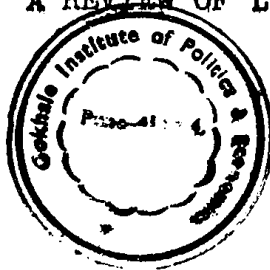


EFFECT OF IRRIGATION ON AGRICULTURAL
PRODUCTION : A REVIEW OF LITERATURE



A DISSERTATION SUBMITTED TO THE
UNIVERSITY OF POONA
IN PARTIAL FULFILMENT
FOR THE DEGREE OF
MASTER OF PHILOSOPHY IN ECONOMICS

BY

S. B. ZAWARE

GOKHALE INSTITUTE OF POLITICS AND ECONOMICS
PUNE 411004

JULY 1988

ACKNOWLEDGEMENTS

The present study was undertaken under the supervision of Dr. Ashok K. Mitra. I am highly grateful to him for his valuable suggestions, constant encouragement, keen interest and patience which enabled me to complete this study.

I thank Dr. M. G. Hapase, Principal, Padmashri Vikhe Patil College, Pravaranagar for having granted me one year teacher fellowship under UGC's Teacher Fellowship Programme for college teachers (1986-87) which enabled me to carry out the present study.

I have had the benefit of valuable suggestions from the members of the staff of this Institute and my colleagues, Shri S. S. Chande, B. R. Adik, S.R. Walunj, B. N. Kamble, B. M. Shinde, Miss S. C. Satav and I acknowledge them with thanks.

My thanks are due to all the library staff of the Servants of India Society for their sincere help.

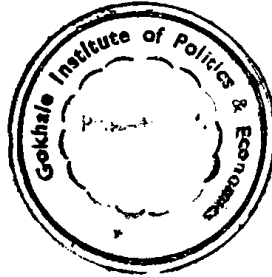
I am thankful to Shri S. K. Athale for timely and neat typing.

Gokhale Institute of
Politics & Economics
Pune 411004

S. B. Zaware

July 1988

C O N T E N T S



	<u>Page</u>
ACKNOWLEDGEMENTS	(1)
LIST OF TABLES	(111)
 <u>Chapter</u>	
I INTRODUCTION	1
II DEVELOPMENT OF IRRIGATION	4
III AREA EFFECT OR ACREAGE EFFECT OF IRRIGATION	32
IV YIELD EFFECT OF IRRIGATION	57
V CROPPING PATTERN EFFECT OF IRRIGATION	94
VI SUMMARY AND CONCLUSIONS	126
BIBLIOGRAPHY	131

LIST OF TABLES

<u>Table No.</u>		<u>Page No.</u>
2.1	Progress of Irrigation Development in Undivided India Excluding Princely States	5
2.2	Development of Irrigation Potential	11
2.3	Irrigation Potential Created and Utilised	16
2.4	Gap between Targets and Achievements During Plan Periods	17
2.5	Irrigation Sources	21
2.6	Indicators of Groundwater Irrigation Development Since 1951	23
2.7	Irrigation Potential and Achieve- ment	25
2.8	Irrigation Projects - Targets and Achievements	28
2.9	Progress in Irrigated Area and Gross Cropped Area During 1950-51 to 1983-84	30
3.1	✓ Growth Rates of Area, Cropping Intensity and Productivity	36
3.2	Gross Cropped Area, Irrigated Area and Index of Cropping Intensity	38
3.3	Projected Cropping Intensity at Different Levels of Percentage Gross Cropped Area Irrigated for U.P. Plains	41
3.4	✓ Irrigated Area, Gross Cropped Area, Cultivated Area (Before and After Irrigation)	51

<u>Table No.</u>		<u>Page No.</u>
✓3.5	✓Land Utilisation Before and After Irrigation	52
3.6	Average Cropped Area in a Cycle of Five Years	53
✓4.1	Yield Effect of Irrigation	58
4.2	Yield Differences Due to Irrigation	65
4.3	Yield for Paddy and Wheat in Palamau District	66
4.4	Yield (kgs) Per Acre by Selected Households	69
4.5	Average Yield of Irrigated and Unirrigated Crops	75
4.6	Percentage Difference in Per Acre Yield	76
4.7	Yields of Crops in India from Irri- gated and Unirrigated Areas	78
4.8	Irrigated and Unirrigated Yields Per Acre for Some Food Groups (1953-54)	79
4.9	Minimum and Maximum Irrigated and Unirrigated Yield of Principal Crops During 1975-76 (All India)	81
4.10	Yield Level of Principal Crops in 1984-85	82
4.11	Differential Yield in Irrigated and Rainfed Agriculture	83
4.12	Wheat Yield Per Acre	87
4.13	Co-efficient of Variation in Yield by Crops - All India	90
4.14	Co-efficient of Variations of Yields Cropwise - All India	91

(v)

<u>Table No.</u>		<u>Page No.</u>
✓ 5.1	✓ Crop Pattern : Before and After Irrigation	101
5.2	✓ Cropping Pattern of Selected Villages	102
5.3	Growth of Net Area Irrigated and Area under High Yielding Variety Paddy in Kharif Season (June to December (1971-72 to 1980-81)	105
5.4	Growth of Area under Summer Paddy, Summer High Yielding Variety Wheat and Summer Vegetables	106
5.5	Cropping Pattern Percentage in Irrigated and Unirrigated Areas - Andhra Pradesh	110
5.6	Cropping Pattern Percentage in Irrigated and Unirrigated Areas - Gujarat	111
5.7	Cropping Pattern Percentage in Irrigated and Unirrigated Areas - Uttar Pradesh	112
✓ 5.8	✓ Change in Cropping Pattern	122