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Change of Land Use Pattern and Challenges in Agriculture - Karnataka State

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Meaning:

Use of land or the layout of land for various purposes is called land use pattern. The pattern of land utilization in Karnataka is classified in five categories i.e. Net Area shown, Forest area, Land not available for cultivation, other uncultivated land and Fallow land.

Introduction:

Land is a basic and indispensible resource of agriculture of mankind. The quality and quantity of agriculture is largely determined by the variety of factors. The more focus has been given to yields of crops and cropping patterns. The significant changes have now become perceptible in agricultural land use. The spatial variation in agricultural productivity to a certain extent is a consequence of the spatial variation in quality of land and change in the agricultural land use over the years. The future progress of Karnataka states agriculture is closely depending upon the improvements in the management of land, soil and water. Which have so far remained neglected. More than half of the country's total surface area is afflicted with problems of soil erosion and land degradation. This situation is continuously deteriorating affecting the agricultural practices severely. In many years damage has been caused by the mismanagement of irrigation and several other land and water based developmental activities. In spite of the considerable increase in yields of crops, the low rate of yields in India in relation to other countries is largely attributable to the poverty of Indian soil.

Karnataka is located in the Southwestern part of the Deccan Plateau; larger part of the state belongs to the Mysore plateau which is one of the three segments of larger Deccan plateau. It is surrounded by Maharashtra in the north, Telangana and Andhra Pradesh in the east, Tamil Nadu in South and south east, Kerala in the South west and Goa in the North West.

The state extends from 11º 31 North to 18º 45 North Latitudes; it has a maximum Latitudinal extent of 7º 14 to 31 º 45 from Aurad taluk of bidar district in the north and the state extends up to Moyar River in the south. From north to south it is about 750kms long. The longitudinally the state extends from 74º-12 to 78º 40' east. Thus the state has a longitudinal extant of 4-28 from west to east the state is about 400kms. It has total land area of 1, 91,791 square kilometer and accounts for 5.83%

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of the total area of the country, in respect of area ranks 7th place in India. The state has all the characteristics of typical "Tropical Monsoon Climate".

The climate of the state has been influences of its geographical location monsoon winds and relief features. It bears not only the influence of the nearby Arabian sea but also the Bay of Bengal which lies far off in the east of the State. The south west monsoon from the Arabian Sea is the most important in the climate of the state. The Agumbe in Thirthahalli taluk of shivamogga district receive an average annual rainfall of 827 cm.

Objectives of the Study:

Several studies have been carried out on the issues of land-use pattern and its effect on agriculture. Policies and recommendations have been made at local, regional and national level. However it is necessary to have a fresh look in the light of recent information. Under this preview, the present study aims to cover the following objectives:

1. To analyses land-use patterns in Karnataka
2. To assess the present Land-use / Land-cover with relation to Agriculture.

Study Area:

