

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

12	Water crisis in Tamil Nadu: Issues and Challenges with Special Reference to Dindigul District J. Indira & Dr. P. Ravichandran	61
13	Farmers' Realization towards Drip Irrigation System and Flood Irrigation System in Tiruppur District Dr. J. Geethamani	67
14	Drainage and Irrigation Management System in Udumalpet Taluk, Tamilnadu Utilising GIS C. Sripriya	73
15	Different Irrigation Methods in India: Problems and Measures Dr. J. Devika Rani & Dr. S. Sharmeela Banu	79
16	Drip and Sprinkler Irrigation Practices in Tamil Nadu Dr. A. Kumudha	83
17	An Overview on Parambikulam - Aliyar Project (PAP) Dr. M. Mehar Banu & Mrs. R. Divya Bharathi	87
18	Sources, Importance, Methods of Agricultural Irrigation and Economic Development Dr. S. Karthikeyan & Dr. M. Satheesh Pandian	93
19	Significance and Impediments of Drip Irrigation T. Miruna Devi	99
20	A Study on the Operation of Sprinkler Systems Dr. P. Anna Baby	103
21	Micro-irrigation: An Efficient Technology for India's Sustainable Agricultural Growth Dr. D. Manimozhi	106
22	Water Resources of India Dr. J. Jeyalakshmi, Dr. T. Manikandan & Mr. S. Arun	110
23	The Major Irrigation Projects in Tamil Nadu Dr. P. Nermaiselvan	114
24	Water Resource Management in India Dr. R. Alaguraja	119

25	Study on Effective Water Resource Management for Agriculture Dr. V. Krishna Kumar	125
26	A Study on Area and Methods of Irrigation in Tamil Nadu Dr. P. Jothilakshmi & Dr. K. Jayaraman	131
27	Minor Irrigation Projects and Economic Development in Tamil Nadu Dr. S. Theenathayalan & R. Dilipan	136
28	A Study on Problems and Prospects in the Adoption of Drip Irrigation with Special Reference to Spices Crops in Sivagangai District of Tamil Nadu D. P. Narayanasamy	140
29	Impact and Effectiveness of Watershed Development Programmes with Special Reference to Madurai District Dr. S. Thangamayan	145
30	The Minor and Major Irrigations Projects in Tamil Nadu Dr. R. Sarojini & Dr. S. Vijayalakshmi	149
31	Impact of Irrigation Method on Agricultural Development Dr. P. Anbuoli & Dr. S. Vishnubabu	153
32	Impending Water Crisis in Tamil Nadu and comparing Clean Water Standards among Metropolitan City R. Premalatha	158
33	A Study on Dams and Reservoirs Irrigation in Tamilnadu with Special Reference to Manimuthar Dam in Tirunelveli District R. Iyappan	163
34	Irrigation in India: Trends and Government Initiatives Dr. N. Esakki	168
35	Irrigation and Economic Development K. Elavarasu	172
36	Papanasam Dam - An Overview A. Thilagavathy	181

37	Industrial Water Use and its Energy Implications	186
	S. Bhuvaneswari	
38	Social and Economic Importance of Water Services in the Indian Context	190
	Mr. K. Boopathiraj	
39	A Study on Micro – Irrigation with Reference to Drip Irrigation	196
	Dr. Uma Maheshwari	
40	Rice Production with Drip Irrigation System	200
	Dr. S. Karthikeyan & I. Ramakrishnan	
41	Environmental Impact of Irrigation	203
	Dr. R. Vaheedha Banu	
42	A Study on Major and Minor Irrigation Projects in Tamilnadu	209
	Dr. S. Karthikeyan & P. Gnanasoundari	
43	Impact of Climate Changes on Irrigation	213
	M. Manjula & Dr. Regina Mary	

CHAPTER 5

WATER BODIES IN MADURAI CITY – A BIRD'S EYE VIEW

Dr. V. SRIMAN NARAYANAN

Assistant Professor, Department of Economics, Department of Economics
The Madura College (Autonomous), Madurai

Dr. R. SENTHIL KUMAR

Assistant Professor, Department of Economics
M.S.S. Waf Board College, K.K. Nagar, Madurai

"Anyone who can solve the problems of water will be worthy of two Nobel prizes —one for peace and one for science."

– President John F. Kennedy, 1962

Introduction

The scarcity of water resources also has many cascading effects which includes desertification, risk to biodiversity, industry, energy sector and risk of exceeding the carrying capacity of urban hubs. The management and planning of water resources recently become more significance and gradually more complex. While the most of the developed countries administered their water source with sustainable plans to water production, our country has newly started the work within its ponds and watershed management principles.

Ancient Water Management in India

“ஊருணி நீர்நிறைந் தற்றே உலகவாம் பேரறி வாளன் திரு.

– Thirukkural : 215

The wealth of men who love the 'fitting way,' the truly wise,
is as when water fills the pond that village needs supplies.

– Thirukkural : 215 (English Version)

This thirukkural reflects the significance of 'Ooranis – Drinking water ponds' during the ages of Thiruvalluvar (dated variously from 4th century BCE to 5th century CE). Kulam, kuttai, kundam, kuttam, kundu, valayam and oorani are some of the traditional ponds that were dug by local communities, landlords, kings and kingsmen for various purposes such as domestic uses, drinking, livestock needs, fishing, agriculture, washing clothes etc. Every pond was designed based on the functionality, topography and demand. Hamlets were established over the dugout soil of these ponds. Few hamlets/ villages were also named after these ponds (Sekanoorani, Karuppayurani, and Kaloorani). Tank after tank has fallen prey in the past few decades. We live in a place called Chokki“kulam” – in this Tamil word, 'kulam' means pond.

