | 512 (72.02)
Others* | 13 (1.83)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

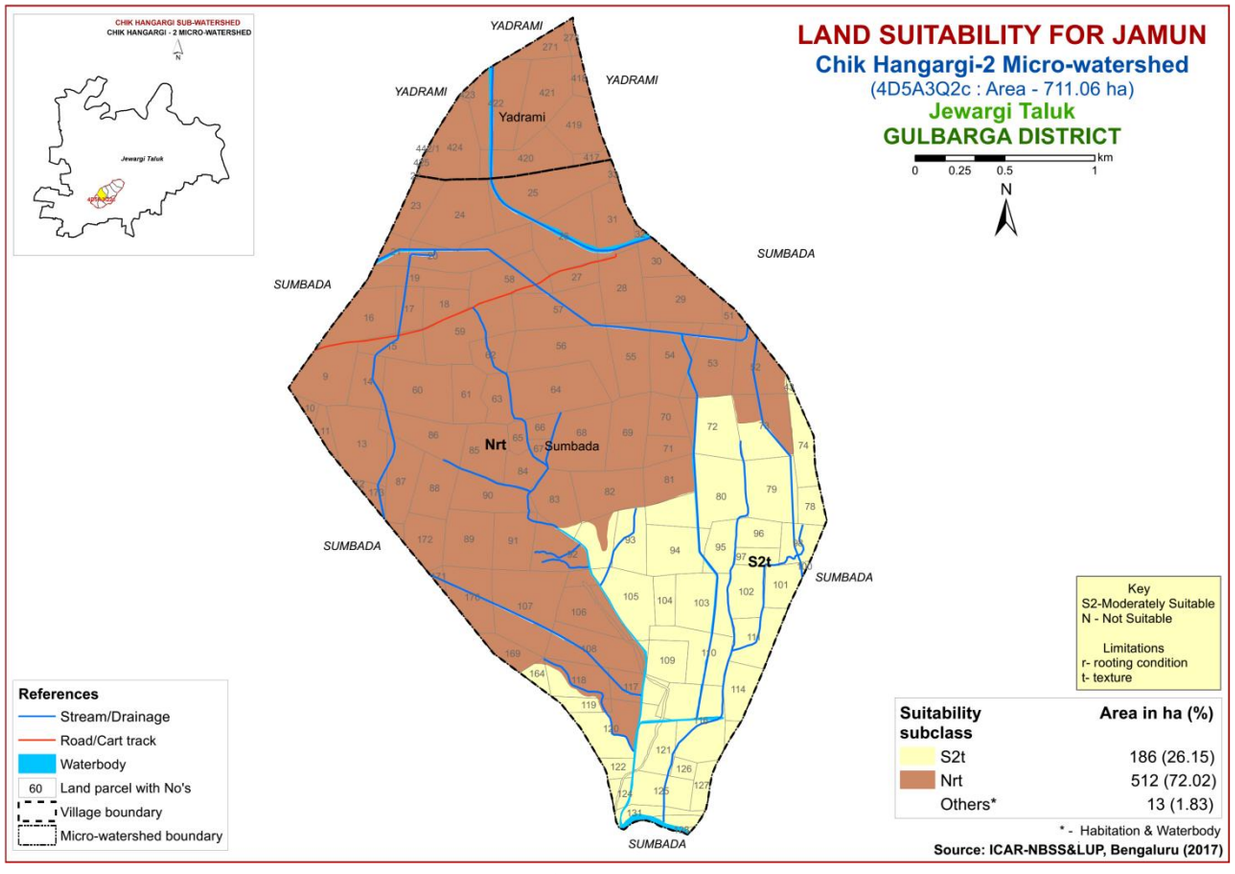

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
Nrt
Sumbada
S2t
S3t
Hangalga (K)
LAND SUITABILITY FOR SAPOTA
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass | Area in ha (%)
S2t | 238 (42.33)
S3t | 168 (30.01)
Nrt | 143 (25.48)
Others* | 12 (2.18)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

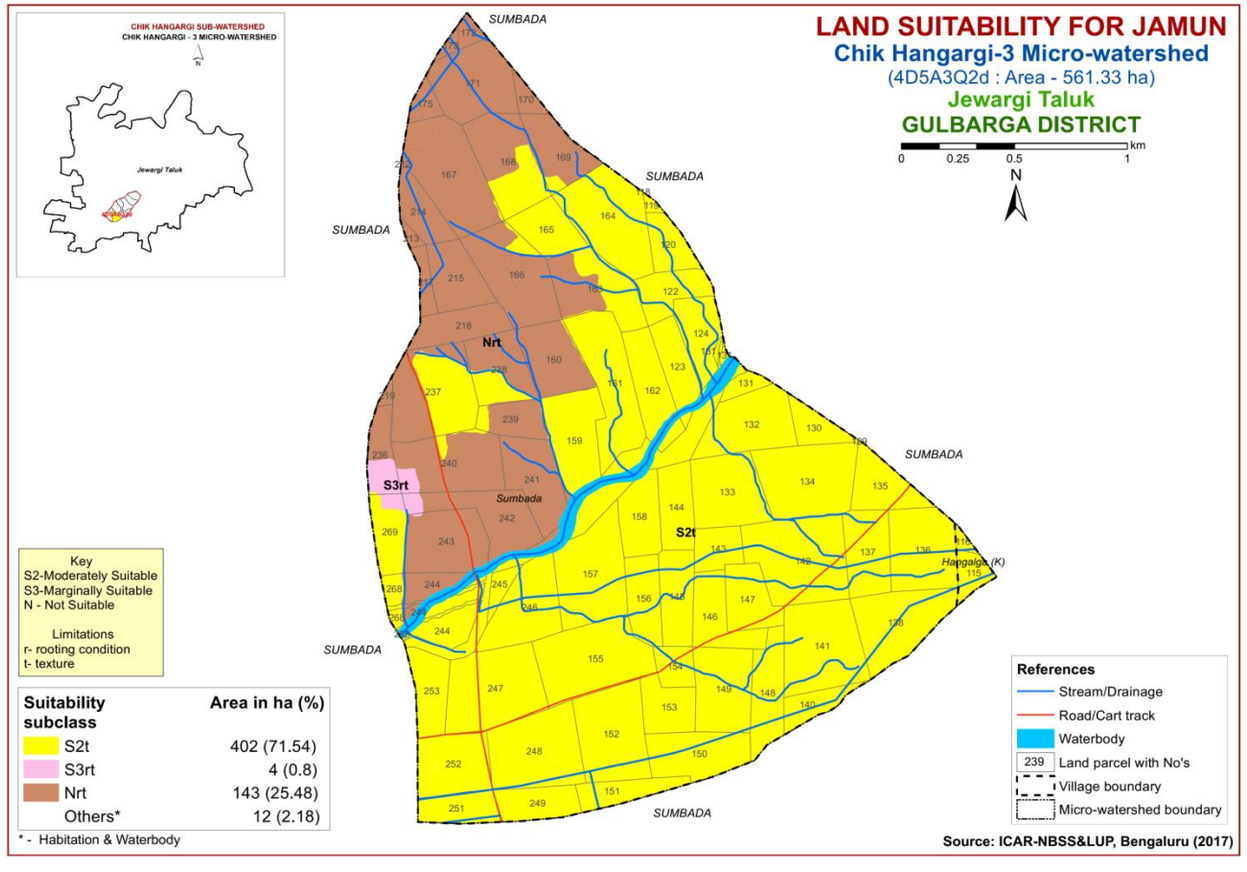

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SUMBADA
Sumbada
S3t
Nrt
S2t
Dhummadri
DUMMADRI
LAND SUITABILITY FOR SAPOTA
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass | Area in ha (%)
S2t | 192 (30.13)
S3t | 119 (18.62)
Nrt | 293 (45.87)
Others* | 34 (5.38)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

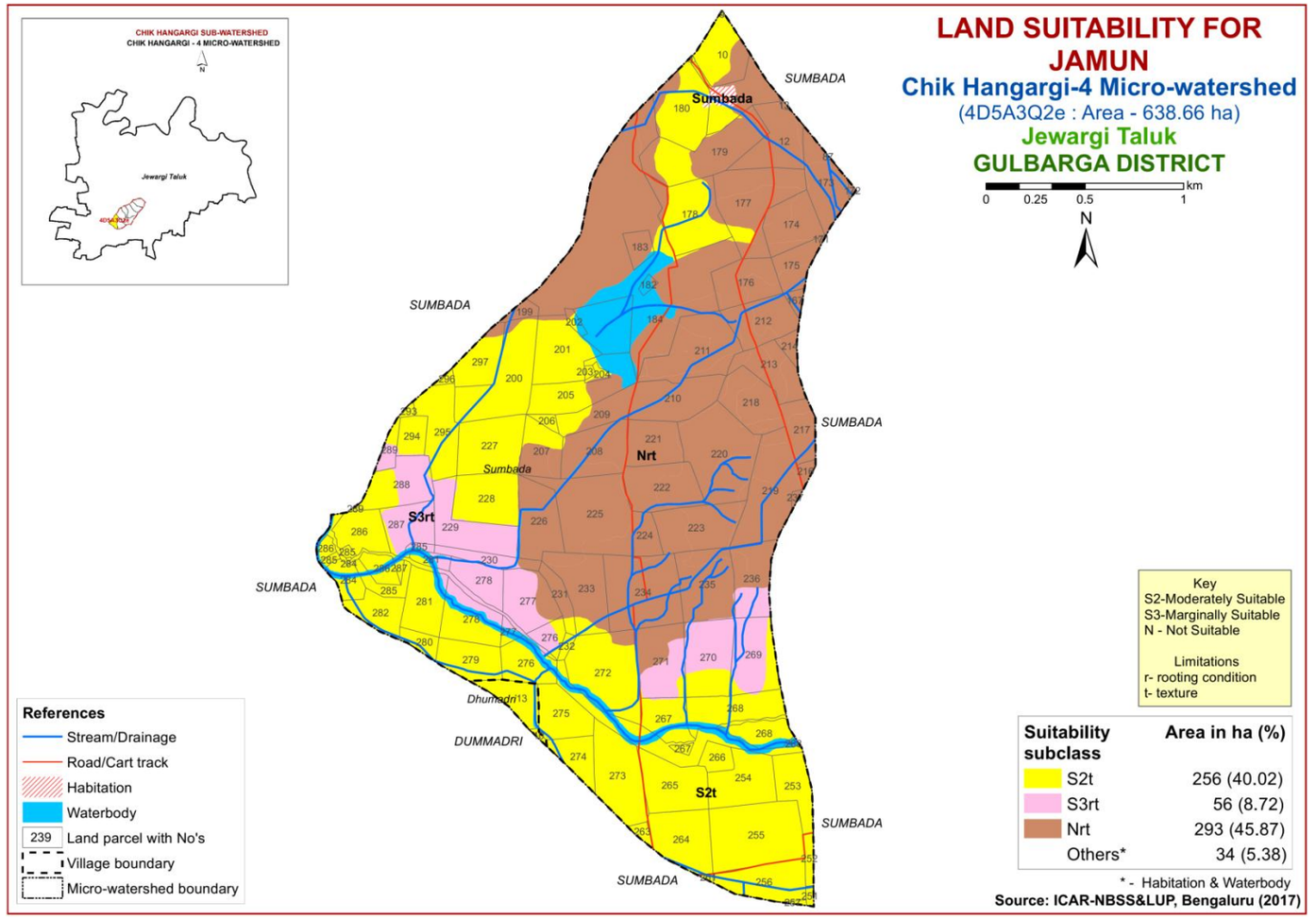

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR JACK FRUIT
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Nrt
Sumbada
S3t
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S3t 186 (26.15)
Nrt 512 (72.02)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

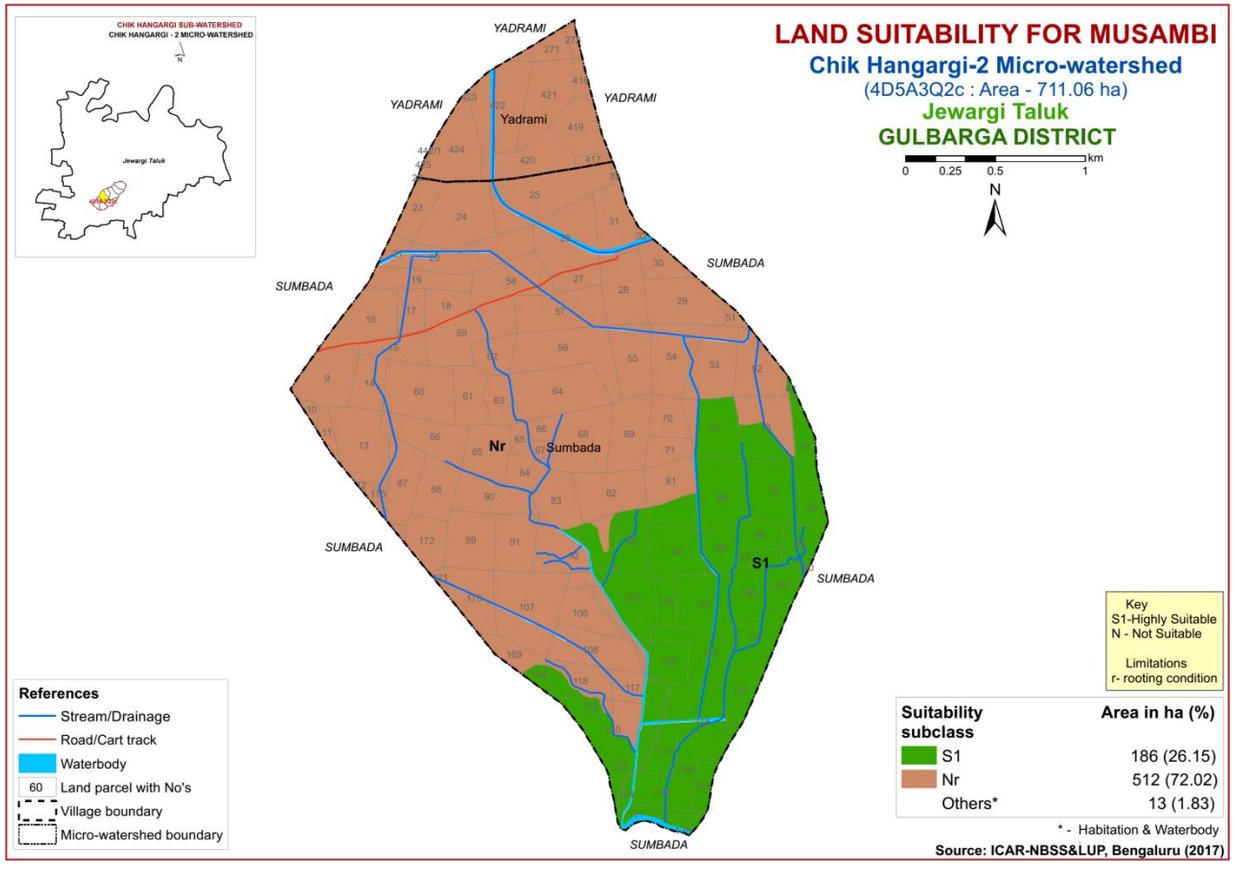

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR JACK FRUIT
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nrt
Sumbada
S3t
Hangalga (K)
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S3t 406 (72.34)
Nrt 143 (25.48)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

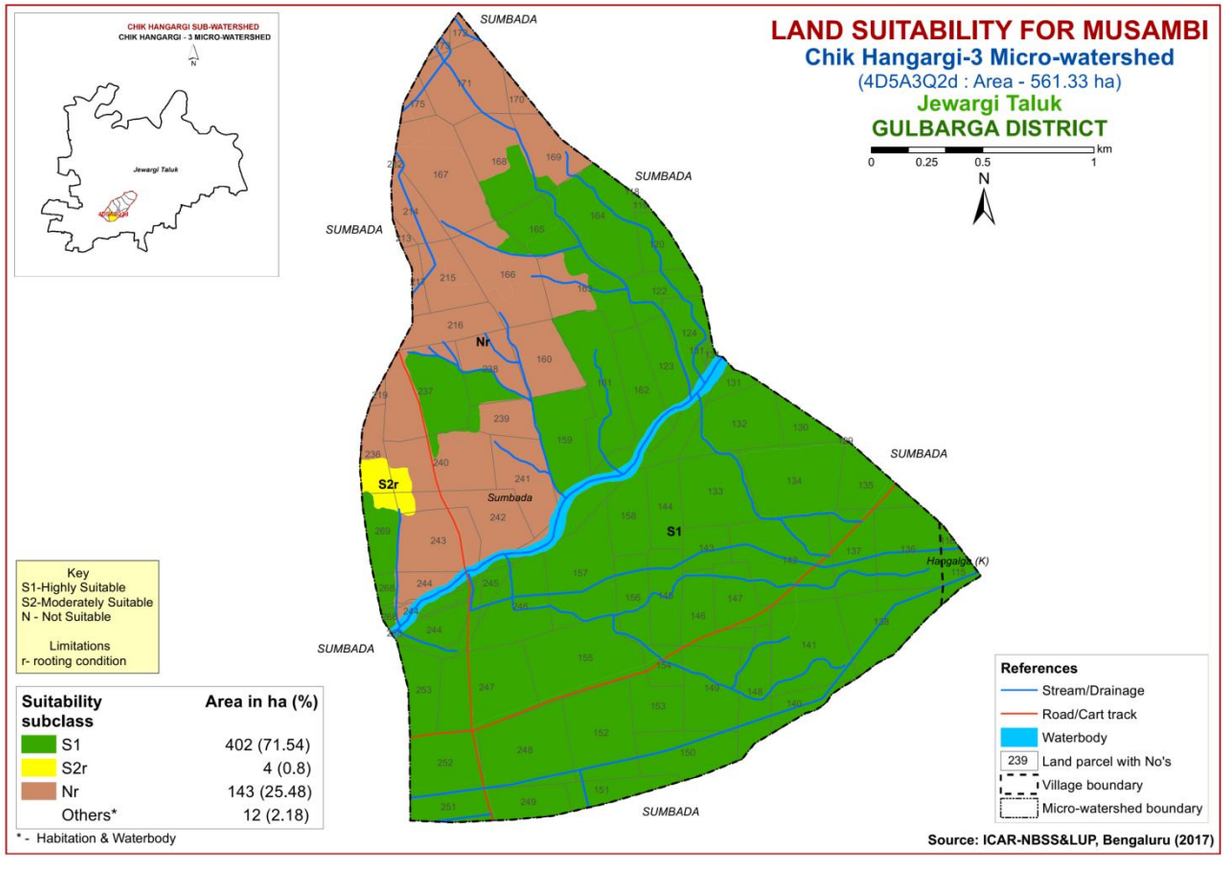

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR JACK FRUIT
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Nrt
S3t
Dhumadri
DUMMADRI
Key
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S3t 311 (48.75)
Nrt 293 (45.87)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

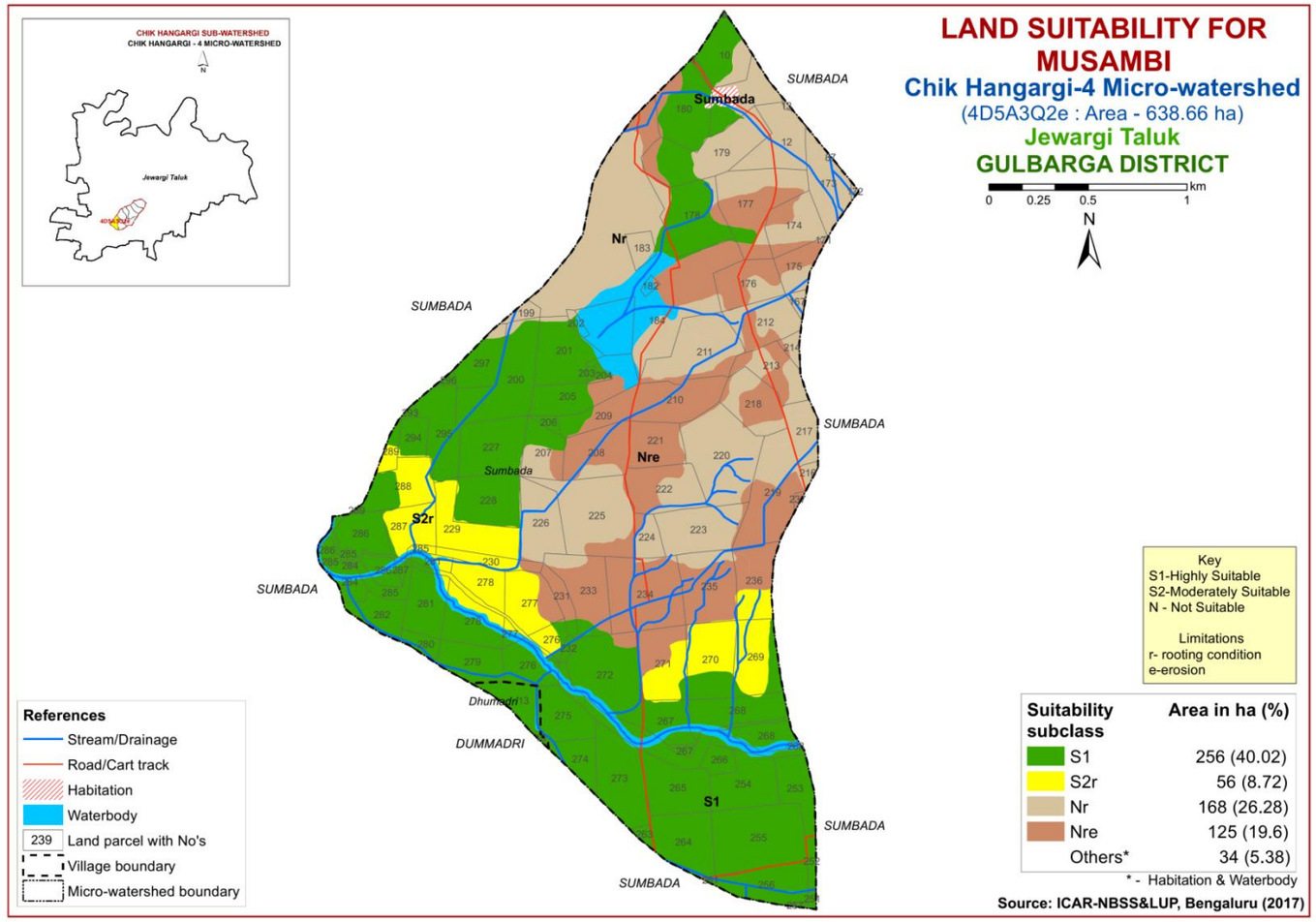

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR JAMUN
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Nrt
Sumbada
S2t
Key
S2-Moderately Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S2t 186 (26.15)
Nrt 512 (72.02)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

