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

Agrisearch with a human touch

Land Resource and Hydrological Inventory of Kibbanahalli Sub-watershed for Watershed Planning and Development Chikkanayakanahalli Taluk, Tumkur District, Karnataka (AESR 8.2)

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

ICAR - NBSS & LUP

The World Bank

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

About ICAR - NBSS&LUP

The 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.

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PART - A

Land Resource Inventory of Kibbanahalli Sub-watershed for Watershed Planning and Development Chikkanayakanahalli Taluk, Tumkur District, Karnataka (AESR 8.2)

CONTENTS

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How to read and use the Atlas

The Land Resource Inventory of Kibbanahalli Sub-watershed (Chikkanayakanahalli Taluk, Tumkur District) for Watershed Planning (AESR 8.2) 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.

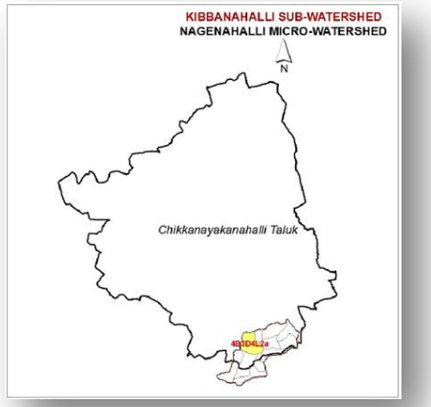
For easy map reading and understanding the information contain in different maps, the physical, cultural and scientific symbols used in the maps are illustrated in the form of colors, graphics and tables.

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.

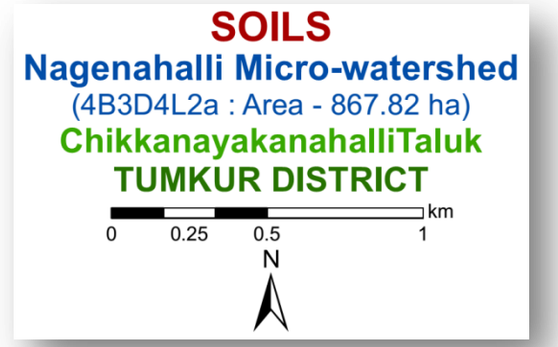
Inset map

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



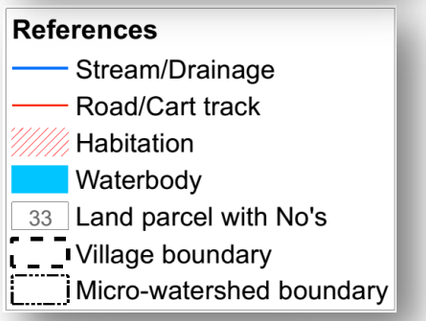
Map title

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



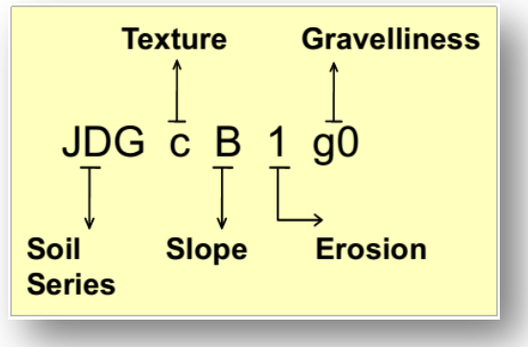
Legends and symbols

*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.*



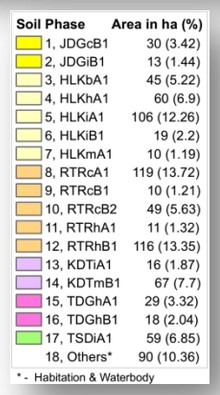
Soil Units

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.



Map colours

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

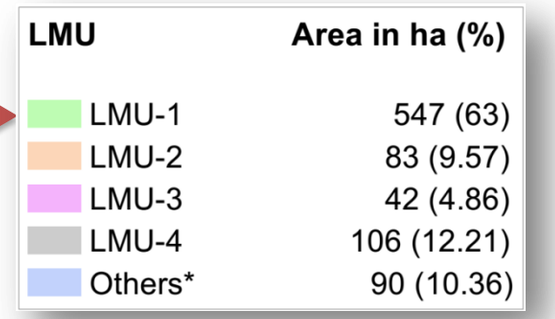


Soil Phase	Area in ha (%)
1, JDGcB1	30 (3.42)
2, JDGiB1	13 (1.44)
3, HLKbA1	45 (5.22)
4, HLKhA1	60 (6.9)
5, HLKiA1	106 (12.26)
6, HLKiB1	19 (2.2)
7, HLKmA1	10 (1.19)
8, RTRcA1	119 (13.72)
9, RTRcB1	10 (1.21)
10, RTRcB2	49 (5.63)
11, RTRhA1	11 (1.32)
12, RTRhB1	116 (13.35)
13, KDTiA1	16 (1.87)
14, KDTmB1	67 (7.7)
15, TDGhA1	29 (3.32)
16, TDGhB1	18 (2.04)
17, TSDiA1	59 (6.85)
18, Others*	90 (10.36)

* - Habitation & Waterbody

Land Management Units (LMU)

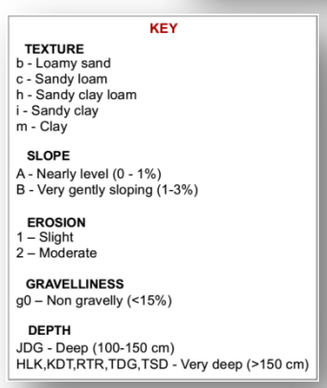
Grouping of similar soil areas based on their soil-site characteristics into management units that respond similarly for a given level of management are designated as land management units

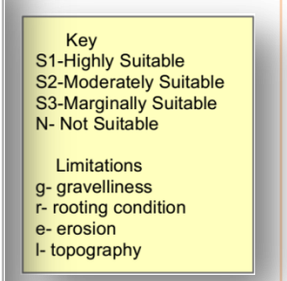


LMU	Area in ha (%)
LMU-1	547 (63)
LMU-2	83 (9.57)
LMU-3	42 (4.86)
LMU-4	106 (12.21)
Others*	90 (10.36)

Map key

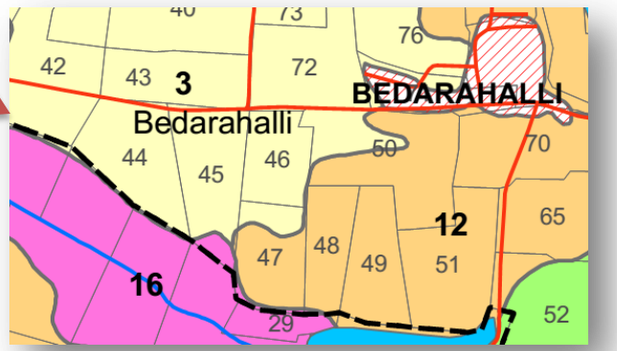
There are many thematic types to be differentiated on the map solely based on colour. Therefore soils and suitability types and their limitations are distinguished by colours with a combination of alpha-numeric characters.





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 KIBBANAHALLI SUB-WATERSHED FOR PLANNING CHIKKANAYAKANAHALLI TALUK, TUMKUR 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.

Tumakuru District popularly known as Kalpataru Nadu (For production of Coconuts) is located 71 kms away from the capital city of Karnataka state. The district is located in the Southern part of the state and lies between 12^{o} 45’ and 14^{o} 22’ North latitude and between 76^{o} 24’ and 77^{o} 30’ east longitude. The district has total geographical area of 10598 sq. kms. Majority of the population is dependent on agriculture in the district. The geology of the district consists of Granite gneiss and Schist. The average rainfall in the district is 688 mm. The major crops grown are ragi, groundnut, maize, sorghum, sugarcane, coconut, arecanut, mango, banana, mulberry, horsegram, greengram, field bean, pigeon pea and cow pea etc.

As a pilot study, **ICAR- NBSSLUP, Bangalore** carried out the generation of LRI for the Nagenahalli micro-watershed, Kibbanahalli sub-watershed in Chikkanayakanahalli taluk, Tumkur district. It was selected for data base generation under batch VI of Sujala III project. This sub-watershed encompasses of 9 MWs namely Biligere (4B3D4L2d), Nagenahalli (4B3D4L2a), Jakkanahalli (4B3D4L2c), Somanahalli (4B3D4L1d), Naduvavahalli (4B3D4L1c), Haluguna (4B3D4L2b), Kibbanahalli (4B3D4L2e), Sondenahalli1 (4B3D4L1a) and Sondenahalli2 (4B3D4L1b). Land Resource Inventory (LRI) was generated for two (Nagenahalli-4B3D4L2a and Somanahalli -4B3D4L1d), among nine micro-watersheds.

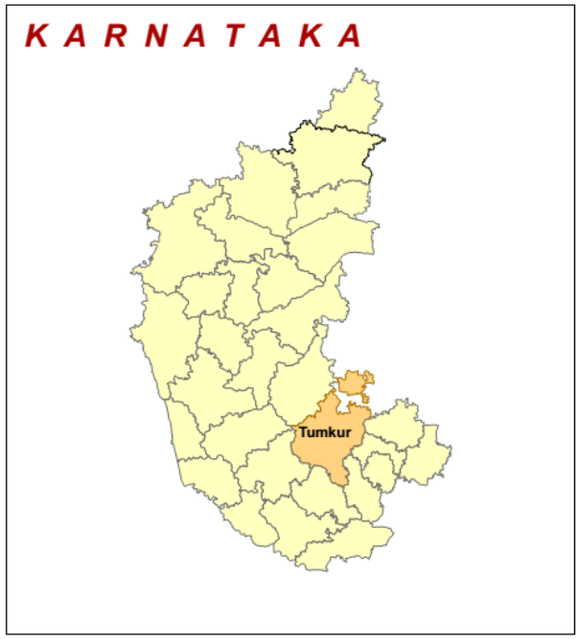
To be continued….

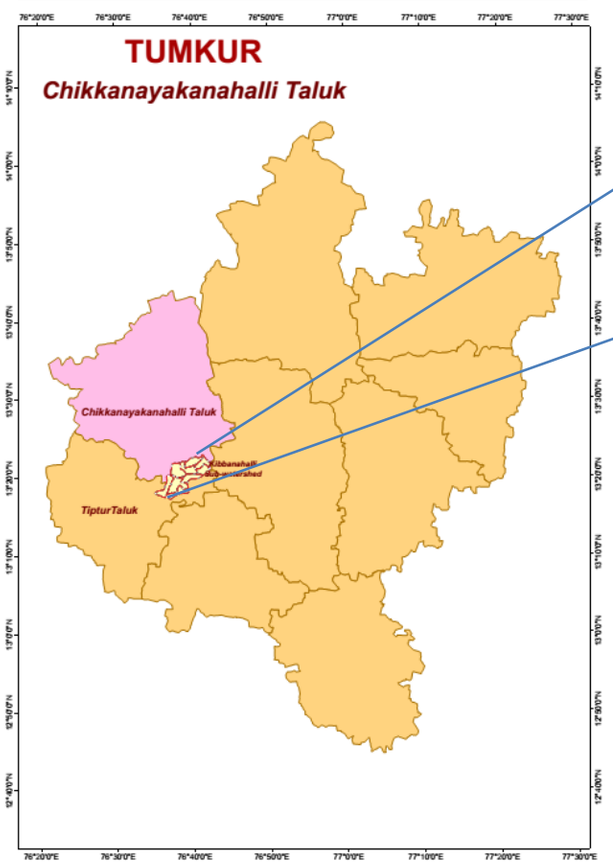
The major landforms identified in the micro-watershed (Nagenahalli-4B3D4L2a and Somanahalli -4B3D4L1d) are uplands and low lands. The database was generated by using cadastral map of the village as a base along with high resolution satellite imagery (IRS LISS IV and Cartosat-1). The objectives of the land resource survey, carried out during February-March 2015 in the Kibbanahalli Sub-watershed are indicated below.

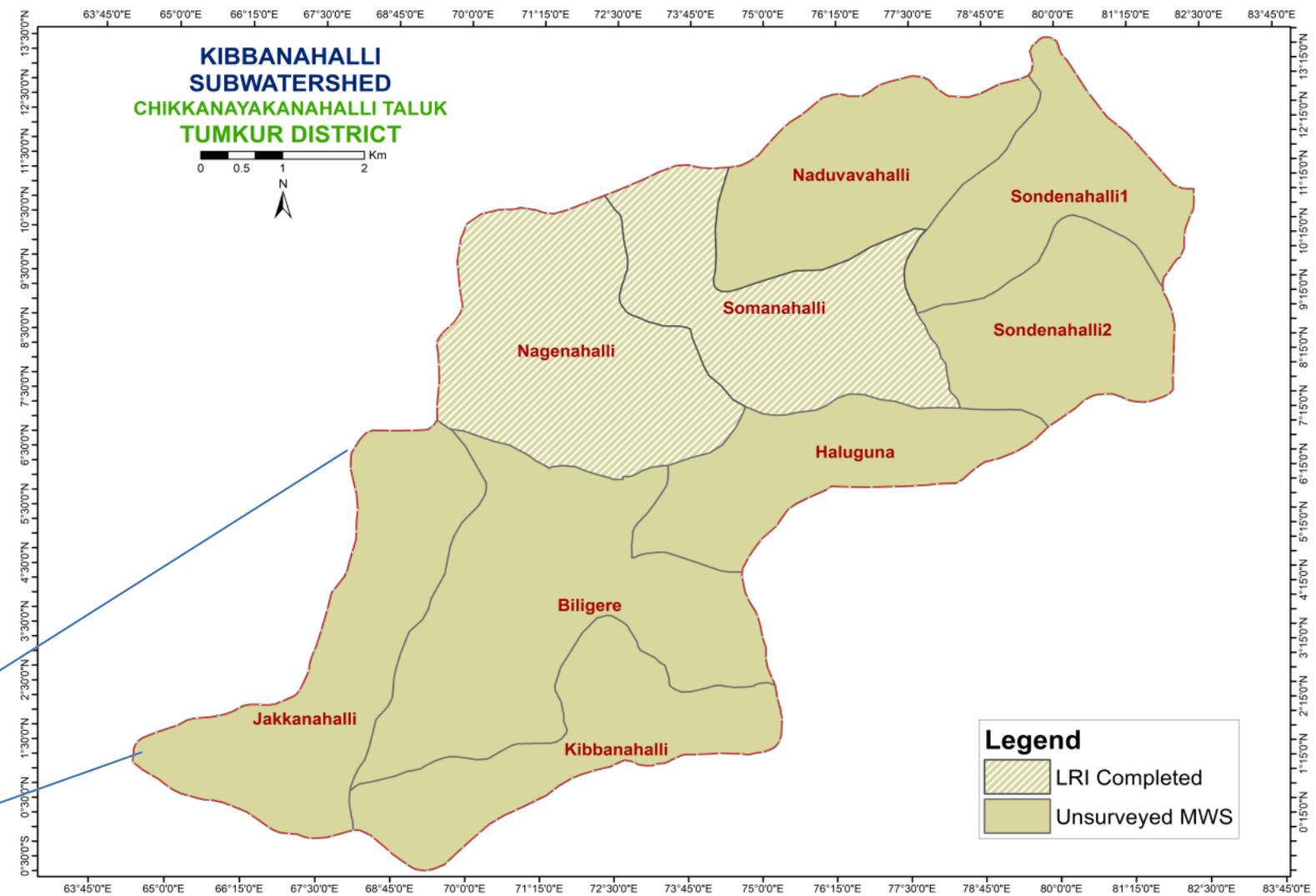
- Detailed characterization of all the land resources like soil, water, land use, cropping pattern and other resources available at parcel level in the village.
- Delineation of homogenous areas based on soil-site characteristics into management units.
- Collection and interpretation of climatic and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

LOCATION AND EXTENT

Kibbanahalli sub-watershed (Chikkanayakanahalli Taluk, Tumkur District) is located between $13^0$17’ 24’’–$13^0$22’ 37’’ North latitudes and 76^0 35’11’’- 76^0 41’59’’ East longitudes, covering an area of about 6159 ha.





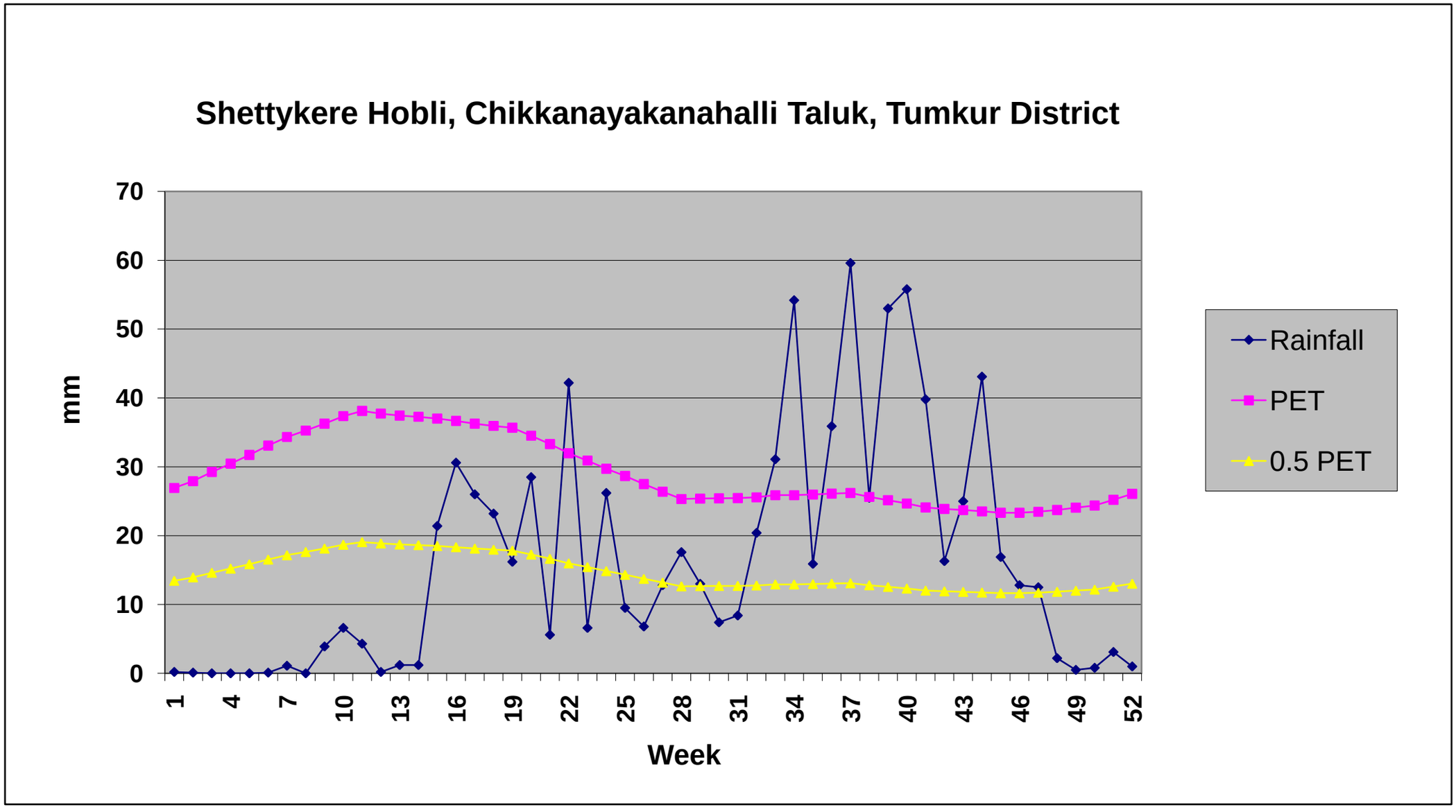


Agro Ecological Sub Region (AESR) 8.2: Central Karnataka Plateau, hot moist semi-arid ESR with medium to deep Red loamy soils, low AWC and LGP 120-150 days

Agro-climatic Zone 4. Central Dry Zone: The zone covers the entire Chitradurga district, parts of Tumkur (6 taluks) and one taluk each in Chikmagalur and Hassan districts. The zone has an area of 1.98 M ha with 0.93 M ha under cultivation of which 0.18 M ha enjoys irrigation facilities. The major soil type is red loam with sporadic occurrence of shallow to deep black soils in Chitradurga distict. The elevation ranges from 450 to 900 m MSL with most parts lying at an elevation of 800-900 m MSL. This is the driest zone in the state with annual average rainfall ranging from 450 to 715 mm. More than 55 per cent of the rains in this zone are received during pre-monsoon period and southwest monsoon making it a predominantly kharif area. Ragi, sorghum, rice, oilseeds and pulses are the major crops cultivated in the zone.

NOTE: In this Sub-Watershed, Land Resource Inventory (LRI) was generated for two micro-watersheds (Nagenahalli-4B3D4L2a and Somanahalli -4B3D4L1d) among the nine micro-watersheds.

Climate

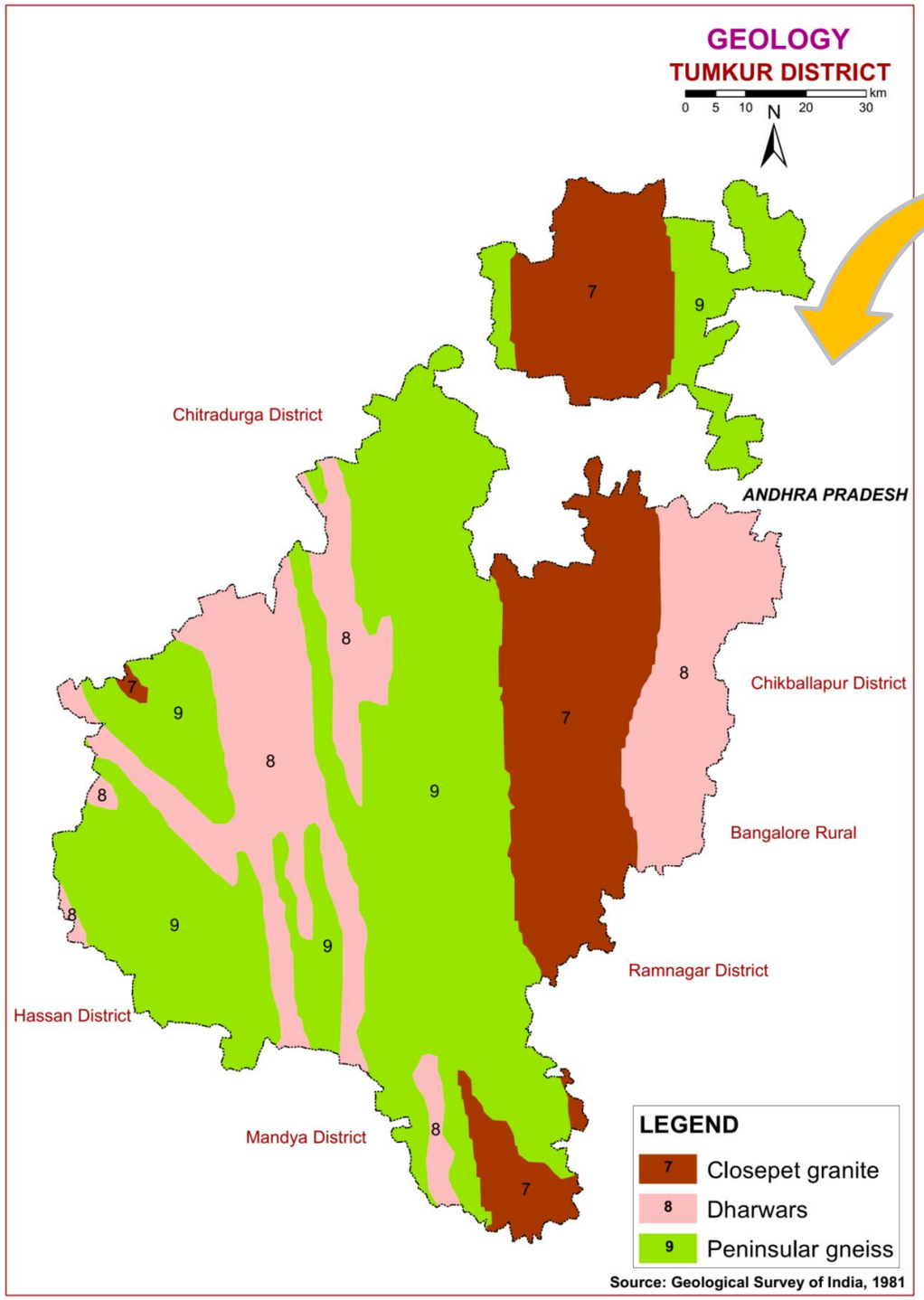


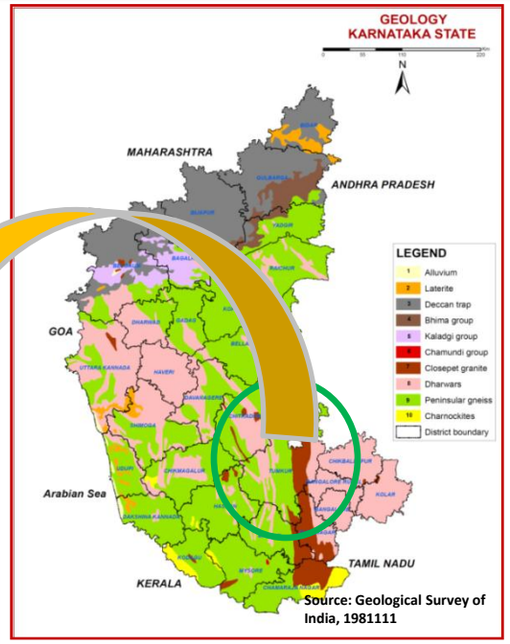
Length of Growing Period (LGP) is varying from July 2nd week to 3rd week of November about 120-150 days.

Annual Rainfall : 846 mm. in the Shettykere Hobli, Chikkanayakanahalli 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 - TUMKUR DISTRICT

Upper Proterozoic Group

Formations of the Upper Proterozoic in Karnataka are Closepet granites, Chamundi granites, Kaladgi series and Bhima series. Out of these Chamarajanagara district consists of Closepet granites.

Closepet granites

Closepet granites are also known as Ramanagaram granites, constitute a well-defined range of hills and composed of various types of granite, granodiorite and granite porphyry

Archaean group: The Archaean group of rocks of Karnataka are the oldest formations (> 3000 million years) of the earth's crust. They are unfossiliferous, thoroughly crystalline, extremely contorted and faulted rocks, with well-defined foliated structure. They are intruded by plutonic rocks. The Archeans are also known as the Basement Complex or the Gneissic Complex. 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 is a heterogeneous mixture of several types of granitic rocks such as banded gneisses, granitic gneisses, granites and gneissic granites, granodiorites and diorites. The banded gneisses consist of white bands of quartz-feldspar alternating with dark bands of biotite, hornblende, and minor accessories. The granite group includes granites of all shades with varying composition. Peninsular gneiss seems to have formed by the granitization of the older rocks.

Dharwar schists

The Dharwar schists consist of a complex series of crystalline schists associated with ultrabasic rocks such as amphibolite, peridotites and dunites. These schists are found in long, narrow bands of various dimensions running NW-SE through the Peninsular Gneiss. The Dharwars are divided into Upper and Lower.

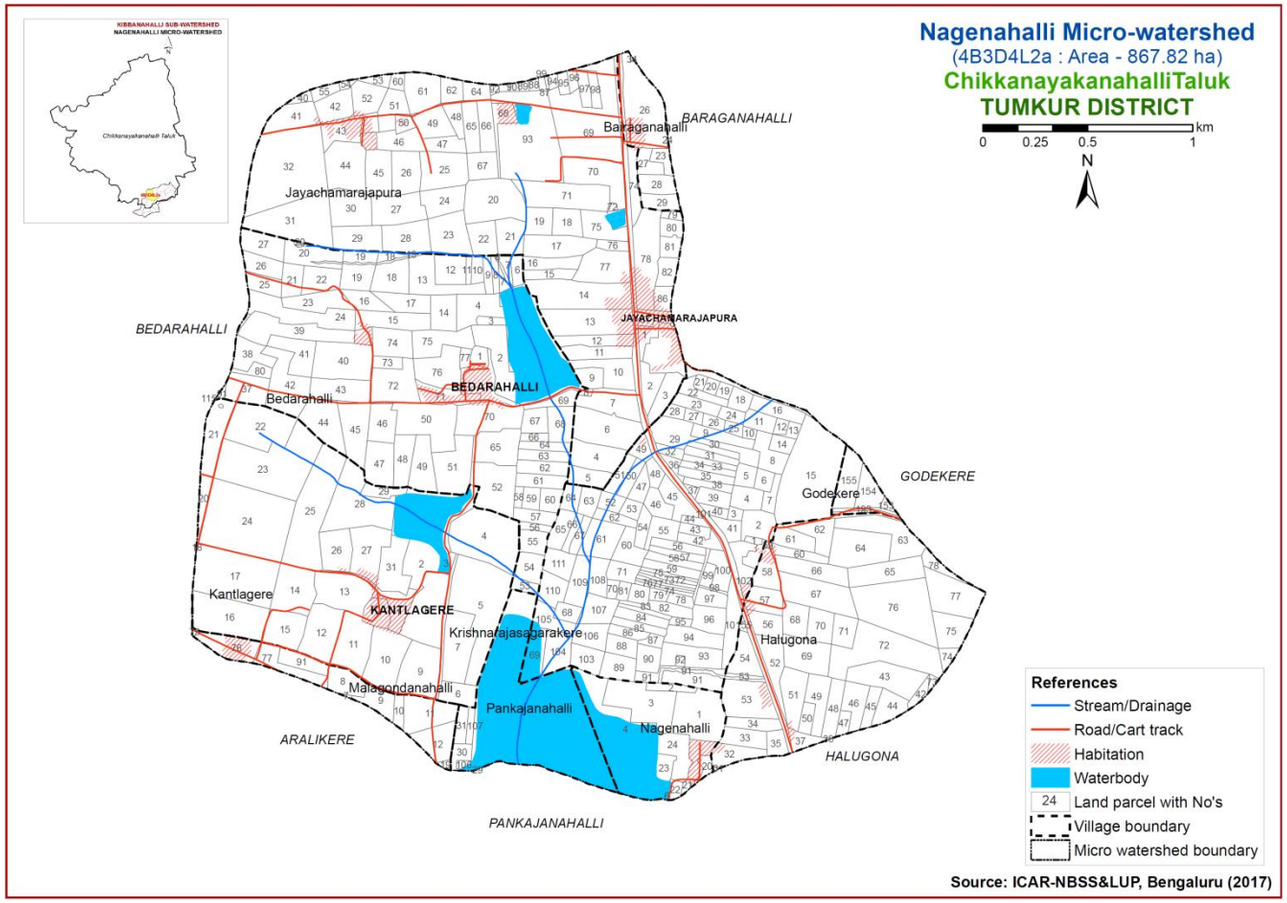
Upper Dharwars are equivalent to the Archaean to Lower Proterozoic, and are divided into Bababudan (comprises banded ferruginous quartzites, pyroxenite, gabbro, serpentinite, acid volcanic, phyllites, metabasalt, and quartz-chlorite schist) and Chitradurga groups (includes quartzite, limestone, dolomite, chlorite-schist, and manganese and iron ores with phyllite, metabasalt and conglomerates).

Lower Dharwars occur in Mysore district and include amphibolite schist, quartzite, ironstone and marble.

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.


KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
km
0 0.25 0.5 1
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village boundary
Micro watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)


KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
km
0 0.225 0.45 0.9
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
Halugona
HOLAGONA
References
Stream/Drainage
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Land parcel with No's
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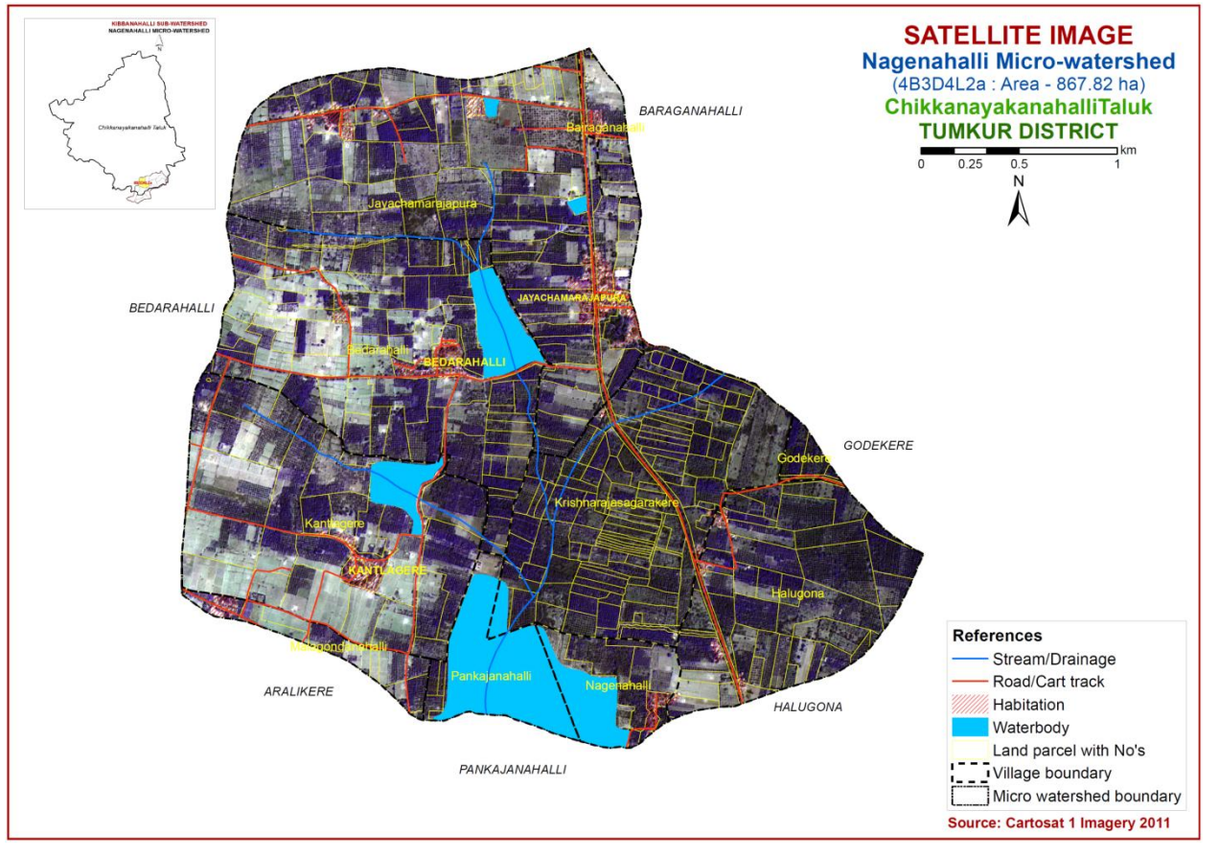
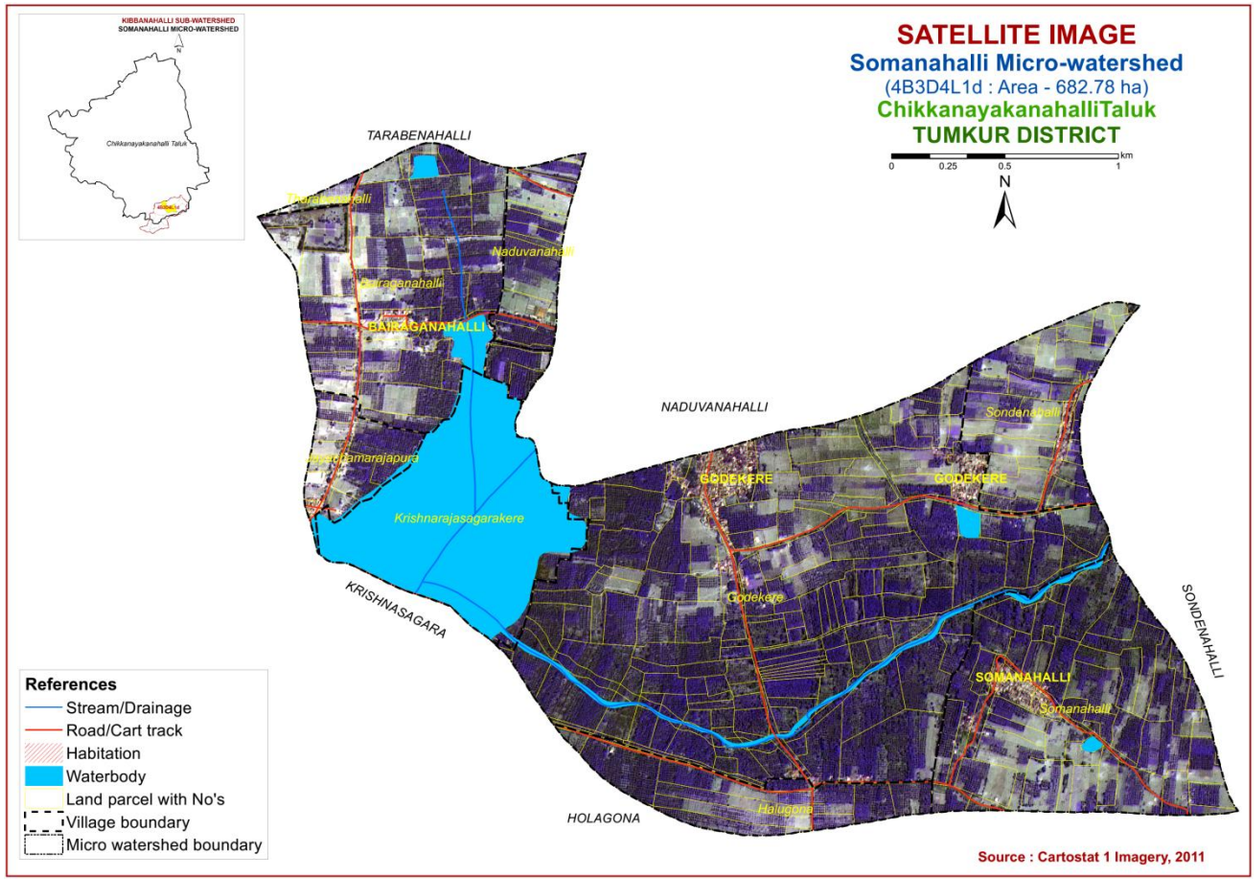
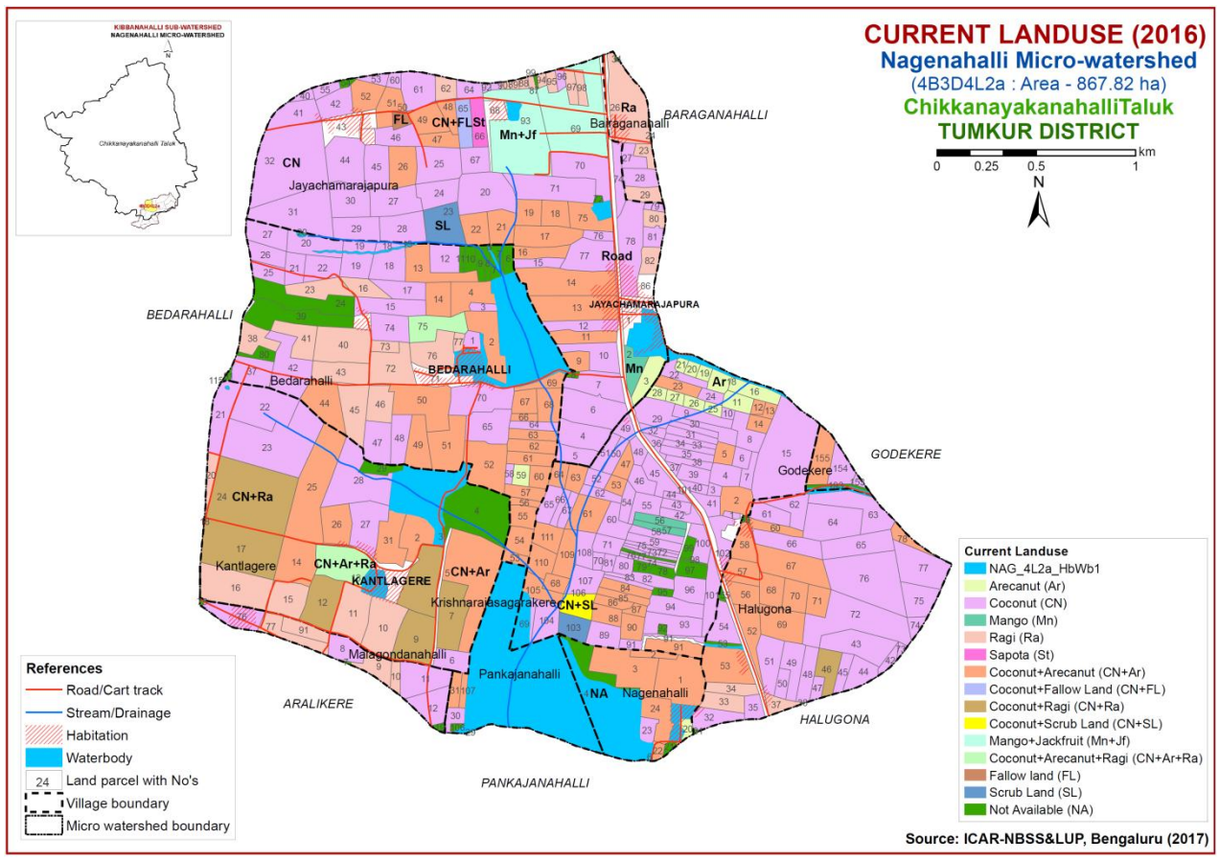
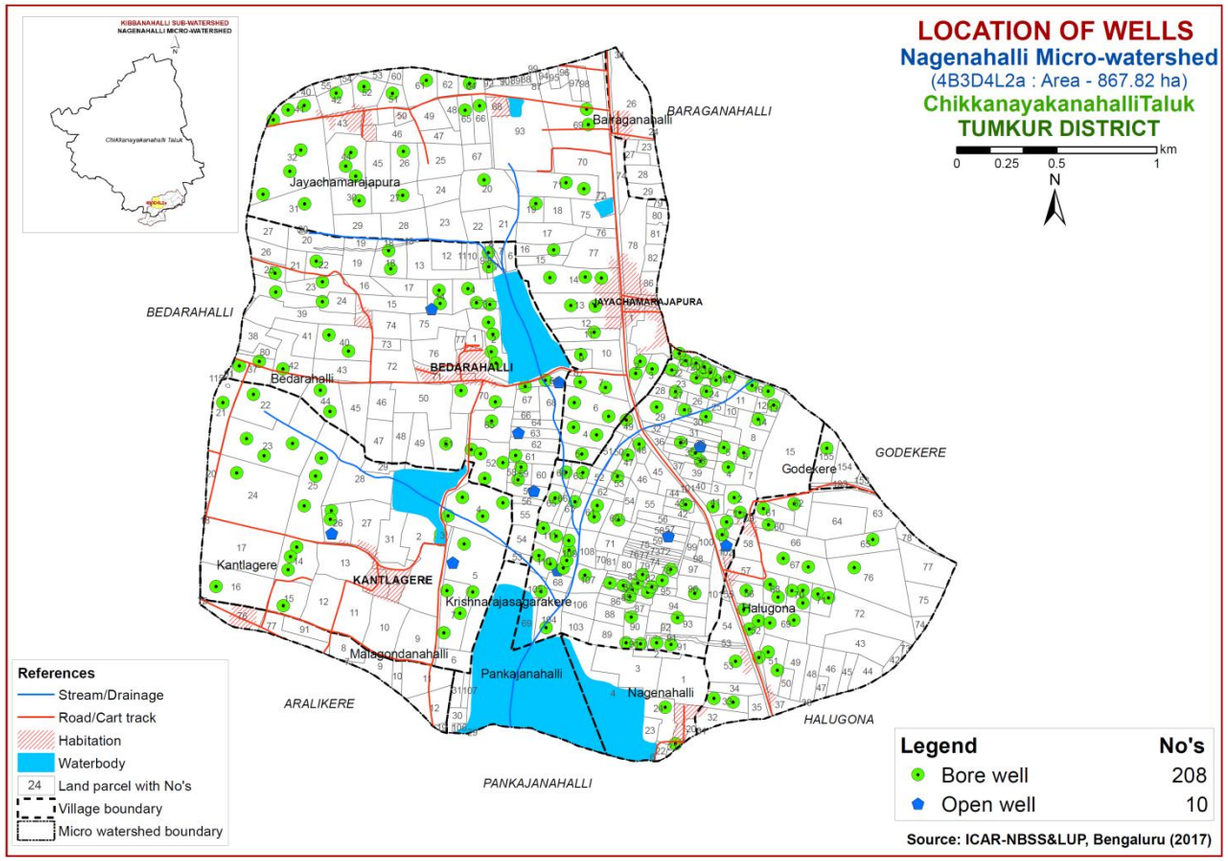
Micro watershed boundary
Source : ICAR-NBSS&LUP, Bengaluru (2017)

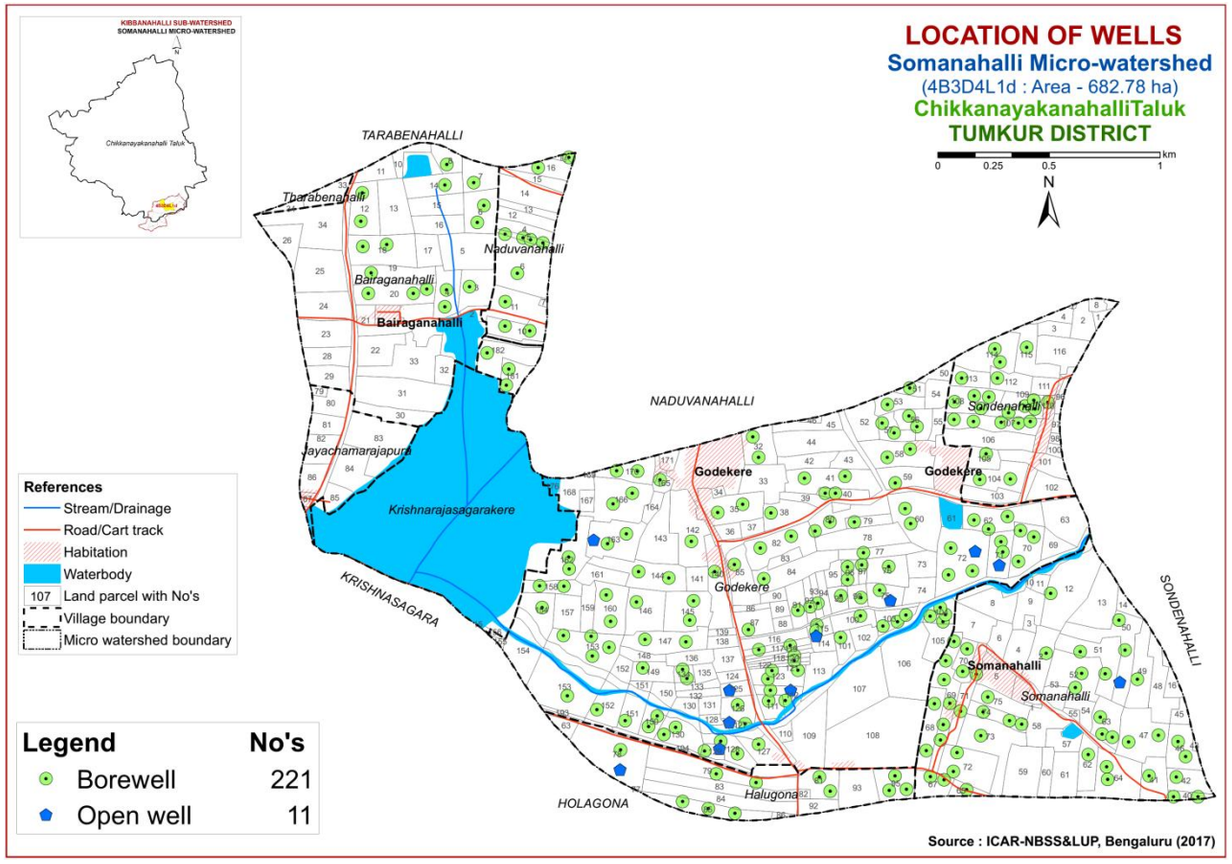

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SATELLITE IMAGE
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
JAYACHAMARAJAPURA
BEDARAHALLI
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Krishnarajasagarakere
Kantlagere
KANTLAGERE
Halugona
Madegondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village boundary
Micro watershed boundary
Source: Cartosat 1 Imagery 2011


KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SATELLITE IMAGE
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Naduvanahalli
Baraganahalli
BARAGANAHALLI
NADUVANAHALLI
Sondanahalli
Jayachamarajapura
GODEKERE
GODEKERE
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
SOMANAHALLI
Somanahalli
Halugona
HOLAGONA
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village boundary
Micro watershed boundary
Source : Cartostat 1 Imagery, 2011


KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
CURRENT LANDUSE (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
BEDARAHALLI
JAYACHAMARAJAPURA
GODEKERE
ARALIKERE
HALUGONA
PANKAJANAHALLI
Jayachamarajapura
Bedarahalli
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Malagondanahalli
Pankajanahalli
Nagenahalli
Godekere
Halugona
References
Road/Cart track
Stream/Drainage
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Current Landuse
NAG_4L2a_HbWb1
Arecanut (Ar)
Coconut (CN)
Mango (Mn)
Ragi (Ra)
Sapota (St)
Coconut+Arecanut (CN+Ar)
Coconut+Fallow Land (CN+FL)
Coconut+Ragi (CN+Ra)
Coconut+Scrub Land (CN+SL)
Mango+Jackfruit (Mn+Jf)
Coconut+Arecanut+Ragi (CN+Ar+Ra)
Fallow land (FL)
Scrub Land (SL)
Not Available (NA)
Source: ICAR-NBSS&LUP, Bengaluru (2017)


KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
CURRENT LANDUSE (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
NADUVANAHALLI
KRISHNASAGARA
SONDENAHALLI
HOLAGONA
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
Krishnarajasagarakere
Sondenahalli
Somanahalli
Godekere
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Current Landuse
SOM_4L1d_HB_WB1
Arecanut(Ar)
Coconut(CN)
Ragi (Ra)
Teak (Te)
Coconut+Ragi (CN+Ra)
Coconut+Arecanut (CN+Ar)
Ragi+Coconut+Teak(Ra+CN+Te)
Coconut+Arecanut+Ragi (CN+Ar+Ra)
Fallow land (Fl)
Not Available (NA)
Road
Source : ICAR-NBSS&LUP, Bengaluru (2017)


KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
LOCATION OF WELLS
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Legend No's
Bore well 208
Open well 10
Source: ICAR-NBSS&LUP, Bengaluru (2017)


KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
LOCATION OF WELLS
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Krishnarajasagarakere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Legend No's
Borewell 221
Open well 11
Source : ICAR-NBSS&LUP, Bengaluru (2017)

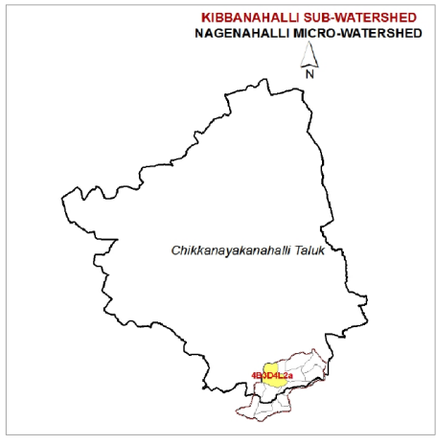
SOILS

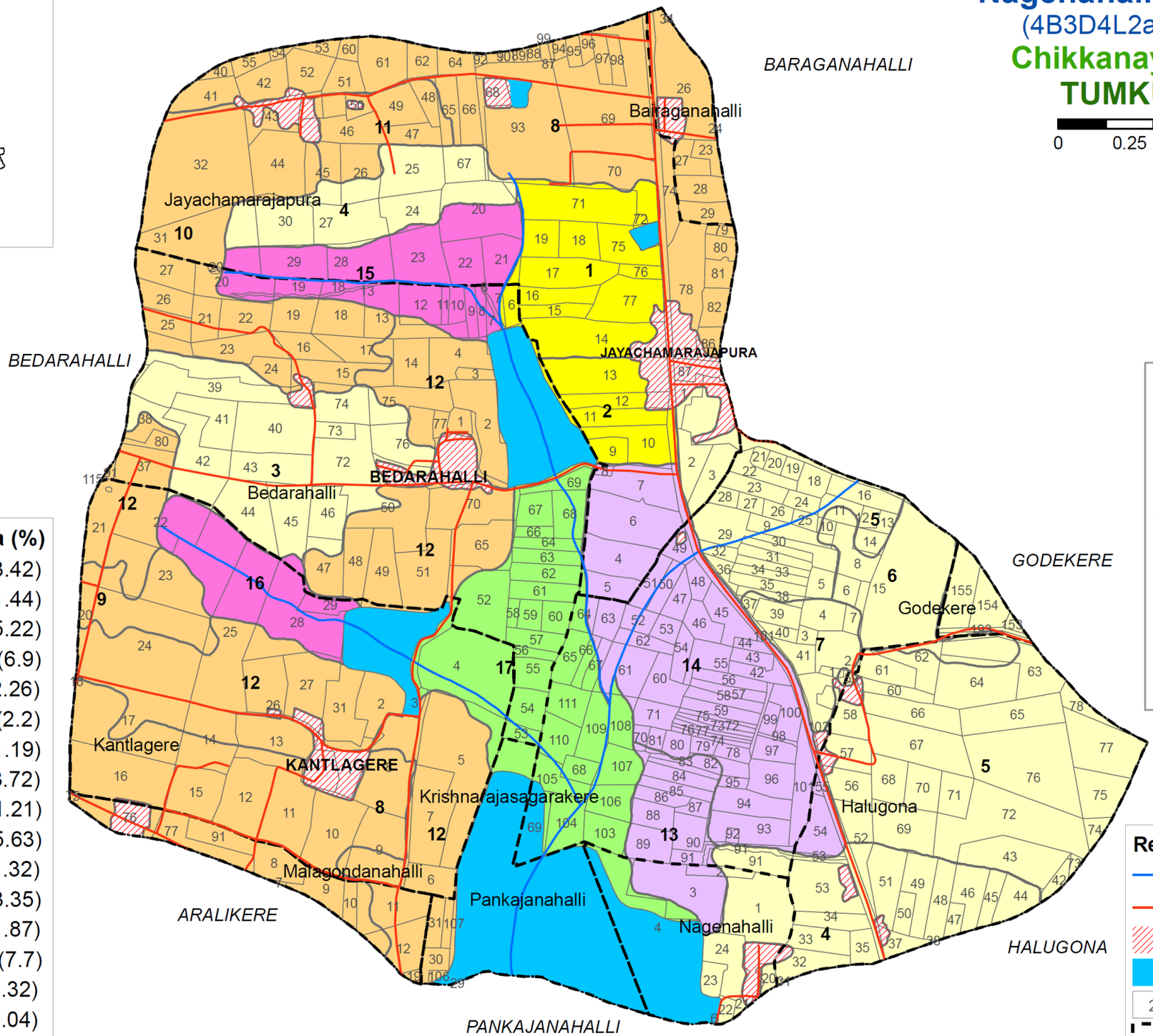
Nagenahalli Micro-watershed

(4B3D4L2a : Area - 867.82 ha)

ChikkanayakanahalliTaluk

TUMKUR DISTRICT





Texture Gravelliness

JDG c B 1 g0

Soil Series | Slope | Erosion

Soil Phase	Area in ha (%)
1, JDGcB1	30 (3.42)
2, JDGiB1	13 (1.44)
3, HLKbA1	45 (5.22)
4, HLKhA1	60 (6.9)
5, HLKiA1	106 (12.26)
6, HLKiB1	19 (2.2)
7, HLKmA1	10 (1.19)
8, RTRcA1	119 (13.72)
9, RTRcB1	10 (1.21)
10, RTRcB2	49 (5.63)
11, RTRhA1	11 (1.32)
12, RTRhB1	116 (13.35)
13, KDTiA1	16 (1.87)
14, KDTmB1	67 (7.7)
15, TDGhA1	29 (3.32)
16, TDGhB1	18 (2.04)
17, TSDiA1	59 (6.85)
18, Others*	90 (10.36)

* - Habitation & Waterbody

KEY

TEXTURE
b - Loamy sand
c - Sandy loam
h - Sandy clay loam
i - Sandy clay
m - Clay

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

EROSION
1 – Slight
2 – Moderate

GRAVELLINESS
g0 – Non gravelly (<15%)

DEPTH
JDG - Deep (100-150 cm)
HLK,KDT,RTR,TDG,TSD - Very deep (>150 cm)

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

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

Table 1.Mapping unit description of Nagenahalli Micro-watershed in Chikkanayakanahalli Taluk, Tumkur District

Soil No	Soil Series	Soil Phase	Mapping Unit Description	Area in ha (%)
SOILS OF GRANITE GNEISS LANDSCAPE				
	JDG	Jedigere soils are deep (100-150 cm), well drained, have dark brown to dark reddish brown sandy clay to clay soils occurring on very gently sloping uplands under cultivation		**43 (4.86)**
1		JDGcB1	Sandy loam surface, slope 1-3%, slight erosion	30 (3.42)
2		JDGiB1	Sandy clay surface, slope 1-3%, slight erosion	13 (1.44)
	HLK	Hallikere soils are very deep (>150 cm), well drained, have dark brown to dark reddish brown clay soils occurring on nearly level to very gently sloping uplands under cultivation		**240 (27.77)**
3		HLKbA1	Loamy sand surface, slope 0-1%, slight erosion	45 (5.22)
4		HLKhA1	Sandy clay loam surface, slope 0-1%, slight erosion	60 (6.90)
5		HLKiA1	Sandy clay surface, slope 0-1%, slight erosion	106 (12.26)
6		HLKiB1	Sandy clay surface, slope 1-3%, slight erosion	19 (2.20)
7		HLKmA1	Clay surface, slope 0-1%, slight erosion	10 (1.19)
	RTR	Ranatur soils are very deep (>150 cm), well drained, have dark reddish brown to dark red clay soils occurring on nearly level to very gently sloping uplands under cultivation		**305 (35.23)**
8		RTRcA1	Sandy loam surface, slope 0-1%, slight erosion	119 (13.72)
9		RTRcB1	Sandy loam surface, slope 1-3%, slight erosion	10 (1.21)
10		RTRcB2	Sandy loam surface, slope 1-3%, moderate erosion	49 (5.63)
11		RTRhA1	Sandy clay loam surface, slope 0-1%, slight erosion	11 (1.32)
12		RTRhB1	Sandy clay loam surface, slope 1-3%, slight erosion	116 (13.35)

To be continued..

