A Study on Geographical Attributes of Karnataka with Special Reference to Agriculture

Mr. Manjunathaswamy
Assistant professor of Geography, Pallagatti Adavappa Arts and Commerce First Grade College, Tiptur, Tumkur District

Abstract **- Agriculture employs more than 60 per cent of Karnataka's workforce. As per the population Census 2011, agriculture supports 13.74 million workers, of which 23.61 per cent are cultivators and 25.67 per cent are agricultural workers. Agriculture in Karnataka is heavily dependent on the southwest monsoon. Karnataka is highly progressive with regard to vegetable production and enjoys this advantage because of favourable climatic conditions without any extremes in temperature. The state ranks fifth in India in terms of total area under horticulture. It stands fifth in production of vegetable crops and third in fruit crop production. It is also the largest producer of spices, aromatic and medicinal crops and tropical fruits. Karnataka is India's 8th largest state in terms of geographical area covering 1.92 lakh sq km and accounting for 6.3 per cent area of the country. The state comprises of 30 districts and 176 taluks and has over 27,481 villages. A total of 1,23,100 km² of land is cultivated in Karnataka constituting 64.6% of the total geographical area of the state, out of which 26.5 per cent of the sown area (30,900 km²) is under irrigation. In Karnataka, horticulture crops occupy about 15.21 lakh hectares with an annual production of about 96.60 lakh tonnes. Karnataka is also the second largest producer of grapes in the country and accounts for the production of 12 per cent of total fruits, 8 per cent of total vegetables and 70 per cent of coffee in the country. It is the third largest producer of sugar and ranks fourth in sugarcane production. It is the second largest milk-producing state after Gujarat. Karnataka leads in the export of silk in India with an approximate share of 25 % of the total Indian export market. There are varied types of soils in Karnataka. Black soils are found in northern Karnataka whereas red and red loamy soils are prominent in southern Karnataka. Laterite soils are found in Malnad and Coastal areas of the state. Being a state with rich diversity, understanding different aspect of the state would be very informative. An attempt has been made to get the bird's eye view of the geographical attributes of the state, with special to understanding the agricultural profile of the state in this paper.**

Index Terms **- Geographical attribute, Farming, Horticulture, Land Holdings, Cropping Pattern.**

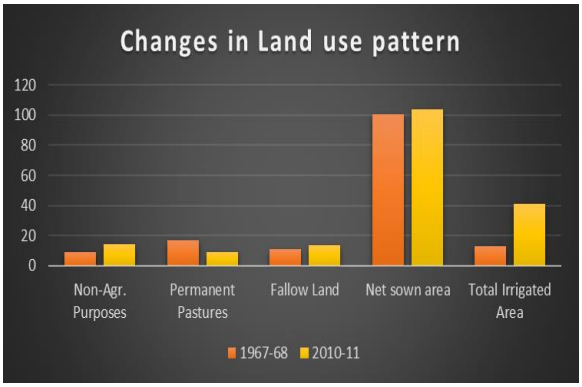
INTRODUCTION

The geographical area of Karnataka is 1.92 lakh sq km, out of which, a total of 1,23,100 km² of land is cultivated constituting 64.6% of the total geographical area of the state, out of which 26.5 per cent of the sown area (30,900 km²) is under irrigation. Considering the importance of land use and policy, the Government of Karnataka brought out a document on land use policy (Government of Karnataka, 2003). The following table narrates the different categories of land use.

Area under various land use categories (Area in lakh hectares)

Land Use category	Years				
	1967-68	1977-78	1987-88	1997-98	2010-11
Non-Agr. Purposes	8.76	10.36	11.72	12.88	13.97
Permanent Pastures	16.76	14.49	11.32	10.03	9.16
Fallow Land	10.65	13.05	10.90	13.59	13.33
Net sown area	100.67	99.40	106.21	104.01	103.67
Total Irrigated Area	12.97	17.16	23.83	29.70	40.94

Source: The Land Use Pattern of Karnataka, published by the State Land Use Board, GoK



The state is divided into 10 agro-climatic zones. As a result of varied agro-climatic features almost all cereals, pulses, oilseeds and commercial crops are cultivated in different parts of the state. The Western Ghats of the state is well known for Coffee plantations, Rubber, Pepper and Fruits. The Khariff crops (April to September) in Karnataka comprises of Millets, Paddy, Maize, Moong (Pulses), Ground nut, Red chilli, Cotton, Soya bean, Sugar cane, Turmeric. The major Rabi crops (October to January) are Barley, Mustard, Sesame, Peas. Karnataka Agricultural census reports and agricultural census 2010-11, shows that 78.32 lakh farm holdings operating 121.61 lakh hectares. Small and Marginal holdings account for 76.44% of total holdings and operate only 40.05% of the total operated area, while semi-medium, medium and large holdings account for 23.57% of the total holdings and their operational land holding is 59.95% out of the total operational area.