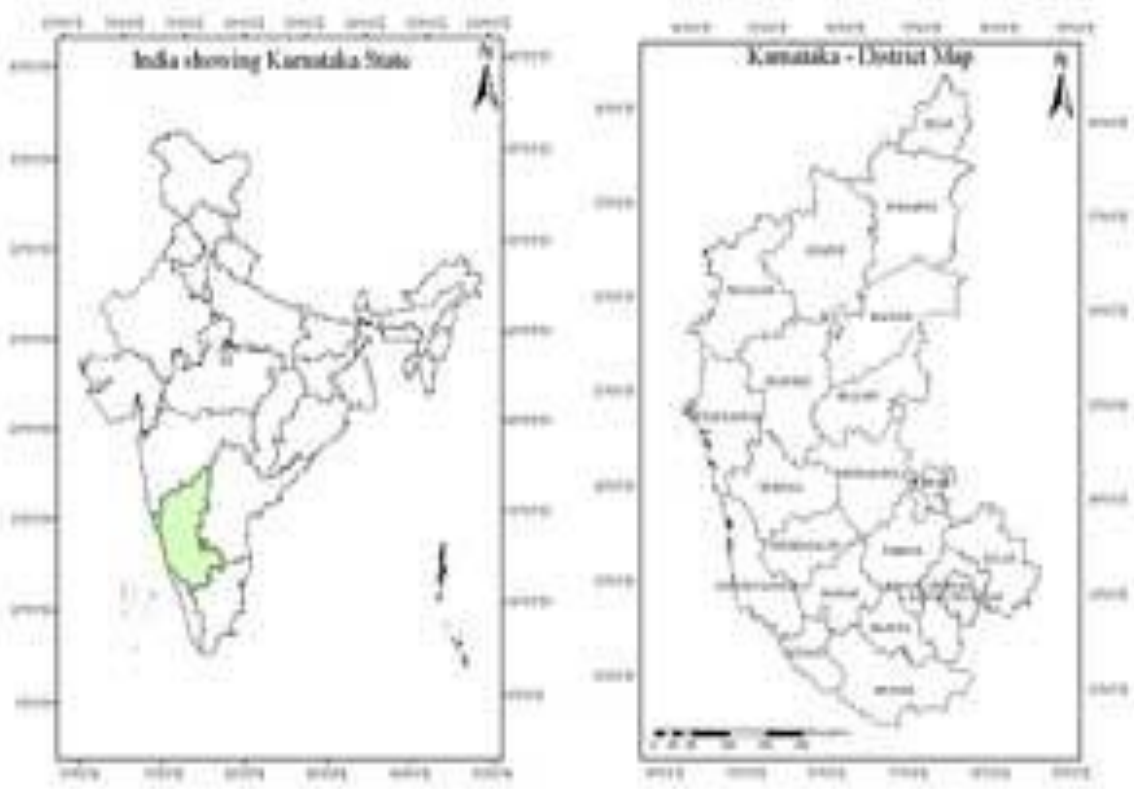

Fig: 1- Map of Study Area

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Methodology:

The present study will be carried out on State, District as well as local level data collection. The secondary data will be collected from various government and semi-government and NGOs.

Land Use in Karnataka State:

Land is one of the most important natural resources, many others resources of nature are associated with the land. Economic development to a large extent depends on planned utilization of the natural resources including land. The land use varies fram one place to another and also from time to time.

Land utilization reflects the influences of several factors such as natural economic and social relief features, climate, soils and many other natural elements.

a. Land holdings
b. Population pressure
c. Demand for agricultural products
d. Human activities and behaviors
e. Social condition
f. Market and prices

Socio-Economic Factors Affect Land Use:

a. Human capability of land use
b. Technology
c. Irrigation facilities
d. Land Value

The total reported area of the state is 190.5 lakh hectares .
it is used for various purposes such as.

a. Forest
b. Cultivation-Area not available for cultivation uses
c. Land put into non agricultural uses
d. Barren and Uncultivation land
e. Cultivable waste and miscellaneous and tree crops and follow land etc.

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Agricultural Land Use:

a. Land use was classified in Karnataka into five categories till 1961 as (1) forest (2) land not available for cultivation (3) other uncultivated land excluding current fallows (4) fallow lands and (5) net area sown.
b. This was modified by the Government of Karnataka in 1994 as (1) forest (2) Land not available for cultivation including: (a) land put to non agricultural uses, and (b) barren and uncultivable land; (3) other uncultivated land comprising: (a) permanent pastures and other grazing lands, (b) lands under miscellaneous tree crops and groves not included in net sown area, and (c) cultivable wastes; (4) fallow lands including and (5) net sown area.
c. Out of the nine categories only the last six categories net sown area, current fallows, other fallows, cultivable wastes, permanent pastures, and other grazing lands and miscellaneous tree crops and groves involved in agricultural use.

Spatial Analysis of Land Use:

Low level plains and river valley plains located in Krishna river basin have high concentration of arable lands mainly net sown area (Bijapur, Bagalkot, Gadag, Dharwad, Haveri, Koppal etc) whereas the potential arable lands are found in rugged uplands with excessive soil erosion (Bidar, Kalburgi, Yadgiri, Raichur and Ballary).

