NATURAL RESOURCES DATA MANAGEMENT SYSTEM (NRDMS)

MONTHLY ACTIVITY REPORT (August – November 2025)

Submitted by

District NRDMS Centre Zilla Panchayat,Belagavi

Karnataka State Council of Science and Technology (KSCST)

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Preparation of Thematic Maps for Disaster Management Planning Using GIS

Introduction

Effective disaster planning requires accurate, location-specific, and department-wise spatial information to ensure timely response and coordinated action. In this context, the District N.R.D.M.S Centre has prepared a comprehensive set of thematic maps for disaster management planning of Belagavi district. These maps include the Health Facility Map, Police Station Map, Forest Map, Reservoir Map, and Fire Station Map. Each of these maps represents critical infrastructure and natural resources that play a vital role during emergency situations.

The preparation of these maps is aimed at strengthening disaster preparedness, improving inter-departmental coordination, and enabling evidence-based decision-making. By presenting the spatial distribution of essential services and environmentally sensitive areas, these maps provide a clear understanding of available resources, potential risk zones, and response capacities within the district.

The integration of such geospatial information supports authorities in planning mitigation measures, organizing rescue operations, allocating resources efficiently, and reducing vulnerability to natural and man-made disasters. Overall, the thematic maps prepared by the NRDMS Centre serve as a foundational tool for systematic, scientific, and proactive disaster management in Belagavi district.

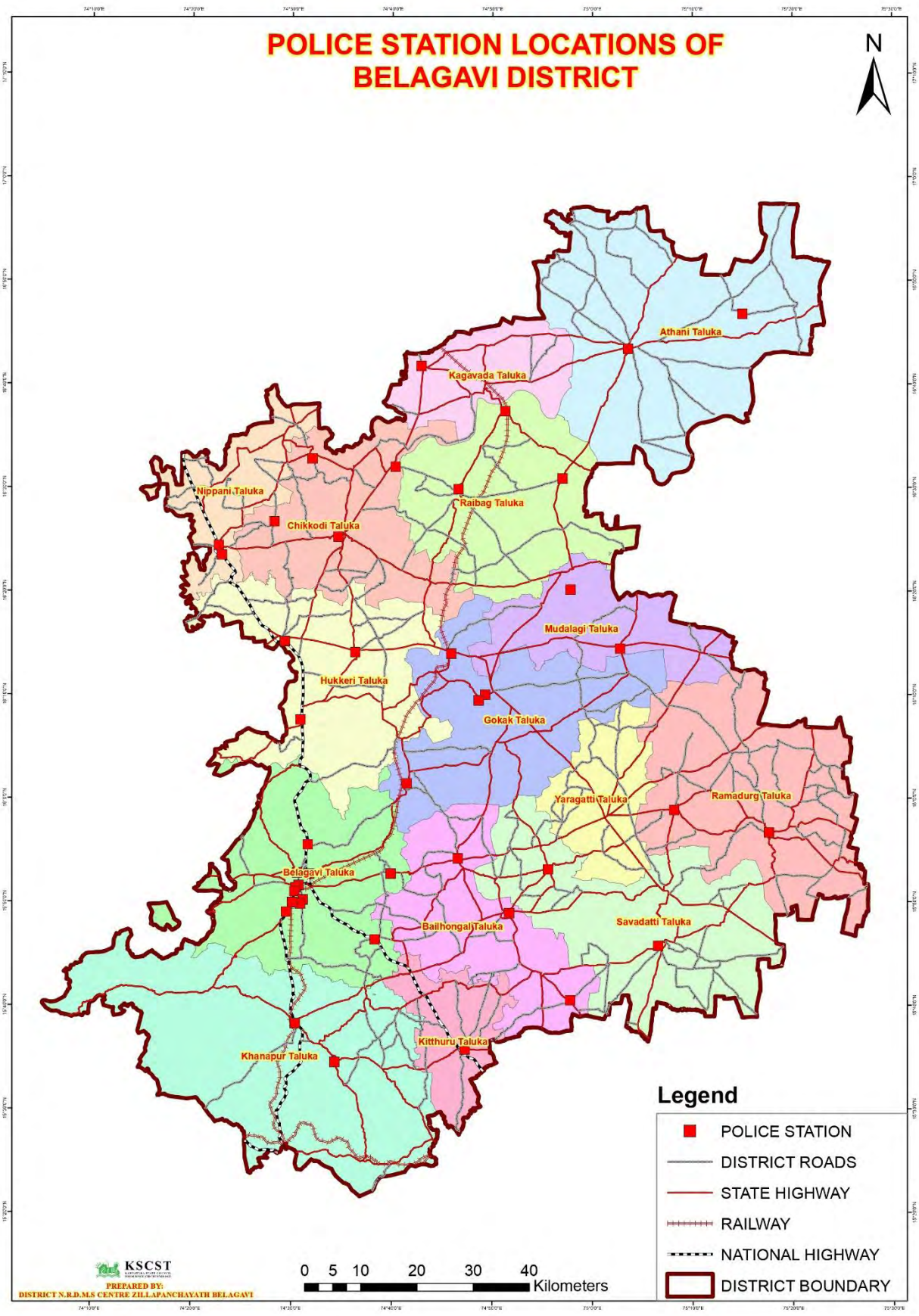
POLICE STATION LOCATIONS OF BELAGAVI DISTRICT

The map titled **"POLICE STATION LOCATIONS OF BELAGAVI DISTRICT"** presents the spatial distribution of police stations across all talukas of Belagavi district, including Athani, Khanapur, Gokak, Savadatti, Ramadurg, Raibag, Hukkeri, Belagavi, Chikkodi, Bailhongal, Mudalagi, Nippani, Yaragatti, Kagavada, and Kitturu. It also displays important infrastructure such as National Highways, State Highways, District Roads, railway lines, and district boundaries with geographic coordinates.

For natural disaster management, this map serves as a critical decision-support tool. During floods, landslides, droughts, earthquakes, or major accidents, police stations act as first-response centers. By identifying their exact locations, authorities can quickly determine the nearest response unit to an affected village or taluka. The road and railway network shown on the map helps disaster management teams plan the fastest and safest routes for rescue vehicles, ambulances, and relief supply transport.

The taluka boundaries assist in administrative coordination, ensuring proper jurisdictional responsibility and smooth inter-taluka cooperation during large-scale emergencies. The map also supports planning of temporary relief camps, evacuation routes, and control rooms. In pre-disaster preparedness, officials can analyze coverage gaps and strengthen vulnerable areas by improving infrastructure or deploying additional personnel.

Overall, this map enhances emergency response efficiency, reduces response time, improves coordination between departments, and strengthens disaster preparedness and resilience across Belagavi district.


POLICE STATION LOCATIONS OF BELAGAVI DISTRICT
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Athani Taluka
Kagavada Taluka
Nippani Taluka
Raibag Taluka
Chikkodi Taluka
Mudalagi Taluka
Hukkeri Taluka
Gokak Taluka
Yaragatti Taluka
Ramadurg Taluka
Belagavi Taluka
Bailhongal Taluka
Savadatti Taluka
Kitthuru Taluka
Khanapur Taluka
Legend
POLICE STATION
DISTRICT ROADS
STATE HIGHWAY
RAILWAY
NATIONAL HIGHWAY
DISTRICT BOUNDARY
0 5 10 20 30 40
Kilometers
KSCST
PREPARED BY:
DISTRICT N.R.D.M.S CENTRE ZILLAPANCHAYATH BELAGAVI

HEALTH FACILITY OF BELAGAVI DISTRICT

The map titled **"HEALTH FACILITY OF BELAGAVI DISTRICT"** provides a comprehensive spatial representation of healthcare infrastructure across Belagavi district. It covers all talukas including Athani, Khanapur, Gokak, Savadatti, Ramadurg, Raibag, Hukkeri, Belagavi, Chikkodi, Bailhongal, Mudalagi, Nippani, Yaragatti, Kagavada, and Kitturu. The map clearly marks different categories of health institutions such as District Hospitals (DH), General Hospitals (GH), Community Health Centres (CHC), Primary Health Centres (PHC), and Sub-Centres. In addition to healthcare facilities, it also shows National Highways, State Highways, railway lines, district boundaries, and geographic coordinates, providing a complete administrative and transportation context.

