

A STUDY ON THE PRESENT STATUS AND DEVELOPMENT
OF RUGAM IRRIGATION COMMAND AREA OF THE
BATTICALOA DISTRICT

283

283

BY

ABDUL CAREEM RIFAS



FAG283



Project Report
Library - EUSL

FACULTY OF AGRICULTURE
EASTERN UNIVERSITY
SRI LANKA

2010

PROCESSED
Main Library: EUSL

ABSTRACT

Irrigation scheme development is one of the most commonly practised strategies to secure food self-sufficiency in most of the developing countries. Therefore, it is necessary to assess the impact of the irrigation intervention on the different members of the community. This research aims at assessing the impact of irrigation intervention on crop cultivation, livestock production, health and environment. These parameters will tell us a lot about the situation of the farmers' livelihood and socio-economic aspects in general.

This research was conducted at the Rugam command area between November 2009 to February 2010 using a questionnaire based study system. For the study purpose the command area was divided into three regions namely head, mid and tail based on the distance from the tank. Secondary data review, key informant interview, and questionnaire survey were used as methods of data collection. Both qualitative and quantitative research methods were used for the data analysis.

Study proved that among the three regions, paddy is the main crop planted in large scale farming. Most of the farmers (62.5%) owned less than 5ac extent of land. Nearly 30.8% of farmers owned 6-10 acres of land including high lands. From the study it was revealed that, about 95% of farmers from head are doing twice a year production and also most of the farmers (90%) using tank water as major source. After the end of internal war extent of cultivation land is now increased however, irrigation water availability and rain fall are the controlling factors. There is no difference in socio economic and livelihood of the farmers among the head, mid and tail. Though the living status of farmers increasing through the Rugam scheme.

The irrigation helped the farmers to get pasture and fodder for their livestock through increased straw and increased natural vegetation during the dry period, though which is controlling factor for the livestock development in command area. However still besides the positives impacts of the schemes it is also result in some environmental change; especially salinity and soil fertility decrease. Women benefited a lot from the schemes by producing vegetables and renting their land on the command. Though the living status of farmers increasing through Rugam scheme but the women participation (5%) was not at desirable level. Irrigation activities associated with major problems in managing the socio-cultural issues in the command area, maintenance, water allocation, water distribution, it is found that, the intervention of irrigation schemes highly benefited the farmers in improving their livelihood. It could be observed that 82% of the farmers were sufficient in the food production as well, but the management systems are very poor so that a many negative environmental impacts have been observed.

Keywords: Irrigation, Command area, Rugam tank, water, Management, livelihood

TABLE OF CONTENTS

ABSTRACT	I
ACKNOWLEDGEMENT.....	III
ACRONYMS.....	IV
TABLE OF CONTANT	VI
LIST OF TABLES.....	XII
LIST OF FIGURES.....	XIII
CHEPTER 01	1
INTRODUCTION	1
CHAPTER 02	7
LITERATURE REVIEW	7
2.1 Development of irrigation technology in Sri Lanka	7
2.2 Irrigated Agriculture in Sri Lanka	10
2.3 Irrigation Methods	11
2.4 Irrigation problems in Dry zone	12
2.5 Irrigation Management	12
2.6 Problems Related To Water Management in the Dry Zone	13
2.6.1 Fragmentation of the irrigated land holdings	13
2.6.2 The introduction of new varieties.....	14
2.6.3 Difficulties in maintaining strict cropping schedules	14
2.6.4 Other government policies.....	14
2.7 The remedial measures adopted by government	15
2.8 Research Developments in Water Management.....	16
2.9 Research Findings and Experiences in Water Management	17
2.10 Role of Irrigation in Agricultural Development	18

2.11 Investments in Irrigation.....	20
2.12 Role of Irrigation Scheme in Sri Lankan Economy	20
2.13 Minor irrigation	21
2.14 Major irrigation.....	22
2.15 Water Resources in Batticaloa District.....	22
2.17 Freshwater fisheries in Batticaloa district	23
2.18 Catchments area (Watershed) Characteristics	25
2.19 Command Area Development programme	25
2.19.1 Agriculture development in command area.....	26
2.19.2 Livestock development in command area	27
2.19.3 Socio economic development in command area	28
2.20 Multiple uses of reservoir water in command area.....	28
2.21 Water quality in command areas	30
2.21.1 Quality of reservoir water.....	30
2.21.2 Ground water quality in command areas	32
2.22 Water pollution in command area	34
2.22.1 Agricultural water pollution in command area.....	34
2.22.1.1 Pesticide Pollution	35
2.22.1.2 Nutrient Pollution	35
2.22.2 Health issues in Irrigation command area	36
CHAPTER 03	37
MATERIALS AND METHODS	37
3.0 Location of Study Area.....	37
3.1.1 Description of the irrigation Tank	38
3.1.2 Location	39