Soil No*	Soil Series	Soil Phase	Mapping Unit Description	Area in ha (%)
	KDT	Kadagathur soils are very deep (>150 cm), moderately well drained, have dark brown to very dark grayish brown sandy clay to clay soils occurring on nearly level to very gently sloping uplands under cultivation		**83 (9.57)**
13		KDTiA1	Sandy clay surface, slope 0-1%, slight erosion	16 (1.87)
14		KDTmB1	Clay surface, slope 1-3%, slight erosion	67 (7.70)
	TDG	Thondigere soils are very deep (>150 cm), well drained, have dark brown to dark yellowish brown sandy loam to sandy clay soils occurring on nearly level to very gently sloping lowlands under cultivation		**47 (5.36)**
15		TDGhA1	Sandy clay loam surface, slope 0-1%, slight erosion	29 (3.32)
16		TDGhB1	Sandy clay loam surface, slope 1-3%, slight erosion	18 (2.04)
	TSD	Thimmasandra soils are very deep (>150 cm), moderately well drained, have very dark brown to very dark grayish brown sandy clay to clay soils occurring on nearly level lowlands under cultivation		**59 (6.85)**
17		TSDiA1	Sandy clay surface, slope 0-1%, slight erosion	59 (6.85)
18		Others		90 (10.36)

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

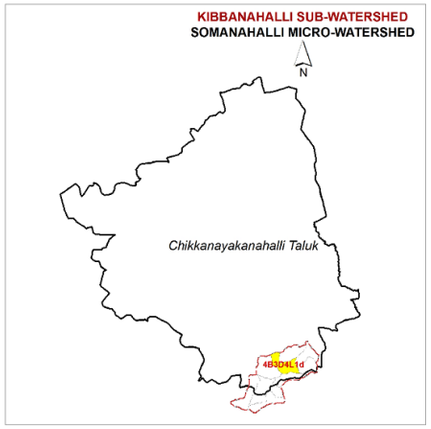
SOILS

Somanahalli Micro-watershed

(4B3D4L1d : Area - 682.78 ha)

ChikkanayakanahalliTaluk

TUMKUR DISTRICT



0 0.25 0.5 1 km

N

Texture / Gravelliness

MKH c B 2 g1

Soil Series / Slope / Erosion

Soil Phase	Area in ha (%)
1, MKHcB2g1	3 (0.41)
2, KMHiA1	62 (9.05)
3, KMHmA1	24 (3.53)
4, JDGcA1	7 (0.96)
5, HLKhA1	12 (1.83)
6, HLKiA1	23 (3.39)
7, HLKmA1	67 (9.86)
8, RTRcA1	22 (3.23)
9, RTRcB2	33 (4.76)
10, RTRhA1	31 (4.58)
11, RTRiA1	12 (1.78)
12, RTRiB2	26 (3.79)
13, RTRmB1	40 (5.79)
14, NDLcB1	44 (6.49)
15, NDLhA1	23 (3.43)
16, NDLhB1	61 (8.88)
17, NDLiA1	25 (3.72)
18, NDLmA1	38 (5.61)
19, NDLmB1	25 (3.69)
20, Others*	104 (15.21)

* - Habitation & Waterbody

References

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

KEY

TEXTURE
c - Sandy loam
h - Sandy clay loam
i - Sandy clay
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
MKH - Moderately shallow (50-75 cm)
KMH,JDG - Deep (100-150 cm)
NDL,HLK,RTR - Very deep (>150 cm)

TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Krishnarajasagarakere
KRISHNASAGARA
Godekere
Godekere
Sondenahalli
SONDENAHALLI
Somanahalli
Somanahalli
Halugona
HOLAGONA

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

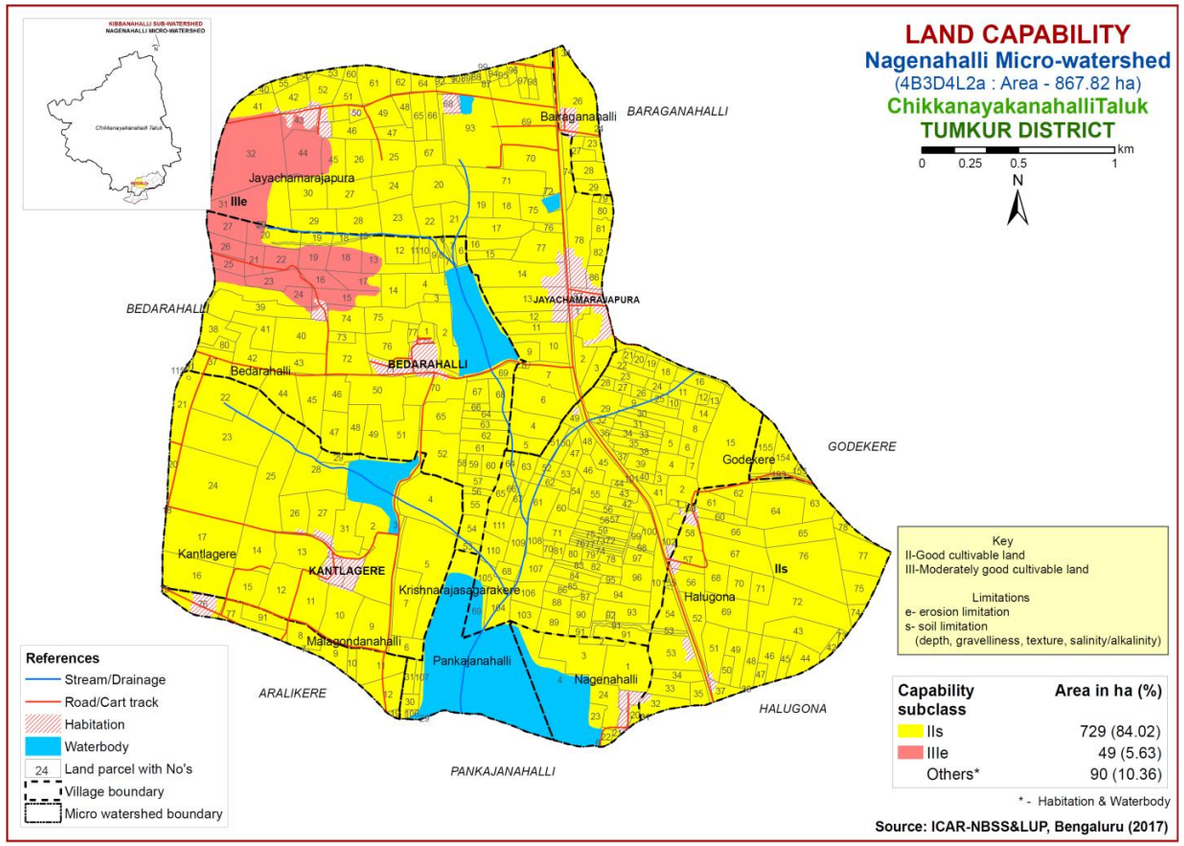
Table 2. Mapping unit description of Somanahalli Micro-watershed in Chikkanayakanahalli Taluk, Tumkur District

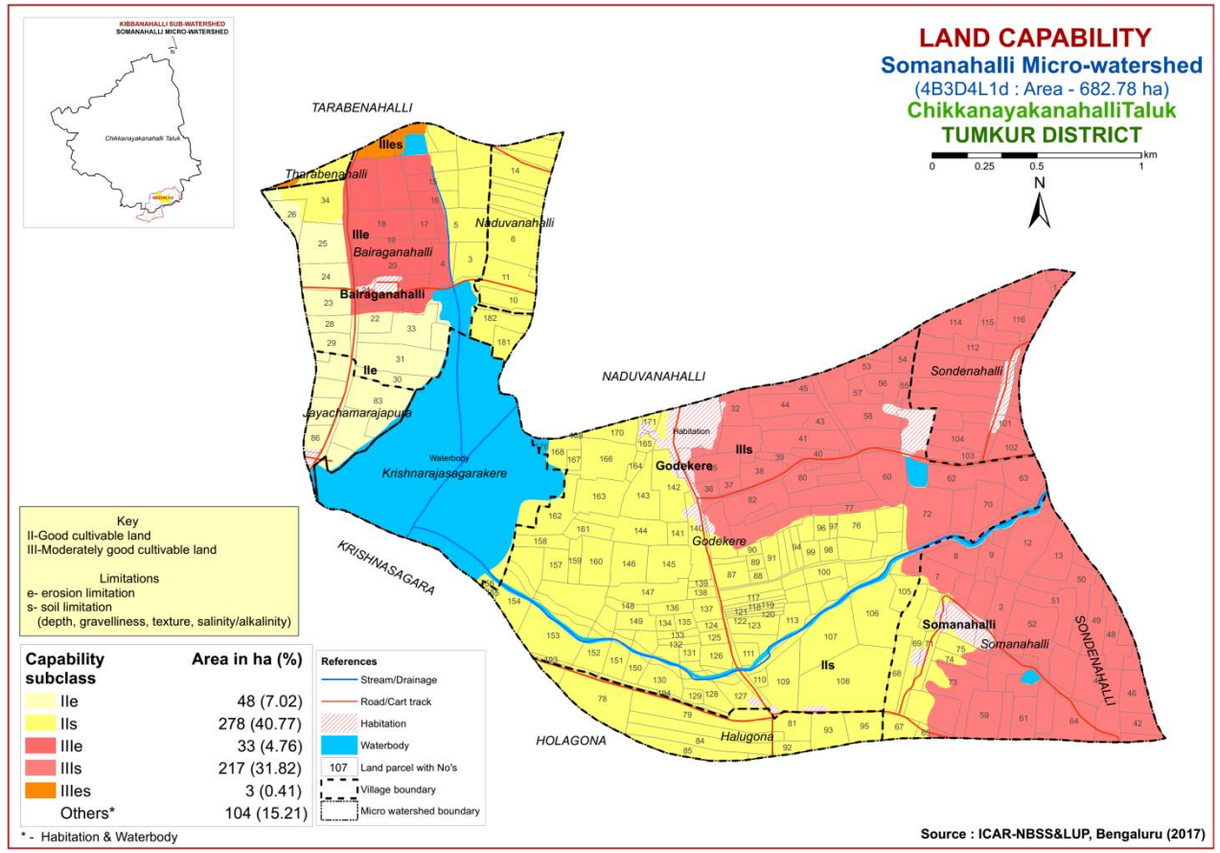
Soil No*	Soil Series	Soil Phase	Mapping Unit Description	Area in ha (%)
SOILS OF GRANITE GNEISS LANDSCAPE				
	MKH	Mukhadahalli soils are moderately shallow (50-75cm), well drained, have dark brown to reddish brown gravelly sandy clay loam soils occurring on very gently sloping uplands under cultivation		**3 (0.41)**
1		MKHcB2g1	Sandy loam surface, slope 1-3%, moderate erosion, gravelly (15-35%)	3 (0.41)
	KMH	Kumchahalli soils are deep (100-150cm), well drained, have dark reddish brown to dark red sandy clay loam to sandy clay soils occurring on nearly level uplands under cultivation		**86 (12.58)**
2		KMHiA1	Sandy clay surface, slope 0-1%, slight erosion	62 (9.05)
3		KMHmA1	Clay surface, slope 0-1%, slight erosion	24 (3.53)
	JDG	Jedigere soils are deep (100-150 cm), well drained, have dark brown to dark reddish brown sandy clay to clay soils occurring on nearly level uplands under cultivation		**7 (0.96)**
4		JDGcA1	Sandy loam surface, slope 0-1%, slight erosion	7 (0.96)
	HLK	Hallikere soils are very deep (>150 cm), well drained, have dark brown to dark reddish brown clay soils occurring on nearly level uplands under cultivation		**102 (15.08)**
5		HLKhA1	Sandy clay loam surface, slope 0-1%, slight erosion	12 (1.83)
6		HLKiA1	Sandy clay surface, slope 0-1%, slight erosion	23 (3.39)
7		HLKmA1	Clay surface, slope 0-1%, slight erosion	67 (9.86)
	RTR	Ranatur soils are very deep (>150 cm), well drained, have dark reddish brown to dark red clay soils occurring on nearly level to very gently sloping uplands under cultivation		**164 (23.93)**
8		RTRcA1	Sandy loam surface, slope 0-1%, slight erosion	22 (3.23)
9		RTRcB2	Sandy loam surface, slope 1-3%, moderate erosion	33 (4.76)
10		RTRhA1	Sandy clay loam surface, slope 0-1%, slight erosion	31 (4.58)

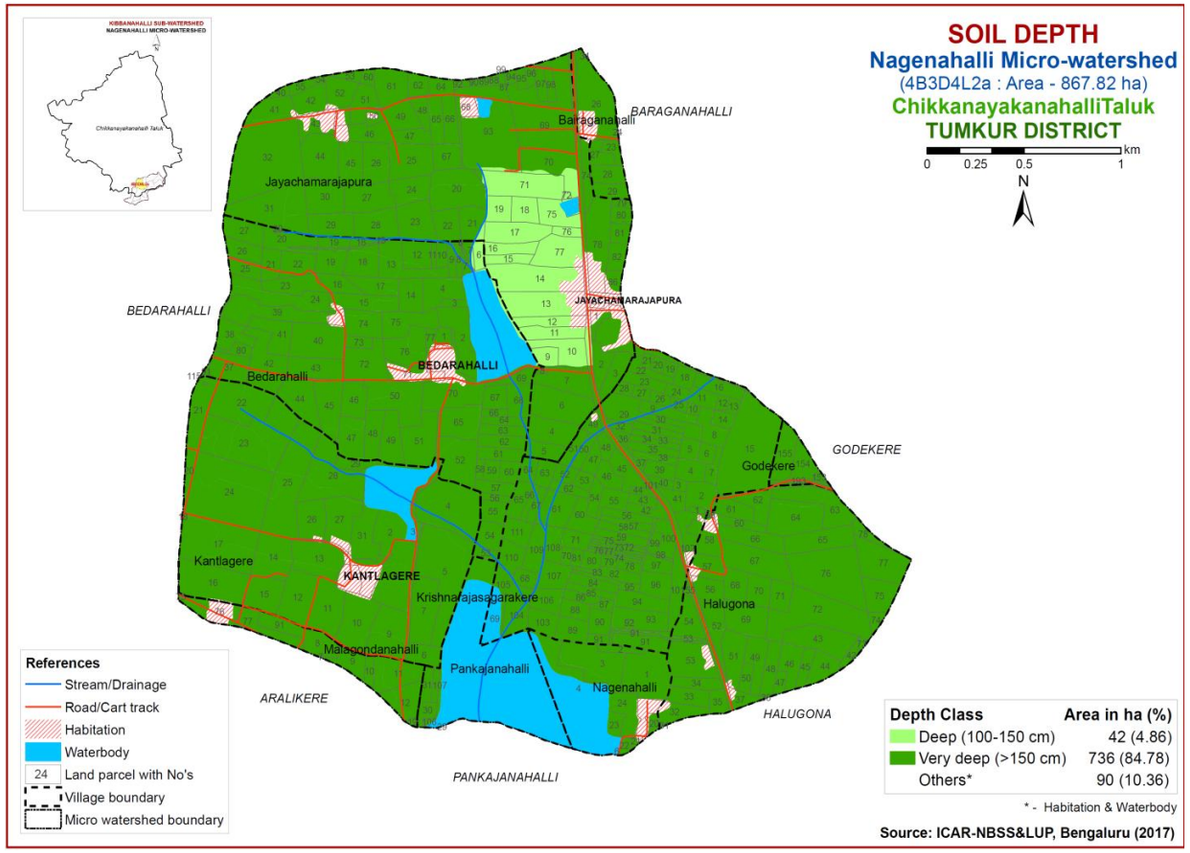
To be continued..

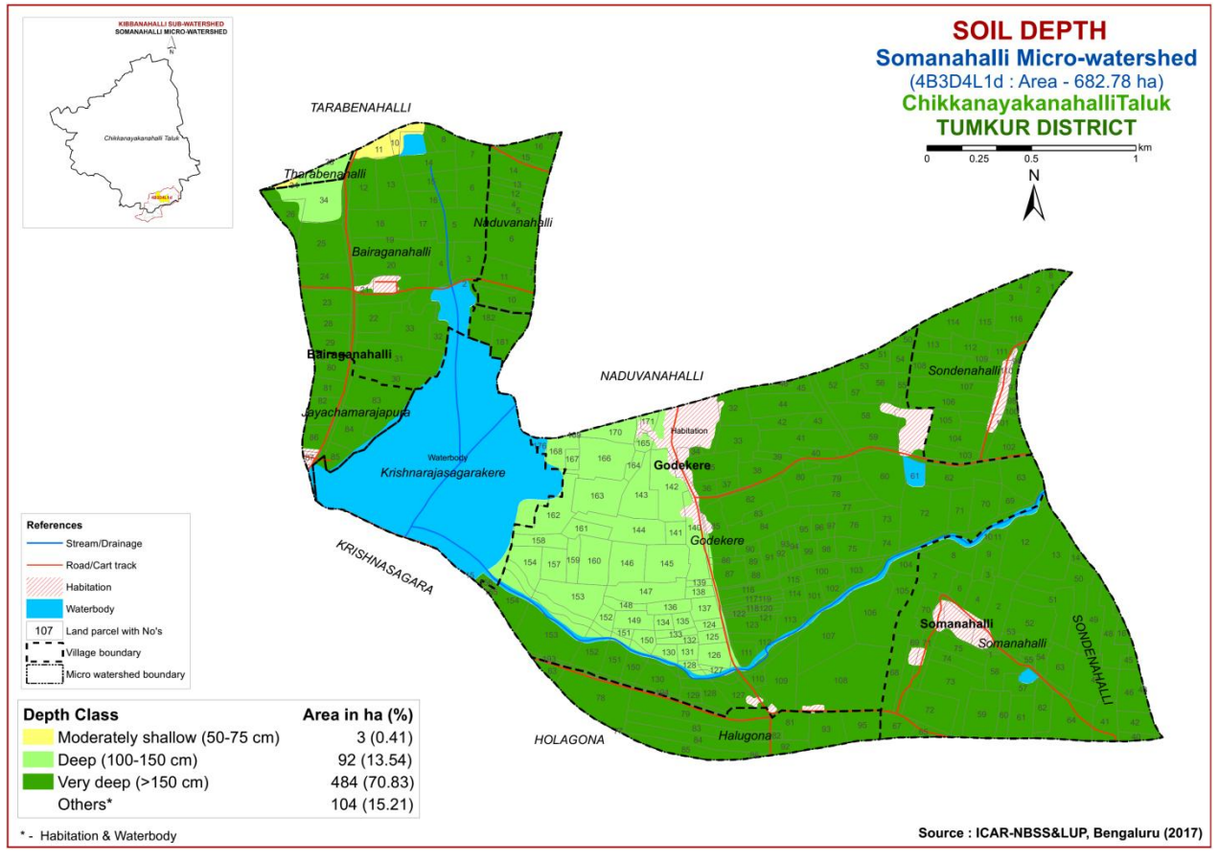
Soil No	Soil Series	Soil Phase	Mapping Unit Description	Area in ha (%)
11		RTRiA1	Sandy clay surface, slope 0-1%, slight erosion	12 (1.78)
12		RTRiB2	Sandy clay surface, slope 1-3%, moderate erosion	26 (3.79)
13		RTRmB1	Clay surface, slope 1-3%, slight erosion	40 (5.79)
	NDL	Niduvalalu soils are very deep (>150 cm), well drained, have red to dark reddish brown gravelly sandy clay soils occurring on nearly level to very gently sloping uplands under cultivation		**216 (31.82)**
14		NDLcB1	Sandy loam surface, slope 1-3%, slight erosion	44 (6.49)
15		NDLhA1	Sandy clay loam surface, slope 0-1%, slight erosion	23 (3.43)
16		NDLhB1	Sandy clay loam surface, slope 1-3%, slight erosion	61 (8.88)
17		NDLiA1	Sandy clay surface, slope 0-1%, slight erosion	25 (3.72)
18		NDLmA1	Clay surface, slope 0-1%, slight erosion	38 (5.61)
19		NDLmB1	Clay surface, slope 1-3%, slight erosion	25 (3.69)
20		Others		104 (15.21)

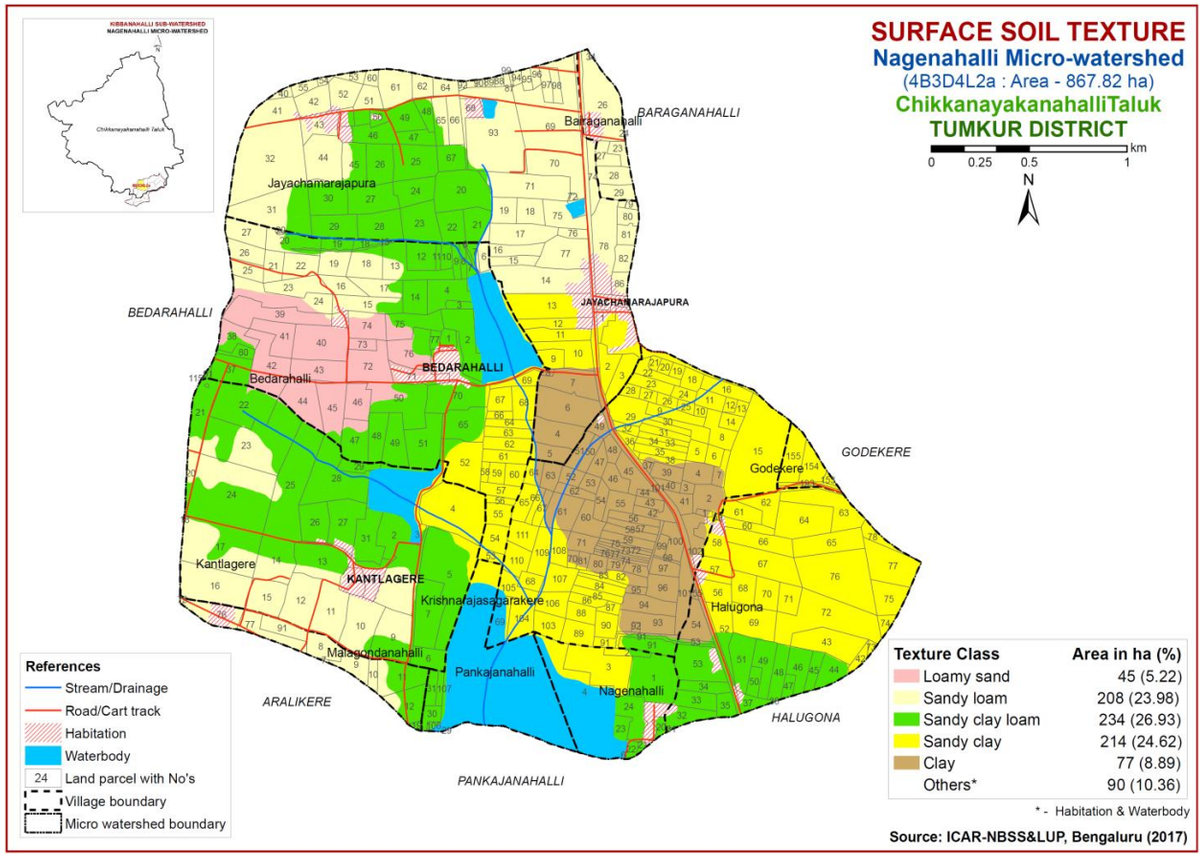
*Soil map unit numbers are continuous for the taluk, not the micro-watershed

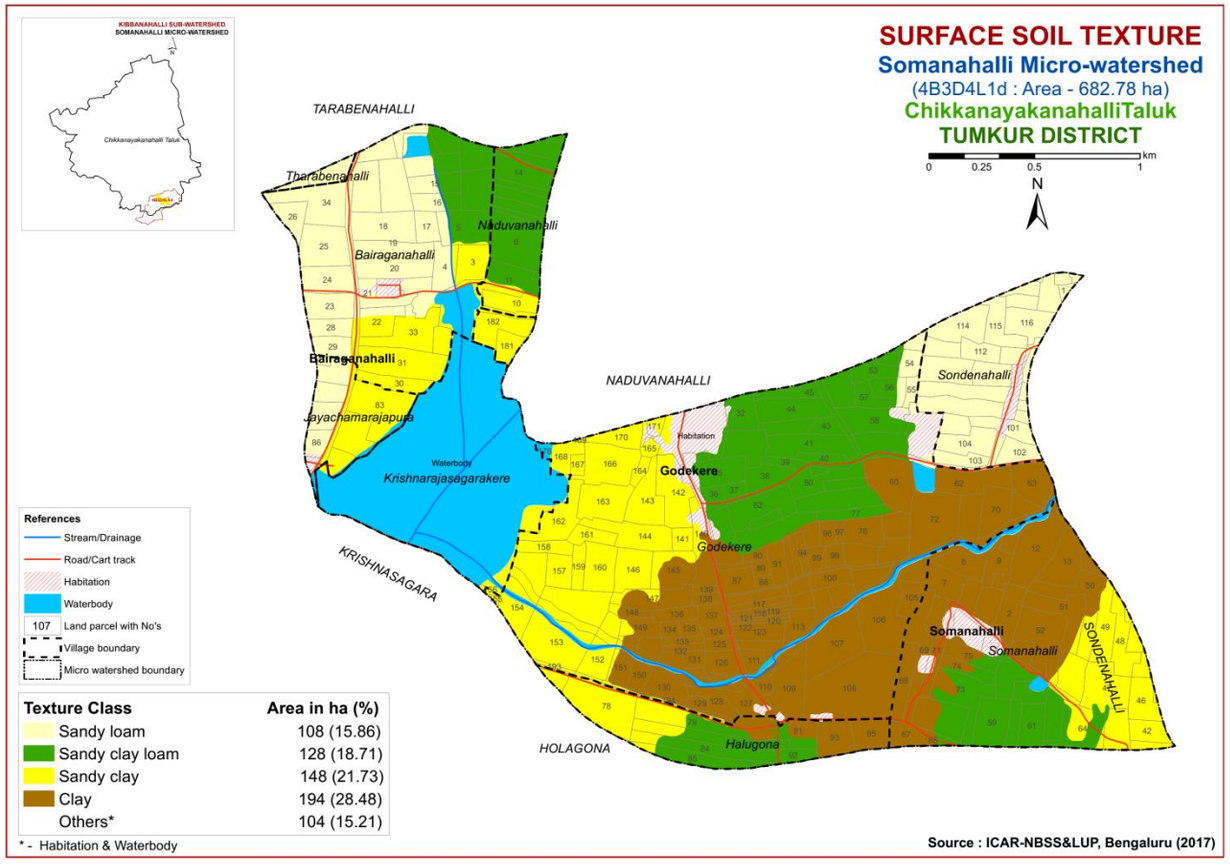

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND CAPABILITY
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
IIIe
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
IIs
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
II-Good cultivable land
III-Moderately good cultivable land
Limitations
e- erosion limitation
s- soil limitation
(depth, gravelliness, texture, salinity/alkalinity)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Capability subclass | Area in ha (%)
IIs | 729 (84.02)
IIIe | 49 (5.63)
Others* | 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

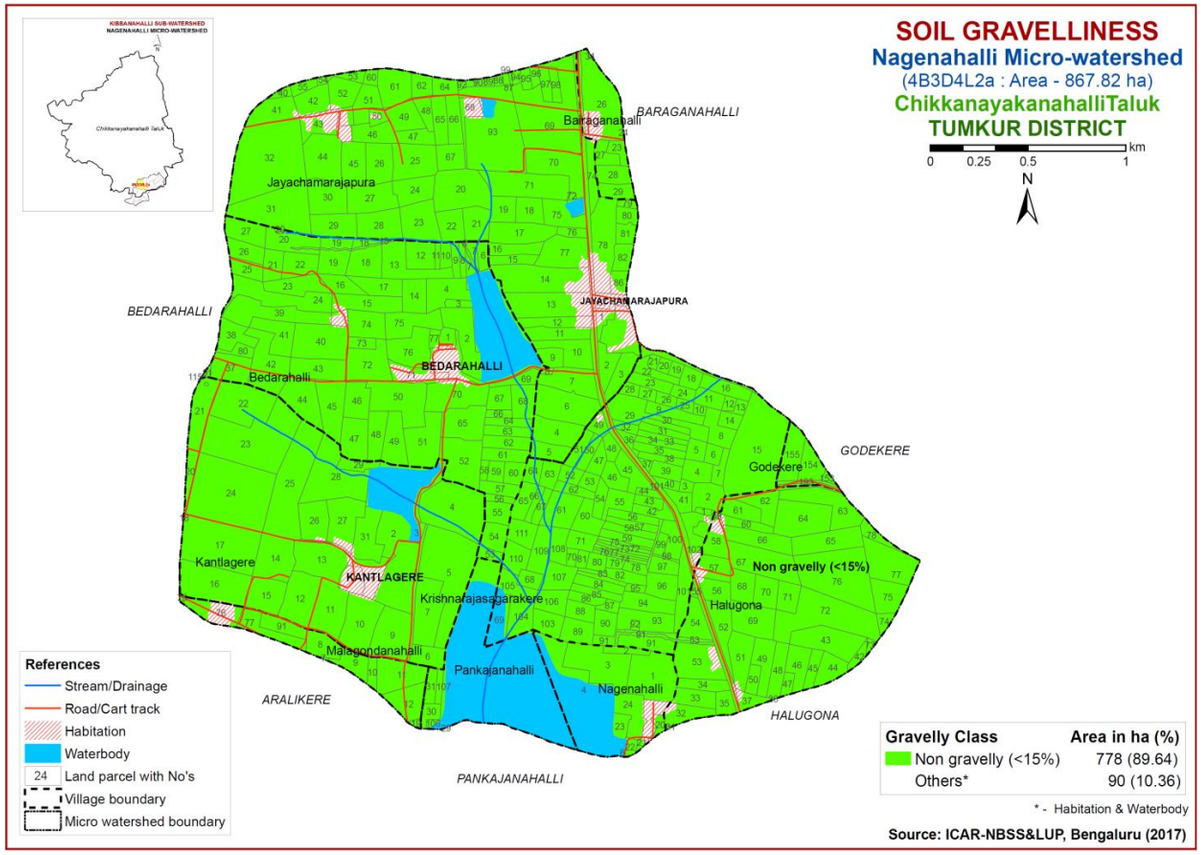

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND CAPABILITY
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
IIIes
Tharabenahalli
IIIe
Bairaganahalli
Naduvanahalli
IIe
Jayachamarajapura
NADUVANAHALLI
Waterbody
Krishnarajasagarakere
Habitation
IIIs
Godekere
Sondenahalli
KRISHNASAGARA
Somanahalli
SONDENAHALLI
IIs
HOLAGONA
Halugona
Key
II-Good cultivable land
III-Moderately good cultivable land
Limitations
e- erosion limitation
s- soil limitation
(depth, gravelliness, texture, salinity/alkalinity)
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Capability subclass | Area in ha (%)
IIe | 48 (7.02)
IIs | 278 (40.77)
IIIe | 33 (4.76)
IIIs | 217 (31.82)
IIIes | 3 (0.41)
Others* | 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

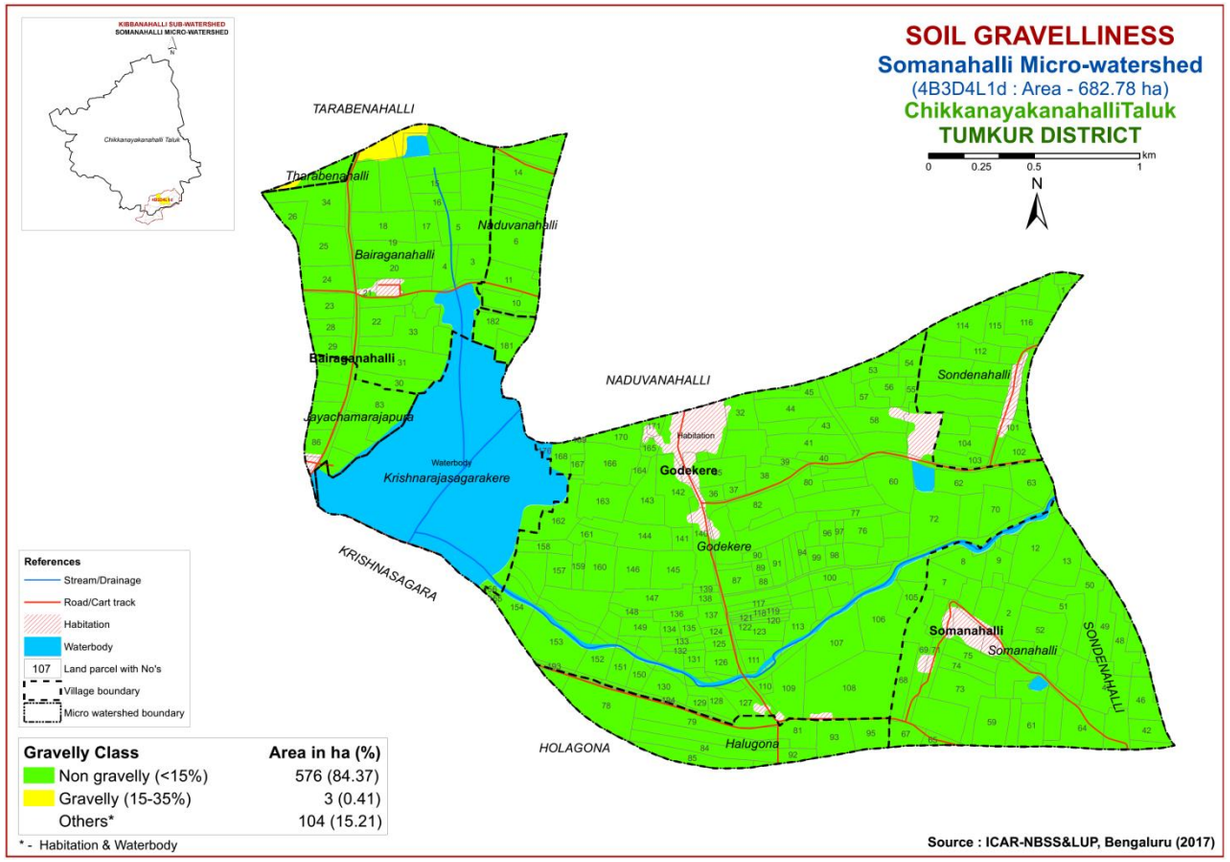

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SOIL DEPTH
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Depth Class | Area in ha (%)
Deep (100-150 cm) | 42 (4.86)
Very deep (>150 cm) | 736 (84.78)
Others* | 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

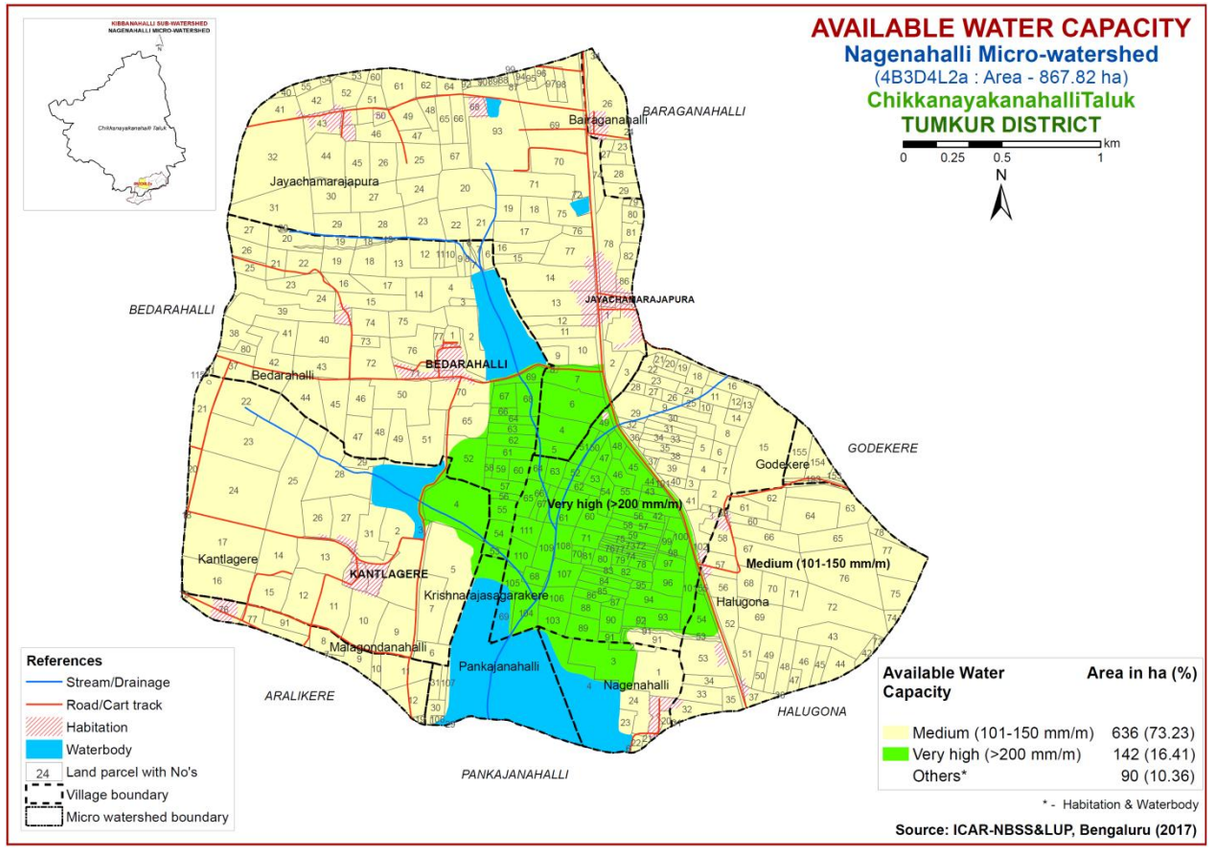

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SOIL DEPTH
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Waterbody
Krishnarajasagarakere
Habitation
Godekere
Sondenahalli
KRISHNASAGARA
Somanahalli
SONDENAHALLI
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Depth Class | Area in ha (%)
Moderately shallow (50-75 cm) | 3 (0.41)
Deep (100-150 cm) | 92 (13.54)
Very deep (>150 cm) | 484 (70.83)
Others* | 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

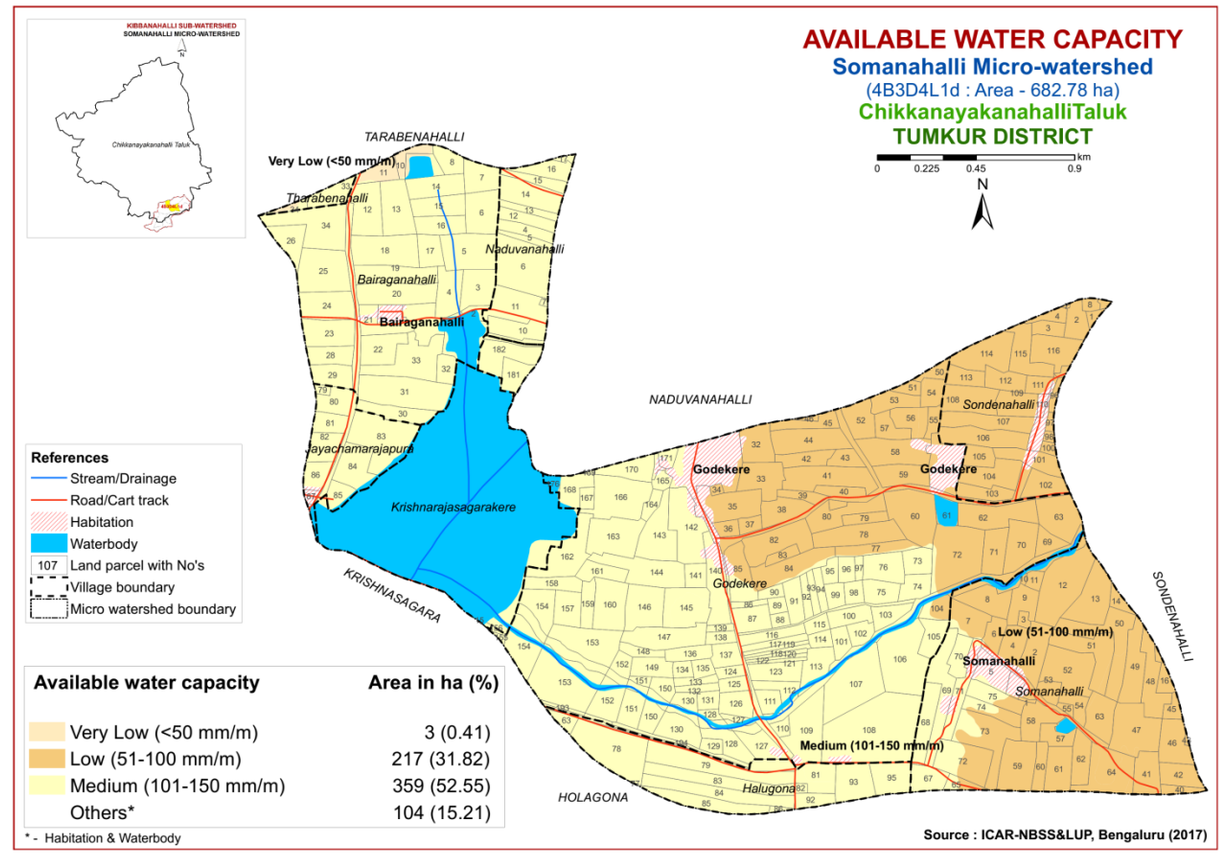

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SURFACE SOIL TEXTURE
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Texture Class Area in ha (%)
Loamy sand 45 (5.22)
Sandy loam 208 (23.98)
Sandy clay loam 234 (26.93)
Sandy clay 214 (24.62)
Clay 77 (8.89)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

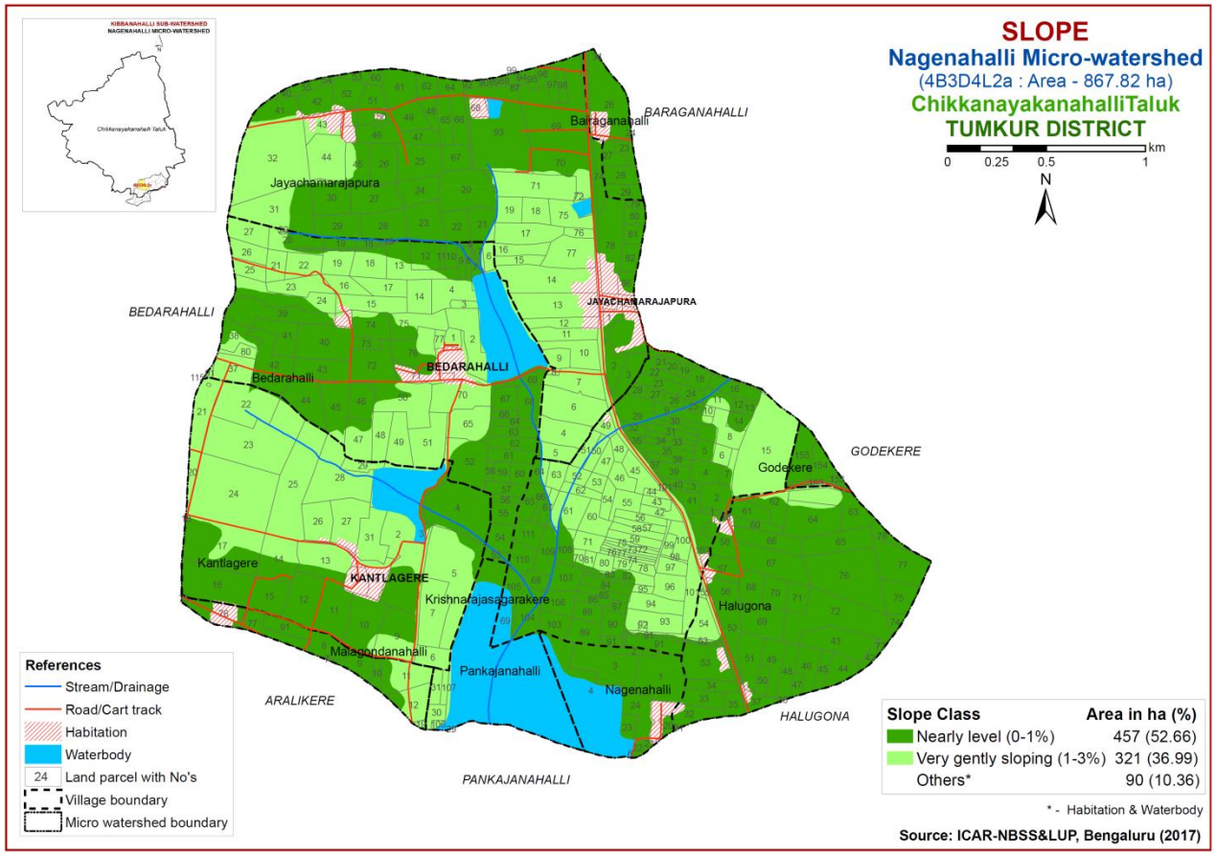

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SURFACE SOIL TEXTURE
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
NADUVANAHALLI
Sondenahalli
Waterbody
Krishnarajasagarakere
Habitation
Godekere
KRISHNASAGARA
Somanahalli
SONDENAHALLI
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Texture Class Area in ha (%)
Sandy loam 108 (15.86)
Sandy clay loam 128 (18.71)
Sandy clay 148 (21.73)
Clay 194 (28.48)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

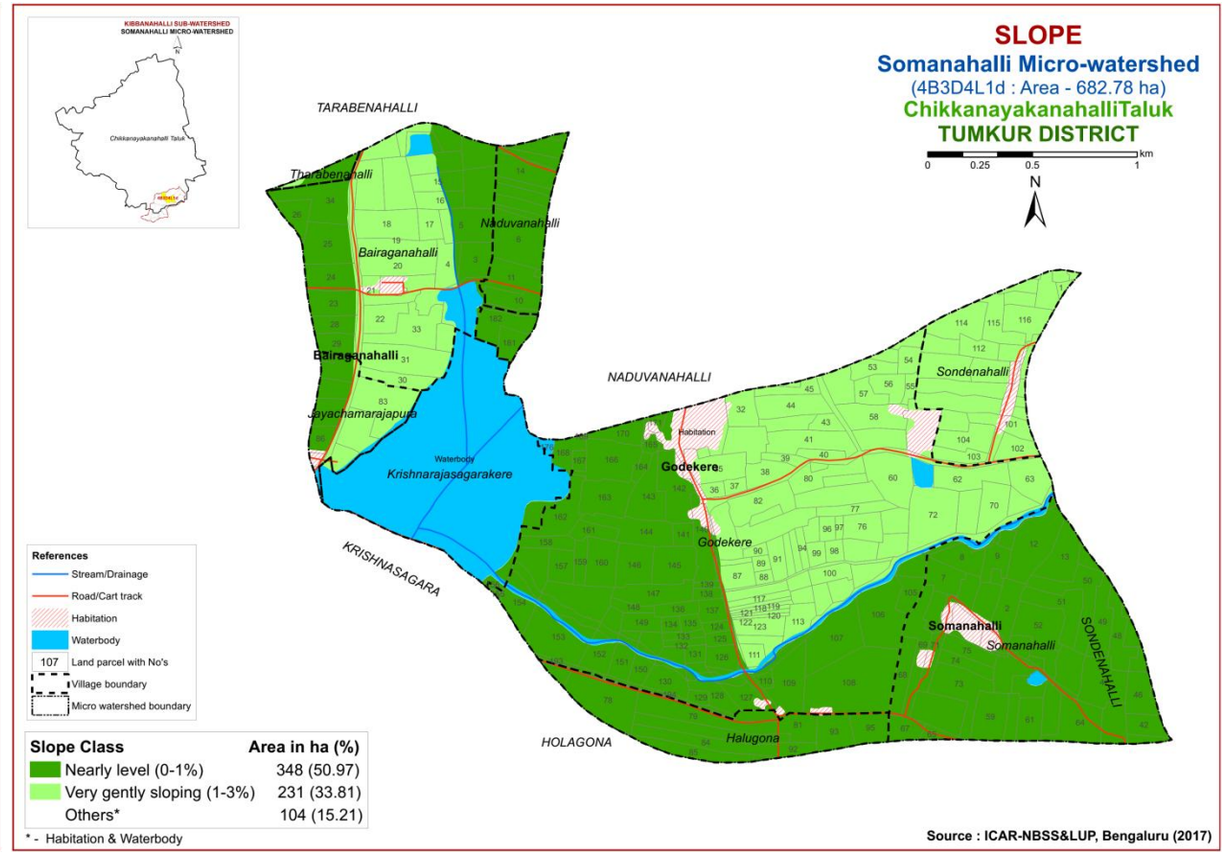

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SOIL GRAVELLINESS
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Non gravelly (<15%)
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Gravelly Class Area in ha (%)
Non gravelly (<15%) 778 (89.64)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

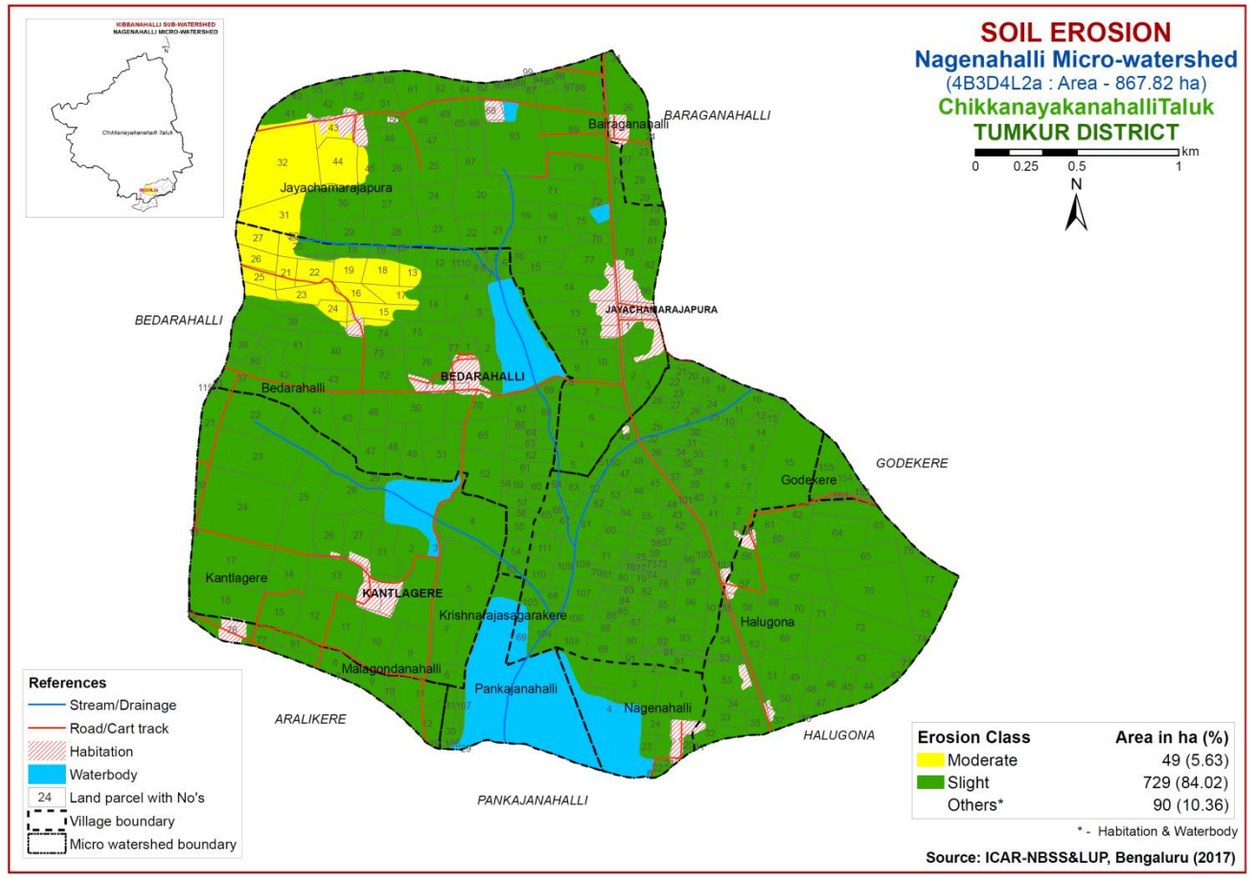

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SOIL GRAVELLINESS
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
NADUVANAHALLI
Sondenahalli
Waterbody
Krishnarajasagarakere
Habitation
Godekere
KRISHNASAGARA
Somanahalli
SONDENAHALLI
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Gravelly Class Area in ha (%)
Non gravelly (<15%) 576 (84.37)
Gravelly (15-35%) 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

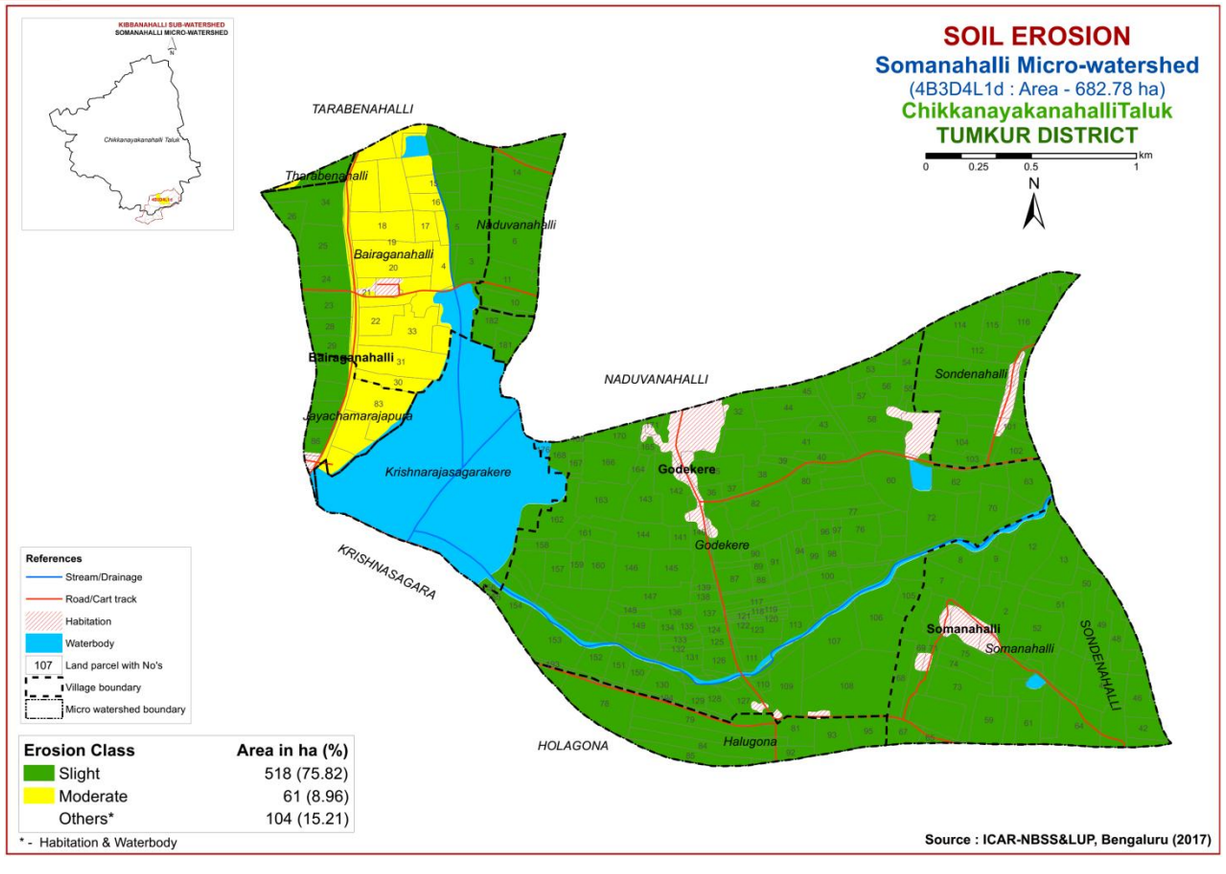

AVAILABLE WATER CAPACITY
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
GODEKERE
Godekere
Very high (>200 mm/m)
Medium (101-150 mm/m)
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Available Water Capacity
Area in ha (%)
Medium (101-150 mm/m) 636 (73.23)
Very high (>200 mm/m) 142 (16.41)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

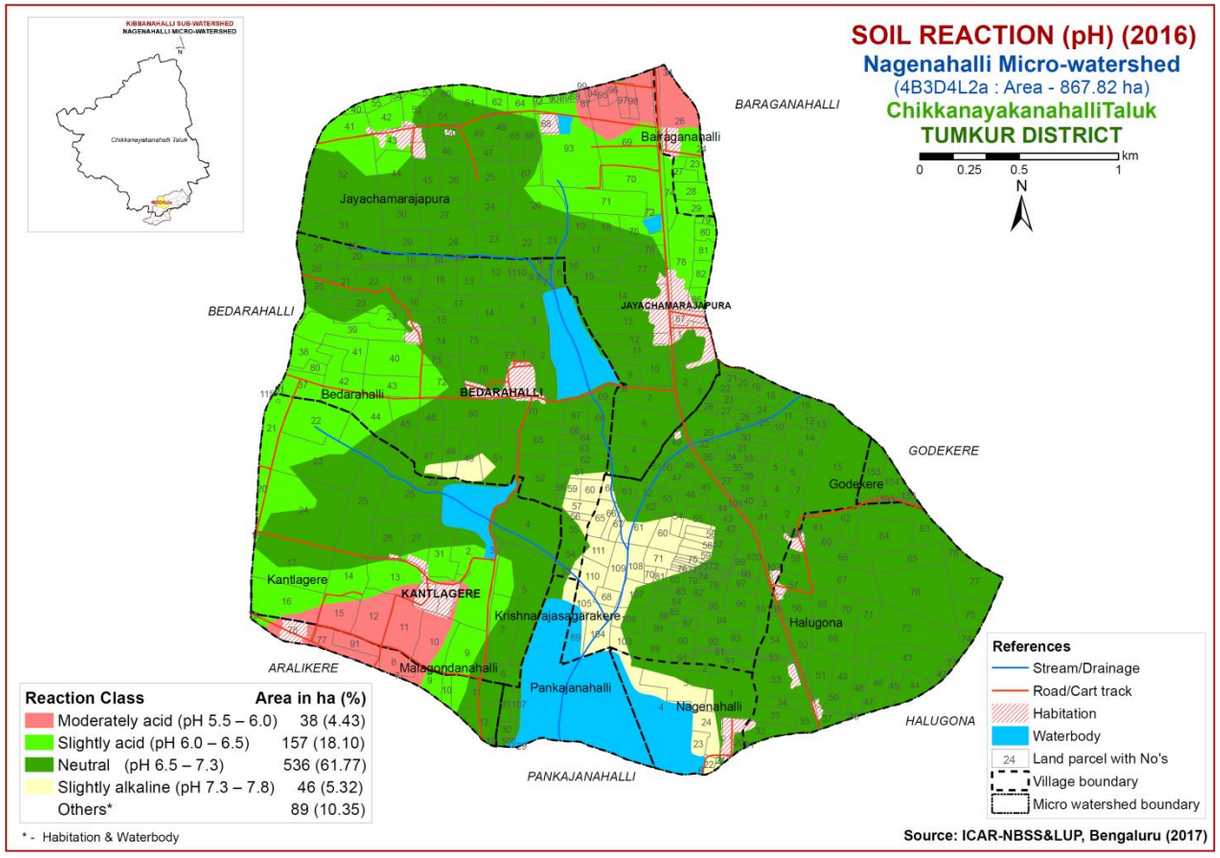

AVAILABLE WATER CAPACITY
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.225 0.45 0.9 km
N
KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TARABENAHALLI
Very Low (<50 mm/m)
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
NADUVANAHALLI
Sondenahalli
Godekere
Krishnarajasagarakere
KRISHNASAGARA
Low (51-100 mm/m)
Somanahalli
Medium (101-150 mm/m)
Halugona
HOLAGONA
SONDENAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Available water capacity
Area in ha (%)
Very Low (<50 mm/m) 3 (0.41)
Low (51-100 mm/m) 217 (31.82)
Medium (101-150 mm/m) 359 (52.55)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

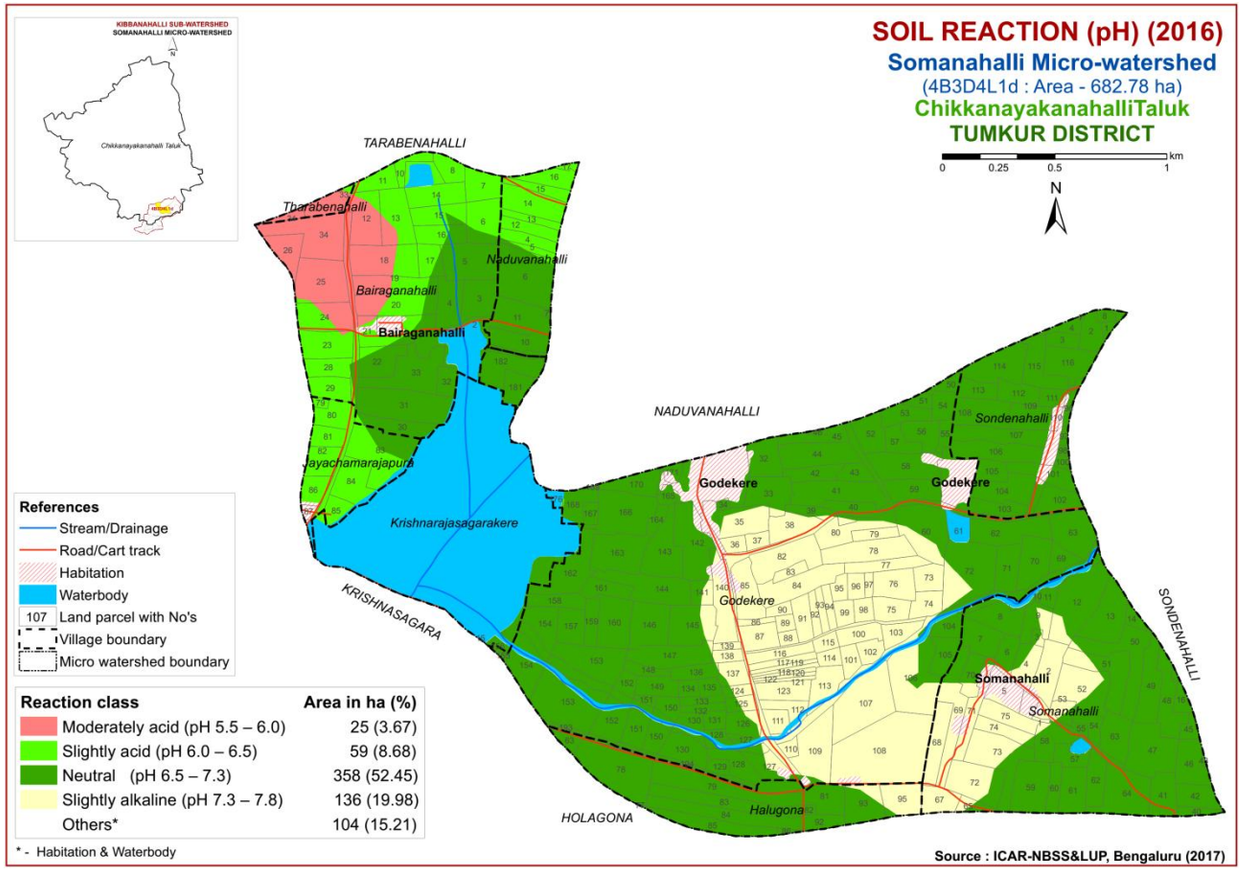

SLOPE
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Slope Class
Area in ha (%)
Nearly level (0-1%) 457 (52.66)
Very gently sloping (1-3%) 321 (36.99)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

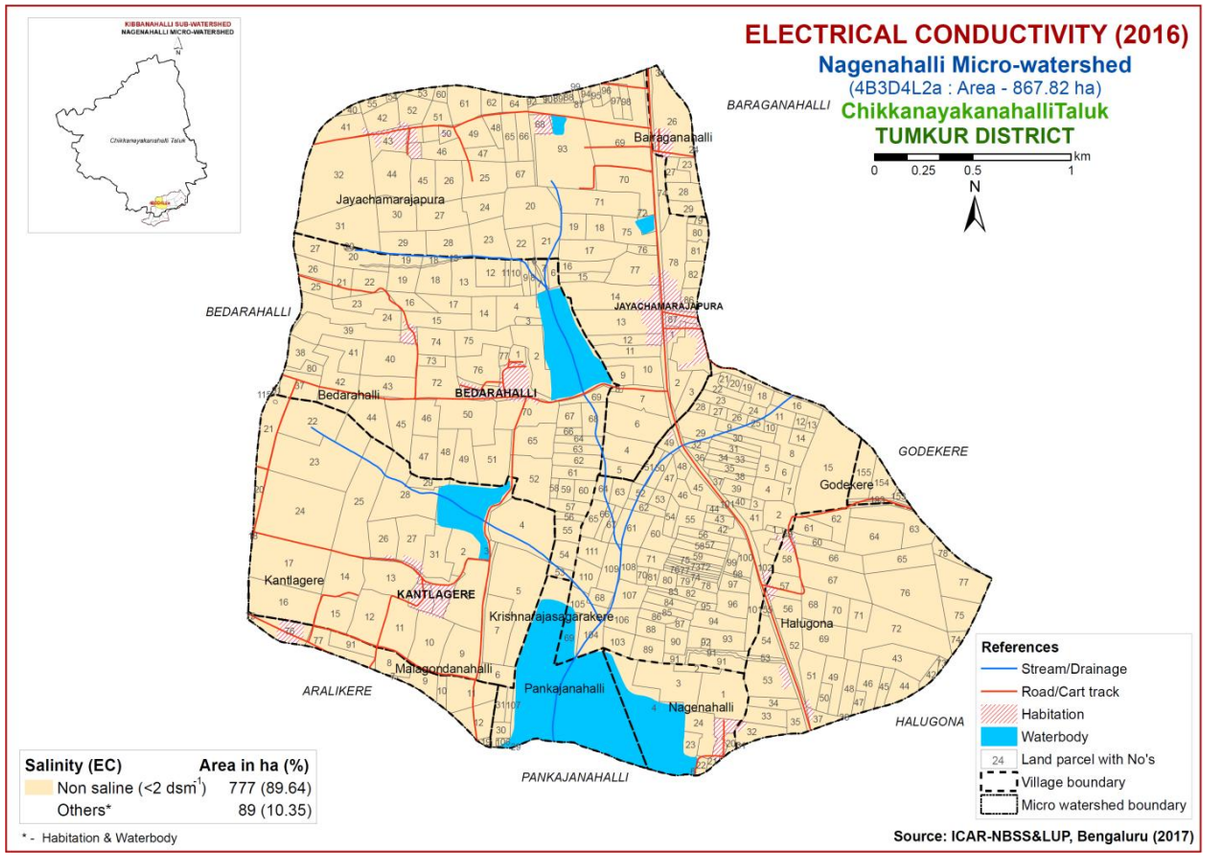

SLOPE
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
NADUVANAHALLI
Sondenahalli
Godekere
Krishnarajasagarakere
KRISHNASAGARA
Somanahalli
HOLAGONA
Halugona
SONDENAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Slope Class
Area in ha (%)
Nearly level (0-1%) 348 (50.97)
Very gently sloping (1-3%) 231 (33.81)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