Table No., 1.0 – Percentage Area of Land use in Karnataka 2009-10

(Figures are in Percentage)

Land not available for cultivation	Forest Area	16.11
	Non-Agricultural Land	6.66
	Barren Land	4.13
	Total	11.32
Other-uncultivable and	Cultivable Waste	2.17
	Permanent Pasture	4.88
	Trees /Grows	1.52
	Total	8.63
Fallow Land	Current	6.62
	Others	2.65
	Total	9.28
Area Sown	Net Sown Area	54.36
	More than once	12.98
	Gross Sown Area	67.53

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Source: Karnataka at a Glance 2011-12, DES Govt., of Karnataka

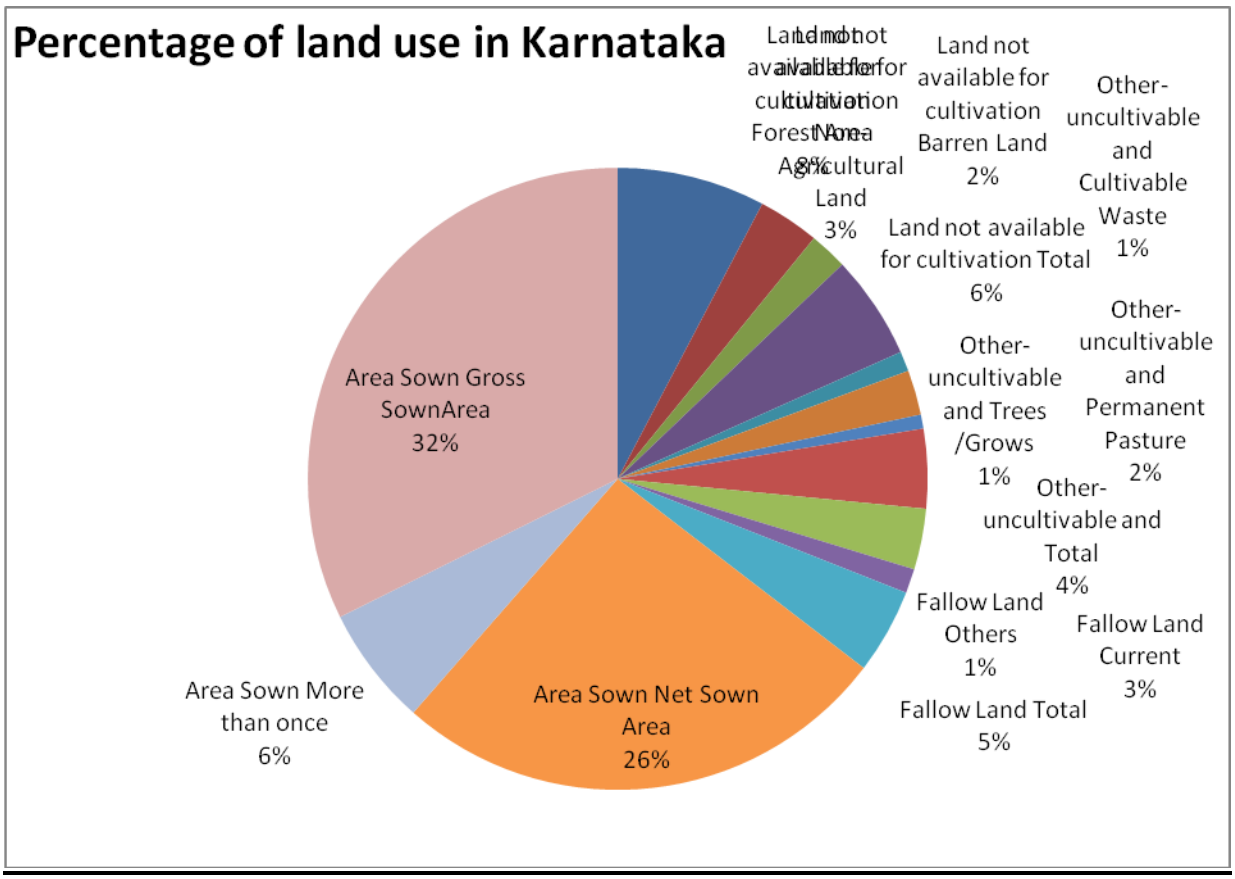

Fig.2: Percentage of land use in Karnataka

The Area of Forest in Karnataka:

Karnataka has about 38724 km2 (20.11% of Geographic area) are covered by forest. The forests are classified are reserved (28611 km2), protected 3932 km2), unclosed (309 km2), village (124 km2) and private (309 km2) forests. The percentage of forest area to the Geographical area in the state is less than the all-India average of about 23% and 33% prescribed in the National Forest Policy.

