ABSTRACT

The thesis attempts to study the development of irrigation and agriculture in Iraq during the last quarter of a century beginning from the year 1958. This year was chosen as an index year for two reasons. First: Data about the various aspects of irrigation and agriculture are not available before the year 1958 and secondly 1958 is the year in which the Royal Rule in Iraq was transferred to a Republican Rule and the period which followed 1958 witnessed vast changes in the fields of irrigation and agriculture. No systematic study in the realm of irrigation and agriculture of Iraq has so far been made, and no analysis has been attempted about the impact of irrigation and agriculture development in Iraq. It is in this sense that the Author claims it to be a pioneering study, and can be considered to be the first of its kind in Iraq in examining the development in the field of irrigation and agriculture in Iraq.

The present work is divided into five parts which consists of twelve chapters. The first part 'Physical Setting' contains three chapters. Chapter-I deals mainly with structure, relief and drainage. On the basis of structure and relief Iraq is divided into
four physical divisions: a) The mountain region b) Sub-mountain region c) Mesopotamian plains and d) Desert plateau.

The total area of Iraq is about 4,38,446 sq. km. and its population stands at about 1,21,71,480 persons (1977 census). The area of land suitable for agriculture is about 12 million hectares.

From the geological point of view the mountains of Iraq in the north, are of recent origin and are young fold mountains. In the west lies the ancient plateau of Iraq which is considered to be part of the Gondwana land. The central and southern parts constitute the great plain of Iraq formed by the deposits of the rivers, Tigris and Euphrates. The Tigris flows from north-west to south-east. The length of the river Euphrates is about 2,650 km. and the river has its origin in the Turkish territory. The Tigris is about 1,718 km. long and it also rises in Turkey. There are five tributaries which join it from the left side, namely: The Khabur, The Greater Zab, The Lesser Zab, The Al-Adhaim and The Diyala. Both the rivers, the Tigris and the Euphrates, meet at the town of Kurmatali and form Shatt-Al Arab which pours in the Arab Gulf.

At the current growth rate of population, the population to-day should be about 15 million.
Chapter-II deals with climate. Broadly speaking the climate of Iraq is sub-tropical continental with hot summer and cold winter. During the summer months the temperature goes above 30°C for several months of the year with a high annual and diurnal range of temperature. There is practically no rainfall during the summer months. During the winter months the temperature is low in all parts of Iraq and sometimes it reaches minus 5°C during the night. The months of spring and autumn are short. The main factors affecting the climate of Iraq are (a) topographical features, (b) location in relation to neighbouring seas and (c) latitudinal position. The vegetation regions broadly correspond to the climatic regions.

Chapter-III deals with soil. The soil in Iraq varies from one region to another because of the difference in relief, climate, natural vegetation. Generally the soils of Iraq can be called as transported soils, and consist of light calcareous loam with local variations. However, it is poor in organic matter and rich in salts.

Based on the characteristics of the soil, the soil regions can be identified in Iraq as (i) calcareous soil of the upland region, (ii) light grey, brown
soil of the plateau region 'desert soil', (iii) alluvial soils 'the mesopotamian region'. Inspite of depth and fertility of the mesopotamian soil, the salts have accumulated in it. The causes may be briefly summarized as follows:

(a) capillary rise of salts from the sub-soil,
(b) indiscriminate use of salt water, (c) salts impregnated sands blown by winds and (d) salts dissolved in the irrigation water through its flow in different lands. Measures for combating the soil salts have been suggested and also a detailed soil classification of Iraq is outlined.

Part - II makes a detailed study of the systems of irrigation in Iraq. This part gives a brief summary of the historical background and the development of the irrigation system in Iraq from the Babylonian King Hamorabi times and attempts to explains the then existing irrigation facilities and the efficiency of old irrigation system.

This part contains three Chapters - IV, V and VI Chapters. Chapter - IV deals with the irrigation projects on the river Euphrates and Chapter - V deals with irrigation projectson river Tigris. Chapter-VI deals with minor irrigation projects and drainage
systems and examines small irrigation projects in the western desert of Iraq which the state has undertaken with the aim of utilizing the desert and making the 'Bedouins' to settle down and practise agriculture.

Part -III deals with the agricultural production. Chapter - VII examines the changing position of crop land use and structure of agriculture with reference to agricultural land reforms (1958 and Law No. 117 in 1970). The main thrust of this chapter is a close look of agricultural production of Iraq and the factors which affect the production of crops particularly the physical factors, socio-economic factors, biological factors and the Government policy. This chapter highlights the revolution which has been brought about in agricultural production owing to healthy changes in agricultural structure and the establishment of cooperative, collective and state farms by the Government.

Chapter -VIII deals with the main agricultural crops in winter like wheat, barley, lentils, chick peas, flax, dry broad bean and sugar-beet. Comparative study of different years have been made in respect of acreage production and productivity.
Chapter - IX deals with summer crops which include rice, cotton, sesame, groundnut, green gram, maize and millets. The summer crops were also studied in detail in respect of production acreage and productivity of different years and the changes in the cropping pattern have been explained.

Chapter - X is devoted to vegetables and fruits. Vegetables are divided into summer and winter vegetables. The production of some vegetables has been explained in detail. This chapter also gives detailed explanation of the geographical distribution of fruits, their production and the problems they face along with suitable solutions. Special mention is made of dates in this chapter, since Iraq is the biggest producers of dates in the world. The problems facing the production of dates in Iraq have also been analysed. This chapter concludes with a general assessment of the agricultural production in Iraq.

Part - IV deals with agricultural productivity in Iraq and this part contains one chapter: Chapter - XI. In this chapter the concept of agricultural productivity has been discussed and the various approaches relating to the measurement of
agricultural productivity have also been examined. Four
different methods, those of Eneyedi, Shafi, Bhatia
and Kendall have been examined in respect of their
comparative merits in the determination of agricultural
productivity in Iraq.

The Author applies the Kendall ranking co­
efficient method to examine agricultural productivity
for the year 1973 and 1980. The author, on the basis
of the study of agricultural productivity and the
factors affecting agricultural productivity has made
some suggestions to improve agricultural production in
Iraq.

Part V 'Irrigation and Agricultural Develop­
ment' has one chapter. Chapter XII deals mainly with
the Impact of Irrigation on Agricultural Development in
Iraq. This chapter mainly contains a study of water
resources in Iraq, methods of irrigation and changing
cropping patterns. The relative position of various
crops in 1958, 1968 and 1980 have been examined in
relation to irrigation as well as the influence of
irrigation on agricultural development. The author has
also made some suggestions for a better utilization of
irrigation water. This chapter also examines the role
of fertilizers and agricultural implements, along with the development of irrigation, in increasing agricultural production in Iraq.

The study concludes by making some suggestion in regard to better utilization of irrigation water for increasing agricultural production including vegetables and fruits in Iraq. The requirements of irrigation and drainage facilities, as the country enters 21st century, have also been visualised and suitable suggestions have been made.