

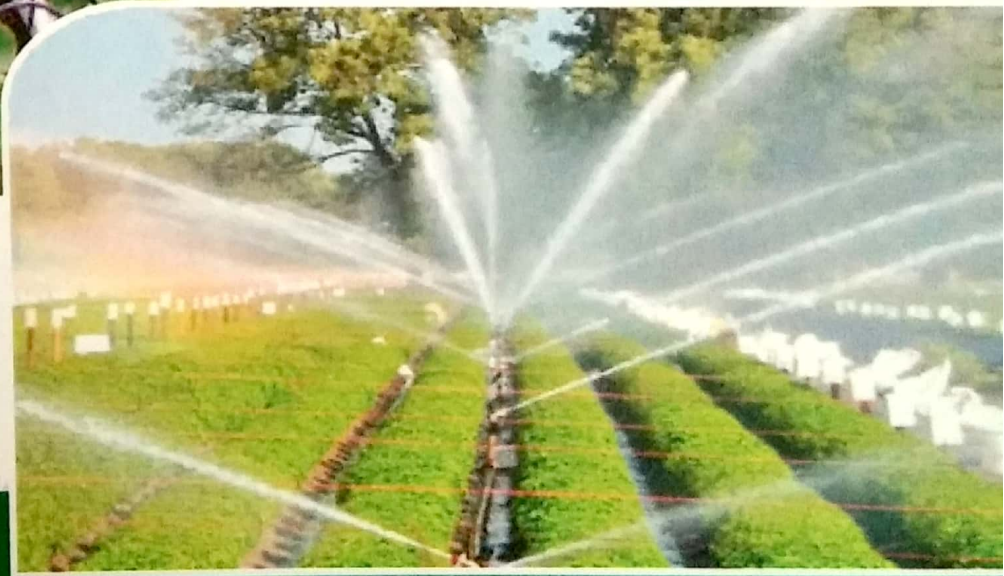
IRRIGATION AND ECONOMIC DEVELOPMENT



Edited by

Dr.S. THEENATHAYALAN

Dr.P. KANNAN



IRRIGATION AND ECONOMIC DEVELOPMENT

Edited by
Dr. S. THEENATHAYALAN
Dr. P. KANNAN

Published by
L ORDINE NUOVO PUBLICATION

lonpublication@gmail.com
www.nuovopublication.com

Book Title : **IRRIGATION AND ECONOMIC DEVELOPMENT**

Editors : **Dr. S. THEENATHAYALAN**
Associate Professor & Head
Post Graduate Department of Economics and
Centre for Research in Economics
The Madura College (Autonomous)
Madurai, Tamil Nadu, India

Dr. P. KANNAN
Associate Professor
Post Graduate Department of Economics and
Centre for Research in Economics
The Madura College (Autonomous)
Madurai, Tamil Nadu, India

Book Subject : Economics
Book Category : Edited Volume
Copy Right : Editors
First Edition : **November 2021**
Book Size : B5
Paper : 21 kg, Maplitho NS
Price : Rs.500/-
Published by : **L ORDINE NUOVO PUBLICATION**
E-mail: lonpublication@gmail.com
www.nuovopublication.com
Mobile:99442 12131.

ISBN Assigned by
Raja Ram Mohan Roy National Agency for ISBN, New Delhi – 110066 (India)

ISBN: 978-93-92995-08-8

ISBN 939299508-3



Disclaimer: *The Publisher and editors cannot be held responsible for errors or any consequences arising from the use of information in this Book; the views and opinions expressed herein are of the authors and do not necessarily reflect those of the publisher and editors.*

