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A STUDY ON IMPACT OF IRRIGATION ON AGRICULTURAL PRODUCTION IN VELLORE DISTRICT

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Abstract

India is an agricultural country. Agriculture is the mainstay of the Indian economy from time immemorial. It is the means of livelihood of almost two – thirds of the workforce in the country. About 43 per cent of India's geographical area is used for agricultural activity and almost 17 percent of global agricultural land is irrigated contributing about 40 percent to the world's production of cereal crops. The main focus of this study is to highlight the Irrigation and its impact on agricultural production in the study area.

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Introduction

Agriculture is the largest and important sector in our country, 67 percent of the people are engaged in agriculture. Nearly 70 percent of Indian population mainly depends upon agricultural sector. Agriculture is the back bone of the Indian economy and prosperity of agriculture can also largely be responsible for the prosperity of the entire

Indian economy. Agriculture provides wage goods required by the non-agricultural sectors and raw materials for the industrial sector. Ratcheting up the growth of the economy would be possible provided the agriculture sector fares well on a sustained basis. A good performance of the agriculture sector is views as an effective instrument for attainment of inclusive economic growth and poverty

reduction. India is the world's largest producer of fresh fruits and vegetables, milk, major spices, various crops such as jute, staples such as millets and castor oil seed. It is also the second largest producer of wheat and rice. The average size of the around 138 million farms was around 1.15 ha in 2010 - 11 and average size of large-scale farmers' farms is around 37 ha in 2016.

India has about 140 million ha of cultivable land, nearly 42 percent of the country's cultivable land lies in drought-prone areas/districts. Moreover, 54 percent of India's net sown areas dependent on rain, rain fed agriculture plays an important role in the country's economy. Crop yields everywhere in the developing world are consistently higher in irrigated areas than in rain fed areas. India is not a water rich country and is further challenged due to negative impact of climate change; enormous wastage owing partly to poor management and distorted water pricing policies. Globally, about 40 percent of irrigation water is supplied from groundwater and in India it is expected to be over 50 percent. The common pool nature of groundwater and the difficulty of observing it directly make this resource difficult to monitor and regulate, especially in developing countries. Groundwater resources are being depleted because of unsustainable extraction levels that exceed natural recharge rates. In India, groundwater irrigation covers more than half of the total irrigated area (around 42 million ha).

Statement of the Problem

Although agricultural performance depends upon many factors, this paper mainly focus on irrigation facility, it is appropriate to focus on these issues related to crop production. As irrigation normally leads to

substantially higher yields, it has the effect of concentrating production spatially. The concentrated production afforded by irrigation tends to lead to more competitive assembly markets as it increases the number of traders able to operate viably in a particular area. Besides tanks, surface lift systems also create irrigation potential under minor irrigation. Surface lift systems mainly overcome topographic constraints by pumping water directly from streams or rivers to irrigation channels. Unfortunately they have been generation of large amount of solid and liquid wastes. These wastes when it is discharged into the nearby water sources and land, it leads to reduce the quality of the soil and water, which resulted poor agricultural productivity.

Aim of the study

- To know the water sources for irrigation purpose in the study area.
- To examine the impact of irrigation on agricultural production in the study area.

Research Methodology

This study is based on secondary data. Secondary source of data were collected from various data sources i.e. journal, newspaper, books, electronic sources, Department of statistics, etc. The data which is relevant to the study have been collected.

Review of Literature

Majumdar (2005) in his study pointed out that water is the basic need of plants for metabolic and production processes within. A crop is grown in different land situations, soil types, climatic conditions, seasons and water supply situations. Besides, crops differ in their structures and habits. Their water requirements thus vary widely.

Various methods are adopted to irrigate crops and the main aim is to store water in the effective root zone. Uniformly and in maximum quantity has to possible ensuring water losses to the minimum.

Rao S.V.N. et al. (2004) observed in their article on 'Water Use of Surface and Groundwater for Coastal and Deltaic Systems' that management of water resources in coastal and deltaic regions irrigated by run-of-the-river schemes involves two issues: First, availability of water resources in space

and time, and Second, seawater intrusion. Improper management arising out of successive irrigation or increased groundwater exploitation often leads to water logging or seawater intrusion problems respectively. Any conjunctive use model must address these two issues for application to coastal and deltaic regions.