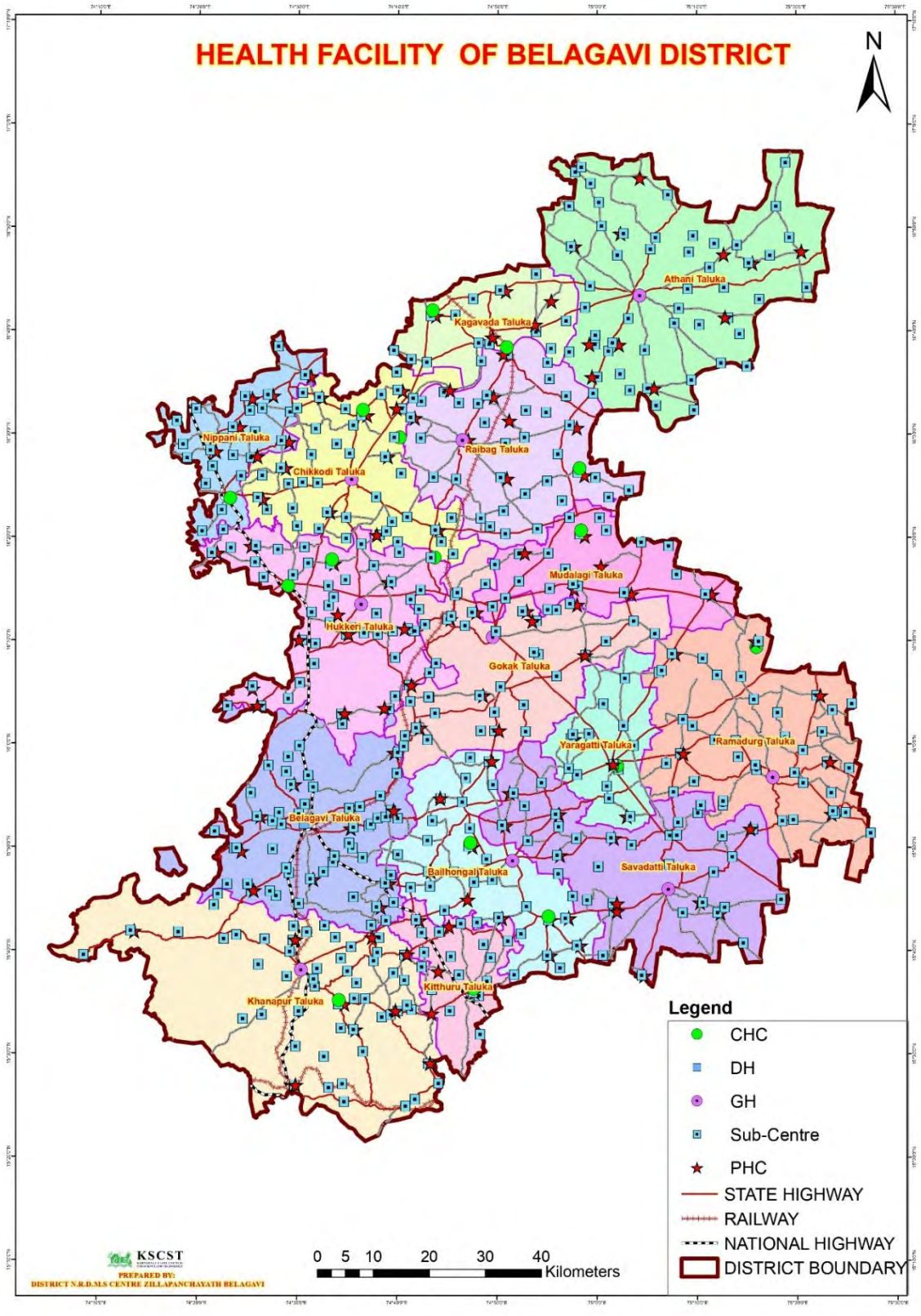
This map is extremely useful for natural disaster management planning and response. During emergencies such as floods, earthquakes, landslides, droughts, epidemics, or major road accidents, quick access to medical care is critical. The map enables disaster management authorities to immediately identify the nearest health facility to an affected location. Because facilities are categorized, decision-makers can determine the level of care available at each centre. For example, critically injured patients requiring advanced treatment and surgical support can be referred to District Hospitals or General Hospitals, while patients with minor injuries or basic medical needs can be treated at PHCs, CHCs, or Sub-Centres.

The presence of transportation networks such as highways and railways helps in route planning for ambulances, medical teams, and relief material distribution. In situations where certain roads are blocked due to flooding or landslides, alternative routes can be identified quickly using the map. This reduces response time and improves coordination between emergency services.

From a preparedness perspective, the map helps authorities analyze the spatial distribution of healthcare facilities. By studying the coverage pattern, officials can identify remote or underserved areas that may face difficulty accessing medical services during disasters. In such locations, temporary medical camps, mobile health units, or additional emergency teams can be strategically deployed in advance.

The taluka and district boundaries shown on the map support administrative coordination. During large-scale disasters affecting multiple talukas, clear boundary information ensures proper jurisdictional responsibility and efficient inter-taluka cooperation. Resource allocation, manpower deployment, and relief fund distribution can be better managed using this geographic reference.

Overall, this health facility map acts as a vital decision-support tool for disaster management authorities. It strengthens emergency preparedness, improves medical response efficiency, enhances coordination among departments, reduces mortality and morbidity during crises, and supports systematic planning for resilient healthcare delivery across Belagavi district.


HEALTH FACILITY OF BELAGAVI DISTRICT
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Gokak Taluka
Yaragatti Taluka
Ramadurg Taluka
Belagavi Taluka
Bailhongal Taluka
Savadatti Taluka
Kitthuru Taluka
Khanapur Taluka
Legend
CHC
DH
GH
Sub-Centre
PHC
STATE HIGHWAY
RAILWAY
NATIONAL HIGHWAY
DISTRICT BOUNDARY
0 5 10 20 30 40
Kilometers
KSCST
PREPARED BY:
DISTRICT N.R.D.M.S CENTRE ZILLAPANCHAYATH BELAGAVI