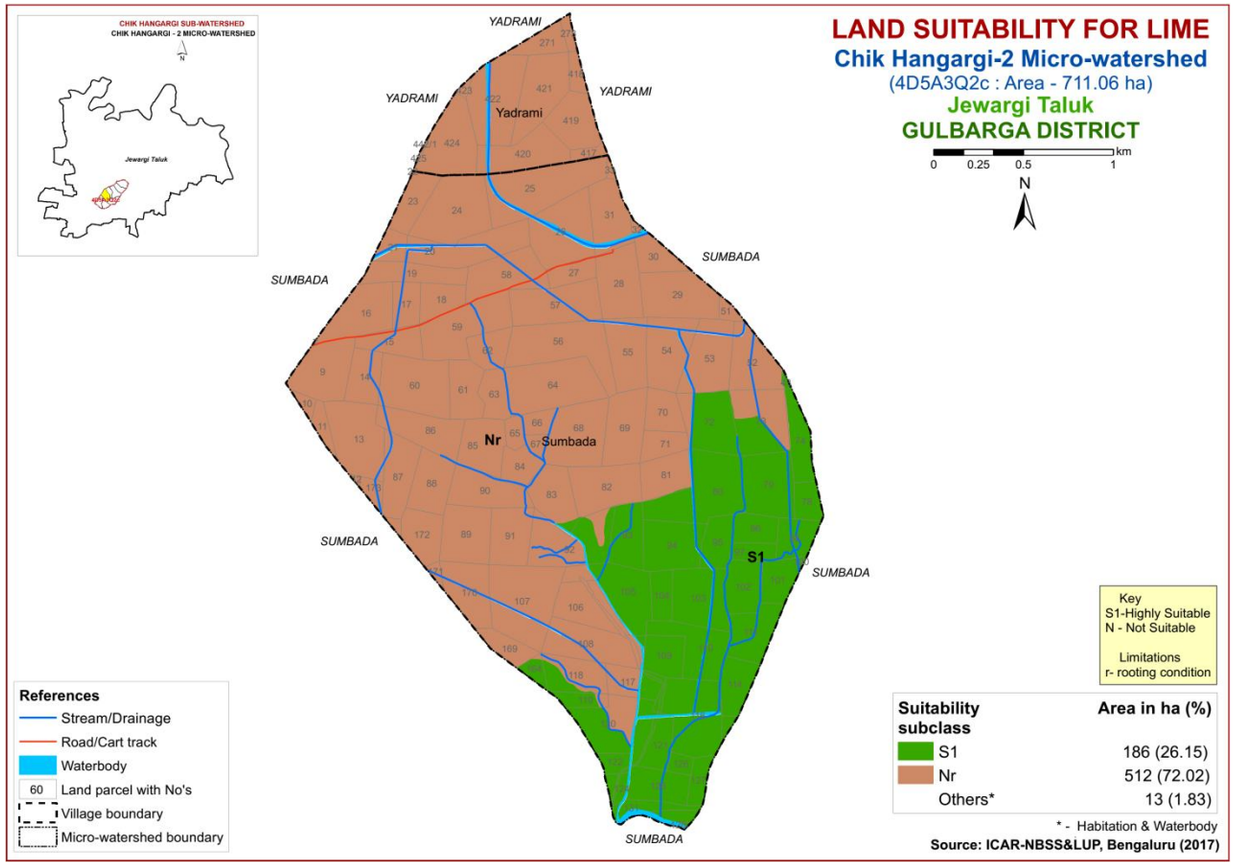

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR JAMUN
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nrt
S3rt
Sumbada
S2t
Hangalga (K)
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S2t 402 (71.54)
S3rt 4 (0.8)
Nrt 143 (25.48)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

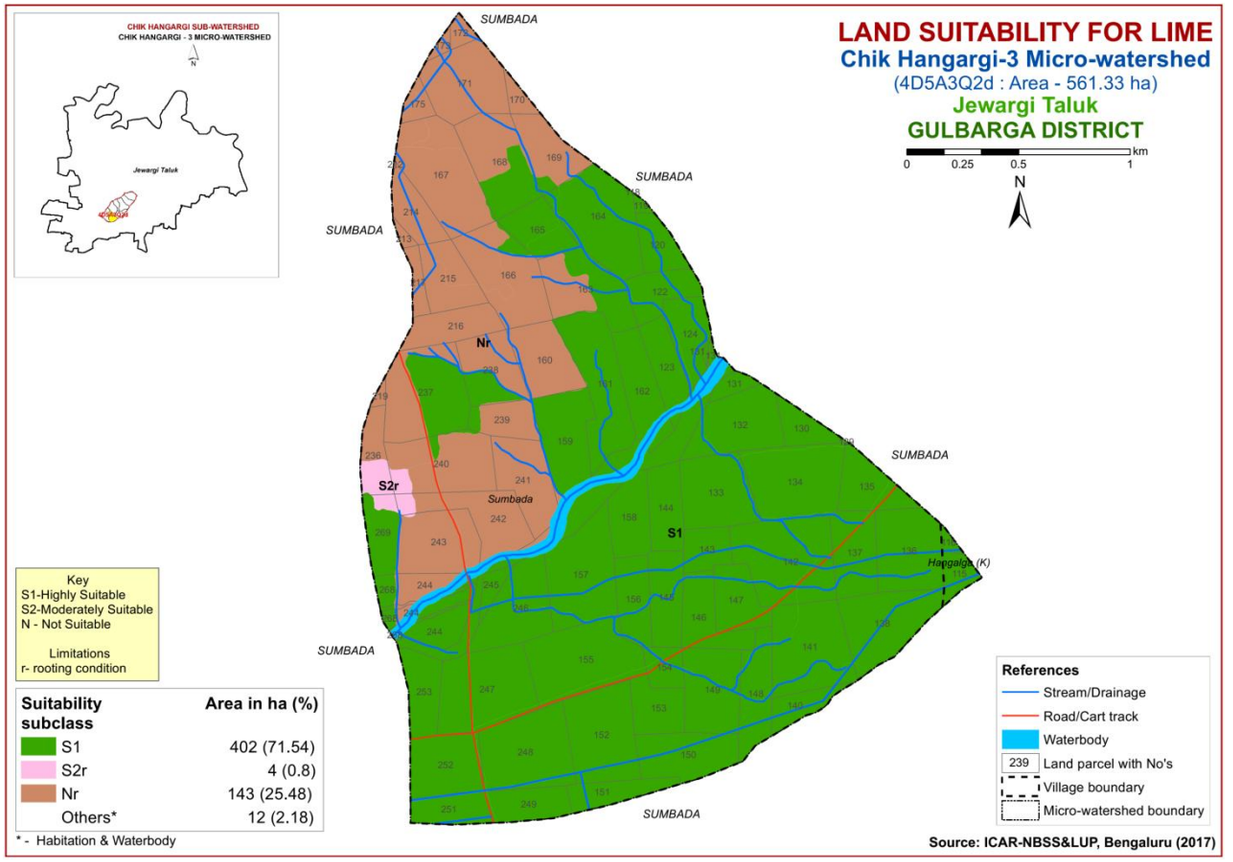

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR JAMUN
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Nrt
S3rt
S2t
Dhumadri
DUMMADRI
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S2t 256 (40.02)
S3rt 56 (8.72)
Nrt 293 (45.87)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

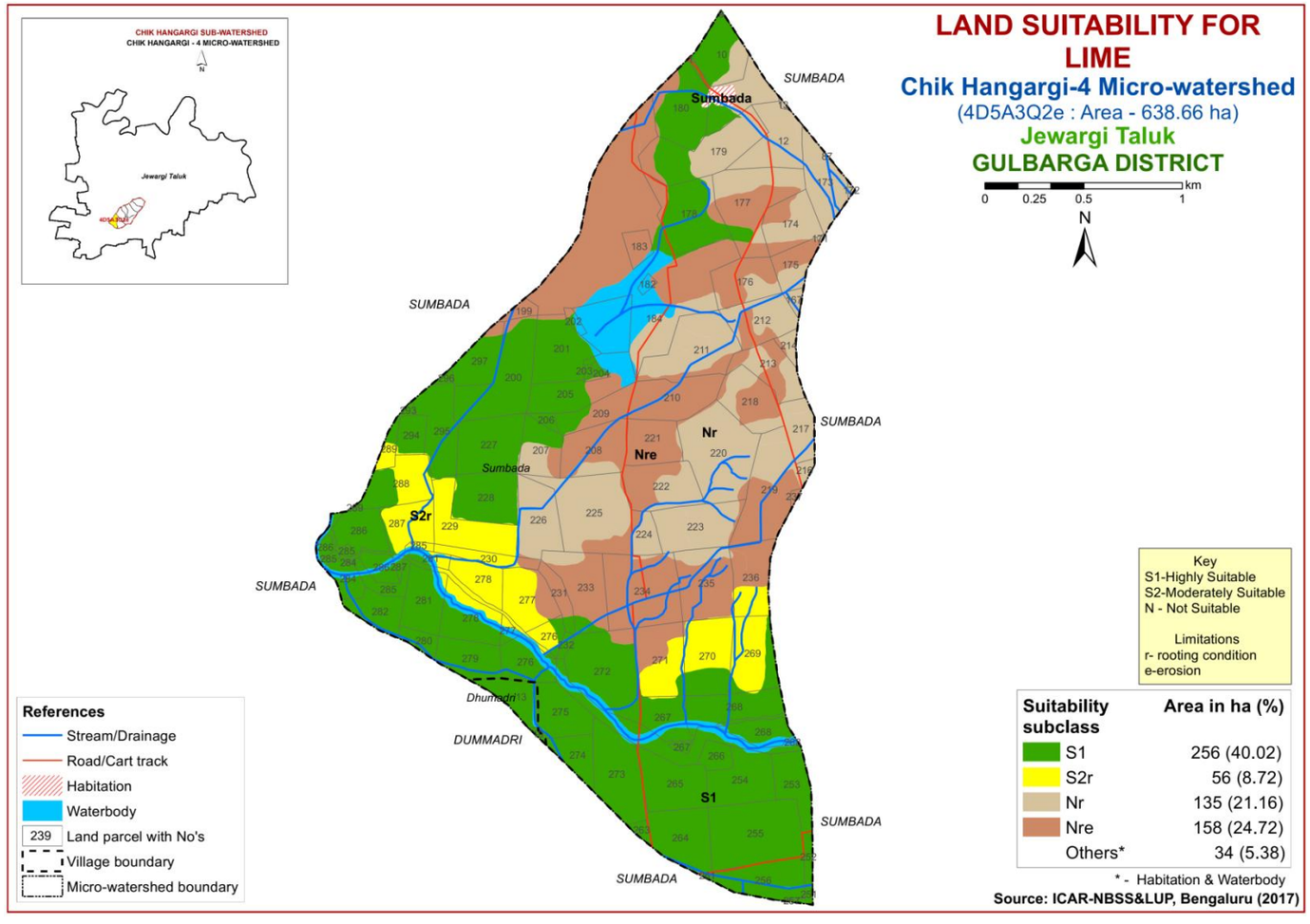

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR MUSAMBI
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Nr
Sumbada
S1
Key
S1-Highly Suitable
N - Not Suitable
Limitations
r- rooting condition
Suitability subclass
Area in ha (%)
S1 186 (26.15)
Nr 512 (72.02)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

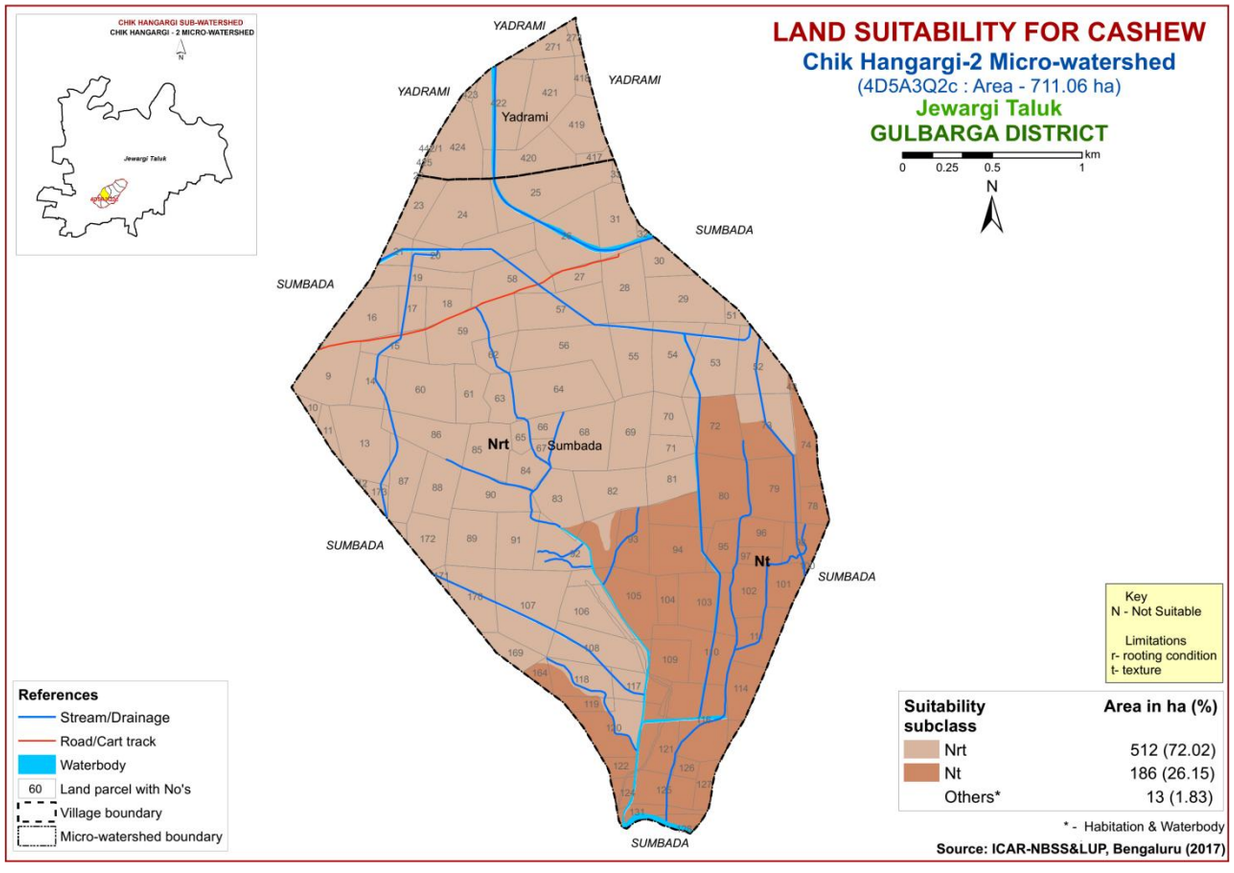

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR MUSAMBI
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nr
S2r
Sumbada
S1
Hangalgi (K)
Key
S1-Highly Suitable
S2-Moderately Suitable
N - Not Suitable
Limitations
r- rooting condition
Suitability subclass
Area in ha (%)
S1 402 (71.54)
S2r 4 (0.8)
Nr 143 (25.48)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

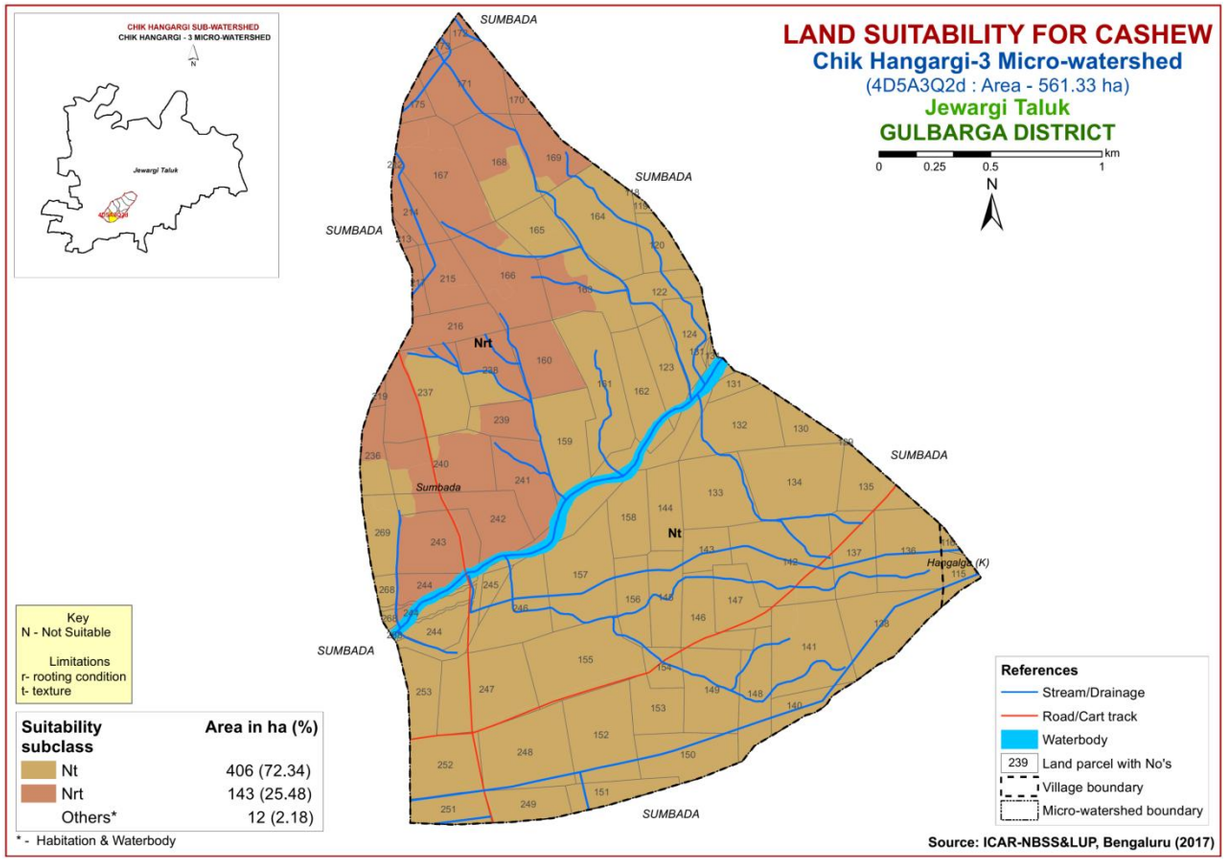

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR MUSAMBI
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Nr
Nre
S2r
S1
Dhummadri
DUMMADRI
Key
S1-Highly Suitable
S2-Moderately Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 256 (40.02)
S2r 56 (8.72)
Nr 168 (26.28)
Nre 125 (19.6)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

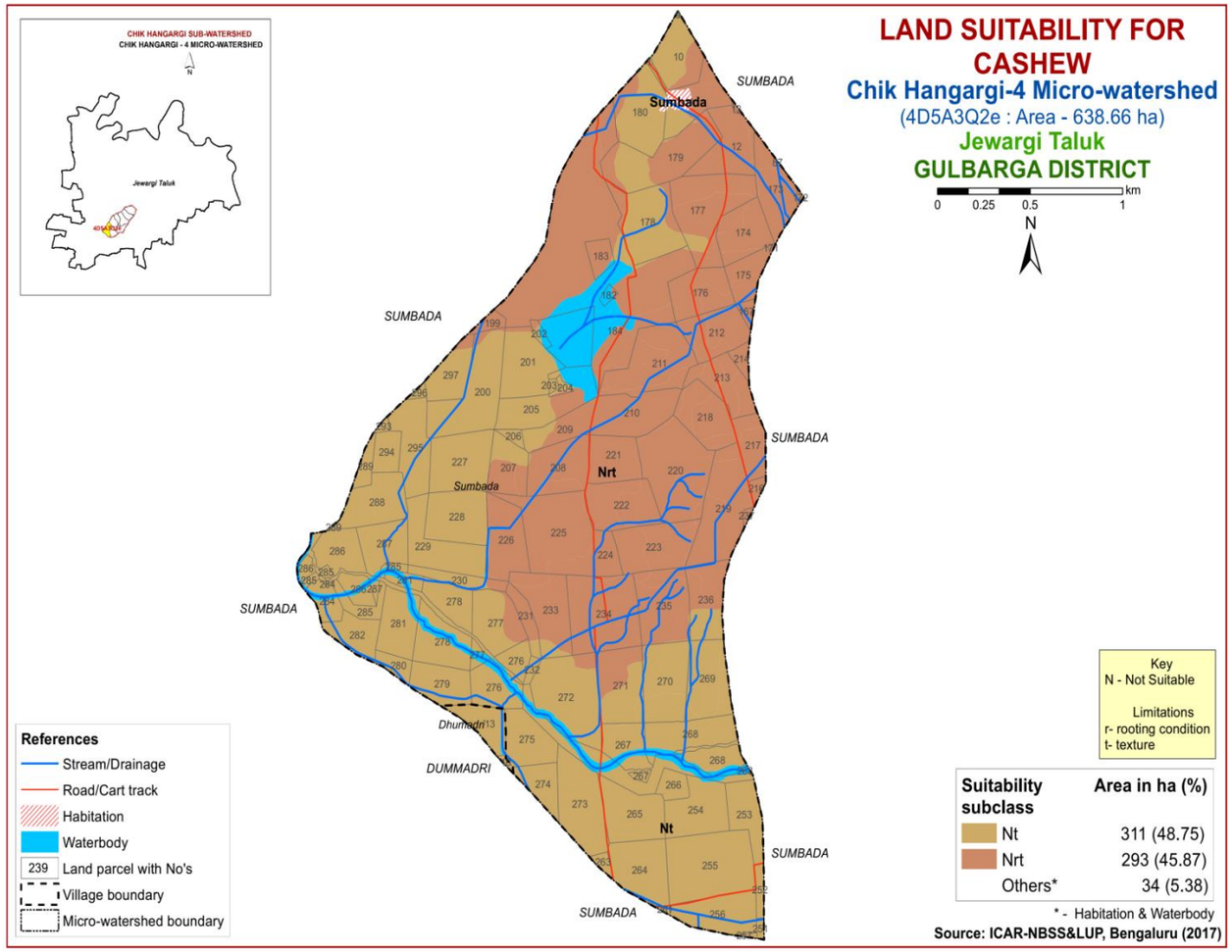

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR LIME
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Nr
Sumbada
S1
Key
S1-Highly Suitable
N - Not Suitable
Limitations
r- rooting condition
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 186 (26.15)
Nr 512 (72.02)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

