



Research Paper

# Analysis and Findings of Irrigation based Classification in Taluks of Chitradurga District: an Overview

Chandrashekar V<sup>1</sup>

Assistant Professor of Economics

Bapuji First Grade College, Challakere, Chitradurga district, Karnataka, India.

**Abstract:**

The article describes the Irrigation based classification in taluks of Chitradurga district at Karnataka state, India and this article has analyzed the full details of the taluk Wise Canals source wise irrigated area (ha), Taluk wise Canals source wise irrigated area (ha), taluk wise Open Wells source wise irrigated area (ha), Bore Wells source wise irrigated area (ha), Lift Irrigations source area (ha) of taluks of Chitradurga district and finally the researcher has given best suggestions on it.

**[Keywords:** Water sources, Irrigation system, Canals area, taluk wise Open bore wells, Irrigation classification]

Received 15 Jan, 2022; Revised 27 Jan, 2022; Accepted 30 Jan, 2022 © The author(s) 2022.

Published with open access at [www.questjournals.org](http://www.questjournals.org)

## I. INTRODUCTION

The District Irrigation Scheme (DIP) is the cornerstone for PMKSY planning and implementation. DIP identifies gaps in irrigation infrastructure after considering already prepared District Agriculture Plans (DAPs) for the National Agricultural Development Plan (RKVY) in relation to the currently available irrigation infrastructure and other existing XII project resources. Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA), National Agricultural Development Program (RKVY), Rural Infrastructure Development Fund (RIDF), MP Local Area Development (MPLAD) Scheme, Legislative Member Local Area Development (MLALAD) Scheme, Local Organization Funds etc. Gaps identified under strategic research and existence plan be used in preparation of DIP. DIPs present a comprehensive irrigation development vision for the district, combining medium and long-term development plans into three components, namely, water use applications that include water sources, distribution networks and drinking water.

Chitradurga district has total six talukas and irrigation based sources in these areas are presented in this article. The most important part of the district lies in the Krishna basin and the Vedavati River, which is built across the Vedavati River near Vanivilasapur in Hiriyur Taluk. The canal network currently provides irrigation facilities to Hiriyur taluk farmers in a limited area. The net notified area under canal irrigation in the district is 12125 hectares under Vanivilasa Ocean and 2305 hectares under Gayatri Dam. But at present the canal irrigation is only available for 631 hectare. Here are the sources of irrigation in 38 hectares through Janagahalli, Chikagari, Swarnamukhi, Garen and Nayakanatti hamlets in Molokalmuru taluk

## II. REVIEW OF LITERATURE

Vidanage et al (2004) discusses conventional tank systems and is therefore an important aspect of the natural and man-made landscape in Sri Lanka. By providing irrigation water, domestic supplies and natural resources to millions, they are one of the richest sources of the country's wetland biodiversity. The study emphasizes the importance of looking at livelihood and environmental values when making land use and water allocation decisions. Vasimalai (2006) explained that irrigation tanks act as flood controllers during heavy rains and drought reseller's during long dry periods. Kajisa et.al (2007) explains that these tank systems are traditionally operated collectively by an informal local organization, known as the Water Users Organization (WUO), which mobilizes community workers to perform maintenance and maintenance tasks. These functions include (i) de-silting the water catchment area; (ii) cleaning of water supply channels; (iii) Arrangement of water distribution among users. De-silting work of tanks with a command area of at least 40 hectares should be arranged and funded by the State Government (PWD). However, due to the limitation of such funds, de-silting work at village level is not occasionally chosen based on WUO initiatives. Command areas of less than 40

hectares should be undertaken through village level administration and WUO. Channel purification and water distribution are arranged and executed through a collective action by WUO regardless of the size of the system.

### III. OBJECTIVES OF THE STUDY

The major objective of this study is to evaluate Irrigation based classification of the taluks of Chitradurga distric and the study was carried out in foure type of irrigation tanks like Canals source, Tanks, Open Wells, Bore Wells and Lift Irrigations source of the study area.