Contents

S. No	Title	Page No.
1	Drinking Water Accessibility and Connectivity in Madurai Smart City - An Analysis Dr. S. Theenathayalan & Dr. S. Murugan	1
2	Irrigation and Economic Development in Tamil Nadu with Special Reference to Madurai District Dr. S. Karthikeyan & P. Mohammed Hither Ali	5
3	An Empirical Study on Drip Irrigation Dr. K. Kaliammal & A. Poornima	16
4	Construction of Check Dam in Madurai for Water Supply and Water Management Dr. P. Kannan	20
5	Water Bodies in Madurai City – A Bird’s Eye View Dr. V. Sriman Narayanan & Dr. R. Senthil Kumar	22
6	Urban Water Management in India Professor D. Kavitha Mary	26
7	A Study on Water Crisis and Sugar Cane Productivity in Madurai District Dr. A. Marimuthu & S. Malathi	30
8	Irrigation and Food Grains Production in India Dr. S. Karthikeyan & Dr. S. Senthilkumar	34
9	A Study on Utilisation of Modern Irrigation Techniques in Udumalpet Taluk, Tirupur District Dr. R. Rajini	39
10	An Economic Study on Issues and Challenges of Environmental Management of Water Resources Development in India Dr. S. Meenakshi & Dr. K. Aameena Beevi	45
11	Constraints faced by Dairy Farmers while Adopting Improved Dairy Farming practices in Theni District of Tamil Nadu T. Uvarani & Dr. J. Fredrick	53

CHAPTER 9

A STUDY ON UTILISATION OF MODERN IRRIGATION TECHNIQUES IN UDUMALPET TALUK, TIRUPUR DISTRICT

Dr. R. RAJINI

Associate Professor of Economics

Sri G.V.G Visalakshi College for Women, S.V. Mills' Post, Udumalpet

Abstract

Water is most dominant natural asset it is generally impacts in wellbeing and abundance of the individuals and generation of sustenance. India's monetary spine is agriculture. Water system assumes principle job in the rural creation. The future development of sustenance generation will build wards upon sound water system and water the board frameworks and now a day the assets are most testing a direct result of condition changes.

The people like to utilize modern irrigational strategies since they are incredibly proficient and compelling. Modern irrigational systems are additionally urgent in expanding the harvest yield. The cultivating is done with the assistance of fertilizers, manures, crops need a specific measure of water to develop appropriately. Modern irrigational procedures are likewise practical, whenever done on a large scale. Additionally current irrigational techniques are significant in light of shortage of water and expanding interest for sustenance crops. For instance: drip irrigation system, whenever done appropriately can save up to 95 per cent of water. As indicated above, present day irrigational methods ought to be utilized and advanced on the grounds that they spare a lot of water.

Keywords: modern irrigation techniques, utilisation

Introduction

Water is most predominant common resource it is generally influences in wellbeing and abundance of the individuals and creation of sustenance. India financial spine is horticultural. We are depending on the water resource for improvement agribusiness. Water system assumes principle job in the sustenance generation. The future development of sustenance creation will expand wards upon sound water system and water the board frameworks and now the resources are most challenging as a result of environment changes.

The most significant movement planned for improving the efficiency of land in dry territories is water system. The optimality of the irrigation technique utilized and technical perfection of irrigation and seepage frameworks are assessed by the base progression of water system water and most extreme yield. This issue can be settled in a complex, making in fact immaculate water-saving money on ranch frameworks with the utilization of productive gear and cutting edge innovations.

Decision of normal water system advancements and equipment for these particular conditions ought to be done in stages. From the start it is important to decide technical adequacy of a specific water system innovation, and after that choose the most financially stable strategy for this zone taking into account dominant crops.

Monetary assessment of the propriety of specific equipment and modern irrigation technologies is set by looking at the quantity of specialized and financial parameters, the most significant of which are: the measure of capital ventures and payback period. But the irrigation system may be the costly. The modern irrigation system frameworks have two types as Sprinkler and trickle water system framework.

Sprinkler Irrigation Method

Sprinkler irrigation system allows application of water under high pressure with the help of a pump. It releases water similar to rainfall through a small diameter nozzle placed in the pipes. Water is distributed through a system of pipes, sprayed into air and irrigates in most of the soil type due to wide range of discharge capacity. This is the most efficient method to irrigate the uneven land. Sprinkler system also provides the best coverage regardless of the size of the farm.