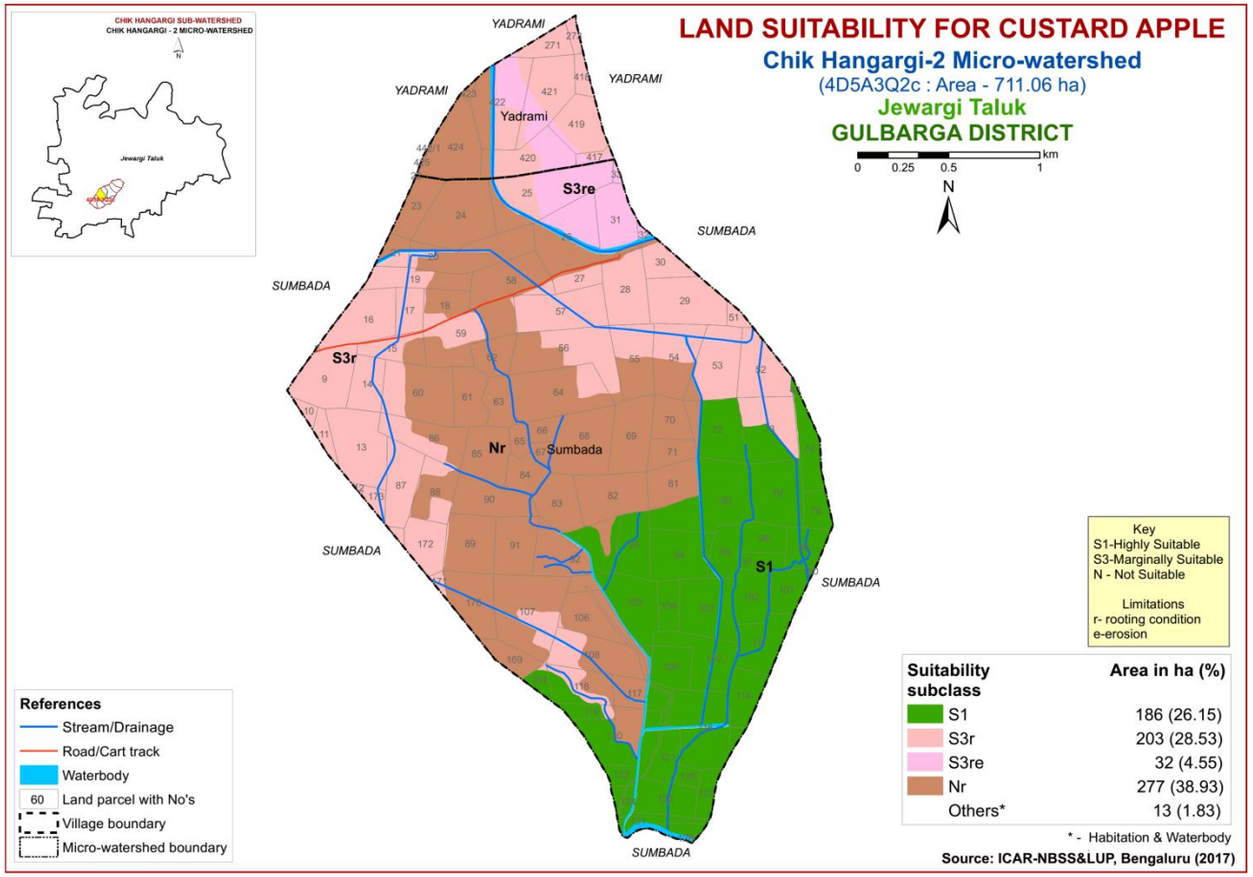

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR LIME
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nr
S2r
Sumbada
S1
Hangalgi (K)
Key
S1-Highly Suitable
S2-Moderately Suitable
N - Not Suitable
Limitations
r- rooting condition
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 402 (71.54)
S2r 4 (0.8)
Nr 143 (25.48)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

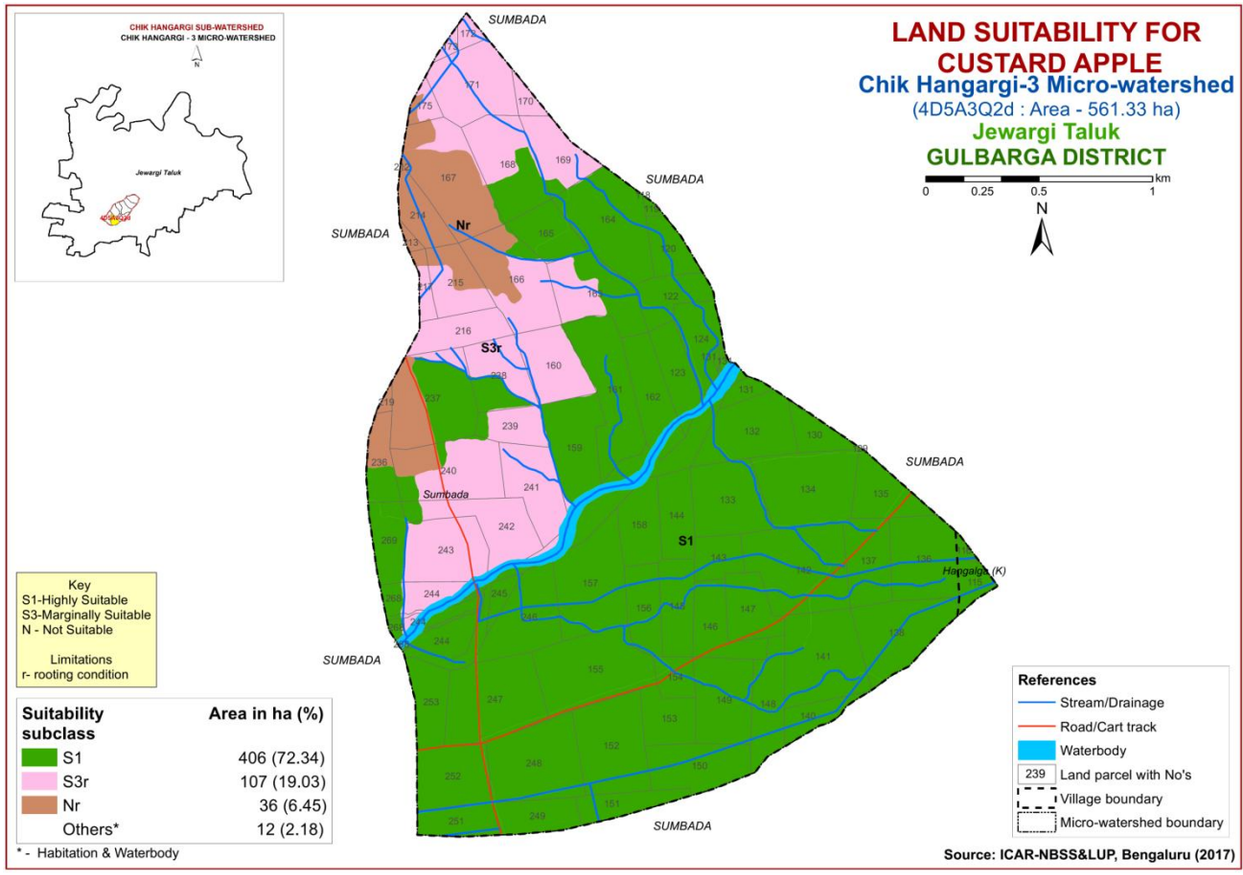

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR LIME
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Nr
Nre
S2r
S1
Dhumadri
DUMMADRI
Key
S1-Highly Suitable
S2-Moderately Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Suitability subclass
Area in ha (%)
S1 256 (40.02)
S2r 56 (8.72)
Nr 135 (21.16)
Nre 158 (24.72)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

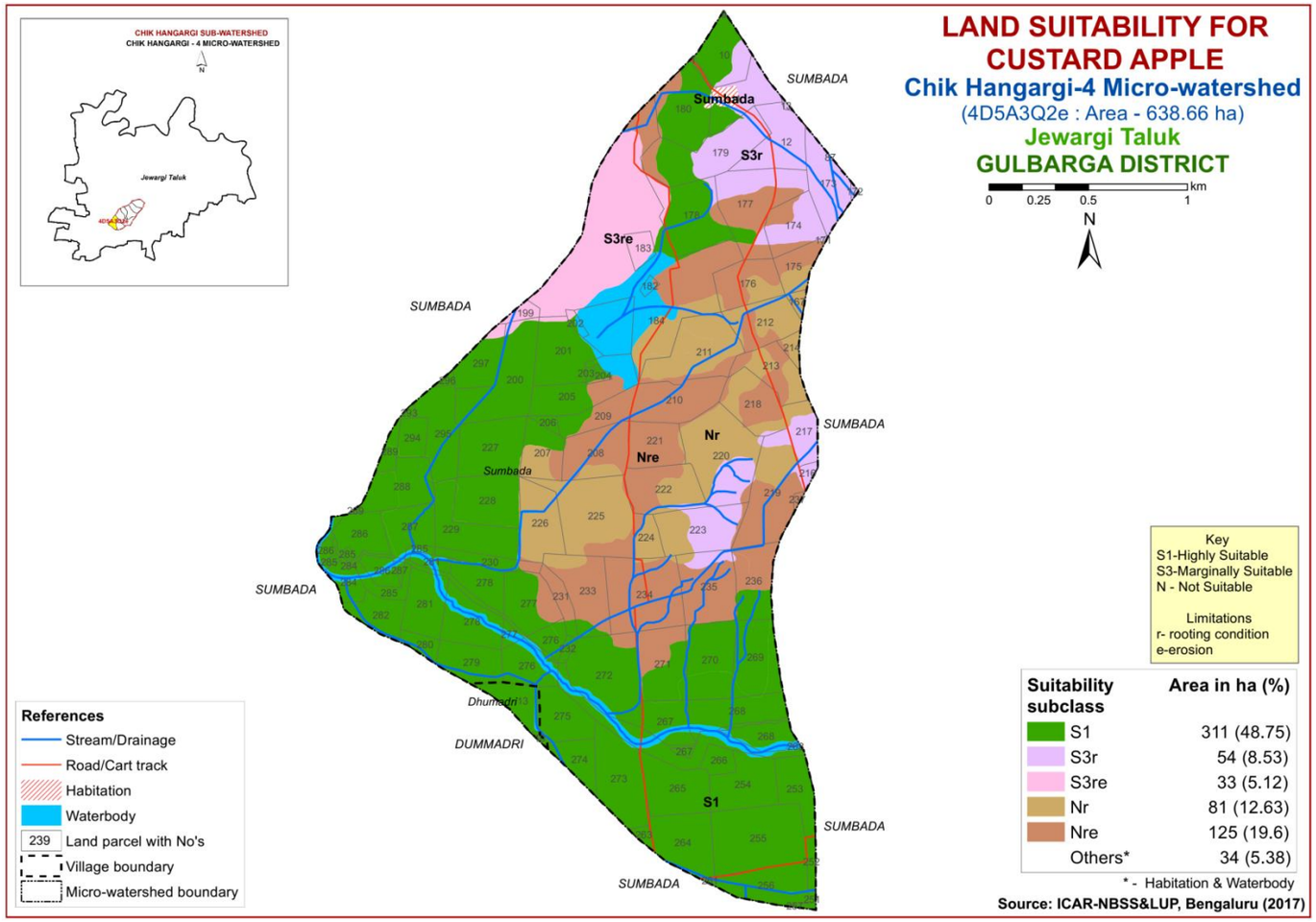

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR CASHEW
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Nrt
Sumbada
Nt
Key
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
Nrt 512 (72.02)
Nt 186 (26.15)
Others* 13 (1.83)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

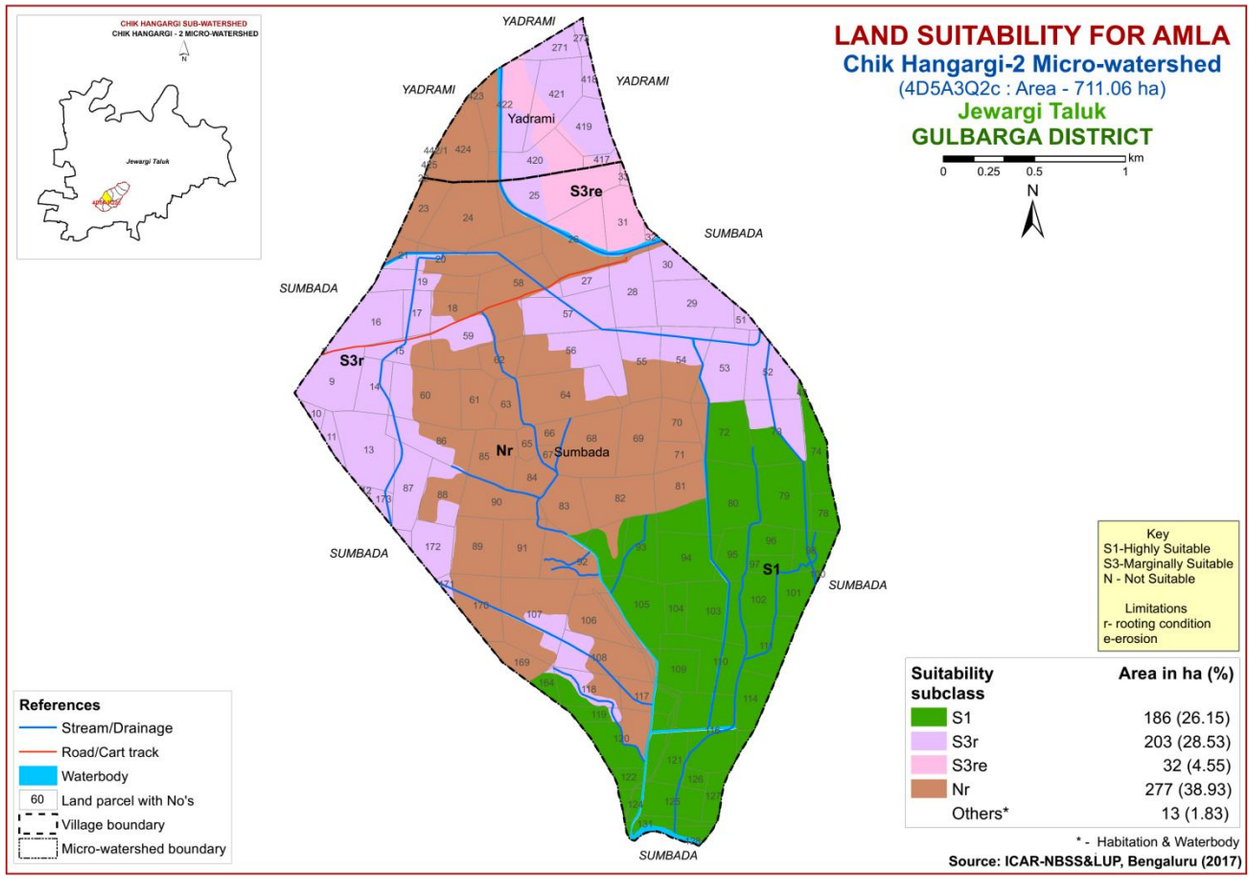

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR CASHEW
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nrt
Sumbada
Nt
Hangalga (K)
Key
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
Nt 406 (72.34)
Nrt 143 (25.48)
Others* 12 (2.18)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

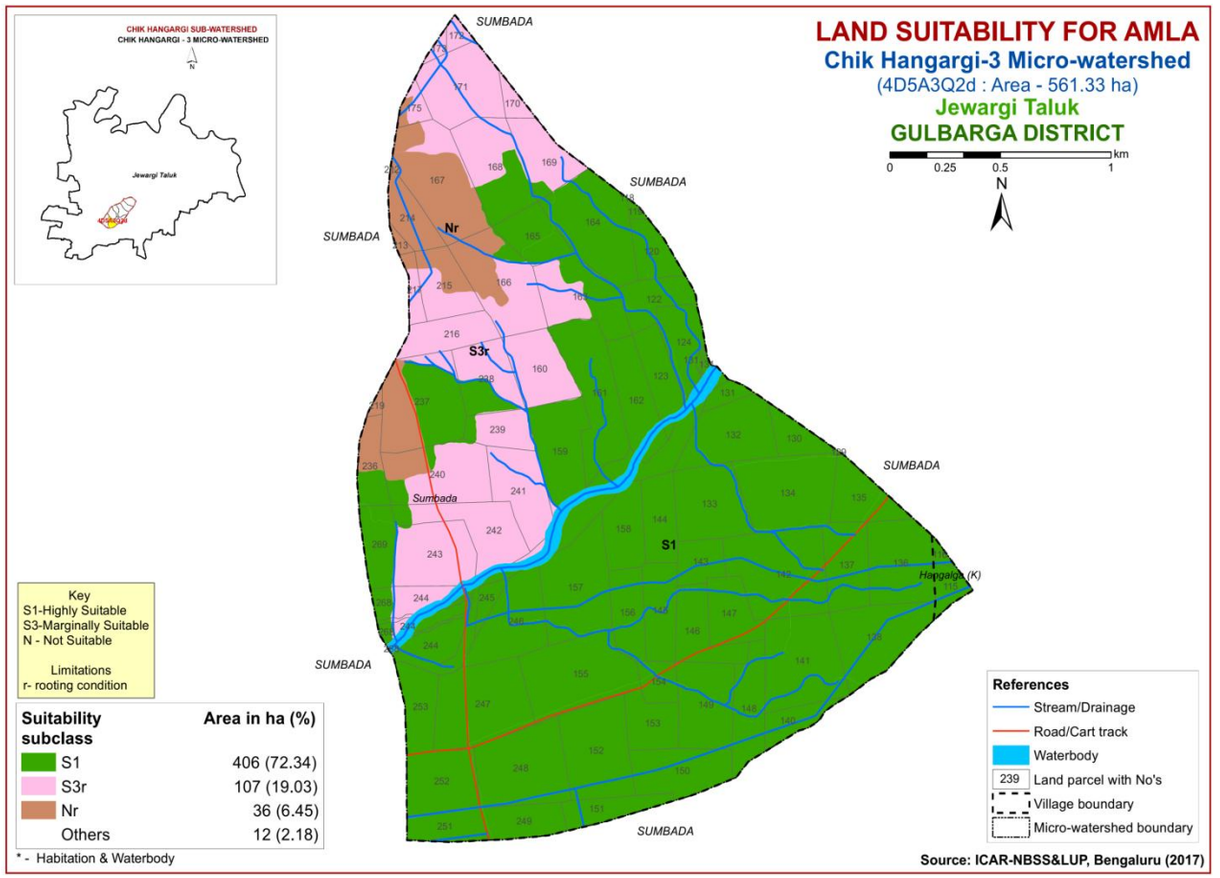

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR CASHEW
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Nrt
Nt
Dhumadri
DUMMADRI
Key
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
Nt 311 (48.75)
Nrt 293 (45.87)
Others* 34 (5.38)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