### IV. METHODOLOGY

To realize the objectives of the present study, structure, home surveys, focus group discussions, field observations and literature are used to compare and study the economic impact of a tank irrigation system to determine the socio-economic characteristics of different families before and after the restoration implementation. Major stakeholder interviews and focus group discussions were also conducted for multiple stakeholders to determine the strengths and constraints of the NRE, Pradhan Mantri Krishi Sinchayee Yojana (PMKSY), Secondary data on past precipitation, inflow, and excess have been collected and studied for the hydrological characteristics of the tank irrigation system over the past 10-20 years and other government schemes.

### V. ANALYSIS AND FINDINGS OF IRRIGATION BASED CLASSIFICATION

The major part of the district lies in the Krishna basin and is drained by the Vedavati River. The reservoir is flooded across the Vedavati River near Vanivilasapura in the Hiriyr taluk. The canal network currently provides irrigation facilities to Hiriyr taluk farmers in a limited area. The net notified area under canal irrigation in the district is 12125 hectares under Vanivilasa Ocean and 2305 hectares under Gayatri Dam. However, current canal irrigation is only available for 631 hectares, as most of the water stored in the Vani Vilas Sagar Dam is used for drinking purposes. Other streams include Janagahalli, Chikhagari, Swarnamukhi, Garen and Nayakanatti hamlet. Agriculture relies mainly on timely and adequate rainfall in the district. Through Vani Vilas Sagar, an area of 593 hectares in Hiriyr taluk is irrigated and through Janagahalli, Chikhagari, Swarnamukhi, Garen and Nayakanatti hamlet 38 hectares in Molakalmuru taluk. For more brief information, we can see in bellow analysis and tabulation of the data.

**Table : 1 - Taluk wise Canals source wise irrigated area (ha) in Chitradurga district**

Taluk	Canals (Area)				Total	%
	Gross	%	Net	%		
Challakere	0	0	0	0	0	0
Chitradurga	0	0	0	0	0	0
Hiriyr	831	94.11	593	93.97	1424	94.5
Holalkere	0	0	0	0	0	0
Hosadurga	0	0	0	0	0	0
Molakalmuru	52	8.88	38	6.2	90	5.94
<b>Total</b>	<b>883</b>	<b>100%</b>	<b>631</b>	<b>100%</b>	<b>1514</b>	<b>100%</b>