Table No., 2.0 – Area of Forest in Karnataka

Decades	Forest Area	Forest Area Growth Rate
1960-61	14.42 Percent	-
1970-71	15.25 Percent	0.83
1980-81	16.13 Percent	0.88
1990-91	16.01 Percent	0.12
2000-01	16.02 Percent	0.01
2016-17	22.06 Percent	6.04

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Source: Agricultural report Govt. of Karnataka-2019

The Districts having Highest Area under Forest:

- Uttar Kannada - 80.6%
- Kodagu - 70%
- Chamarajanaggar - 49%
- Chikkamagaluru - 35.8%
- Belagavi - 25%

The Districts having Lowest Area under Forest:

- Bangalore Urban - 7.5%
- Bidar - 7.4%
- Vijayapura - 7.2%
- Kolar - 6%
- Mandya - 5.7%
- Koppal - 5.4%
- Raichur - 5%

Land use for Other Purposes:

It include all types of land use devoted for non agricultural purposes such as for construction of roads, Railways, Industries sheds, settlements irrigation projects power projects etc. area of non agricultural use also indicate development of various sectors of economy. This category of land use.

Table No., 3.0 – Land use for Other Purposes

Decades	Percentage of land-use in Non-Agricultural Area	Decadal Change in land-use
1960-61	14.32 %	-
1970-71	5.2 %	-9.12
1990-91	5.5 %	0.3
2000-1	6.7 %	1,2
2017-18	10.18 %	3.48

Source: Agricultural Report Govt. of Karnataka-2019

This phenomenal change was attributed to the development programmes in the state.

The district wise analysis of land use:

Bangaluru Urban- 1st rank, Shivamogga-2nd rank, Tumakur-3rd rank, Belagavi -4th rank, Bellary-5th rank, Mysore-6th rank, Mondya-7th rank, Hasan-8th rank and Dakshina Kannada 10th

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rank, because these districts which have dense population and large settlements and other economic activities i.e. Land under non-agricultural use. It is one of the indicators of backwardness of the districts.

Urban Environment Challenges ahead:

Large scale expansions at cities with enormous growth of their population have an adverse impact on the environment. The Urban areas have been expanded rapidly encroaching the surrounding agricultural land for housing, industries and other infrastructure. Now extensions were created even by the private agencies covering land-use. In the process of urbanization the water bodies and greenery was lost.

Agriculture:

The Karnataka is basically an agrarian state nearly 61.4% of the people in Karnataka are in rural areas and they depend on agriculture for their livelihood. . Agriculture is the backbone of the state's economy which alone contributes about 14.10 % at GDP of the State. The state has very good opportunities to produce crops throughout the year provide if there is irrigation facilities during the dry season. Coffee, silk, spices, tobacco, cotton etc are the agricultural products which are exported.

Challenges in Agriculture:

The following factors are recommended for challenges in agriculture.

1. Landholding size is smaller
2. Using chemicals in agriculture land impacts on lose of soil fertility
3. Seasons and climate changes
4. Government policy- not fixing prices, market problems
5. Non profitable prices
6. Cost of production is high
7. There is no work culture in labour's and farmers
8. Technological problems impact on marketing, cultivation and production yield per hectare.
9. Changes of scenario in method of agriculture
10. Youth farmer's attitude decreasing towards the agriculture sector

Remedial measures:

1. Need for crop combination in present climate condition
2. Need for transparency and computerization in the marketing processes

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3. Training and information for farmers regarding recent changes in the agriculture
4. Need for cold storage facilities for Horticulture and flowery-culture at least one in each district and with export outlets
5. A separate agricultural finance and development organization should be established for North Karnataka
6. Credit facilities creation of water users associations, training of farmers in water utilization and cropping pattern
7. Introduction of water user changes seriously for investment in recharging and maintenance at canals and bore-wells under Sala samvardhana Yojana
8. Think again and again before converting the agriculture land for economic development purposes
9. Serious implementation of organic farming, it helps to maintenance of environment
10. Conservation of soil serious problem in agriculture
11. Migration to agriculture to Urban areas

Conclusion:

Due to overpopulation land use for the residential purpose and economical improvement it change day by day the land is use for spatial economic zones in various places in Karnataka. Tremendous changes in transportation single ways becoming four ways. Up gradation of Air transportation stations

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