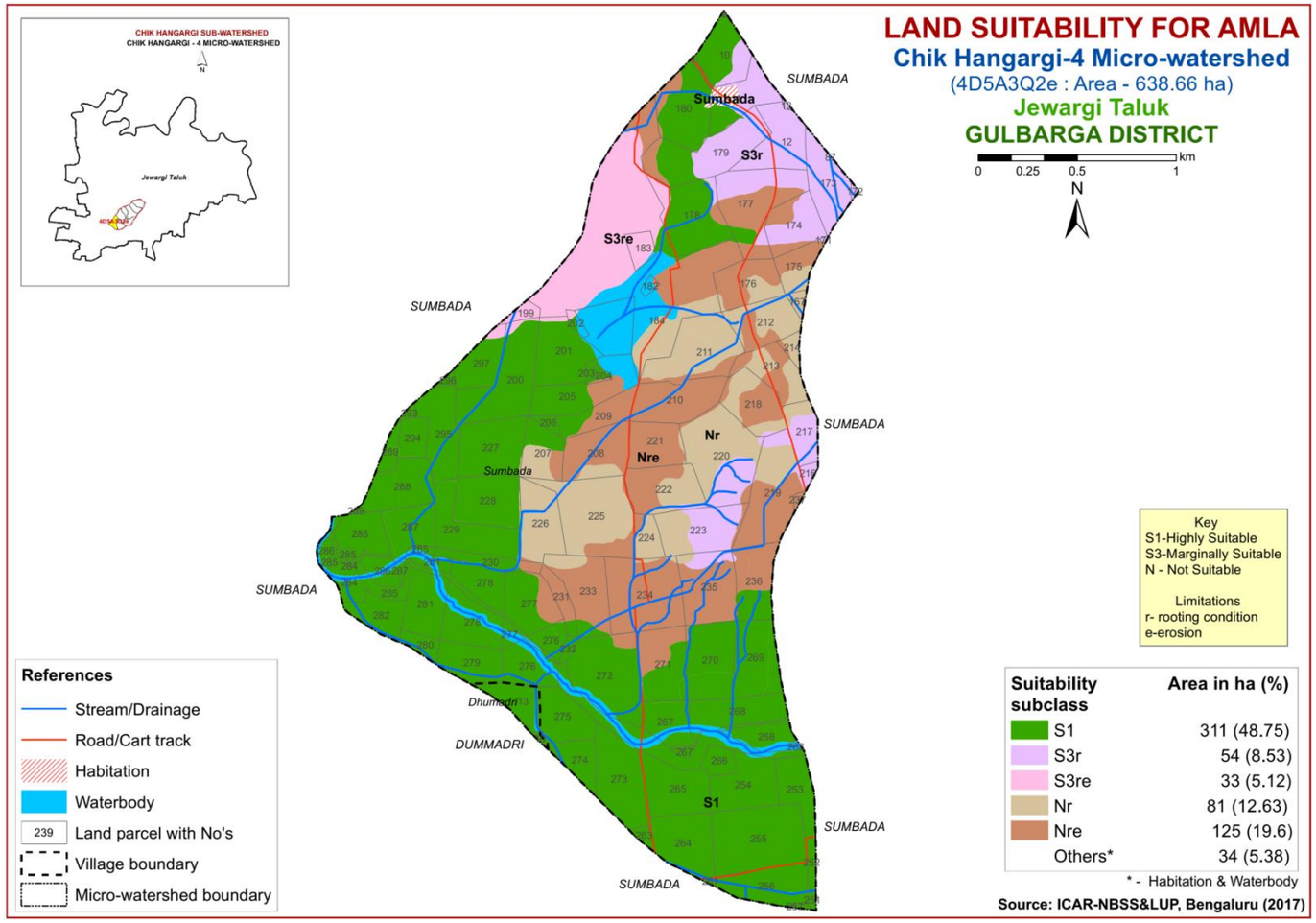

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR CUSTARD APPLE
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
S3re
S3r
Nr
Sumbada
S1
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 186 (26.15)
S3r 203 (28.53)
S3re 32 (4.55)
Nr 277 (38.93)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary

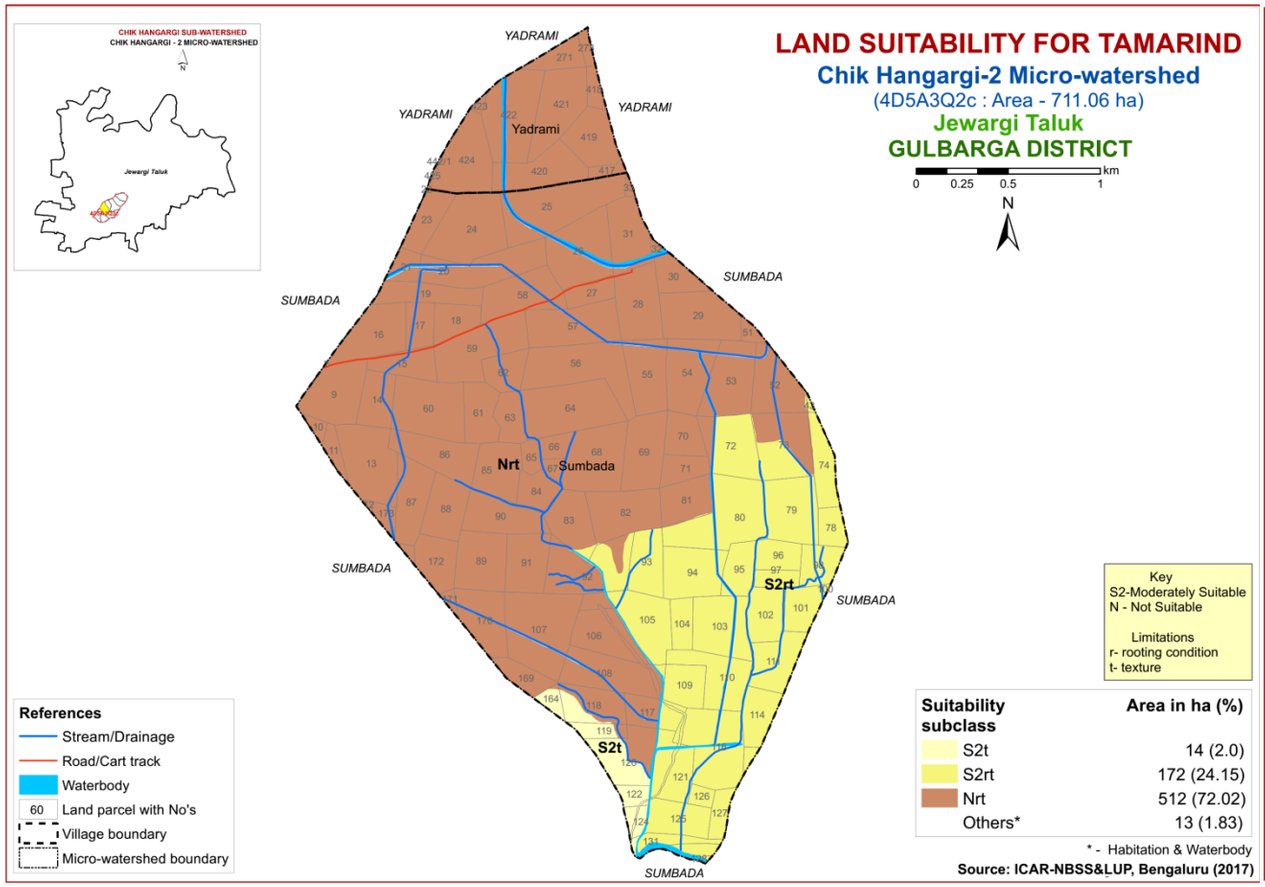

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR CUSTARD APPLE
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nr
S3r
Sumbada
S1
Hanggalgi (K)
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
Suitability subclass
Area in ha (%)
S1 406 (72.34)
S3r 107 (19.03)
Nr 36 (6.45)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

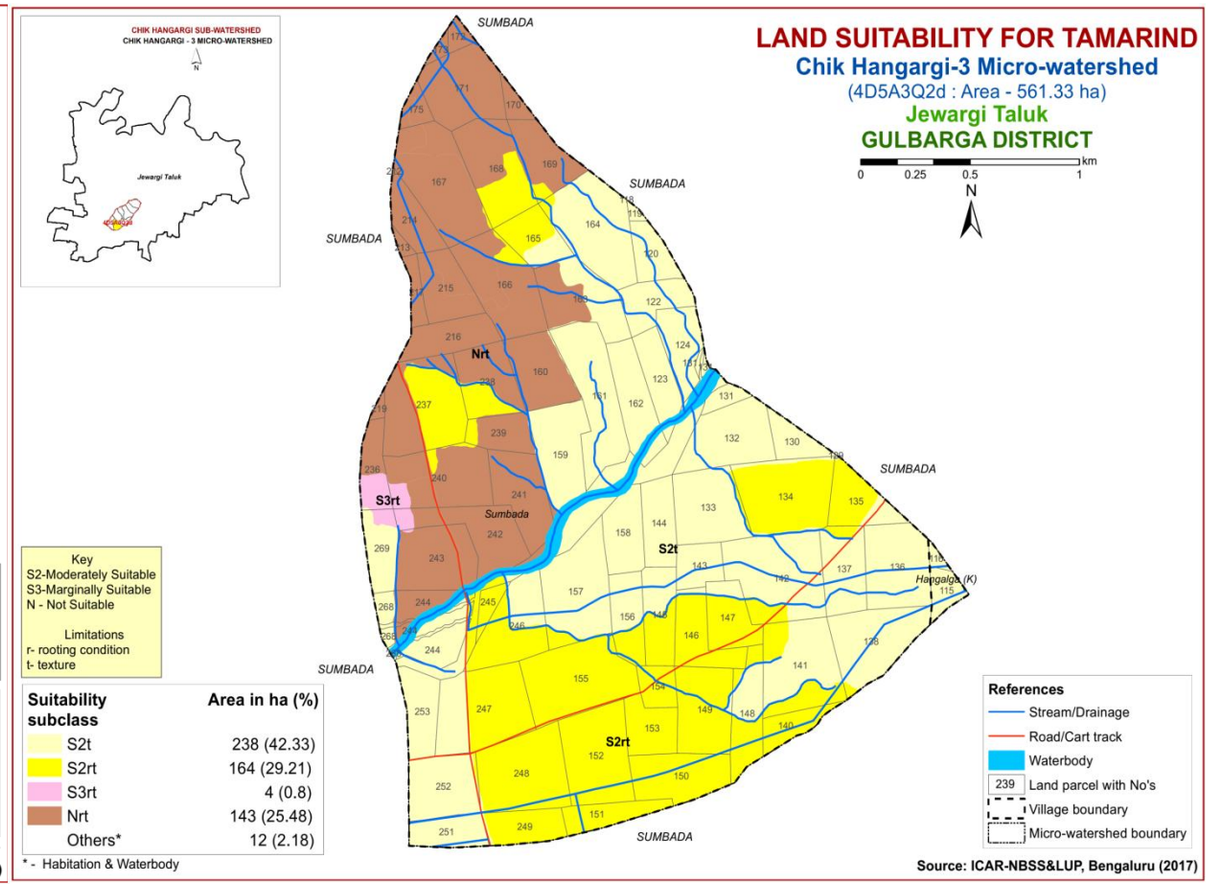

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR CUSTARD APPLE
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
S3r
S3re
Nr
Nre
S1
Dhumadri
DUMMADRI
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 311 (48.75)
S3r 54 (8.53)
S3re 33 (5.12)
Nr 81 (12.63)
Nre 125 (19.6)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary

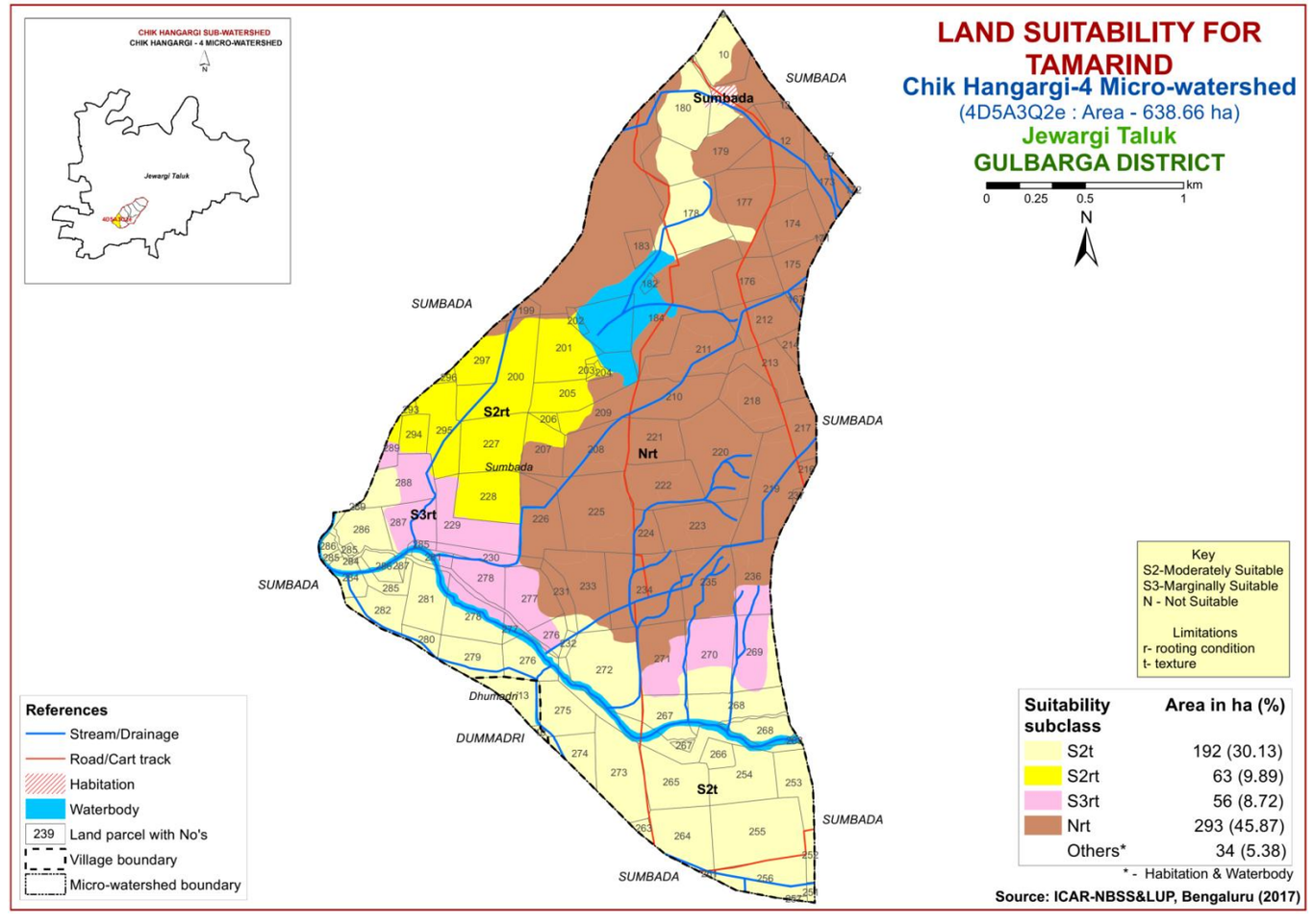

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR AMLA
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Sumbada
S3r
S3re
Nr
S1
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 186 (26.15)
S3r 203 (28.53)
S3re 32 (4.55)
Nr 277 (38.93)
Others* 13 (1.83)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

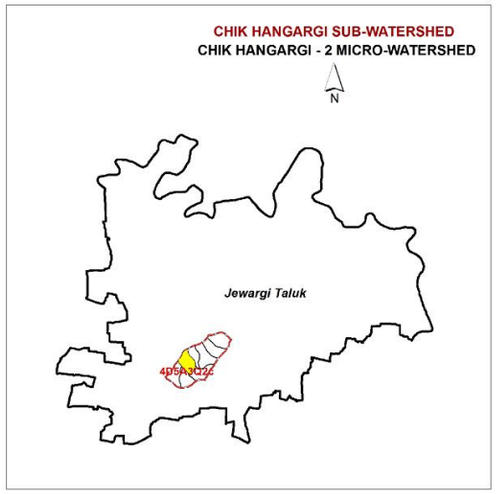

CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR AMLA
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nr
S3r
Sumbada
S1
Hangargi (K)
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
Suitability subclass
Area in ha (%)
S1 406 (72.34)
S3r 107 (19.03)
Nr 36 (6.45)
Others 12 (2.18)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR AMLA
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
Sumbada
SUMBADA
S3r
S3re
Nr
Nre
S1
DUMMADRI
Dhumadri
Key
S1-Highly Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
e-erosion
Suitability subclass
Area in ha (%)
S1 311 (48.75)
S3r 54 (8.53)
S3re 33 (5.12)
Nr 81 (12.63)
Nre 125 (19.6)
Others* 34 (5.38)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR TAMARIND
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
Yadrami
SUMBADA
Nrt
Sumbada
S2rt
S2t
Key
S2-Moderately Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S2t 14 (2.0)
S2rt 172 (24.15)
Nrt 512 (72.02)
Others* 13 (1.83)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR TAMARIND
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Nrt
S3rt
Sumbada
S2t
S2rt
Hangalga (K)
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S2t 238 (42.33)
S2rt 164 (29.21)
S3rt 4 (0.8)
Nrt 143 (25.48)
Others* 12 (2.18)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
LAND SUITABILITY FOR TAMARIND
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
S2rt
Nrt
S3rt
S2t
Dhumadri
DUMMADRI
Key
S2-Moderately Suitable
S3-Marginally Suitable
N - Not Suitable
Limitations
r- rooting condition
t- texture
Suitability subclass
Area in ha (%)
S2t 192 (30.13)
S2rt 63 (9.89)
S3rt 56 (8.72)
Nrt 293 (45.87)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary



LAND MANAGEMENT UNITS

Chik Hangargi-2 Micro-watershed

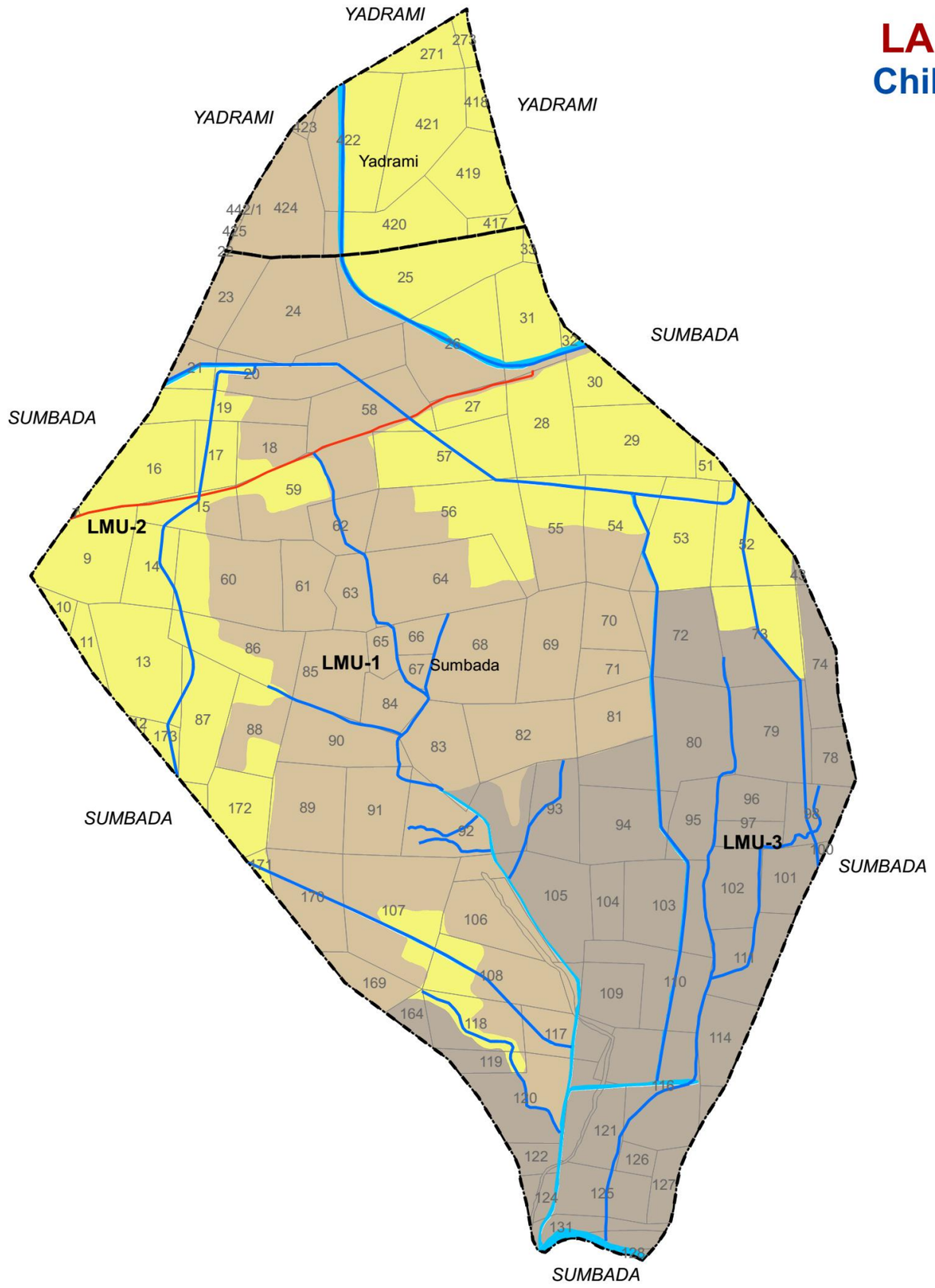
(4D5A3Q2c : Area - 711.06 ha)

Jewargi Taluk

GULBARGA DISTRICT

0 0.25 0.5 1 km

N



References

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

LMU	Area in ha (%)
LMU-1	277 (38.93)
LMU-2	235 (33.09)
LMU-3	186 (26.15)
Others*	13 (1.83)

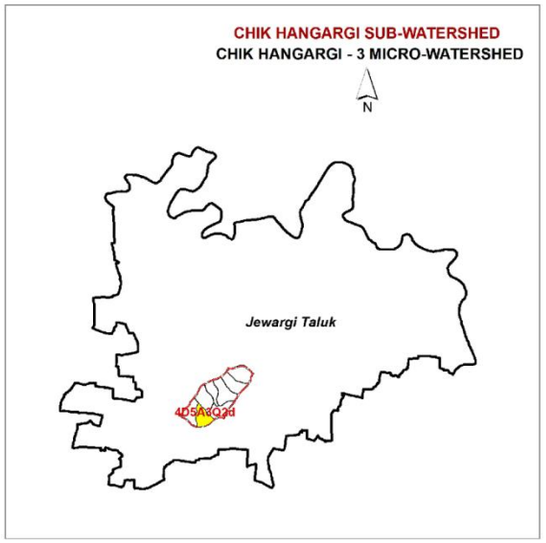
* - Habitation & Waterbody

Source: ICAR-NBSS&LUP, Bengaluru (2017)