Analysis of the Data

Table No-1 Year - wise Source of Area Irrigated (in Acres) in Vellore District

Year	Canals	Tanks	Tube Wells / Bore Wells	Open Wells	Other Sources	Gross Area Irrigated By All Sources
1990-91	1921.66	1687.01	Nil	188535.1	545.87	249052.6
1995-96	4952.35	55471.26	2.47	206798.3	978.12	342260.5
2000-01	1946.36	40772.29	550.81	218276.4	Nil	343218.9
2005-06	1079.39	52028.08	28444.52	172601.1	1109.03	309560.2
2010-11	128.44	5483.4	33752.55	183036.9	Nil	261904
2015-16	Nil	4937.53	38220.78	161901.1	Nil	266014.1
2016-17	Nil	3408.6	36675.33	153075	Nil	242544.1

Source: Department of Economics and Statistics, Chennai – 6 (2019)

From the above table shows that the Open well is playing important role in source of area irrigated from the period of 1990-01 to 2016-17. Tank source are adversely affected from 1,687.01 acres during the period of 1990 -01 to just 3,408.6 acres in 2016-17. Canal source is showing influencing

rate and tube / bore wells are increasing from 2.47 acres during 1995-96 to 36,675.33 in the year 2016-17. Hence, the tube/bore wells are increasing day by day in Vellore region.

Table No-2 Production of Principal crops (in Tonnes) in Vellore District

Year	Total Cereals	Total Pulses	Total Fruit and Vegetable	Total Oilseeds	Sugar Cane	Ground -nut	Coconut	Cotton
1990-91	160550	15830	110590	730	167540	104360	1227	3720
1995-96	210050	10580	366390	660	289580	145820	2360	30150
2000-01	265651	15509	216981	1505	202060	108440	1710	5810
2005-06	198022	6709	282819	493	1410960	87327	2765	9585

2010-11	178000	7162	377689	332	1267726	97821	2081	13102
2015-16	276617	25877	158867	389	583680	106070	2448	14051
2016-17	230133	19566	94415	257	561812	81450	2904	10505

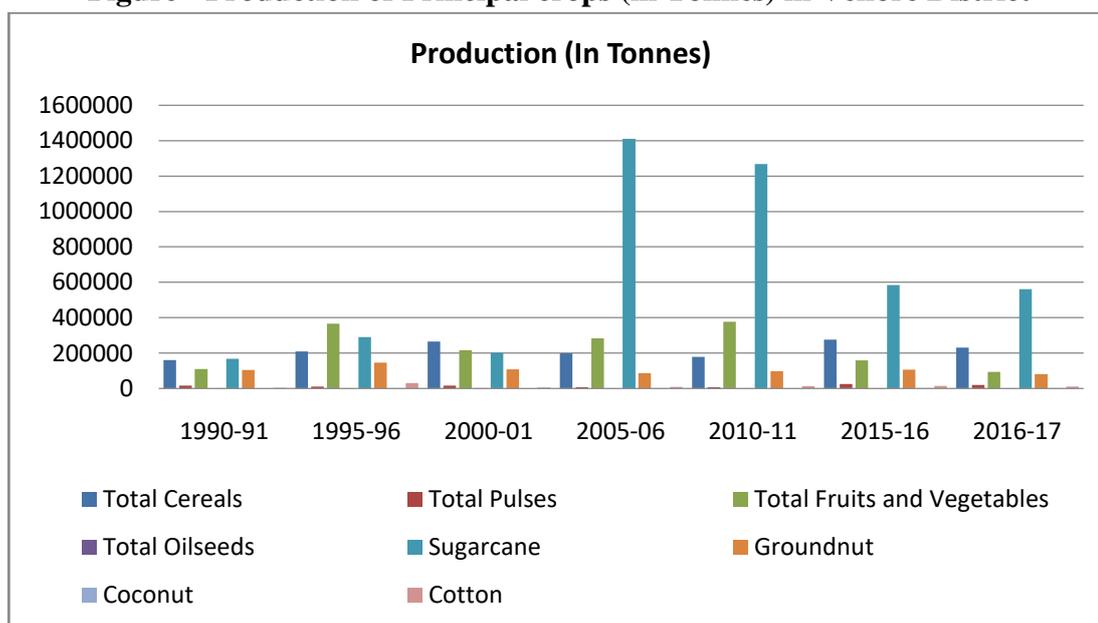
Source: Department of Economics and Statistics, Chennai - 6

Note: <http://agritech.tnau.ac.in/>

From the above table shows that the principal crops production such as cereals, pulses, fruits & vegetables, oilseeds, sugarcane, ground nut, coconut and cotton in the study area. All the crops production is influencing rate from the period of 1990-91 to 2016-17. Total cereals such as (rice, cumbu, ragi, cholam and maize), Total pulses i.e. (Bengal, red, black, green and horse grams), Total fruits and vegetables i.e.

(banana, mango, chillies, onion, potato and turmeric) and oilseeds such as (sunflower, castor, coriander and gingelly).

Figure - Production of Principal crops (in Tonnes) in Vellore District



Conclusion

The outcome of this paper is based on the survey conducted. Principal crop production patterns are affordable affected by irrigation, but only on the margins, and effects of aggregate agricultural production

are not yet apparent. Agricultural production increases by fluctuation over the 20 years. Many farmers who lack secure access to ground water are already giving up many crops productions because the surface water supplies are not reliable. The main channel through which irrigation impacts on crop

production is from its effect on cropping intensity.

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