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# Review Of Research



## IMPACT OF WATER RESOURCES UTILIZATION AND CROPPING PATTERN IN MANDYA DISTRICT

Dr. Surendra P.

M.Sc in Geography and Ph.D.

### ABSTRACT:

Irrigation has become an important aspect of agriculture. Recently irrigation becomes most essential and without it most crops cannot be grown. It becomes essential part due to variation of monsoon and uneven distribution of rainfall throughout the year. Even those crops, which are grown



during rainy season, also depend upon irrigation because farmers try to irrigate the crops in time so that crops might be ready in time and give higher yield. In case of failure of rainfall use of irrigation becomes much more essential areas growing multiple crops need intensive irrigation facilities. In present study Mandya district was

selected as a study area which came under rain shadow and semi arid region. The irrigation water resource availability and management practices were considered from study area in relation with a cropping pattern during 2010-11 to 2012-15. Mostly the irrigation practices increase chronologically with change in land use and cropping pattern.

**KEY WORDS:** Water resources, land use, cropping pattern, irrigation facilities.

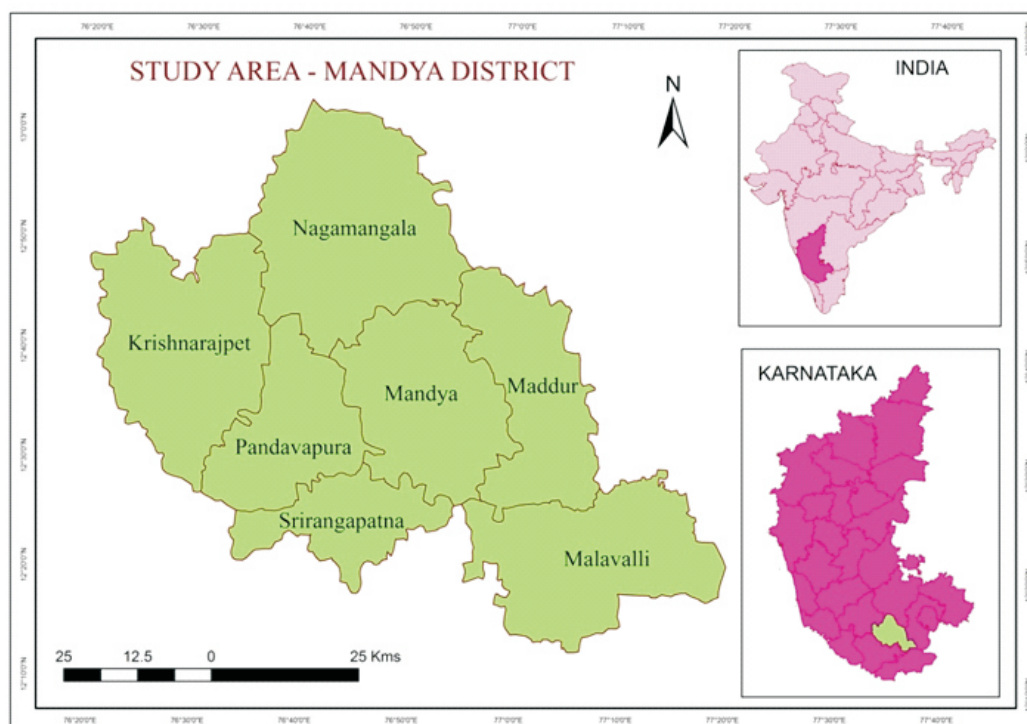
### INTRODUCTION:

Irrigation is considered to be one of the most important and basic factors in the process of transformation of agriculture. Irrigation is the basic determinant of agriculture because

its inadequacies are the most powerful constraints on the increase of agricultural production, particularly in the dry farming regions. In traditional agriculture, irrigation was recognized only for its protective role of insurance against the vagaries of rainfall and drought. But the adoption of high yielding varieties, chemical fertilization and multiple cropping, controlled irrigation has become the chief factor in increasing productivity. Whereas sugar cane, groundnuts etc are totally depend on artificial irrigation. The surface water irrigation practices like the tank, river and canal play vital role in irrigation. Whereas underground water is also being tapped by dug and tube wells and these became important due to reliance.

