



ORIGINAL RESEARCH PAPER

Geography

AGRICULTURAL DEVELOPMENT IN NANJANGUD TALUK, MYSURU DISTRICT (2011-2021): A GEOGRAPHICAL ANALYSIS

KEY WORDS: Agriculture, Nanjangud Taluk, Mysuru District, Cropping Pattern, Irrigation, GIS, Sustainable Agriculture, Land Use, Agricultural Geography, Karnataka.

Dr. Satheesh Kumar N. S.

Assistant Professor, Department of Studies and Research in Geography, Karnataka State Open University, Mukthagangothri, Mysuru – 570006

Dr. Anupama B. H.

Assistant Professor, Department of Engineering Chemistry, Maharaja Institute of Technology, Thandavapura, Mysuru- 571302.

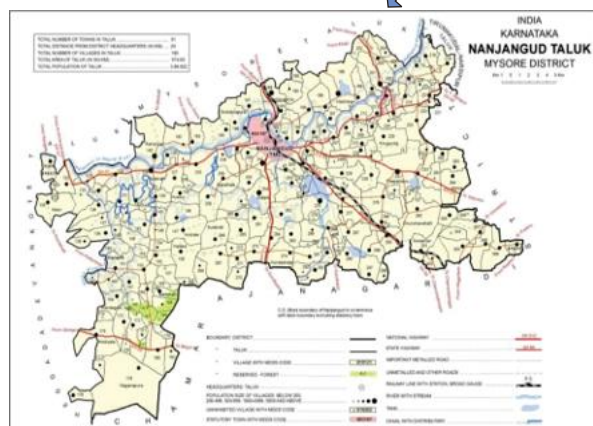
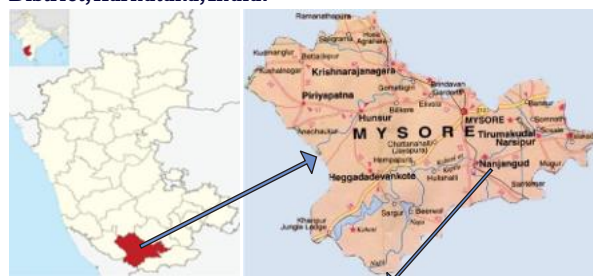
ABSTRACT

The main occupation in Nanjangud Taluk (Mysuru District) is agriculture. Fertile soils, favourable climate and irrigation from the Kabini and Cauvery rivers support it. The study examines the agricultural development throughout the period 2011-2021 utilizing secondary data from government sources. It is related to land use, cropping pattern, irrigation and productivity. The major crops are paddy, sugarcane, maize, ragi, tobacco, banana, legumes, vegetables and flowers. The study reveals that irrigation expansion and better farm practices have increased agricultural productivity. Groundwater depletion, climate variability, labour shortages and fragmented landholdings are major challenges however. The study has recommended for crop diversification, micro-irrigation, precision farming, Farmer Producer Organisations (FPOs) and GIS-based planning for sustainable agricultural growth.

INTRODUCTION

Agriculture is the main occupation of the rural people of Karnataka and it contributes significantly to food security, employment and regional economic development. The Nanjangud Taluk in the southern part of the Mysuru District is one of the important agricultural belts of the state due to the favourable tropical climate and irrigation facilities provided by the Kabini and Cauvery river systems together with the good red loamy and alluvial soils. The taluk is fit for the cultivation of the main food crops like paddy, maize and ragi and the commercial crops like sugarcane, tobacco and banana. The region is known for its agriculture and the famous GI tagged Nanjangud Rasabale banana. The present study is an analysis of agricultural development in Nanjangud Taluk during 2011-2021 with a focus on land use, cropping patterns, irrigation, productivity and the geographical factors influencing agricultural growth and sustainability.

Map: 1 Location Map of Nanjangud Taluk in Mysuru District, Karnataka, India.



Source: Mysuru District Administration (2021); KRSAC, Government of Karnataka.