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

Table 4. Proposed Crop Plan for Chik Hangargi-2 Micro-watershed, Chik Hangargi Sub-watershed Jewargi Taluk, Kalaburagi District based on soil-site–crop suitability Assessment

LMU	Mapping unit	Survey No's	Characters	Crops proposed				Suitable Intervention
				Field crops	Forestry Crop/Grasses	Horticulture crops (Rainfed Condition)	Horticulture crops with suitable intervention	
LMU-1	1 MGTmB2 2MGTmC1	**Sumbada:** 18,20,21,22,23,24,26,55,58,59,60,61,62,63,64,65,66,67,68,69,70,71,81,82,83,84,85,86,88,89,90,91,92,106,107,108,117,169,170 **Yadrami:** 423,424,425,442/1	Very shallow black soil depth (<25-50 cm), slight to moderate erosion	Horse gram, Green gram, chick pea	Neem, Glyricydia , Silviculture, Agave, Simaroba	-	-	Cresent bunds
LMU-2	3 NHAmB1 4 NHAmB2 5 NHAmB3	**Sumbada:** 7,9,10,11,12,13,14,15,16,17,19,25,27,28,29,30,31,32,33,51,52,53,54,56,57,73,87,118, 171,172,173 **Yadrami:** 271,273,417,418,419,420,421,422	Shallow black soil (25-50 cm), 1-3 % slope, slight to severe erosion.	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
LMU-3	6 DIMmB1 7 DIMmB2 8 MARmB1	**Sumbada:** 43,72,74,78,79,80,93,94,95,96,97,98,100,101,102,103,104,105,109,110,111,114,116,119,120,121,122,124,125,126,127,131,164	Deep to very deep Black soil (100->150)1-5 % slope, slight to moderate erosion	Sorghum, Cotton, Red Gram, Black gram, Green gram, Soybean, Sesame, Sunflower, Safflower, Rabi: Sorghum, Chickpea	-	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	Drip irrigation, suitable soil and water conservations like cultivation on raised beds with mulches and drip, Graded bunds, Strengthening of field bunds



LAND MANAGEMENT UNITS

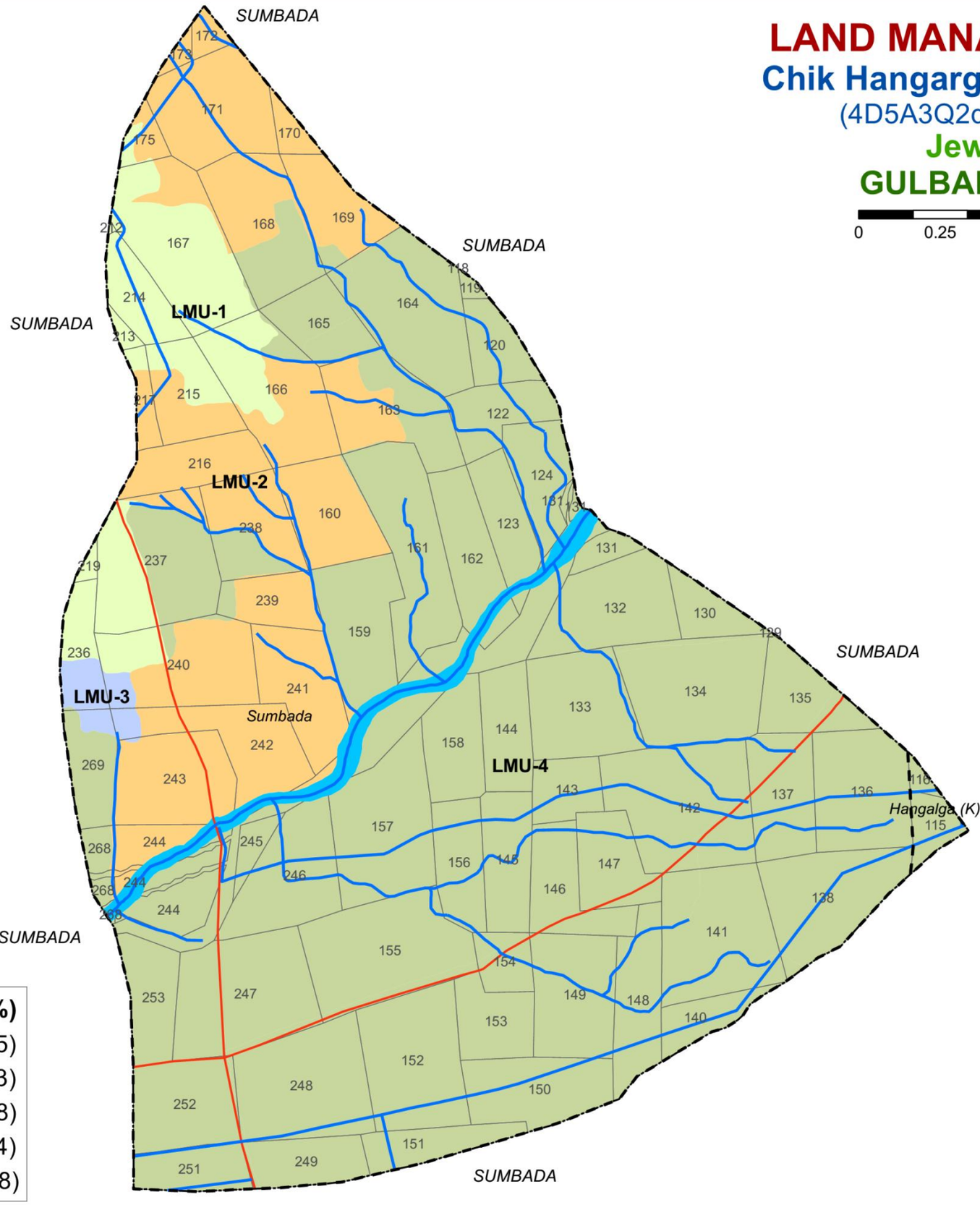
Chik Hangargi-3 Micro-watershed

(4D5A3Q2d : Area - 561.33 ha)

Jewargi Taluk

GULBARGA DISTRICT

km
0 0.25 0.5 1
N



LMU	Area in ha (%)
LMU-1	36 (6.45)
LMU-2	107 (19.03)
LMU-3	4 (0.8)
LMU-4	402 (71.54)
Others*	12 (2.18)

* - Habitation & Waterbody

References

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

Source: ICAR-NBSS&LUP, Bengaluru (2017)

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

Table 5. Proposed Crop Plan for Chik Hangargi-3 Micro-watershed, Chik Hangargi Sub-watershed Jewargi Taluk, Kalaburagi District based on soil-site–crop suitability Assessment

LMU	Mapping unit	Survey No's	Characters	Crops proposed				Suitable Intervention
				Field crops	Forestry Crop/ Grasses	Horticulture crops (Rainfed Condition)	Horticulture crops with suitable intervention	
LMU-1	1 MGThB1g1 2 MGTmB2g1	**Sumbada:** 167,212,213,214,219,236	Very shallow black soil, depth (<25 cm), slight gravelly, 1-3 % slope, slight to moderate erosion	Horse gram, Green gram, chick pea	Neem, Glyricydia , Silviculture, Agave, Simaroba	-	-	Cresent bunds
LMU-2	3 NHAmB1 4 NHAmB1g1 5 NHAmB2 6 NHAmB2g1	**Sumbada:** 160,166,168,169,170,171, 172,173,175,215,216,217, 238,239,240,241,242,243	Shallow black soil, depth (25-50 cm), 1-3 % slope, nil to slight gravelly, slight to moderate erosion	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
LMU-3	7 NIRmB2	**Sumbada:** 236,240,242,269, 243	Moderately shallow black soil (50-75 cm) 1-3 % slope, moderate erosion.	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	Drip irrigation, suitable soil and water conservations like cultivation on raised beds with mulches and drip Graded bunds, Strengthening of field bunds
LMU-4	8 DIMmA1 9 DIMmB1 10 DIMmB2 11 DIMmB2g1 12 MARmA1 13 MARmB1 14 MARmB2	**Hangala:** 115,116 **Sumbada:** 118,119,120,122,123,124, 129,130,131,132,133,134, 135,136,137,138,140,141, 142,143,144,145,146,147, 148,149,150,151,152,153, 154,155,156,157,158,159, 161,162,163,164,165,237, 244,245,246,247,248,249, 251,252,253,268,269	Deep to very deep black soil depth (100->150 cm), 0-3 % slope, slight to moderate erosion	Sorghum, Cotton, Red Gram Black gram, Green gram, Soybean, Sesame, Sunflower, Safflower, Rabi: Sorghum, Chickpea	-	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	Drip irrigation, suitable soil and water conservations like cultivation on raised beds with mulches and drip, Graded bunds, Strengthening of field bunds

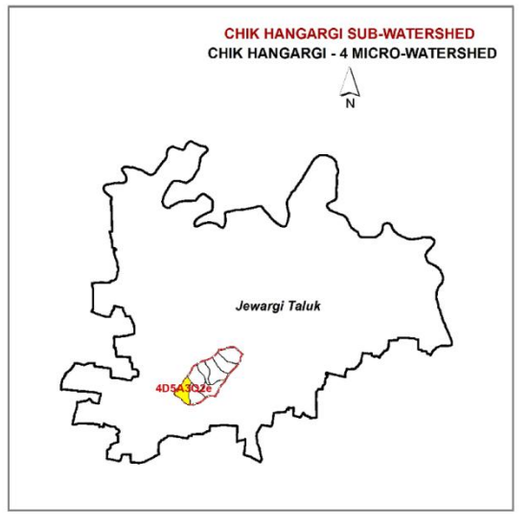
LAND MANAGEMENT UNITS

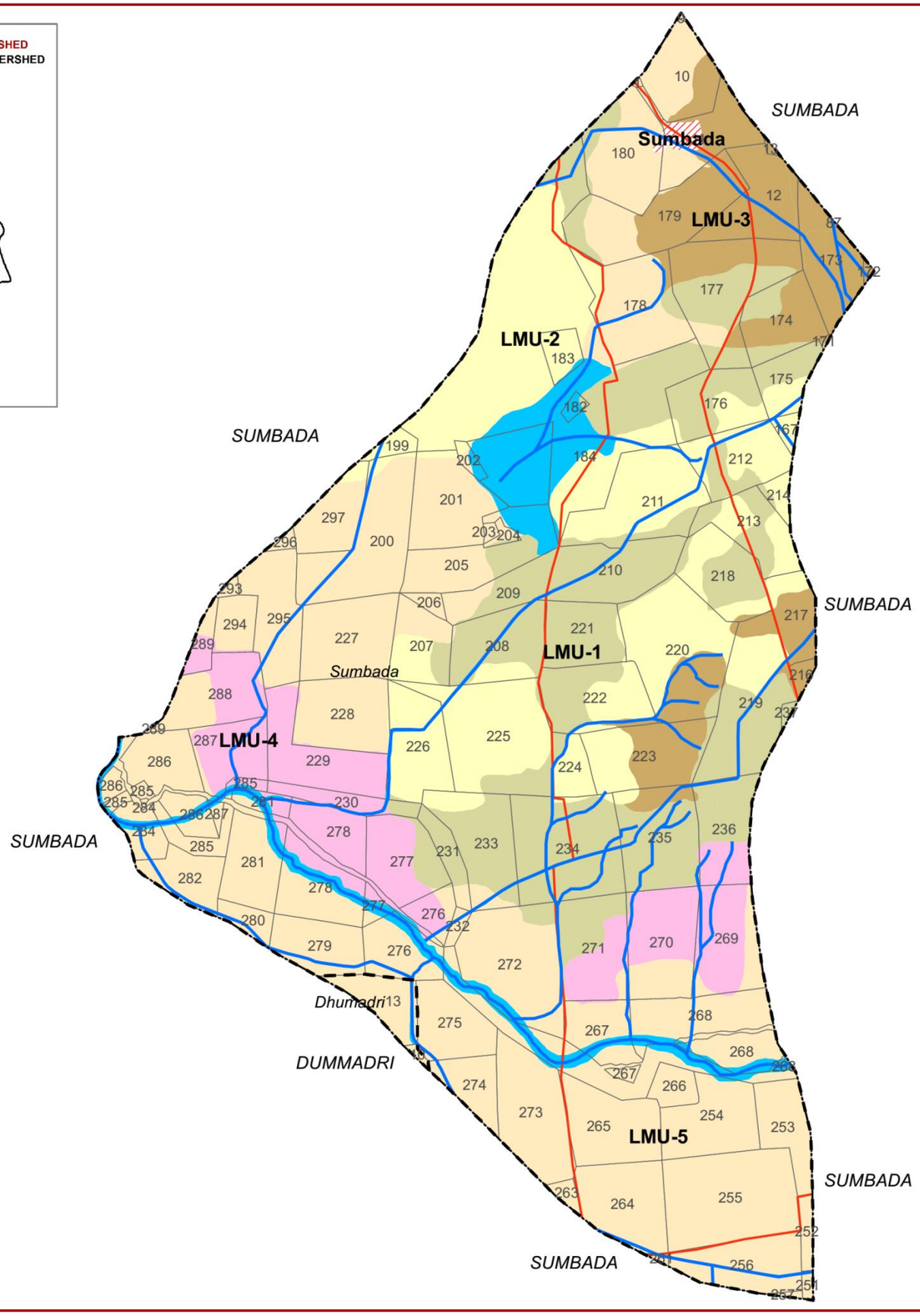
Chik Hangargi-4 Micro-watershed

(4D5A3Q2e : Area - 638.66 ha)

Jewargi Taluk

GULBARGA DISTRICT





0 0.25 0.5 1 km

N

References

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

LMU	Area in ha (%)
LMU-1	125 (19.6)
LMU-2	113 (17.75)
LMU-3	54 (8.53)
LMU-4	56 (8.72)
LMU-5	256 (40.02)
Others	34 (5.38)

* - Habitation & Waterbody

Source: ICAR-NBSS&LUP, Bengaluru (2017)

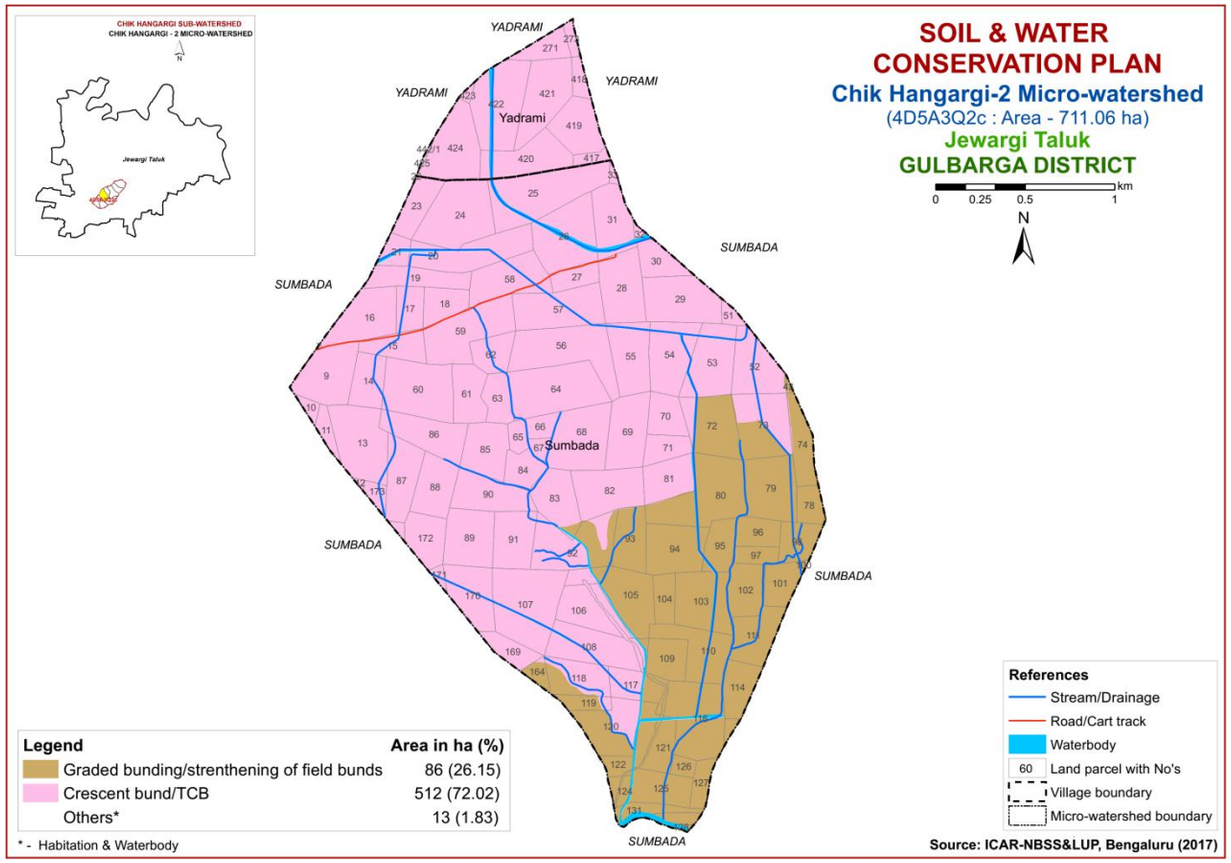
NOTE: *Proposed Crop Plan for LMU's are given in Table.*

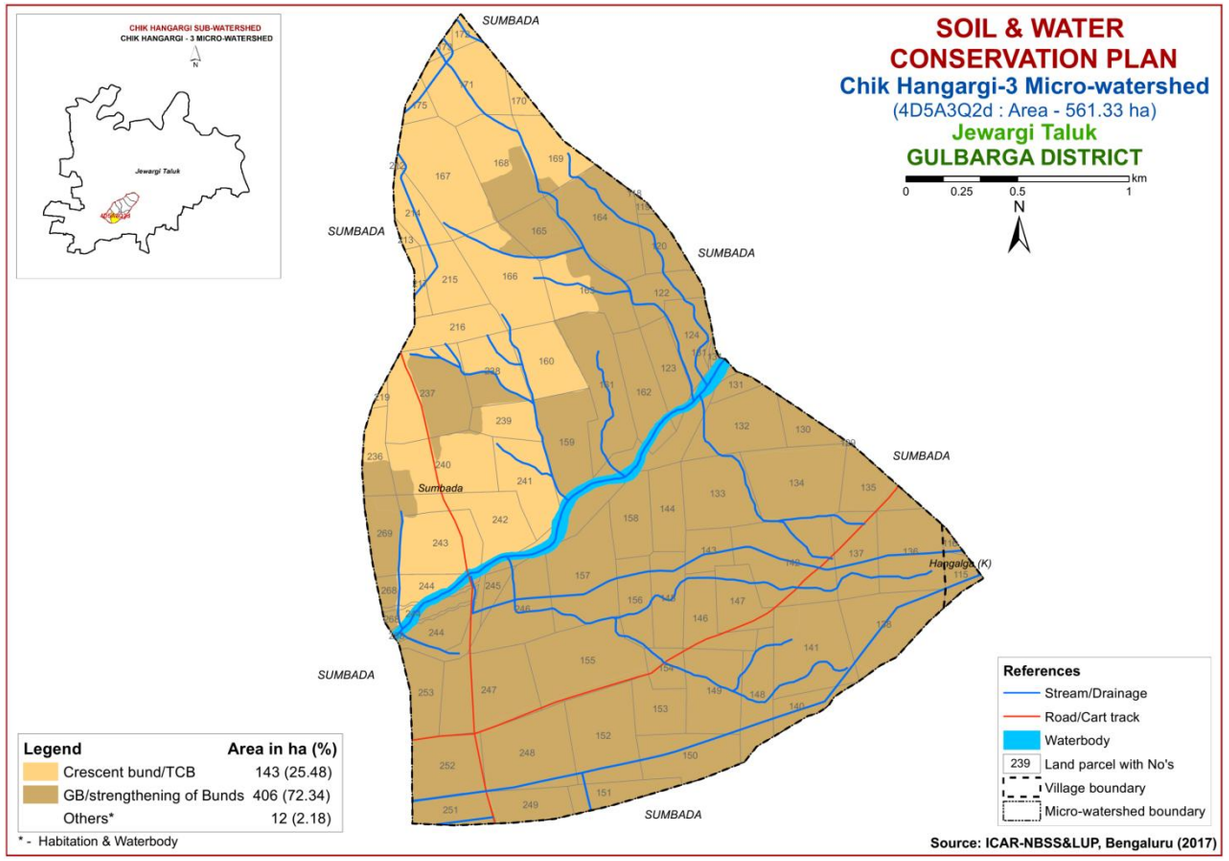
Table 6. Proposed Crop Plan for Chik Hangargi-4 Micro-watershed, Chik Hangargi Sub-watershed Jewargi Taluk, Kalaburagi District based on soil-site–crop suitability Assessment