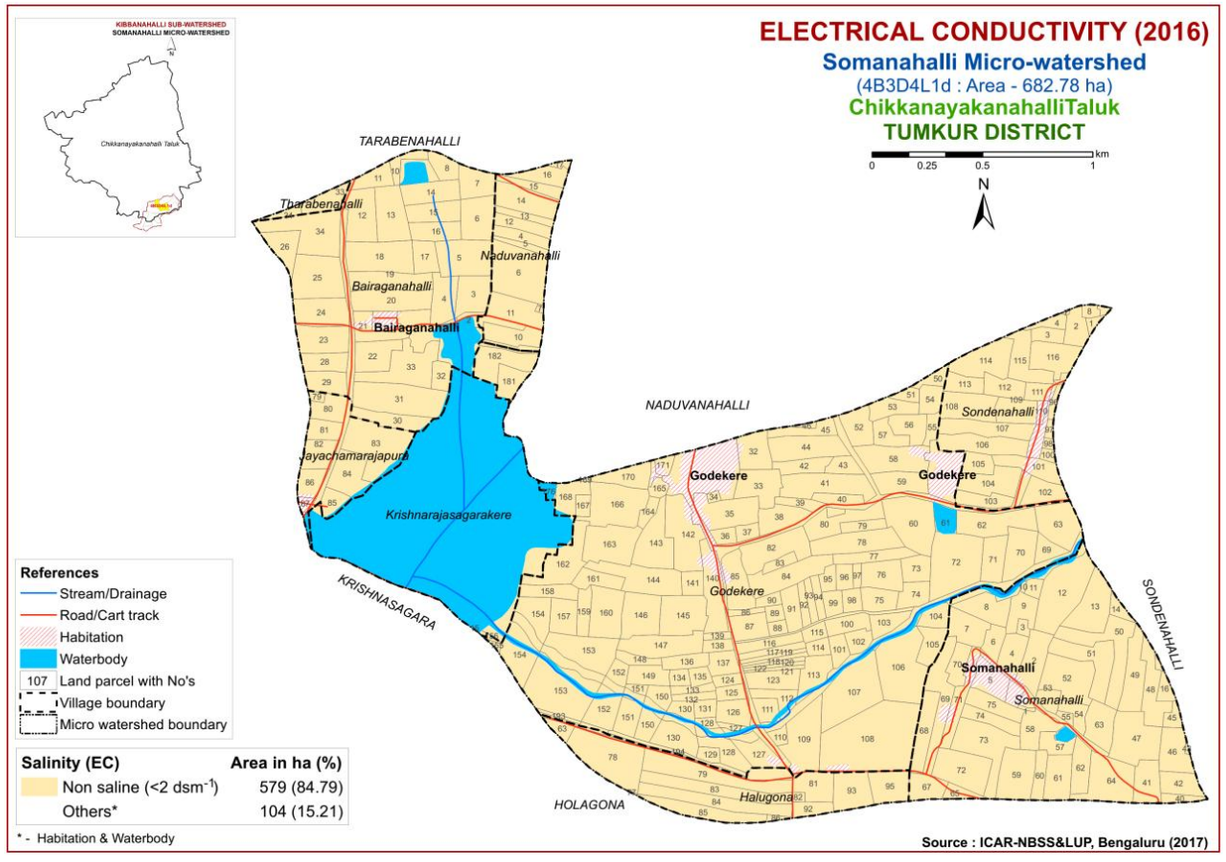

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
SOIL EROSION
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Erosion Class
Area in ha (%)
Moderate
49 (5.63)
Slight
729 (84.02)
Others*
90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

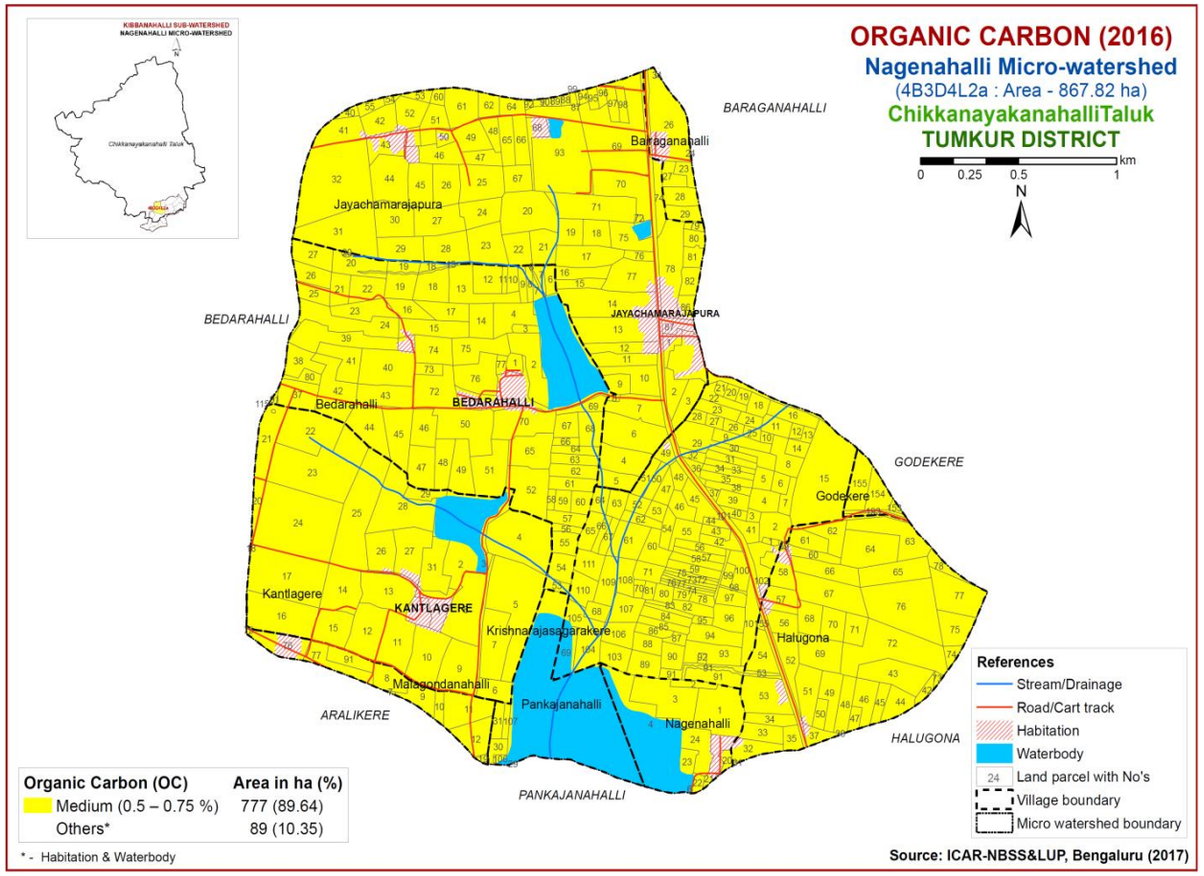

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
SOIL EROSION
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
Jayachamarajapura
NADUVANAHALLI
Sondenahalli
Krishnarajasagarakere
Godekere
Godekere
KRISHNASAGARA
Somanahalli
Somanahalli
SONDENAHALLI
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Erosion Class
Area in ha (%)
Slight
518 (75.82)
Moderate
61 (8.96)
Others*
104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

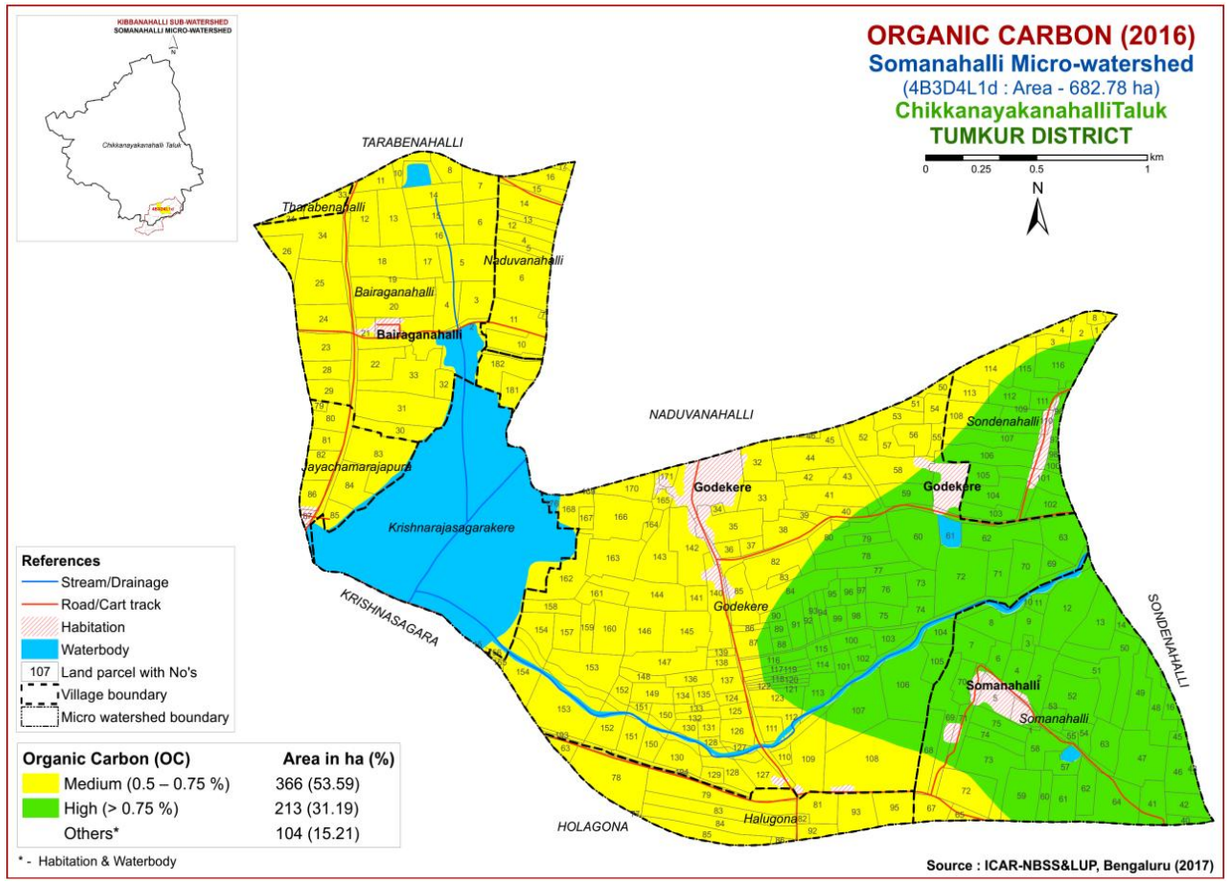

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SOMA
SOIL REACTION (pH) (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
ARALIKERE
Malagondanahalli
Pankajanahalli
Nagenahalli
HALUGONA
PANKAJANAHALLI
Reaction Class
Area in ha (%)
Moderately acid (pH 5.5 – 6.0) 38 (4.43)
Slightly acid (pH 6.0 – 6.5) 157 (18.10)
Neutral (pH 6.5 – 7.3) 536 (61.77)
Slightly alkaline (pH 7.3 – 7.8) 46 (5.32)
Others* 89 (10.35)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village boundary
Micro watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)

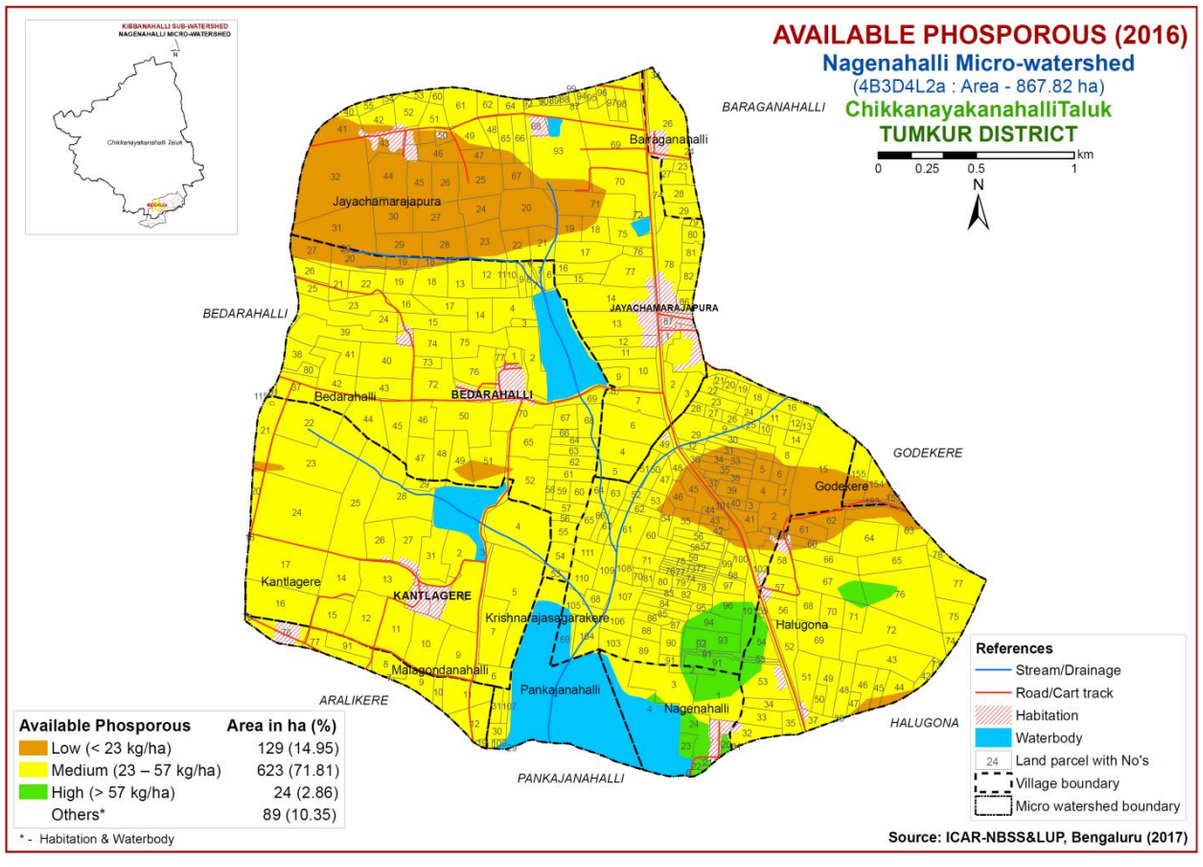

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SOIL REACTION (pH) (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Reaction class
Area in ha (%)
Moderately acid (pH 5.5 – 6.0) 25 (3.67)
Slightly acid (pH 6.0 – 6.5) 59 (8.68)
Neutral (pH 6.5 – 7.3) 358 (52.45)
Slightly alkaline (pH 7.3 – 7.8) 136 (19.98)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

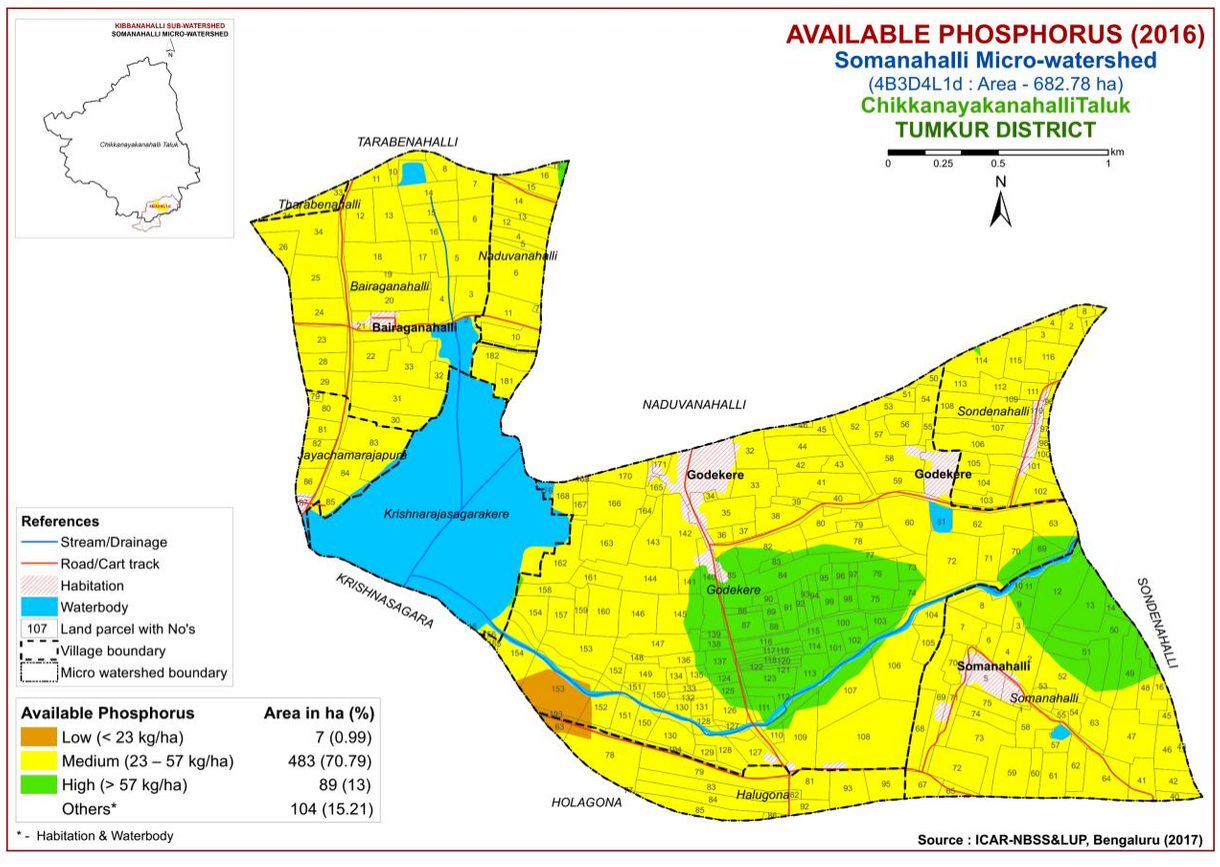

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
ELECTRICAL CONDUCTIVITY (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
ARALIKERE
Pankajanahalli
Nagenahalli
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Salinity (EC) Area in ha (%)
Non saline (<2 dsm-1) 777 (89.64)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

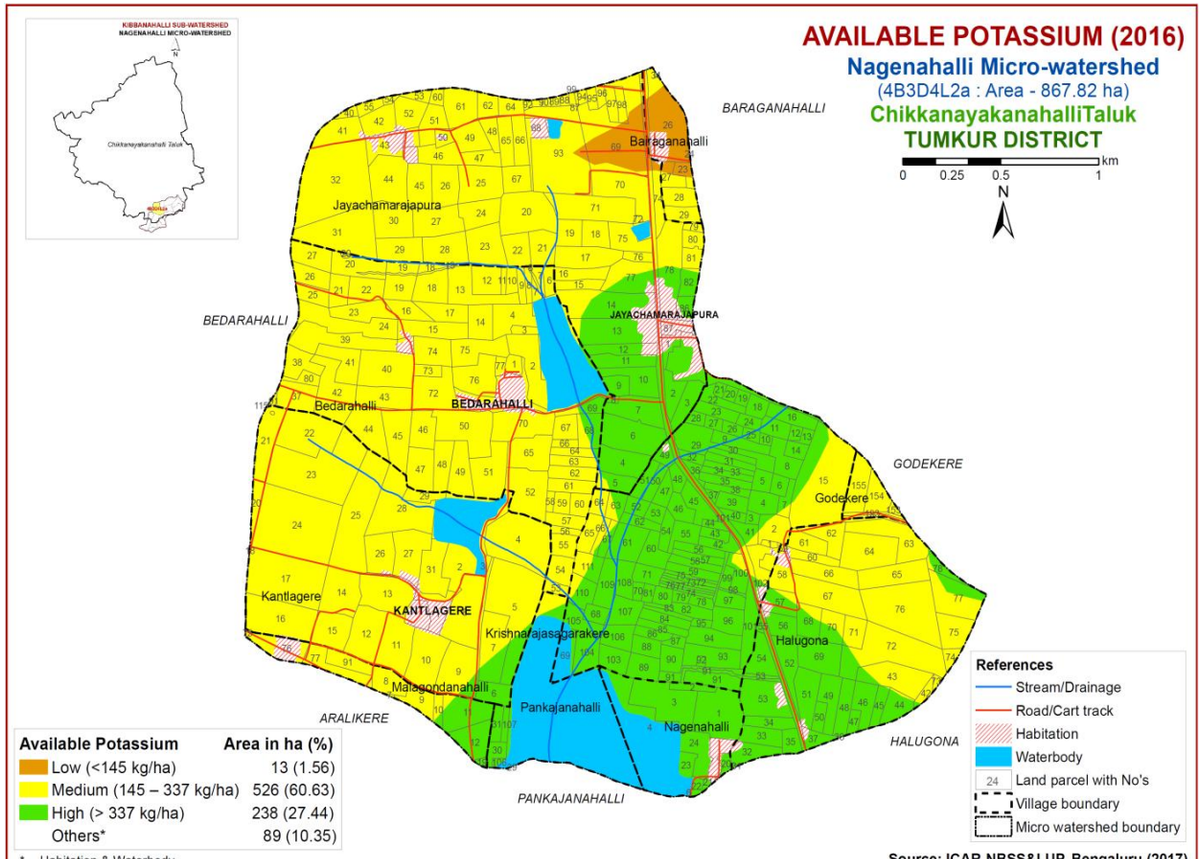

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
ELECTRICAL CONDUCTIVITY (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Salinity (EC) Area in ha (%)
Non saline (<2 dsm-1) 579 (84.79)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

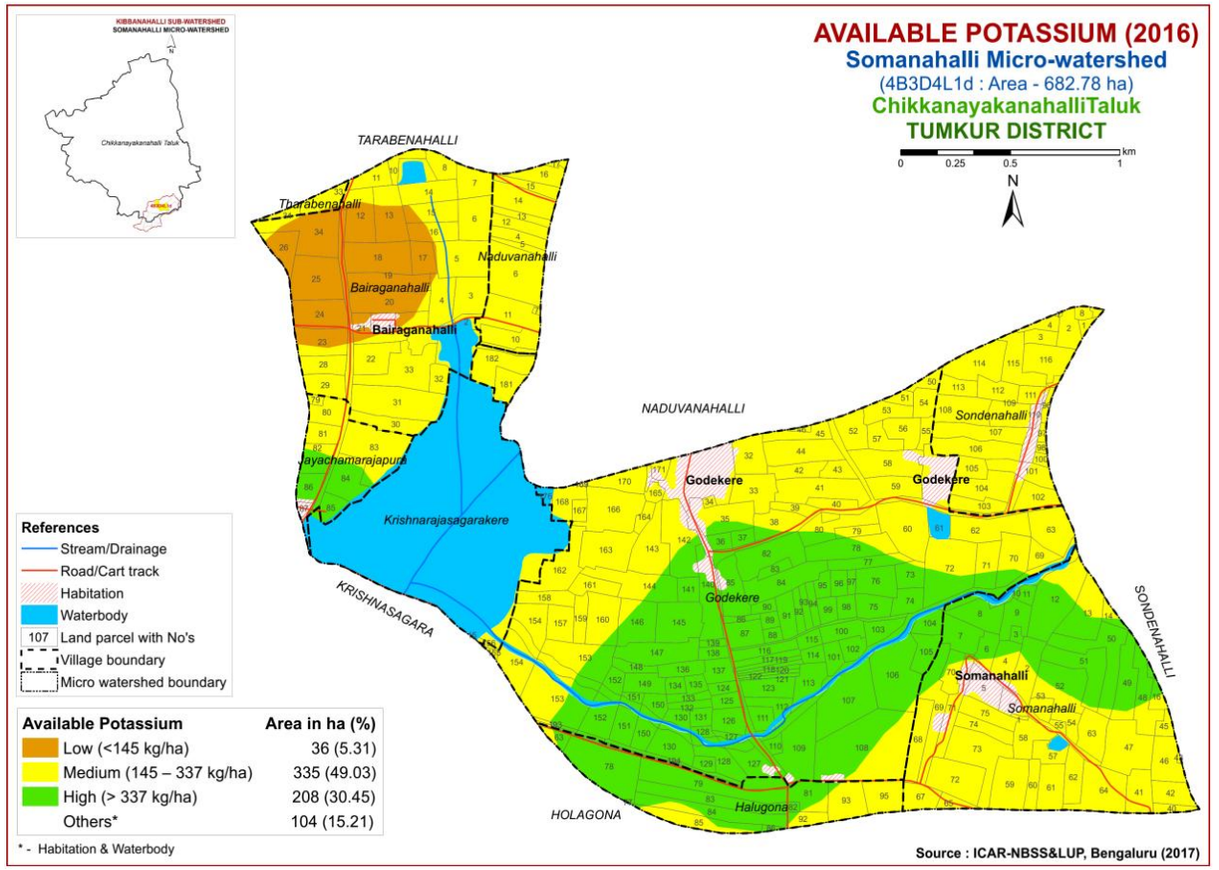

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
ORGANIC CARBON (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
ARALIKERE
Pankajanahalli
Nagenahalli
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Organic Carbon (OC) Area in ha (%)
Medium (0.5 – 0.75 %) 777 (89.64)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

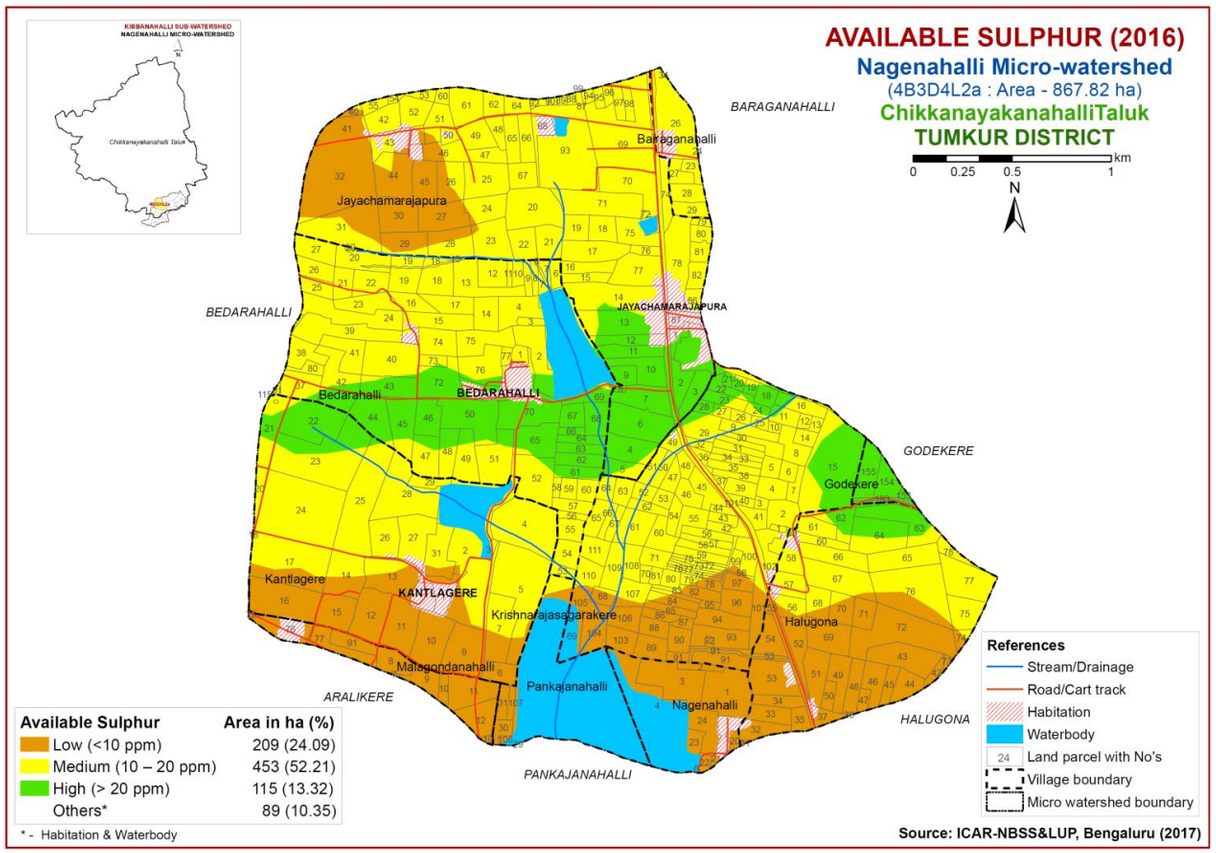

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
ORGANIC CARBON (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Organic Carbon (OC) Area in ha (%)
Medium (0.5 – 0.75 %) 366 (53.59)
High (> 0.75 %) 213 (31.19)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

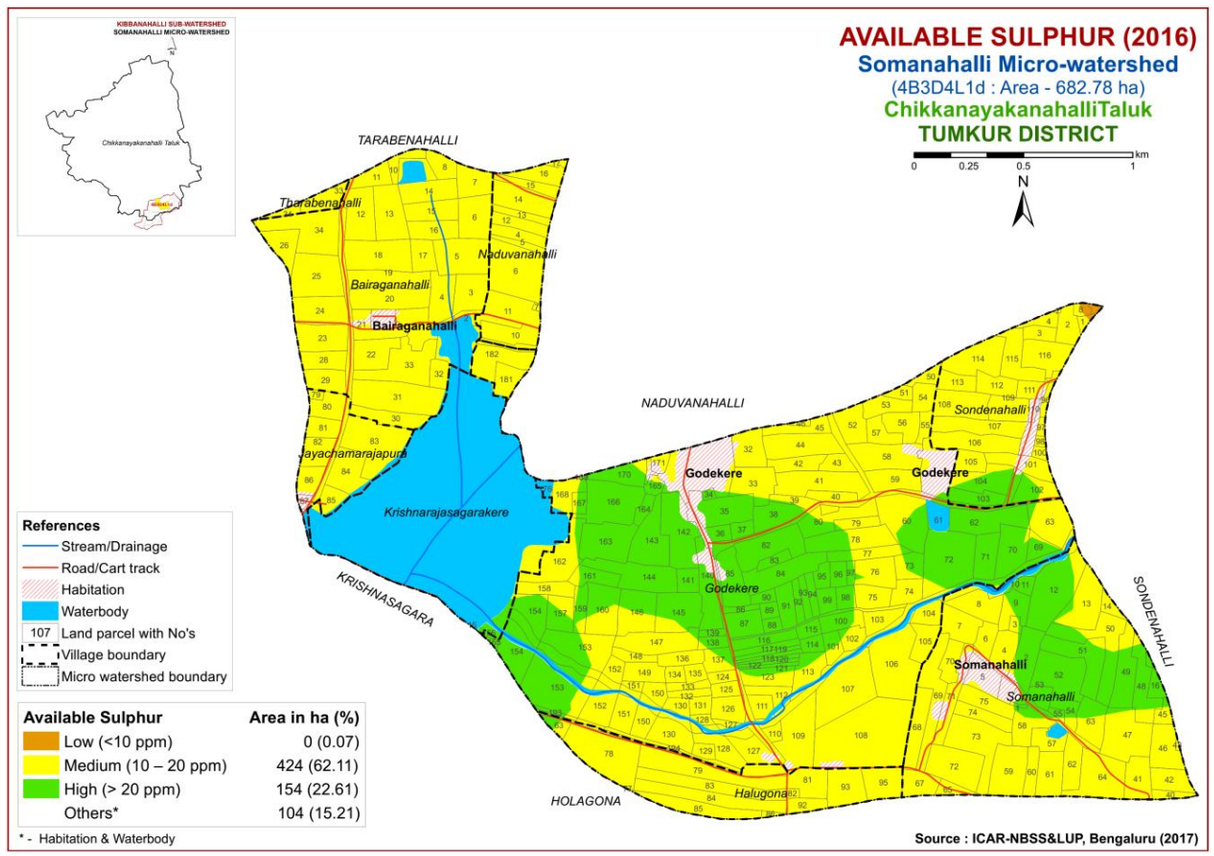

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE PHOSPOROUS (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
ARALIKERE
Pankajanahalli
Nagenahalli
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Available Phosporous Area in ha (%)
Low (< 23 kg/ha) 129 (14.95)
Medium (23 – 57 kg/ha) 623 (71.81)
High (> 57 kg/ha) 24 (2.86)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

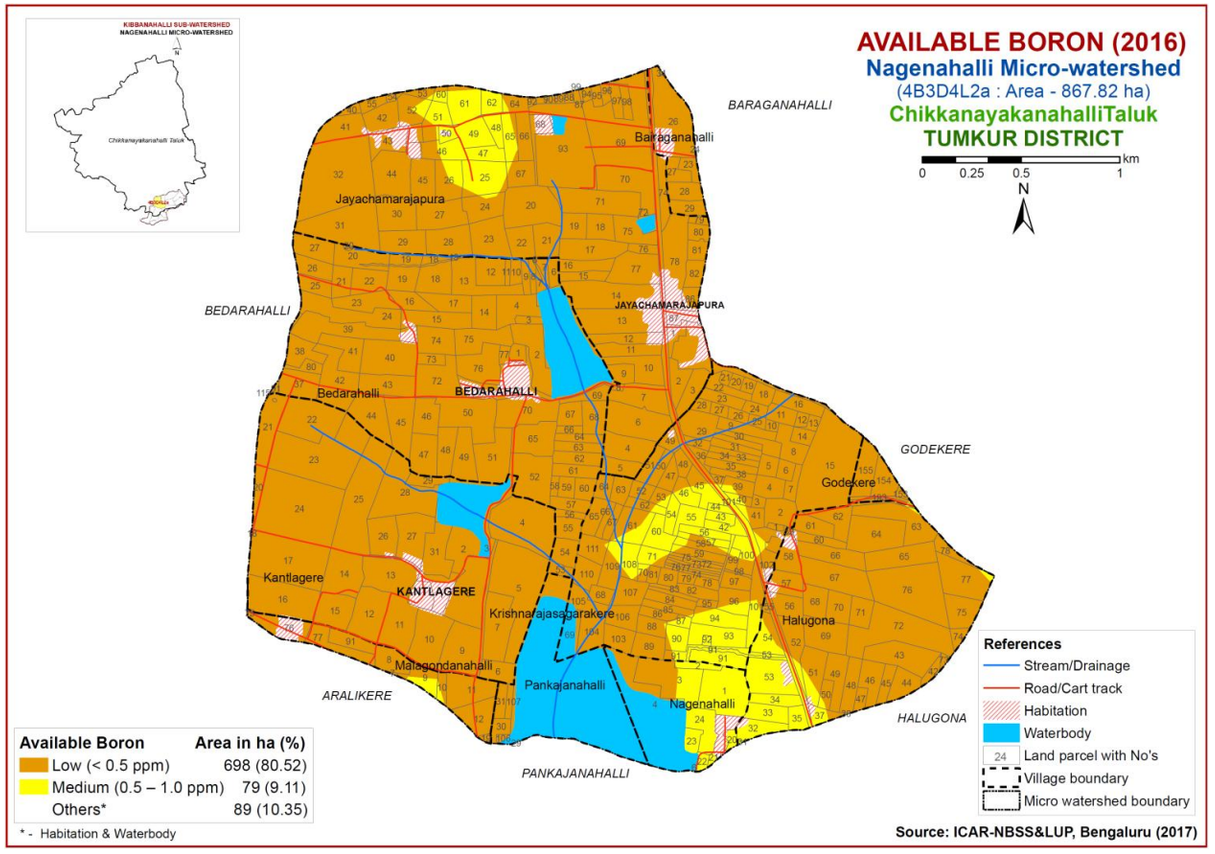

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE PHOSPHORUS (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
KRISHNASAGARA
SONDENAHALLI
Somanahalli
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Available Phosphorus Area in ha (%)
Low (< 23 kg/ha) 7 (0.99)
Medium (23 – 57 kg/ha) 483 (70.79)
High (> 57 kg/ha) 89 (13)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

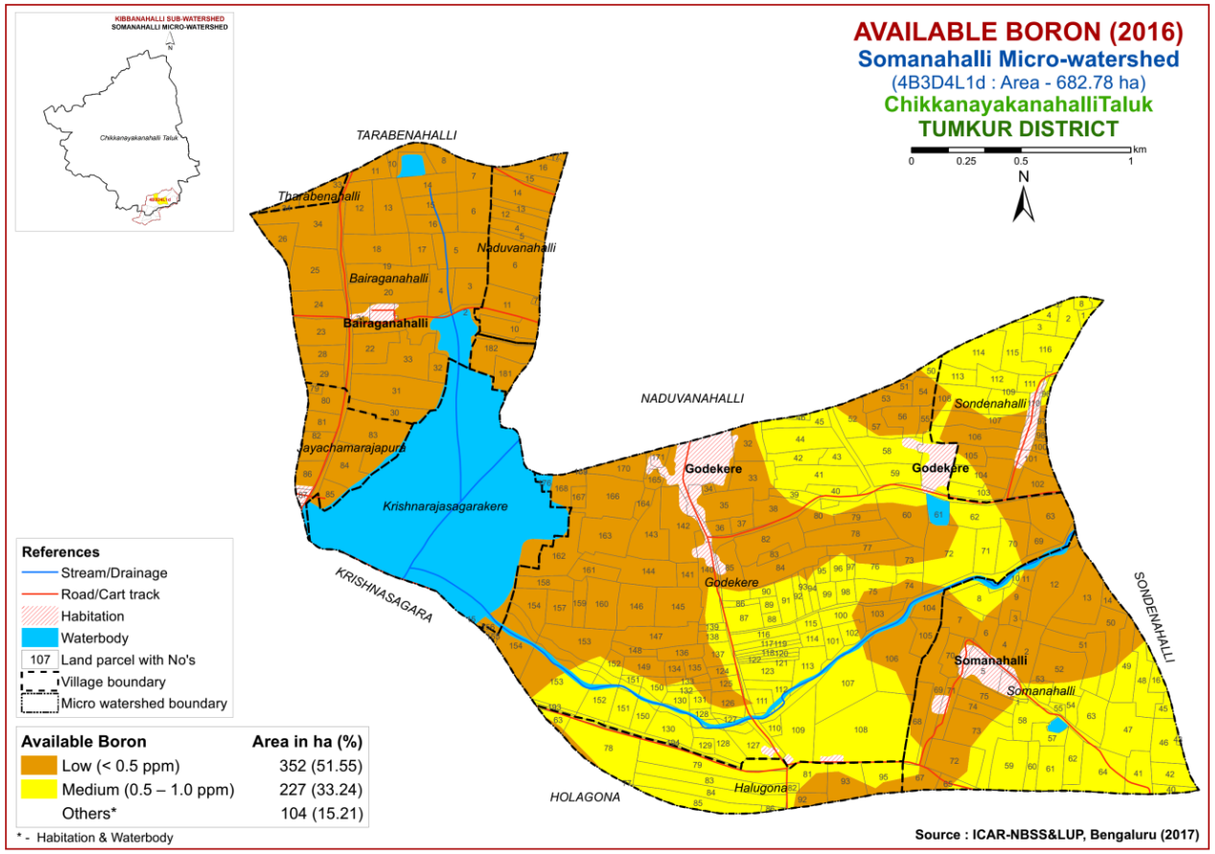

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE POTASSIUM (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
ARALIKERE
Pankajanahalli
Nagenahalli
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Available Potassium Area in ha (%)
Low (<145 kg/ha) 13 (1.56)
Medium (145 – 337 kg/ha) 526 (60.63)
High (> 337 kg/ha) 238 (27.44)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

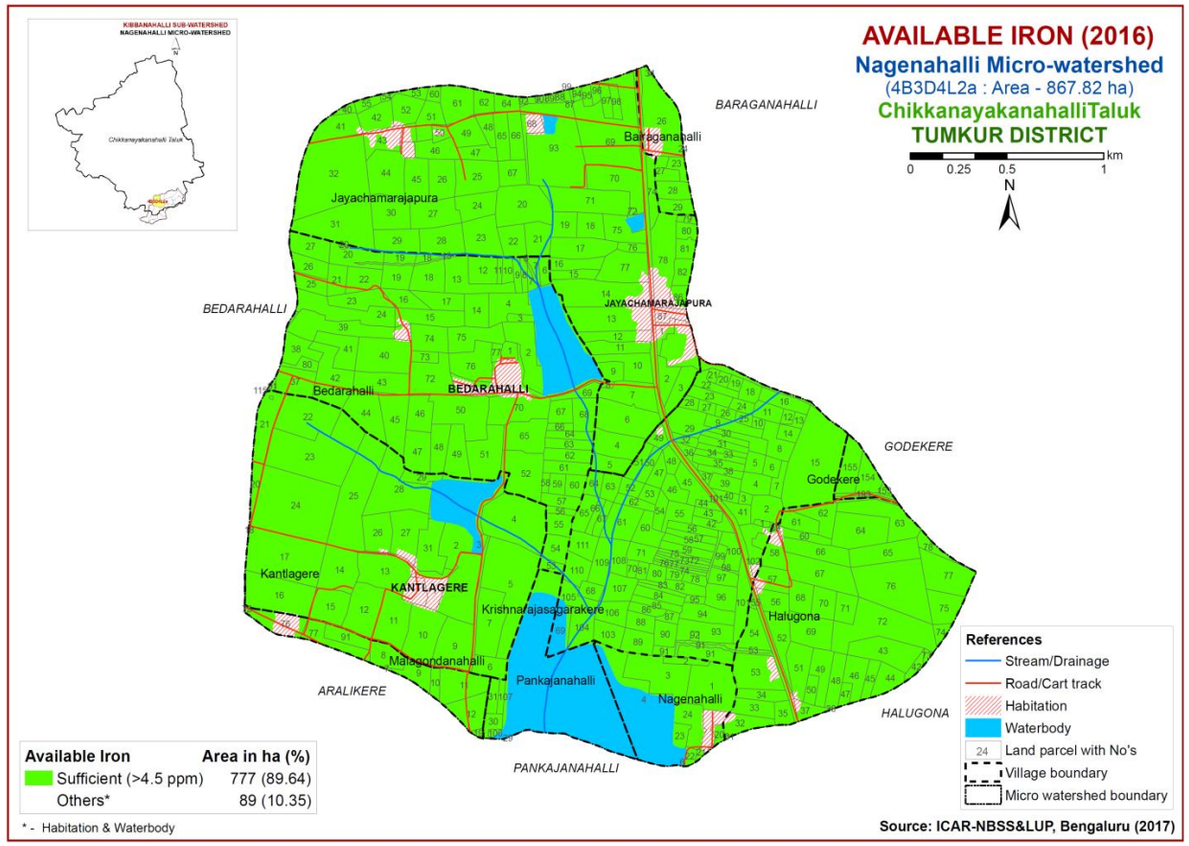

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE POTASSIUM (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
KRISHNASAGARA
SONDENAHALLI
Somanahalli
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Available Potassium Area in ha (%)
Low (<145 kg/ha) 36 (5.31)
Medium (145 – 337 kg/ha) 335 (49.03)
High (> 337 kg/ha) 208 (30.45)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

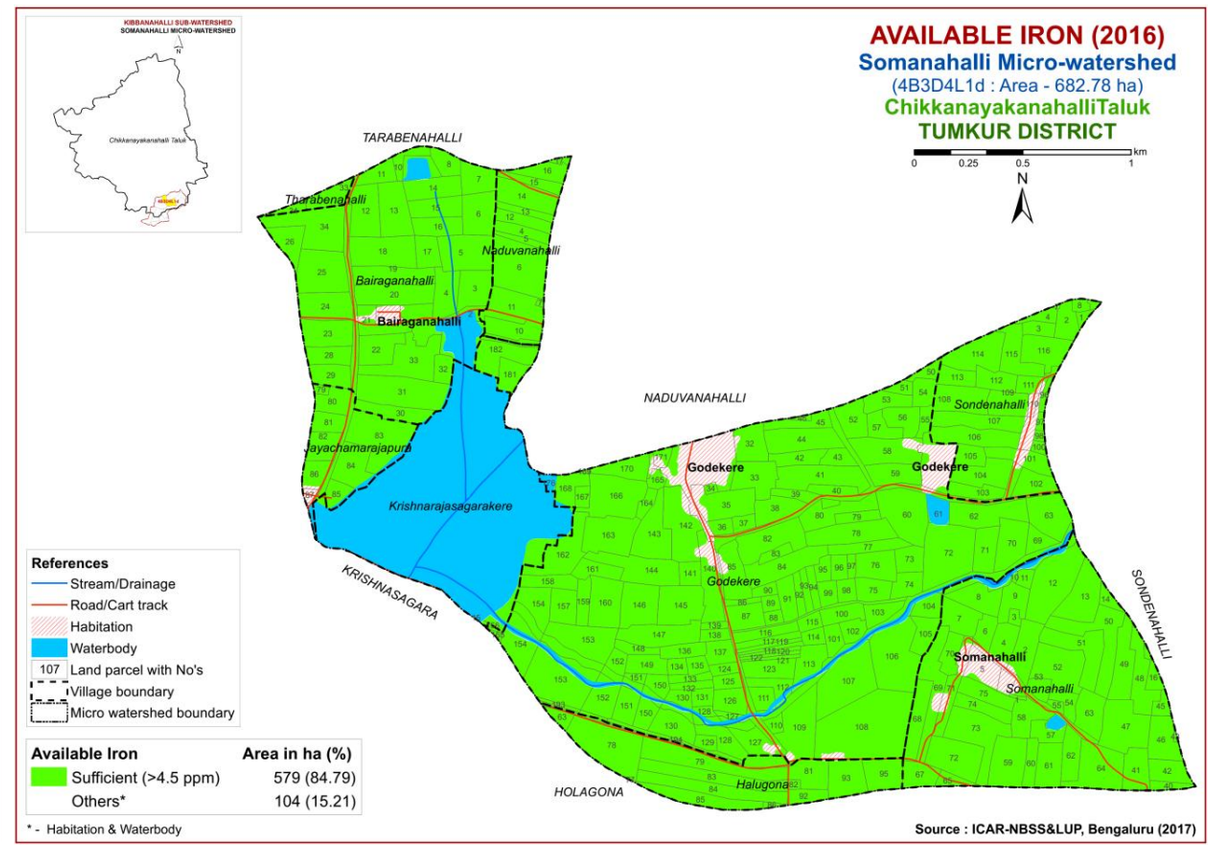

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE SULPHUR (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
ARALIKERE
Pankajanahalli
Nagenahalli
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Available Sulphur
Area in ha (%)
Low (<10 ppm) 209 (24.09)
Medium (10 – 20 ppm) 453 (52.21)
High (> 20 ppm) 115 (13.32)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

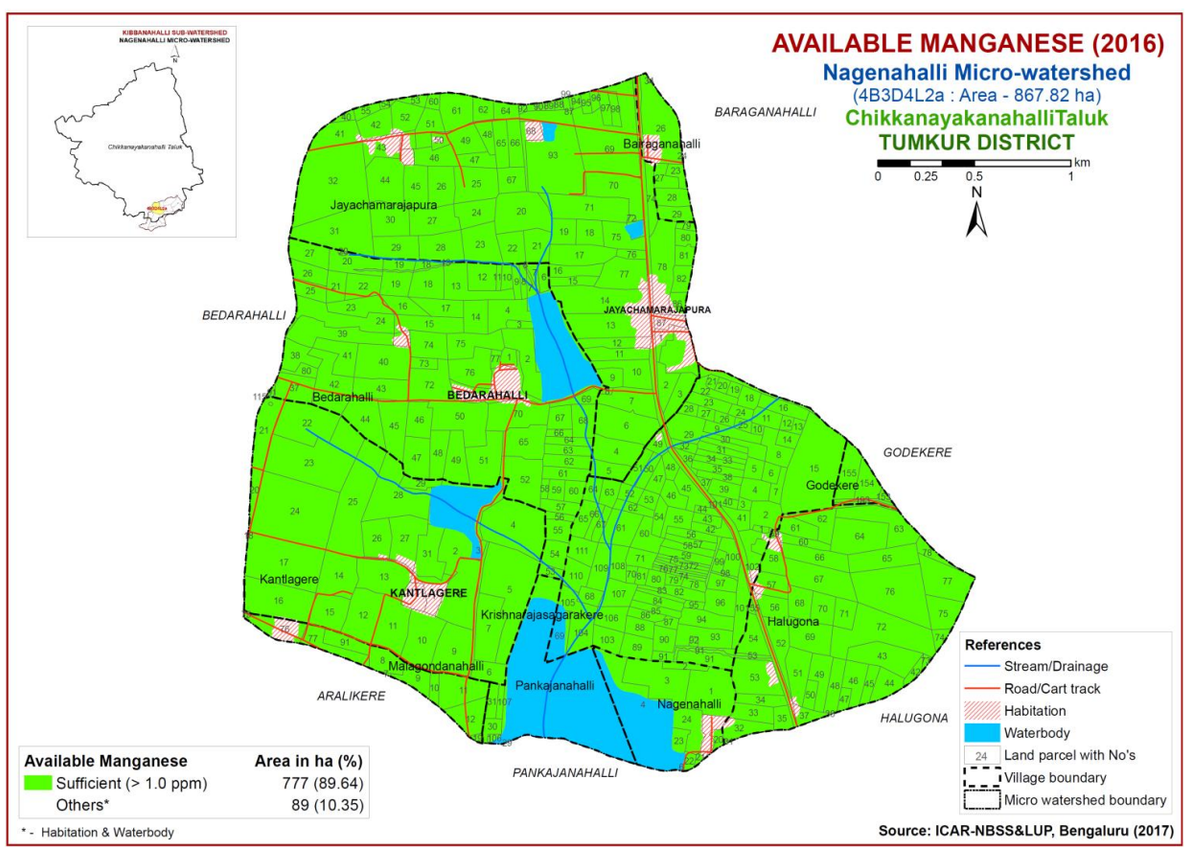

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE SULPHUR (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Godekere
Krishnarajasagarakere
KRISHNASAGARA
Godekere
SONDENAHALLI
Somanahalli
Somanahalli
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Available Sulphur
Area in ha (%)
Low (<10 ppm) 0 (0.07)
Medium (10 – 20 ppm) 424 (62.11)
High (> 20 ppm) 154 (22.61)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

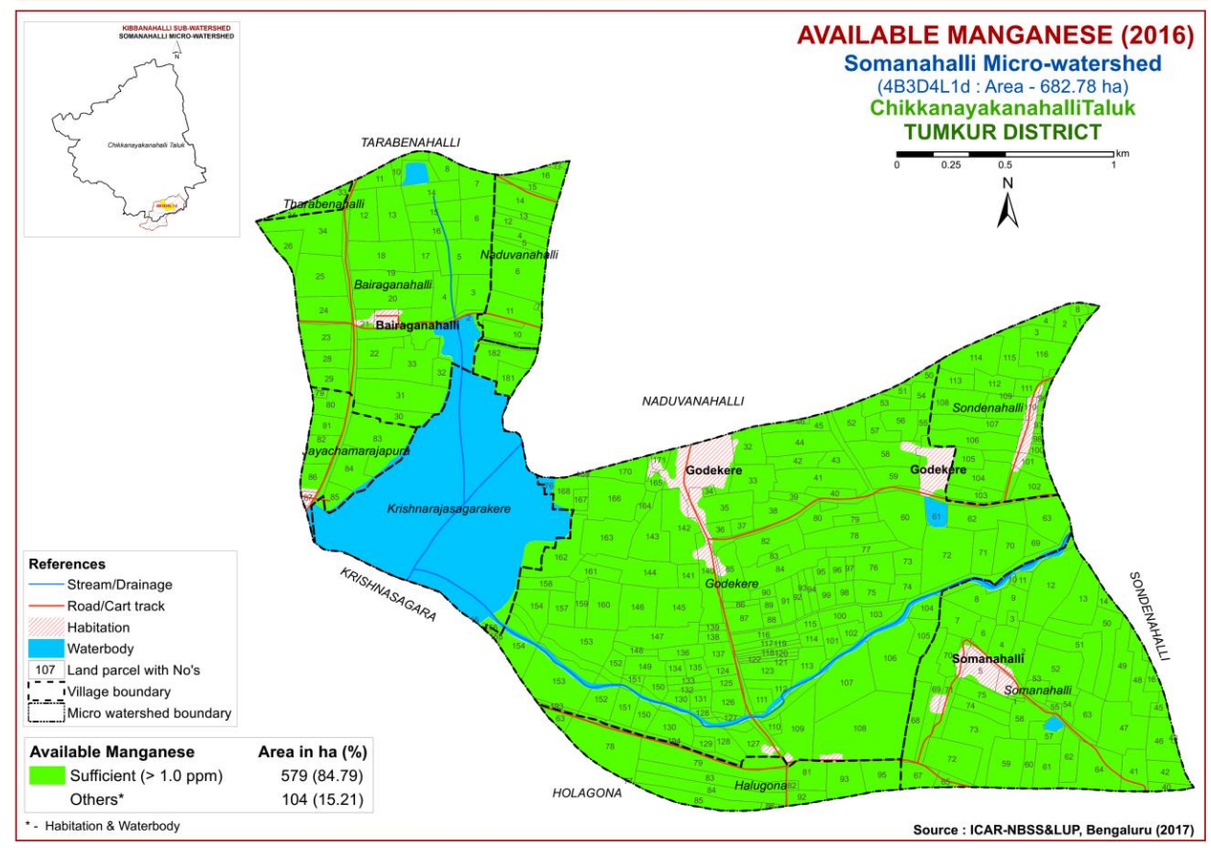

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE BORON (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
ARALIKERE
Pankajanahalli
Nagenahalli
HALUGONA
PANKAJANAHALLI
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Available Boron
Area in ha (%)
Low (< 0.5 ppm) 698 (80.52)
Medium (0.5 – 1.0 ppm) 79 (9.11)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

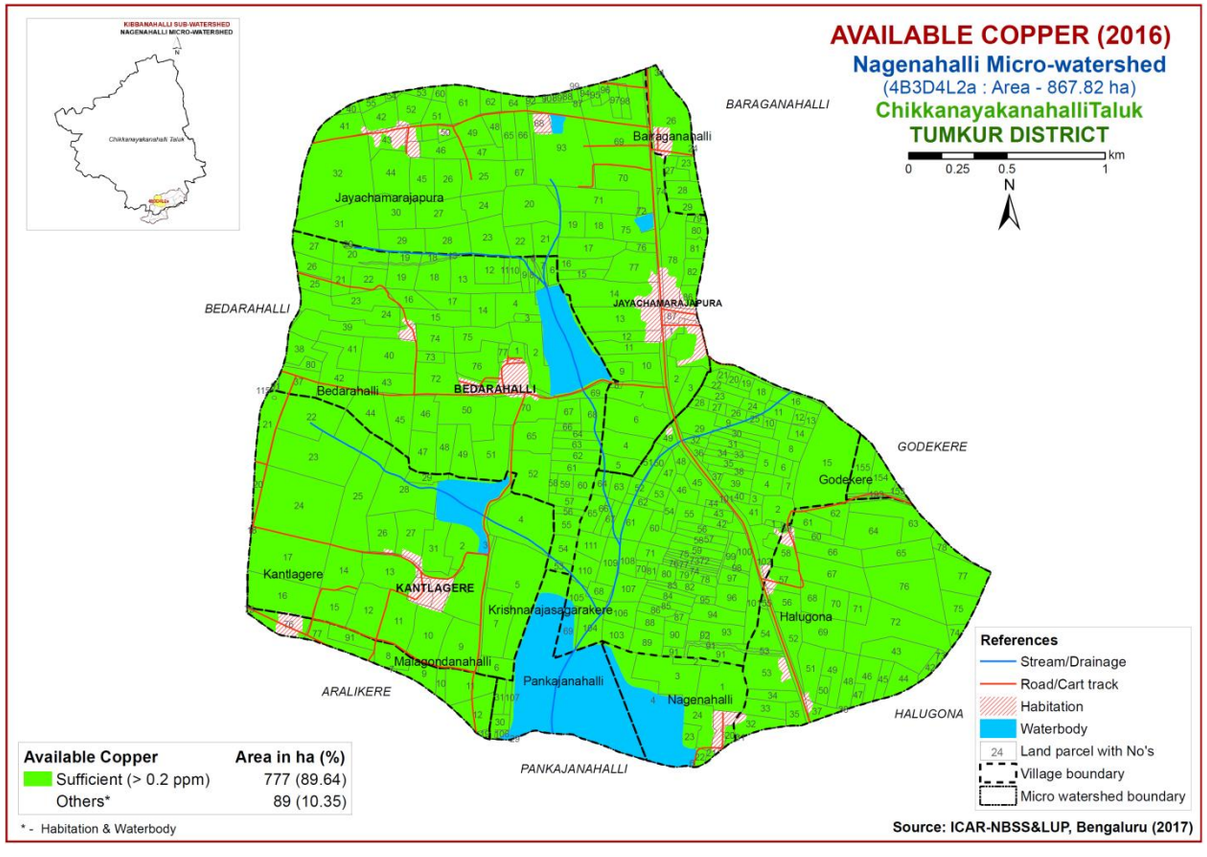

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE BORON (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Godekere
Krishnarajasagarakere
KRISHNASAGARA
Godekere
SONDENAHALLI
Somanahalli
Somanahalli
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Available Boron
Area in ha (%)
Low (< 0.5 ppm) 352 (51.55)
Medium (0.5 – 1.0 ppm) 227 (33.24)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

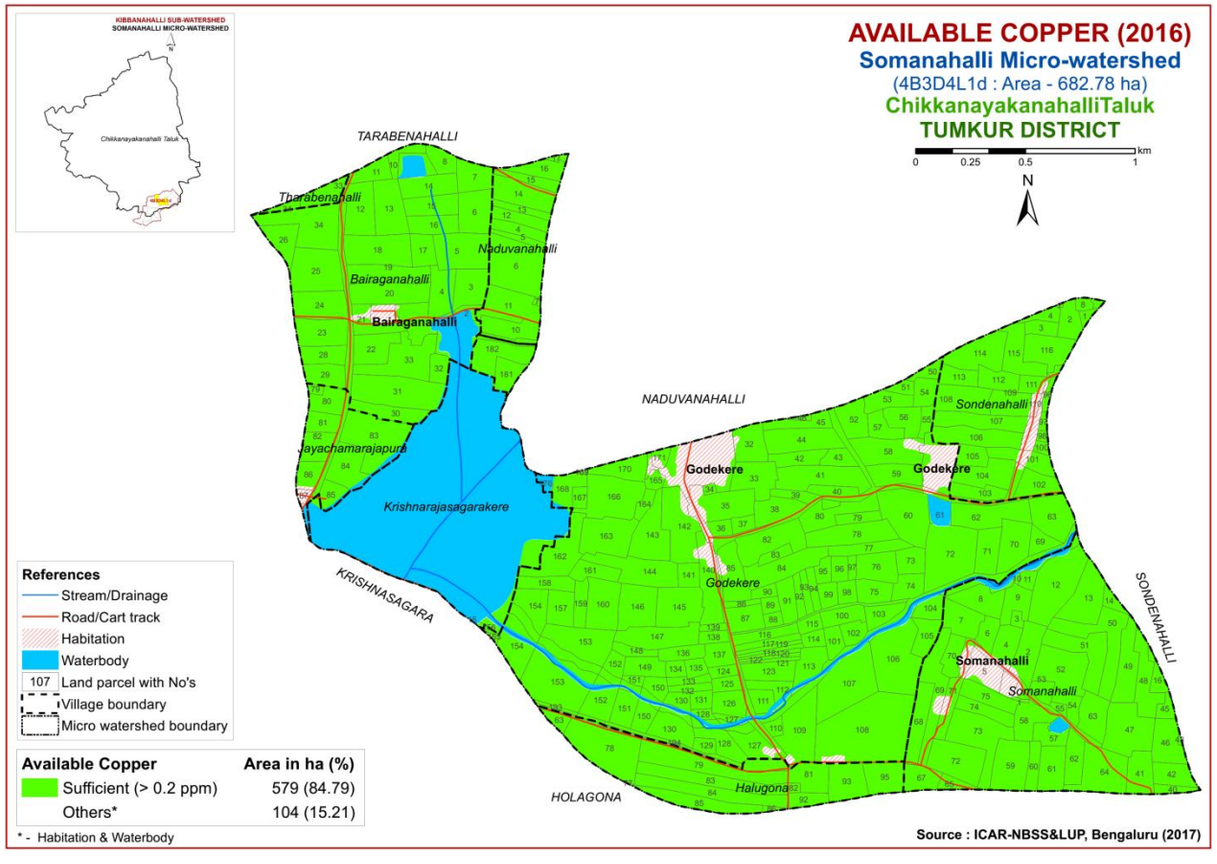

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
AVAILABLE IRON (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
BEDARAHALLI
JAYACHAMARAJAPURA
GODEKERE
ARALIKERE
HALUGONA
PANKAJANAHALLI
Bairaganahalli
Jayachamarajapura
Bedarahalli
Kantlagere
Malagondanahalli
Krishnarajasagarakere
Pankajanahalli
Nagenahalli
Godekere
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Available Iron
Area in ha (%)
Sufficient (>4.5 ppm) 777 (89.64)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