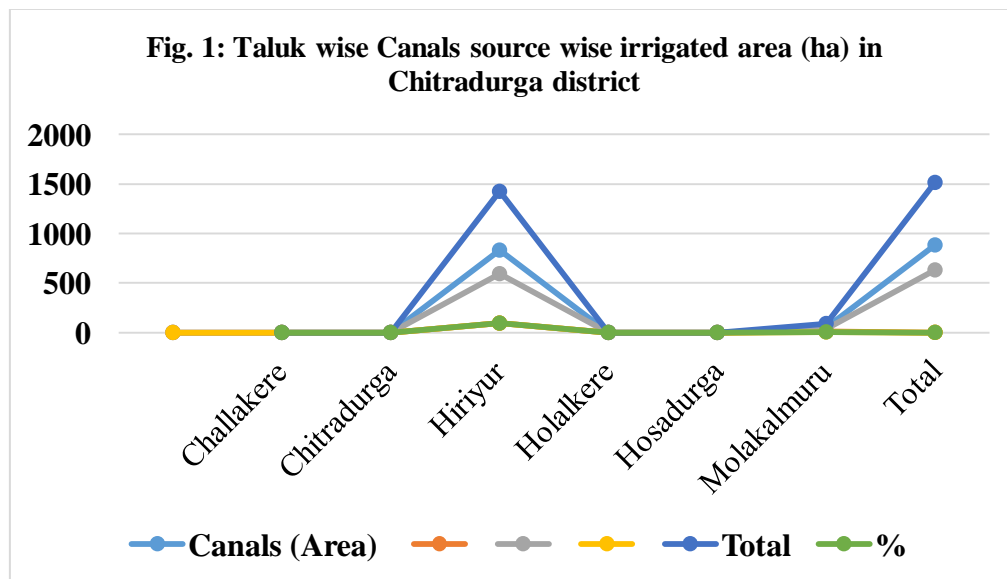


Table 1 and Fig. 1 summarizes the taluk wise Canals source in Gross and Net wise per cent of irrigated area in Chitradurga district. The majority of the Hiriyur taluk is 94.11 per cent of canals (gross per cent) and 93.97 per cent of canals (net per cent), the total number being 1424 per cent (94.5 per cent). Chitradurga district has 8.88 per cent canals (gross per cent) and 6.2 per cent canals (net per cent) of its total number and 90 per cent (5.94 per cent) of Molakalmuru taluk.