Land holdings in Karnataka

	No. of operational holdings ('000's)		Avg., size of operational holding ('000's)		Avg., size of operational holding (hectares)	
Size-Class	2000-01	2010-11	2000-01	2010-11	2000-01	2010-11
Marginal Farmer (< than 1 hectare)	3,252	3,849	1,492	1,851	0.46	0.48
Small Farmer (1-2 hectare)	1909	2,138	2,742	3,020	1.44	1.41
Semi-Medium (2-4 hectare)	1,259	1,267	3,429	3,393	2.72	2.68
Medium Farmer (4-10 hectare)	569	511	3,317	2,904	5.83	5.69
Large Farmer (> than 10 hectare)	90	68	1,327	994	14.74	14.71
Total	7,079	7,832	12,307	12,161	1.74	1.55

Source: Karnataka Agricultural Census Reports and Agricultural Census 2010-11.

IRRIGATIONAL STATUS

Irrigation plays an important role in improving production and productivity of agriculture. It facilitates adoption of improved technologies and increases cropping intensity thereby making optimum use of a finite resource i.e., land. There has been a gradual increase in the irrigated area in the state. The gross irrigated area has increased steadily from 9.06 lakh ha during 1960-63 to 41.87 lakh ha for the year 2008-11. The net irrigated area is 34.90 lakh ha for the year 2008-11. Among the irrigation sources, canals and tanks were the major sources of irrigation till 1980s. However, the share of tube/bore wells in the total irrigated area started increasing phenomenally after early 1990s. In 2008-11, the net area irrigated by tube/bore wells accounted for 36.29 per cent of the total net irrigated area in Karnataka as against 32.84 per cent covered by canal irrigation.

CROPPING PATTERN

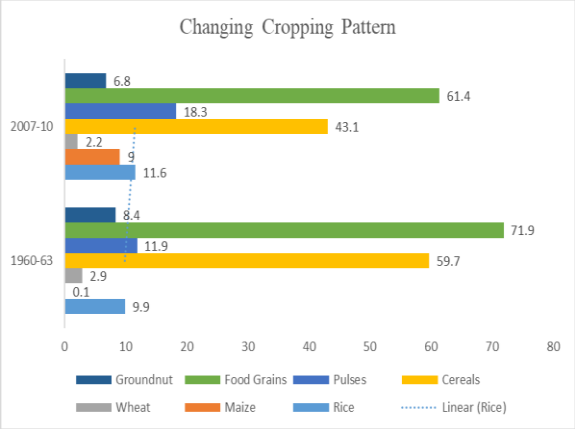
The cropping pattern of the region is influenced not only by agro-climatic conditions like rainfall, soil, temperature, etc., but also by government policies and programs for crop production in the form of subsidies, support prices, tariffs and speed of infrastructure development. The overall trends in area allotted for various crops during five decades show that cropping pattern in Karnataka is dominated by food crops, with a share of more than 60 per cent of the gross cropped area in the state. Rice, sorghum and finger millet were the major cereals till 2000-03. However, the share of maize crop went up substantially after 2005 due to improved productivity and prices. The area under cereals declined from 60 per cent in 1960-63 to 43 per cent of the GCA in 2007-08. Acreages of millet crops like sorghum and pear millet and minor millets declined consistently. The reduction in the share of cereals was due to shrinkage in the area devoted to millets. Area under pulses which stood at 11 per cent during the early seventies increased to 18.3 per cent in 2007-10.

Changes in Cropping Pattern

(Percentage share in CGA)

Crop	1960-63	2007-10
Rice	9.9	11.6
Maize	0.1	9.0
Wheat	2.9	2.2
Cereals	59.7	43.1
Pulses	11.9	18.3
Food Grains	71.9	61.4
Groundnut	8.4	6.8

Source: Statistcal Abstracts of Karnataka, Government of Karnataka



Karnataka has a varied topographical character ranging from coastal plains to gentle slopes and the heights of the Western Ghats. The State is delineated into 4 sub-regions viz., (a)Northern dry region (b) Central region (c) Southern region and (d) Hills and coastal region. In the northern dry region, sorghum is the lead crop dominating the cropping system followed by cotton and pigeon pea. Maize and sugarcane are also important crops there. In the central region, ragi-based cropping system is predominant. In the hills and coastal region, the cropping system is rice based and there are some pockets in this region where ragi also forms an important component of the cropping system along with rice. The northern dry and central regions are the major producers of oilseeds. Groundnut is cultivated in the central region whereas sunflower and soybeans are popular in the northern dry region. Cotton, pigeon pea and other pulses are planted during kharif and sorghum is grown on residual moisture during rabi season on black cotton soils in the northern dry region. As expected, mixed or inter-cropping is practised more in the northern and central regions than in the southern region. Rice-rice rotations are common in irrigated areas of southern as well as coastal and hill regions. Sugarcane is grown in sizable areas in all the regions using canal irrigation. Sericulture is an important activity in the southern region and large areas are under mulberry cultivation. Coconut, arecanut, mango, grapes, sapota, citrus, etc. are the important fruit crops grown in the state. Karnataka is endowed with varied climatic conditions and has good potential for the development of horticulture and floriculture, which needs to be exploited for domestic and export markets.