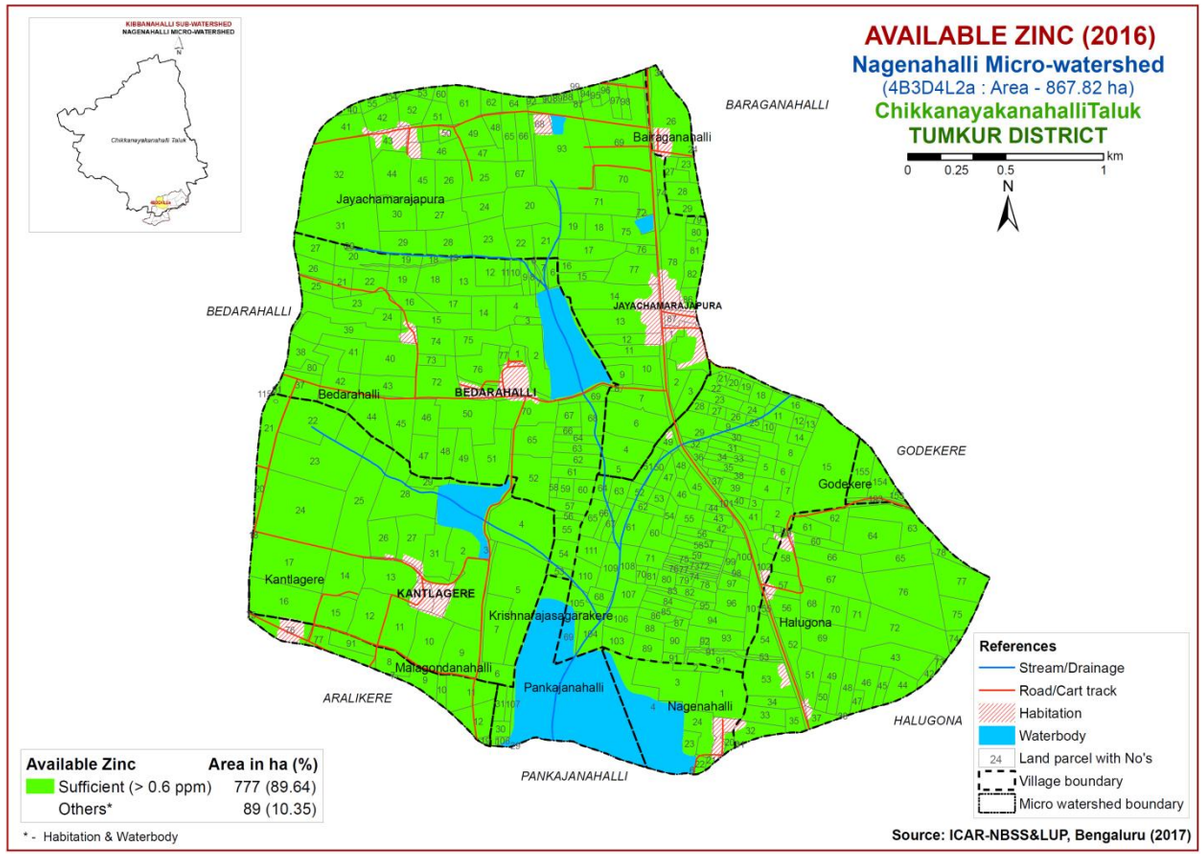

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
AVAILABLE IRON (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
NADUVANAHALLI
KRISHNASAGARA
SONDENAHALLI
HOLAGONA
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
Somanahalli
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Available Iron
Area in ha (%)
Sufficient (>4.5 ppm) 579 (84.79)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

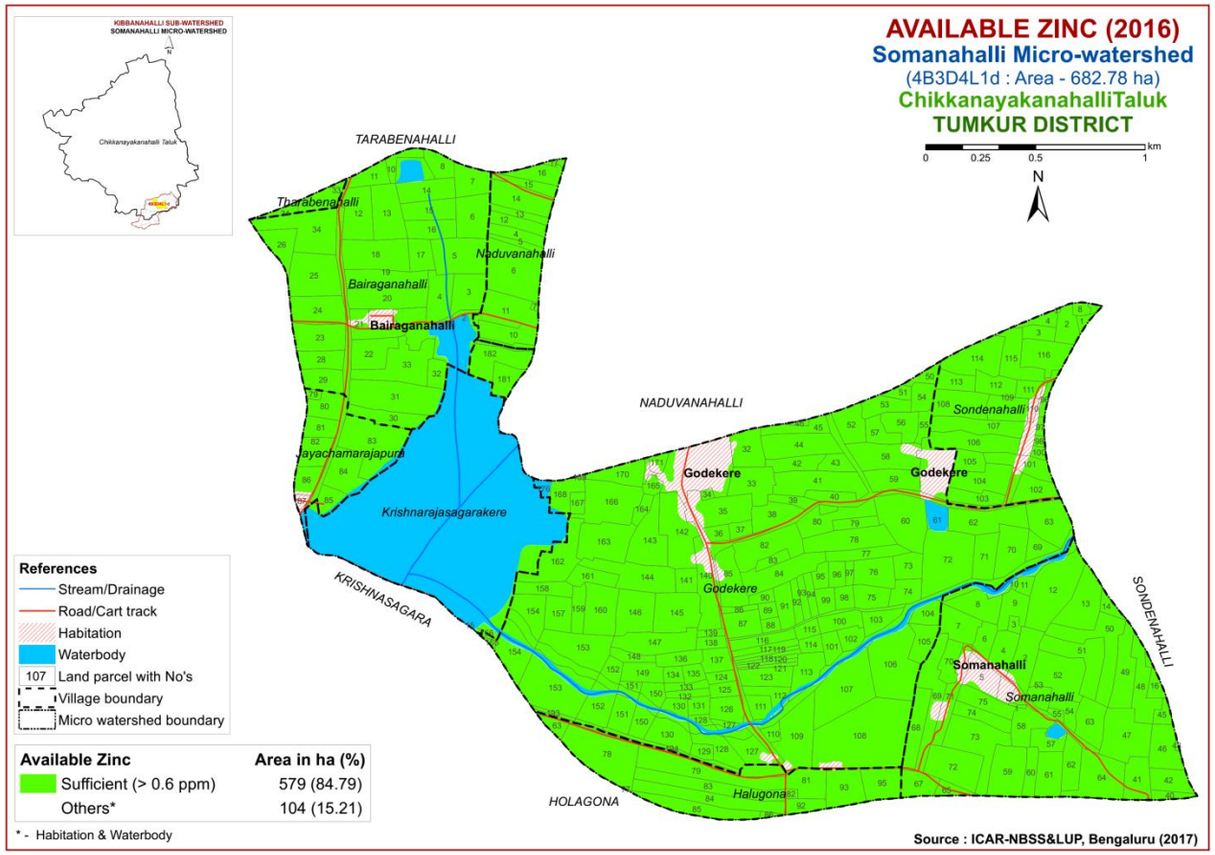

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
AVAILABLE MANGANESE (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
BEDARAHALLI
JAYACHAMARAJAPURA
GODEKERE
ARALIKERE
HALUGONA
PANKAJANAHALLI
Bairaganahalli
Jayachamarajapura
Bedarahalli
Kantlagere
Malagondanahalli
Krishnarajasagarakere
Pankajanahalli
Nagenahalli
Godekere
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Available Manganese
Area in ha (%)
Sufficient (> 1.0 ppm) 777 (89.64)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

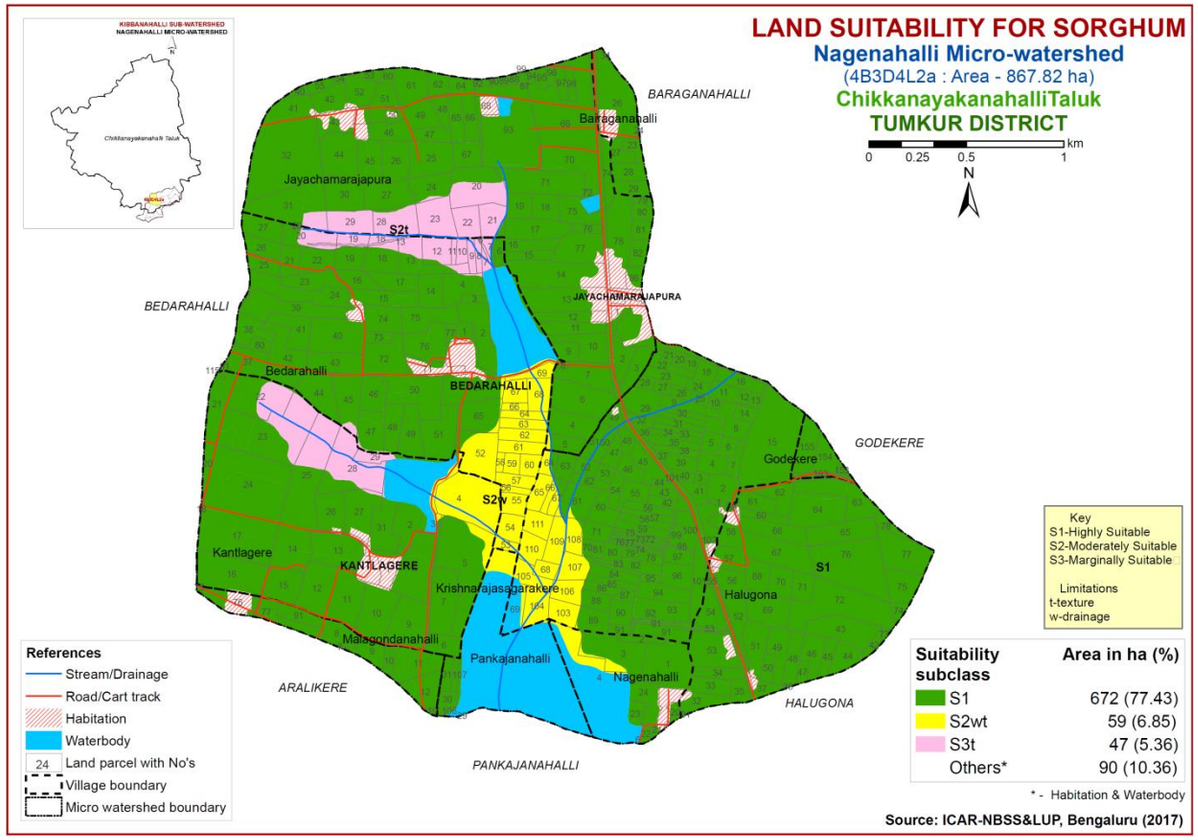

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
AVAILABLE MANGANESE (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
NADUVANAHALLI
KRISHNASAGARA
SONDENAHALLI
HOLAGONA
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
Somanahalli
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Available Manganese
Area in ha (%)
Sufficient (> 1.0 ppm) 579 (84.79)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

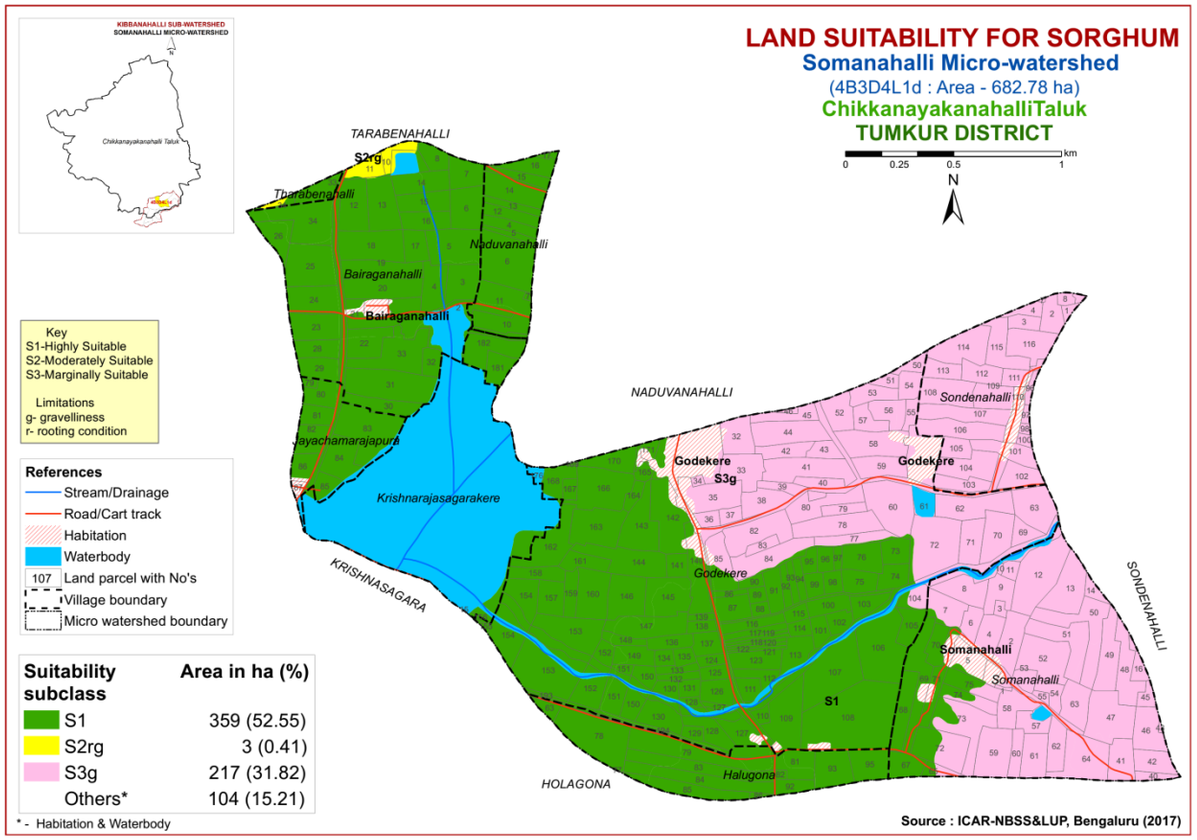

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE COPPER (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
BEDARAHALLI
JAYACHAMARAJAPURA
GODEKERE
ARALIKERE
HALUGONA
PANKAJANAHALLI
Bairaganahalli
Jayachamarajapura
Bedarahalli
BEDARAHALLI
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Malagondanahalli
Pankajanahalli
Nagenahalli
Godekere
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Available Copper
Area in ha (%)
Sufficient (> 0.2 ppm) 777 (89.64)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

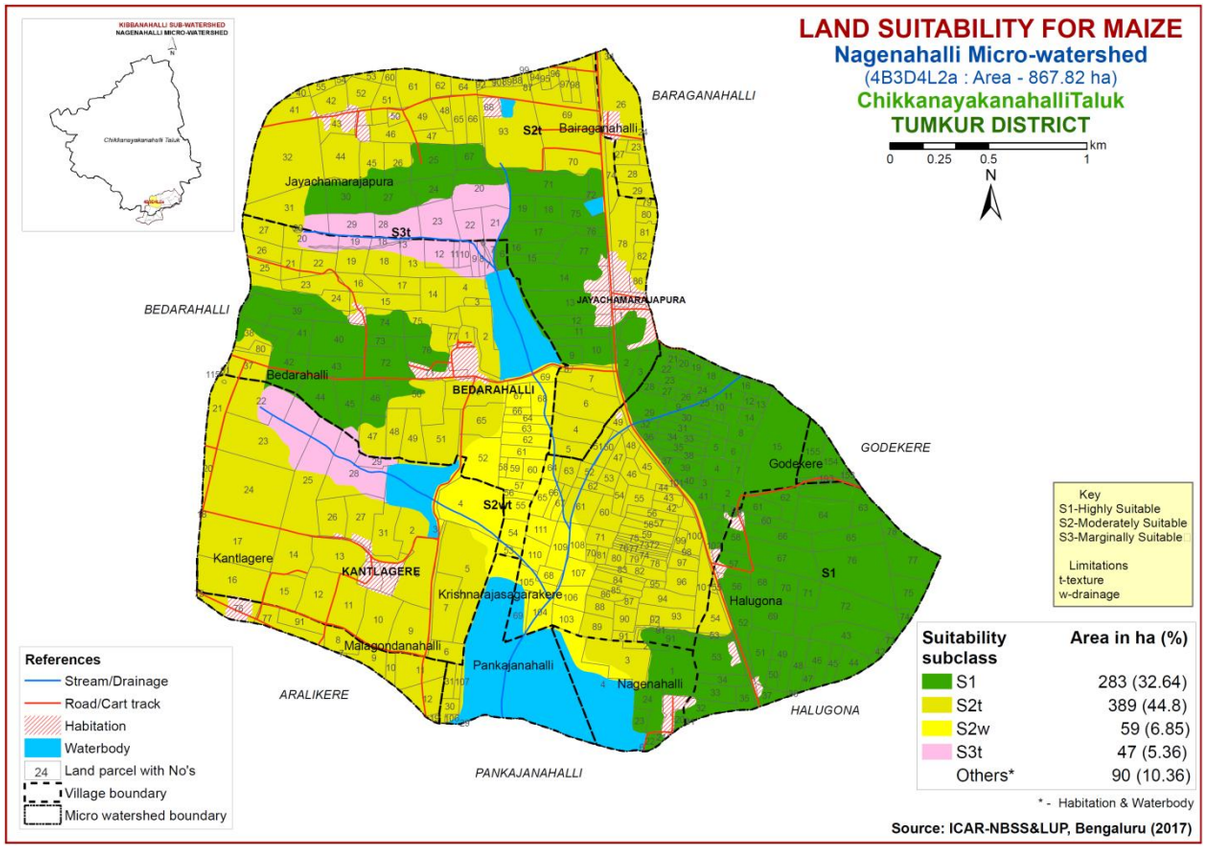

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE COPPER (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
NADUVANAHALLI
KRISHNASAGARA
SONDENAHALLI
HOLAGONA
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
Somanahalli
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Available Copper
Area in ha (%)
Sufficient (> 0.2 ppm) 579 (84.79)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

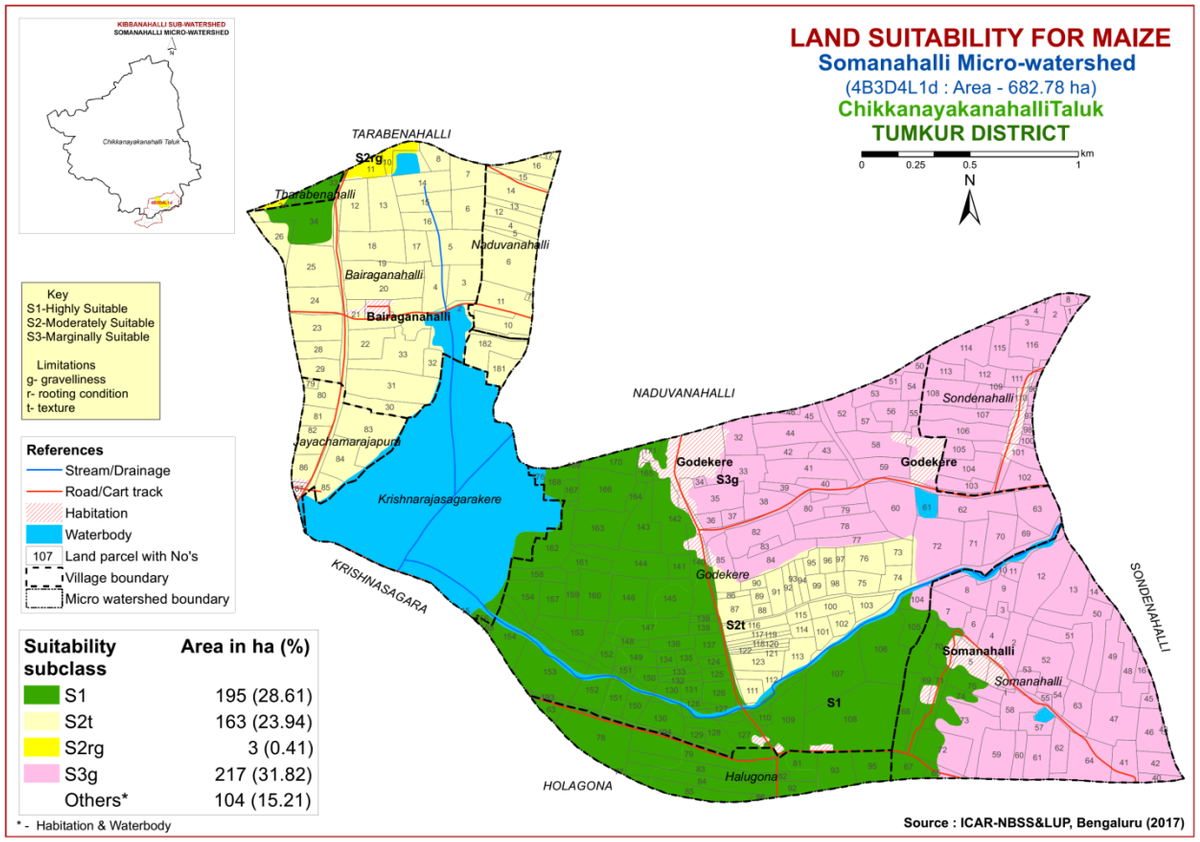

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE ZINC (2016)
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
BEDARAHALLI
JAYACHAMARAJAPURA
GODEKERE
ARALIKERE
HALUGONA
PANKAJANAHALLI
Bairaganahalli
Jayachamarajapura
Bedarahalli
BEDARAHALLI
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Malagondanahalli
Pankajanahalli
Nagenahalli
Godekere
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Available Zinc
Area in ha (%)
Sufficient (> 0.6 ppm) 777 (89.64)
Others* 89 (10.35)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

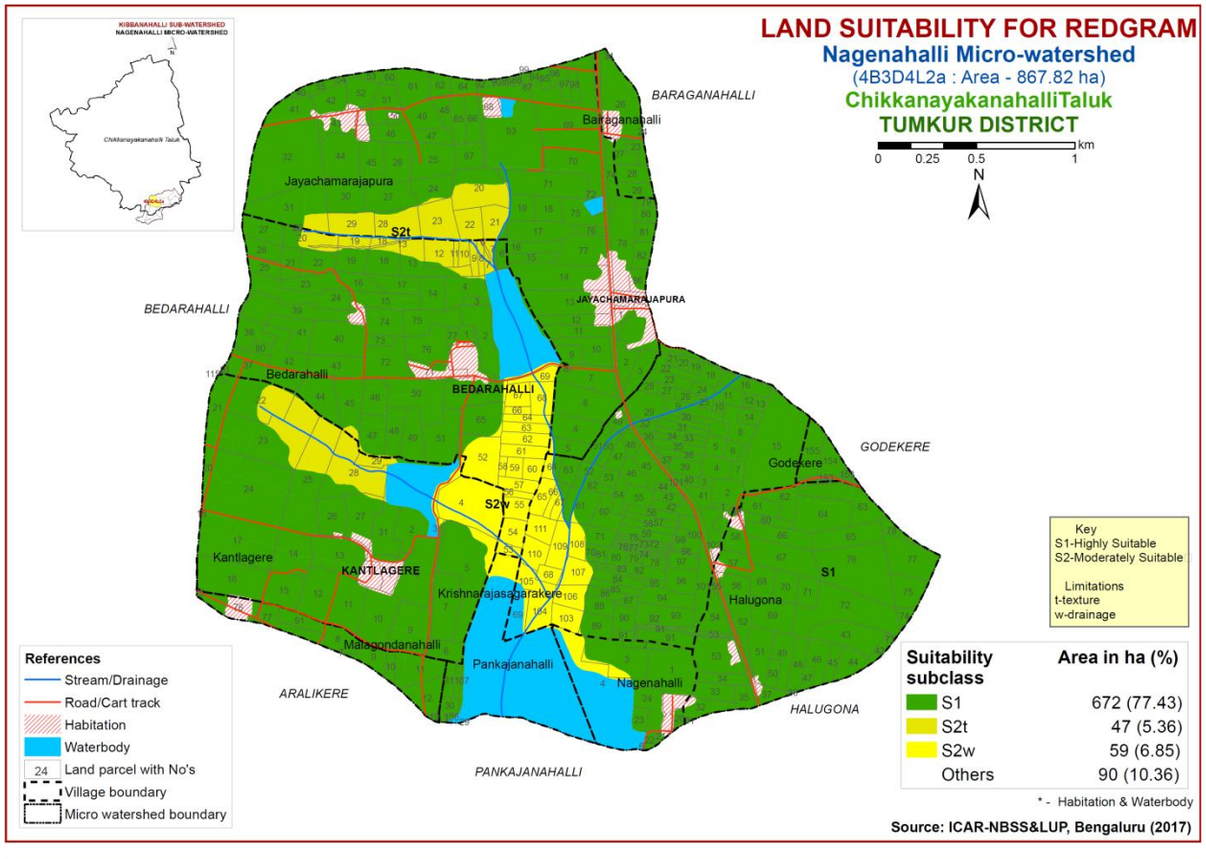

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
AVAILABLE ZINC (2016)
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
NADUVANAHALLI
KRISHNASAGARA
SONDENAHALLI
HOLAGONA
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
Somanahalli
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Available Zinc
Area in ha (%)
Sufficient (> 0.6 ppm) 579 (84.79)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

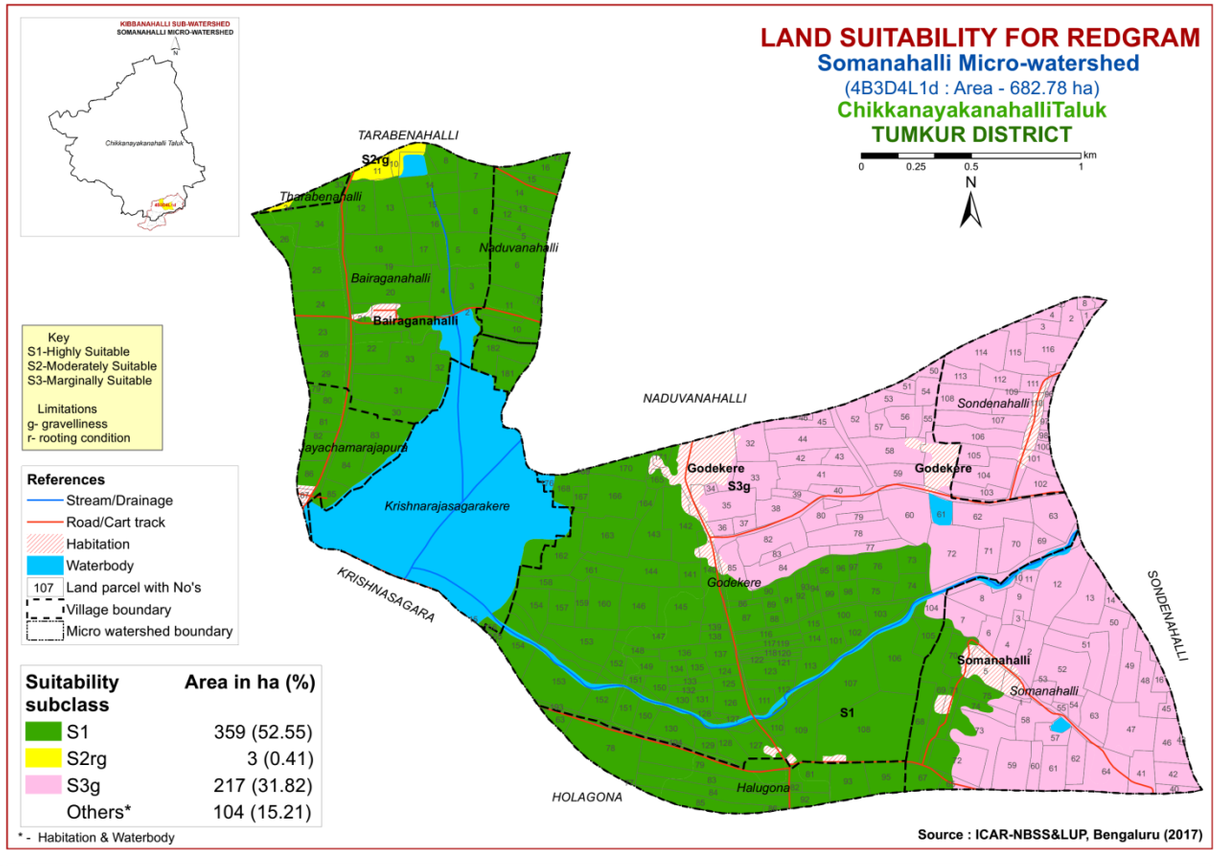

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR SORGHUM
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass | Area in ha (%)
S1 672 (77.43)
S2wt 59 (6.85)
S3t 47 (5.36)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

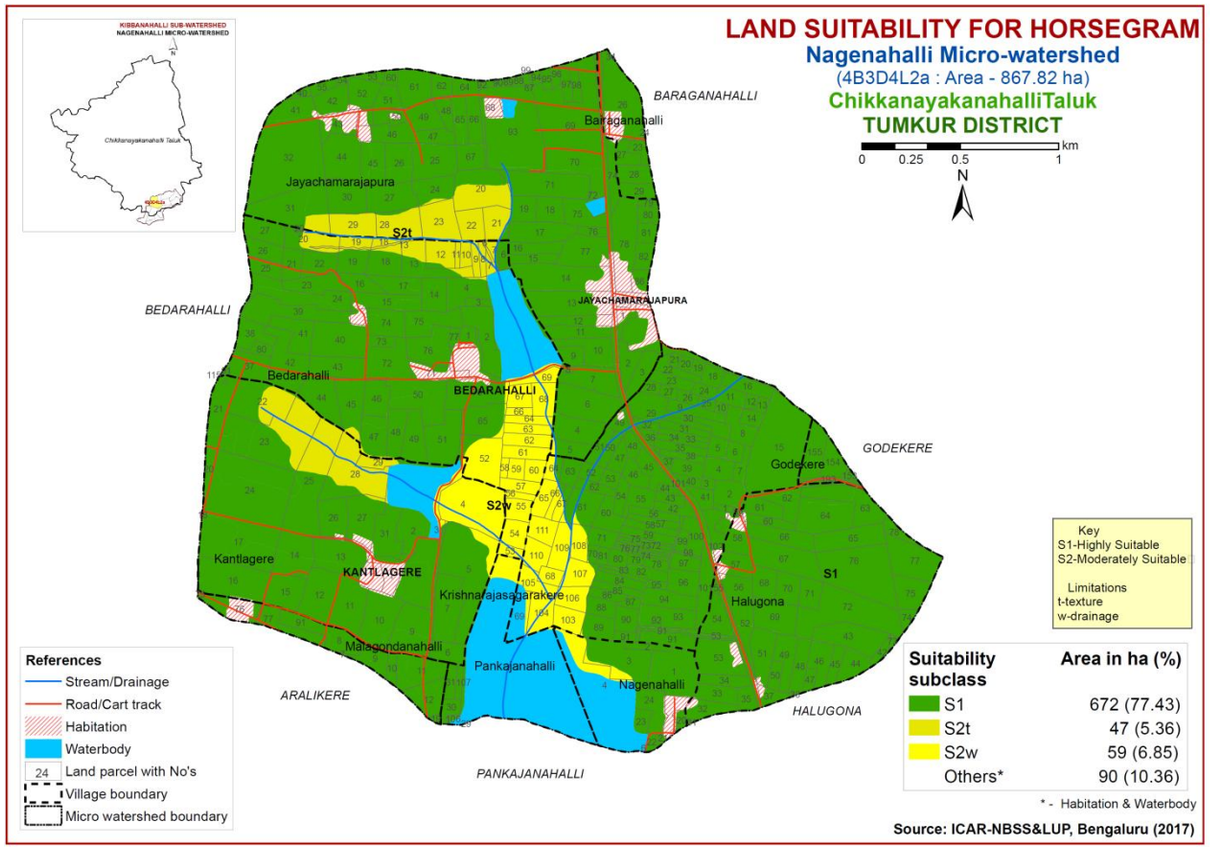

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR SORGHUM
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Godekere
S3g
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass | Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

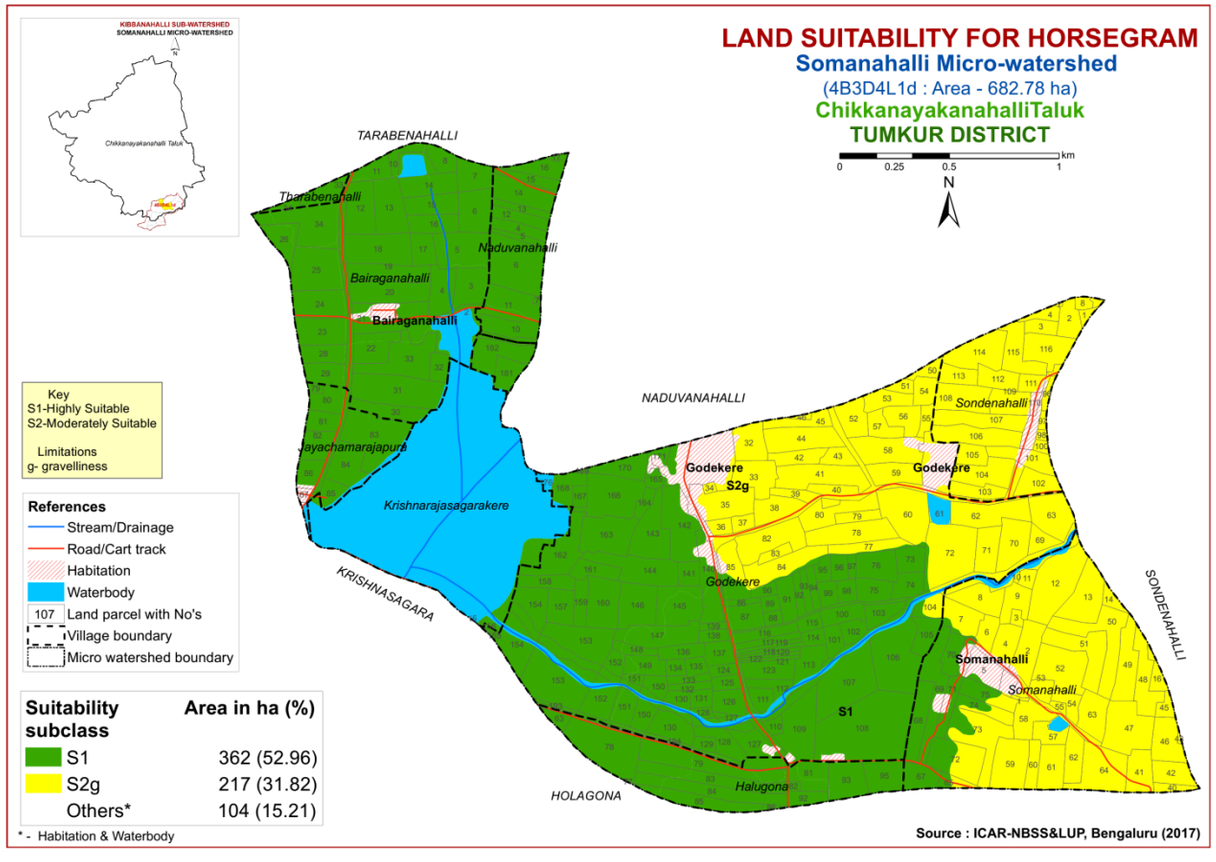

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR MAIZE
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
S2t
Jayachamarajapura
S3t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2wt
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass | Area in ha (%)
S1 283 (32.64)
S2t 389 (44.8)
S2w 59 (6.85)
S3t 47 (5.36)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

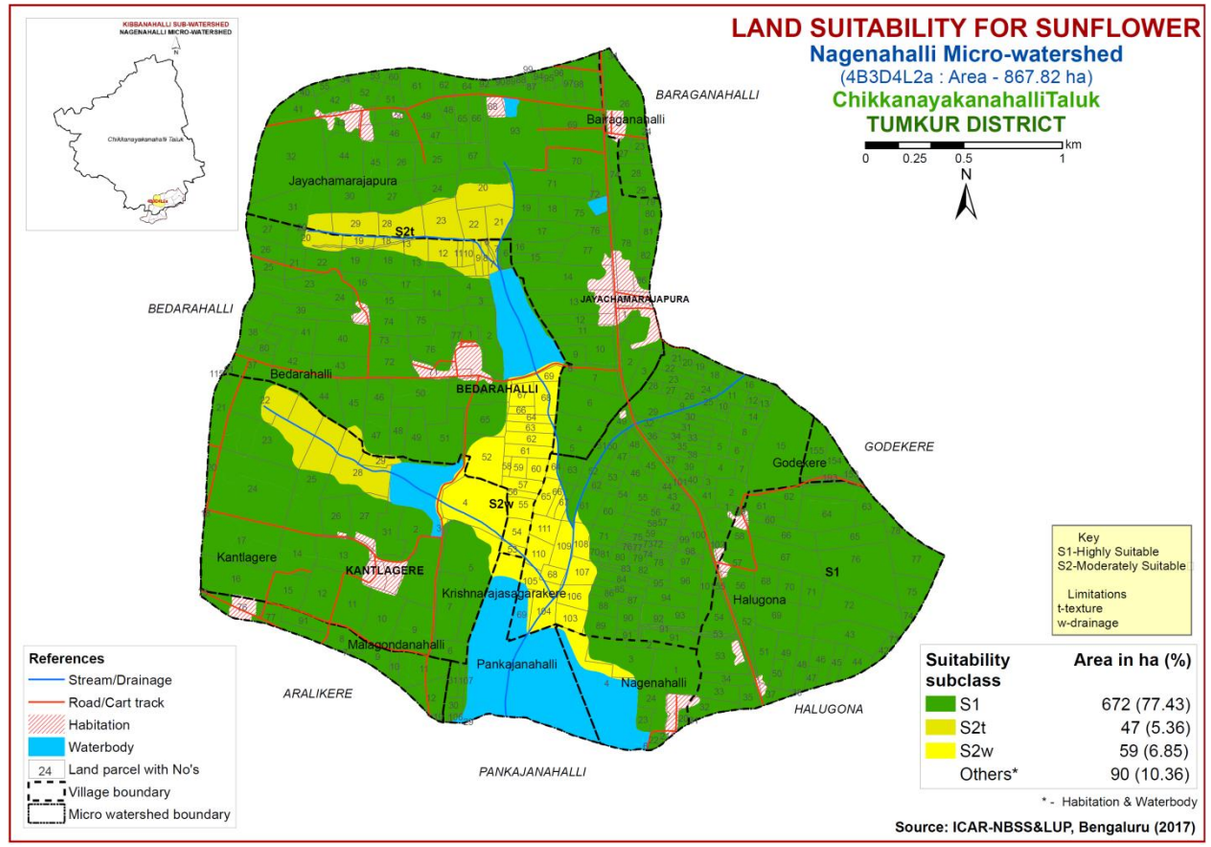

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR MAIZE
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Godekere
S3g
Krishnarajasagarakere
Godekere
S2t
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
t- texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass | Area in ha (%)
S1 195 (28.61)
S2t 163 (23.94)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

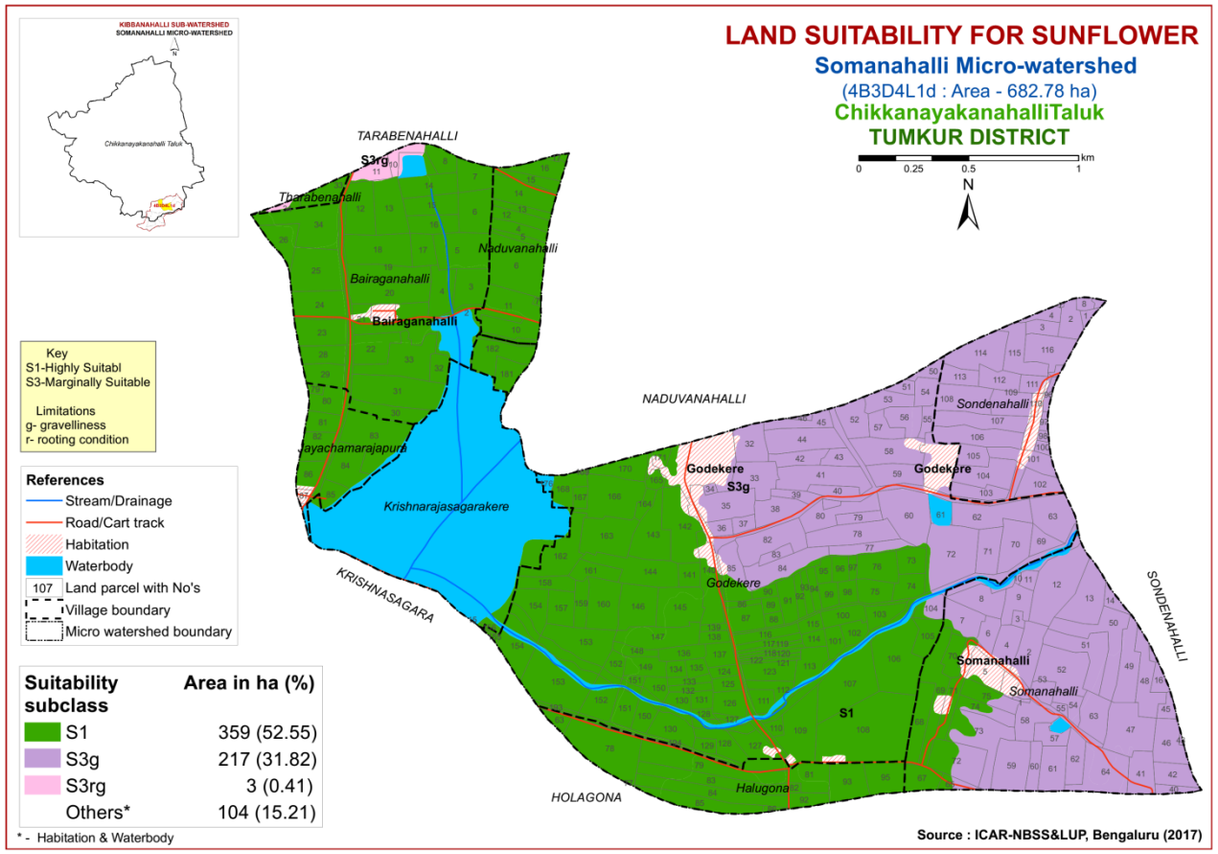

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR REDGRAM
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

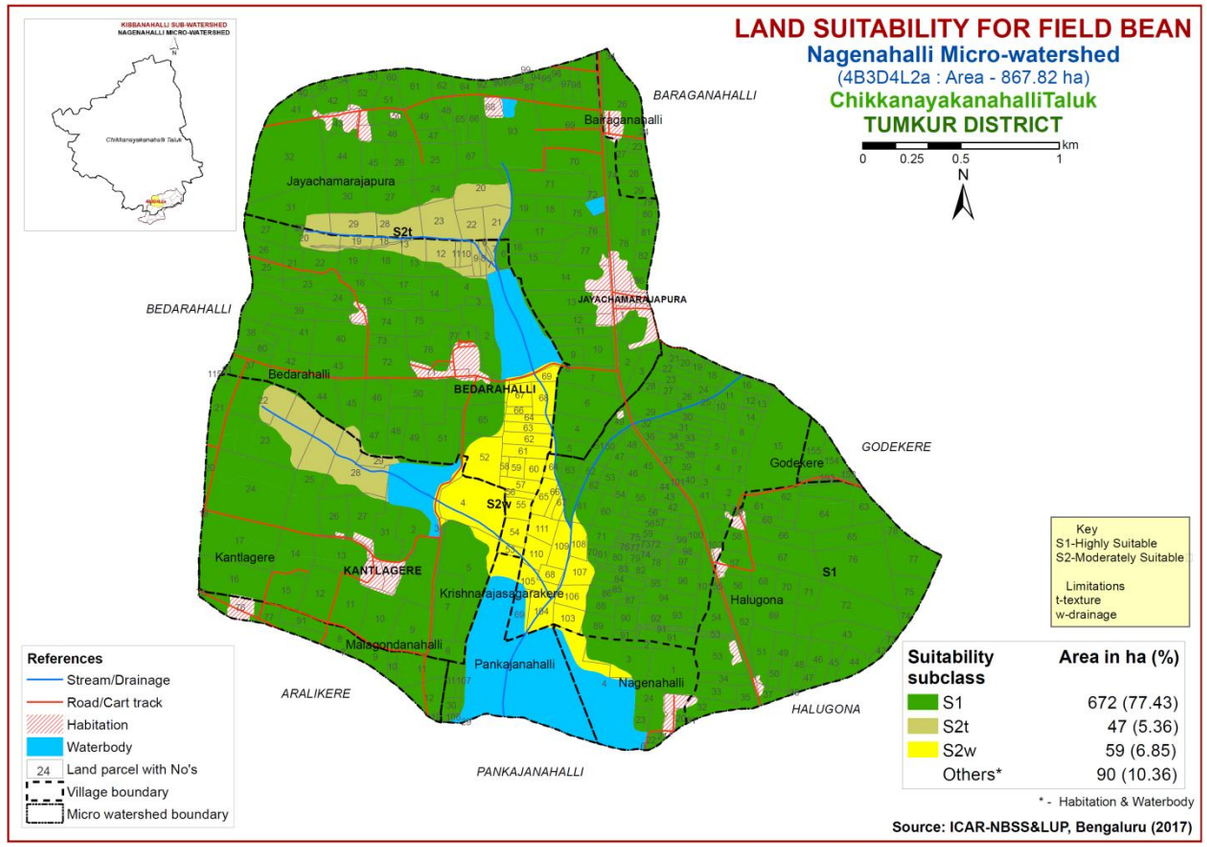

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR REDGRAM
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

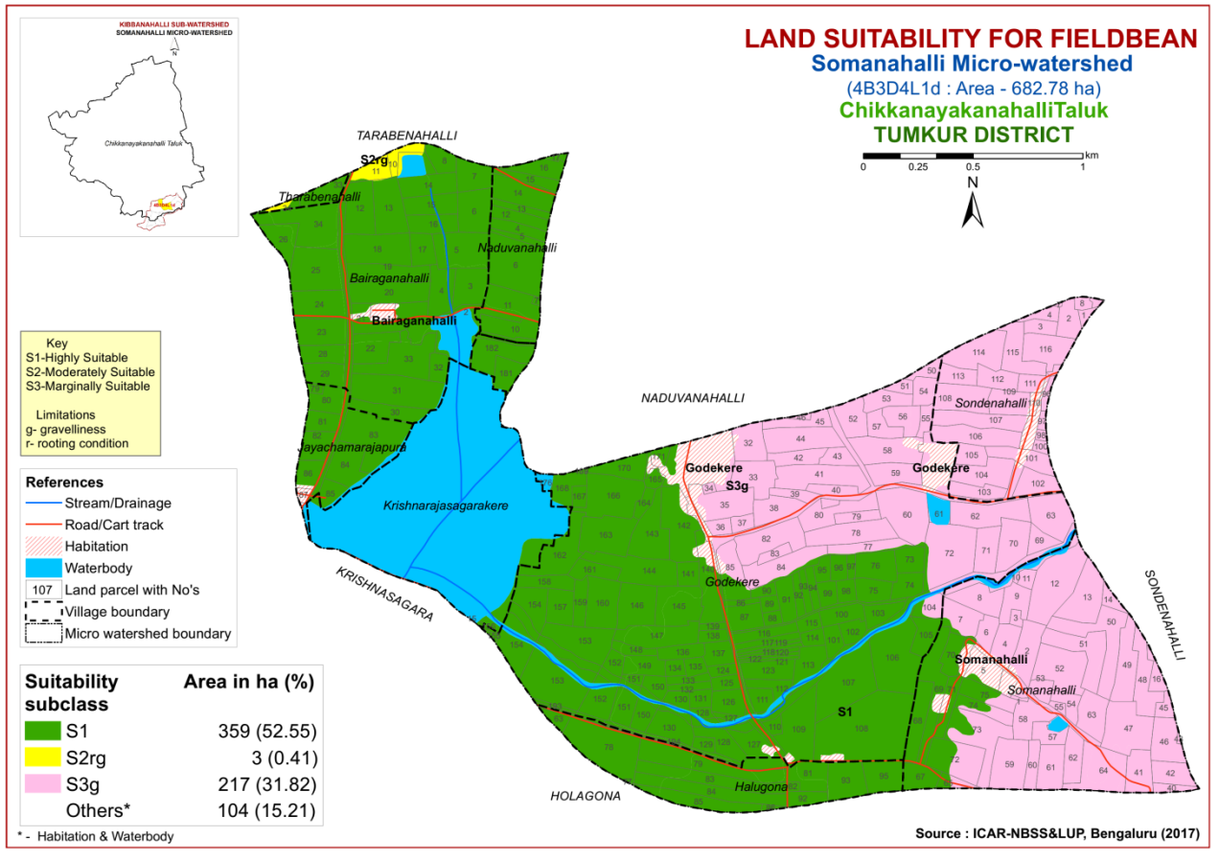

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR HORSEGRAM
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

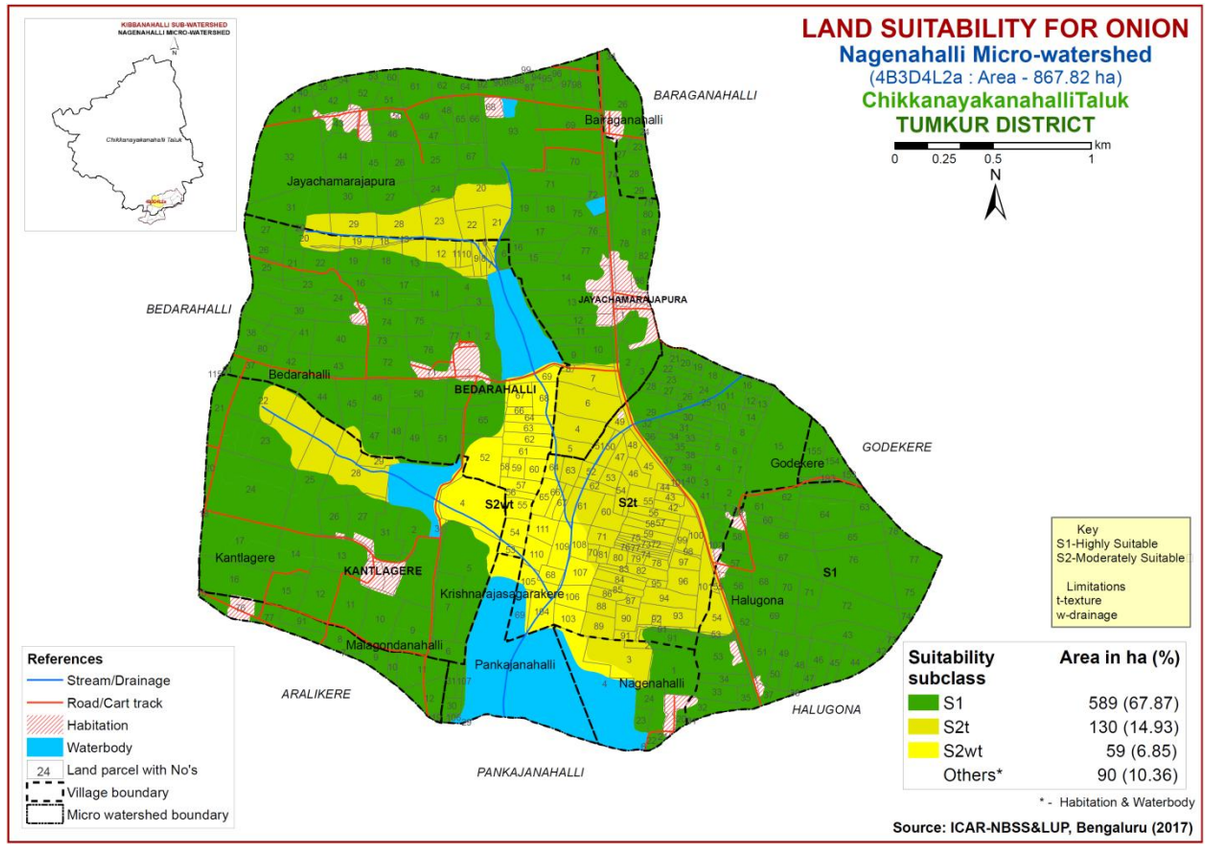

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR HORSEGRAM
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S2g
Godekere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
g- gravelliness
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 362 (52.96)
S2g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

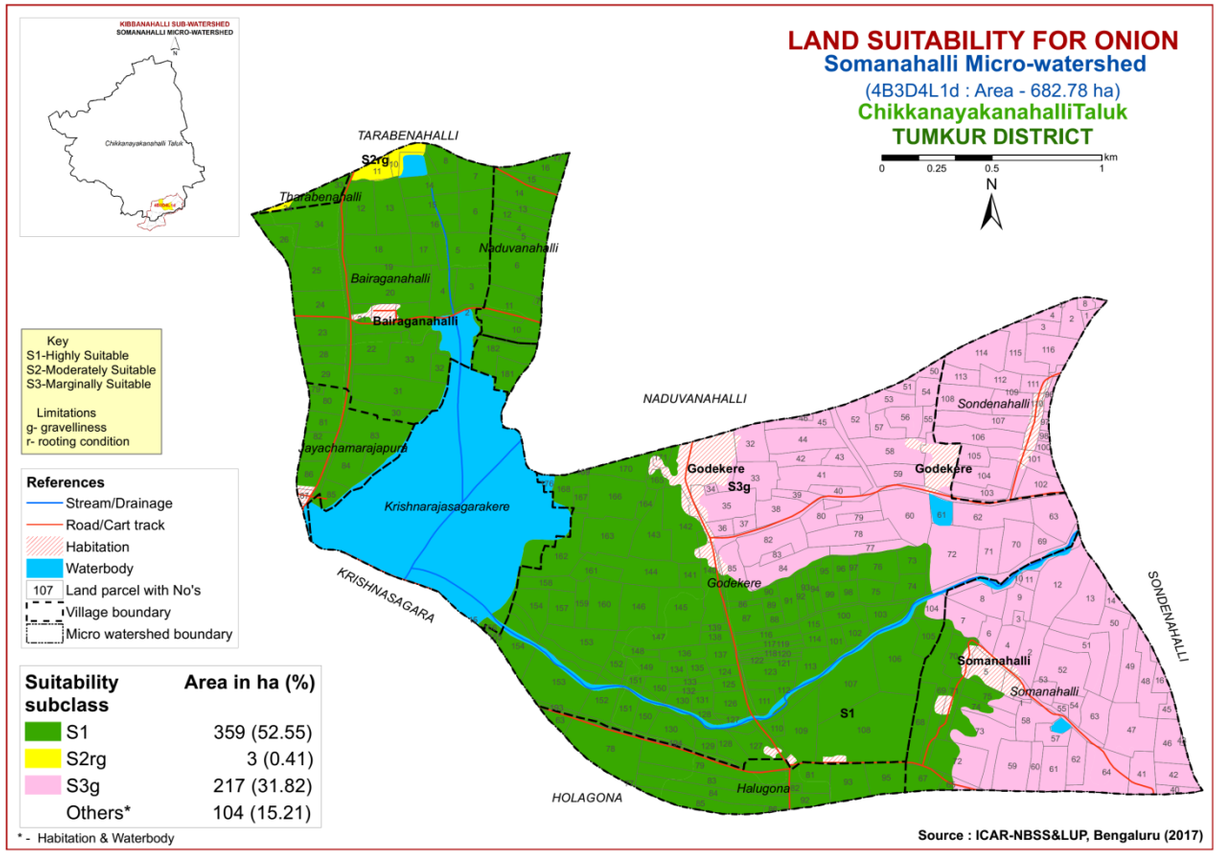

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR SUNFLOWER
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

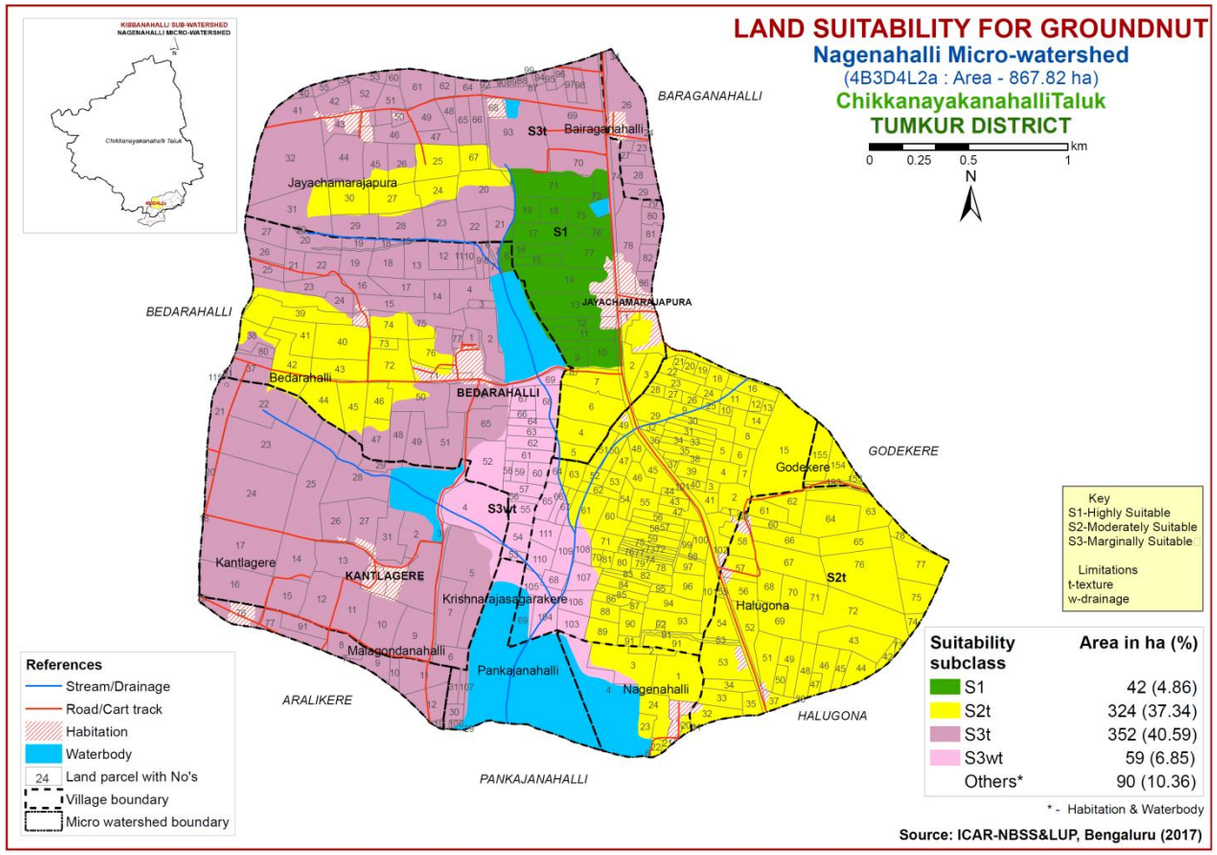

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR SUNFLOWER
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S3rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
S3g
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitabl
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

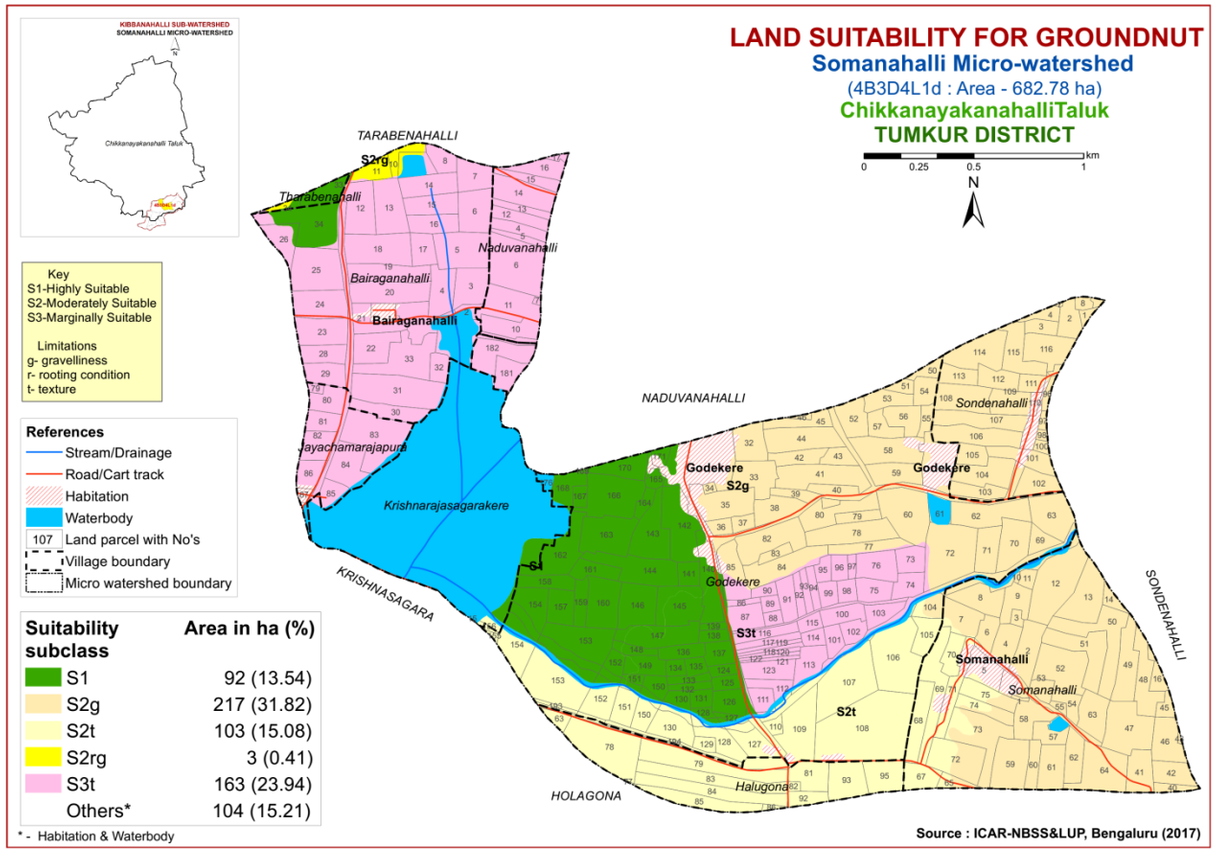

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR FIELD BEAN
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