FOREST AREA OF BELAGAVI DISTRICT

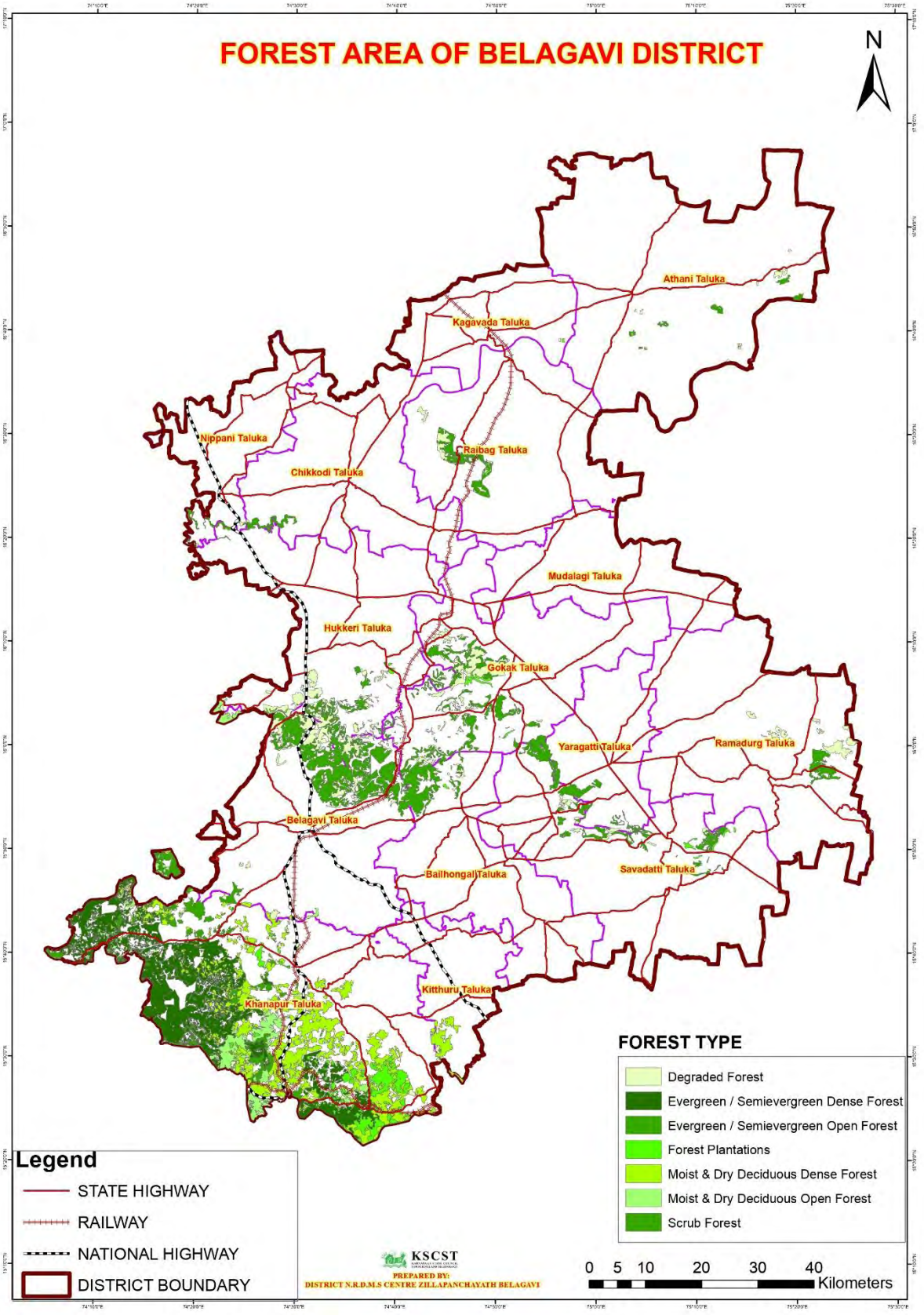
The map titled **"FOREST AREA OF BELAGAVI DISTRICT"** presents the spatial distribution and classification of forest resources across all talukas of Belagavi district, including Athani, Khanapur, Gokak, Savadatti, Ramadurg, Raibag, Hukkeri, Belagavi, Chikkodi, Bailhongal, Mudalagi, Nippani, Yaragatti, Kagavada, and Kitturu. The map categorizes forest areas into different types such as Degraded Forest, Evergreen/Semi-Evergreen Dense Forest, Evergreen/Semi-Evergreen Open Forest, Forest Plantations, Moist and Dry Deciduous Dense Forest, Moist and Dry Deciduous Open Forest, and Scrub Forest. It also shows key infrastructure like National Highways, State Highways, railway lines, and district boundaries along with geographic coordinates.

For natural disaster management, this map serves as an essential planning and response tool. Forest areas often play a critical role in disasters such as floods, landslides, droughts, forest fires, and even climate-related hazards. By identifying the type and density of forests, authorities can assess vulnerability levels. Dense evergreen and deciduous forests may act as natural barriers that reduce soil erosion and flooding, whereas degraded or scrub forests may be more prone to forest fires and soil instability.

During forest fire incidents, the classification helps in prioritizing sensitive zones, deploying fire response teams, and planning firebreak lines. Knowledge of plantations and degraded forests allows officials to focus on conservation measures to reduce environmental damage. In the case of heavy rainfall or landslides, areas with reduced vegetation cover can be identified as high-risk zones.

The presence of highways and railways on the map supports logistical planning for evacuation, movement of firefighting equipment, and transport of relief materials. District and taluka boundaries assist in administrative coordination and resource allocation across affected regions.

Additionally, this map supports long-term disaster preparedness by helping authorities plan afforestation, watershed management, and ecological restoration programs. Overall, it enhances risk assessment, strengthens early warning planning, improves emergency response efficiency, and promotes sustainable environmental management for disaster resilience in Belagavi district.


FOREST AREA OF BELAGAVI DISTRICT
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Athani Taluka
Kagavada Taluka
Nippani Taluka
Raibag Taluka
Chikkodi Taluka
Mudalagi Taluka
Hukkeri Taluka
Gokak Taluka
Yaragatti Taluka
Ramadurg Taluka
Belagavi Taluka
Bailhongal Taluka
Savadatti Taluka
Kitthuru Taluka
Khanapur Taluka
FOREST TYPE
Degraded Forest
Evergreen / Semievergreen Dense Forest
Evergreen / Semievergreen Open Forest
Forest Plantations
Moist & Dry Deciduous Dense Forest
Moist & Dry Deciduous Open Forest
Scrub Forest
Legend
STATE HIGHWAY
RAILWAY
NATIONAL HIGHWAY
DISTRICT BOUNDARY
KSCST
PREPARED BY:
DISTRICT N.R.D.M.S CENTRE ZILLAPANCHAYATH BELAGAVI
0 5 10 20 30 40
Kilometers

FIRE STATION LOCATIONS OF BELAGAVI DISTRICT

The map titled **"FIRE STATION LOCATIONS OF BELAGAVI DISTRICT"** presents the spatial distribution of fire stations across all talukas of Belagavi district, including Athani, Khanapur, Gokak, Savadatti, Ramadurg, Raibag, Hukkeri, Belagavi, Chikkodi, Bailhongal, Mudalagi, Nippani, Yaragatti, Kagavada, and Kitturu. The map clearly marks fire station locations and shows important transportation networks such as District Roads, State Highways, National Highways, railway lines, and district boundaries along with geographic coordinates.