Drip Irrigation

Drip irrigation is sometimes called trickle irrigation and involves dripping water onto the soil at very low rates (2-20 liters/hour) from a system of small diameter plastic pipes fitted with outlets called emitters or drippers. Water is applied close to plants so that only part of the soil in which the roots grow is wetted, unlike surface and sprinkler irrigation, which involves wetting the whole soil profile. With drip irrigation water, applications are more frequent (usually every 1-3 days) than with other methods and this provides a very favorable high moisture level in the soil in which plants can flourish.

Drip irrigation system delivers water to the crop using a network of mainlines, sub-mains and lateral lines with emission points spaced along their lengths. Each dripper/emitter, orifice supplies a measured, precisely controlled uniform application of water, nutrients, and other required growth substances directly into the root zone of the plant.

Area of Study

Udumalpet is a Municipality city in district of Tirupur, Tamil Nadu. It is known as "Poor man's Ooty" due to its chill atmosphere. It is bounded on the north by Palladam Taluk, on the east by Madathukulam Taluk, on the south by Munnar and on the west by Pollachi, by Valparai Taluk in the south-west and Kodikannal on the south-east. It is the taluk headquarters with a total area of 554.5sq.miles. There are 6 major textile mills, 4 paper mills, 2 sugar mills, 30 small textile mills and a number of waste cotton mills, spinning units, Pottery units, power looms etc. functioning in and around Udumalpet town

Objectives of the Study

- To find out the irrigation technique implemented by the respondents.
- To analyse the factors motivating for adapting modern irrigation system.
- To suggest measures for the effective utilisation of the modern techniques in cultivation.

Methodology

The validity of any research is based on the systematic method of formulating the objectives, data collection, analysis and interpretation. This present study is based on descriptive research design.

The questionnaire was designed in a systematic way of covering adequate and relevant almost all aspects of the study. The data collected from the primary sources were arranged sequentially and tabulated in a systematic manner. Secondary data required for the study was collected from books, magazines, journals, newspapers, past research, reports and various websites.

Sampling Method

Non probability convenience sampling techniques was used to select a sample of 150 farmers in Udumalpet Taluk.

Tools for Analysis

The following tools were employed to analyse the data with reference to the selected objectives of the study.

- Simple Percentage
- Chi-square analysis
- Henry Garrett Ranking
- Correlation

Data Analysis and Interpretation

1. Simple Percentage Method

Type of Modern Irrigation System

Table 1.1 Type of Modern Irrigation System

Type of irrigation	Respondents	Percentage
Drip Irrigation	125	83
Sprinkler Irrigation	25	17
Total	150	100

It is observed that most (83%) of the respondents are utilising drip irrigation and 17% of the respondents are utilising sprinkler irrigation system. It reveals that most of the farmers used drip irrigation system.

Benefits of Using Modern Irrigation System

Table 1.2 Benefits of Using Modern Irrigation System

Benefits	Respondents	Percentage
Low cost	11	7.33
Reduce irrigation time	16	10.67
Less manpower	25	16.67
High area of production	37	24.67
Less wastage of water	61	40.67
Total	150	100

It is found that maximum (40.67%) of the respondents stated that they are benefit in less wastage of water, while 24.67% of the respondents are benefit by high area of production, 16.67% of the respondents are beneficiary by manpower using. It reveals that most of the 40.67 percent respondents are beneficiary three time saving in modern irrigation system.

2. Chi-Square Test

The Relationship between the Sources of Water and Area of Farming

Table 2.1 Water Resources and Area of Farming

Sources of Water	Area of Farming in Acres			Total
	Less than 5	5 to 10	More than 10	
Bore well	3	44	14	61
	8.9	37.82	14.2	61
Well	4	25	8	37
	5.4	22.9	8.6	37
Tank	9	10	6	25
	3.7	15.5	5.8	25
Rain fed	2	9	5	16
	2.3	9.9	3.7	16
Canal	4	5	2	11
	1.6	6.8	2.5	11
Total	22	93	35	150
	22	93	35	150.0

The chi-square test reveals that the calculated chi-square value (19.82) is more than the table chi-square value (15.507) at 5% level of significance ($P < 0.021$) and therefore, the relationship between water resources and Area of Farming is significant. Thus, the hypothesis is that the relationship between the two factors holds good. Hence, the null hypothesis is rejected.