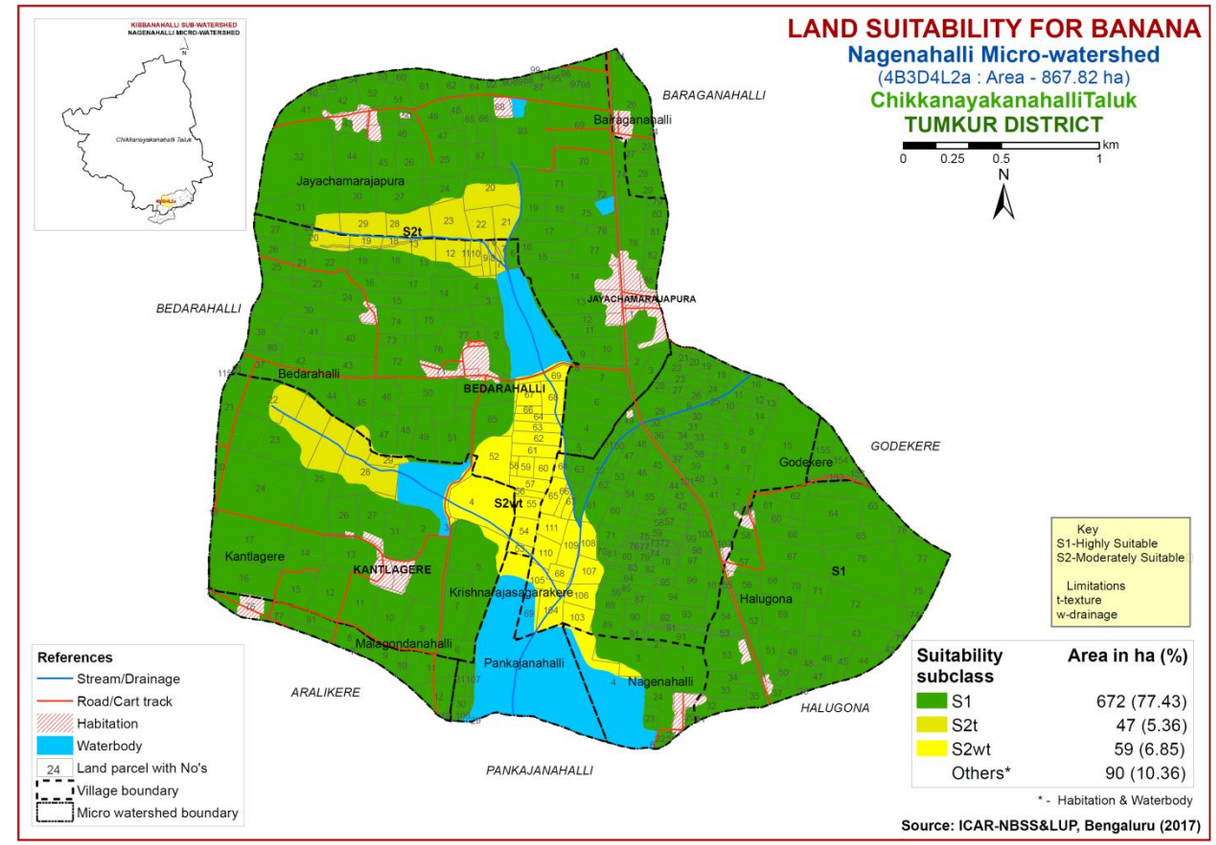

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR FIELDBEAN
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
S3g
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

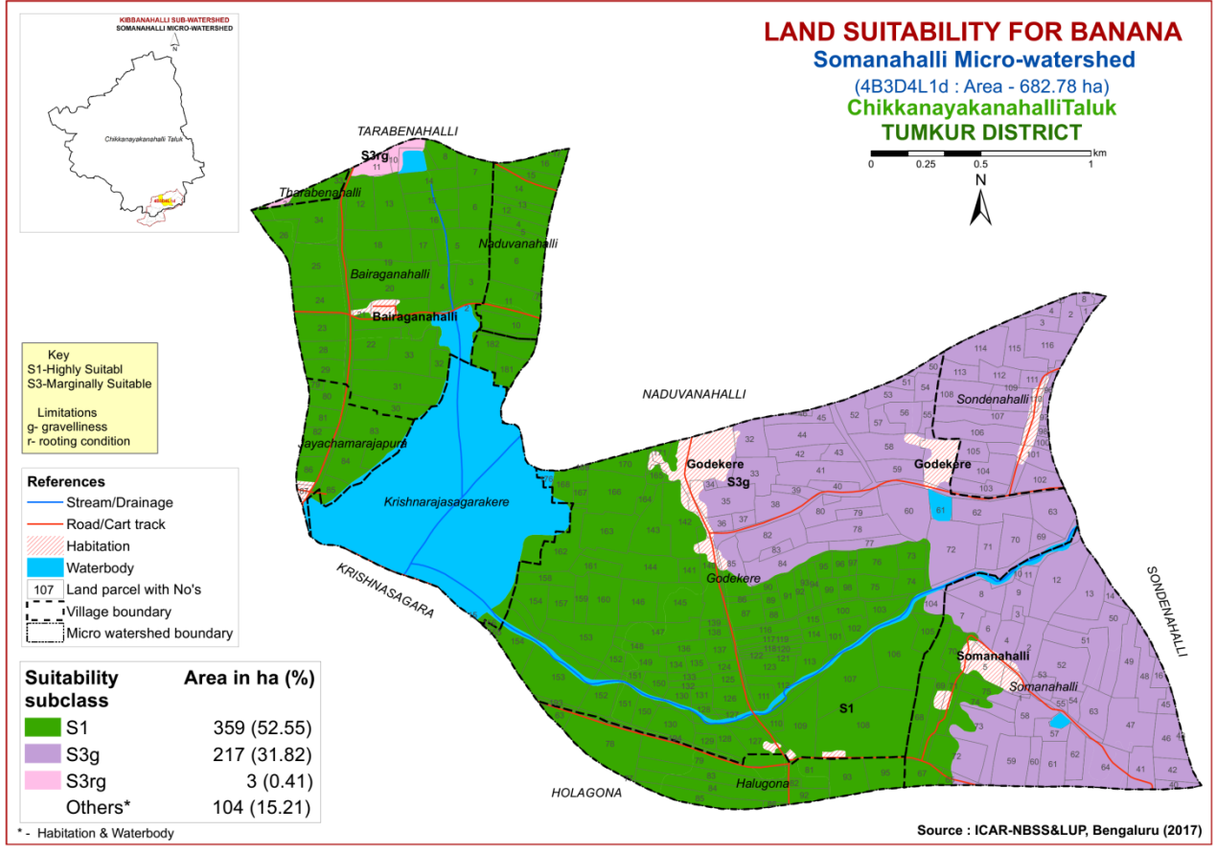

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR ONION
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2vt
S2t
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 589 (67.87)
S2t 130 (14.93)
S2wt 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

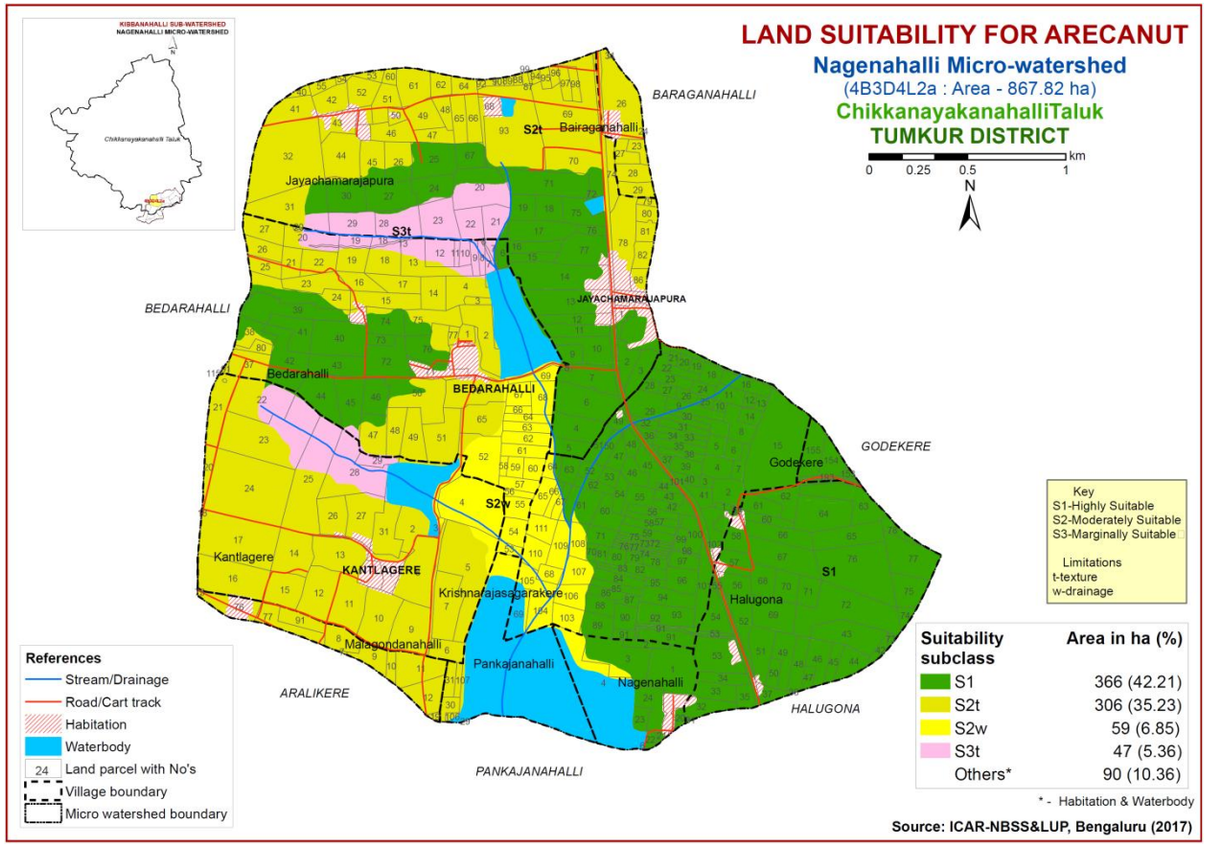

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR ONION
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
S3g
Godekere
Krishnarajasagarakere
KRISHNASAGARA
Godekere
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

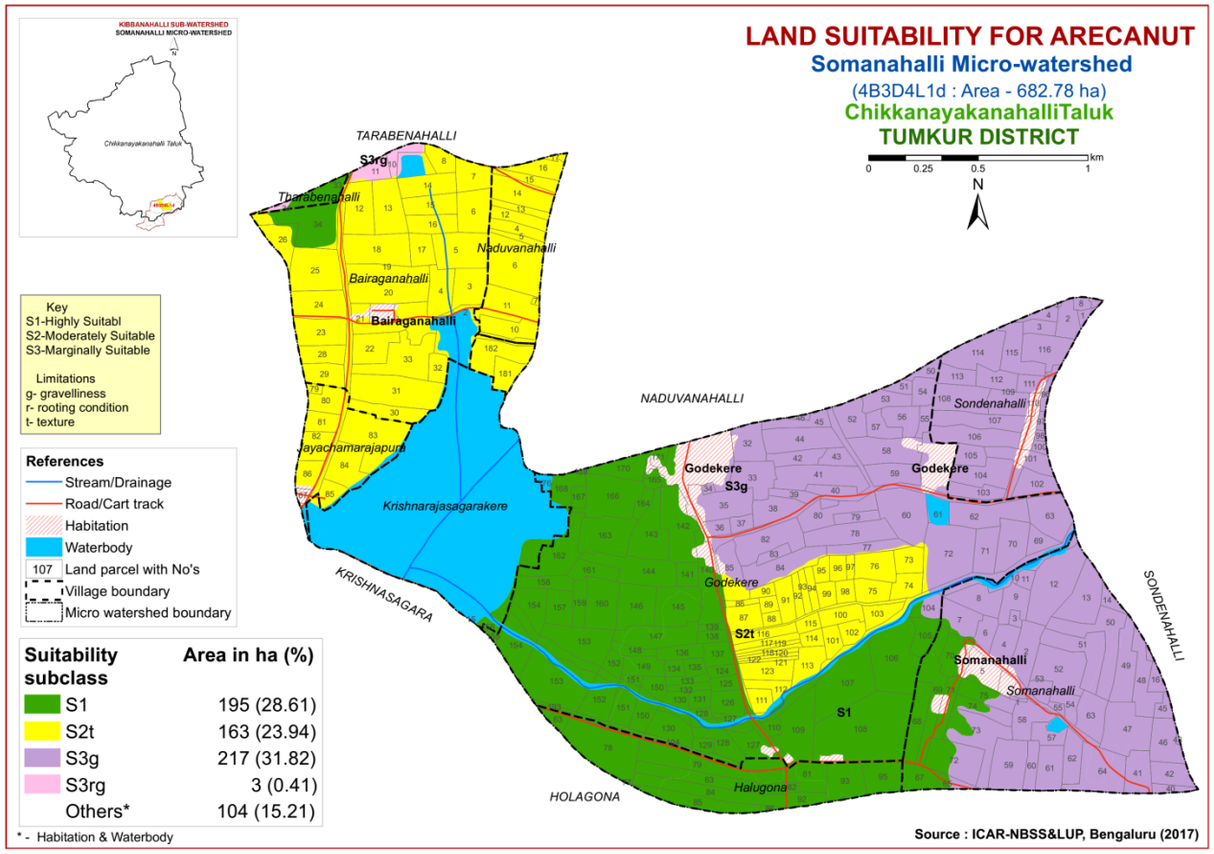

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR GROUNDNUT
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
S3t
Bairaganahalli
Jayachamarajapura
S1
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S3wt
S2t
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 42 (4.86)
S2t 324 (37.34)
S3t 352 (40.59)
S3wt 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

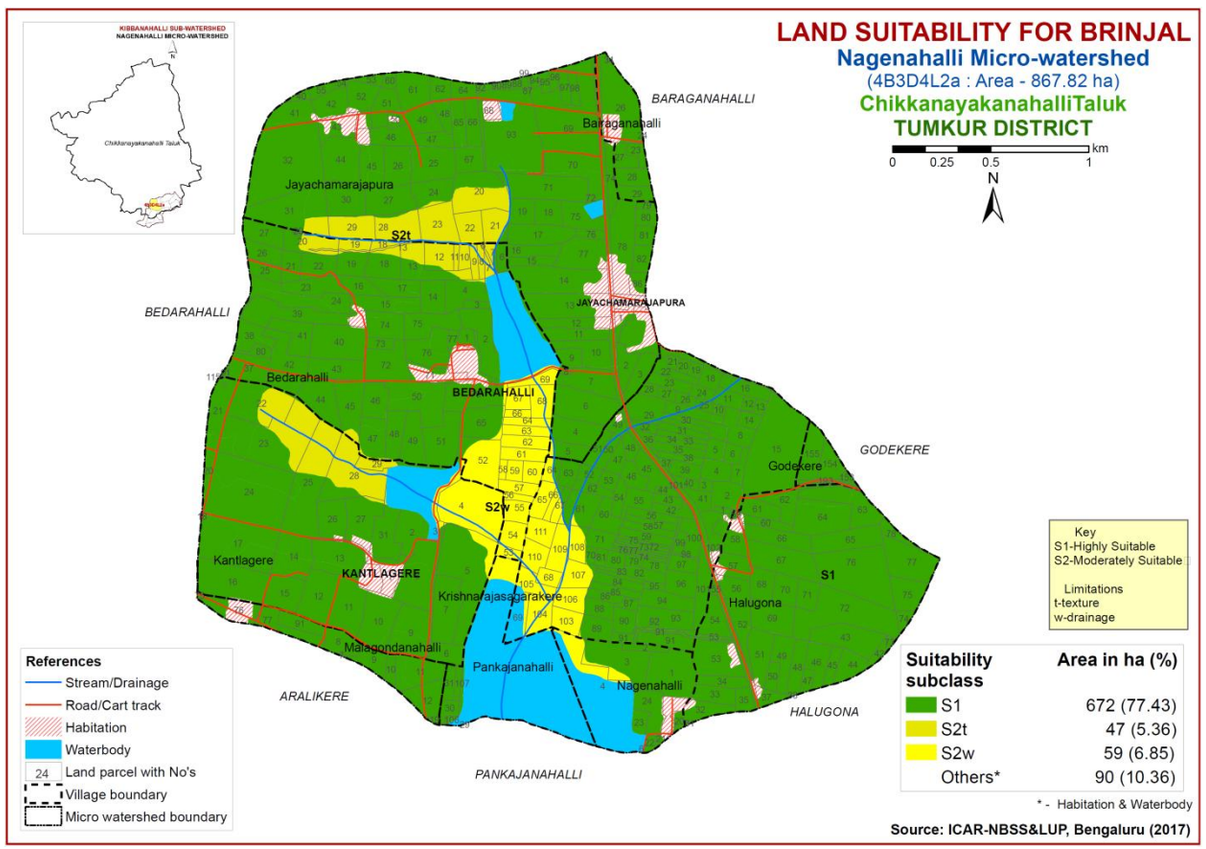

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR GROUNDNUT
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
S2g
Godekere
Krishnarajasagarakere
S1
KRISHNASAGARA
Godekere
S3t
SONDENAHALLI
Somanahalli
Somanahalli
S2t
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
t- texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 92 (13.54)
S2g 217 (31.82)
S2t 103 (15.08)
S2rg 3 (0.41)
S3t 163 (23.94)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

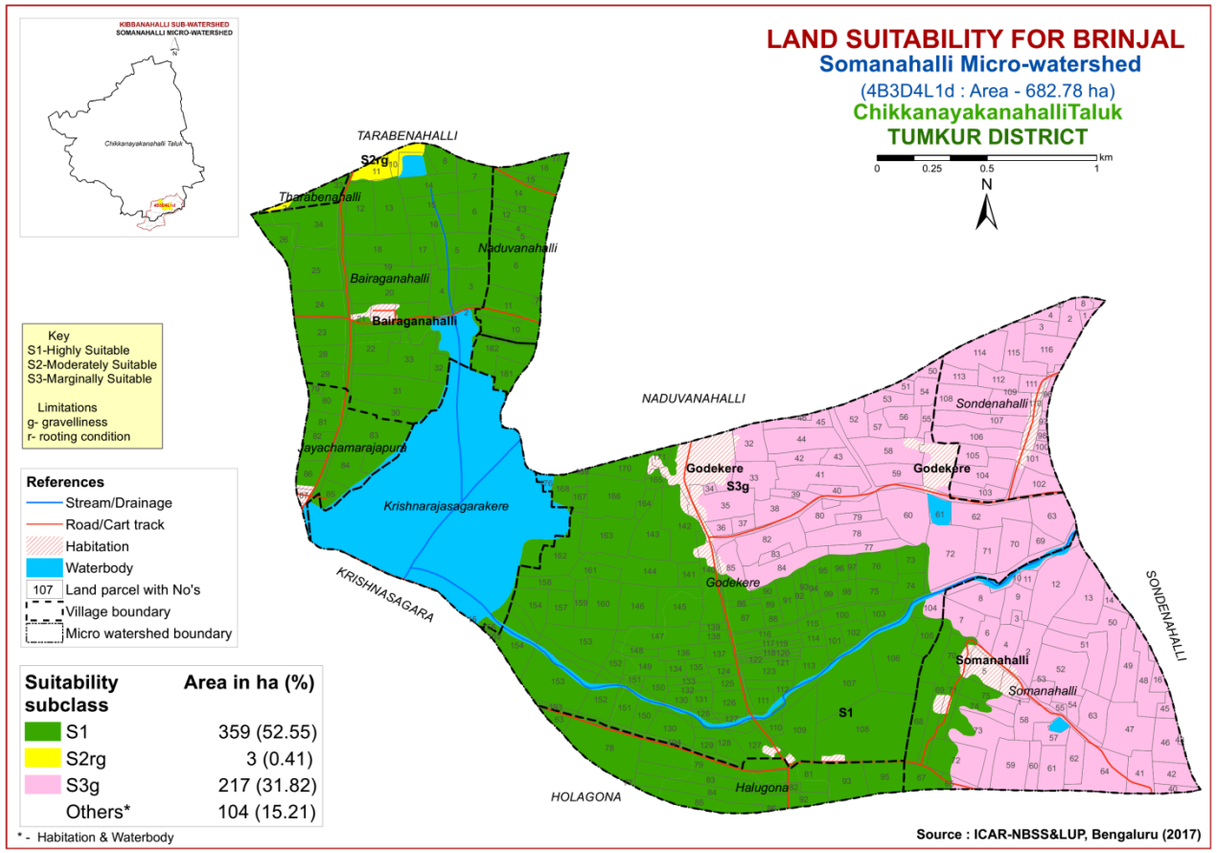

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR BANANA
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
S2wt
GODEKERE
Godekere
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2wt 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

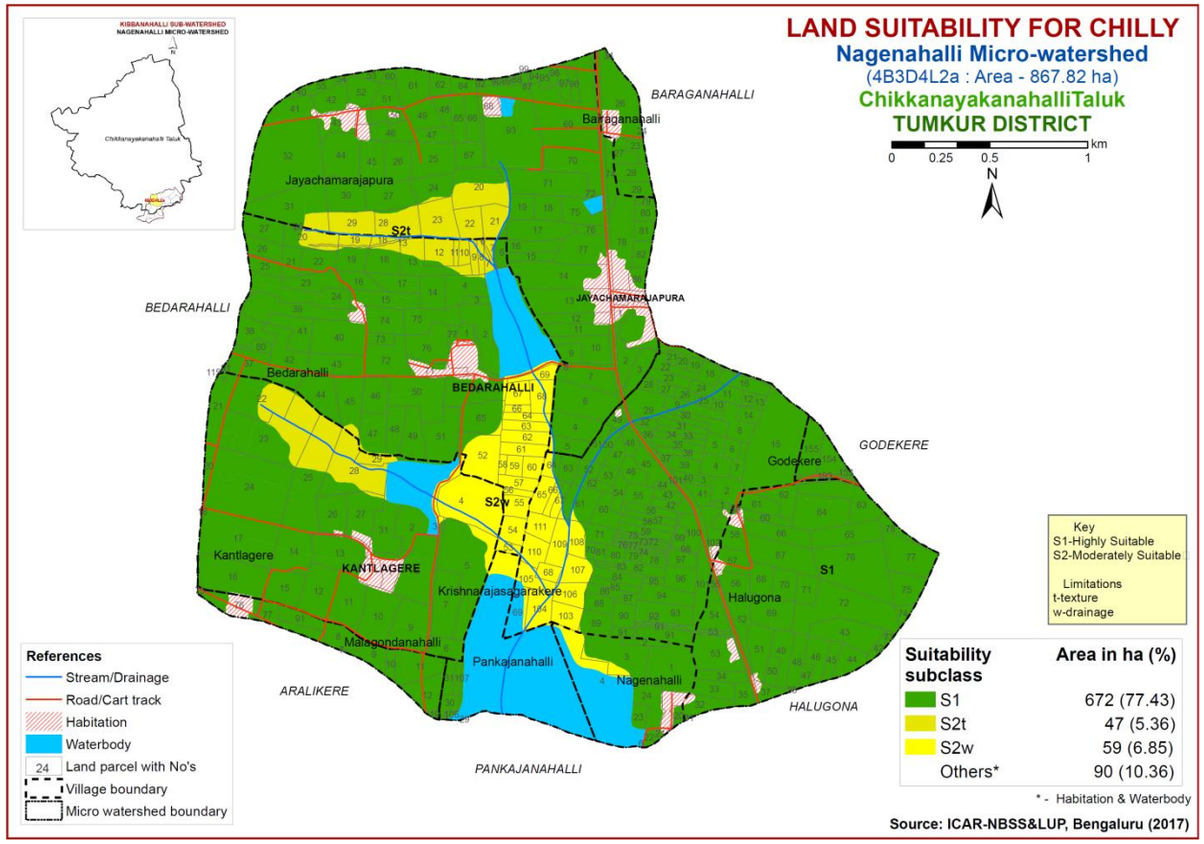

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR BANANA
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S3rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitabl
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

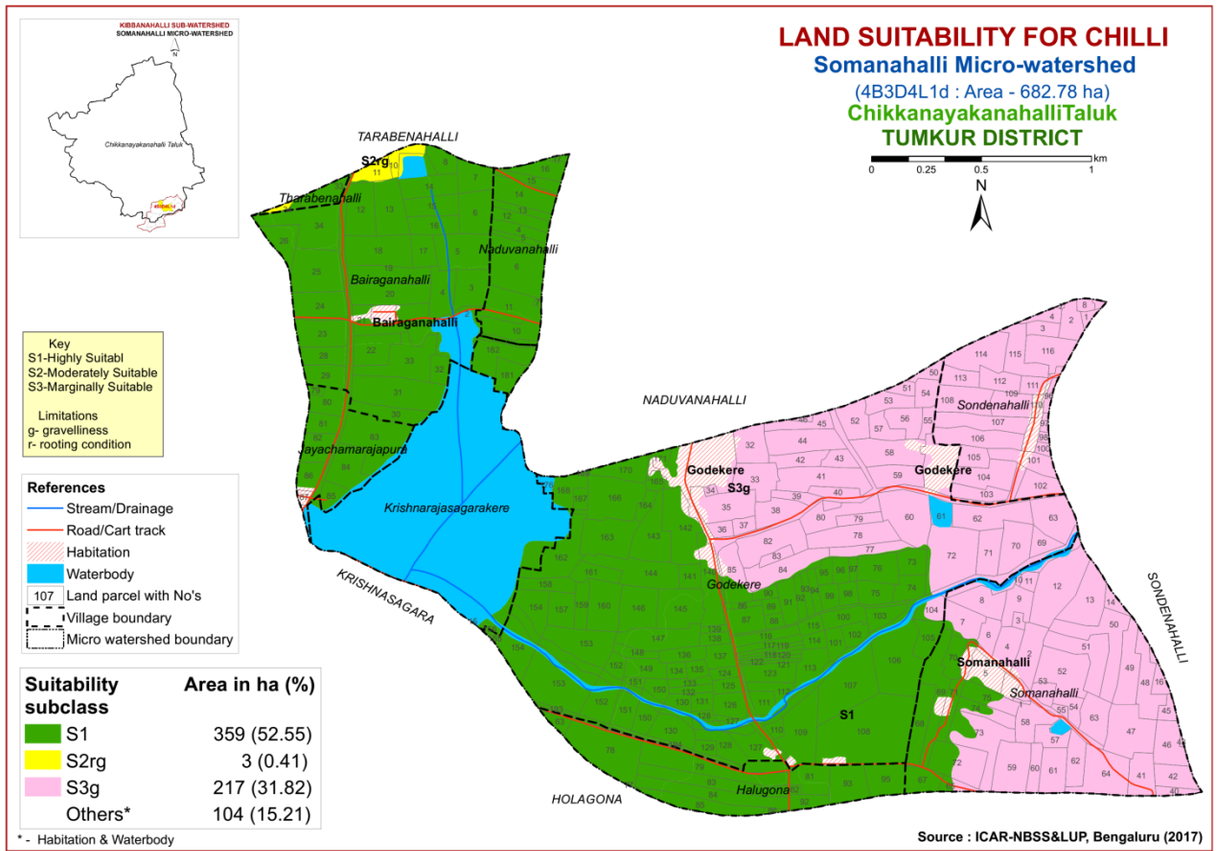

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR ARECANUT
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
S2t
Jayachamarajapura
S3t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
S2w
GODEKERE
Godekere
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 366 (42.21)
S2t 306 (35.23)
S2w 59 (6.85)
S3t 47 (5.36)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

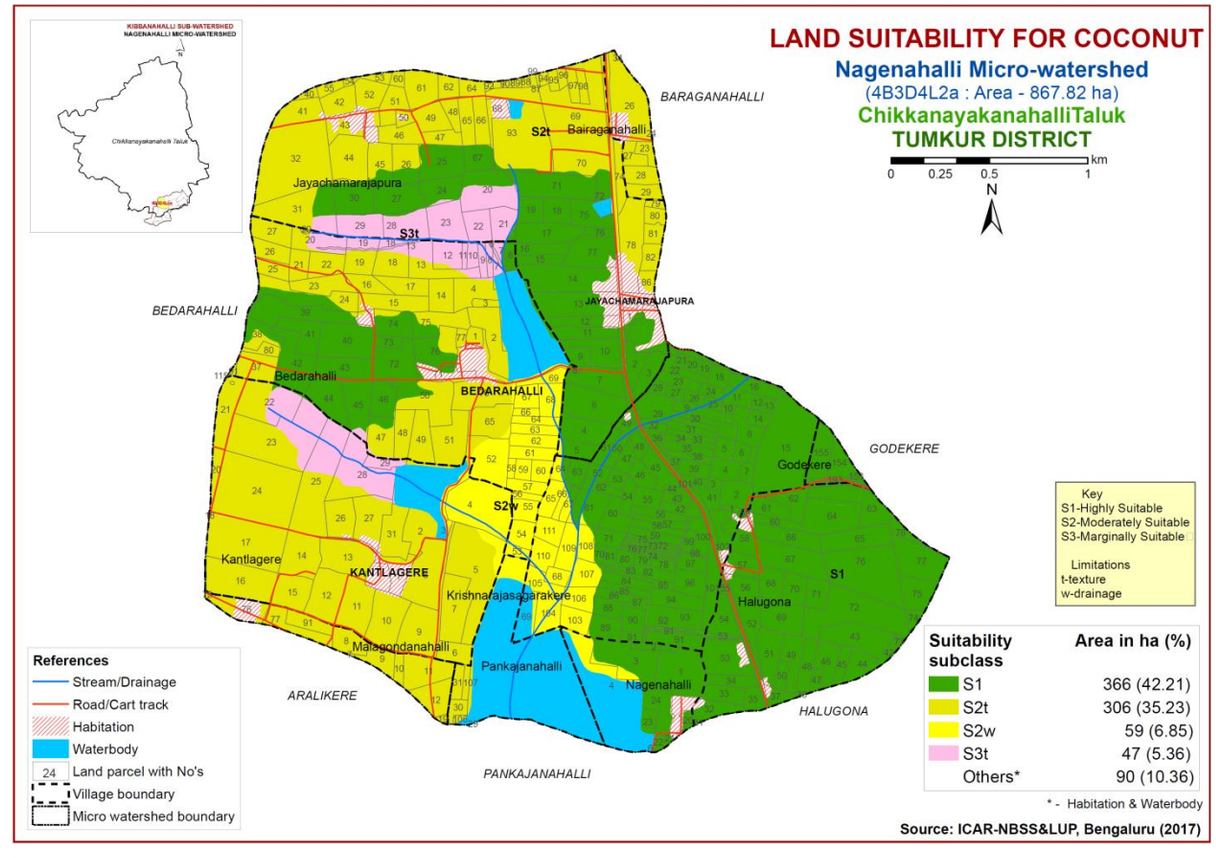

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR ARECANUT
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S3rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Godekere
KRISHNASAGARA
SONDENAHALLI
S2t
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitabl
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
t- texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 195 (28.61)
S2t 163 (23.94)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

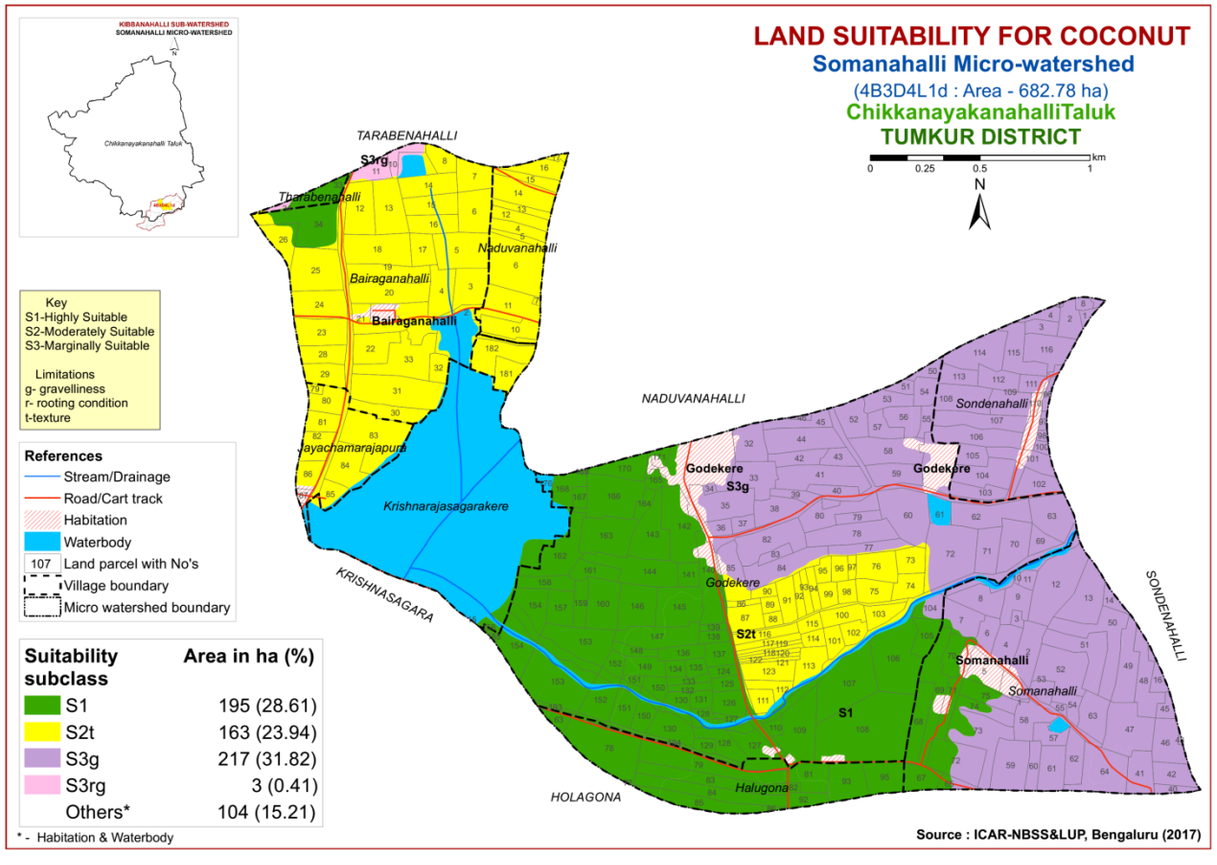

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR BRINJAL
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S2t
JAYACHAMARAJAPURA
BEDARAHALLI
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

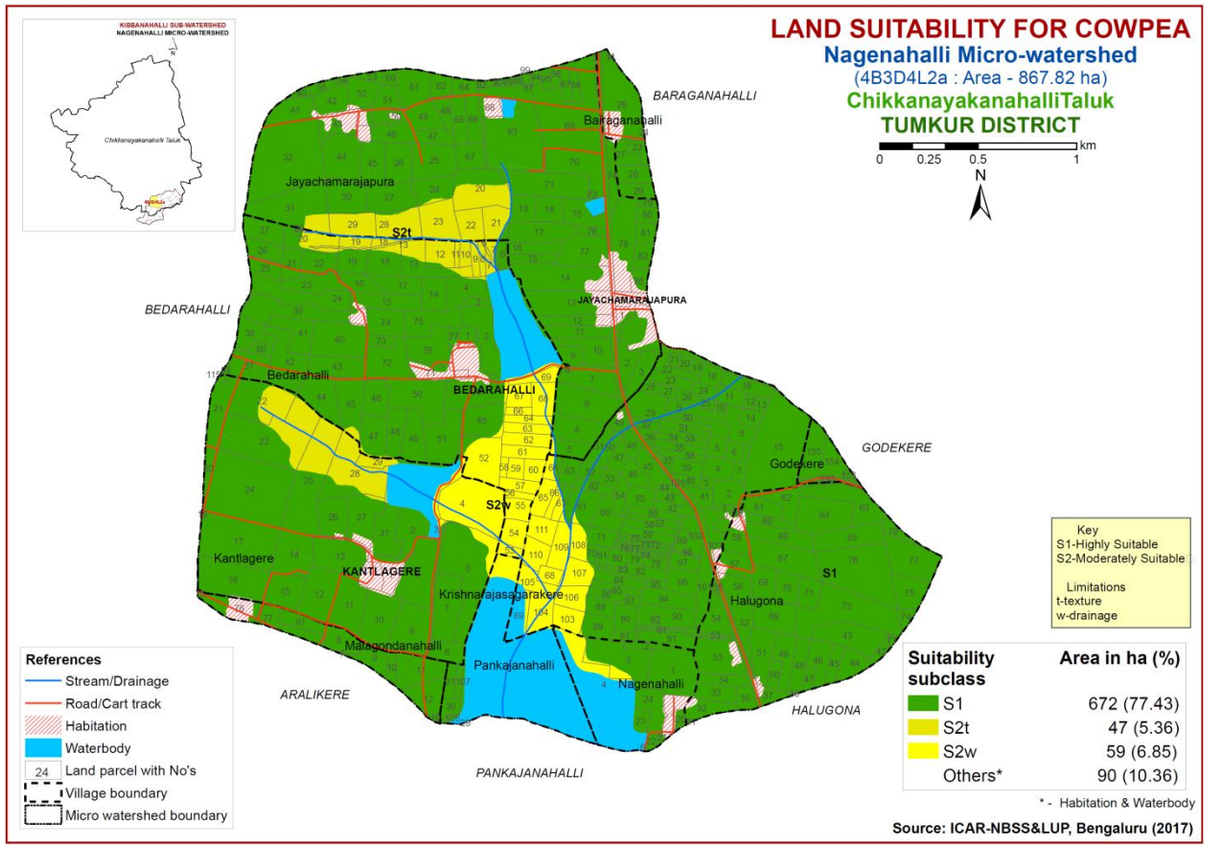

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR BRINJAL
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
S3g
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

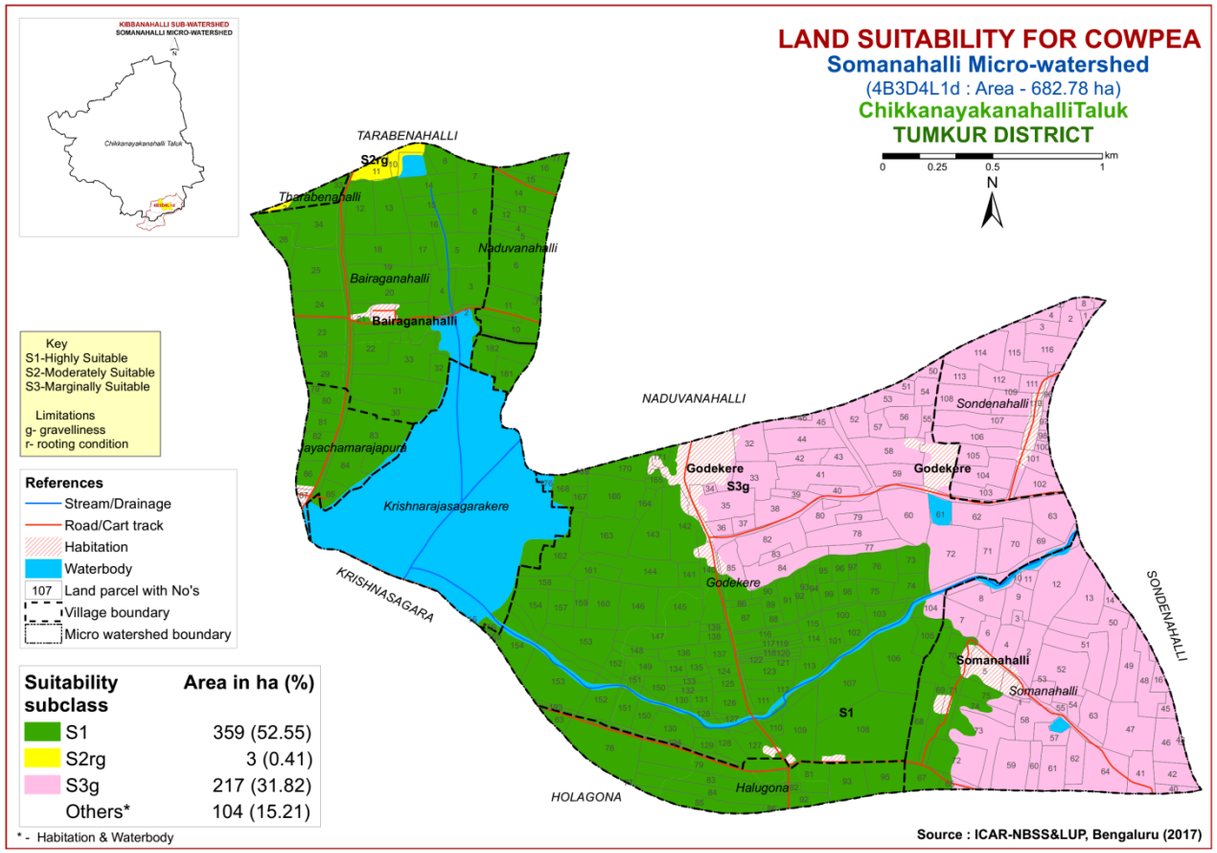

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR CHILLY
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S2t
JAYACHAMARAJAPURA
BEDARAHALLI
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

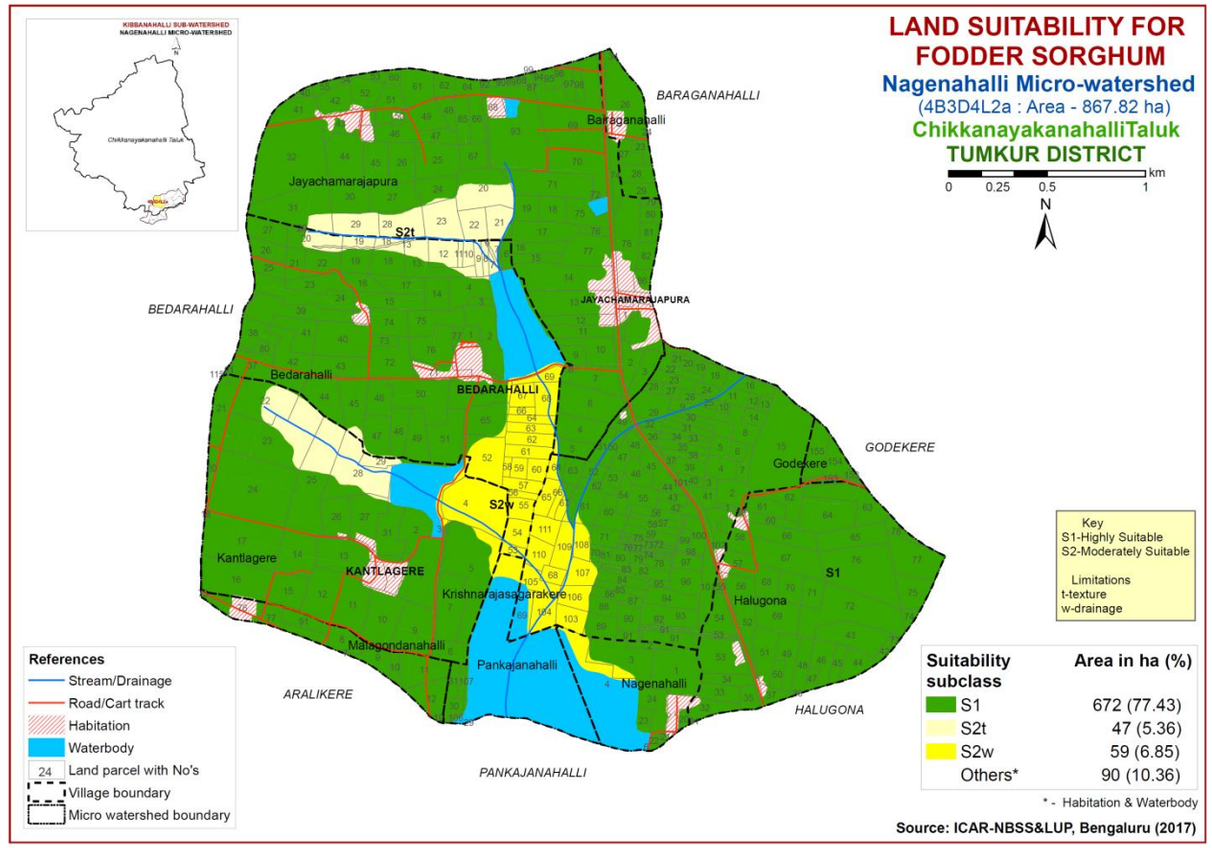

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR CHILLI
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
S3g
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitabl
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

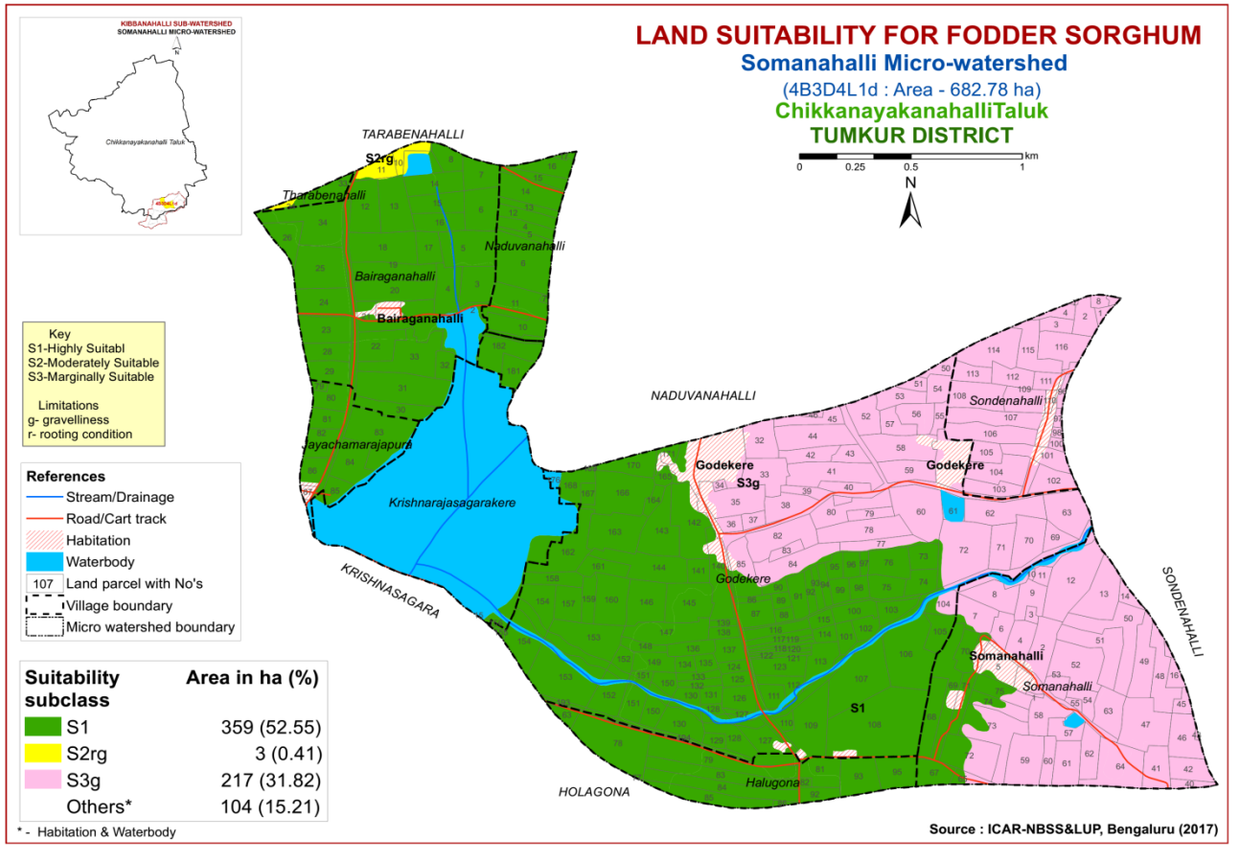

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR COCONUT
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
BEDARAHALLI
JAYACHAMARAJAPURA
GODEKERE
ARALIKERE
HALUGONA
PANKAJANAHALLI
Jayachamarajapura
Bairaganahalli
Bedarahalli
Kantlagere
Malagondanahalli
Pankajanahalli
Nagenahalli
Krishnarajasagarakere
Godekere
Halugona
S2t
S3t
S2w
S1
KANTLAGERE
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 366 (42.21)
S2t 306 (35.23)
S2w 59 (6.85)
S3t 47 (5.36)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

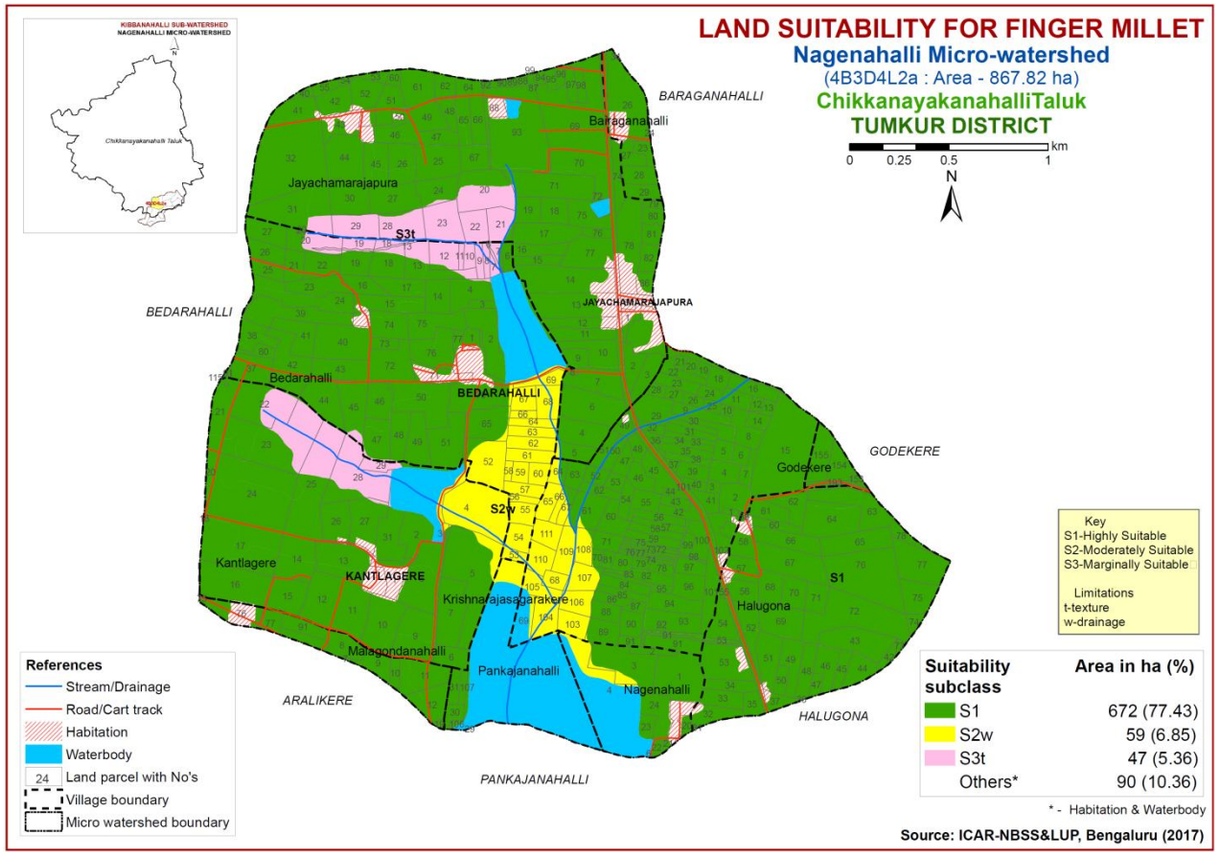

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR COCONUT
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
NADUVANAHALLI
KRISHNASAGARA
HOLAGONA
SONDENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
Somanahalli
Halugona
S3rg
S3g
S2t
S1
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
t-texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 195 (28.61)
S2t 163 (23.94)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

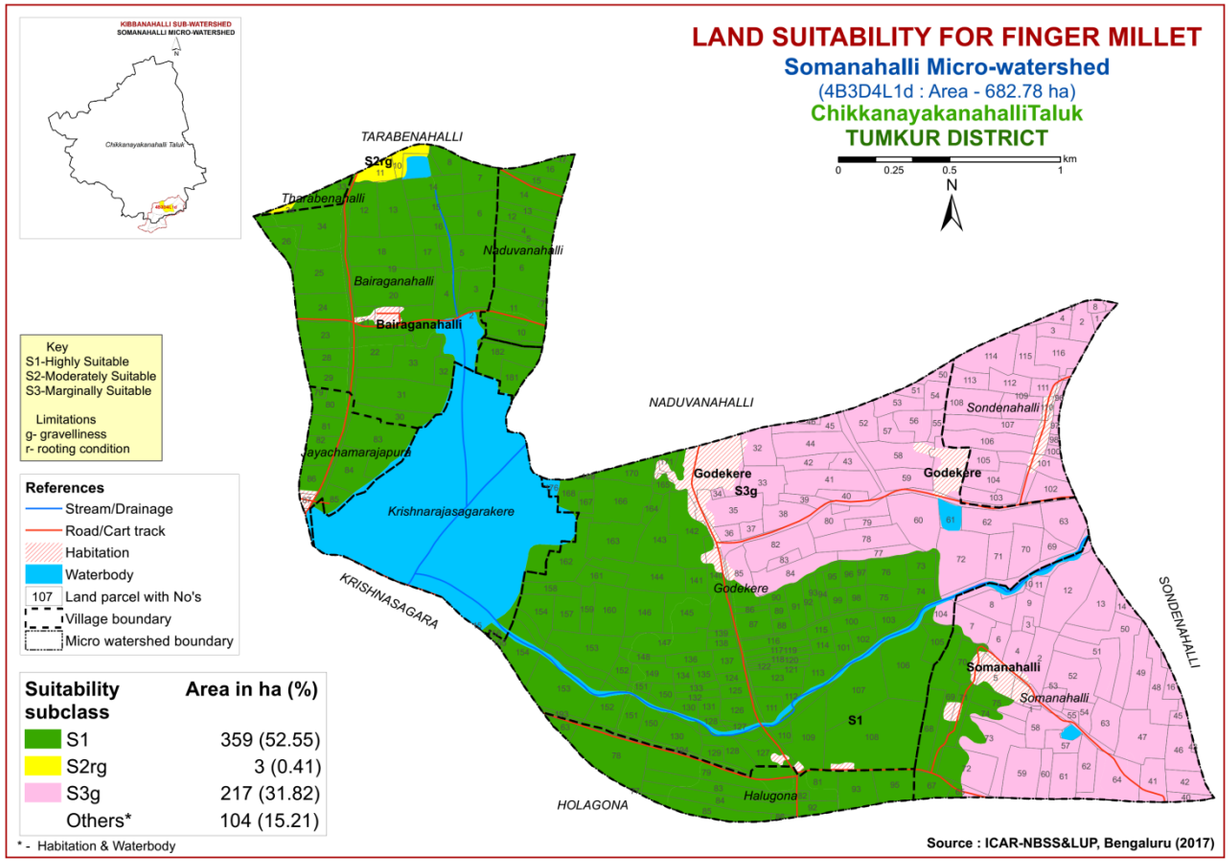

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR COWPEA
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
BEDARAHALLI
JAYACHAMARAJAPURA
GODEKERE
ARALIKERE
HALUGONA
PANKAJANAHALLI
Jayachamarajapura
Bairaganahalli
Bedarahalli
Kantlagere
Malagondanahalli
Pankajanahalli
Nagenahalli
Krishnarajasagarakere
Godekere
Halugona
S2t
S2w
S1
KANTLAGERE
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

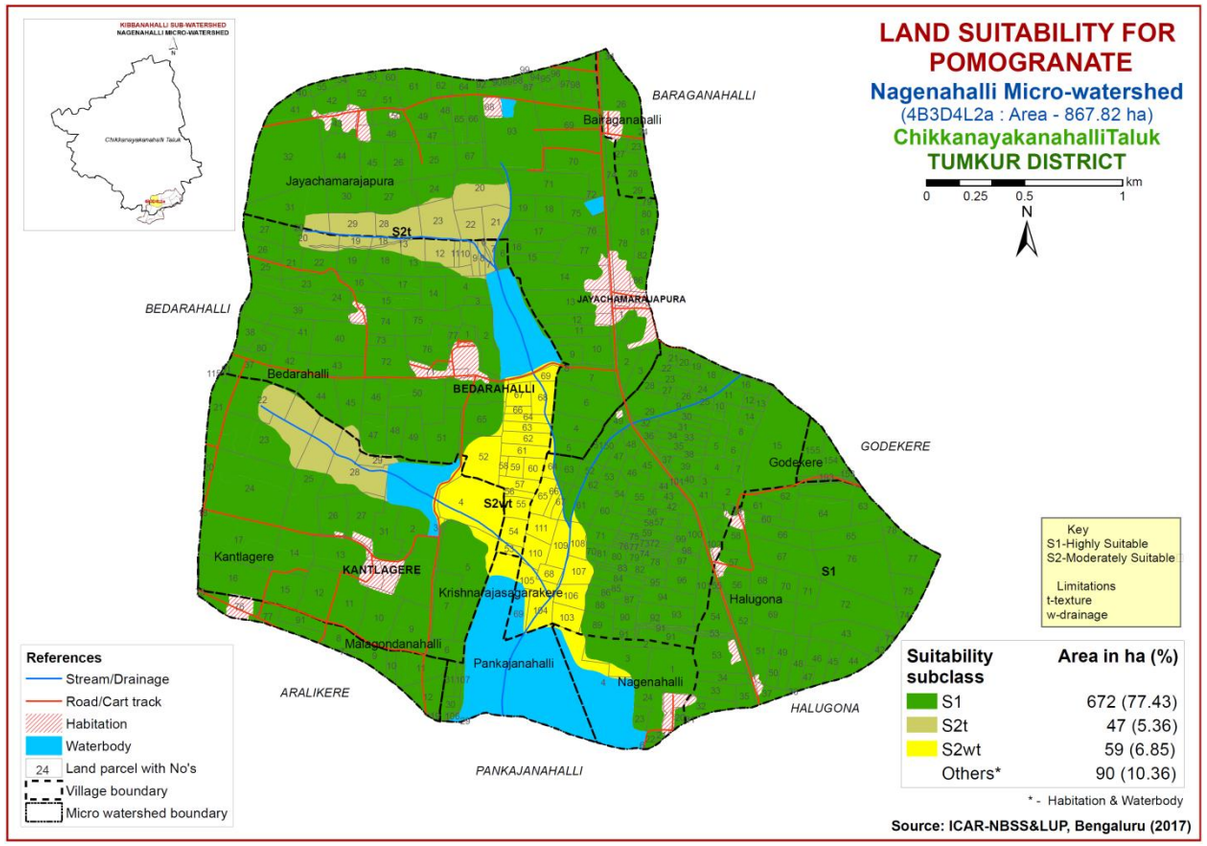

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR COWPEA
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
NADUVANAHALLI
KRISHNASAGARA
HOLAGONA
SONDENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
Somanahalli
Halugona
S2rg
S3g
S1
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

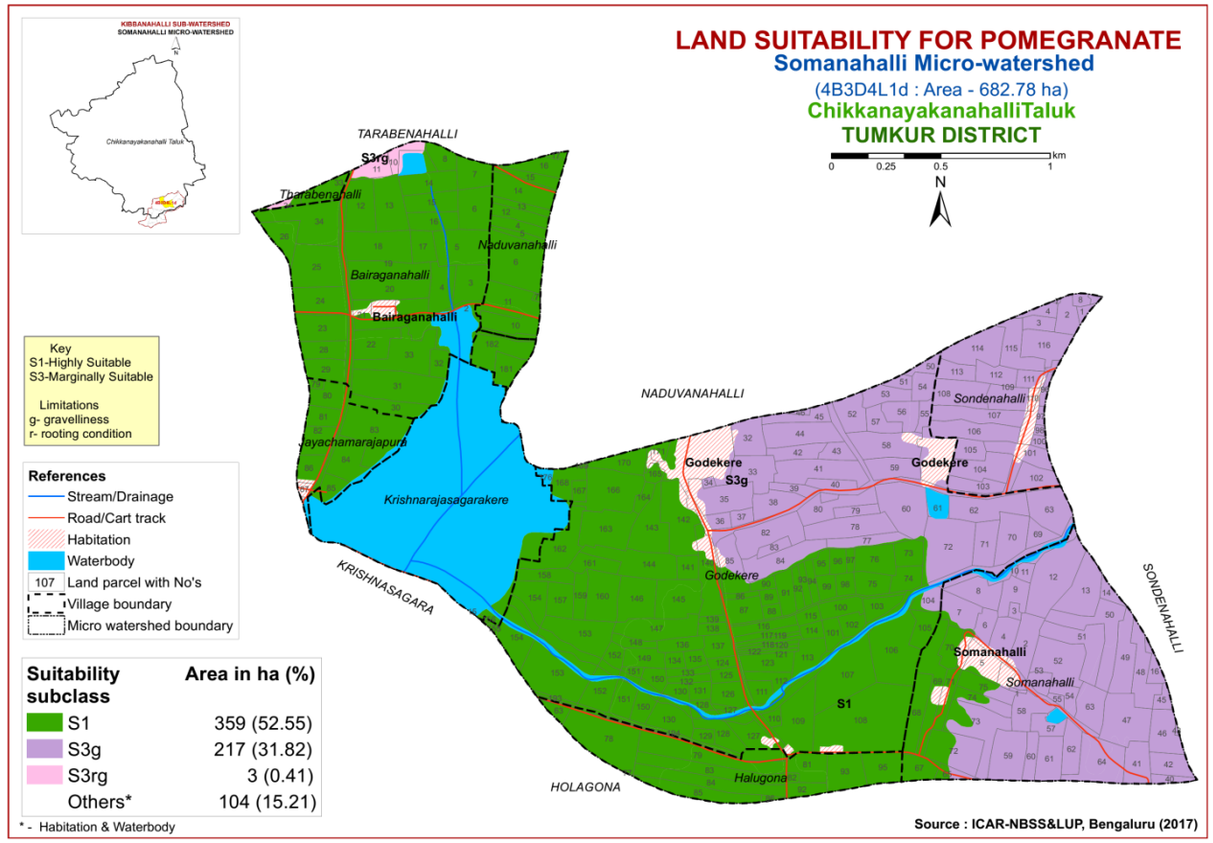

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
INDIA
LAND SUITABILITY FOR FODDER SORGHUM
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
Kantlagere
KANTLAGERE
Krishnarajasagarakere
S1
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