Study Area

Nanjangud Taluk lies between 12°01'N-12°04'N latitudes and 76°33'E-76°47'E longitudes in the southern section of Mysuru District, Karnataka. The taluk of Nanjangud encompasses an area of 974 km² and contains 190 villages, which are governed by 45 Gram Panchayats. It is classified as Southern Dry Agro-climatic Zone with average rainfall of roughly 730 mm per year. The taluk is endowed with fertile red loamy and alluvial soils and is predominantly irrigated by the Kabini and nugu river systems. The ideal geographical conditions favour the cultivation of paddy, sugarcane, maize, tobacco, banana and numerous horticulture crops, and make Nanjangud one of the key agricultural regions of the Mysuru District.

Objectives

- To study the tendencies of agricultural development and growth in Nanjangud Taluk between 2011- 2021.
- To study the land use pattern and primary farming systems in the taluk.
- To investigate irrigation resources and their impact on agricultural productivity and sustainability.
- To recommend sustainable agricultural development interventions for enhancing the livelihood of farmers and conservation of resources.

Physical Environment

The physical environment is an important factor of agricultural growth in Nanjangud Taluk which influences the land usage, cropping pattern, irrigation and productivity.

Relief: The taluk is a level to gently sloping plateau at an altitude of 650-750 m above mean sea level. Flat terrain, mechanised agriculture, good drainage, irrigation and cultivation of paddy, sugarcane, maize and horticulture.

Climate: Nanjangud experiences a tropical semi-arid climate, with an average annual rainfall of about 730 mm, primarily contributed by the South-West monsoon. Rain water is not uniformly distributed therefore irrigation through channels, tanks, wells and borewells is a must.

Soil: The main soil types are red loamy and sandy loam which are ideal for cereals, pulses, oilseeds and horticultural crops. In the valleys of the Kabini and Cauvery rivers there are pockets of black cotton soils and fertile alluvial soils that produce high value crops including paddy, sugarcane, banana and vegetables.

Land Use Pattern of Nanjangud Taluk

Land use is a major index of agricultural growth as it indicates the extent of land resources available for various economic

activities. Total geographical area of Nanjangud Taluk is 98,541 hectares out of which 76,803 hectares (77.94%) is under agricultural land hence it is the dominant land-use category. The fertile soils, favourable climatic conditions and the irrigation from the Kabini and Nugu river systems support the cultivation of paddy, maize, ragi, sugarcane, tobacco, banana and vegetables.

Out of the total land area, 12,199 hectares or 12.38 percent is non-agricultural land including settlements, roads, industries and public infrastructure. Dry land covers 2,246 hectares (2.28%) and well developed land covers 2,076 hectares (2.11%). These shows there are improved irrigated agricultural areas. 3,922 hectares (3.98%) are grasslands for cattle rearing and just 309 hectares (0.31%) are tree-covered terrain. Other land-use categories account for the remaining 986 hectares (1.00%).

Table 1.1 Land Use Pattern of Nanjangud Taluk

Sl No	Use of Land	Land in hectares
1	Agriculture land	76803
2	Non agriculture land	12199
3	Dry land	2246
4	Well-developed land	2076
5	Grass	3922
6	Trees	309
7	Others	986
Total		98541

Source: Department of Agriculture Nanjangud.

Land use pattern in nanjangud taluk

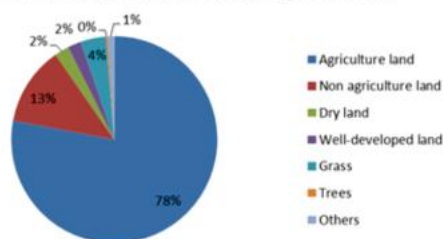


Figure 1

The overall land use pattern reveals an agricultural predominance of Nanjangud Taluk with four-fifths of the total area under cultivation. The fertile soils, irrigation facilities and ideal agro-climatic conditions have combined to make varied farming and sustained agricultural development possible.