**Table : 2 - Taluk wise Tanks source wise irrigated area (ha) in Chitradurga district**

Taluk	Tanks				Total	%
	Gross	%	Net	%		
Challakere	72	23.30	0	0	72	23.30
Chitradurga	44	14.23	0	0	44	14.23
Hiriyur	57	18.44	0	0	57	18.44
Holalkere	57	18.44	0	0	57	18.44
Hosadurga	59	19.9	0	0	59	19.9
Molakalmuru	20	6.47	0	0	20	6.47
<b>Total</b>	<b>309</b>	<b>100%</b>	<b>0</b>	<b>100%</b>	<b>309</b>	<b>100%</b>

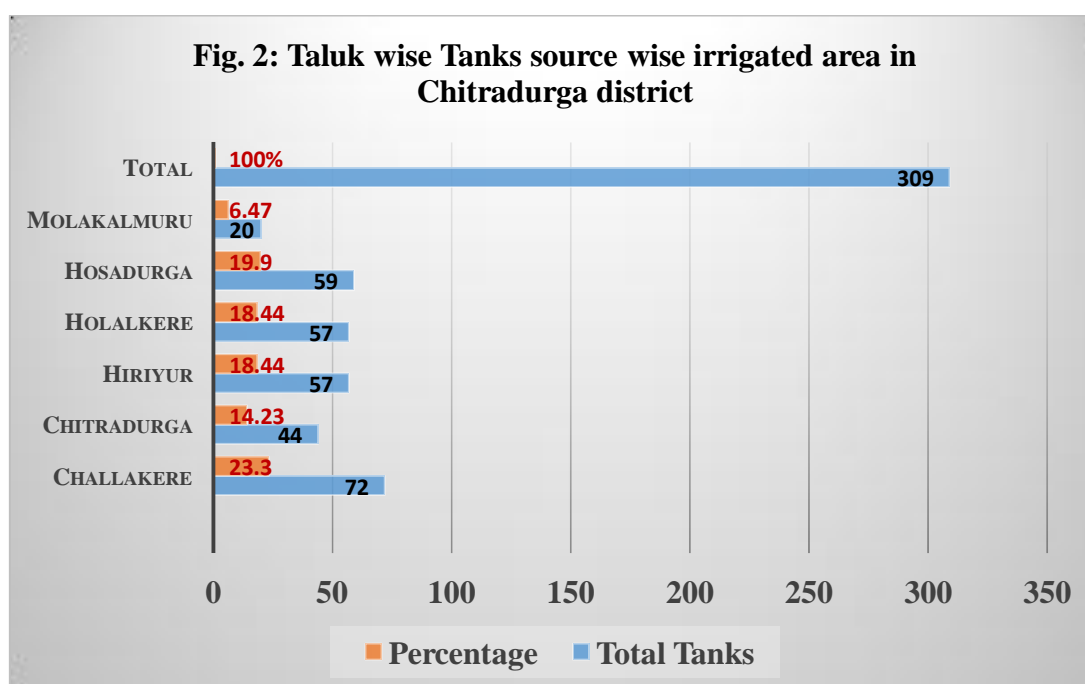
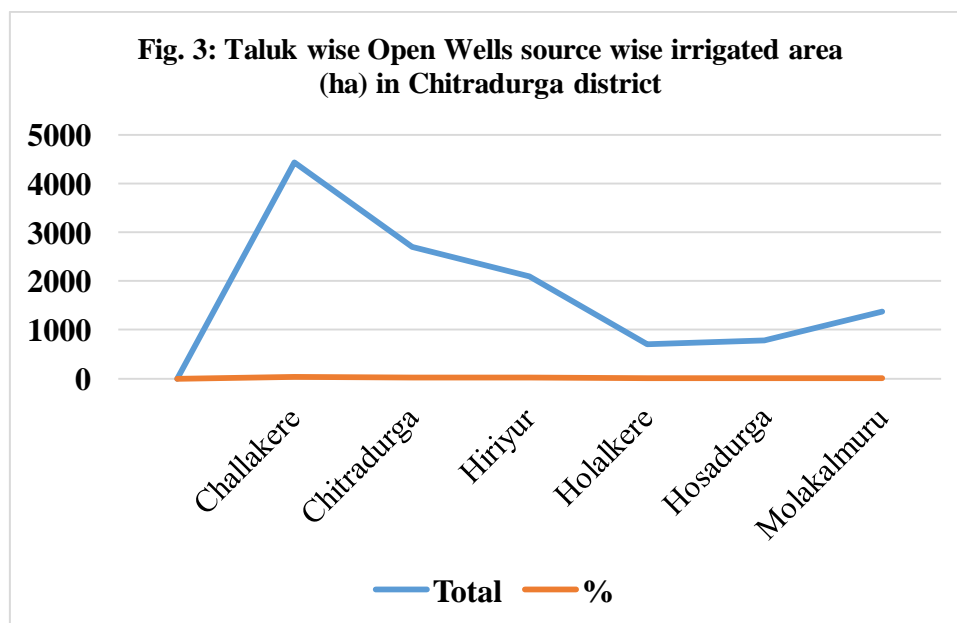