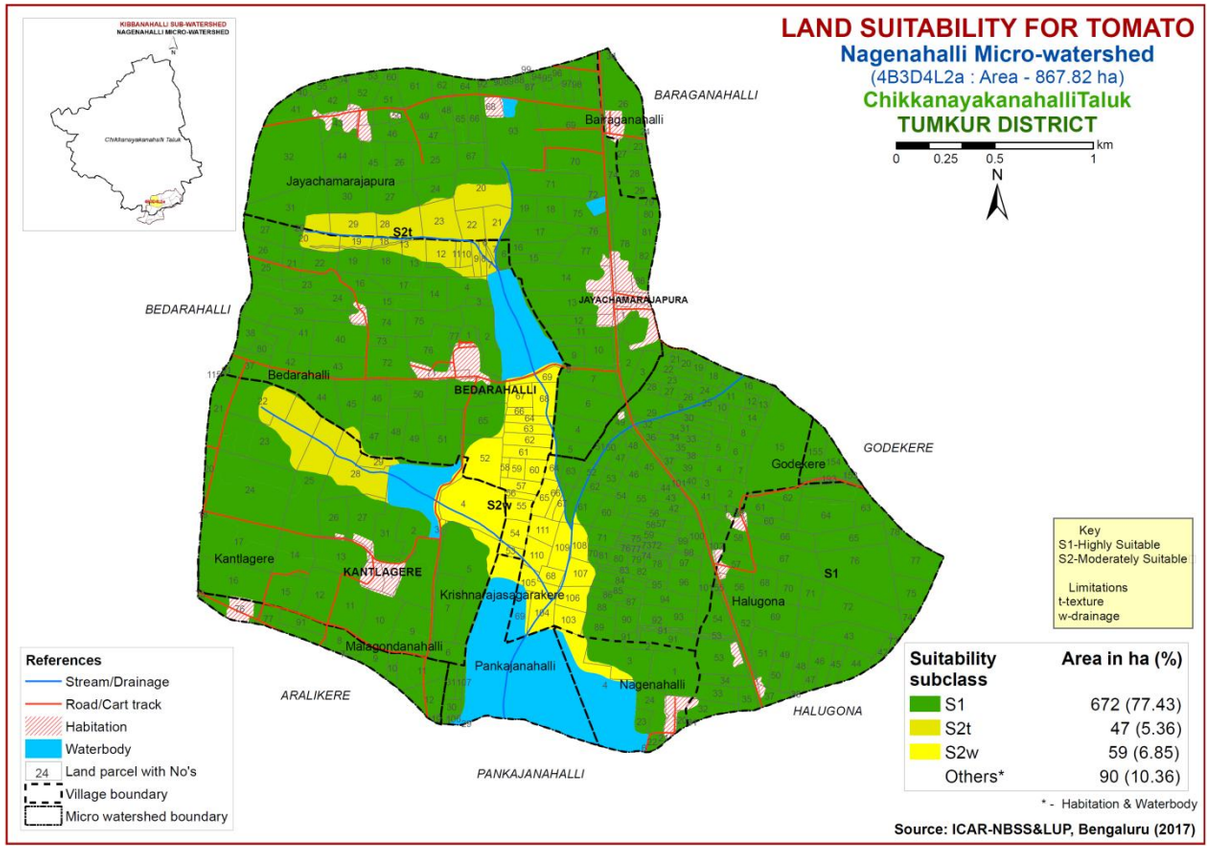

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
INDIA
LAND SUITABILITY FOR FODDER SORGHUM
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
KRISHNASAGARA
Godekere
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitabl
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

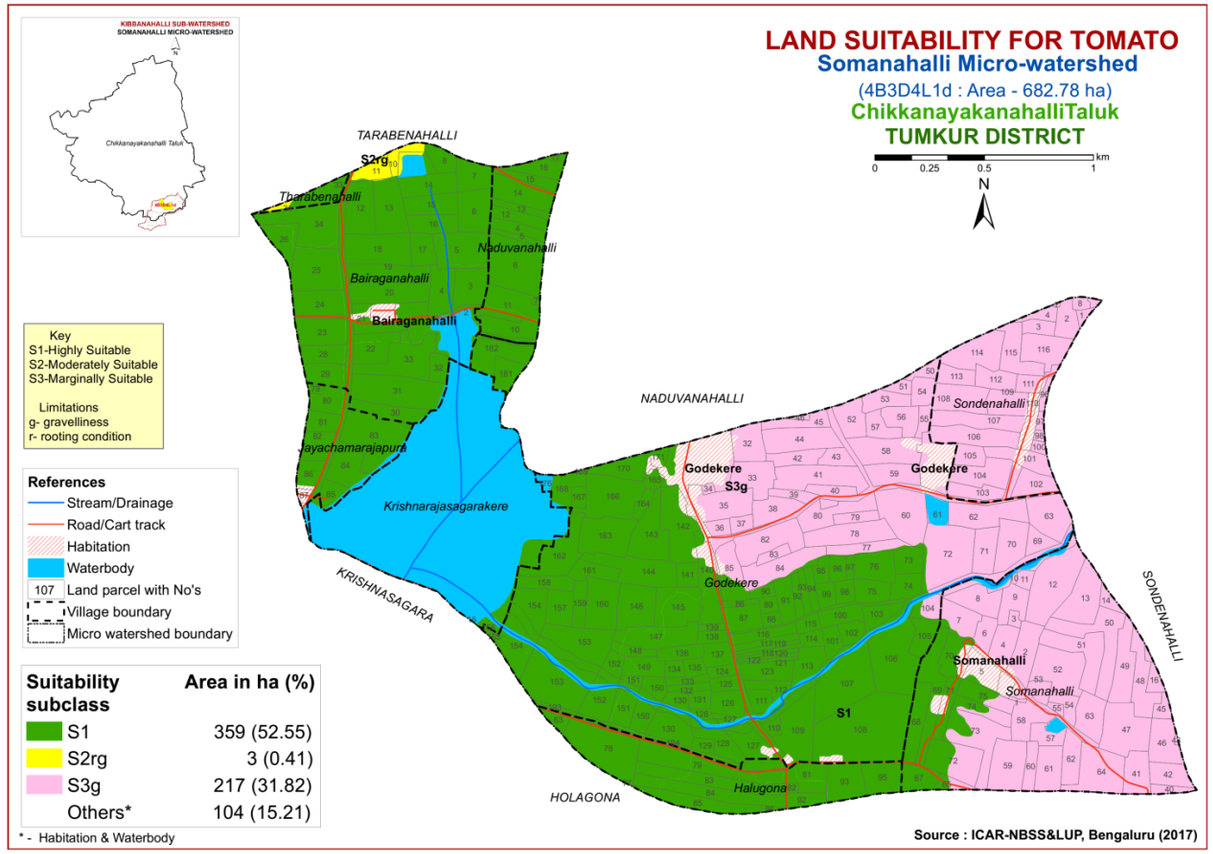

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
INDIA
LAND SUITABILITY FOR FINGER MILLET
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S3t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
Kantlagere
KANTLAGERE
Krishnarajasagarakere
S1
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2w 59 (6.85)
S3t 47 (5.36)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

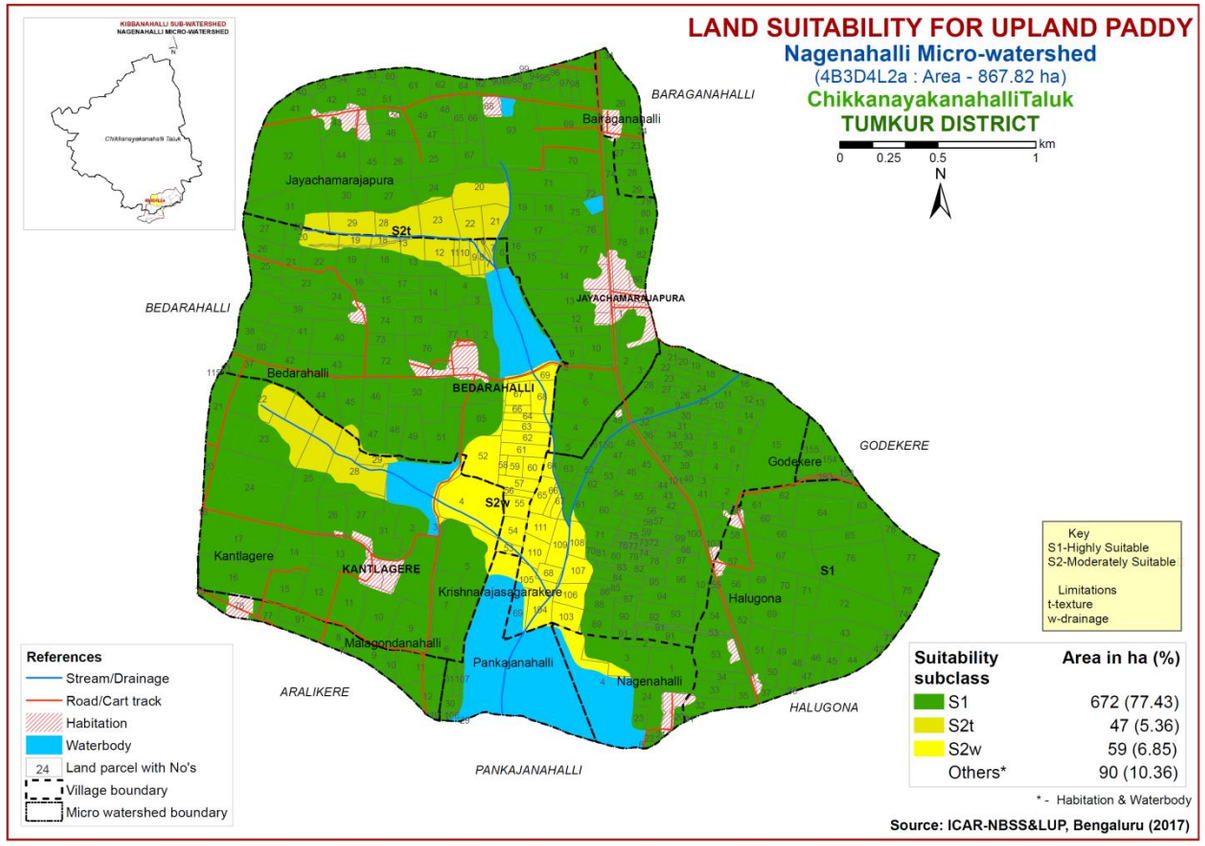

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
INDIA
LAND SUITABILITY FOR FINGER MILLET
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
KRISHNASAGARA
Godekere
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

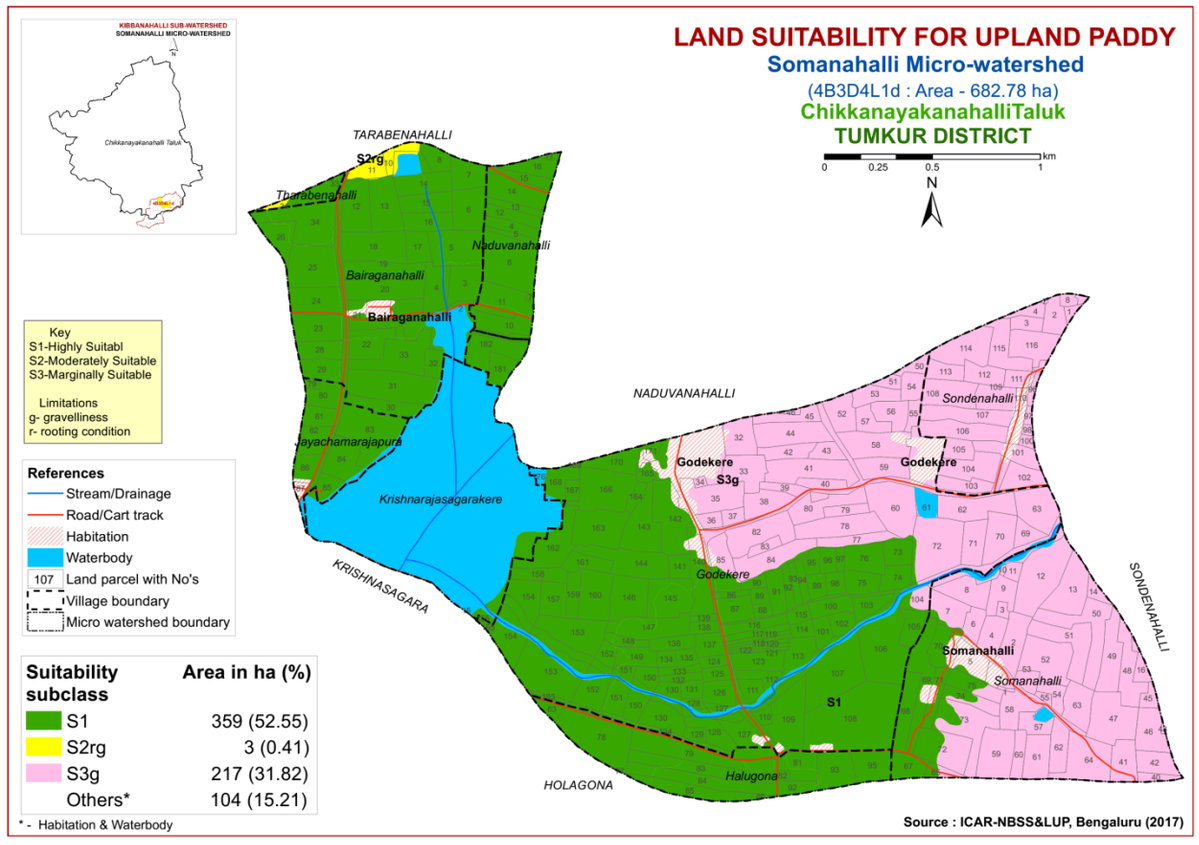

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR POMOGRANATE
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2wt
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2wt 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

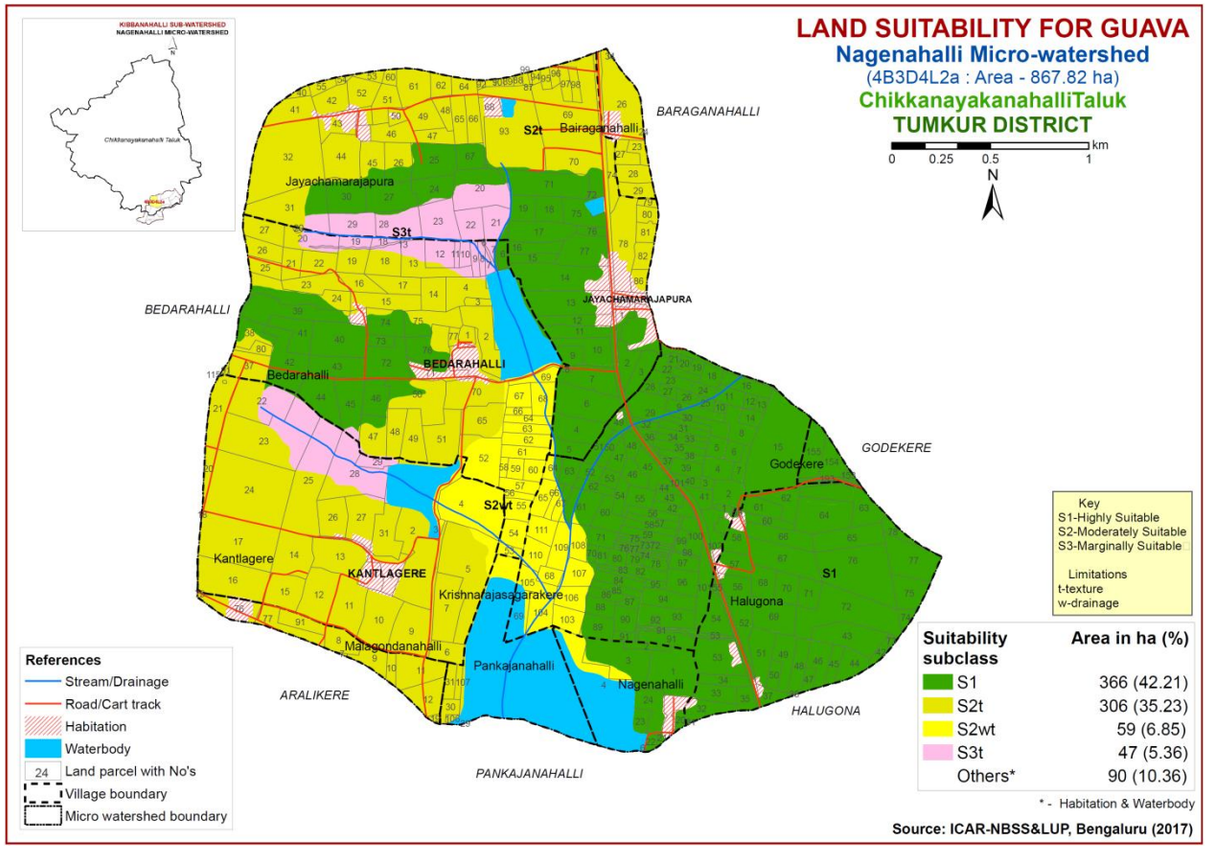

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR POMEGRANATE
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S3rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
KRISHNASAGARA
Somanahalli
Somanahalli
SONDENAHALLI
S1
Halugona
HOLAGONA
Key
S1-Highly Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

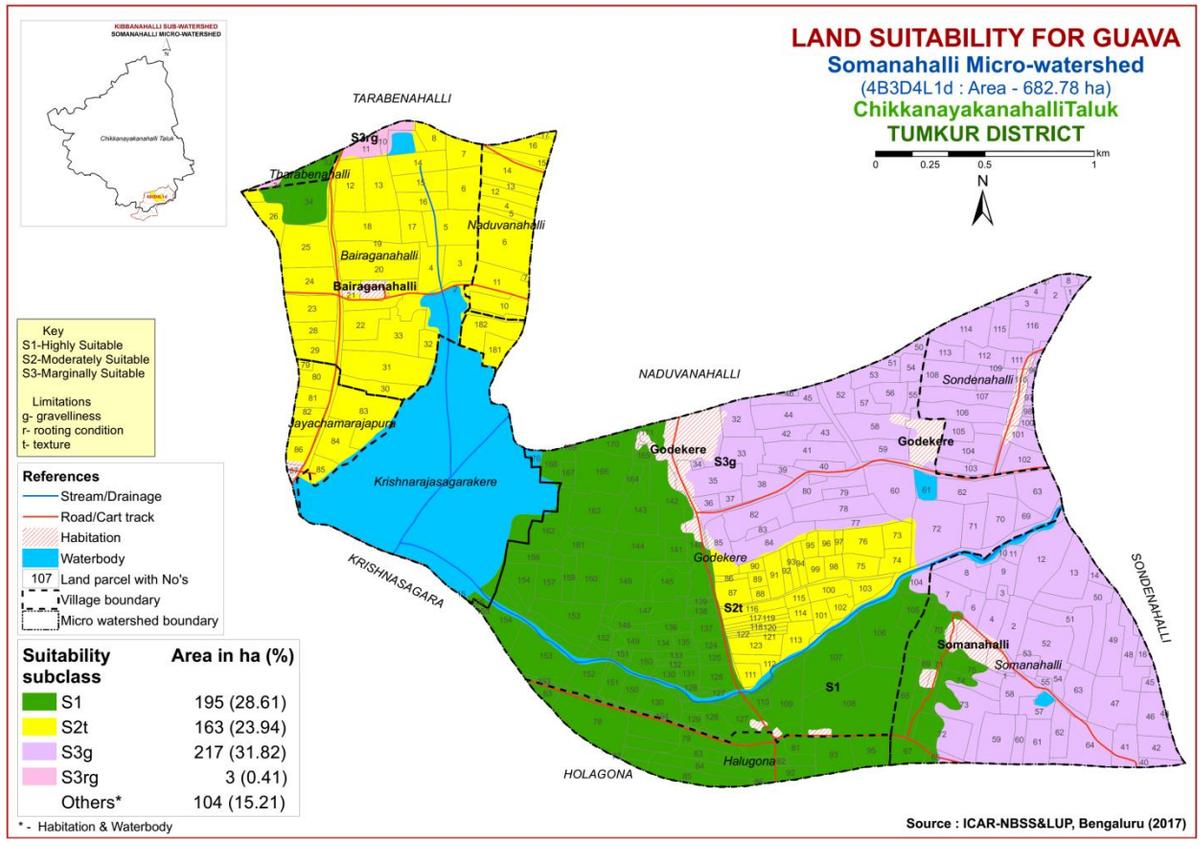

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR TOMATO
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

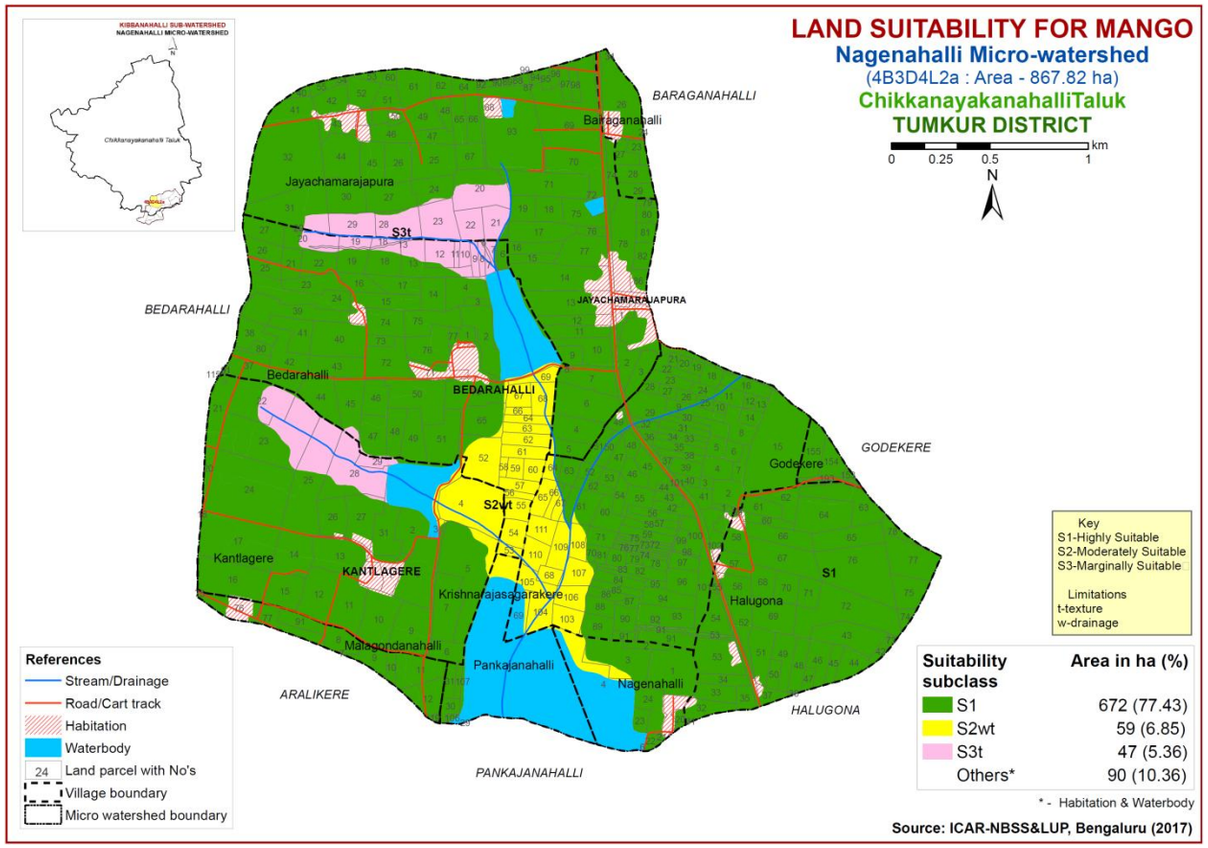

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR TOMATO
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
KRISHNASAGARA
Somanahalli
Somanahalli
SONDENAHALLI
S1
Halugona
HOLAGONA
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

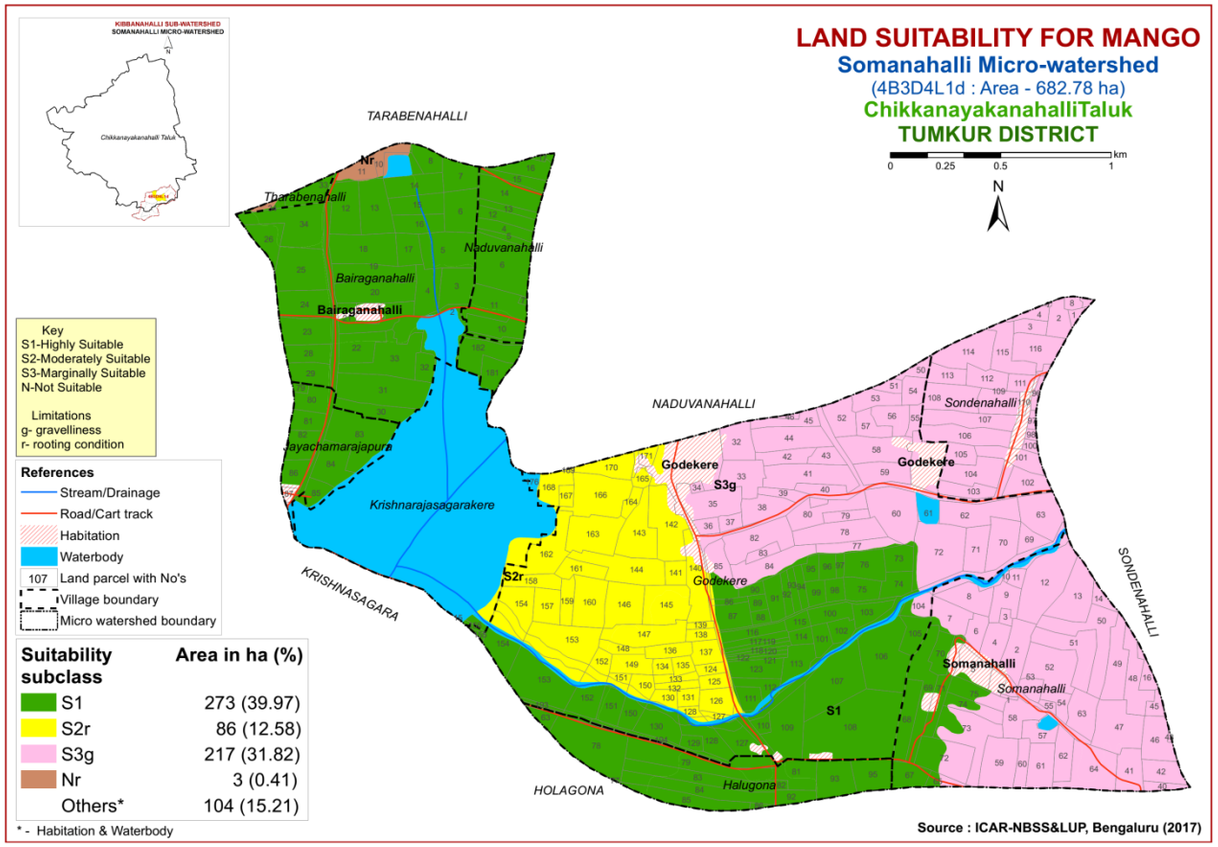

LAND SUITABILITY FOR UPLAND PADDY
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
Kantlagere
KANTLAGERE
S1
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

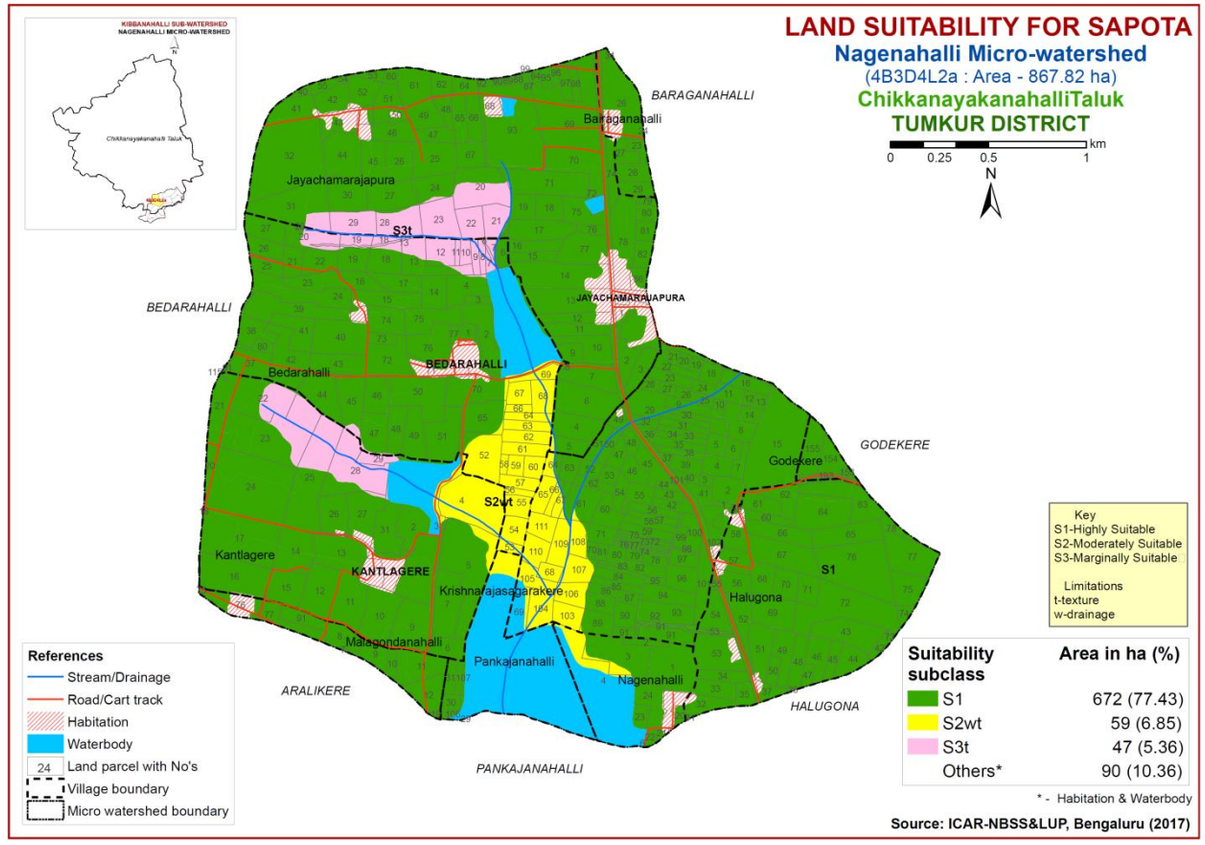

LAND SUITABILITY FOR UPLAND PADDY
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
S3g
Godekere
Krishnarajasagarakere
KRISHNASAGARA
Godekere
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitabl
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2rg 3 (0.41)
S3g 217 (31.82)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

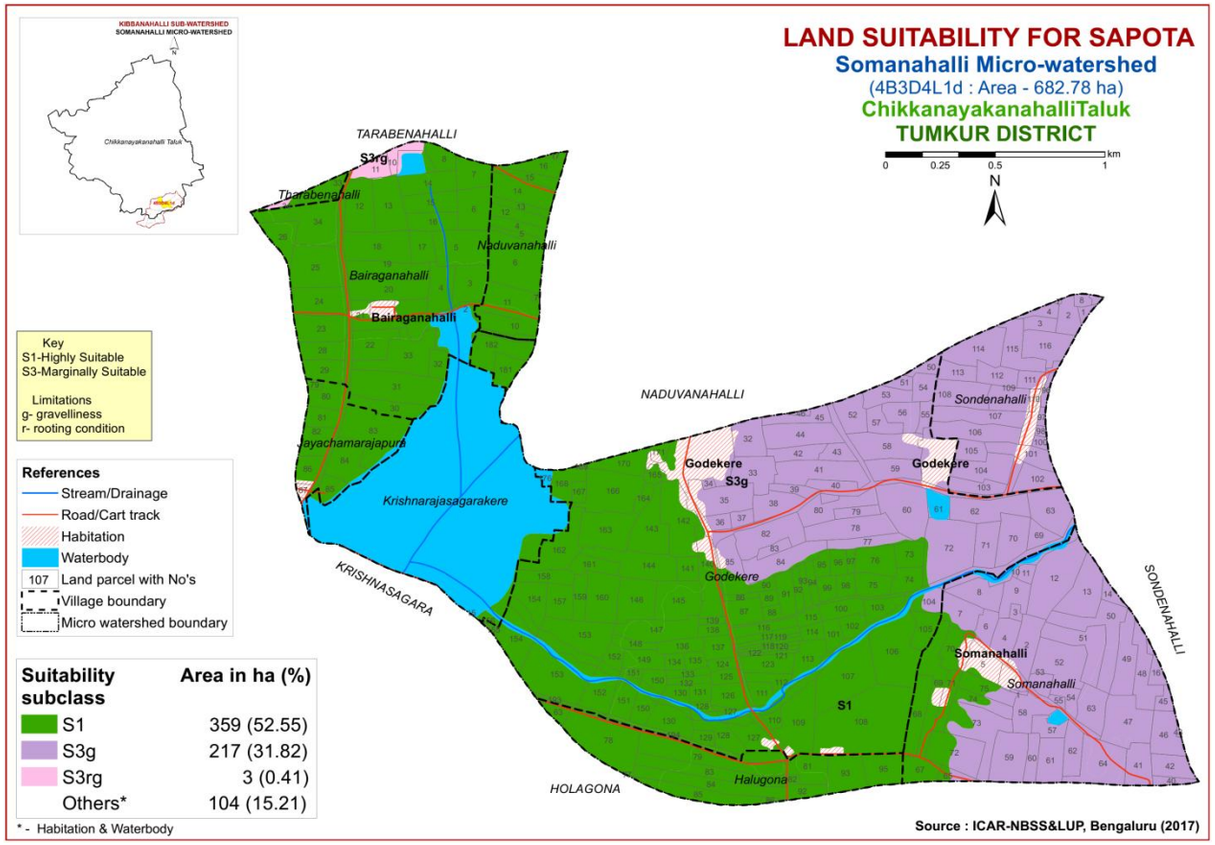

LAND SUITABILITY FOR GUAVA
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
0 0.25 0.5 1 km
N
BARAGANAHALLI
S2t
Bairaganahalli
Jayachamarajapura
S3t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2wt
Kantlagere
KANTLAGERE
S1
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 366 (42.21)
S2t 306 (35.23)
S2wt 59 (6.85)
S3t 47 (5.36)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

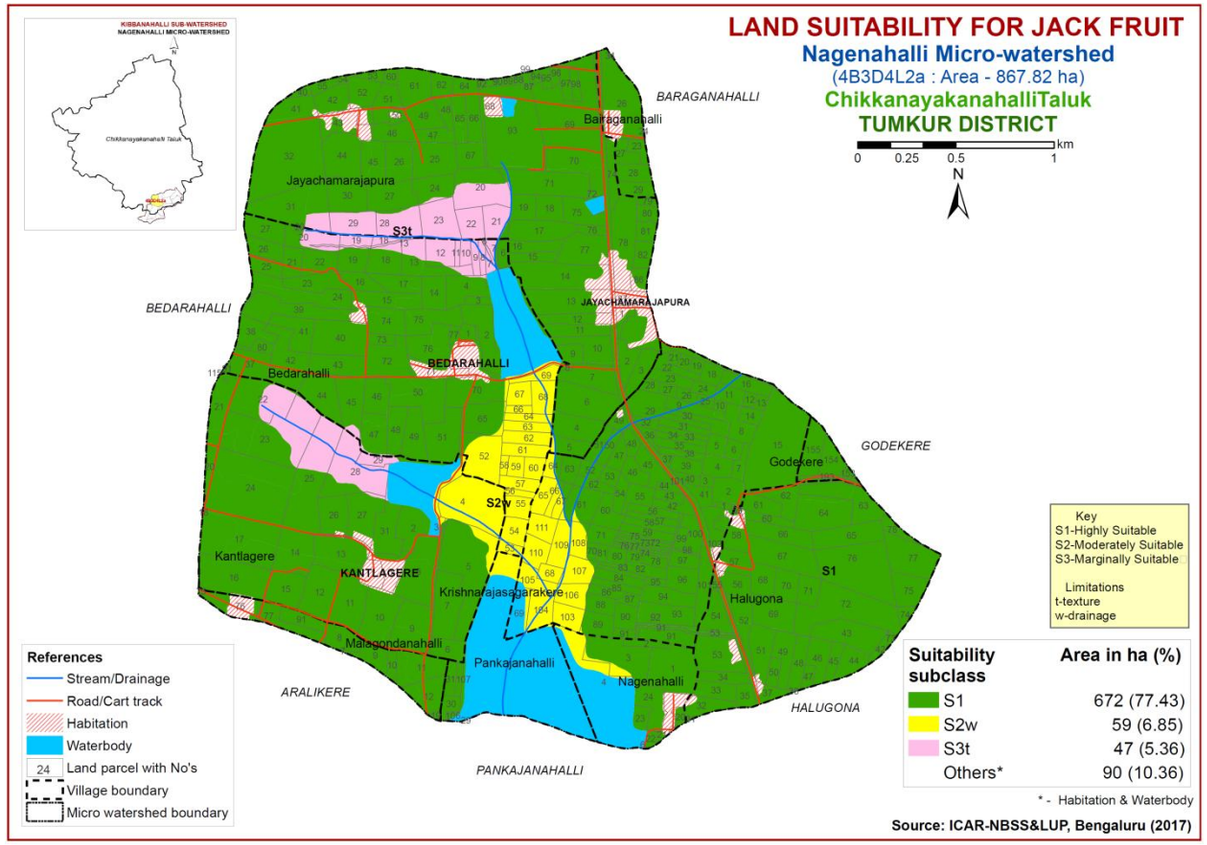

LAND SUITABILITY FOR GUAVA
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
S3g
Godekere
Krishnarajasagarakere
KRISHNASAGARA
Godekere
SONDENAHALLI
S2t
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
t- texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 195 (28.61)
S2t 163 (23.94)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

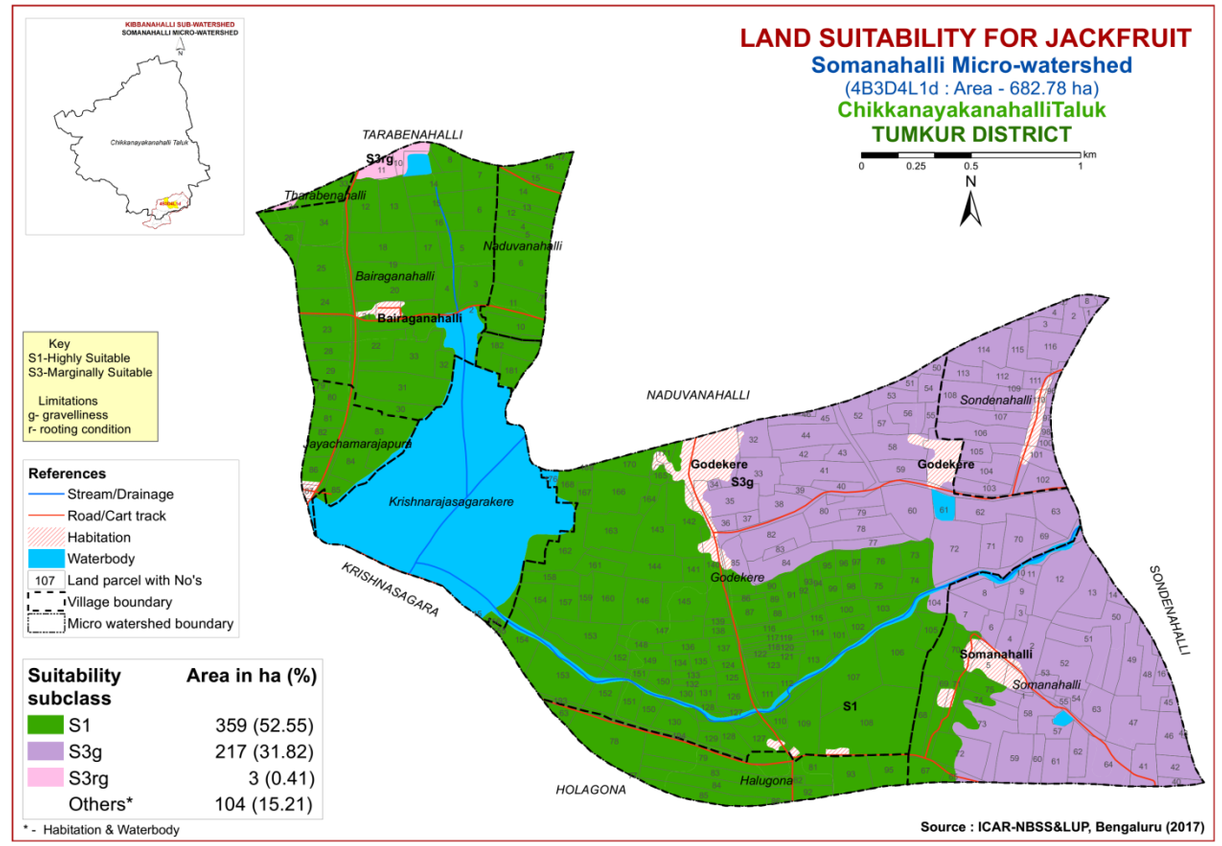

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR MANGO
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
S3t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2wt
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2wt 59 (6.85)
S3t 47 (5.36)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

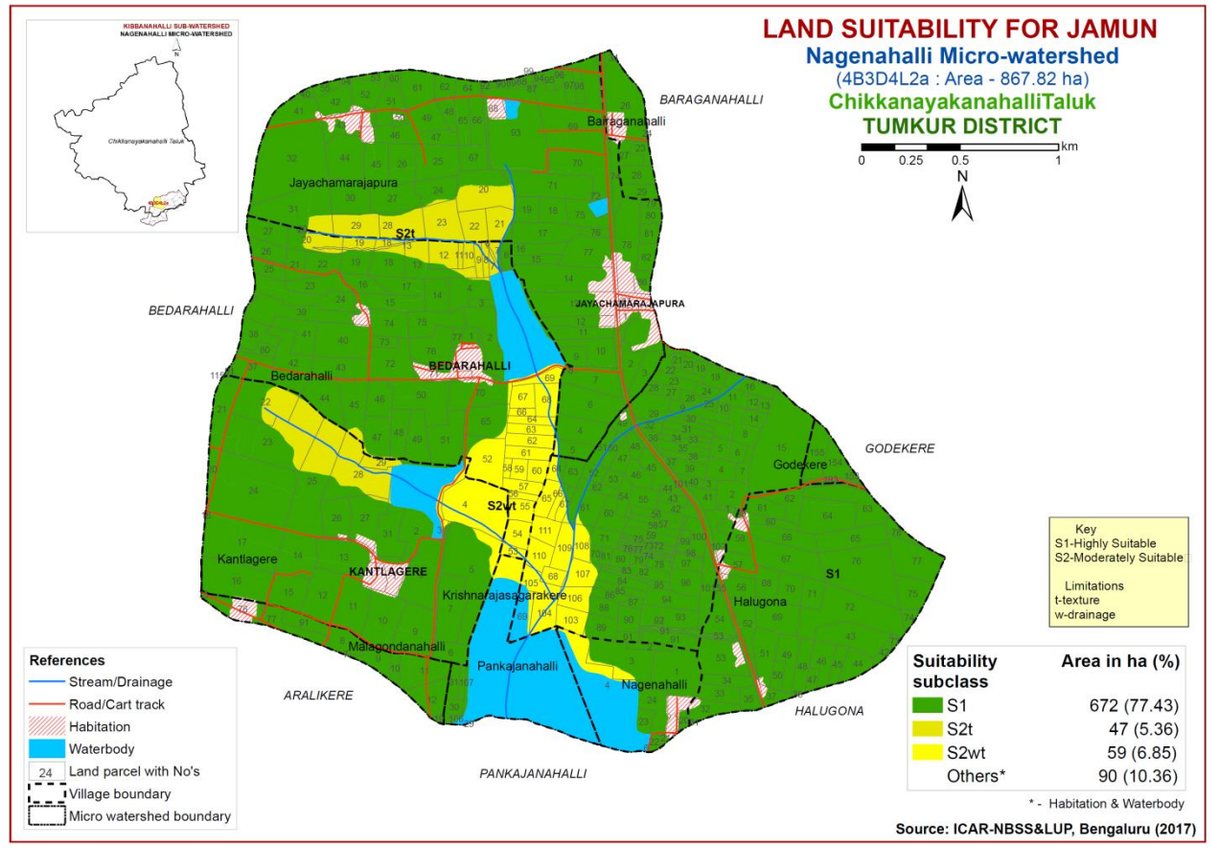

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR MANGO
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Nr
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Sondenahalli
S2r
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
N-Not Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 273 (39.97)
S2r 86 (12.58)
S3g 217 (31.82)
Nr 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

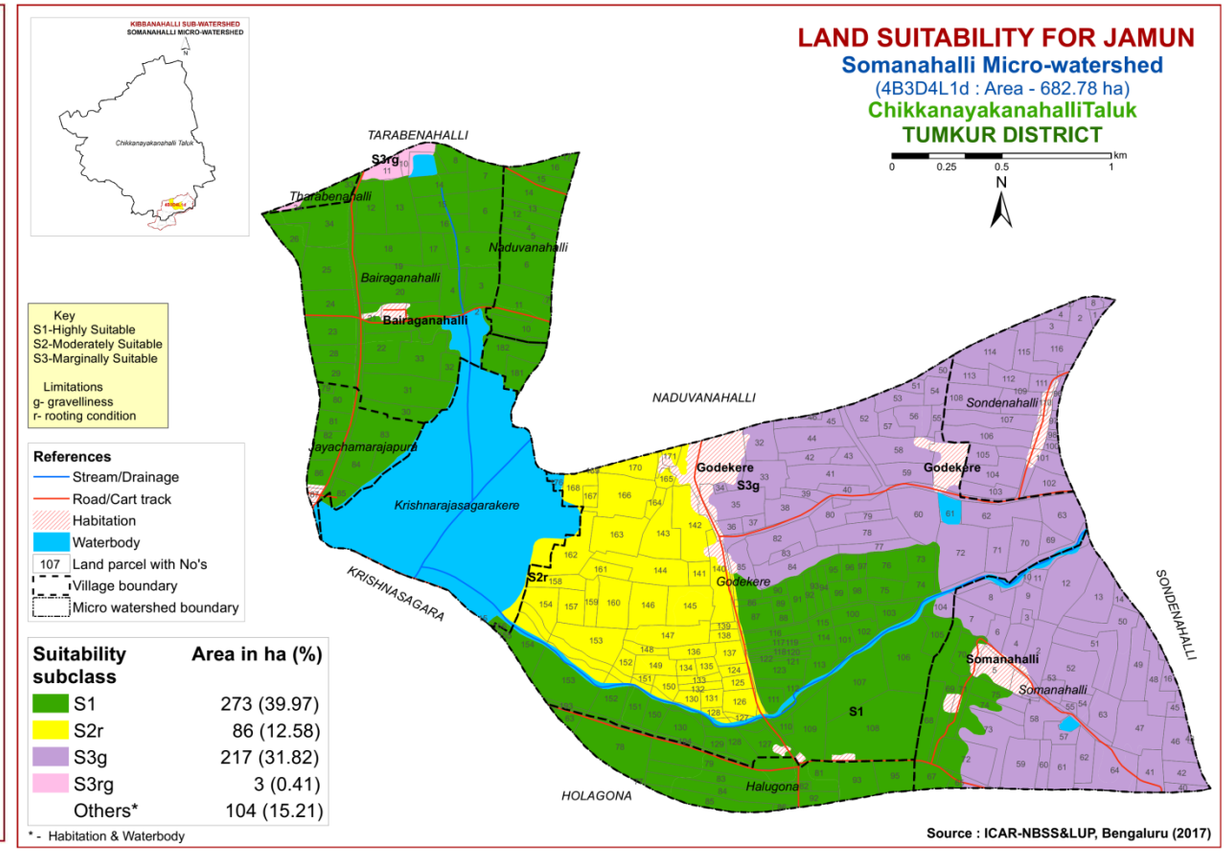

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR SAPOTA
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Bairaganahalli
Jayachamarajapura
S3t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2wt
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2wt 59 (6.85)
S3t 47 (5.36)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

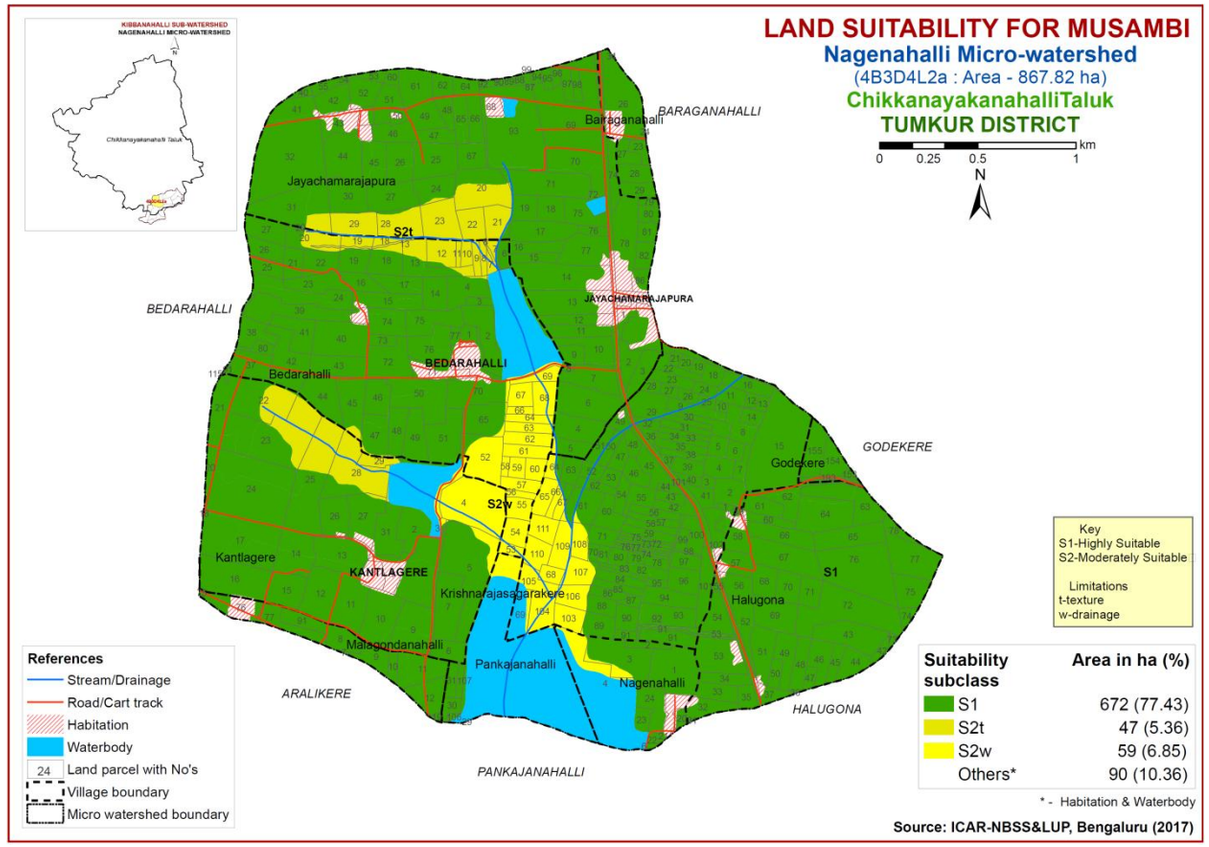

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR SAPOTA
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S3rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Sondenahalli
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

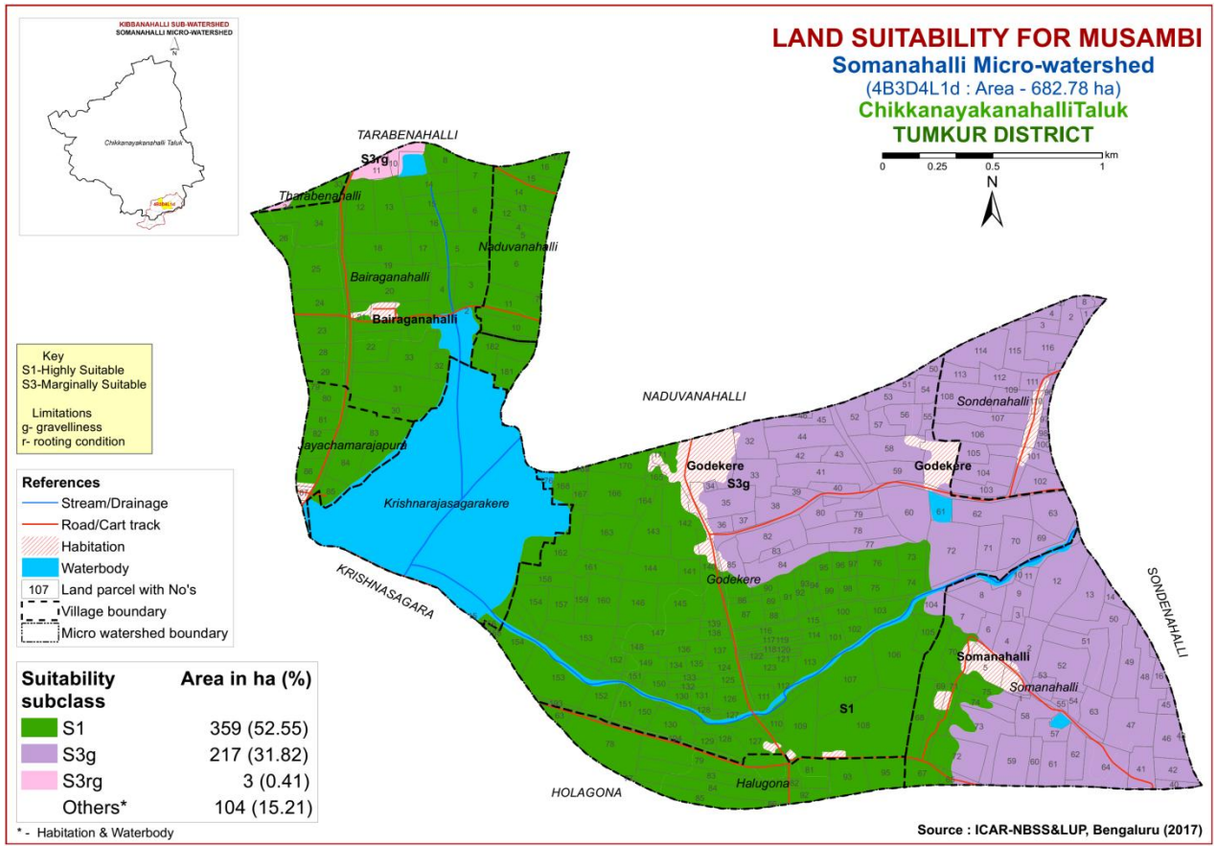

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR JACK FRUIT
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S3t
BEDARAHALLI
JAYACHAMARAJAPURA
BEDARAHALLI
Bedarahalli
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2w 59 (6.85)
S3t 47 (5.36)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

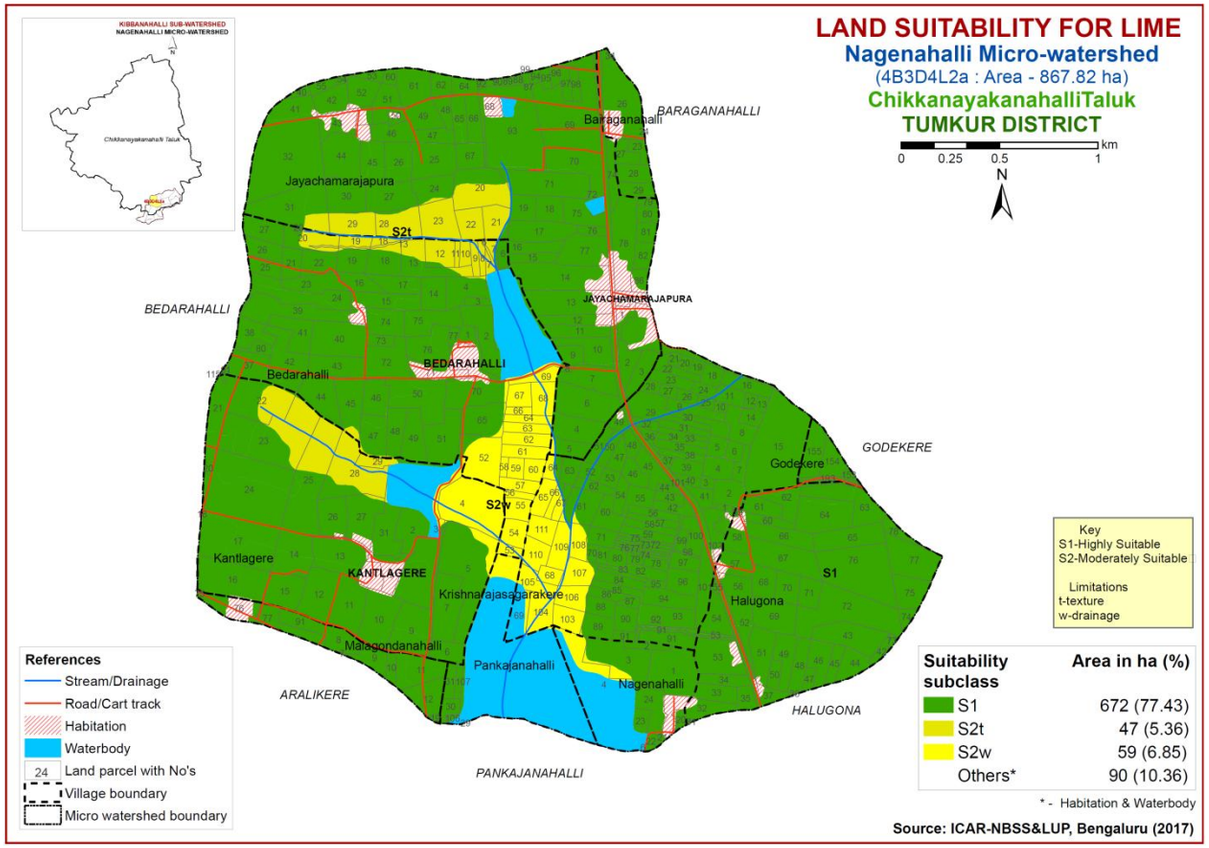

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR JACKFRUIT
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S3rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

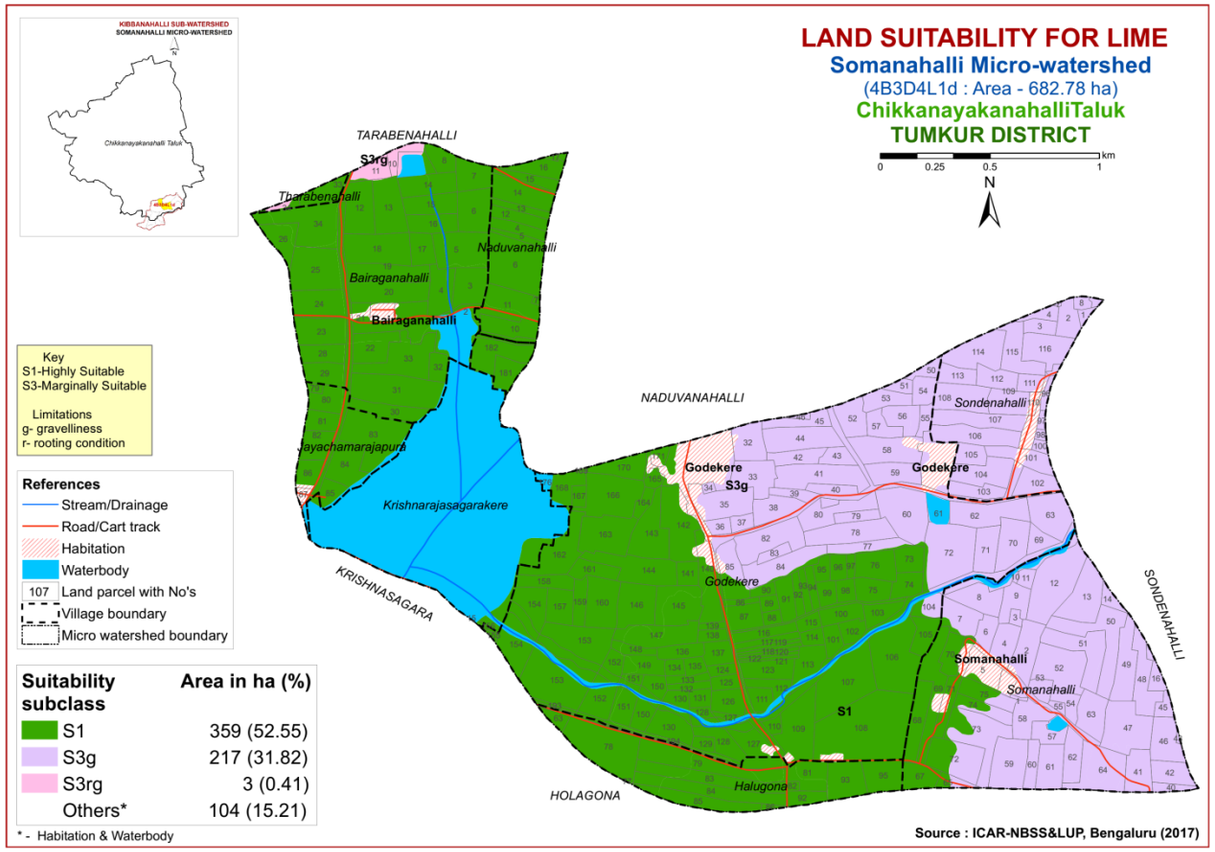

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR JAMUN
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
BEDARAHALLI
Bedarahalli
GODEKERE
Godekere
S2wt
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2wt 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

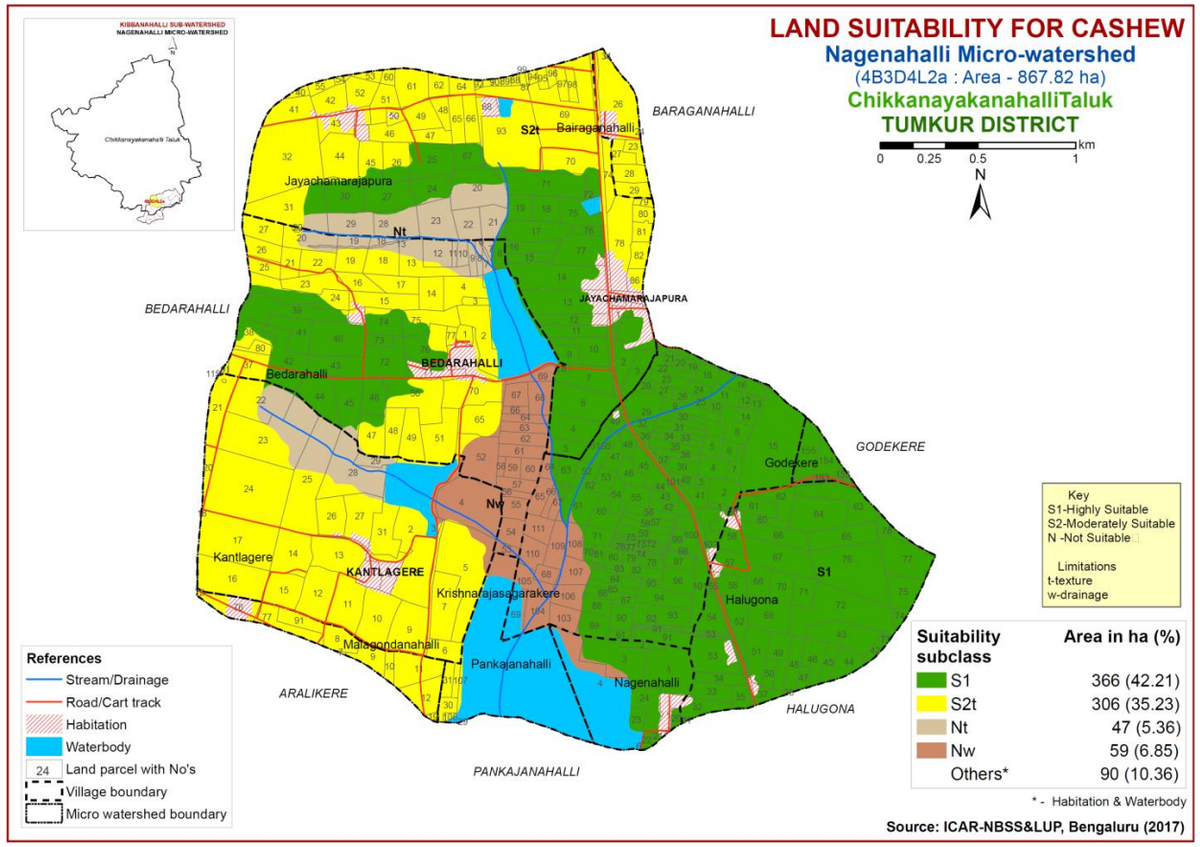

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR JAMUN
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S3rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Godekere
S2r
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 273 (39.97)
S2r 86 (12.58)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