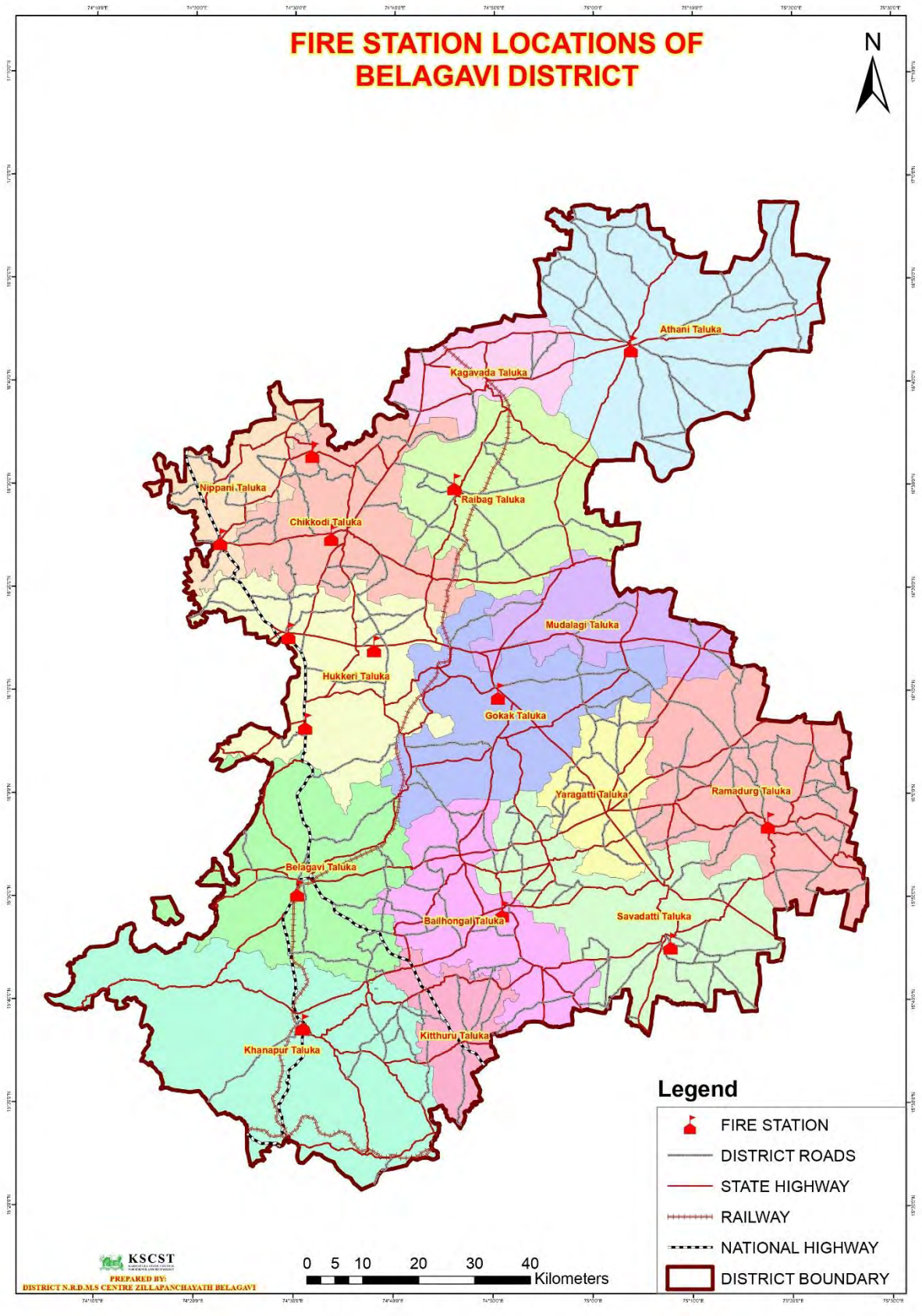
For natural disaster management, this map is an essential operational and planning tool. Fire stations play a crucial role not only in controlling fire accidents but also in responding to multiple types of disasters such as industrial accidents, gas leaks, building collapses, road traffic accidents, floods, and rescue operations during earthquakes or storms. By identifying the exact location of each fire station, disaster management authorities can quickly determine the nearest response unit to any affected area, thereby reducing response time.

The road network shown on the map supports efficient route planning for fire engines and rescue vehicles. During emergencies, certain roads may be blocked due to flooding, debris, or landslides. This map helps officials identify alternative access routes using State Highways or National Highways to ensure uninterrupted emergency services. The railway network also provides reference points for areas with heavy population or industrial activity, which may require special preparedness measures.

Taluka and district boundaries displayed on the map help in administrative coordination. In large-scale disasters affecting multiple talukas, clear boundary information ensures proper jurisdictional responsibility and inter-departmental cooperation. Fire services from neighboring talukas can be mobilized efficiently when additional support is required.

From a preparedness perspective, the map allows authorities to analyze the spatial coverage of fire stations. Areas located far from existing stations can be identified as high-risk zones where response time may be longer. Such analysis supports decisions regarding the establishment of new fire stations, deployment of additional equipment, or creation of temporary emergency response units.

Overall, this fire station location map strengthens disaster preparedness, improves emergency response planning, enhances coordination among departments, reduces risk to life and property, and supports effective disaster risk management across Belagavi district.


FIRE STATION LOCATIONS OF
BELAGAVI DISTRICT
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Athani Taluka
Kagavada Taluka
Nippani Taluka
Raibag Taluka
Chikkodi Taluka
Mudalagi Taluka
Hukkeri Taluka
Gokak Taluka
Yaragatti Taluka
Ramadurg Taluka
Belagavi Taluka
Bailhongal Taluka
Savadatti Taluka
Kitthuru Taluka
Khanapur Taluka
Legend
FIRE STATION
DISTRICT ROADS
STATE HIGHWAY
RAILWAY
NATIONAL HIGHWAY
DISTRICT BOUNDARY
KSCST
PREPARED BY:
DISTRICT N.R.D.M.S CENTRE ZILLAPANCHAYATH BELAGAVI
0 5 10 20 30 40
Kilometers

RESERVOIR LOCATIONS OF BELAGAVI DISTRICT

The map titled **"RESERVOIR LOCATIONS OF BELAGAVI DISTRICT"** presents the spatial distribution of major reservoirs and river systems across Belagavi district. It identifies key reservoirs such as Hidkal Reservoir, Markandeya Reservoir, Rakaskoppa Reservoir, and Malaprabha Reservoir. In addition, the map displays important rivers including the Krishna River, Ghataprabha River, Malaprabha River, Markandeya River, Agrani River, Dudhganga River, and other smaller streams and nadis. The map also includes taluka boundaries such as Athani, Khanapur, Gokak, Savadatti, Ramadurg, Raibag, Hukkeri, Belagavi, Chikkodi, Bailhongal, Mudalagi, Nippani, Yaragatti, Kagavada, and Kitturu. Transportation infrastructure like National Highways, State Highways, railway lines, district boundaries, and geographic coordinates are also clearly shown.