Cropping Pattern

The farming pattern of Nanjangud Taluk has been influenced by the fertile soils, excellent climatic conditions and irrigation facilities given by Kabini and Nugu river systems. Generally agriculture is categorized in to food crops, commercial crops and horticultural crops. Among the food crops, paddy, ragi, maize, lentils and jowar are frequently grown for local food needs. Paddy is the main cereal crop, especially in irrigated areas, whilst ragi and maize are cultivated mostly in rainfed and partially irrigated areas.

The main commercial crops are sugar cane and tobacco with limited regions of cotton is important sources of revenue for the farmers and the local economy. Sugarcane and tobacco are predominantly grown in the canal command areas and require assured irrigation. Horticulture also developed fast with cultivation of banana, mango, coconut, vegetables and flowers giving higher economic returns. Paddy, sugarcane and tobacco are water intensive crops which are concentrated in irrigation areas, whereas grains and pulses are mainly grown in rain-fed areas. Diversified cropping pattern has improved agricultural production, income creation and sustainable agricultural development in Nanjangud Taluk over 2011-2021.

Drainage and Water Management

Nanjangud Taluk is located in the Cauvery River Basin and the principal drainage system is formed by the rivers Kabini and Nugu. The irrigation is mostly dependent on Kabini Reservoir and its canal system including Hullahalli, Rampura, Nandhigundapura and Vardahalli canals which support the crops such paddy, sugarcane, banana and vegetables. Outside the canal command regions, open wells, borewells, tanks and lift irrigation are employed to enhance water supply, whilst traditional tanks store monsoon run-off and recharge groundwater. Total irrigated area is 25677 hectares. Out of this canals irrigate 21691 hectares (84.48%) and wells irrigate 3986 hectares (15.52%). The largest areas under canal irrigation are in Hullahalli, Kasaba and Billikere hoblis. Well irrigation is the main source of irrigation in Doddakavalande. The integrated use of rivers, canals, tanks, wells and borewells has led to increased agricultural productivity and cropping intensity. Sustainable measures such as canal maintenance, groundwater recharge, tank rejuvenation, rainwater harvesting and micro-irrigation are required for long term water security and sustainable agricultural development.

Table 1.2 Major Sources of Irrigation in Nanjangud Taluk

Irrigation Source	Major Water Source	Main Crops Irrigated	Importance
Canal Irrigation	Hullahalli Canal, Rampura Canal, Nandhigundapura Canal, Vardahalli Canal, etc	Paddy, Sugarcane, Banana, Vegetables	Primary source of irrigation in command areas
Open Wells	Groundwater	Tobacco, Maize, Vegetables, Coconut	Provides irrigation during dry seasons
Borewells	Groundwater Aquifers	Maize, Banana, Horticultural Crops	Important in villages outside canal command
Tank Irrigation	Rainwater Storage Tanks	Paddy, Fodder Crops, Vegetables	Supplements irrigation during rainfall deficit
Lift Irrigation	Rivers and Streams	Commercial and Horticultural Crops	Used where canal irrigation is unavailable

Source: District at a Glance, Mysuru. Department of Agriculture in Nanjangud,

Table 1.3 Nanjangud Taluk Hobli-wise irrigation Statistics (In Hectare)

Hobli	Canal	Well	Total
Kasaba	6320	519	6839
Hullahalli	6224	867	7091
Doddakavalande	-	1519	1519
Billikere	5176	100	5276
Chikkayyanna chatha	3971	981	4952
Total	21691	3986	25677

Source: Department of Agriculture in Nanjangud,

Nanjangud Taluk Hobli-wise irrigation Statistics (In Hectare)

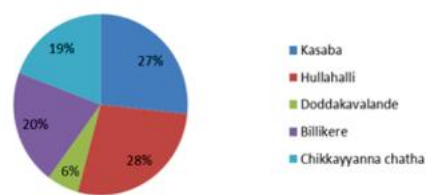


Figure 2

Significance for Agriculture

The undulating topography, suitable climate, fertile soils and dependable water resources combine to provide a great natural resource base for agriculture in Nanjangud Taluk. These geographical circumstances have helped to produce paddy, sugarcane, maize, tobacco, banana, vegetables and other horticulture crops and making the taluk one of the agriculturally fruitful regions in Mysuru District. However, sustainable management of soil and water resources remains to address issues such as climate variability, groundwater depletion and land degradation.