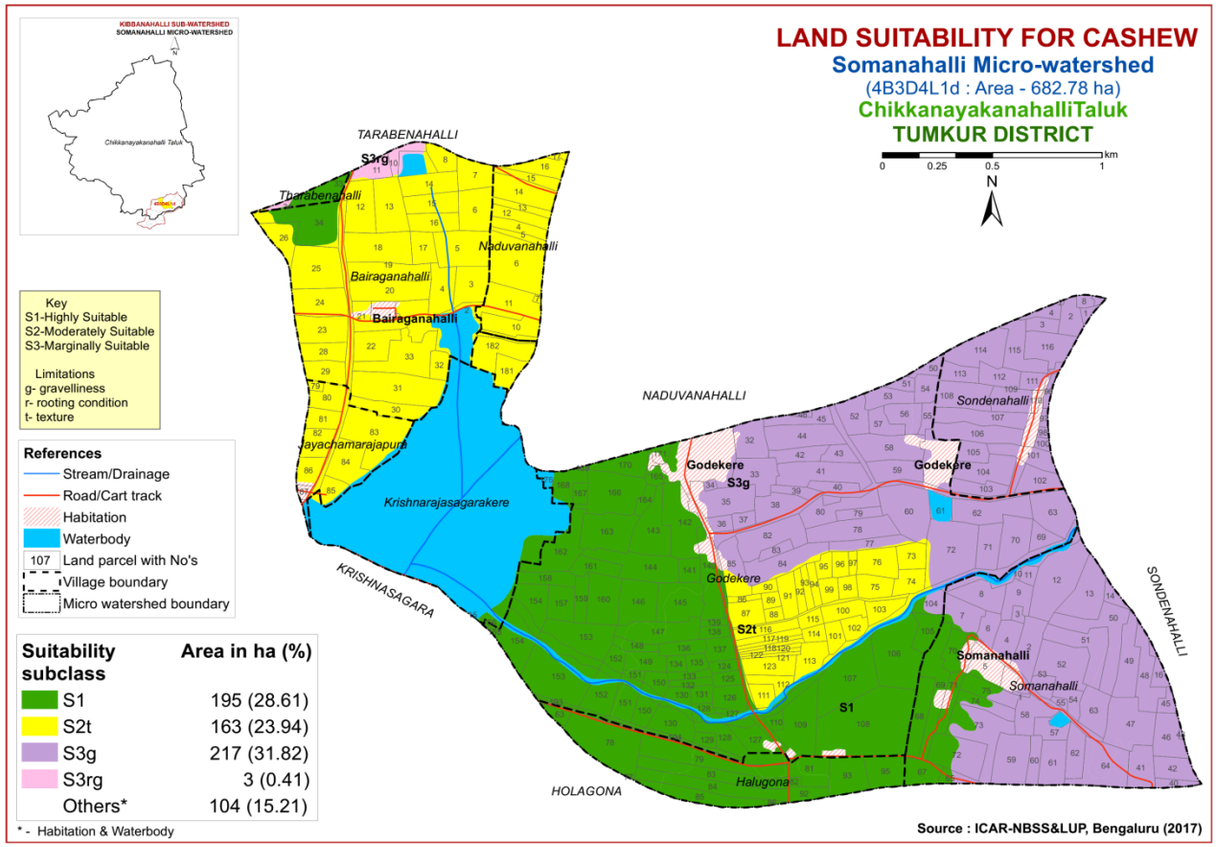

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR MUSAMBI
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
Bairaganahalli
BARAGANAHALLI
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

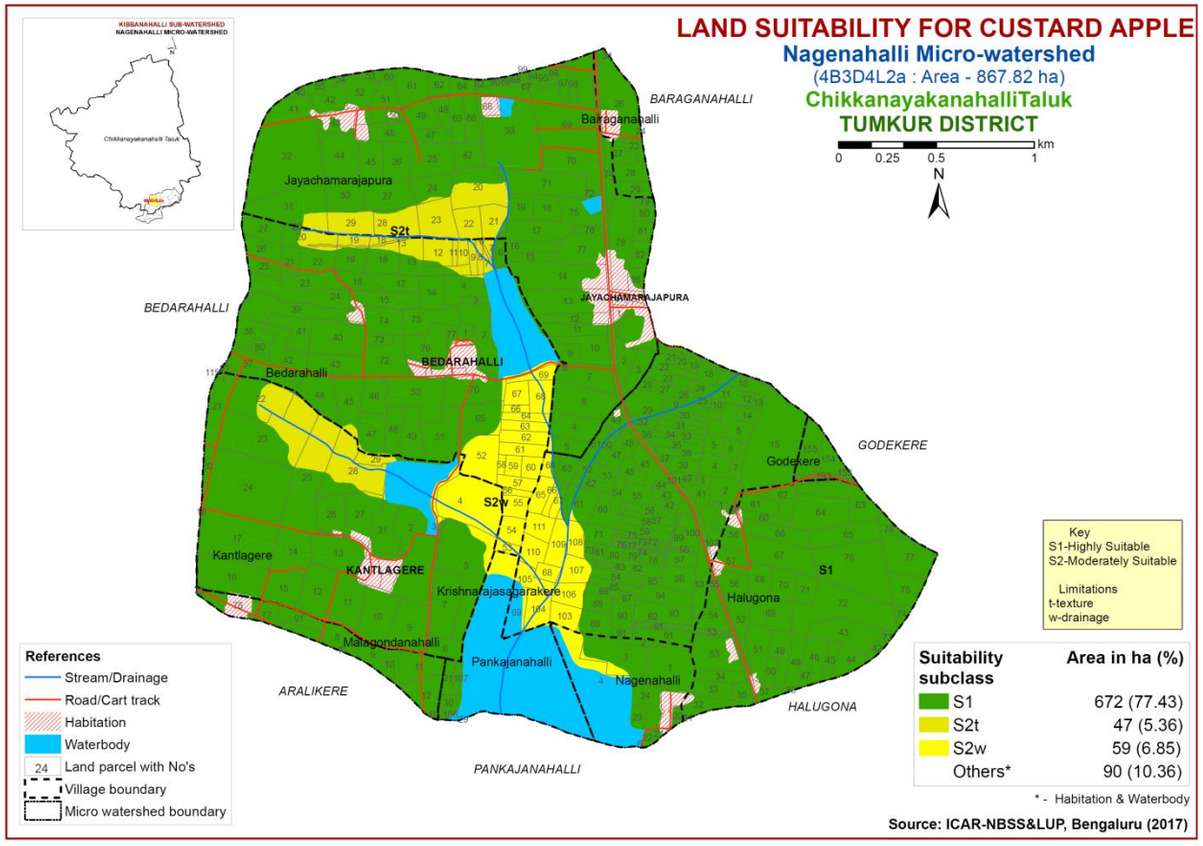

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR MUSAMBI
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S3rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Sondenahalli
KRISHNASAGARA
Godekere
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

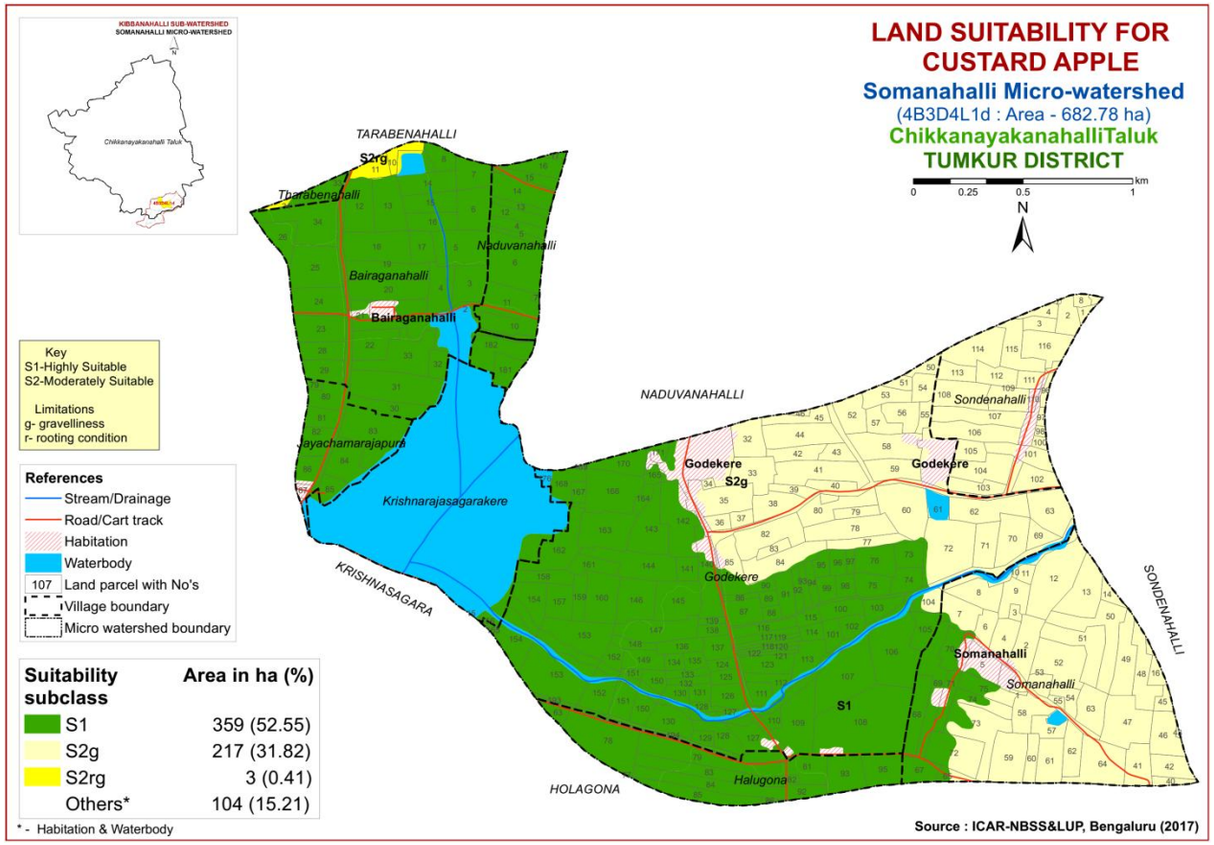

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR LIME
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
Bairaganahalli
BARAGANAHALLI
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

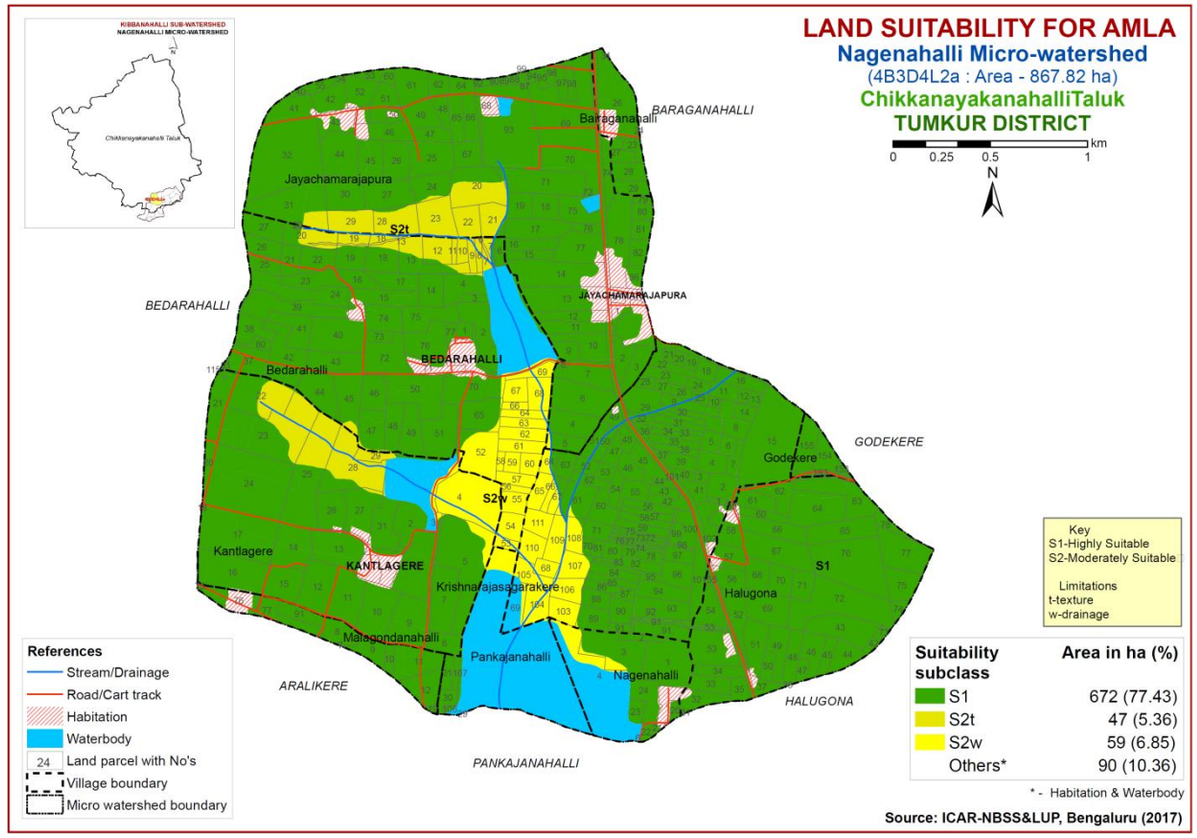

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
LAND SUITABILITY FOR LIME
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S3rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Sondenahalli
KRISHNASAGARA
Godekere
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

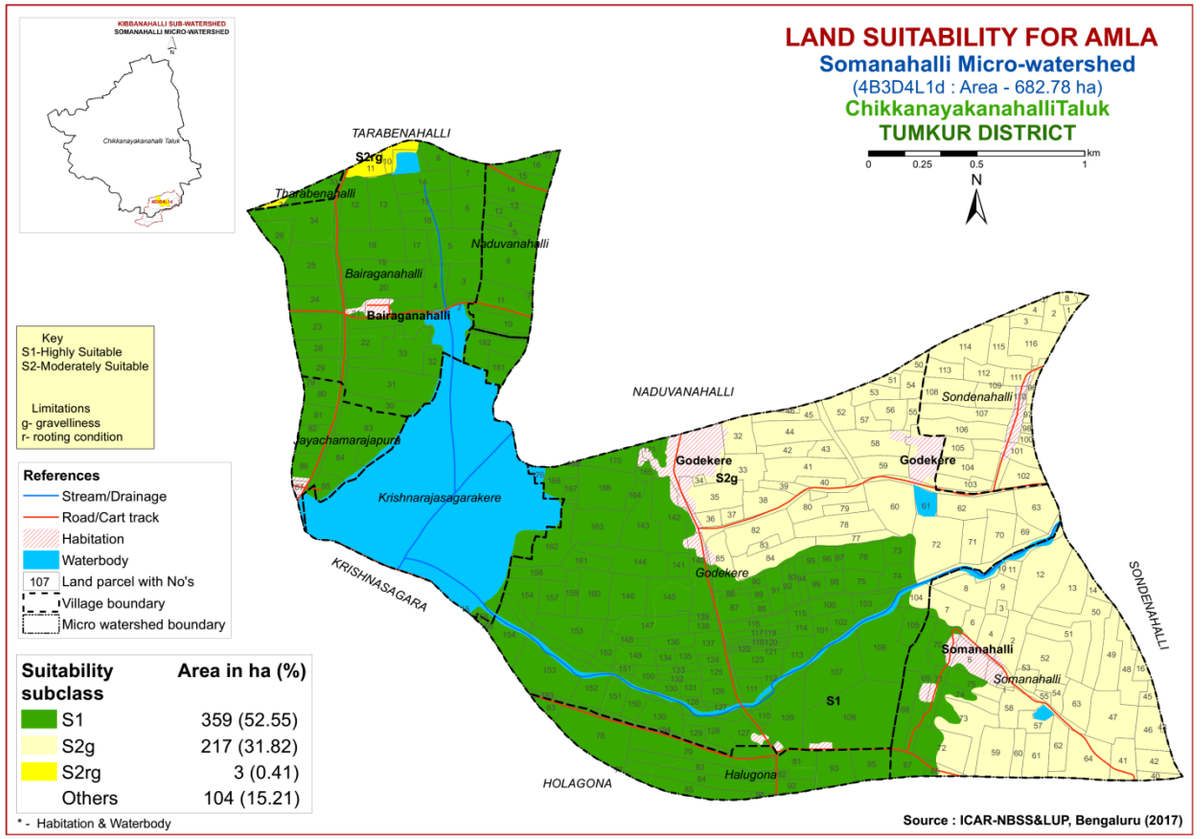

LAND SUITABILITY FOR CASHEW
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
0 0.25 0.5 1 km
N
BARAGANAHALLI
BEDARAHALLI
JAYACHAMARAJAPURA
GODEKERE
ARALIKERE
HALUGONA
PANKAJANAHALLI
Bairaganahalli
Jayachamarajapura
Bedarahalli
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Malagondanahalli
Pankajanahalli
Nagenahalli
Godekere
Halugona
S2t
Nt
Nw
S1
Key
S1-Highly Suitable
S2-Moderately Suitable
N -Not Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 366 (42.21)
S2t 306 (35.23)
Nt 47 (5.36)
Nw 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

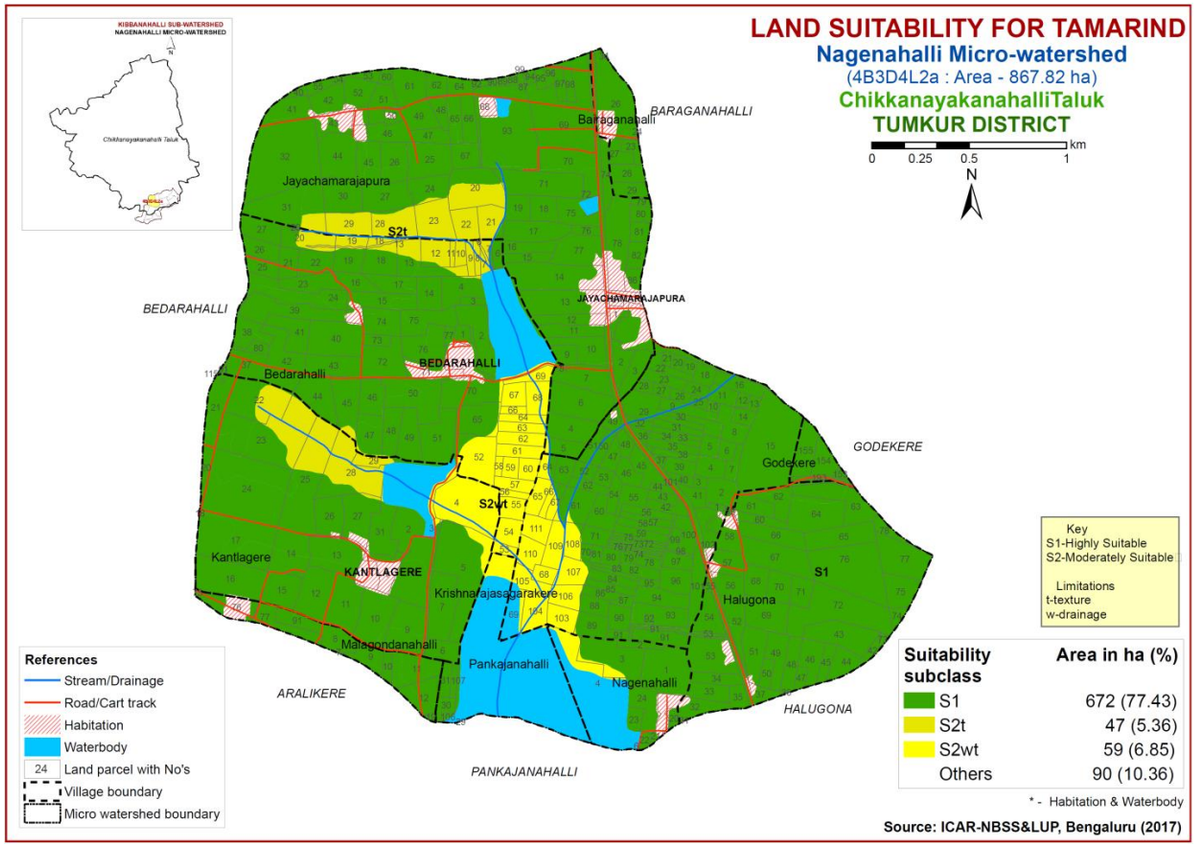

LAND SUITABILITY FOR CASHEW
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
0 0.25 0.5 1 km
N
TARABENAHALLI
NADUVANAHALLI
KRISHNASAGARA
HOLAGONA
SONDENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
Somanahalli
Halugona
S3rg
S3g
S2t
S1
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
Limitations
g- gravelliness
r- rooting condition
t- texture
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 195 (28.61)
S2t 163 (23.94)
S3g 217 (31.82)
S3rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

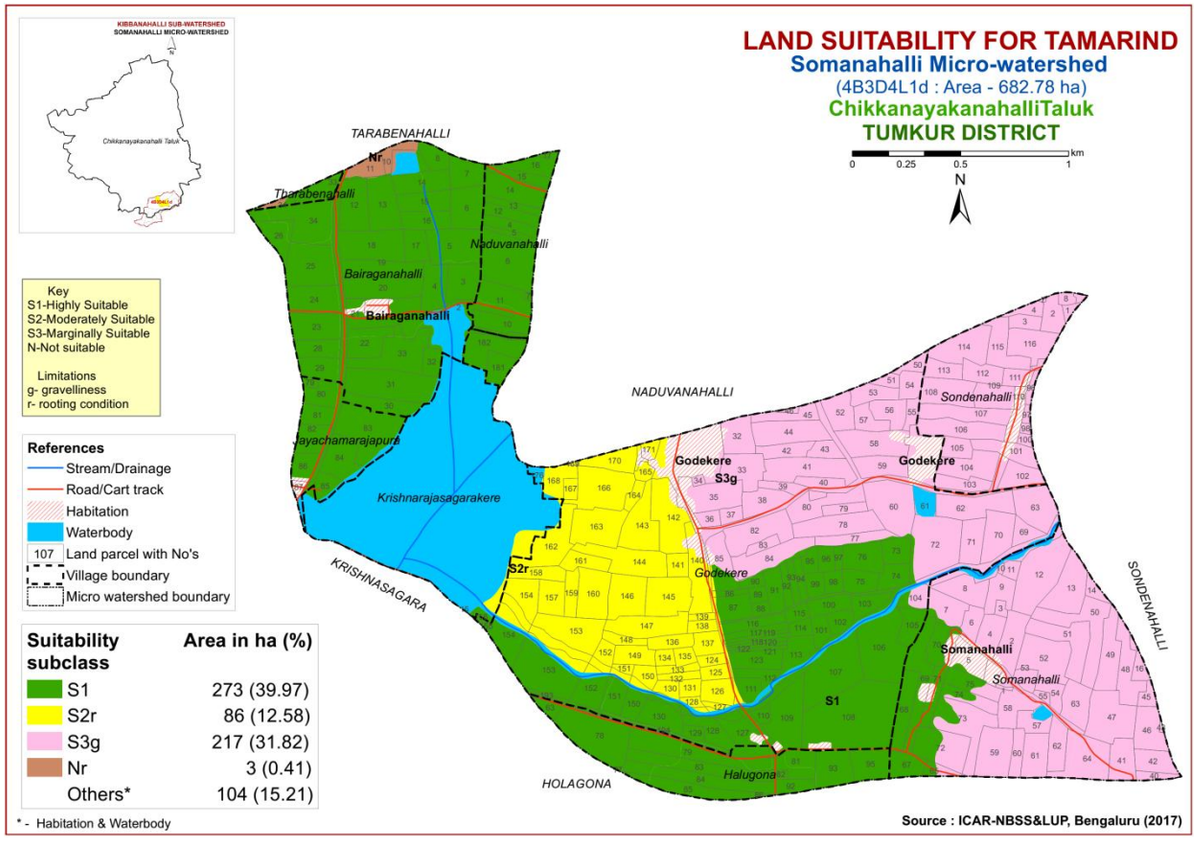

LAND SUITABILITY FOR CUSTARD APPLE
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
0 0.25 0.5 1 km
N
BARAGANAHALLI
BEDARAHALLI
JAYACHAMARAJAPURA
GODEKERE
ARALIKERE
HALUGONA
PANKAJANAHALLI
Bairaganahalli
Jayachamarajapura
Bedarahalli
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Malagondanahalli
Pankajanahalli
Nagenahalli
Godekere
Halugona
S2t
S2w
S1
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

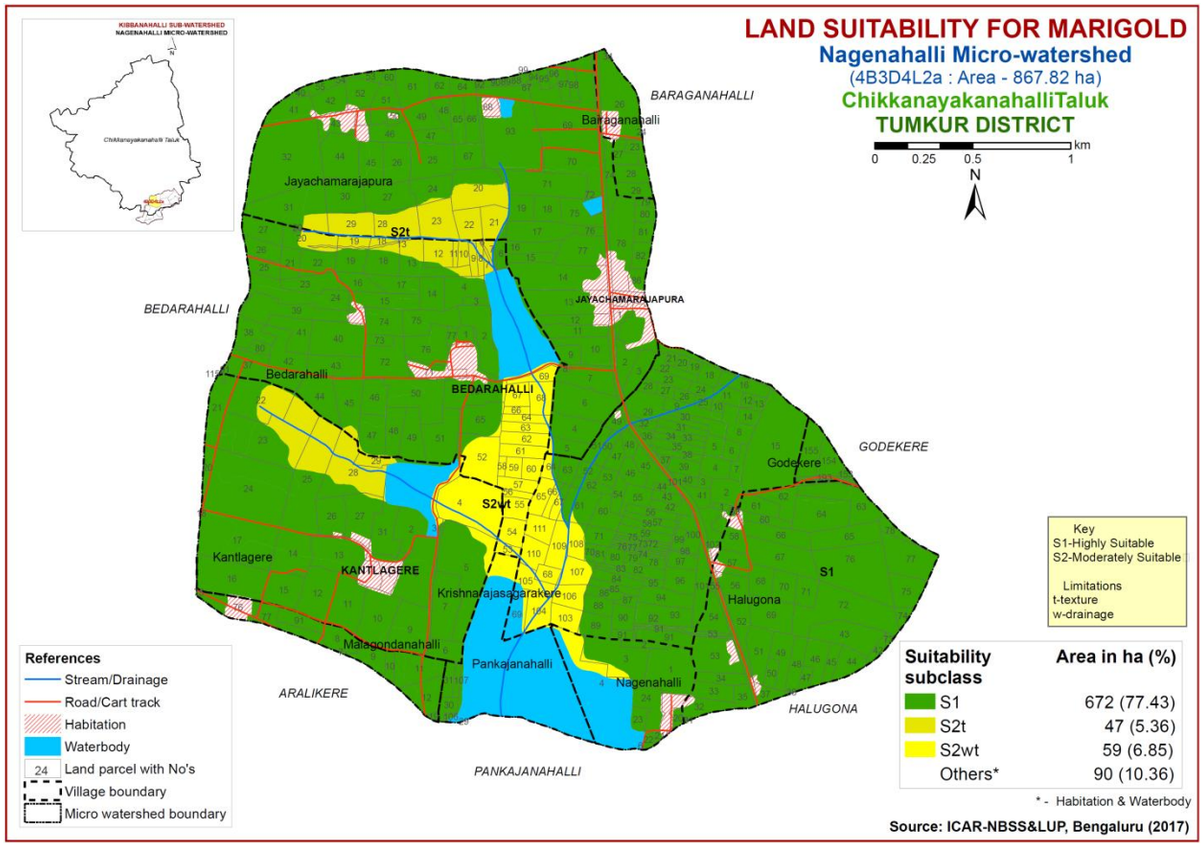

LAND SUITABILITY FOR CUSTARD APPLE
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
TUMKUR
0 0.25 0.5 1 km
N
TARABENAHALLI
NADUVANAHALLI
KRISHNASAGARA
HOLAGONA
SONDENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
Sondenahalli
Somanahalli
Halugona
S2rg
S2g
S1
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2g 217 (31.82)
S2rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

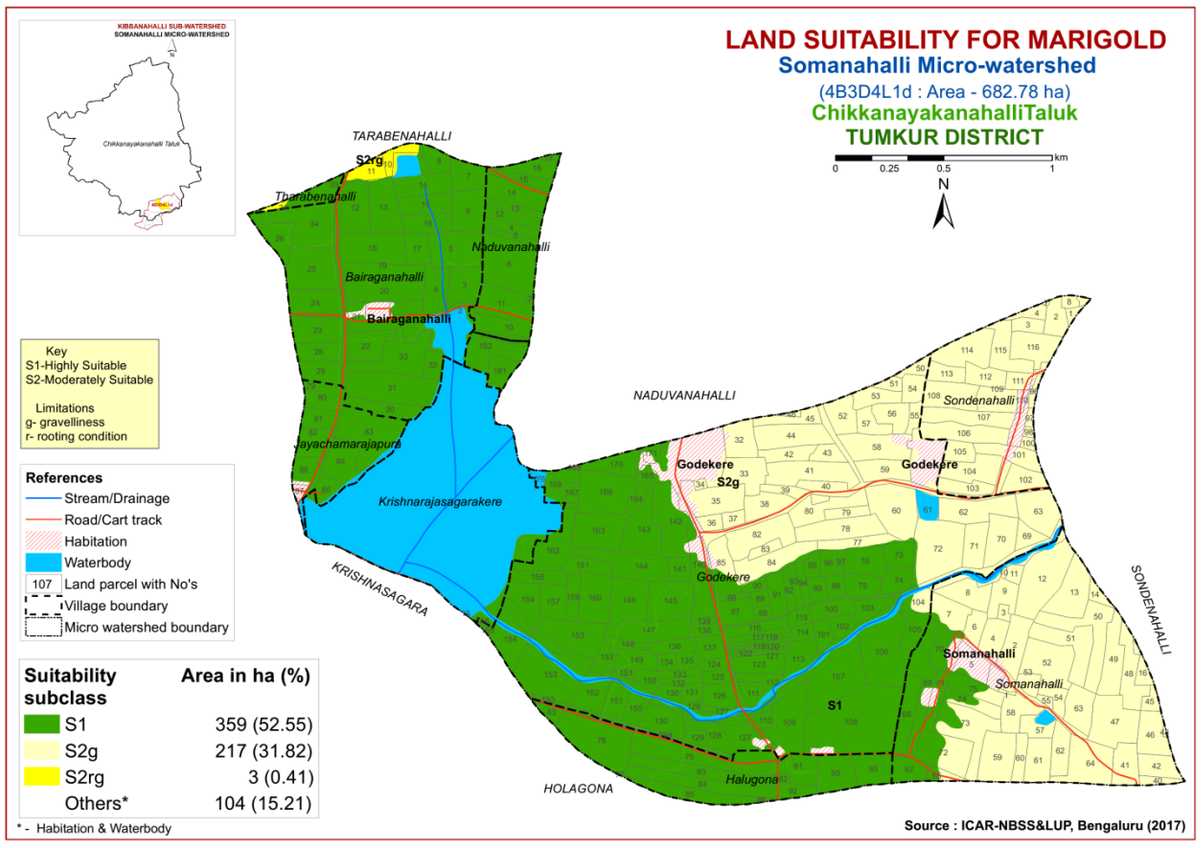

LAND SUITABILITY FOR AMLA
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
0 0.25 0.5 1 km
N
Bairaganahalli
BARAGANAHALLI
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2w
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2w 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

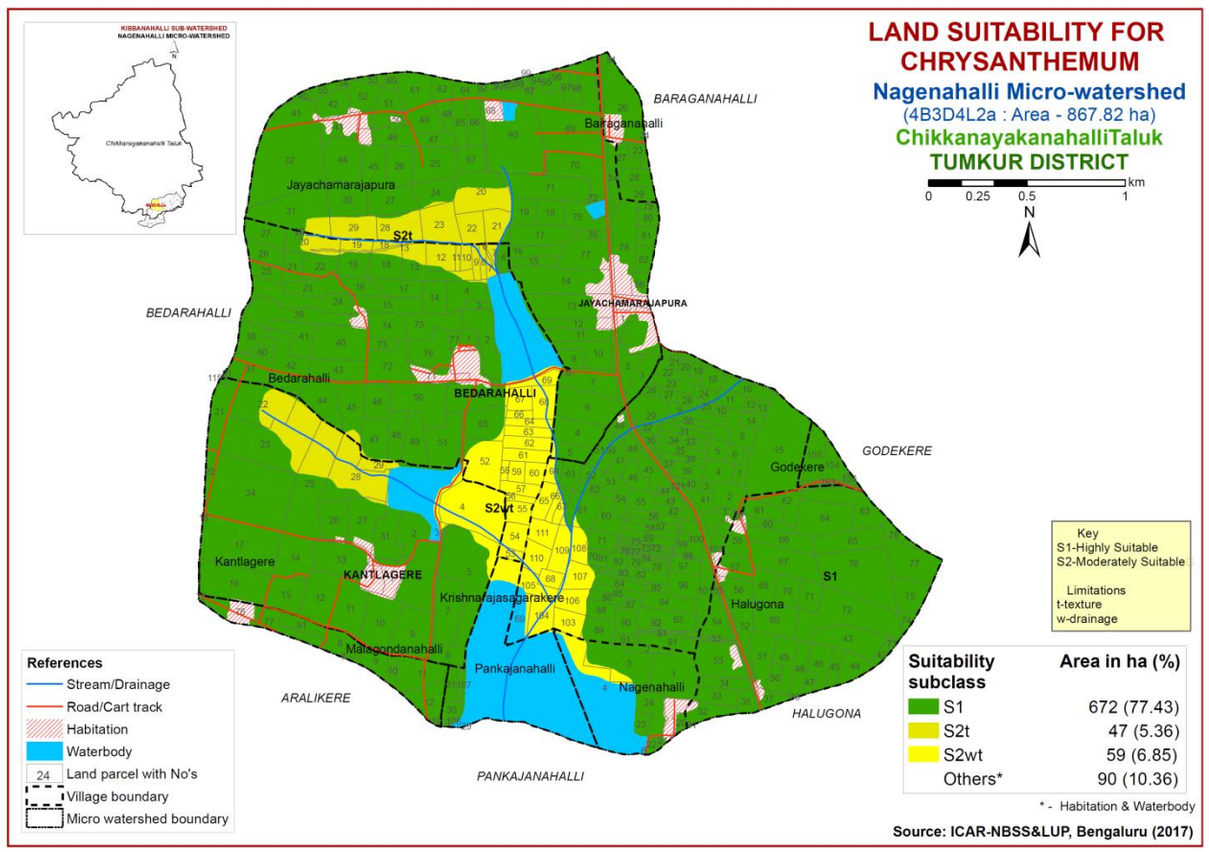

LAND SUITABILITY FOR AMLA
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Krishnarajasagarakere
Godekere
S2g
Godekere
Sondenahalli
Godekere
Somanahalli
Somanahalli
S1
KRISHNASAGARA
SONDENAHALLI
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2g 217 (31.82)
S2rg 3 (0.41)
Others 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

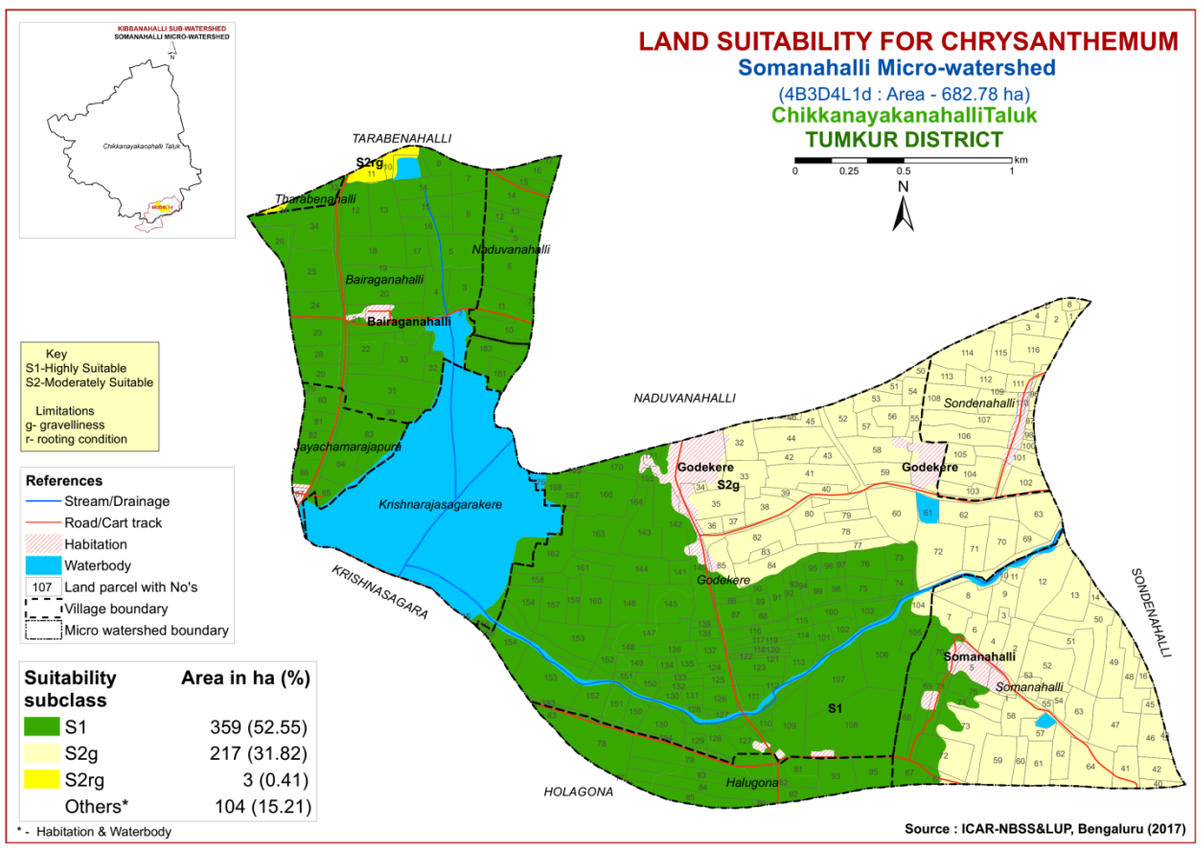

LAND SUITABILITY FOR TAMARIND
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
0 0.25 0.5 1 km
N
Bairaganahalli
BARAGANAHALLI
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2wt
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2wt 59 (6.85)
Others 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

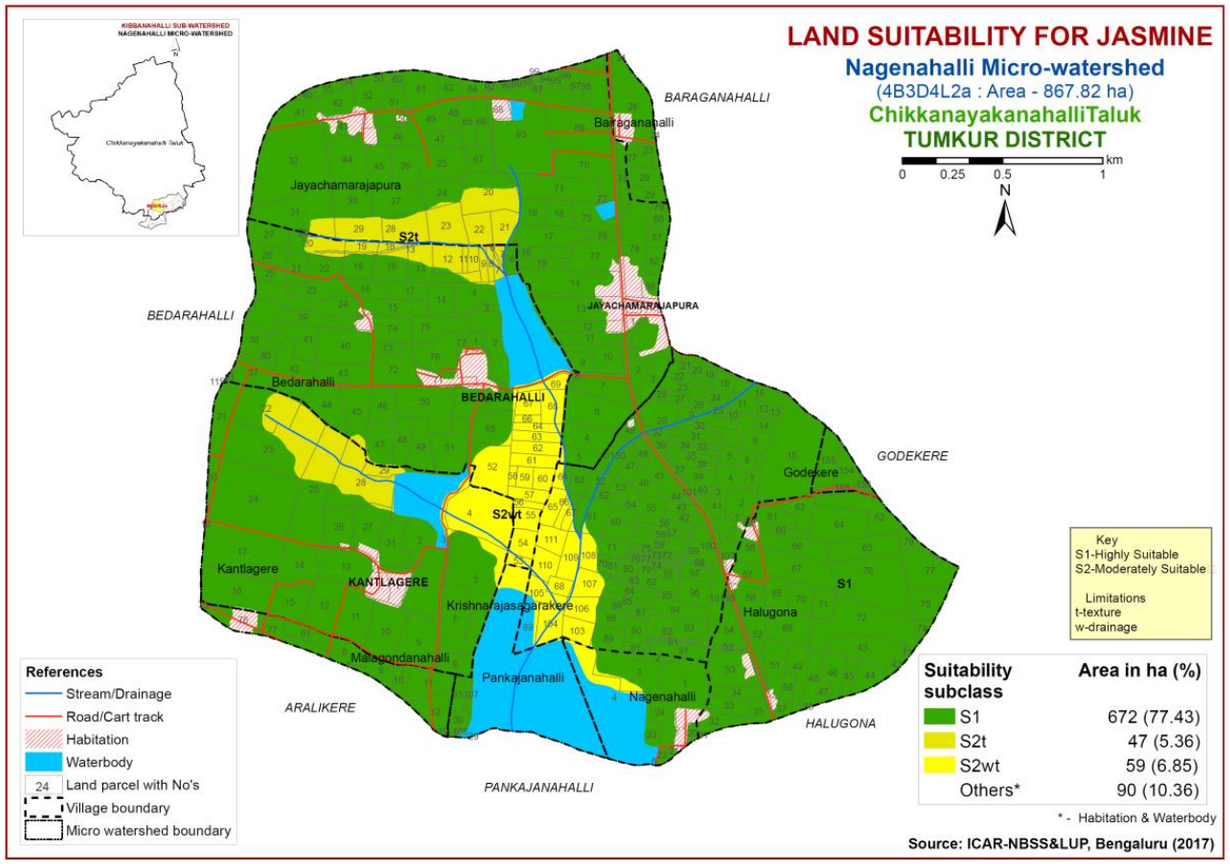

LAND SUITABILITY FOR TAMARIND
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
0 0.25 0.5 1 km
N
TARABENAHALLI
Nr
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Jayachamarajapura
Krishnarajasagarakere
Godekere
S3g
Godekere
Sondenahalli
Godekere
Somanahalli
Somanahalli
S2r
S1
KRISHNASAGARA
SONDENAHALLI
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
S3-Marginally Suitable
N-Not suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 273 (39.97)
S2r 86 (12.58)
S3g 217 (31.82)
Nr 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

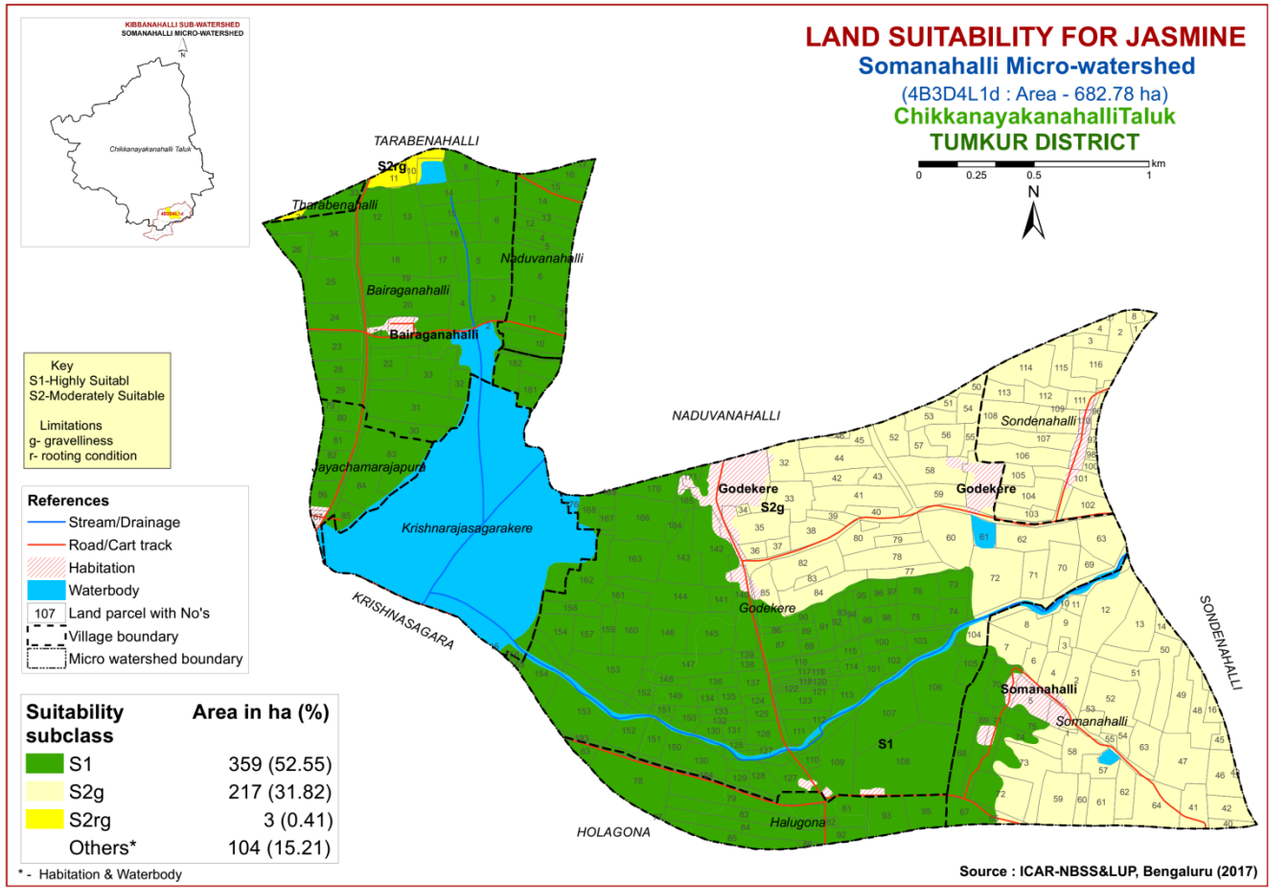

KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR MARIGOLD
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
S2wt
GODEKERE
Godekere
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2wt 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)

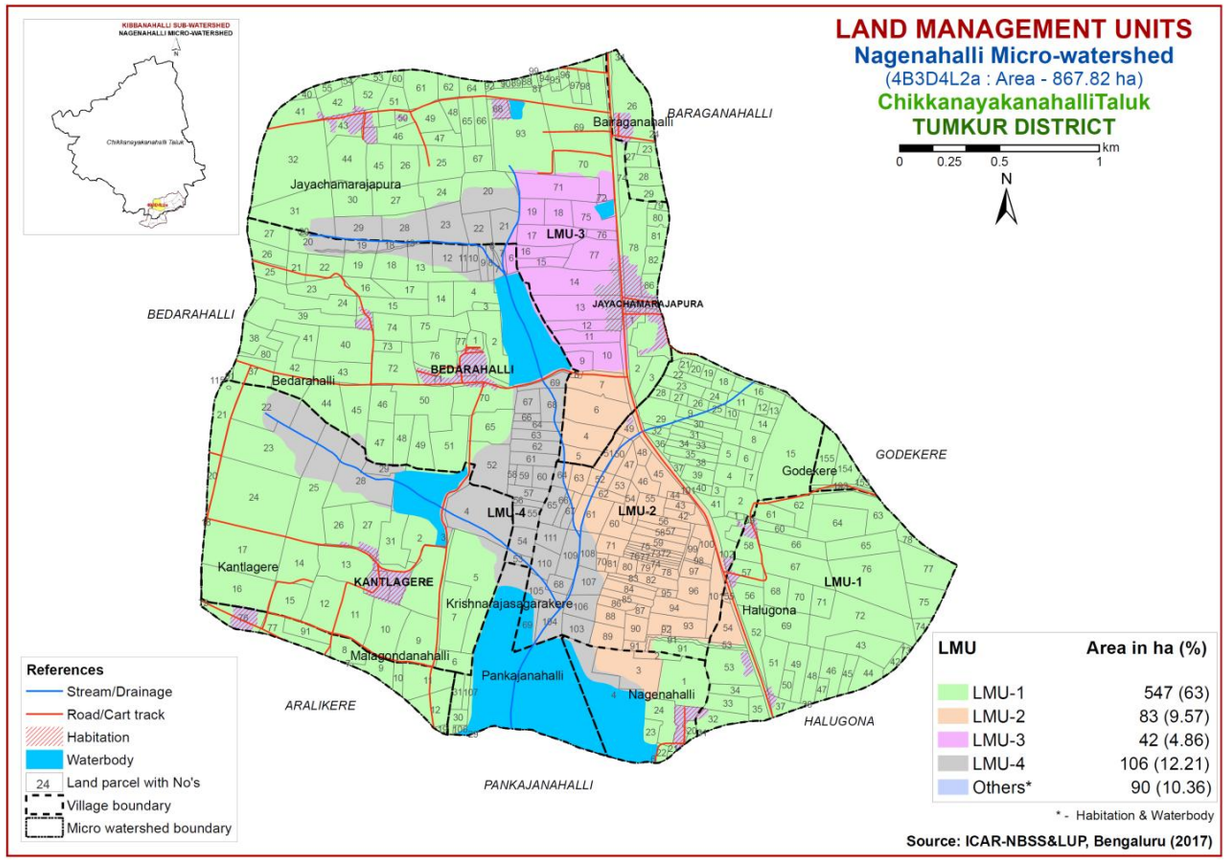

KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR MARIGOLD
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S2g
Godekere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2g 217 (31.82)
S2rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)


KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR CHRYSANTHEMUM
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
S2wt
GODEKERE
Godekere
S1
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2wt 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)


KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
LAND SUITABILITY FOR CHRYSANTHEMUM
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Krishnarajasagarakere
Godekere
S2g
Godekere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
HOLAGONA
Halugona
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2g 217 (31.82)
S2rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)


KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR JASMINE
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganapalli
Jayachamarajapura
S2t
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
BEDARAHALLI
GODEKERE
Godekere
S2wt
Kantlagere
KANTLAGERE
Krishnarajasagarakere
S1
Halugona
Malagondanahalli
Pankajanahalli
Nagenahalli
ARALIKERE
HALUGONA
PANKAJANAHALLI
Key
S1-Highly Suitable
S2-Moderately Suitable
Limitations
t-texture
w-drainage
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
24 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 672 (77.43)
S2t 47 (5.36)
S2wt 59 (6.85)
Others* 90 (10.36)
* - Habitation & Waterbody
Source: ICAR-NBSS&LUP, Bengaluru (2017)


KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
LAND SUITABILITY FOR JASMINE
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
S2rg
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
Jayachamarajapura
NADUVANAHALLI
Sondenahalli
Godekere
S2g
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
S1
Halugona
HOLAGONA
Key
S1-Highly Suitabl
S2-Moderately Suitable
Limitations
g- gravelliness
r- rooting condition
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Suitability subclass
Area in ha (%)
S1 359 (52.55)
S2g 217 (31.82)
S2rg 3 (0.41)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)



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

Table3. Proposed Crop Plan for Nagenahalli Micro-watershed, Kibbanahalli Sub-watershed Chikkanayakanahalli Taluk, Tumkur District based on soil-site–crop suitability Assessment

LMU No	Mapping Units	Survey Number	Field Crops	Forestry/Grasses	Horticulture Crops with suitable interventions	Suitable Interventions
LMU1	3,4,5,6,7,8,9,10,11,12 Very deep (>150 cm), red clayey soils	Bairaganahalli: 23,24,26,27,28,29,34 Bedarahalli: 1,2,3,4,14,15,16,17,18,19,21,22,23,24,25, 26,27,37,38,39,40,41,42,43,44,45, 46,47,48,49,50,51,65,70,72,73,74,75, 76,77,80,91,115 Godekere: 153,154,155,193,STREAM Halugona: 31,32,33,34,35,37,38,42,43,44,45,46, 47,48,49,50,51,52,53,56,57,58,59,60, 61,62,63,64,65,66,67,68,69,70,71,72, 73,74,75,76,77, 78,STREAM Jayachamarajapura: 2,3,24,25,26,27,30,31,32,40,41,42,44,45, 46,47,48,49,50,51,52,53,54,55,60,61,62, 64,65,66,67,69,70,74,78,79,80,81, 82,86,88,89,90,91,92,93,94,95,96,97, 98,99 Kantlagere: 2,5,6,7,8,9,10,11,12,13,14,15,16,17,18,20 ,21,22,24,25,26,27,31 Krishnarajasagarakere: 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17 _TANK,18,19,20,21,22,23,24,25,26,27, 28,29,30,31,32,33,34,35,36,37,38,39,40, 41,91,102 Malagondanahalli: 7,8,9,10,11,12,19,75,77,91 Nagenahalli: 1,20,21,22,23,24 Pankajanahalli: 30,31,106,107	**Sole Crop:** Ragi, Upland paddy, Maize, Sorghum, Fodder sorghum, Sunflower, Groundnut, Redgram, Fieldbean, Cowpea **Intercropping:** Redgram+Fodder sorghum Ragi+Cowpea Ragi+Redgram Ragi+Fieldbean	Neem, Silver Oak **Grasses** *Styloxanthes hamata*, *Styloxanthes Scabra*, Hybrid Napier, Sesbania,	**Vegetables**: Onion, Tomato, Brinjal Chillies, Coriander, Drumstick **Flower crops:** Chrysanthemum, Jasmine, China aster, Marigold, Crossandra **Fruit crops/ Plantation crops:** Mango, Sapota, Guava, Cashew, Pomegranate Jackfruit, Musambi, Arecanut, Coconut	Summer ploughing, cultivation on raised beds with mulches, Drip irrigation, is recommended

To be continued..

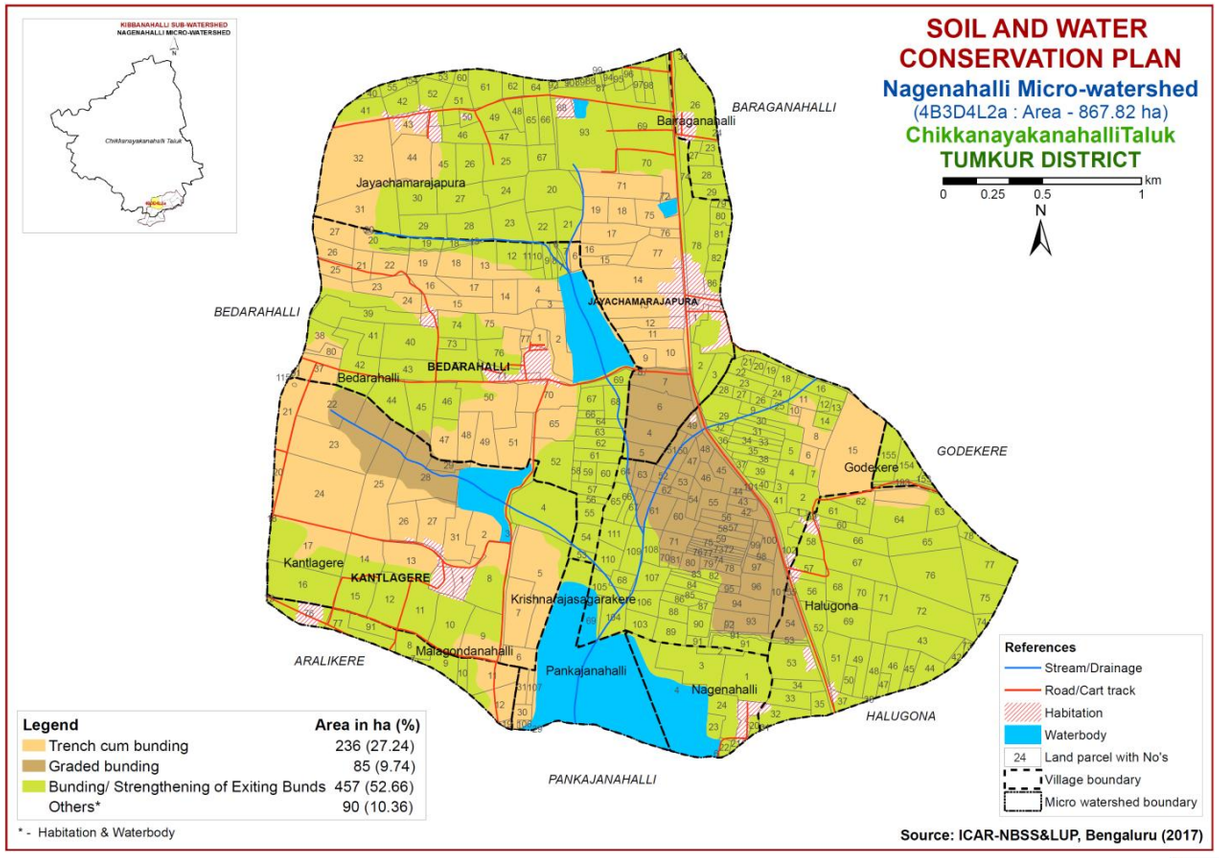
LMU No	Mapping Units	Survey Number	Field Crops	Forestry/Grasses	Horticulture Crops with suitable interventions	Suitable Interventions
LMU 2	13,14 Very deep (>150 cm), black clayey soils	Nagenahalli:2,3 Halugona:54,55 Jayachamarajapura:4,5,6,7,8 Krishnarajasagarakere: 42,43,44,45,46,47,48,49,50,51,52,53, 54,55,56,57,58,59,60,61,62,63,70,71, 72,73,74,75,76,77,78,79,80,81,82,83, 84,85,86,87,88,89,90,92,93,94,95,96, 97,98,99,100,101	**Sole crop**: Sorghum, Sunflower, Fodder sorghum, Redgram, Field bean, Horse gram **Intercropping:** Redgram+Fodder sorghum	Hebbevu, Silveroak **Grasses:** *Styloxanthes hamata*, *Styloxanthes scabra*, Hybrid napier	**Vegetables:** Brinjal, Tomato, Chillies, Cucurbits **Flower crops:** Marigold, Chrysanthemum **Fruit crops/ Plantation crops:** Pomegranate, Tamarind, Custard Apple, Amla, Lime, Musambi Arecanut, Coconut	Application of FYM and micronutrients, drip irrigation, Mulching, suitable conservation practises
LMU 3	1, 2 Deep (100-150 cm), red clayey soils	Bedarahalli: 6 Jayachamarajapura: 9,10,11,12,13,14,15,16,17,18,19,71,72, 75,76,77	**Sole Crop:** Ragi, Upland paddy, Maize, Sorghum, Fodder sorghum, Sunflower, Groundnut, Redgram, Fieldbean, Cowpea **Intercropping:** Redgram+Fodder sorghum Ragi+Cowpea Ragi+Redgram Ragi+Fieldbean	Neem, Silver Oak **Grasses** *Styloxanthes hamata*, *Styloxanthes Scabra*, Hybrid Napier, Sesbania,	**Vegetables**: Onion, Tomato, Brinjal Chillies, Coriander, Drumstick **Flower crops:** Chrysanthemum, Jasmine, China aster, Marigold, Crossandra **Fruit crops/ Plantation crops:** Mango, Sapota, Guava, Cashew, Pomegranate Jackfruit, Musambi, Arecanut, Coconut	Summer ploughing, cultivation on raised beds with mulches, Drip irrigation, is recommended
LMU 4	15,16,17 Very deep (>150 cm), black sandy loam to sandy clay and lowland soils	Bedarahalli: 7,8,9,10,11,12,13,20,52,53, 54,55,56,57,58,59,60,61,62,63,64,66, 67,68,69 Jayachamarajapura: 20,21,22,23,28,29 Kantlagere:4,23,28,29 Krishnarajasagarakere: 64,65,66,67,68,103,104, 105,106,107,108,109,110, 111	**Sole crop**: Paddy	Hebbevu, Silveroak **Grasses:** *Styloxanthes hamata*, *Styloxanthes scabra*, Hybrid napier	**Fruit crops/ plantation crops:** Tamarind, Custard Apple, Amla, Arecanut, Coconut	Providing proper drainage, addition of organic manures, green leaf manuring, suitable conservation practises

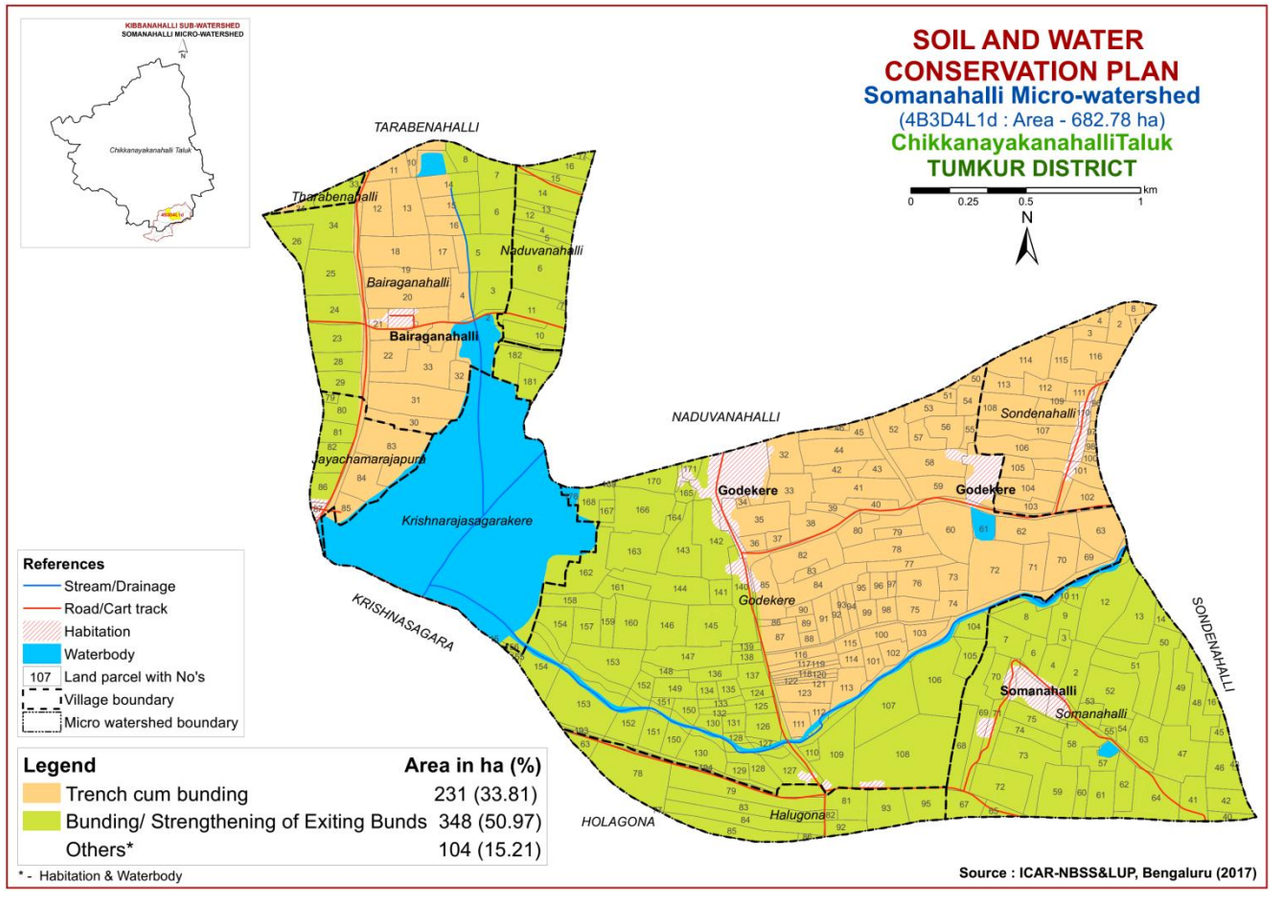
Table 4. Proposed Crop Plan for Somanahalli Micro-watershed, Kibbanahalli Sub-watershed Chikkanayakanahalli Taluk, Tumkur District based on soil-site–crop suitability Assessment

LMU No	Mapping Units	Survey Number	Field Crops	Forestry/Grasses	Horticulture Crops with suitable interventions	Suitable Interventions
LMU1	5,6,7,8,9,10,11,12,13 Very deep (>150 cm), red clayey soils	Bairanganahalli: 2,3,4,5,6,7,8,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,28,29,30,31,32,33,SETTLEMENT Godekere: 73,74,75,76,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100,101,102,103,105,106,107,108,109,110,111,112, 113,114,115,116,117,118,119,120,121,122,123,127,128,129,130,150, 151, 152,153,155,156,181, 182,193,194 Halugona: 63,77,78,79,80_TANK,81,82,83,84,85,86,92,93,95 Jayachamarajapura: 79,80,81,82,83,84,85,86 Naduvanahalli: 4,5,6,7,10,11,12,13,14,15,16,17 Somanahalli: 67,68,69,70,71,75	**Sole Crop:** Ragi, Upland paddy, Maize, Sorghum, Fodder sorghum, Sunflower, Groundnut, Redgram, Fieldbean, Cowpea **Intercropping:** Redgram+Fodder sorghum Ragi+Cowpea Ragi+Redgram Ragi+Fieldbean	Neem, Silver Oak **Grasses** *Styloxanthes hamata*, *Styloxanthes Scabra*, Hybrid Napier, Sesbania,	**Vegetables**: Onion, Tomato, Brinjal Chillies, Coriander, Drumstick **Flower crops:** Chrysanthemum, Jasmine, China aster, Marigold, Crossandra **Fruit crops/ Plantation crops:** Mango, Sapota, Guava, Cashew, Pomegranate Jackfruit, Musambi, Arecanut, Coconut	Summer ploughing, cultivation on raised beds with mulches, Drip irrigation, is recommended
LMU 2	14,15,16,17,18,19 Very deep (>150 cm), gravelly red clayey soils	Godekere: 32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,50,51,52,53,54,55,56,57, 58,59,60,62,63,69,70,71,72,77,78,79,80,81_TANK,82,83,84,85,104	**Sole Crop:** Ragi, Upland paddy, Maize, Sorghum, Fodder sorghum, Groundnut, Redgram, Fieldbean, Cowpea **Intercropping:** Redgram+Fodder sorghum Ragi+Cowpea Ragi+Redgram Ragi+Fieldbean	Neem, Silver Oak **Grasses** *Styloxanthes hamata*, *Styloxanthes Scabra*, Hybrid Napier, Sesbania,	**Vegetables**: Onion, Tomato, Brinjal Chillies, Coriander, Drumstick **Flower crops:** Chrysanthemum, Jasmine, China aster, Marigold **Fruit crops/ Plantation crops:** Mango, Sapota, Guava, Cashew, Custard apple, Amla, Pomegranate Jackfruit, Musambi, Arecanut, Coconut	Drip irrigation, suitable conservation practices (Crescent Bunding with Catch Pit etc)

To be continued..