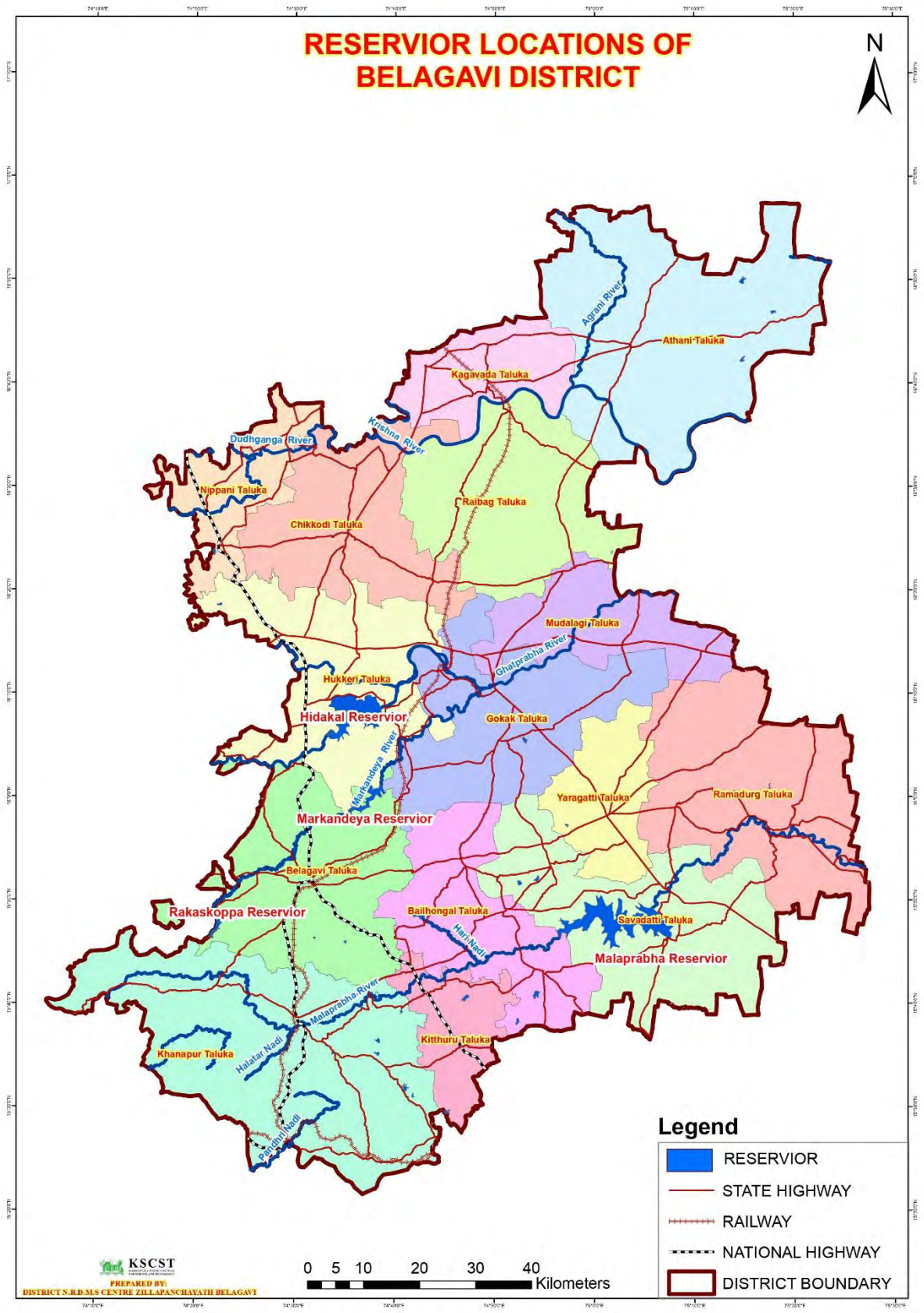
For natural disaster management, this map is extremely important, particularly for flood risk assessment and water resource management. Reservoirs and rivers are directly linked to flood hazards during heavy rainfall or dam release situations. By identifying the exact locations of reservoirs and their downstream river networks, authorities can predict which talukas and villages are at higher risk during high water discharge. This helps in issuing early warnings and planning timely evacuations.

The map supports monitoring of dam safety and coordinated water release decisions. During extreme rainfall events, controlled release of water from reservoirs must be carefully managed to prevent sudden flooding downstream. This map helps disaster management teams visualize the connectivity between reservoirs and river basins, enabling better decision-making.

Additionally, the map is useful during drought conditions. It helps planners assess water storage distribution and plan water supply management, tanker movement, and agricultural support measures. The road and railway networks shown on the map assist in planning evacuation routes, relief distribution, and transportation of emergency equipment during flood or dam-related emergencies.

Taluka and district boundaries help in administrative coordination when multiple regions are affected. Inter-departmental coordination between irrigation, revenue, police, and disaster management authorities becomes more efficient with clear geographic reference.

Overall, this reservoir location map enhances flood preparedness, supports early warning systems, improves evacuation planning, strengthens dam safety monitoring, ensures effective water resource management, and significantly contributes to comprehensive disaster risk reduction and resilience planning in Belagavi district.


RESERVIOR LOCATIONS OF
BELAGAVI DISTRICT
N
Agrani River
Athani Talūka
Kagavada Taluka
Krishna River
Dudhganga River
Nippani Taluka
Raibag Taluka
Chikkodi Taluka
Mudalagi Taluka
Ghatprabha River
Hukkeri Taluka
Hidakal Reservior
Gokak Taluka
Markandeya River
Yaragatti Taluka
Ramadurg Taluka
Markandeya Reservior
Belagavi Taluka
Rakaskoppa Reservior
Bailhongal Taluka
Savadatti Taluka
Hari Nadi
Malaprabha Reservior
Malaprabha River
Kitthuru Taluka
Khanapur Taluka
Halatar Nadi
Pachim Nadi
Legend
RESERVIOR
STATE HIGHWAY
RAILWAY
NATIONAL HIGHWAY
DISTRICT BOUNDARY
0 5 10 20 30 40
Kilometers
KSCST
PREPARED BY:
DISTRICT N.R.D.M.S CENTRE ZILLAPANCHAYATH BELAGAVI

Subject: ***Preparation of High-resolution Satellite Image Maps for creating new revenue villages***

The State Government is empowered to alter village boundaries, divide existing villages, or constitute new revenue villages in the interest of administrative convenience and better land administration.

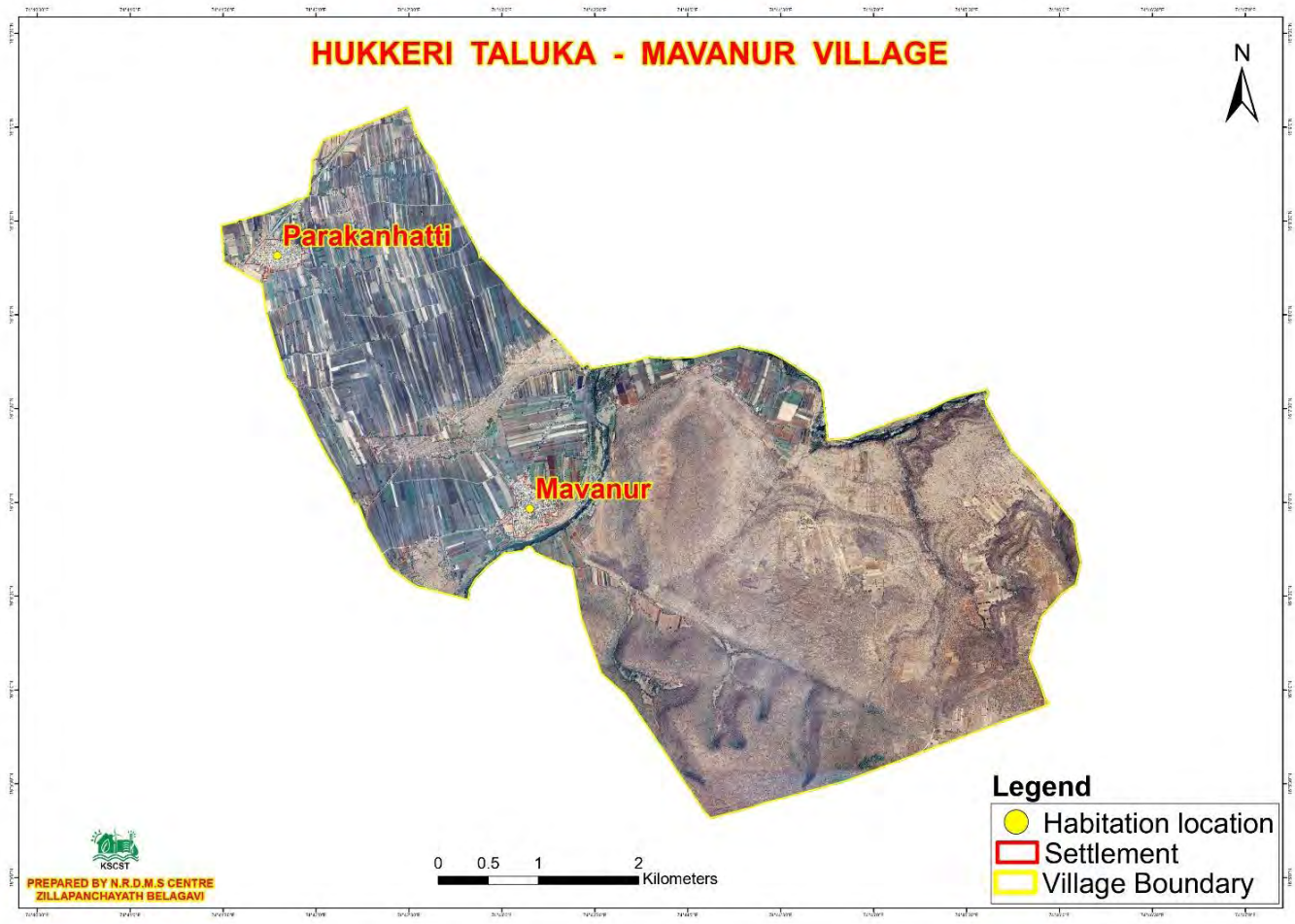
High-resolution satellite imagery has been utilized to verify ground realities. Satellite images provide accurate visualization of natural features such as rivers, streams, roads, forest areas, agricultural lands, and built-up habitations. These images assist in confirming existing boundary alignments, identifying encroachments if any, and ensuring that no survey number overlap or territorial ambiguity arises in the proposed reorganization.