Agricultural Development

The agriculture in Nanjangud Taluk has seen tremendous growth from 2011-2021 due to technical breakthroughs, improved farming practices and government backing. The greater use of tractors, power tillers, seed drills, threshers and combine harvesters led to better mechanisation, reduced dependence on labour and increased agricultural output.

The introduction of High-Yielding Variety (HYV) seeds, balanced fertilisers, organic manures and biofertilisers, drip irrigation, sprinkler irrigation, soil health cards and weather-based advisory services have resulted in increased agricultural yields and resource-use efficiency. Horticulture cultivation (banana, mango, coconut, vegetables, and flowers) was given a push with the use of micro-irrigation and protected cultivation which resulted in increase in farmers' income and crop diversity.

The expansion of FPOs has boosted the supply of inputs, access to credit, value addition, storage and marketing; and women-led FPOs have raised the participation and income creation of rural women. The Department of Agriculture, Krishi Vigyan Kendra (KVK) and University of Agricultural Sciences promoted contemporary farming techniques, climate-resilient agriculture and sustainable resource management through its agricultural extension programmes.

These developments have greatly contributed to the productivity of agriculture, crop diversification and farmers' livelihood in Nanjangud Taluk during 2011-2021.

Suggestions

- Encourage the use of drip irrigation to improve water-use efficiency, conserve water and increase agricultural productivity.
- Promote horticulture, pulses, oilseeds and climate resilient farming systems to encourage diversity of crops.
- Farmer Producer Organisations (FPOs) for better input supply, collective marketing & farmer income.
- Establish processing and cold storage facilities to reduce post-harvest losses and enhance value addition.
- Encourage organic and natural farming for better soil fertility, biodiversity & sustainability in the long run.
- Accurate crop monitoring, planning and resource management using GIS and remote sensing.
- Strengthen market linkages and digital agriculture through e-NAM, mobile advisory services and online marketing.
- Enhance soil and water conservation techniques through watershed development, rainwater harvesting and soil management methods.

CONCLUSION

The agricultural development of Nanjangud Taluk, Mysuru District, during 2011-21 shows a remarkable progress due to favourable geographical conditions, better irrigation, mechanisation, high yielding variety (HYV) seeds, horticultural expansion and government support programmes. Increased productivity diversified cropping pattern and improved farmers' livelihoods have been achieved through adoption of modern technologies, Farmer Producer Organisations (FPOs) and agricultural extension

services. However, groundwater depletion, climate variability, small landholdings, rising costs of cultivation and labour shortages remain challenges to sustainable growth. Future agricultural development should be focused on efficient water management, crop diversification, precision farming, GIS based planning, organic agriculture and strengthened market infrastructure for long term sustainability and rural prosperity.

REFERENCES

1. Census of India. (2011). *Primary Census Abstract: Karnataka*. Government of India.
2. Central Ground Water Board. (2024). *Aquifer Maps and Management Plan: Nanjangud Taluk, Mysuru District, Karnataka*. Government of India.
3. Department of Agriculture, Government of Karnataka. (2021). *District at a Glance: Mysuru District*.
4. Directorate of Economics and Statistics. (2021). *District at a Glance: Mysuru*. Government of Karnataka.
5. Government of Karnataka. (2021). *Agricultural Statistics of Karnataka*.
6. Ministry of Agriculture & Farmers Welfare. (2021). *Agricultural Census of India*. Government of India.