Table 2 and Fig. 2 shows that the taluk wise Tanks source in Gross and Net wise per cent of irrigated area in Chitradurga district. The majority of the Challakere taluk is 23.30 per cent of Tanks (gross per cent) and 0 per cent of Tanks (net per cent), 19.9 per cent of Tanks in Hosadurga, 18.44 per cent Tanks in Hiriyur and Holalkere, 14.23 per cent of Tanks in Chitradurga and les 6.47 per cent (Gross per cent) of Tanks in Molakalmuru taluk is situated for of irrigation in Chitradurga district.

**Table: 3 - Taluk Wise Open Wells source wise irrigated area (ha) in Chitradurga district**

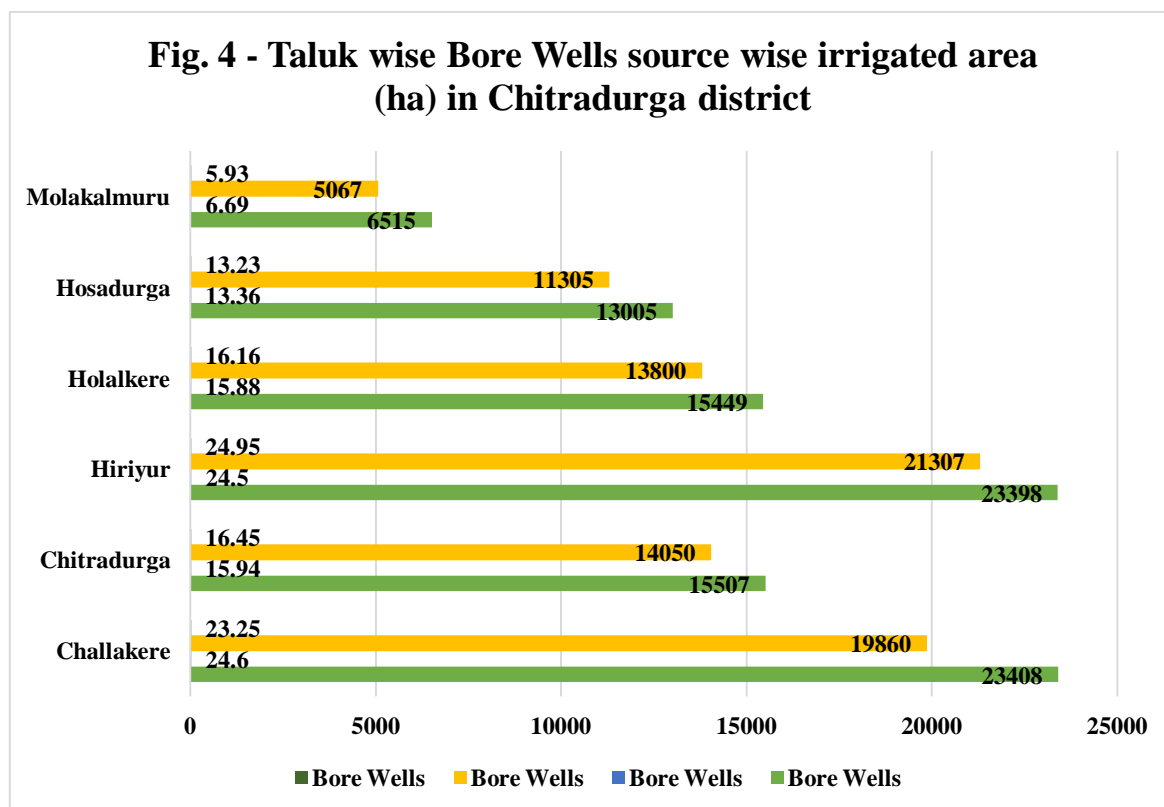
Taluk	Open Well				Total	%
	Gross Nos.	%	Net	%		
Challakere	4434	36.65	0	0	4434	36.65
Chitradurga	2700	22.31	0	0	2700	22.31
Hiriyur	2102	17.37	0	0	2102	17.37
Holalkere	703	5.81	0	0	703	5.81
Hosadurga	779	6.43	0	0	779	6.43
Molakalmuru	1379	11.39	0	0	1379	11.39
<b>Total</b>	<b>12097</b>	<b>100%</b>	<b>0</b>	<b>100%</b>	<b>12097</b>	<b>100%</b>



Above table 3 and Fig. 3 shows that the Taluk wise Open Wells source wise irrigated area (ha) in Chitradurga district. The majority of the Challakere taluk is 36.65 per cent of Open Wells (gross per cent) and 0 per cent of Open Wells (net per cent), 22.31 per cent of Open Wells in Chitradurga taluk, 17.37 per cent Tanks in Hiriyur, 11.39 per cent of Open Wells in Molakalmuru, 6.43 per cent of Open Wells in Molakalmuru taluk and les 5.81 per cent (Gross per cent) of Open Wells in Holalkere taluk is situated for of irrigation in the study area.