The use of satellite imagery enhances transparency and accuracy in decision-making. It enables authorities to cross-verify physical features with revenue maps and survey records, thereby minimizing disputes. Satellite data also helps in assessing habitation clusters, road connectivity, and accessibility, which are critical factors while determining administrative feasibility. Furthermore, geo-referenced satellite imagery supports precise demarcation of government lands, water bodies, gomala lands, and public utilities within the proposed jurisdiction.

It will improve administrative supervision, ensure timely service delivery, and strengthen implementation of government schemes. The integration of satellite imagery in the verification process further ensures scientific accuracy and reduces the scope for boundary-related disputes in future.

It is significant to highlight that the District N.R.D.M.S Centre prepared a **total of 368 satellite image-based maps during the period from August to November.** These maps were extensively used for analyzing habitation patterns, verifying geographical continuity, and confirming connectivity through roads and natural features. The preparation of these 368 satellite maps has greatly improved the accuracy, transparency, and scientific basis of the decision-making process in creating new revenue villages. The use of such geo-spatial technology reduces the chances of boundary disputes and enhances confidence among stakeholders.

Overall, the creation of new revenue villages aims to improve administrative efficiency, enhance public service delivery, and ensure systematic land record management. The integration of satellite imagery and preparation of 368 detailed maps by the NRDMS Centre.


HUKKERI TALUKA - MAVANUR VILLAGE
N
Parakanhatti
Mavanur
Legend
Habitation location
Settlement
Village Boundary
0 0.5 1 2
Kilometers
KSCST
PREPARED BY N.R.D.M.S CENTRE
ZILLAPANCHAYATH BELAGAVI

GIS and GPS Training for newly appointed Village Accountants

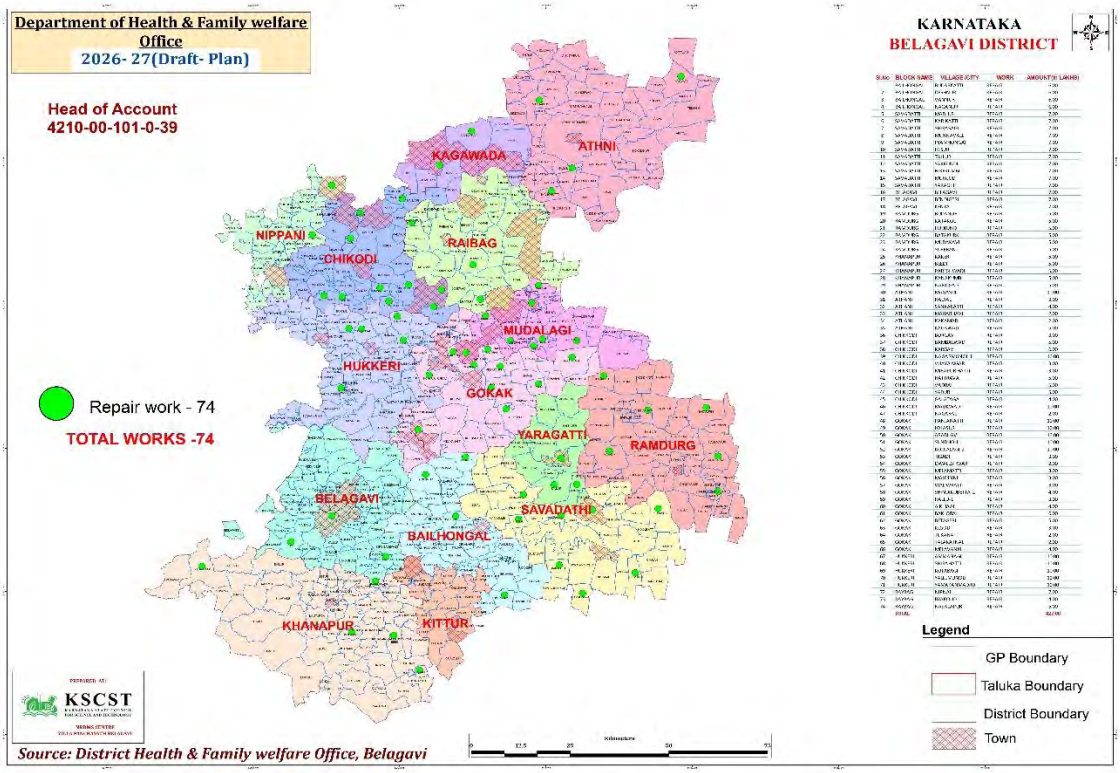
The **Natural Resources Data Management System (NRDMS)** plays an important role in strengthening village-level administration by providing training in modern geospatial technologies. In the state of **Karnataka**, NRDMS has been actively involved in training newly recruited Village Accountants in the use of **GIS (Geographic Information System)** and **GPS (Global Positioning System)** technologies. These technologies are essential for improving the efficiency and accuracy of revenue administration, particularly in maintaining land records, verifying land boundaries, and supporting village-level planning activities.