3. Henry Garrett Ranking Technique

Reasons	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7
Control waste of water	33	30	29	15	20	13	10
Scarcity of Water	32	31	32	24	10	10	11
Suitability for crops	27	30	26	30	16	9	12
High area of production	6	17	24	24	33	28	18
Reduce time of irrigation	6	7	7	19	22	21	68
Save the nature	10	16	13	25	14	57	15
Less manpower	37	20	20	12	34	13	14

Reasons	Garrett Score	Garrett Mean	Garrett Rank
Control waste of water	8482	56.55	2
Scarcity of Water	8579	57.19	1
Suitability for crops	8323	55.49	3
High area of production	6914	46.09	5
Reduce time of irrigation	5434	36.23	7
Save the nature	6691	44.61	6
Less manpower	8175	54.50	4

It is clear that the farmers indicated the major reason modern irrigation system for is due to Control waste of water ($M=57.19$) which achieved first position followed by due to its Scarcity of Water ($M=56.55$), that achieved 2nd position, Third position was to Suitability for crops ($M=55.49$), fourth was Less manpower ($M=54.50$), Fifth position was High area of production ($M=46.09$), sixth position was achieved as the reason of Save the nature ($M=44.61$), and finally, that the farmers were Reduce time of irrigation ($M=36.23$), as the Control waste of water was high reason for modern irrigation.

4. Correlation

Relationship between the Type of Modern Irrigation method and Satisfaction Level
X Variable is Type of Modern Irrigation method Y Variable is Satisfaction Level

Table 4.1

S.No	x	y	$X = x - 25$	$Y = y - 30$	X^2	Y^2	xy
1	125	115	100	85	10000	7225	8500
2	25	30	0	0	0	0	0
3	0	5	-25	-25	625	625	625
					$\Sigma X^2=10625$	$\Sigma Y^2=7850$	9125

$r = 0.99$

From the correlation analysis, it was inferred that the r value is positively correlated as 0.99. Therefore it is cleared that there is a positive correlation between the Type of Modern Irrigation method and Satisfaction Level of the farmers.

Findings of the Study

- Majority (83%) of the respondents are using drip irrigation.
- Maximum (40.67%) of the respondents stated that they are benefit in less wastage of water.
- There is significant relationship between type of irrigation and area of farming.
- It is clear that the farmers indicated the major reason for adoption of modern irrigation system is to control waste of water.
- It is cleared that there is a positive correlation between the type of modern irrigation technique and satisfaction level of the farmers.

Suggestions

- Water scarcity shall be addressed by providing necessary supply during the monsoon failures to the Government.
- The Government could motivate through sanctioning special loans for modern irrigation techniques.
- To provide awareness programmes to the farmers about the modern technology.
- Farmers should undertake the soil testing and which type of irrigation systems will help for their soil and crop types.

Conclusion

People prefer to use modern irrigational techniques because they are extremely efficient effective and economical. Modern irrigational techniques are also crucial in increasing the crop yield. Also since these days farming is done with the help of fertilizers, crops need a certain amount of water to grow properly. Modern irrigational techniques are also cost effective, if done on a large scale. Also modern irrigational methods are important because of scarcity of water and increasing demand for food crops. For example: drip irrigation, if done properly can save up to 95 per cent of water. The present study recommends that the utilization of modern irrigational techniques and want to promote the same because they save a lot of water.

References

1. C.V. Jayamani, R.vasthagopal, Environmental Management, New Central Publication New Delhi.
2. Patel, S. R. and Patel, R. B., "Inspiration sources for introducing drip irrigation System" Maharashtra journal of extension, 2000.
3. Senthilkumar.C, "A Study on Spices Production and Marketing in Erode District", Namer International Journal of Management Research, 2011, Vol.1, Issue No.1, December 2011.
4. www.epa.gld.gov.au/sustainable-industry
5. www.greenpeace.org
6. www.irrigationsyatem
7. www.modernirrigationtechology.