Recent Water Management Strategy in India

During 2019, Indian government picked up the challenge of water management and conservation by initiating Jal Shakti Abhiyan – a campaign for water conservation and water security in 1592 water stressed blocks in 256 districts on 1st July 2019. Inspired by the Prime Minister's impetus on Jal Sanchay, the Jal Shakti Abhiyan is termed as a time-bound, mission-mode water conservation campaign. If implemented well, this program has the capacity to change the overall state of affairs prevailing in water sector in India. To supplement these efforts, NITI Aayog has organized the second Round of Composite Water Management Index (CWMI). Once again, we have focused on the critical issues related to Water Management Index.

The Index and its associated report are expected to: (1) establish a clear baseline and benchmark for state-level performance on key water indicators; (2) uncover and explain how states have progressed on water issues over time, identifying high-performers and under-performers, thereby inculcating a culture of constructive federal competition in-between states; and (3) identify areas for deeper engagement and investment on the part of the states. Eventually, NITI Aayog plans to develop the Index into a composite, national-level data management platform for all water resources in India.

Statement of the Problem

The problems of encroachment and pollution of the Vaigai River are the Madurai natural major ponds viz. Vandiyur, Madakulam, Sellur and Thenkkal, Kirudhalmal river, Nilayur canal and Mariamman Teppakulam Temple Tank which are the only tanks alive now, though all of them have shrunk in size, but the waterways of these major tanks are either damaged or blocked. Today, many Indian cities rely visibly on the provision of water from reservoirs and a seemingly-never-ending groundwater supply, while not focusing sufficient on management. Meanwhile, a majority of city dwellers are water-stressed and water sources are fetching more volatile. The need of an hour is to focus on cleaning and maintaining the water bodies, which is the only way to save Madurai City in future.

Rescue of Water Bodies

More than 5 NGO's takes part actively in cleaning the river at sporadic intervals. The Public Work Departments plan Micro level study of Vaigai River Basin focusing more on treating the entire basin as a single Planning unit. Educational institutions located in and around Madurai city conduct awareness programs periodically on the revitalization of the river Vaigai to its citizens. Recent study conducted by the Thiagarajar college of Engineering, Madurai clearly indicates that the river still holds self purifying capacity. The water within the urban limits is polluted whereas water on the peri-urban area is fit for drinking. Thus, river still projects a positive signal to its citizens.

- To collect segregated water from the households, all commercial buildings, including hospitals and educational institutions should be checked to make sure they have effective rainwater harvesting system.
- All water bodies should be protected by fencing them after making sure that they are not encroached.

About the Editors



Dr.S. THEENATHAYALAN is presently serving as Associate Professor and Head, Department of Economics and Centre for Research in Economics of The Madura College (Autonomous), Madurai, Formerly Member – Syndicate and Member Convener Committee, Madurai Kamaraj University. He has credibly maintained consistent academic records in his post graduate studies with a University Rank. He started his teaching career in July 1991 with a passion for teaching for more than 3 decades. He has produced 11 Ph.Ds, 32 M.Phil and published 15 books.

He was also the organizing secretary of 10 National Seminars, 1 National Conference and 3 International Conferences. In addition, he has delivered 80 plus invited lectures at the UGC HRDC and keynote addresses in Economics in National, International conferences and radio talks. His research contributions are also outstanding. Under his guidance, eleven students got their Ph.D. degrees. 31 M.Phil graduates and many PG students have completed their projects under his guidance. At present, 7 Ph.D Scholars and one post-doctoral fellow are working under him.

He has published 15 books, 34 research papers and reviews in national and international journals of repute. His academic contributions involve membership and chairmanship of Board of Studies of various institutes. He was also recipient of "Best teacher award", "Best NSS Programme Officers Award", "Senior Economists award" and "Eminent Academician award". Besides he served as NAAC Coordinator, IQAC Coordinator and Dean of Academics and Research in the college.



Dr.P. KANNAN graduated from N.M.S.S.V.N. College, Nagamalai, Madurai and took his M.A, M.Phil., Ph.D. from Madurai Kamaraj University. He began his teaching profession from 2000 onwards. He has been serving for more than two decades as Associate Professor, PG Department of Economics and Centre for Research in Economics, The Madura College, (Autonomous) Madurai.

He has been handling Classes from undergraduate to M.Phil levels with greater reliance on insight, lateral thinking inspiration and sagacity. He has organized and participated in quite a few number of National, State level and Regional Seminars, Workshop and Conferences and has contributed articles in research journals of repute. His academic contributions exemplify his ability towards carrying out high quality teaching, research and extension work with focuses understanding, sanctity of thought and liveliness. Being a Research Guide he produced 13 M.Phil candidates. He is effectively affianced with all the college curricular and co-curricular activities.



Published by
L ORDINE NUOVO PUBLICATION
lonpublication@gmail.com
www.nuovopublication.com

ISBN 939299508-3



9 789392 995088