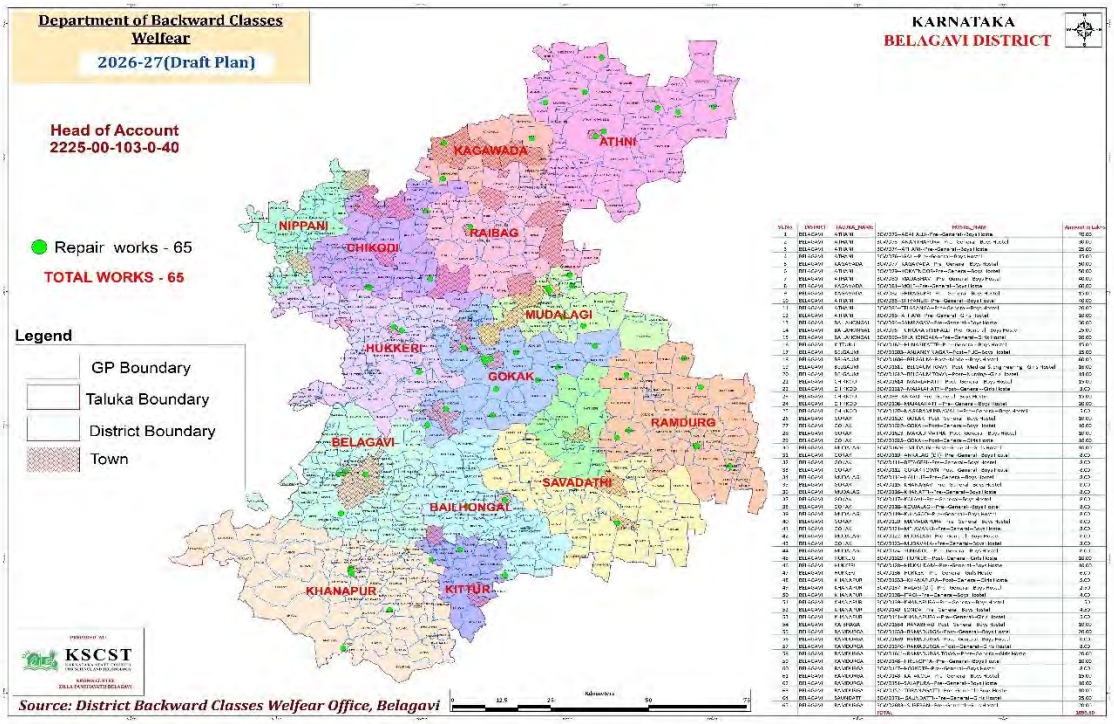
Through this training program, Village Accountants are introduced to the fundamentals of GIS mapping, digital village maps, and the integration of spatial data with land records such as survey numbers and ownership details. They are trained to understand how GIS can be used to visualize land parcels, analyze spatial information, and assist in maintaining updated records of land ownership and land use. In addition, practical training in GPS technology enables Village Accountants to capture accurate geographic coordinates in the field, which is useful for identifying land parcel boundaries, verifying survey points, and conducting ground-level inspections.

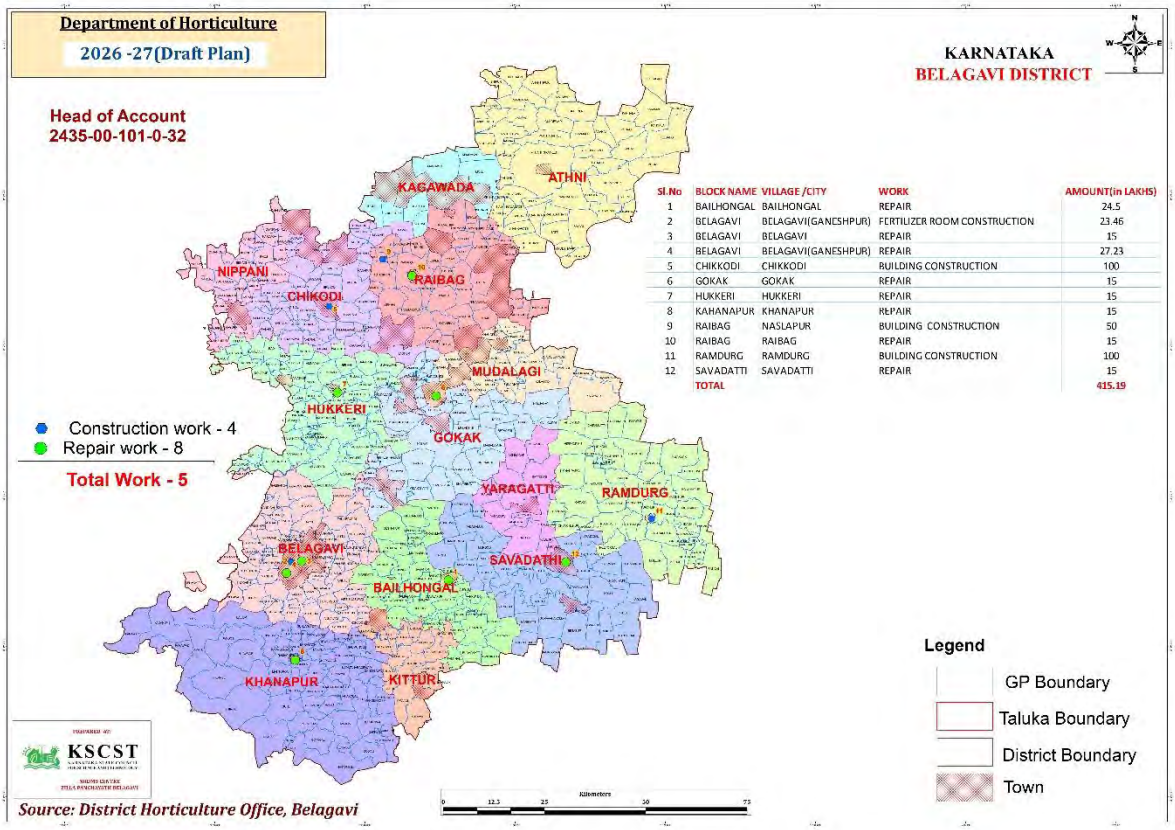
The training also highlights the role of geospatial technologies in supporting government services provided through platforms such as **Nadakacheri**, where accurate land and location data are essential for issuing certificates and verifying applications. By learning these tools, Village Accountants can perform their responsibilities more efficiently, including crop inspections, disaster damage assessment, and verification of government land.

Overall, the NRDMS training program equips newly recruited Village Accountants with the necessary technical skills to use GIS and GPS technologies effectively, thereby enhancing transparency, improving data accuracy, and supporting better governance and rural development at the village level.

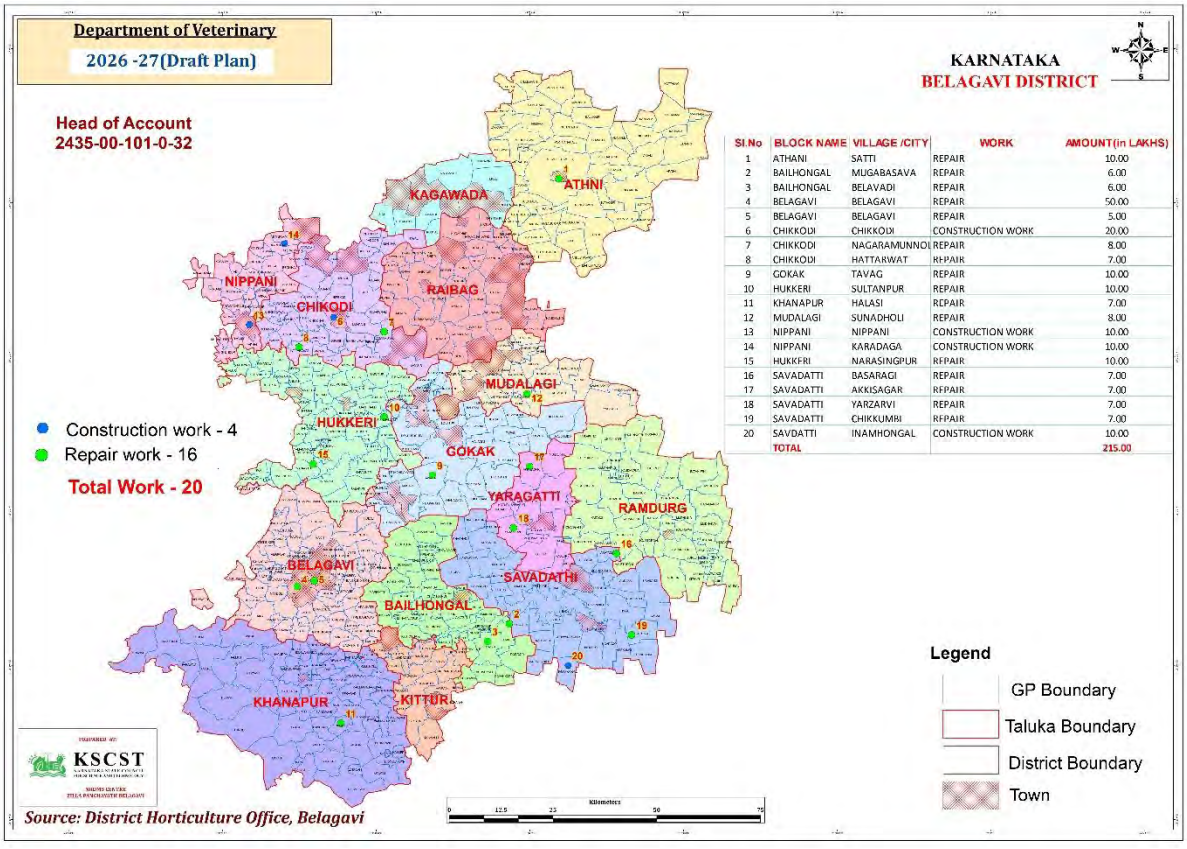
Year 2026 - 2027 Draft planning Maps.