LMU No	Mapping Units	Survey Number	Field Crops	Forestry/Grasses	Horticulture Crops with suitable interventions	Suitable Interventions
LMU 2	14,15,16,17,18, 19 Very deep (>150 cm), gravelly red clayey soils	Somanahalli: HATTI,2,3,4,6,7,8,9,10, 11,12,13,14,16,40,41,42, 43,45,46,47,48,49,50,51, 52,53,54,55,57,58,59,60, 61, 62,63,64,65,72,73,74 Sondenahalli: HATTI,1,2,3,4,7,8,96,97, 98,100,101,102,103,104, 105,106,107,108,109, 110,111,112,113,114, 115,116	**Sole Crop:** Ragi, Upland paddy, Maize, Sorghum, Fodder sorghum, Groundnut, Redgram, Fieldbean, Cowpea **Intercropping:** Redgram+Fodder sorghum Ragi+Cowpea Ragi+Redgram Ragi+Fieldbean	Neem, Silver Oak **Grasses** *Styloxanthes hamata*, *Styloxanthes Scabra*, Hybrid Napier, Sesbania,	**Vegetables**: Onion, Tomato, Brinjal Chillies, Coriander, Drumstick **Flower crops:** Chrysanthemum, Jasmine, China aster, Marigold **Fruit crops/ Plantation crops:** Mango, Sapota, Guava, Cashew, Custard apple, Amla, Pomegranate Jackfruit, Musambi, Arecanut, Coconut	Drip irrigation, suitable conservation practices (Crescent Bunding with Catch Pit etc)
LMU 3	2,3,4 Deep (100-150 cm), red sandy clay to clay loam soils	Bairanganahalli: 34 Godekere: 124,125,126,131,132, 133,134,135,136,137, 138,139,140,141,142, 143,144,145,146,147, 148,149,154,157,158, 159,160,161,162,163, 164,165,166,167,168, 169,170,171 Tharabenahalli: 33	**Sole crop**: Upland paddy, Ragi, Maize, Sorghum, Groundnut, Sunflower, Fieldbean, Cowpea, Fodder sorghum **Intercropping:** Redgram+Fodder sorghum Ragi+Cowpea Ragi+Redgram	Glyricidia, Subabul, Hebbevu **Grasses:** *Styloxanthes hamata*, *Styloxanthes scabra*, Hybrid napier	**Vegetables:** Onion, Tomato, Chillies Brinjal, Cucurbits **Flower crops:** Chrysanthemum, Jasmine, Crossandra, China aster **Fruit crops/ Plantation crops:** Musambi, Sapota, Pomegranate, Banana, Amla, Lime Arecanut, Coconut	Summer ploughing, split application of nitrogen fertilizers, mulching, Drip irrigation, suitable conservation practices
LMU 4	1 Moderately shallow (50-75 cm), gravelly red loamy soils	Bairanganahalli: 10,11 Tharabenahalli: 34	**Sole crops:** Ragi, Groundnut, Fodder sorghum, Cowpea, Horsegram	Glyricidia, **Grasses** *Styloxanthes hamata*, *Styloxanthes scabra*	**Vegetables:** Tomato, Onion, Chillies, Curryleaf, **Fruit crops:** Custard apple, Amla, Bael	Use of medium duration varieties, and deep rooted crops, sowing across the slope, drip irrigation and mulching is recommended


KIBBANAHALLI SUB-WATERSHED
NAGENAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SOIL AND WATER CONSERVATION PLAN
Nagenahalli Micro-watershed
(4B3D4L2a : Area - 867.82 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
BARAGANAHALLI
Baraganahalli
Jayachamarajapura
BEDARAHALLI
JAYACHAMARAJAPURA
Bedarahalli
GODEKERE
Godekere
Kantlagere
KANTLAGERE
Krishnarajasagarakere
Halugona
ARALIKERE
Malagondanahalli
Pankajanahalli
Nagenahalli
HALUGONA
PANKAJANAHALLI
Legend
Area in ha (%)
Trench cum bunding 236 (27.24)
Graded bunding 85 (9.74)
Bunding/ Strengthening of Exiting Bunds 457 (52.66)
Others* 90 (10.36)
* - Habitation & Waterbody
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
Land parcel with No's
Village boundary
Micro watershed boundary
Source: ICAR-NBSS&LUP, Bengaluru (2017)


KIBBANAHALLI SUB-WATERSHED
SOMANAHALLI MICRO-WATERSHED
Chikkanayakanahalli Taluk
SOIL AND WATER CONSERVATION PLAN
Somanahalli Micro-watershed
(4B3D4L1d : Area - 682.78 ha)
ChikkanayakanahalliTaluk
TUMKUR DISTRICT
0 0.25 0.5 1 km
N
TARABENAHALLI
Tharabenahalli
Naduvanahalli
Bairaganahalli
Bairaganahalli
NADUVANAHALLI
Sondenahalli
Jayachamarajapura
Godekere
Godekere
Krishnarajasagarakere
Godekere
KRISHNASAGARA
SONDENAHALLI
Somanahalli
Somanahalli
HOLAGONA
Halugona
References
Stream/Drainage
Road/Cart track
Habitation
Waterbody
107 Land parcel with No's
Village boundary
Micro watershed boundary
Legend
Area in ha (%)
Trench cum bunding 231 (33.81)
Bunding/ Strengthening of Exiting Bunds 348 (50.97)
Others* 104 (15.21)
* - Habitation & Waterbody
Source : ICAR-NBSS&LUP, Bengaluru (2017)

PART - B

Hydrological Inventory of Kibbanahalli Sub-watershed, Chikkanayakanahalli Taluk, Tumkur 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 Kibbanahalli Sub-watershed, Chikkanayakanahalli Taluk, Tumkur 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:nbssrcb@gmail.com**

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Dr. B .A. Dhanorkar	Chief Technical Officer
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Smt. K.Karunya Lakshmi	Research Associate
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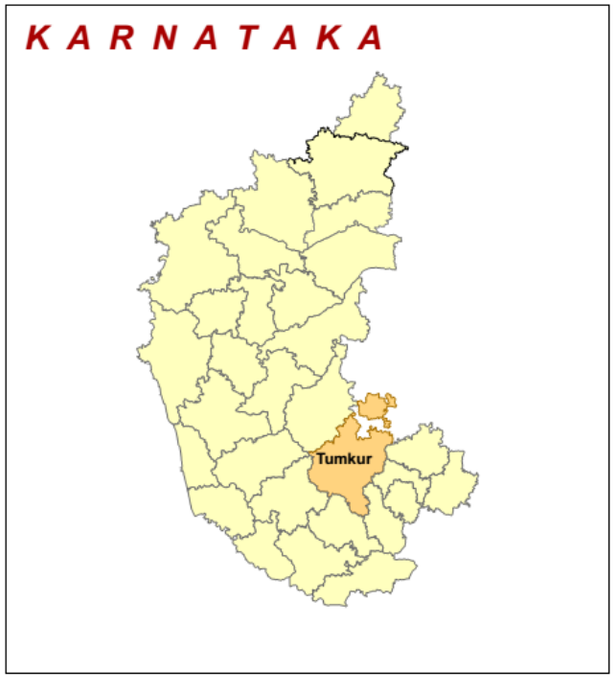
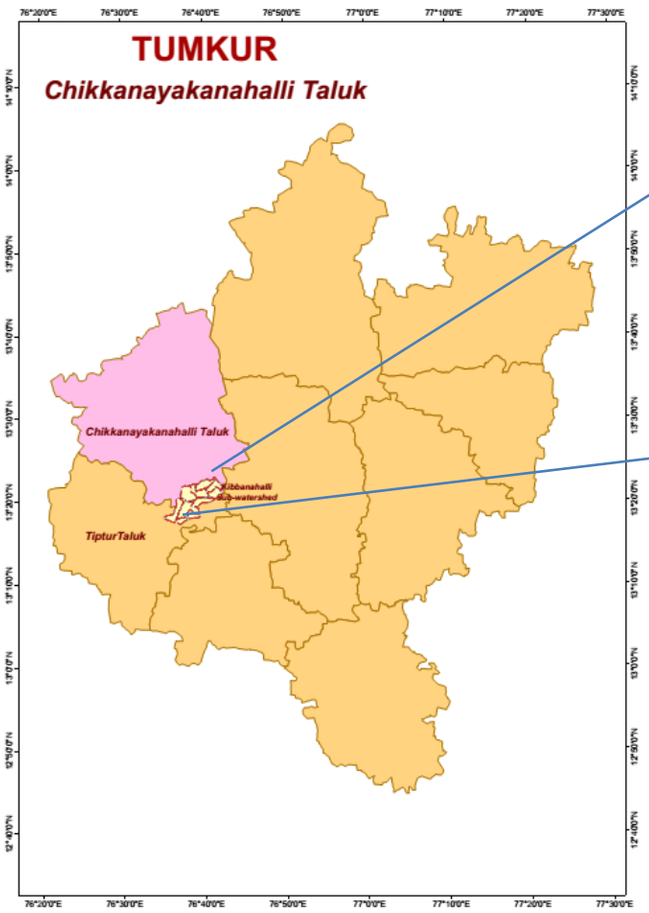
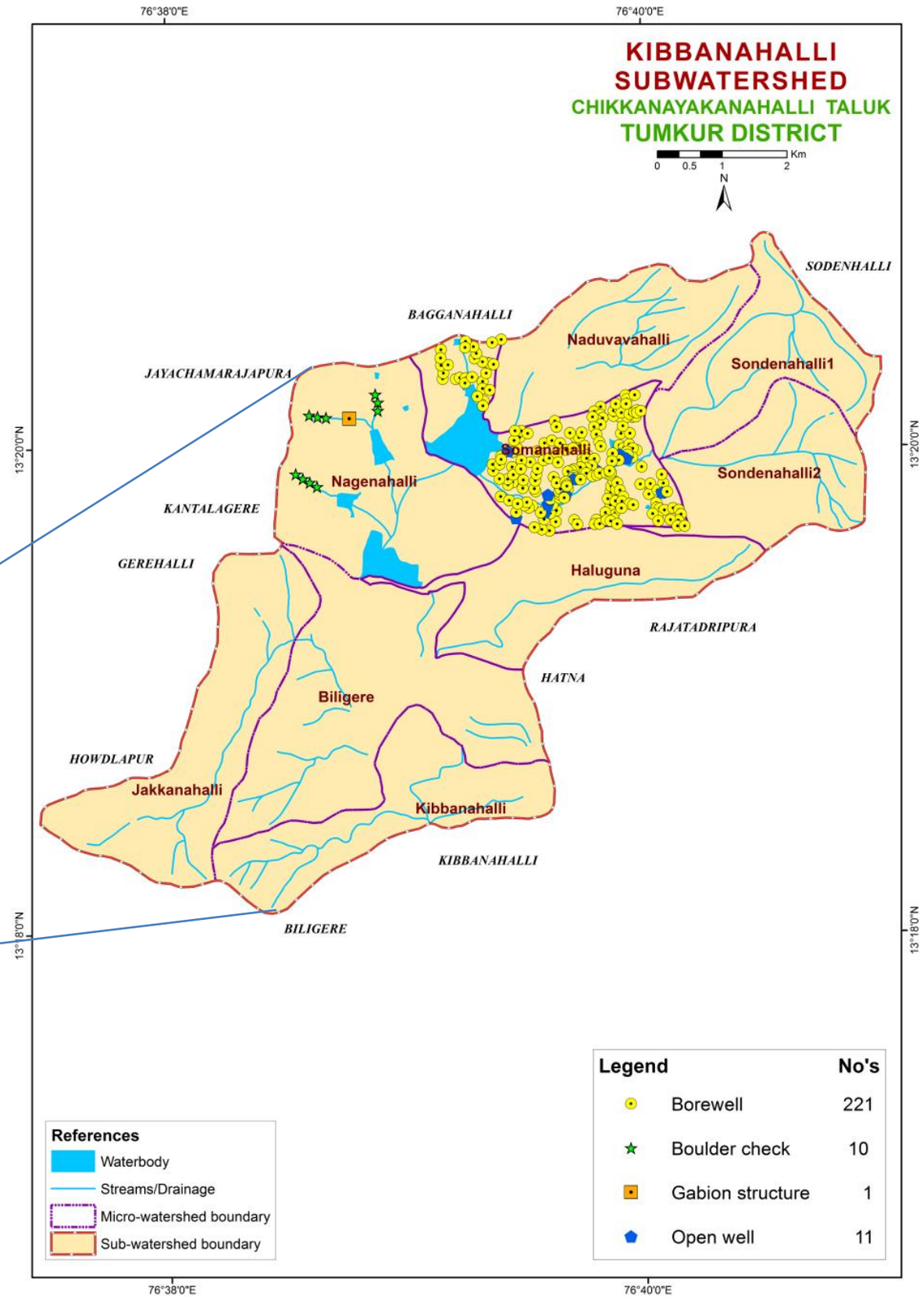
INTRODUCTION

- The inventory and documentation of spatial and temporal changes in hydrological components of Kibbanahalli sub-watershed (4D3D4L) in Chikkanayakanahalli Taluk, Tumkur District, has been undertaken for integrated planning, development and management.
- Kibbanahalli sub-watershed (Chikkanayakanahalli Taluk, Tumkur District) is located between $13^0$17' 24''–$13^0$22' 37'' North latitudes and 76^0 35'11''- 76^0 41'59'' East longitudes, covering an area of about 6159 ha.
- This sub-watershed encompasses of 9 MWs namely Biligere (4B3D4L2d), Nagenahalli (4B3D4L2a), Jakkanahalli (4B3D4L2c), Somanahalli (4B3D4L1d), Naduvavahalli (4B3D4L1c), Haluguna (4B3D4L2b), Kibbanahalli (4B3D4L2e), Sondenahalli1 (4B3D4L1a) and Sondenahalli2 (4B3D4L1b). Land Resource Inventory (LRI) was generated for two among nine micro-watersheds .
- Average annual rainfall (1960-2014) of the Hobli (Block) pertaining to the sub-watershed is 755 mm.
- In this sub-watershed major ***kharif*** crops are Maize, Finger millet, Redgram , Groundnut , Sunflower, Paddy and major ***rabi*** crops are Sorghum.
- 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 KIBBANAHALLI SUB-WATERSHED

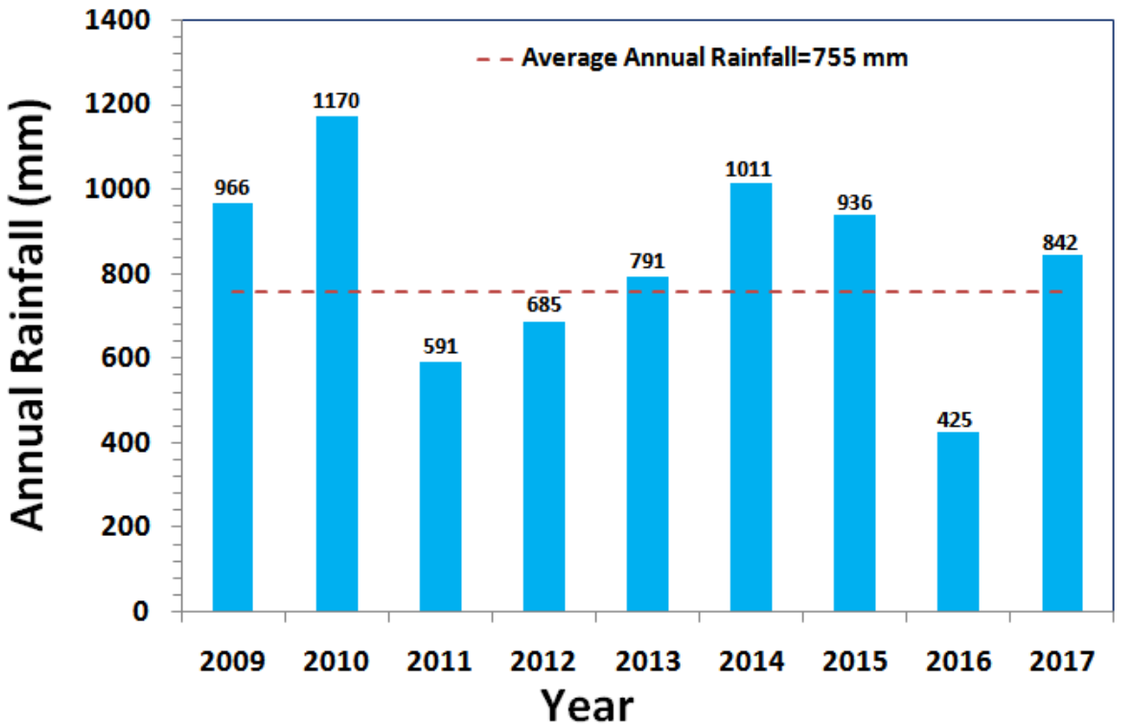






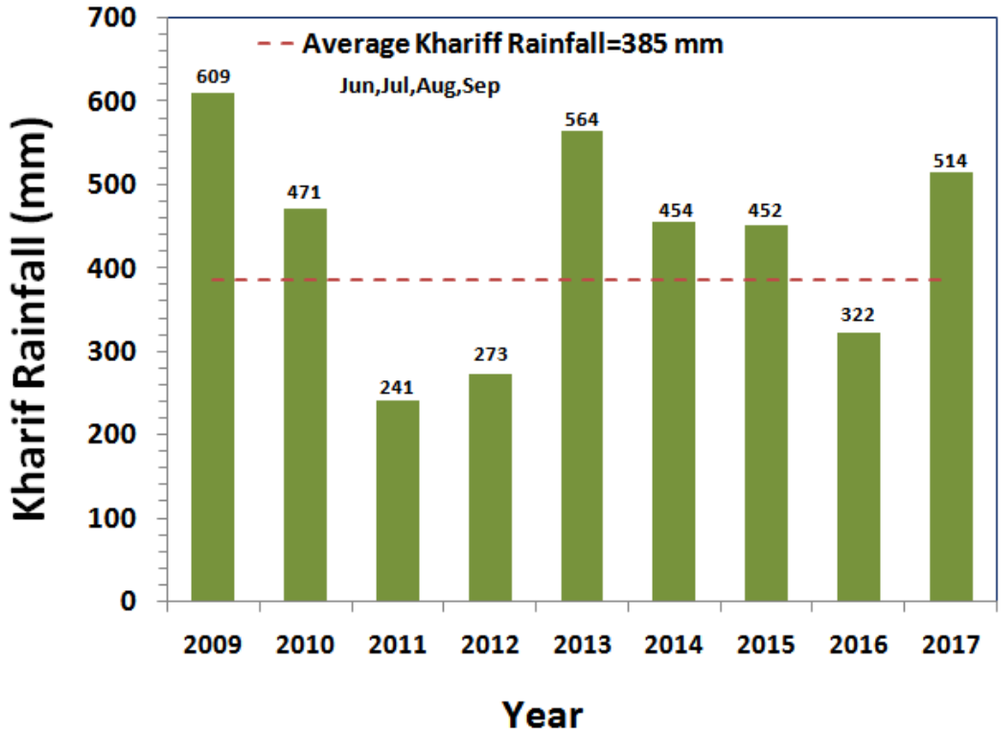
Soil & Water Conservation Structures in Kibbanahalli Sub-watershed, Chikkanayakanahalli Taluk, Tumkur District

RAINFALL INDEX

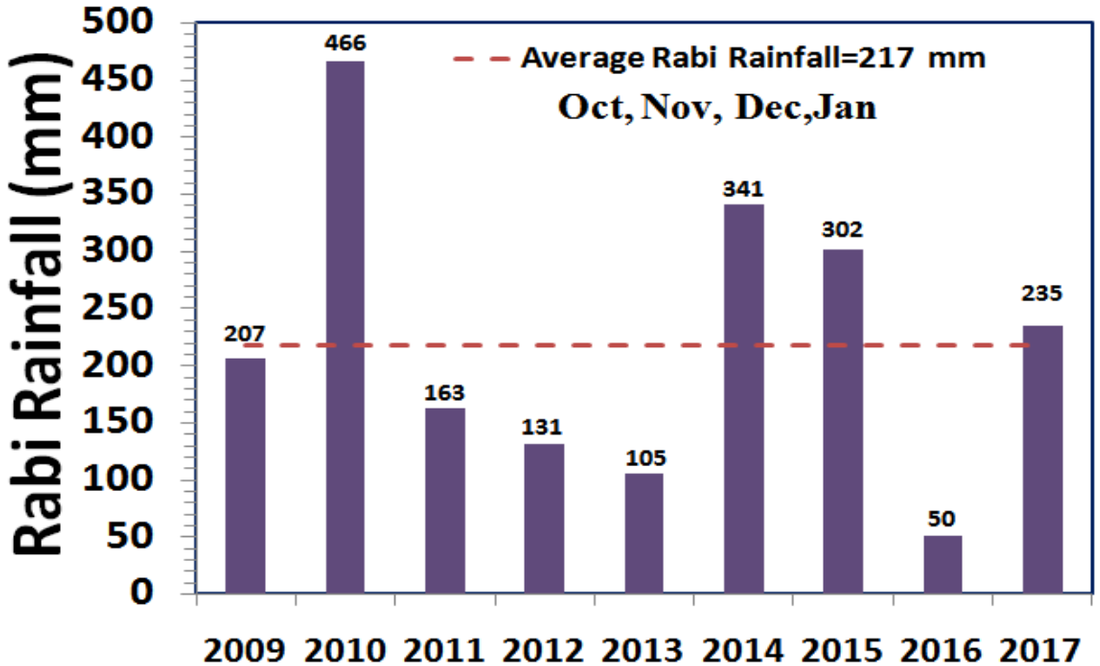


The average annual rainfall (1960-2014) recorded at the Chikkanayakanahalli station in Chikkanayakanahalli taluk of Tumkur district is 755 mm. The annual rainfall at Shettikere station (Hobli H.Q.) is presented. During the years 2011, 2012 and 2016 the annual rainfall was deficient by 22%, 9% and 44% respectively.

The *kharif* rainfall (Jun–Sep) is an average about 54% of the annual rainfall and it typically follows the annual rainfall patterns. High variability found between annual *kharif* rainfall. During the years 2011, 2012 and 2016 the *kharif* rainfall was deficient by 37%, 29% and 16% respectively.

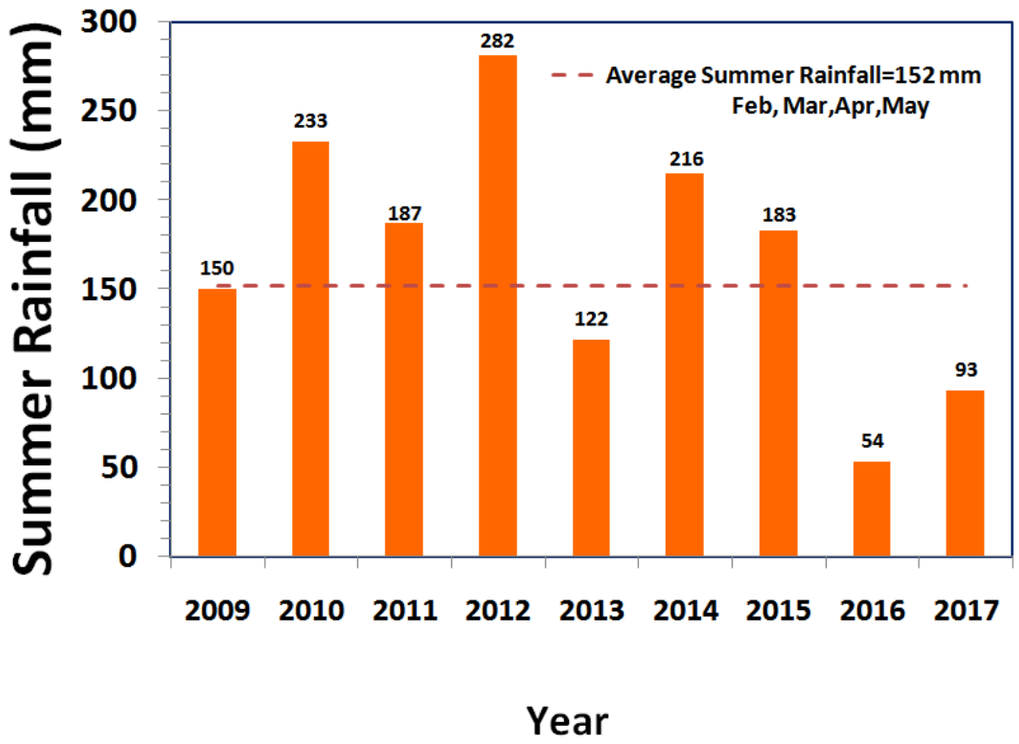


RAINFALL INDEX

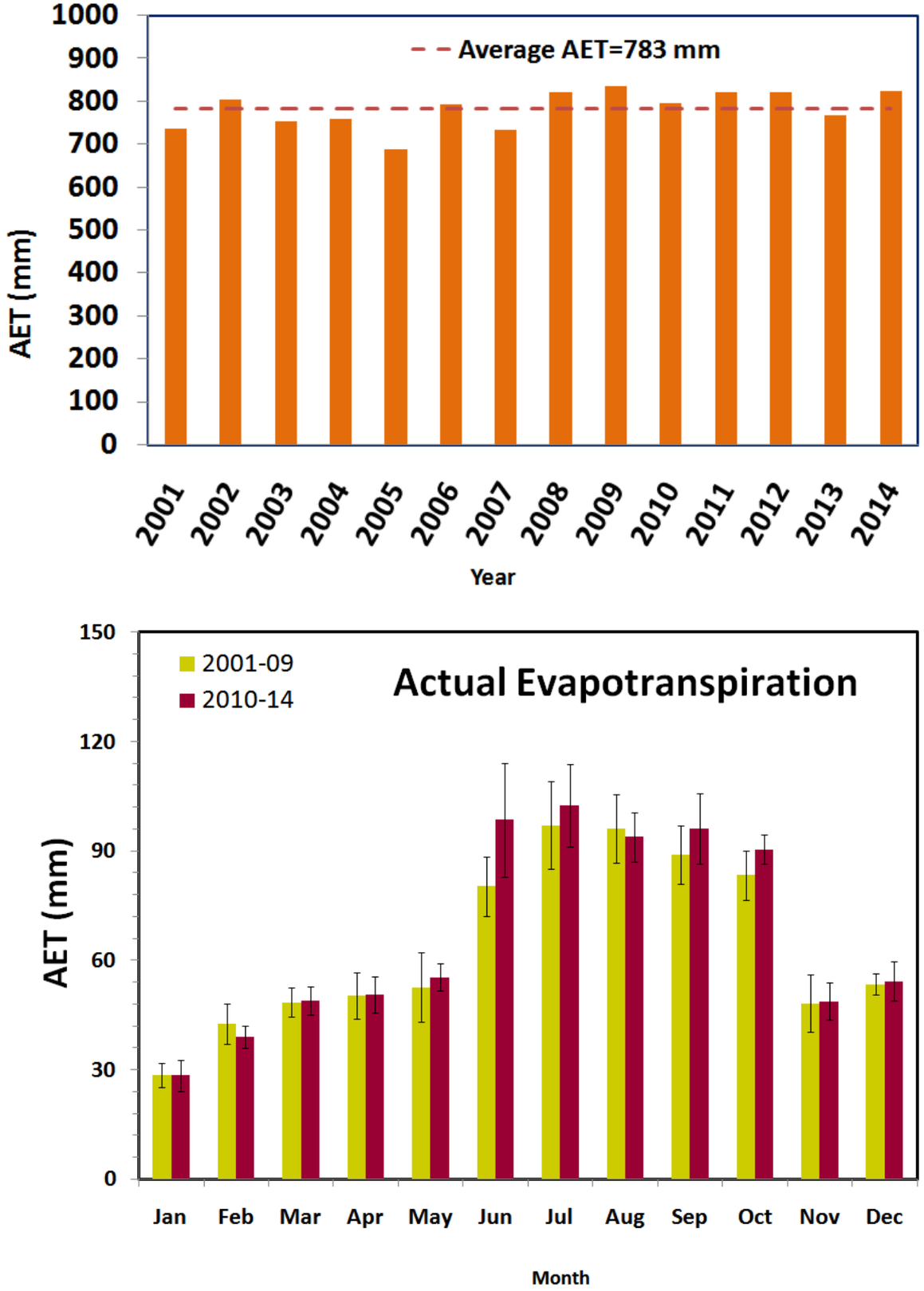


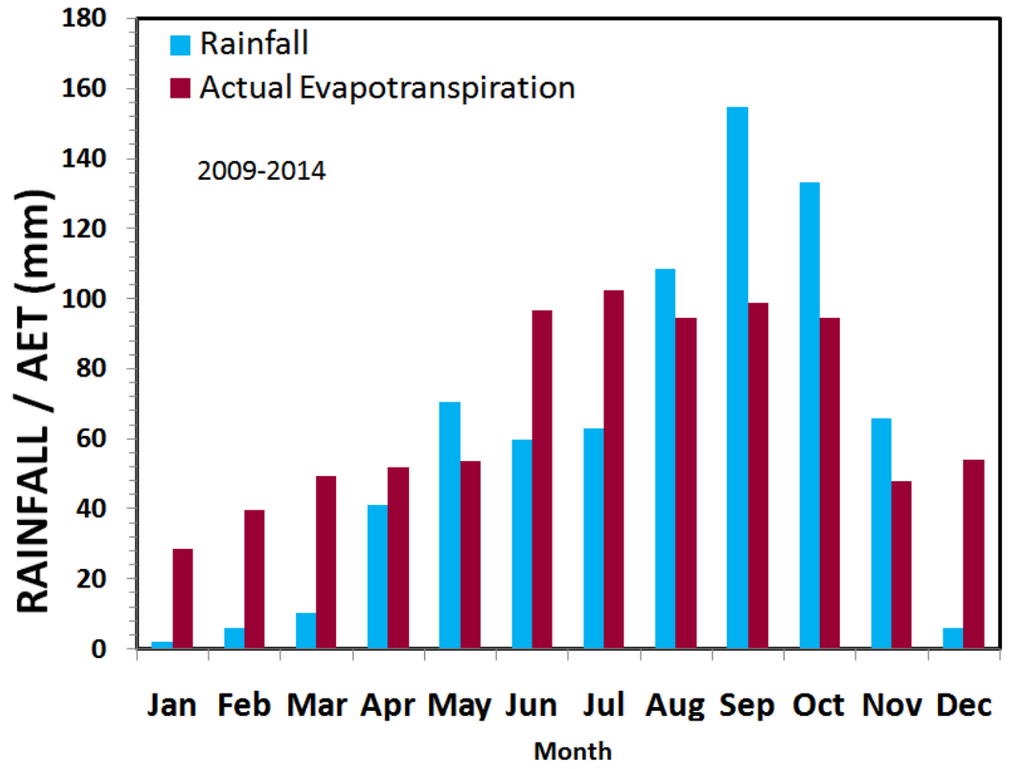
The average *rabi* rainfall (Oct-Jan) is about 25% of the Average annual rainfall. During the years 2009, 2011, 2012, 2013 and 2016 the *rabi* rainfall was deficient by 5%, 25%, 40%, 52% and 77% respectively.

The average summer rainfall (Feb-May) is about 21% of the average annual rainfall.



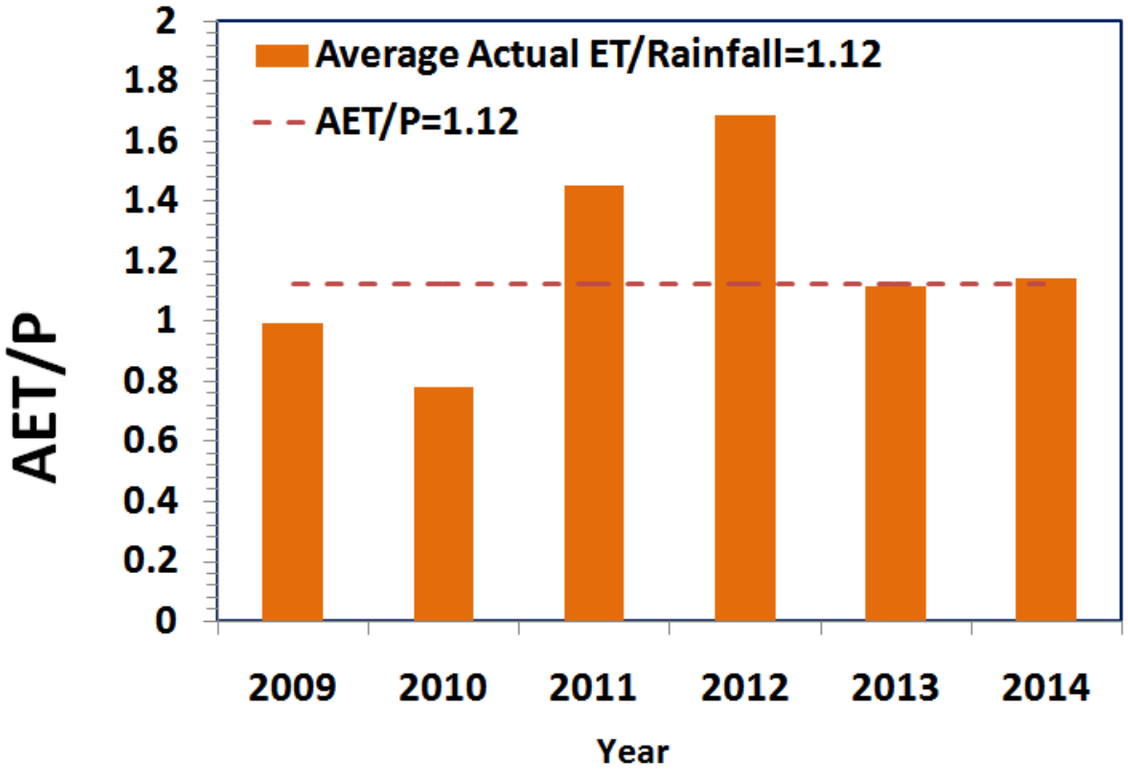
EVAPOTRANSPIRATION

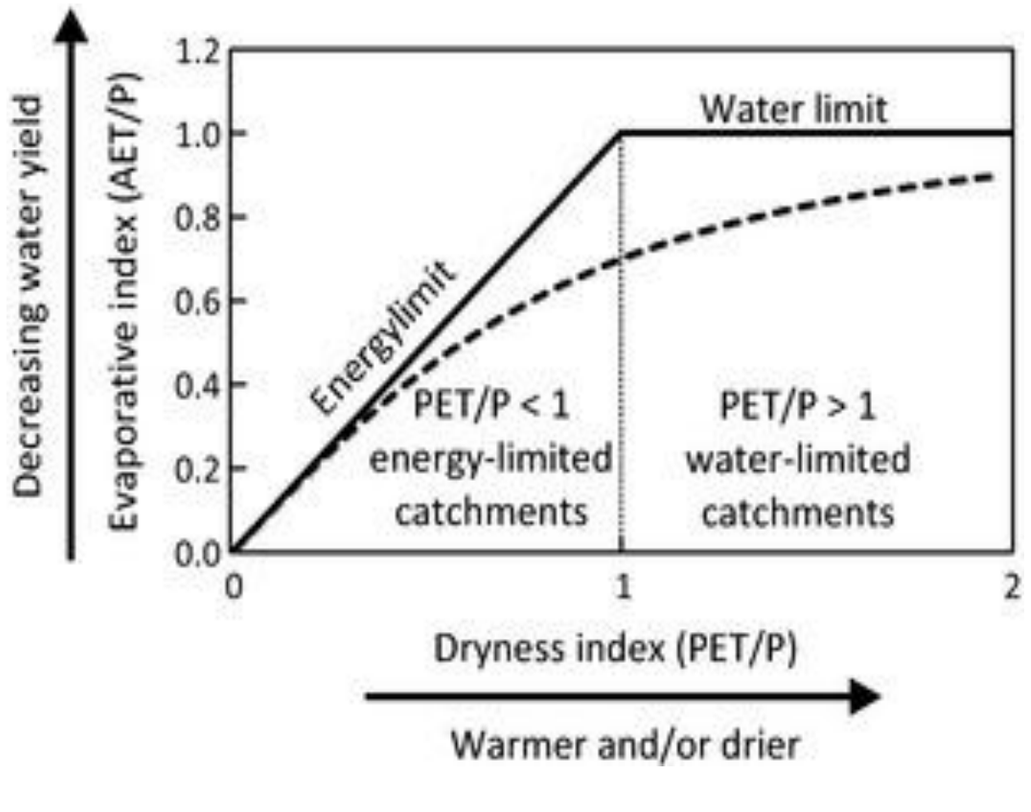




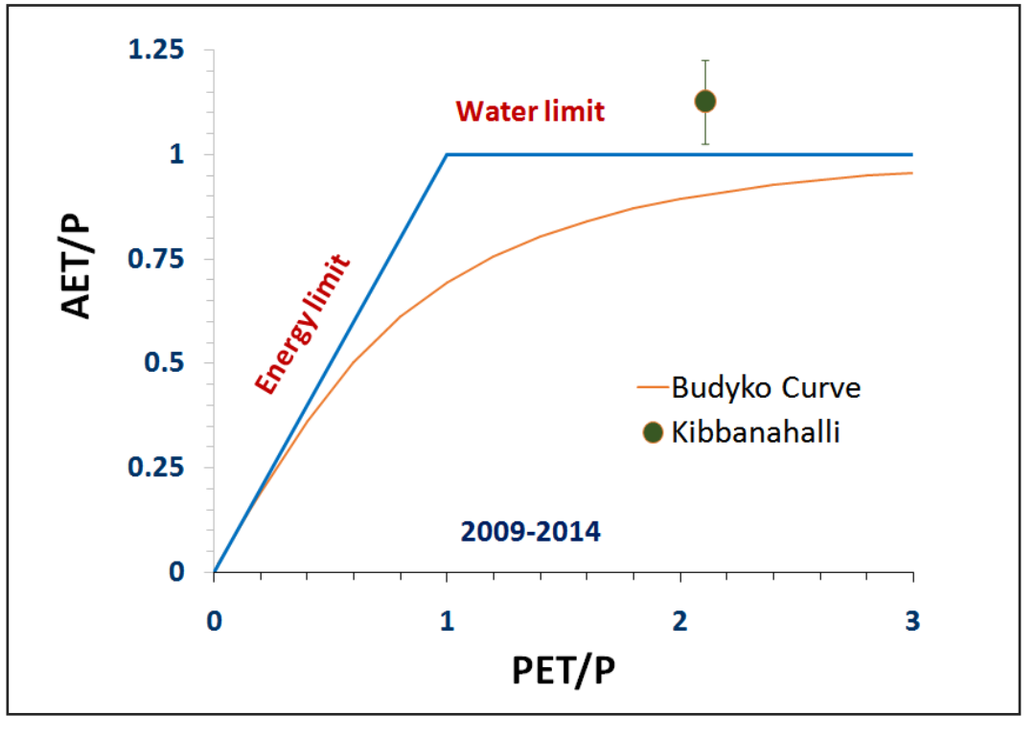
The average annual actual ET is higher than the average rainfall. During *kharif*, average rainfall and AET was found to be 385 mm and 392 mm respectively, whereas in *rabi* it was about 217 mm and 225 mm. The annual ET increased by 5% during 2010-2014 compared to 2001-2009 .

EVAPOTRANSPIRATION INDEX

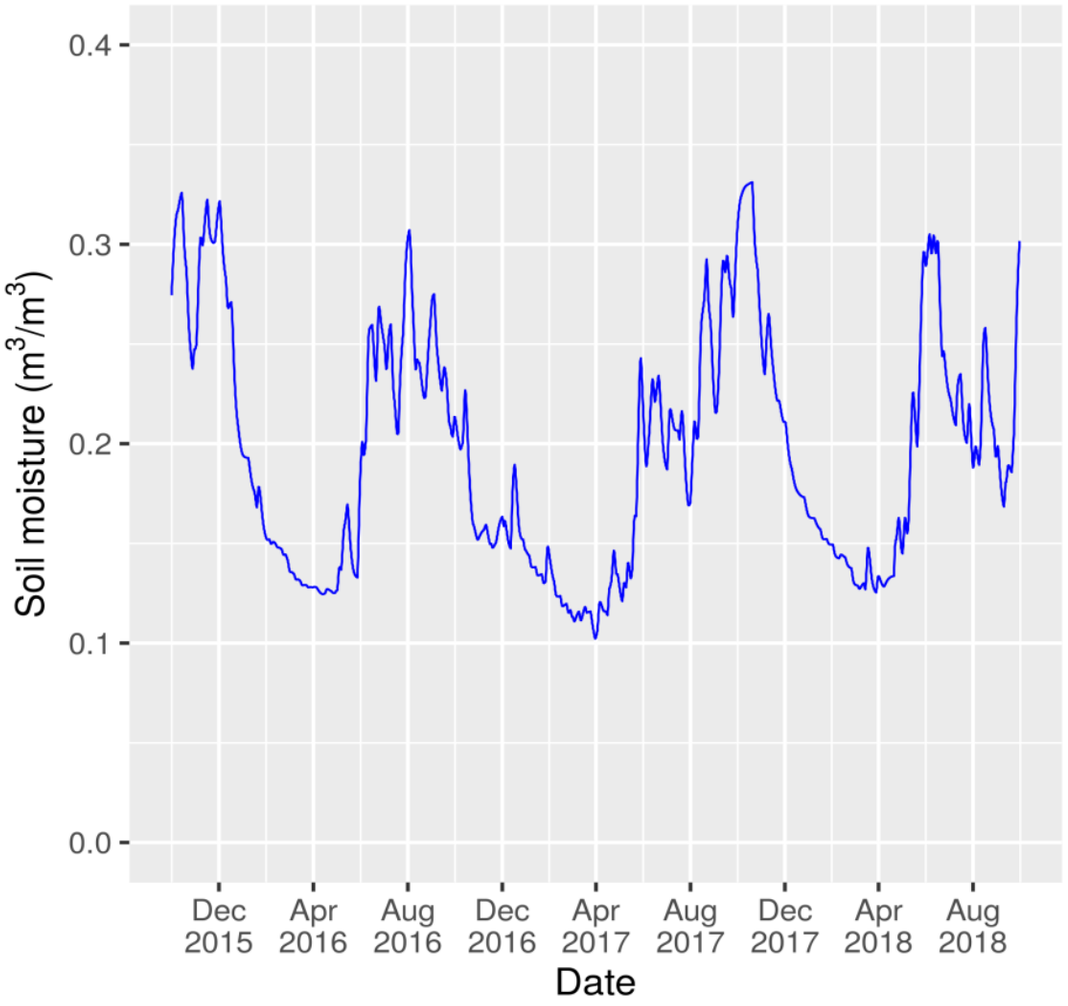




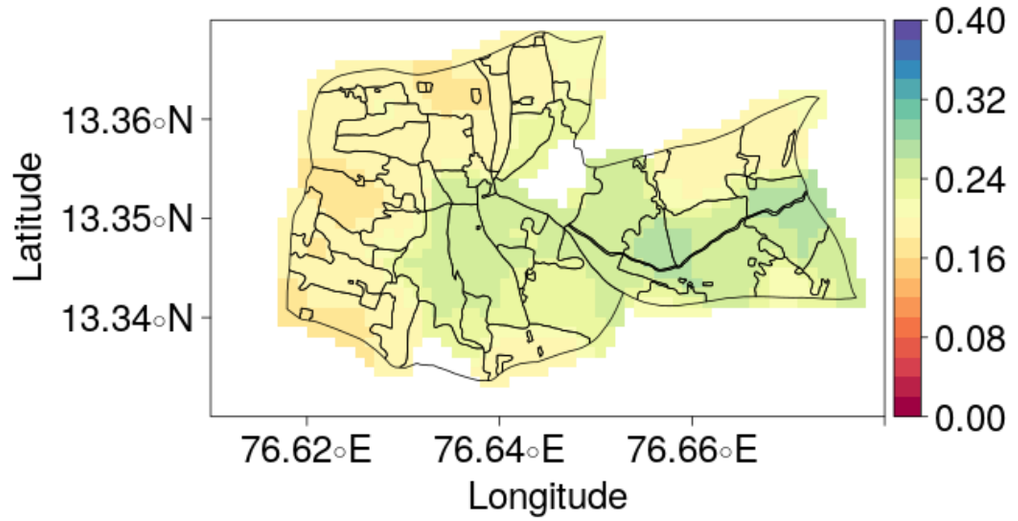
The average AET/P ratio was about 112%, which is higher than the sustainable limit of about 80%. Even during extremely lower rainfall year of 2012, AET was 790 mm. This suggests the presence of water storage and utilization from other sources such as groundwater, which buffered the lower rainfall.



SATELLITE RETRIEVED SOIL MOISTURE

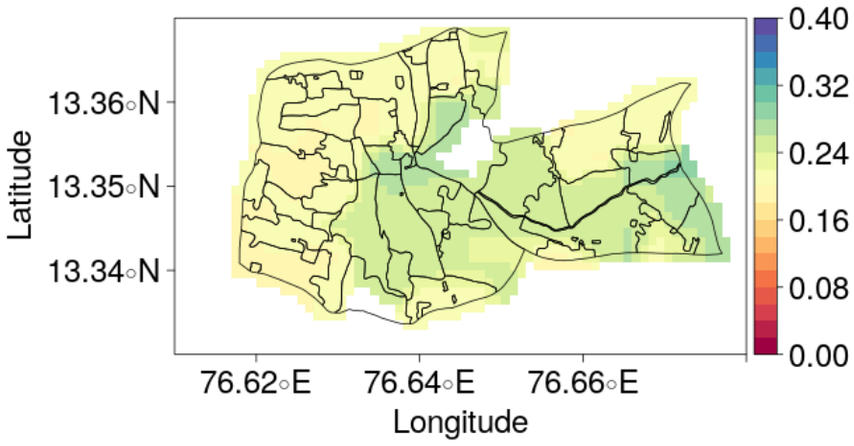


Kibbanahalli– Rabi Soil Moisture



The method developed for retrieving soil moisture from multi-satellite observations allowed to map surface soil moisture behavior in the micro-watershed. The available surface moisture was varied in the range of 13-27 % in *Kharif* and 15-21% in *Rabi* seasons of 2016 and 22-24 % in *Kharif* and 17-32% in *Rabi* seasons of 2017.

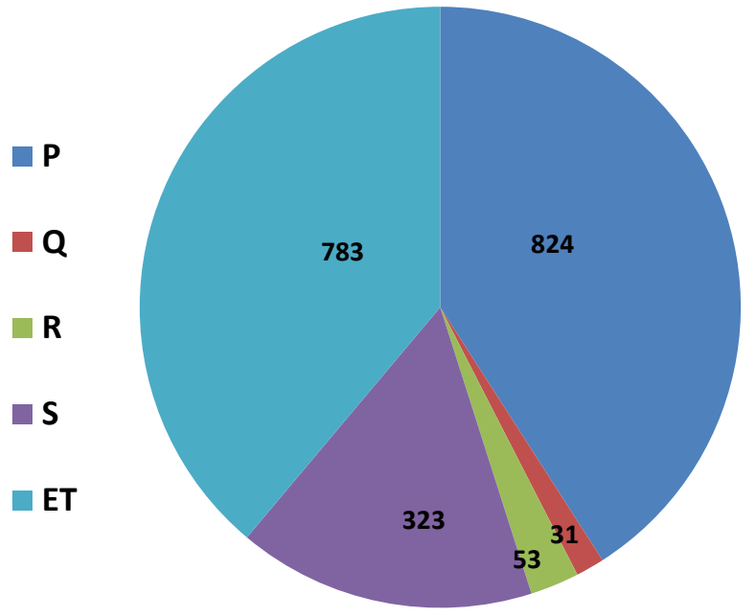
Kibbanahalli– Kharif Soil Moisture



WATER BALANCE

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

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

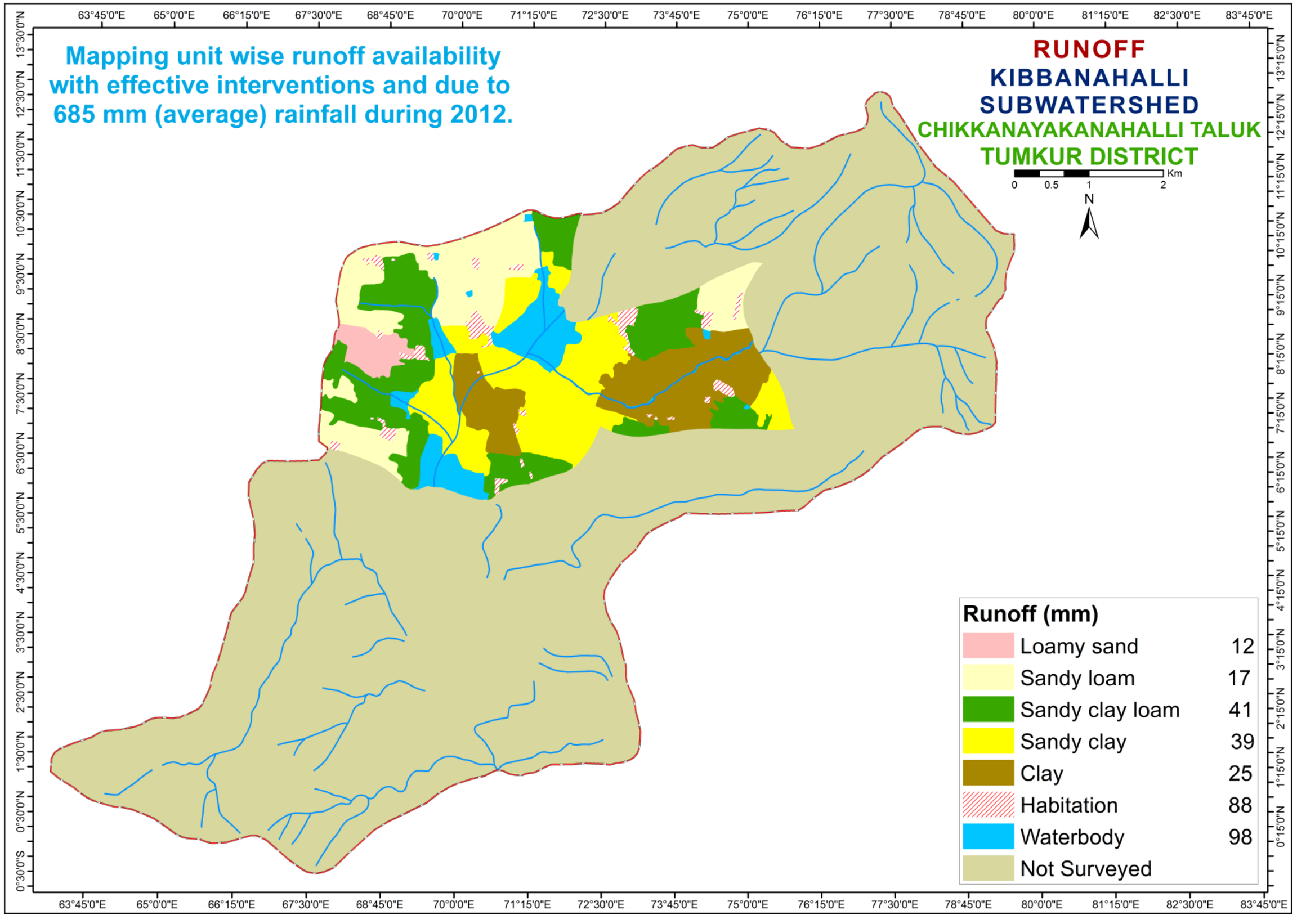


During August-November months, Precipitation is higher than Evapotranspiration, hence Runoff can occur in the watershed.

P = 824 mm (average of 2009-2017) ET = 783 mm R = 53 mm S = 323 mm Q = 31 mm

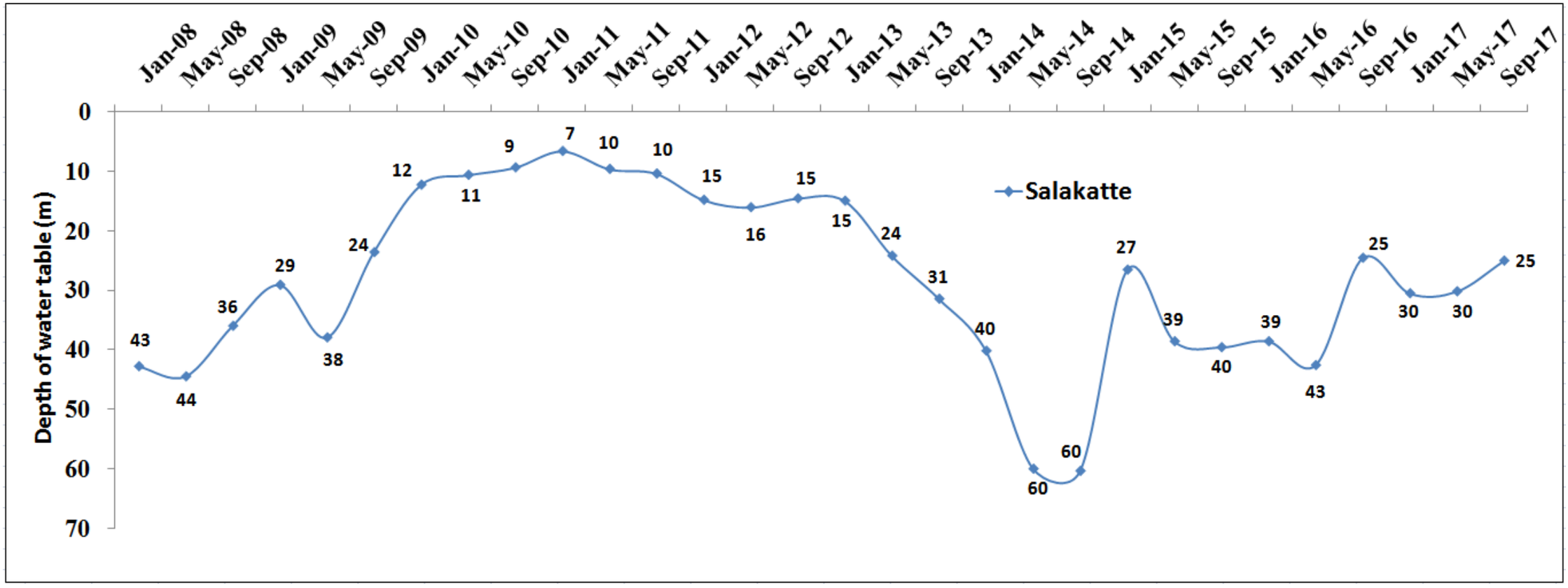
Sl. No.	Parameters	Average_ 2012 (mm)
1.	Rainfall	685
2.	Runoff availability with existing conditions	66
3.	Runoff availability with effective interventions	39
4.	Runoff allowed as environmental flow at the outlet	8
5.	Runoff excess for harvesting by construction of structures	31

RUNOFF


Mapping unit wise runoff availability with effective interventions and due to 685 mm (average) rainfall during 2012.
RUNOFF
KIBBANAHALLI
SUBWATERSHED
CHIKKANAYAKANAHALLI TALUK
TUMKUR DISTRICT
0 0.5 1 2 Km
N
Runoff (mm)
Loamy sand 12
Sandy loam 17
Sandy clay loam 41
Sandy clay 39
Clay 25
Habitation 88
Waterbody 98
Not Surveyed
63°45'0"E
65°0'0"E
66°15'0"E
67°30'0"E
68°45'0"E
70°0'0"E
71°15'0"E
72°30'0"E
73°45'0"E
75°0'0"E
76°15'0"E
77°30'0"E
78°45'0"E
80°0'0"E
81°15'0"E
82°30'0"E
83°45'0"E
13°30'0"N
13°15'0"N
12°30'0"N
12°15'0"N
11°30'0"N
11°15'0"N
10°30'0"N
10°15'0"N
9°30'0"N
9°15'0"N
8°30'0"N
8°15'0"N
7°30'0"N
7°15'0"N
6°30'0"N
6°15'0"N
5°30'0"N
5°15'0"N
4°30'0"N
4°15'0"N
3°30'0"N
3°15'0"N
2°30'0"N
2°15'0"N
1°30'0"N
1°15'0"N
0°30'0"N
0°15'0"N
0°30'0"S

GROUND WATER STATUS

SALAKATTE STATION



The total number of wells present in Kibbanahalli Sub-watershed as per LRI data is 232 (221-Borewells and 11-Open wells). The groundwater level shown above is from the data obtained from Dept. of Mines & Geology for the nearest station Salakatte. The graph depicts the groundwater levels during the years 2008-2009 were slightly varying, where as during the years 2010-2013 and 2015-2017 shallow groundwater levels (3-4 m) were found except the year 2014. Deepest level was found in 2014 year.

SUMMARY

- The average annual rainfall of 755 mm in the Kibbanahalli sub-watershed as recorded from the Shettikere station data.

- 54%, 25% and 21% 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 31 mm for an average annual rainfall of 824 mm (2009-2017). The utilizable groundwater is 37 mm (70% of 53 mm recharge estimated). This means the total available water resource combining the soil moisture store for kharif & rabi (323 mm) and utilizable runoff plus recharge is 391 (=323+31+37)

- The average actual evapotranspiration estimated in the watershed based on the current land use and irrigation practices for the kharif and rabi seasons is 617 mm. Hence the amount of water use for kharif and rabi seasons may be estimated as 771 mm (i.e. 125% of AET). This demand for the two seasons is higher by 380 mm, i.e. (771-391). The AET in June-Sept months is 98% of rainfall. Hence, there is slightly less opportunity to harvest the excess water through watershed management practices for utilizing during rabi season.

- The total number of wells present in Kibbanahalli Sub-watershed as per LRI data are 232 (221-Borewells and 11-Open wells). The groundwater level data obtained from Dept. of Mines & Geology for the nearest station Salakatte. The groundwater levels during the years 2008-2009 were slightly varying except for the year 2014.