TABLE OF CONTENTS

ABSTRACT	I
ACKNOWLEDGEMENT	III
ACRONYMS.....	IV
TABLE OF CONTANT	VI
LIST OF TABLES.....	XII
LIST OF FIGURES	XIII
CHEPTER 01	1
INTRODUCTION	1
CHAPTER 02	7
LITERATURE REVIEW	7
2.1 Development of irrigation technology in Sri Lanka	7
2.2 Irrigated Agriculture in Sri Lanka	10
2.3 Irrigation Methods	11
2.4 Irrigation problems in Dry zone	12
2.5 Irrigation Management	12
2.6 Problems Related To Water Management in the Dry Zone	13
2.6.1 Fragmentation of the irrigated land holdings	13
2.6.2 The introduction of new varieties	14
2.6.3 Difficulties in maintaining strict cropping schedules	14
2.6.4 Other government policies.....	14
2.7 The remedial measures adopted by government	15
2.8 Research Developments in Water Management.....	16
2.9 Research Findings and Experiences in Water Management	17
2.10 Role of Irrigation in Agricultural Development	18

3.2 Methodology.....	43
3.2.1 Questionnaire preparation and Data Collection.....	43
3.2.2 Sampling Design and procedure.....	43
3.2.3 Tabulation and Data Analysis.....	45
CHAPTER 04	46
RESULTS AND DISCUSSION.....	46
4.1 General Information	46
4.1.1 Rugam Tank Profile.....	46
4.1.2 Climate and water resource of the Command area.....	48
4.1.3 Field Distance from Channel Water Source	48
4.1.4 Time Taken to Reach the Field.....	49
4.2 Socio economic aspect.....	49
4.2.1 Gender	49
4.2.2 Civil status	50
4.2.3 Ethnicity.....	51
4.2.4 Age of Respondents.....	51
4.2.5 Family Size	52
4.2.6 Education Level of Farmers	53
4.2.7 Main Occupation	54
4.2.8 Involvement of farming	56
4.2.9 Family Income Distribution.....	56
4.3 Impact of Irrigation System on Crop Farming	57
4.3.1 Farming Systems	58
4.3.1.1 Rain fed Agriculture	58
4.3.1.2 Irrigated Agriculture	58

4.3.1.3 Cultivation Times per Year	59
4.3.2 Type of Water Source.....	60
4.3.3 Method of Irrigation	61
4.3.4 Inputs for the Cultivation.....	61
4.3.5 Crop Cultivation	63
4.3.5.1 Paddy Cultivation	63
4.3.5.2 Other Field Crops and vegetable Cultivation	67
4.3.5.3 Fruit Crops Cultivation	68
4.3.6 Uses of Irrigation Scheme	68
4.3.6.1 Income and Food security.....	68
4.3.6.2 Impact on employment	68
4.3.6.3 Backward and forward linkages	69
4.3.7 Constrains of Crop Farming	69
4.3.7.1 Water use efficiency	69
4.3.7.2 Lack of Rain fall	70
4.3.7.3 Soil salinity problems	70
4.3.7.5 Soil erosion problem.....	71
4.3.8.7 Lack of Knowledge	71
4.3.8 Marketing.....	71
4.4 Impact of Irrigation System on Livestock Production.....	72
4.4.1 Type of Livestock	73
4.4.2 Water source for the Livestock.....	74
4.4.3 Feed source for the livestock	74
4.4.3.1 Irrigation and the Fodder availability	76
4.4.4 Purpose of Rearing	76

4.4.5 Rearing System	77
4.4.6 Major constrains of Livestock Rearing	79
4.4.6.1 High Cost for Feed	79
4.4.6.2 Low Price for Milk	79
4.4.6.3 Lack of grass and grass land	79
4.4.6.4 Drought or Lack of Water	80
4.4.6.5 Threat of Diseases	80
4.4.6.6 Constrains and problems in marketing	81
4.4.6.7 Constrains and problems of institutional support	81
4.5 Impact of Irrigation Scheme on Livelihood of Farmers	81
4.5.1 Self sufficiency in food / food security	82
4.5.2 Benefit of the storage of the products.....	83
4.5.3 Frequent sale of livestock	83
4.5.4 Family Labour Involvement	84
4.6 Impact of Irrigation Scheme on In Land Fishing	85
4.7 Impact of Irrigation Scheme on Health and Environment.....	85
4.7.1 Common diseases found in that area	85
4.7.2 Environment impact	86
4.7.3 Pest and weed	86
4.7.4 Water quality problems	86
CHAPTER 05	87
CONCLUSIONS AND RECOMENDATIONS	87
5.1 Conclusions	87
5.2 Recommendations	88