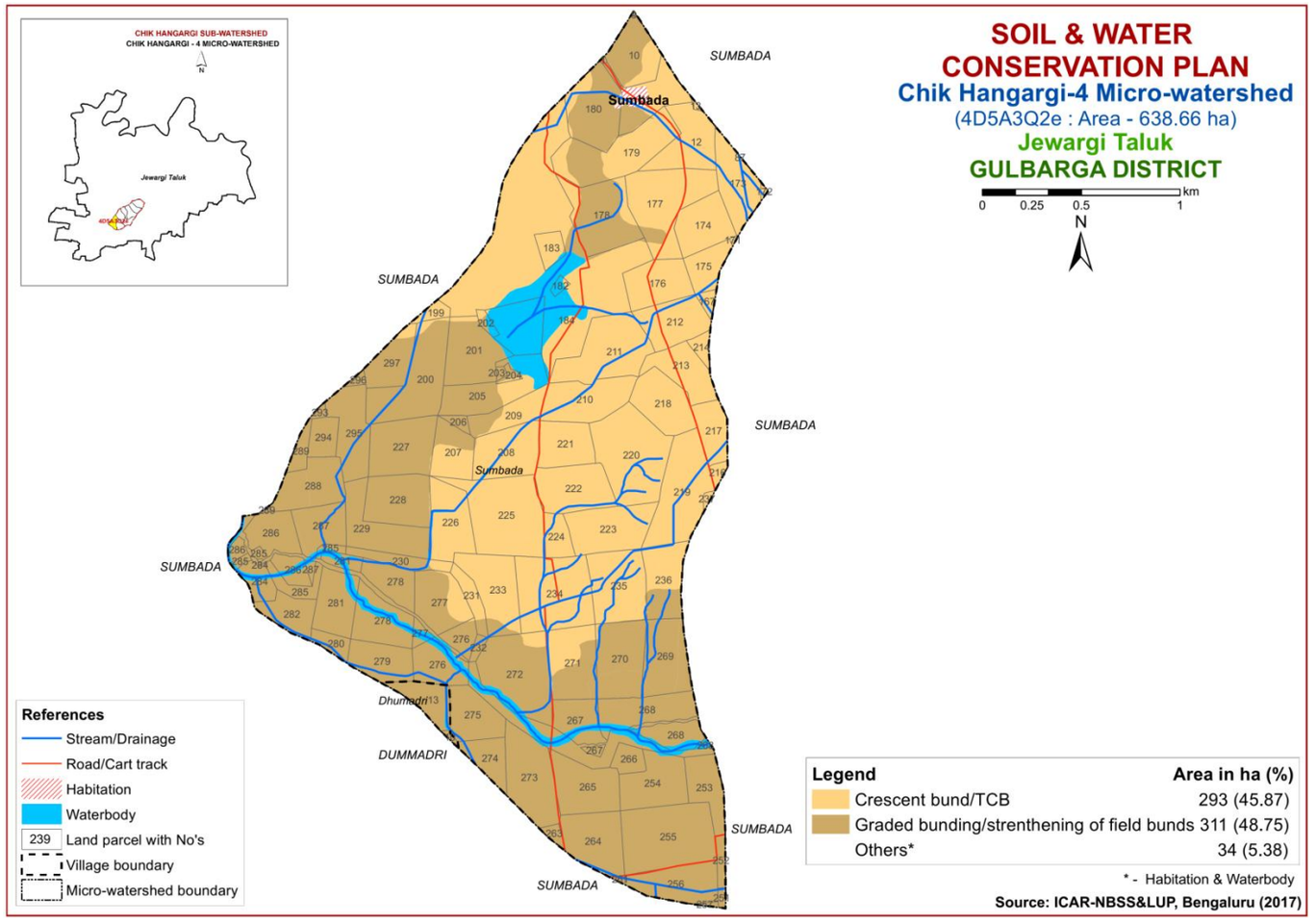
LMU	Mapping unit	Survey No's	Characters	Crops proposed				Suitable Intervention
				Field crops	Forestry Crop/Grasses	Horticulture crops (Rainfed Condition)	Horticulture crops with suitable intervention	
LMU-1	2 MGThB3g1 5 MGTiB3g1 7 MGTmB3	**Sumbada:** 175,176,177,208,209, 210,218,219,221,222, 231,233,234,235,236, 237	Very shallow, depth (<25 -50cm), Nil to slightly gravelly, 1-3 % slope, severe erosion	-	Neem, Glyricydia , Silviculture, Agave, Simaroba	-	-	Cresent bunds
LMU-2	1MGThB1g1 3 MGThC2g1 4 MGTiB2g1 6 MGTmB2g1 12 BHIiB3g1	**Sumbada:** 167,183, 184_GRASS_FIELD,199, 207,211,212,213,214, 220,224,225,226	Very shallow to shallow black soil, depth (<25 -50cm), slightly gravelly, 1-5 % slope, slight to moderate erosion also severe erosion in patches	Horse gram, Green gram, chick pea	Neem, Glyricydia , Silviculture, Agave, Simaroba	-	-	Cresent bunds
LMU-3	13BHImB2g1 8 NHAhB2g1 9 NHAiB2 10 NHAmB1 11NHAmB2g1	**Sumbada:** 11,12,13,171,172,173, 174,179,216,217,223	Shallow black soil, depth (25-50 cm), 1-3 % slope, nil to slight gravelly, slight to moderate erosion	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

To be continued..

LMU	Mapping unit	Survey No's	Characters	Crops proposed				Suitable Intervention
				Field crops	Forestry Crop/Grasses	Horticulture crops (Rainfed Condition)	Horticulture crops with suitable intervention	
LMU-4	14 NIRmB2	**Sumbada:** 229,230,269,270,271, 277,278,287,288, 289	Moderately shallow black soil (50-75 cm), 1-3 % slope, moderate erosion.	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	Drip irrigation, suitable soil and water conservations like cultivation on raised beds with mulches and drip Graded bunds, Strengthening of field bunds
LMU-5	15 DIMmB1 16 MARmB1 17 MARmB2	**Dhumadri:** 10,13 **Sumbada:** 1,9,10,178,180, 200,201,203,204,205, 206,227,228,232,251, 252,253,254,255,256, 257,261,263,264,265, 266,267,268,272,273, 274,275,276,279,280, 281,282,284,285,286, 293,294,295,296,297	Deep to very deep black soil depth (100->150 cm), 1-3 % slope, slight to moderate erosion	Sorghum, Cotton, Red Gram Black gram, Green gram, Soybean, Sesame, Sunflower, Safflower, Rabi: Sorghum, Chickpea	-	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	Drip irrigation, suitable soil and water conservations like cultivation on raised beds with mulches and drip, Graded bunds, Strengthening of field bunds


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 2 MICRO-WATERSHED
Jewargi Taluk
SOIL & WATER CONSERVATION PLAN
Chik Hangargi-2 Micro-watershed
(4D5A3Q2c : Area - 711.06 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
YADRAMI
SUMBADA
Yadrami
Sumbada
Legend
Area in ha (%)
Graded bunding/strenthening of field bunds 86 (26.15)
Crescent bund/TCB 512 (72.02)
Others* 13 (1.83)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
60 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 3 MICRO-WATERSHED
Jewargi Taluk
SOIL & WATER CONSERVATION PLAN
Chik Hangargi-3 Micro-watershed
(4D5A3Q2d : Area - 561.33 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Hangalga (K)
Legend
Area in ha (%)
Crescent bund/TCB 143 (25.48)
GB/strengthening of Bunds 406 (72.34)
Others* 12 (2.18)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)


CHIK HANGARGI SUB-WATERSHED
CHIK HANGARGI - 4 MICRO-WATERSHED
Jewargi Taluk
SOIL & WATER CONSERVATION PLAN
Chik Hangargi-4 Micro-watershed
(4D5A3Q2e : Area - 638.66 ha)
Jewargi Taluk
GULBARGA DISTRICT
0 0.25 0.5 1 km
N
SUMBADA
Sumbada
Dhummadri
DUMMADRI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
239 Land parcel with No's
Village boundary
Micro-watershed boundary
Legend
Area in ha (%)
Crescent bund/TCB 293 (45.87)
Graded bunding/strenthening of field bunds 311 (48.75)
Others* 34 (5.38)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

PART - B

Hydrological Inventory of Chik Hangargi Sub-watershed, Jewargi 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 Chik Hangargi Sub-watershed, Jewargi 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

E-mail: hd_rcb.nbsslup@icar.gov.in
nbssrcb@gmail.com

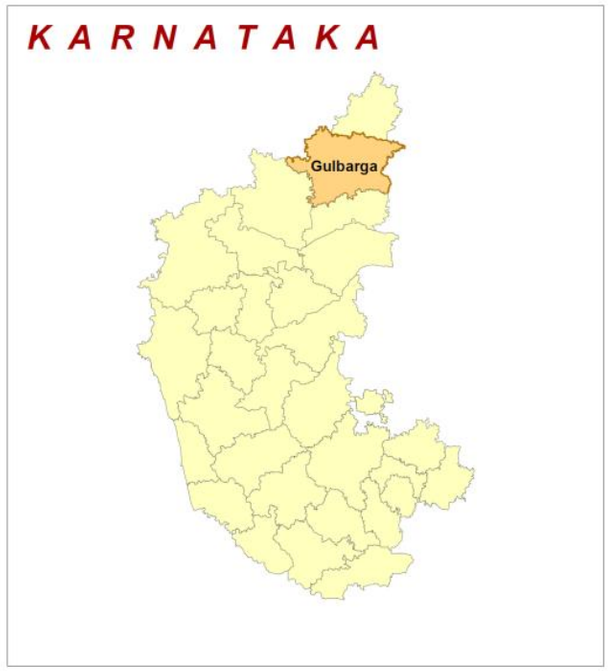
Details of Hydrology Team of LRI Partner Responsible for Preparation of Atlas

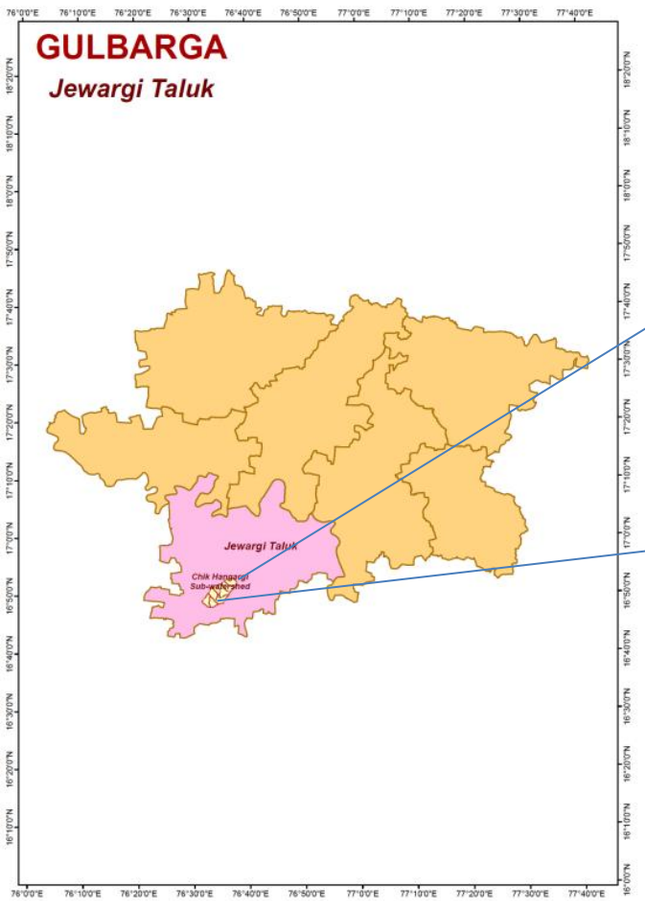
Name	Designation
Dr. Rajendra Hegde	Principal Scientist & Head Coordinator
Dr. S. Srinivas	Principal Scientist
Dr. K .V. Niranjana	Chief Technical Officer
Sh. R.S.Reddy	Consultant
Sh. A.G.Devendra Prasad	Consultant
Smt. K.Karunya Lakshmi	Research Associate
Ms. Seema, K.V.	Senior Research Fellow
Dr. Sekhar Muddu (Reviewed and approved)	Professor & Lead Scientist, Dept. of Civil Engineering & ICWaR, IISc, Bangalore
	Email: hd_rcb.nbsslup@icar.gov.in nbssrcb@gmail.com **Phone: Office:** 080-23412242,23410993 **Fax:** 080-23510350

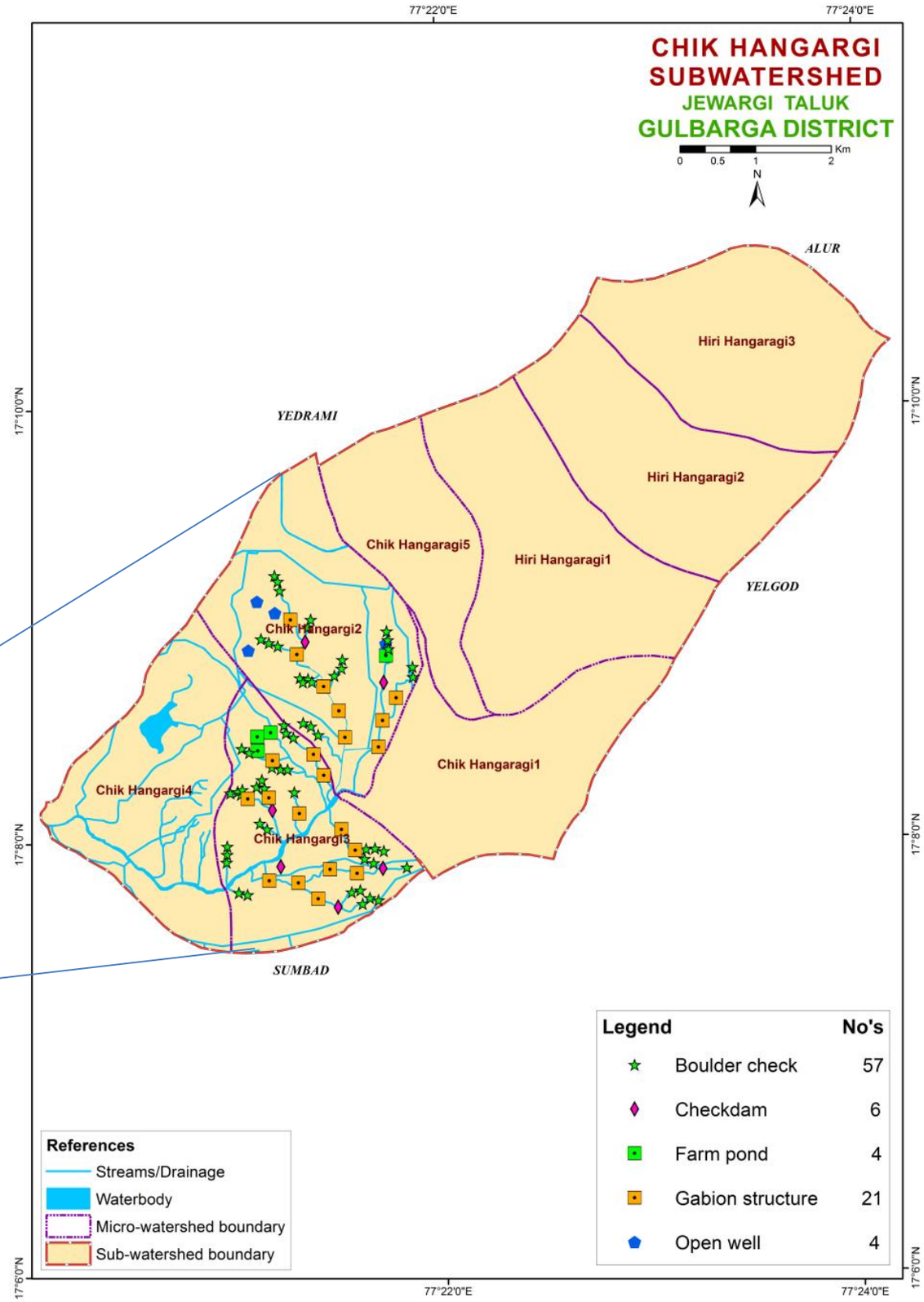
INTRODUCTION

- The inventory and documentation of spatial and temporal changes in hydrological components of Chik Hangargi sub-watershed (4D5A3Q) in Jewargi taluk, Kalaburagi district, has been undertaken for integrated planning, development and management at the level of soil mapping units.
- Chik Hangargi sub-watershed (Jewargi Taluk, Kalaburagi District) is located between $16^0$47'19''–16^0 53'41'' North latitudes and 76^0 30'38''–76^0 38'58'' East longitudes, covering an area of about 5158 ha.
- This sub-watershed encompasses of 8 MWs namely, Chik Hangargi-1 (4D5A3Q2a), Chik Hangargi-2 (4D5A3Q2c), Chik Hangargi-3 (4D5A3Q2d), Chik Hangargi-4 (4D5A3Q2e), Chik Hangargi-5 (4D5A3Q2b), Hiri Hangargi-1 (4D5A3Q1c), Hiri Hangargi-2 (4D5A3Q1b) and Hiri Hangargi-3 (4D5A3Q1a) micro watersheds. Land Resource Inventory (LRI) was generated for three among the eight micro-watersheds.
- Average annual rainfall (1960-2014) of the Hobli (Block) pertaining to the sub-watershed is 786 mm.
- In this sub-watershed major *kharif* crops grown are Maize, Soyabean, Redgram, Sugarcane, Sunflower, Cotton and major *rabi* crops are Sorghum, Bengalgram.
- 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 CHIK HANGARGI SUB-WATERSHED

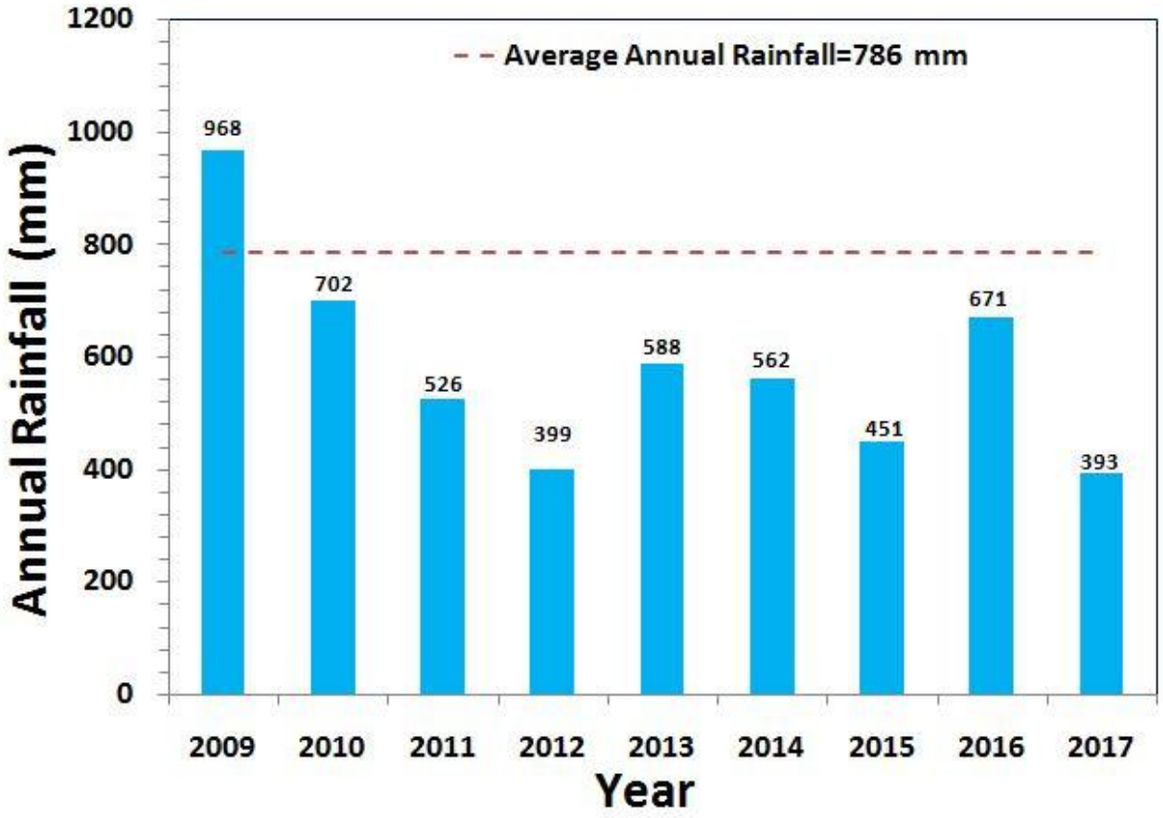






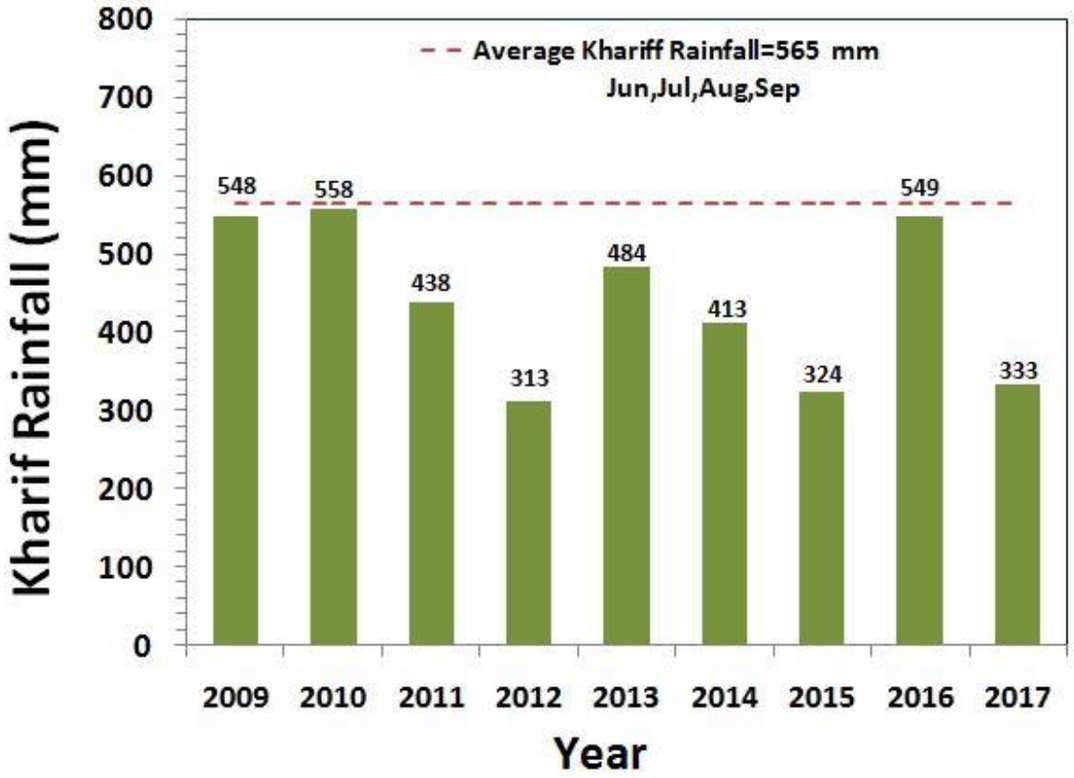
Soil & Water Conservation Structures in Chik Hangargi Sub-watershed, Jewargi taluk, Kalaburagi district