**Table : 4 - Taluk wise Bore Wells source wise irrigated area (ha) in Chitradurga district**

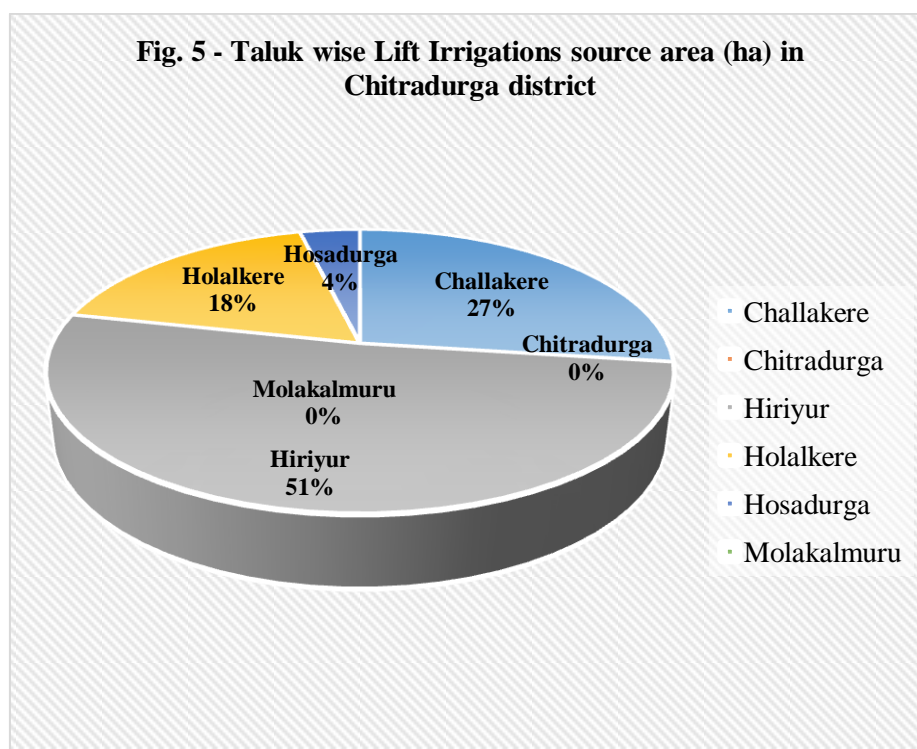
Taluk	Bore Wells				Total	%
	Gross Nos.	%	Net	%		
Challakere	23408	24.6	19860	23.25	43268	23.68
Chitradurga	15507	15.94	14050	16.45	29558	16.18
Hiriyur	23398	24.5	21307	24.95	44705	24.47
Holalkere	15449	15.88	13800	16.16	29249	16
Hosadurga	13005	13.36	11305	13.23	24310	13.30
Molakalmuru	6515	6.69	5067	5.93	11582	6.34
<b>Total</b>	<b>97282</b>	<b>100%</b>	<b>85389</b>	<b>100%</b>	<b>182672</b>	<b>100%</b>



Above table 4 and figure 4 describe analytical information on taluk wise Bore Wells source wise irrigated area (ha) in Chitradurga district. Of the total 24.47 per cent of Bore Wells in Hiriyur, 23.68 per cent in Challakere, 16.18 per cent in Chitradurga, 16 per cent in Holalkere, 13.30 percent in Hosadurga and 6.34 per cent of Bore Wells sources situated in Molakalmuru of Chitradurga district.

**Table : 5 - Taluk wise Lift Irrigations source area (ha) in Chitradurga district**

Taluk	Lift Irrigations				Total	%
	Gross Nos.	%	Net	%		
Challakere	29	27.10	0	0	29	27.10
Chitradurga	0	0	0	0	0	0
Hiriyur	55	51.40	0	0	55	51.40
Holalkere	19	17.75	0	0	19	17.75
Hosadurga	4	3.73	0	0	4	3.73
Molakalmuru	0	0	0	0	0	0
<b>Total</b>	<b>107</b>	<b>100%</b>	<b>0</b>	<b>100%</b>	<b>107</b>	<b>100%</b>



Above table 3 and Fig. 3 shows that the Taluk wise Open Wells source wise irrigated area (ha) in Chitradurga district. The majority of the Challakere taluk is 51.40 per cent of Lift Irrigations (gross per cent) and 0 per cent of Lift Irrigations (net per cent) in Hiriyyur, 27.10 per cent in Challakere taluk, 17.75 per cent in Holalkere taluk, and 3.73 per cent of Lift Irrigations source in Hosadurga taluk of Chitradurga district. Similarly, most of the pipelines in the district depend on the depleting underground source. Enhancement of natural recharge from artificial sources such as bore well recharging and percolation tank can improve groundwater use.