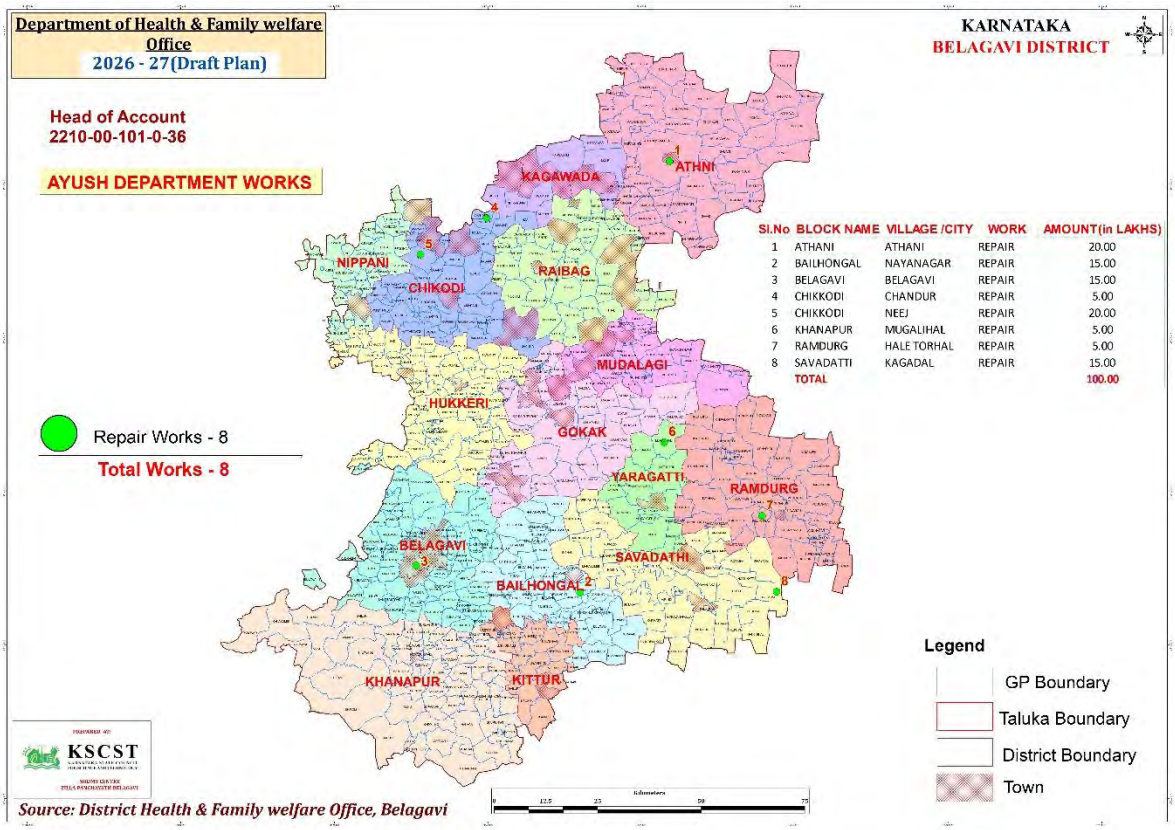




Sl.No	BLOCK NAME	VILLAGE /CITY	WORK	AMOUNT(in LAKHS)
1	BAILHONGAL	BAILHONGAL	REPAIR	24.5
2	BELAGAVI	BELAGAVI(GANESHPUR)	FERTILIZER ROOM CONSTRUCTION	23.46
3	BELAGAVI	BELAGAVI	REPAIR	15
4	BELAGAVI	BELAGAVI(GANESHPUR)	REPAIR	27.23
5	CHIKKODI	CHIKKODI	BUILDING CONSTRUCTION	100
6	GOKAK	GOKAK	REPAIR	15
7	HUKKERI	HUKKERI	REPAIR	15
8	KAHANAPUR	KHANAPUR	REPAIR	15
9	RAIBAG	NASLAPUR	BUILDING CONSTRUCTION	50
10	RAIBAG	RAIBAG	REPAIR	15
11	RAMDURG	RAMDURG	BUILDING CONSTRUCTION	100
12	SAVADATTI	SAVADATTI	REPAIR	15
	TOTAL			415.19



Sl.No	BLOCK NAME	VILLAGE /CITY	WORK	AMOUNT(in LAKHS)
1	ATHANI	SATTI	REPAIR	10.00
2	BAILHONGAL	MUGABASAVA	REPAIR	6.00
3	BAILHONGAL	BELAVADI	REPAIR	6.00
4	BELAGAVI	BELAGAVI	REPAIR	50.00
5	BELAGAVI	BELAGAVI	REPAIR	5.00
6	CHIKKODI	CHIKKODI	CONSTRUCTION WORK	20.00
7	CHIKKODI	NAGARAMUNNOL	REPAIR	8.00
8	CHIKKODI	HATTARWAT	REPAIR	7.00
9	GOKAK	TAVAG	REPAIR	10.00
10	HUKKERI	SULTANPUR	REPAIR	10.00
11	KHANAPUR	HALASI	REPAIR	7.00
12	MUDALAGI	SUNADHOLI	REPAIR	8.00
13	NIPPANI	NIPPANI	CONSTRUCTION WORK	10.00
14	NIPPANI	KARADAGA	CONSTRUCTION WORK	10.00
15	HUKKERI	NARASINGPUR	REPAIR	10.00
16	SAVADATTI	BASARAGI	REPAIR	7.00
17	SAVADATTI	AKKISAGAR	REPAIR	7.00
18	SAVADATTI	YARZARVI	REPAIR	7.00
19	SAVADATTI	CHIKKUMBI	REPAIR	7.00
20	SAVDATTI	INAMHONGAL	CONSTRUCTION WORK	10.00
	TOTAL			215.00



Conclusion

The **Quadrimester Report for the period August to November 2025** highlights the major activities carried out under the GIS-based planning and support initiatives. During this period, several thematic maps were prepared to strengthen **disaster management and administrative planning**. These include **Fire Station Maps, Police Station Maps, Forest Maps, and Health Infrastructure Maps**, which provide spatial information about the location and distribution of critical emergency and public service facilities. These maps are useful for government departments in planning emergency response, resource allocation, and improving coordination during disaster situations.

In addition, **GIS and GPS training programs were conducted for newly appointed Village Accountants**. The training focused on introducing modern geospatial technologies that assist in accurate field data collection, village boundary identification, land record verification, and preparation of digital maps. By using GPS devices and GIS software, Village Accountants can improve the efficiency and accuracy of revenue administration and rural development activities.

Further, **draft planning maps for the year 2026–2027 were prepared** to support future development planning at district and village levels. These draft maps will assist government departments in identifying infrastructure gaps, planning new facilities, and strengthening disaster preparedness strategies.