RAINFALL INDEX

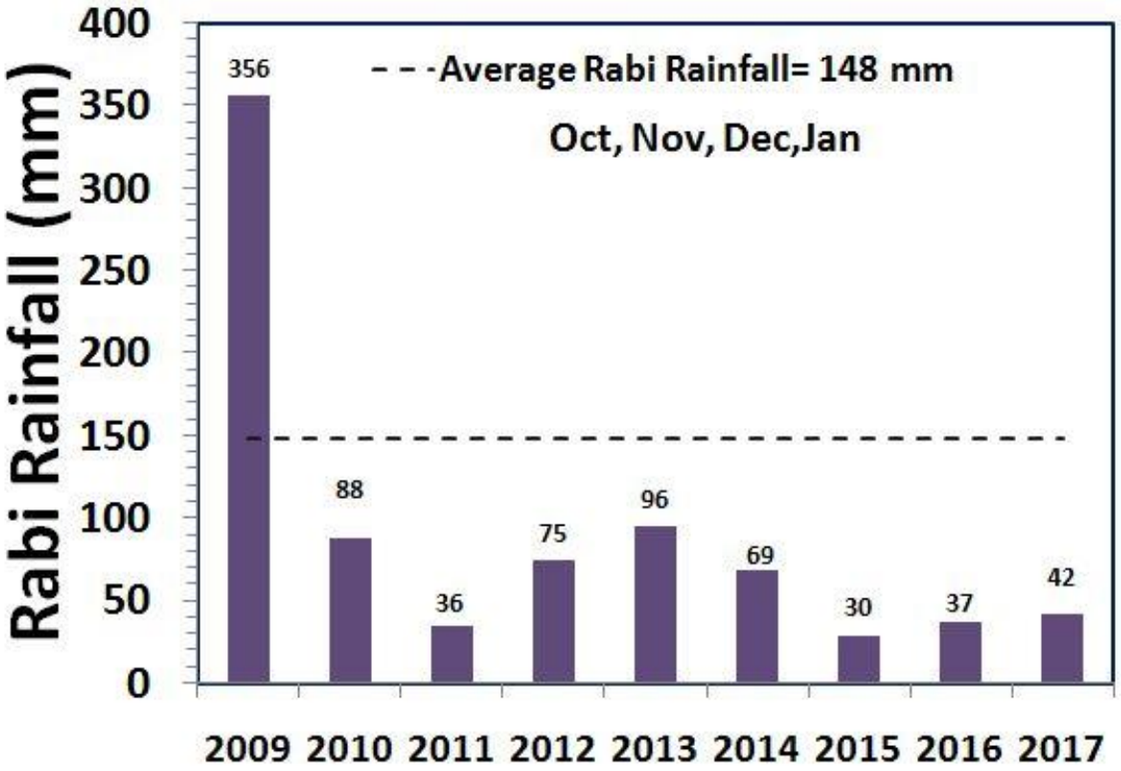


The average annual rainfall (1960-2014) recorded at the Jewargi Station in Jewargi Taluk of Kalaburagi District is 786 mm. The annual rainfall at Yedrami station (Hobli H.Q.) is presented. During the years 2010, 2011, 2012, 2013, 2014, 2015, 2016 and 2017 the annual rainfall was deficient by 11%, 33%, 49%, 25%, 28%, 43%, 15% and 50%respectively.

The *kharif* rainfall (Jun–Sep) is an average about 77% of the annual rainfall and it typically follows the annual rainfall patterns. During all the years *kharif* rainfall showed deficient rainfall.

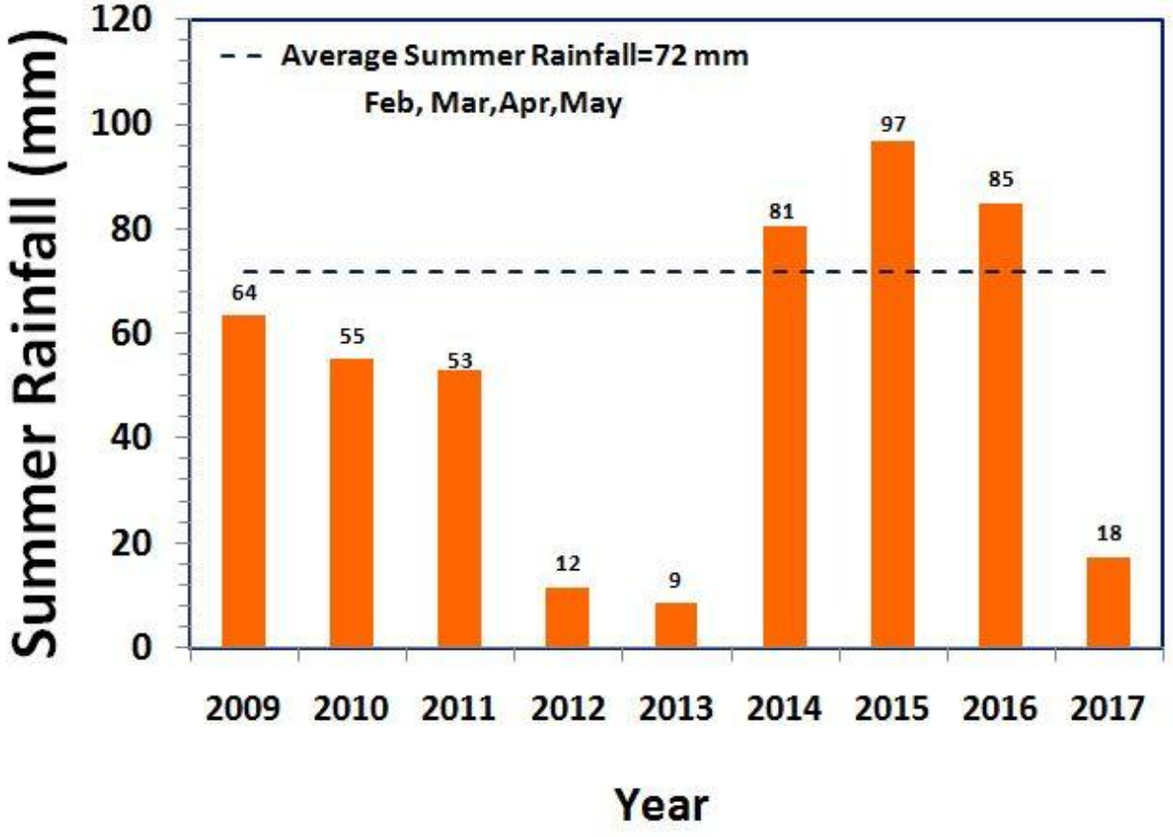


RAINFALL INDEX

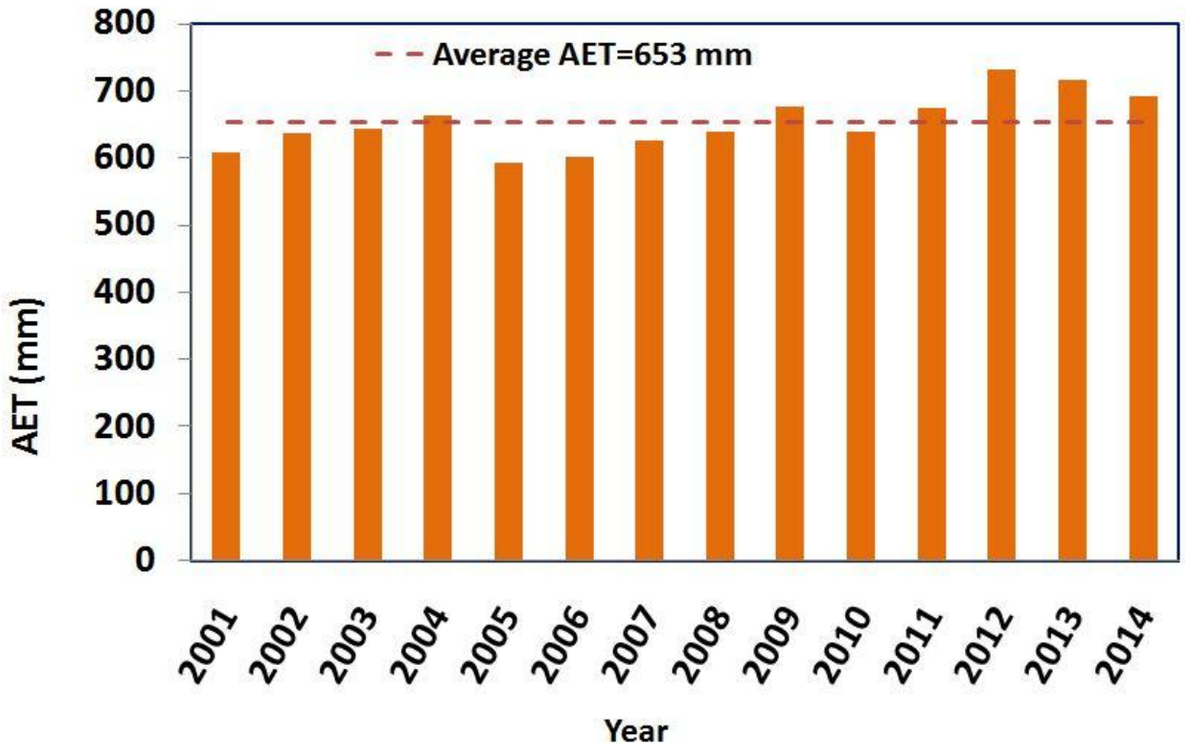


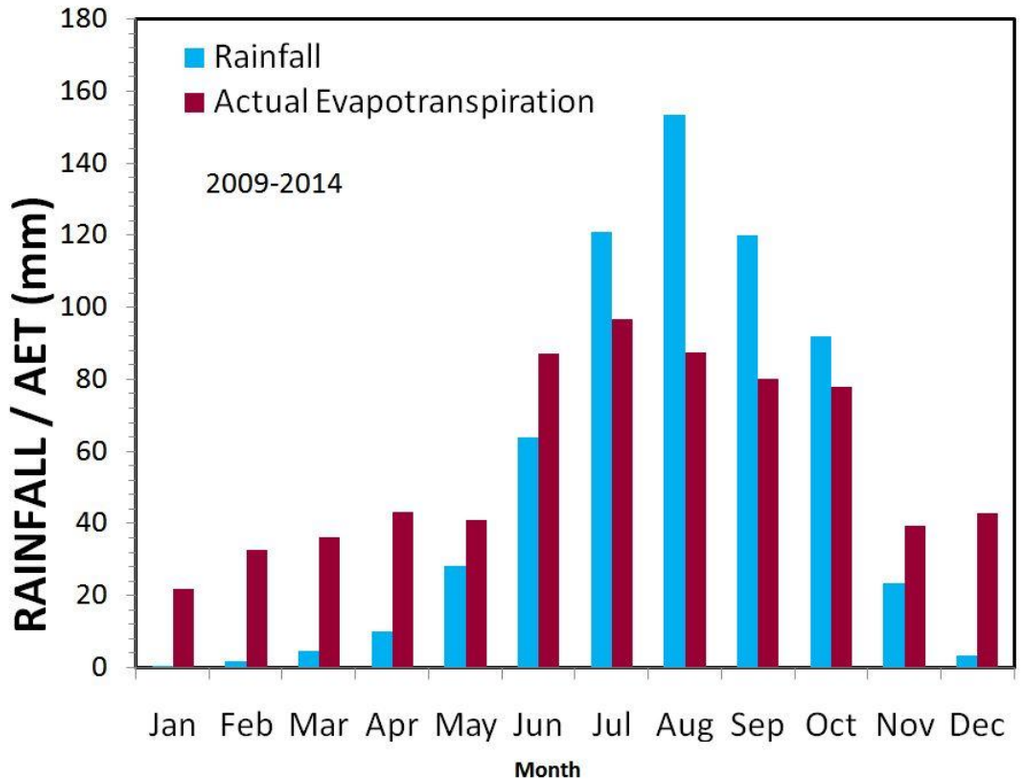
The average *rabi* rainfall (Oct-Jan) is about 14% of the average annual rainfall. During the year 2009 high *rabi* rainfall was received, where as other years showed deficient rainfall.

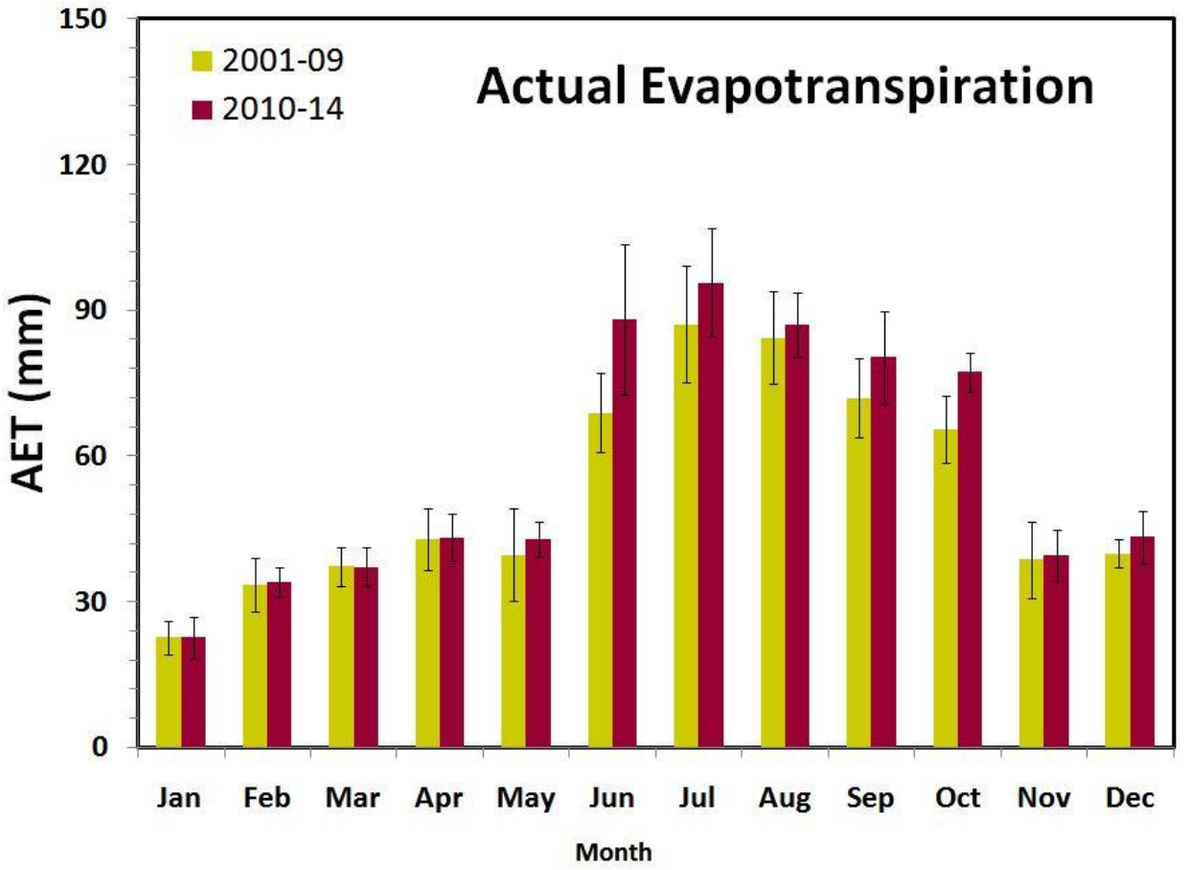
The average summer rainfall (Feb-May) is about 9% of the average annual rainfall.



EVAPOTRANSPIRATION

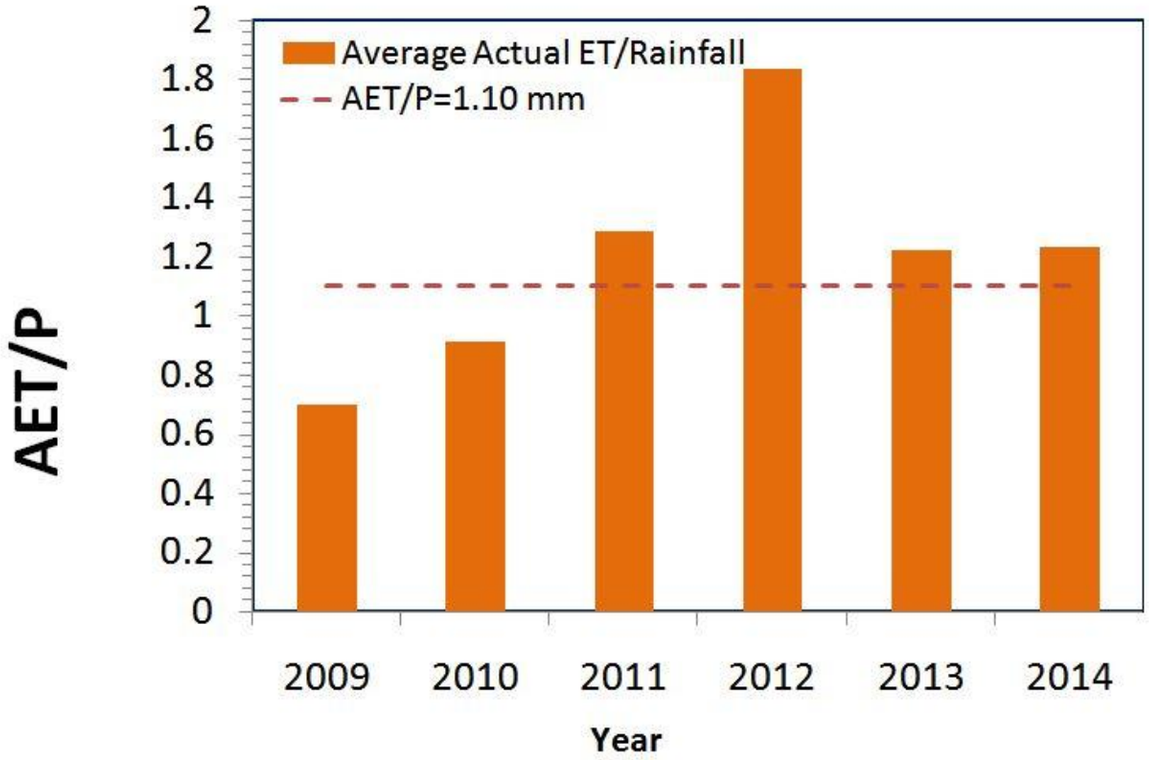


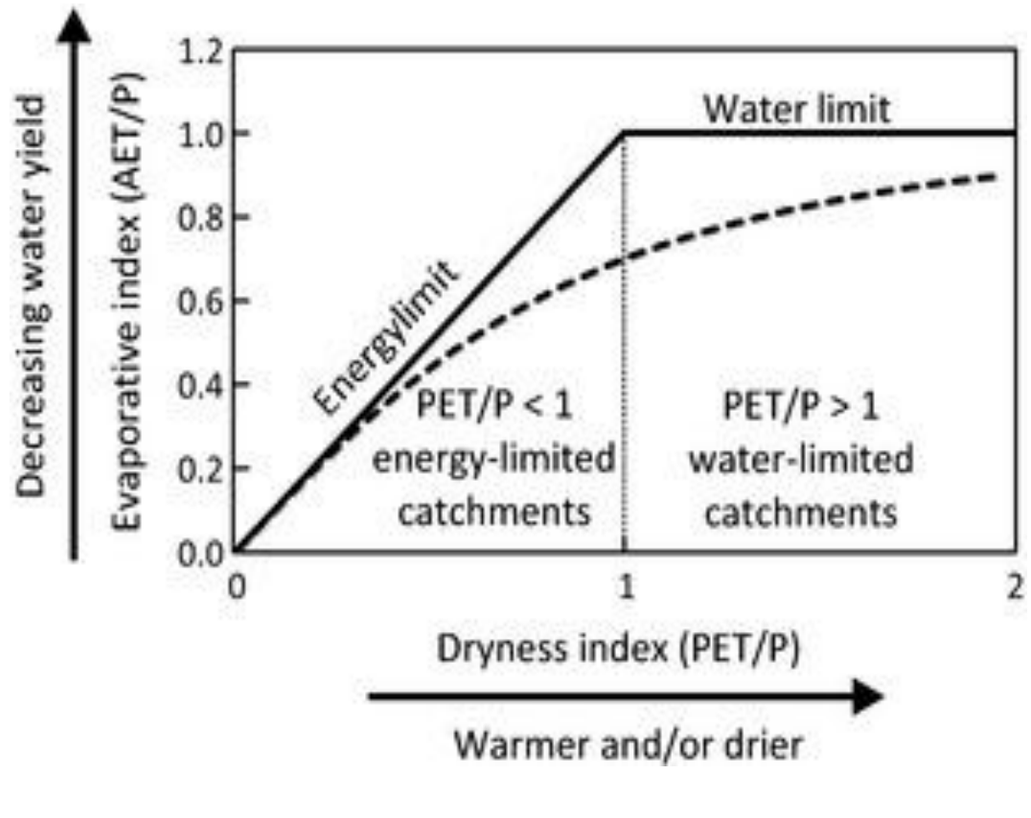




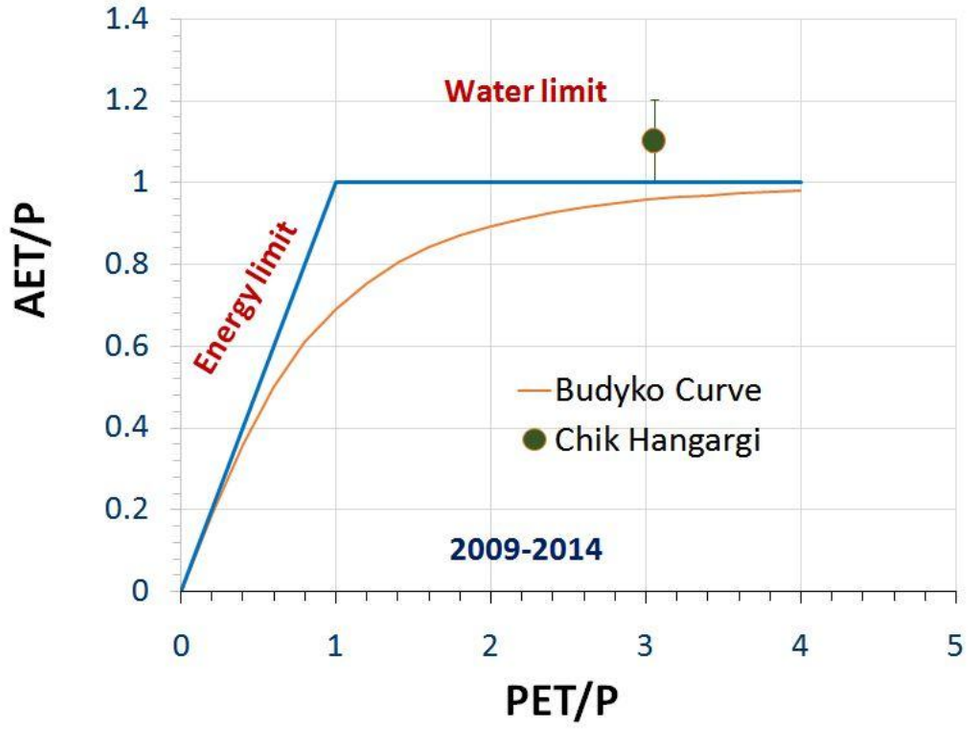
The average annual actual ET is lower than the average rainfall. During *kharif*, average rainfall and ET was found to be 440 mm and 352 mm respectively, whereas in *rabi* it was about 92 mm and 182 mm. In comparison to the 2001-2009, the annual ET increased by 8% during 2010-2014.

