CHAPTER 1

INTRODUCTION

1.0 INTRODUCTION

Indian Irrigation development has a long history. Several irrigation works mainly diversion weirs and tanks were constructed and maintained by the then rulers with active participation by the people. When East India Company annexed the country and developed irrigation systems, Public Works Department was constituted in 1850, to maintain the irrigation systems. Though the British made a good progress in building the reservoirs and canals, thrust given for capacity creation, soon after independence is remarkable. From 22.6 M.ha in 1950, the total irrigation potential created reached 80 M.ha in 1990.

1.1 COMMAND AREA DEVELOPMENT AUTHORITY

In the late sixties, it was realised that there is a large gap between the capacity created and utilised. It is felt that the gap is mainly due to non-development of fields below the Government controlled sluice outlets. Hence thrust was given on the On-farm-development (OFD) works. The second Irrigation Commission (1972) had recommended the creation of a special Administrative Agency represented by various Government Departments involved in irrigation and agricultural production, for co-ordinated and expeditious development of irrigation command area of major and medium projects. Command Area Development Authorities (CADA) were set up in 1974, to develop OFD works viz. providing field channels, lining of channels and watercourses, land shaping, and to promote
Rotational Water Supply (RWS) on the line of warabandi adopted in northwestern India and Pakistan, since second half of the nineteenth century; selection and introduction of suitable cropping pattern and providing suitable input services.

1.2 MAIN SYSTEM MANAGEMENT

From the experience of CADA, it was found that contrary to assumptions made, the main system is not able to deliver the required quantity of water at the sluice head due to seepage losses, silting of canals and design discharge not released because of weak bunds (Hashim Ali 1981). Hence to manage the water, both above and below the sluices, Integrated Water Management (IWM) was tried in Andhra Pradesh and achieved different levels of success (Chambers 1988). Subsequently it was projected that the irrigation system management has to be done by a multi disciplinary team as the major problems are not so much on technical, but more in the areas of institutional and social.

Bottrall (1981), in his comparative study of management of irrigation organisations stated that the management of the main system rather than the on-farm-development should be given importance. Since, only if, the main system is functioning well, the on-farm system could achieve its objectives of equitable and reliable supply. For better performance both main system as well as on-farm systems are important.

In 1987, National Water Management Project (NWMP) was conceived with the principles of more reliable, predictable water distribution with ungated proportional distributary structures. Its emphasis on preparation of operation plan to improve the software side of the management is the special feature of the project. It also provides for a project level committee to involve the farmers in the decision making process. But the committees are not really formed; if formed they do not
function as they expected. In essence, only the rehabilitation programme could materialise.

International Irrigation Management Institute (IIMI) has proposed to study and assess, how different types of organisational setups respond to different environmental demands. Bottrall (1991) in his overview on Introduction and Sustaining Management Improvement, has stated that research is required that will give a better understanding on how an irrigation system works as a totality and to know how it performs, in particular, how management decisions are made and the basis supporting them. He recommended for undertaking a number of case studies of total irrigation systems that represent different agro-ecological regions and administrative traditions.

1.3 OBJECTIVES

Keeping the above observations in the background, this study is undertaken to evaluate the functioning of the Irrigation Department of Tamilnadu (ID) with the following objectives:

1. To assess how the Irrigation Department of Tamilnadu (ID), which manages all the irrigation systems in the state is organised to manage and operate them,

2. To review the existing management control processes in the irrigation system management, and

3. To develop interactive simulation models which aid the system managers for operational planning and implementation.
1.4 METHODOLOGY

When one wishes to study the system in totality, it is advisable and essential to include the study on the functioning of the organisation which manages the system. Kyi (per.comm. 1991) suggested that Organisation Assessment Instrument developed by Andrew H. Van de Ven and Diana L. Ferry (1980) designed to use in different types of organisations can be used to assess the health and functional efficiency of ID of Tamilnadu.

Charles Nijman (1993) studied the Irrigation Organisations in Sri Lanka, Sudan, the Philippines and Morocco to find out how the irrigation managers are planning to match the supply and demand, implement the decisions made, and monitoring and evaluation of the decisions and its implementation. His questionnaire can also be tested for assessing the operational aspects of irrigation in Tamilnadu.

Participant observation method helps the researcher to differentiate between the perception and actual functioning of the system managers.

1.5 OUTLINE OF THE THESIS

Review of literature is the basis for any research. It helps to understand the state of art in the respective field. Chapter 2 reviews the irrigation system development in India, how it collects, allocates and distributes among various users; how the irrigation system performs to achieve its objectives and to identify the gaps in the system management which require further studies.

Irrigation system management is done by both managerial and operational functionaries. Chapter 3 describes how the Irrigation Department of Tamilnadu is organised to achieve its stated objectives.
through Unit Supervisor Questionnaire. It brings out the traits of the ID and identifies the strengths and weaknesses of it.

Any managerial decisions are put into operation by the operating staff. A representative system is selected and the operation aspects are studied. Chapter 4 describes how the Charles Nijman's questionnaire is used to measure the level of attainment in the pre-seasonal planning, intra-seasonal planning and implementation. The levels of attainment are compared with the attainment of the systems in the other developing countries. The perceptions of lower level functionaries about the irrigation system management are analysed by different sets of questionnaire.

Chapter 5 describes the management control processes observed in seven cropping seasons. The subject of how allocation decisions are made and implemented, the role of farmers in the seasonal planning, how they are formally or informally organised to redress their grievances, appeal and fight for restoring their rights, and the dynamic changes in the selection of crops and crop calendar and their involvement in the maintenance of the system are covered in detail. The study indicates the gaps or deficiencies in the system management.

As the system manager is handicapped without any decision tool or aid to try the effects of alternative decisions, interactive simulation models in module form are developed for seasonal and intraseasonal planning to help him. The Chapter 6 describes the structure of the modules and their salient features.

In Chapter 7, interactive simulation modules developed are run with a set of ten years historic data and the results are compared with actuals. It shows that allocation decisions can be improved and the scarce water resources can be conserved to a large extent.
Chapter 8 describes the summary and conclusion of the study.

It has been possible to assess the ID functioning through an application of a general O A I.

It also emphasises the need for taking the dynamic changes in the different crops and their crop calendar that have taken place in the system, into consideration for the operation of the system.

It once again brought to light that the system manager is severely hampered for the want of a decision aiding tool in his operation. A computer model has been evolved for seasonal and intraseasonal operation of the Tamiravaruni system in this work.