The use of inputs such as high-yielding crop varieties, chemical fertilizers, plant protection chemicals as well as farm machinery in agriculture has increased over the years which facilitated improvement in productivity and resulted in increased crop production. The area under high-yielding varieties (HYVs) of major crops increased from 30.18 lakh hectares in 2000-01 to 41.44 lakh ha in 2009-10. Area under HYVs grew at a faster rate between 2000-01 and 2005-06 than during 2005-06 to 2009-10. The area under HYV maize and wheat increased by more than 30 per cent whereas the area under HYV rice and sorghum recorded a modest increase of 1 and 2 per cent respectively during the five-year period from 2005-06 to 2009-10.

Expansion in irrigated area and coverage of high-yielding varieties resulted higher demand and use of chemical fertilizers in Karnataka. Total fertilizer consumption increased to 21.1 lakh tonnes by 2010-11 as against 12.5 lakh tonnes during 2001-02. Consumption of phosphatic and potassic fertilizers was relatively higher when compared to nitrogenous fertilizers. The use of fertilizers increased from 103 kg per hectare in 2001-02 to 162 kg per ha during 2010-11.

Mechanisation in Agriculture:

Traditionally, farming was carried out using bullock power and human labour. However, increasing cost of maintaining bullock pair, shortage of labour for farm operations and paucity of time induced farmers to adopt mechanization. Mechanization facilitates timely completion of farm operations with desired results and precision. It also helps in reducing the drudgery associated with different conventional operations. A large number of farm equipment and machinery are used in farming. Farm machinery and equipment are distributed to farmers under the centrally sponsored Scheme of Farm Mechanization being implemented under the Macro Management Mode of Agriculture. The farm mechanization programme is also implemented as the Karnataka Farm Mechanization Mission. Farmers get 50 per cent subsidy for farm machinery and equipment.

Growth Challenges:

The agro-climatic character of the state divides it into varied agro-climatic zones. This influences the cropping pattern and cultivation practices followed across the regions. Similarly, the resource endowment and delivery system of inputs also differ across the

regions. Agriculture was considered the only alternative to bring these regions into mainstream growth, but climatic conditions and resource endowments do not support such an initiative. On the contrary, weather-induced instability continues to inflict misery on farmers in these areas. However, it has been observed that horticultural crops have been picking up both in terms of area as well as productivity in these regions. The major challenges faced by agriculture in Karnataka are: threat of stagnation in agriculture growth with possibility of decelerating growth, low value-addition in agriculture, fast approaching optima on technological front, large proportion of rain-fed /dry land area, marginalization of agricultural land base, inadequate growth in public and private investment, regional disparities in investment, low technology adoption and growth, inadequate and inefficient safety nets and finally, conflicting demands of growth versus environmental protection. To resolve these issues, it is imperative to focus on rain-fed agriculture, develop initiatives for small and marginal farmers, rebuild natural resource base by promoting an organic approach to farming and develop key infrastructure to provide a boost to growth momentum.

RESEARCH METHODOLOGY

Type of Research: Descriptive study
Locale of the study: Karnataka State
Nature of the data: The report is prepared using secondary data only. Hence it is a desk report.
Data Analysis: The collected information has been classified and tabulated for the convenience of study. Based on the tabulated data, inferences have been arrived at. Graphical representations have been made wherever necessary.

LIMITATIONS OF THE STUDY

- The study is based on secondary data only.
- The study is limited to understanding the agricultural profile of the state.
- The locale of the study is limited to Karnataka only.
- Inferences were drawn based on tabulated information; no statistical tests were used.

CONCLUSION

Karnataka is one of the fastest growing state in the country. The major challenges faced by agriculture in Karnataka are: threat of stagnation in agriculture growth with possibility of decelerating growth, low value-addition in agriculture, large proportion of rain-fed /dry land area, marginalization of agricultural land base, inadequate growth in public and private investment, regional disparities in investment, low technology adoption and growth, inadequate and inefficient safety nets and finally, conflicting demands of growth versus environmental protection. Mixed or inter-cropping is practised more in the northern and central regions than in the southern region. Rice-rice rotations are common in irrigated areas of southern as well as coastal and hill regions. Sugarcane is grown in sizable areas in all the regions using canal irrigation. Sericulture is an important activity in the southern region and large areas are under mulberry cultivation.

REFERENCES

[1] “Economic Survey of Karnataka 2014-15”. Directorate of Economics and Statistics, Government of Karnataka, Bangalore. Government of Karnataka.
[2] Dr. M. B. Shivanna (2020), “A conceptual study of major physiographical domains of Karnataka”, published by IJCRT, Volume 8, Issue 11. Page 2876 – 2882.
[3] Government of Karnataka (2013) Statistical Abstract of Karnataka, various Issues, Directorate of Economics and Statistics, Government of Karnataka, Bangalore. Government of Karnataka (2003).
[4] “Report of the Committee on Regional Imbalances” (Chairman: D. M. Nanjundappa).
[5] NABARD, (2010), State Focus Paper 2011-12 Karnataka, NABARD, Karnataka Regional Office, Bangalore.