EVAPOTRANSPIRATION INDEX

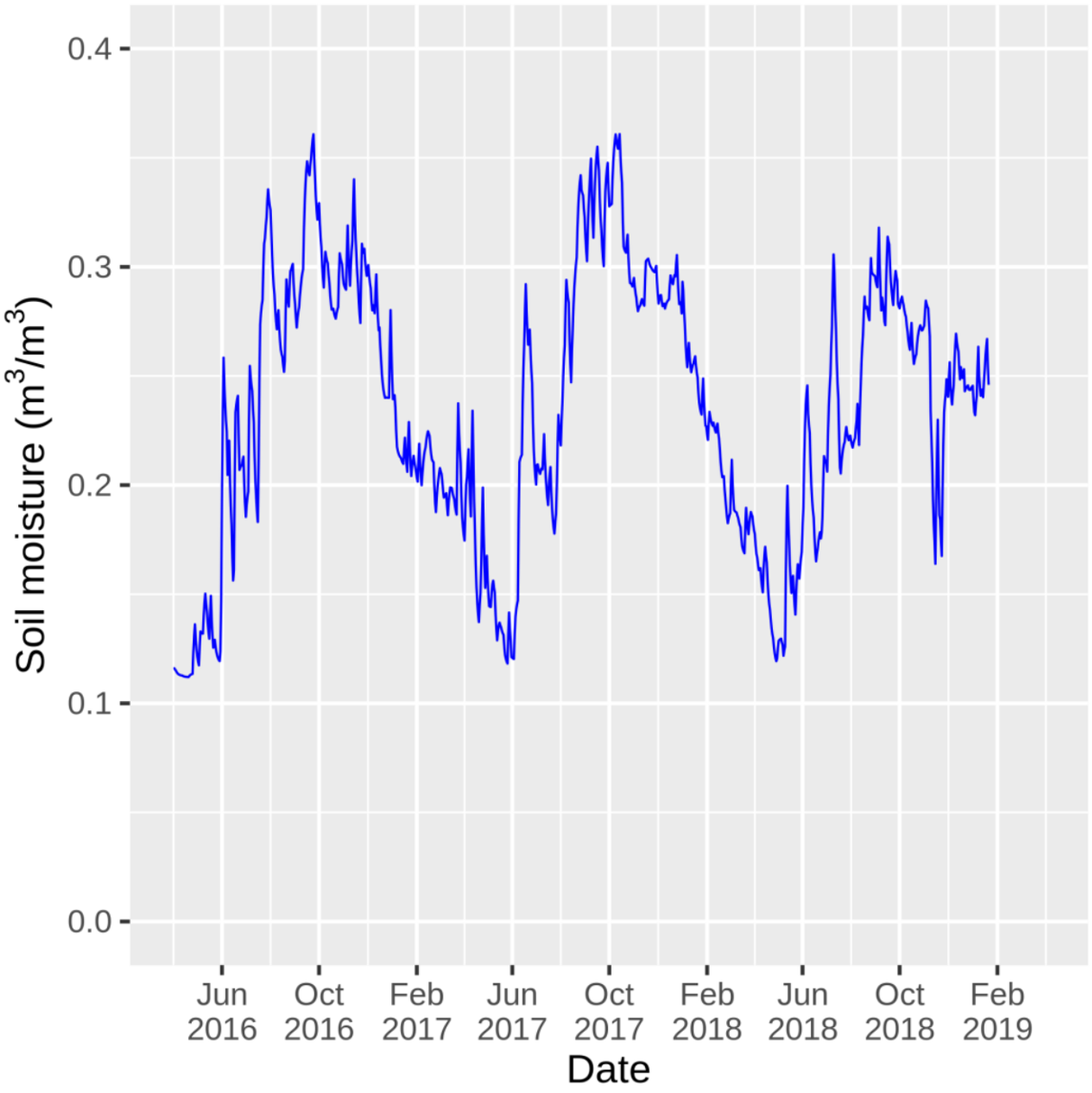


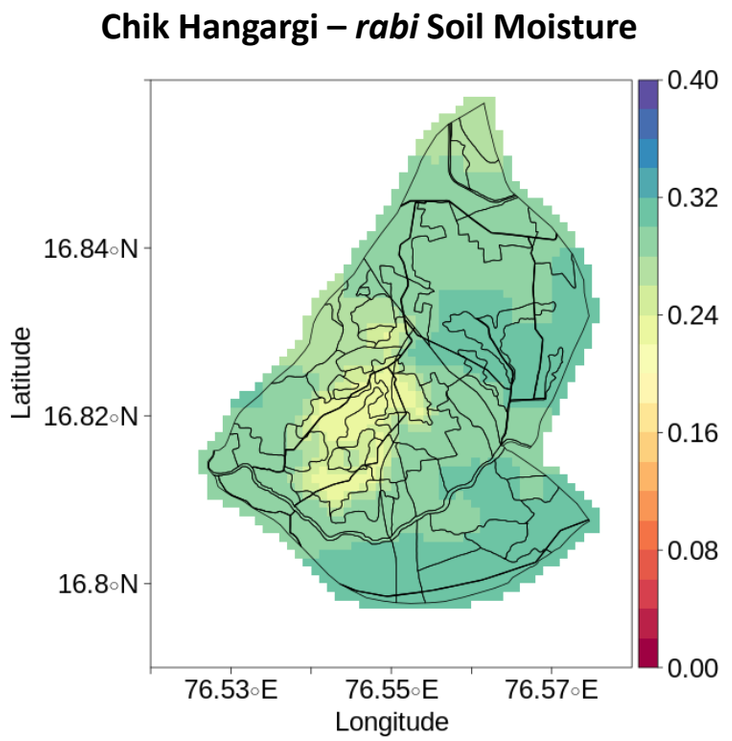


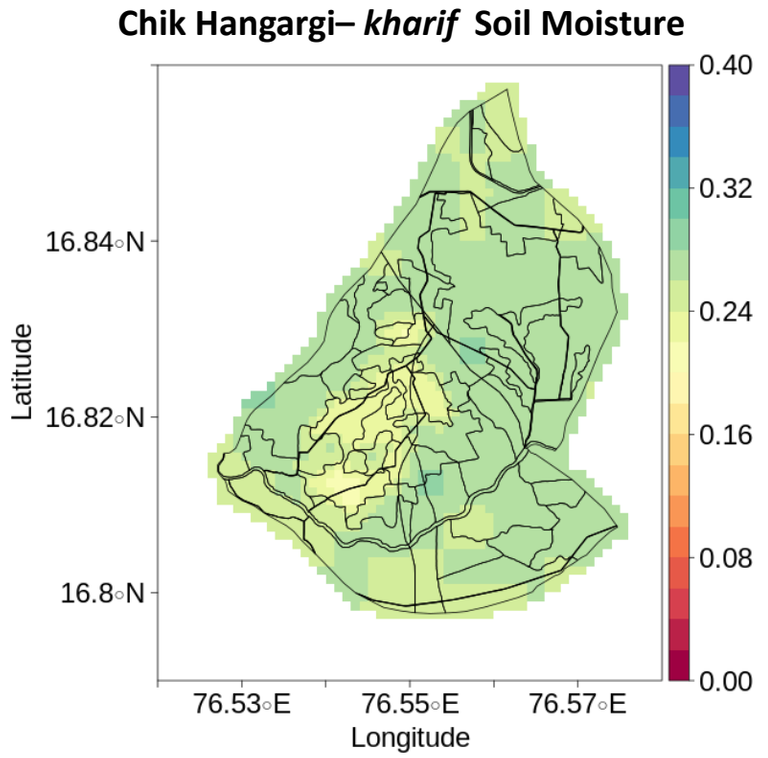
The average AET/P ratio was about 110%, which is slightly higher than the sustainable limit of about 80%. Even during extremely lower rainfall year of 2012, AET was 653 mm. This suggests the presence of water storage and utilization from other sources such as groundwater, which buffered the lower rainfall.



SATELLITE RETRIEVED SOIL MOISTURE





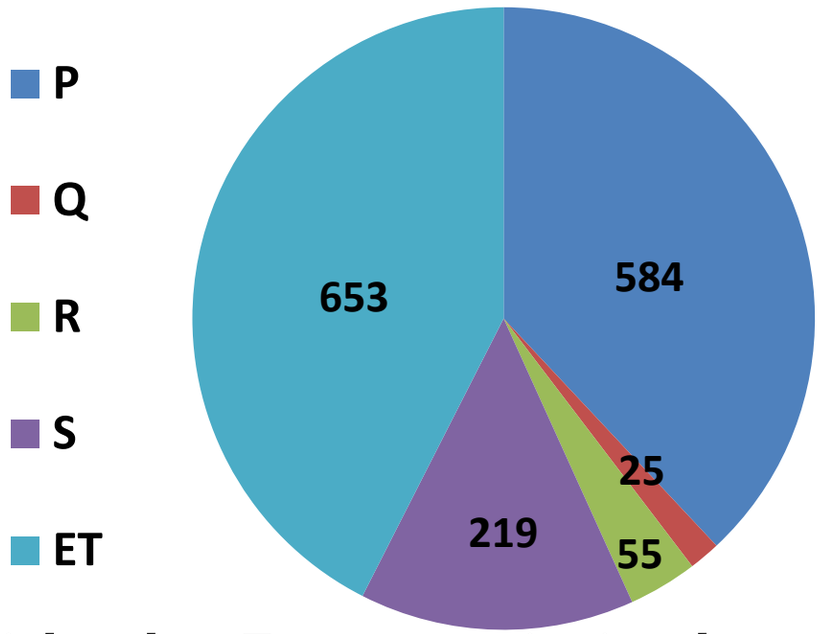


The method developed for retrieving soil moisture from multi-satellite observations allowed to map surface soil moisture behavior in the micro-watershed. The available surface moisture was varied in the range of 12-30 % in *kharif* and 24-33 % in *rabi* seasons of 2016, 12-35 % in *kharif* and 29-35% in *rabi* seasons of 2017 and 16-32% in *kharif* and 23-30% in *rabi* seasons of 2018.

WATER BALANCE

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

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

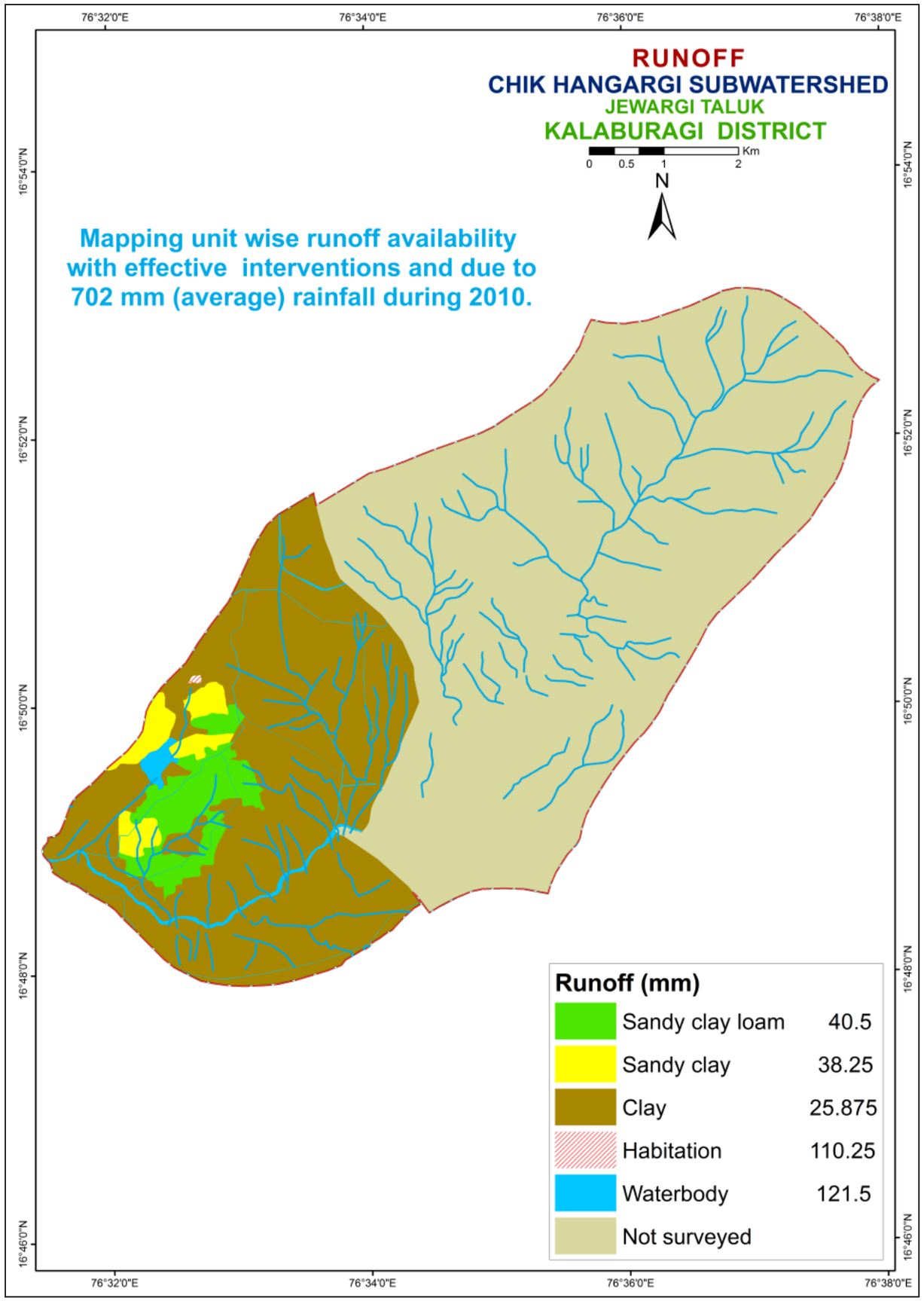


During July- September months, Precipitation is higher than Evapotranspiration, hence Runoff can occur in the watershed.

P = 584 mm (average of 2009-2017) ET = 653 mm R = 55 mm S = 219 mm Q = 25 mm

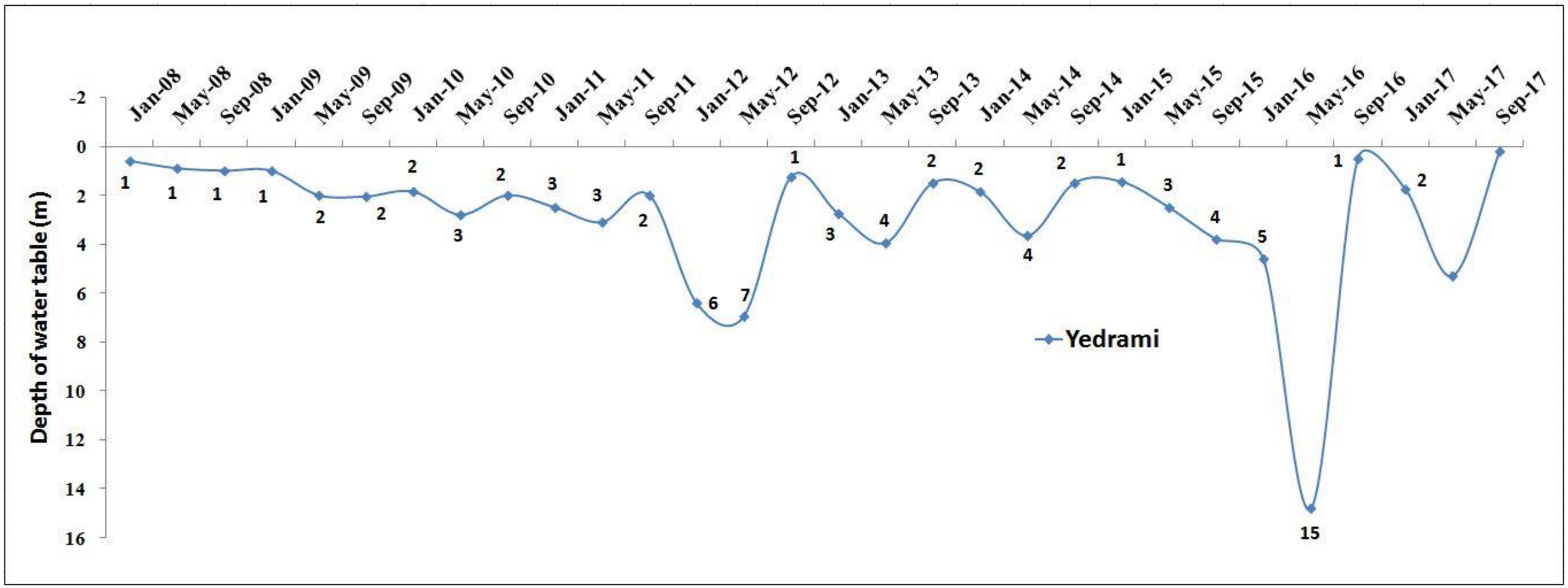
Sl. No.	Parameters	Average_ 2010 (mm)
1.	Rainfall	702
2.	Runoff availability with existing conditions	91
3.	Runoff availability with effective interventions	31
4.	Runoff allowed as environmental flow at the outlet	6
5.	Runoff excess for harvesting by construction of structures	25

RUNOFF


RUNOFF
CHIK HANGARGI SUBWATERSHED
JEWARGI TALUK
KALABURAGI DISTRICT
Km
0 0.5 1 2
N
Mapping unit wise runoff availability with effective interventions and due to 702 mm (average) rainfall during 2010.
76°32'0"E
76°34'0"E
76°36'0"E
76°38'0"E
16°54'0"N
16°52'0"N
16°50'0"N
16°48'0"N
16°46'0"N
Runoff (mm)
Sandy clay loam 40.5
Sandy clay 38.25
Clay 25.875
Habitation 110.25
Waterbody 121.5
Not surveyed

GROUND WATER STATUS

YEDRAMI STATION



The total number of wells present in Chik Hangargi Sub-watershed as per LRI data is 4 (Open wells). The groundwater level was found from the data obtained from KSNDMC for the nearest station Yedrami. The above graph depicts the groundwater levels during the years 2008-2017 were constant except 2016. Deepest levels were found in 2016.

x

SUMMARY

- The average annual rainfall of 786 mm in the Chik Hangargi sub-watershed as recorded from the Yedrami station data by KSNDMC.

- 77%, 14% and 9% 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 25 mm for an average annual rainfall of 584 mm (2009-2017). The utilizable groundwater is 38.5 mm (70% of 55 mm recharge estimated). This means the total available water resource combining the soil moisture store for kharif & rabi (219 mm) and utilizable runoff plus recharge is 282 (=219+25+38.5)

- The average actual evapotranspiration estimated in the watershed based on the current land use and irrigation practices for the kharif and rabi seasons is 534 mm. Hence the amount of water use for kharif and rabi seasons may be estimated as 667 mm (i.e 125% of AET). This demand for the two seasons is higher by 385 mm, i.e. (667-282). The AET in June-Sept months is 77% 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 Chik Hangargi Sub-watershed as per LRI data is 4 (Open wells). The groundwater level was found from the data obtained from KSNDMC for the nearest station Yedrami . Deepest levels were found in 2016.