## STUDY AREA

Mandya district lies between 76° 19' and 77° 20' East Longitude and 12° 13' and 13° 04' North Latitude. The district receives an average annual rainfall of 700 mm. The climate of the district comprises of moderate summers (Max 35°C) and moderate winters (Min 20°C). Mandya district comprises of 7 taluks. The total geographical area of the district is 4, 98,244 Ha, out of which 2,53,067 (50.79%) Ha forms the sown area. More than half of the total land area in the district is put to agricultural use. Total irrigated area is 1,16,901 Ha out of which around 88,000 (75.27%) ha is being irrigated by K.R.Sagar and around 16,000 Ha by Hemavathi reservoir. The rest of the land is irrigated by other sources like tanks, wells and bore wells. With a total population of 1805769, around 5 lakh people are employed in the Agriculture Sector. Mandya District is an agriculturally predominant district in Karnataka state. The farmers in the region adopt improved farm mechanization due to which transformation is taken place in cropping pattern, composition of crops, better grown yield level, ultimately leading to better economic conditions of the people.



## OBJECTIVES

The main objective of the present study is,

- 1.To study the Irrigation Facility in the study region.
- 2.To analyze the cropping pattern in the study region.

## DATA BASE AND METHODOLOGY

The present research work is based on the secondary sources of data. The data collected and used for the period 2010-11 to 2014-2015. The secondary data is obtained from Mandya district at a glance (2010-11, 2011-12, 2012-13, 2013-14 and 2014-15) and irrigation Department. The collected data has been processed and tabulated and interpreted.

## RESULTS AND DISCUSSION

The present scenario of irrigation practices under different sources followed in Mandya district were assessed. The main irrigation practices followed in the study area is of well and surface water. Table 1 reveals that the data in relation to the land under irrigation practices. According to 2010-11 report, total irrigated area was 163860Ha in Mandya district. Whereas in 2011-12, 2012-13 and 2013-14 it was 162935, 142127 and 141247Ha respectively. The decrease in the irrigation area was reported. In 2014-15, the gross irrigated area increased to 154069Ha.

**Table 1 Mandya District : Area under Irrigation by Different Sources**

Years	Total Grass Area Irrigation (in hectors)	Net Area Irrigation (in hectors)	Surface Irrigation (%)	Well & Tube Well Irrigation (%)
2010-11	163860	134861	89.23	10.77
2011-12	162935	139853	90.45	9.55
2012-13	142127	116973	89.54	10.46
2013-14	141247	126121	90.49	9.51
2014-15	154069	114704	82.65	17.35

Source: Mandya District at a Glance - 2010-2011 to 2014-15

The surface irrigation practices contribute to 89.23 percent where as well & tube well irrigation contributes to only 10.77%. Consequently, the 2011-12 surface, well & tube well water irrigation practices were 90.45% and 9.55% respectively. In 2012-13, the surface water irrigation practices declined (89.54%) which increases the burden on ground water (10.46%). But in 2013-14, irrigation by surface water availability reduces the dependency on ground water. In 2014-15, rain water availability declined showing the impact on surface water availability for irrigation and depended on ground water for agriculture practices.

## CROPPING PATTERN:

The irrigation water availability reflects the land use and cropping pattern in the district. In the study area, the cropping pattern like cereals, pulses, oil seeds, sugar cane, fruits crops and vegetable crops were dominating compared to the district scenario.



**Table 2 Mandya District : Area under Different Crops in Percentage**

Years	Cereals	Pulses	Oil Seeds	Sugar cane	Fruits Crops	Vegetable Crops
2010-11	61.82	15.25	4.10	14.42	1.96	2.44
2011-12	58.54	15.79	4.31	18.80	2.29	0.27
2012-13	57.01	16.53	3.19	17.26	2.13	3.87
2013-14	54.78	15.20	3.63	19.85	2.02	4.52
2014-15	57.24	16.94	2.65	16.03	2.00	5.14

Source: Mandya District at a Glance - 2010-2011 to 2014-15

The land under the cereal cultivation decreased by 61.82% in 2010-11 compared to 54.78% in 2013-14 in the study area. In Pulses crop, at district level, land under cultivation increased from 15.25% to 16.94%, whereas the cash crops like sugarcane, cultivation was dominating in the district. The cash crop cultivation practices were increased due to canal irrigation facility. The oil seeds cultivation decline in the study area from 4.10% to 2.65% (table 2) whereas fruits and vegetable crops cultivation increased from 1.96% to 2.00% and 2.44% to 5.14% respectively. This clearly indicates that the surface water availability has direct impact on the land use pattern and agricultural economy.

## CONCLUSION

In the present study reveals that the land use pattern and the irrigation practices in the Mandya district. The agriculture pattern reflects mostly the surface irrigation is a prime source for irrigation. Land use pattern is dominated by cereals crops like paddy, jowar, bajra, maize and ragi. The cropping pattern mostly reflects the short term crops like tur, horse gram, black gram, green gram, and cowpea, bengal gram. But the data also reflects cultivation of Sugarcane crop in agriculture pattern mainly because of the availability of irrigation facilities increased the farmer's interests towards such type of crop.

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**Dr. Surendra P.**  
**M.Sc in Geography and Ph.D.**

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