## VI. SUGGESTIONS

It is imperative for the government to undertake many projects to ensure that the farming community will be able to cultivate more and more irrigated land by irrigating the irrigation tanks and irrigating the areas in Chitradurga district.

## VII. CONCLUSION

Chitradurga district is known for poor rainfall. However, the Vedavati River basin usually receives poor rainfall and water storage in Vani Vilas Sagar Dam is limited. This is usually sufficient to meet the demand for drinking water in urban areas and more efficient use of rainwater from different water harvesting structures is a good solution to the problem of water shortages for agriculture of Chitradurga district. Analysis of taluk features in Chitradurga district indicates that Chitradurga, Challakere, Hiriyyur and Mulakalmuru taluks have a higher chance of harvesting surface water through small irrigation / water shed structures. However, the upper level Bhadra project being implemented by the Karnataka government is nearing completion and irrigation will be available within 1-2 years. A total of 154595 hectares of the new irrigated area will be contributed by the Bhadra Upland project. Finally, more irrigation is required in the district.

## REFERENCES

- [1]. M. K. Sreerangaiah, M. K. (2016). *Pradhan Mantri Krishi Sinchayee Yojana: District Irrigation Plan Chitradurga*. Deputy Commission Office. Chitradurga: Government of Karnataka.
- [2]. Vidanage, S., Perera, S. and Kallesoe, M. (2004). 'Kala Oya River Basin, Srilanka: Integrating Wetland Economic Values into River Basin Management', Environmental Economics Programme, Colombo, IUCN Srilanka Country Office.
- [3]. Vasimalai, M.P. (2006). 'Shaping Stakeholders Perspectives Survival of the Common Traditional Tanks in South India', Bali, Indonesia, International Association of Study of Common Property (IASCP).
- [4]. Kajisa, K., Palanisami, K. and Sakurai, T. (2007). 'Effects on poverty and equity of the decline in the collective tank irrigation management in Tamil Nadu', India, Agricultural Economics, Vol.36, No.3.
- [5]. Atibudhi, H.N. (1997): "Effects of major irrigation Projects in coastal districts of orrissa". Indian Journal of Agricultural Economics, 52(3).
- [6]. Ayyar, A.S. (1931): "Field irrigation in Malabari", Jl. Of Madras Geographical Association. Vol.6.

- [7]. Basu, S.K. and S.B.Mukherjee. (1963): "Evaluation of Damodar canals" (1959-60): Bombay: Asia Publishing House.
- [8]. Benakatti, R.L. (1989): "Growth and instability in foodgrain production in Karnataka "--An Economic analysis M.Sc (Agri) Thesis (unpublished) University of Agricultural Science Dharwad.
- [9]. Clerk, C. (1970) "Economics of irrigation", Oxford: Pergamon.
- [10]. Gadgil, D.R. (1948): "Economic effects of irrigation", Gokhale institute of politics and Economics, Poona.
- [11]. Gadgil D.R.(1978) "Economic effects of irrigation", Gokale Institute of Politics and Economics: Poona.
- [12]. Manneir, I.P. (1974): "Problems of water resource management in semi-arid environment": The case Study of irrigated Agriculture in Central Jordan Rift Valley, in Hoyle (ed) Spatial Aspects of Development.
- [13]. Narayanmoorthy.A. (2006): "Trends in irrigated area in India": 1950-51 to2002-03 Anny, Meet Gok.Ins.Pol. Econ. Pune (India).
- [14]. Oppen, M.V.Kashive, R.C. and Wightman, W.R. (1989): "Impact of Tawa irrigation project on agricultural production", Agricultural Situation in India 44(5).
- [15]. Puttaswamaiah, K. (1980): "Economic development of Karnataka", Volume 1, New Delhi: oxford -IBH.
- [16]. Rajakishor, P. (1986): "Anomaly in the use of water in a canal irrigation system"- A case study, Department of Economics, Utkal University Bhubaneshwar.
- [17]. Sharma, J.L. (1990): "Interstate disparities in growth of agriculture in India". Agricultural situation in India 45(7).