



Growth of Irrigation works and Socio-Economic Transformation in Nalgonda District- A case study of Nagarjuna Sagar Left Canal

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ABSTRACT

The use of highly developed irrigation brings about higher production, and related investment in the irrigational framework ought to be given high priority¹. Irrigation plays a direct and positive role in the productivity of any crop and forms the base of the agricultural sector. Being the primary sector, the agricultural sector is the major source of employment in the agrarian-based Indian economy and acts as a key driver of development in rural regions. Irrigation has turned into an essential part of agriculture. Of late, irrigation has turned out to be most basic aspect without which, most crops cannot be developed. Irrigation is considered basic since rainfall is variable and uneven and cannot be depended on entirely for cultivation. Indeed, even those crops, which are developed amid stormy seasons, additionally rely on irrigation since farmers attempt to irrigate the crops, so that the crops may be prepared in time and give a higher yield. If there should arise an occurrence of a disappointment of precipitation utilization of irrigation then fundamental areas growing multiple crops require escalated irrigation facilities.

Self sufficiency in food, creation of marketable surplus so, as to promote agro based industrial development and also to earn foreign exchange through export of food items demand agricultural development at an accelerated rate. Removal of agricultural backwardness so, as to increase agricultural productivity is the only solution. It could be possible through sufficient irrigation facilities, henceforth irrigation is a key to agriculture development. One of the major reasons for giving much attention to irrigation is Insufficient, uncertain and irregular rains, the duration of rainfall is available to only four months in a year i.e., June to September when monsoon arrives. Remaining eight months are dry; there is some rainfall during the month of December to January in some parts of nation. Even during monsoon, the rainfall is scarce and undependable in many parts of the country. Most of the time

monsoons are delayed. Considerably while sometimes they cease permanently. Sufficient or proper development of irrigation facilities can help the nation in solving the problems created by insufficient, uncertain and irregular rains with the help of irrigation, droughts and famines can be effectively controlled. Second reason is higher productivity on irrigated land, Productivity of irrigated land is considerably more than the productivity of on unirrigated land and value of land will be increased.

The outline of agricultural improvement is influenced by various sources of irrigation. Agricultural progress of the farming segment is still essential not just for the quicker progression of the economy, it is additionally and all the more essential for a balanced growth. During the last twenty-five years, the share of headway of the economy has augmented; nevertheless, not in the case of agribusiness sector, consequently the energetic strength of mind for the sooner growth has been powered by the service division. This 'service sector-led growth' brought about a jobless and unband-centric kind of growth, indicating the disregarded of the rural areas of the nation. This 'growth vacuity' in the rural regions can be occupied just with the backing of agrarian development.

Farming growth can wind up plainly wide-based while irrigation advancements end up plainly expanse-constructed. The source of irrigation espoused by a household be contingent upon its investment capability, nature of climate, soil, water availability, and furthermore, the nature of the crop. Therefore, for any locale, the sources of irrigation are not competitive but rather just complementary. Be that as it may, throughout the years, the source of irrigation has experienced vicissitudes which have precisely pretentious agricultural enhancement. In this strive, this study funds to bring out the protagonist of various sources of irrigation in influencing the degree and nature of agricultural growth into the variables, like cropping pattern or method, harvest and quantity produced of the crops, and grossing or income level of the cultivating (farming households) family units. It is very significant, and in addition, expected to know the role occupied by plentiful sources of irrigation so that irrigation management can be improved in a way. This will help in the wide basing of agricultural development, and accordingly, it will make the economy's improvement a great deal further all-inclusive.

Keywords: Growth, Irrigation, Socio-Economic Transformation

Introduction:

The use of highly developed irrigation brings about higher production, and related investment in the irrigational framework ought to be given high priority¹. Irrigation plays a direct and positive role in the productivity of any crop and forms the base of the agricultural sector. Being the primary sector, the agricultural sector is the major source of employment in the agrarian-based Indian economy and acts as a key driver of development in rural regions. Irrigation has turned into an essential part of agriculture. Of late, irrigation has turned out to be most basic aspect without which, most crops cannot be developed. Irrigation is considered basic since rainfall is variable and uneven and cannot be depended on entirely for cultivation. Indeed, even those crops, which are developed amid stormy seasons, additionally rely on irrigation since farmers attempt to irrigate the crops, so that the crops may be prepared in time and give a

higher yield. If there should arise an occurrence of a disappointment of precipitation utilization of irrigation then fundamental areas growing multiple crops require escalated irrigation facilities.

Agriculture is the main occupation of Indian economy with approximately 58% of the population depending on agriculture directly or indirectly. One third of our national income comes from agriculture. Indian economy is a mixed economy. Since pre independence India had suffered shortage of food and food grains, after independence the ruling governments has taken five year plan and many other measures to increase the agricultural production. First five year plan was initiated to concentrate on agriculture sector and their production. Huge amount was allocated to develop the primary sector and to achieve food security in the country. At the same time green revolution was initiated, by providing high yield seeds and chemical fertilizers.

“Agricultural development is now generally recognized as an integral part of overall economic development. Not only the physical capital develop our economy but also some of the social and institutional change that enhance human welfare” (Shekadar, 2015).

Irrigation has contributed significantly to poverty reduction, food security, and improving the Quality of life for rural populations. Development of Irrigation is one of the major factors in agricultural development; the significance of water has been predictable from ancient days.

DIFFERENT TYPES/ METHODS OF IRRIGATION:

However, the process of irrigation can be done in two ways. First one is by direct modifications of the land surface that occur when canal networks are constructed and land is cleared, shaped and leveled for irrigation, on the otherhand, by indirect in-depth transformations that take place when the water and salt balances in the area are changed following the import of additional quantities of water and salt into the area (Shanan, L.1987).

Irrigation water may be applied to the crops in three basic methods that include

- Surface irrigation
- Sprinkler irrigation
- Sub-surface irrigation

These methods can be appropriately chosen by the farmers based on the local condition like Surface slope of the field, roughness of the field, depth of the requirement of water, duration of the water requirement etc.

Surface Irrigation

Surface irrigation is the oldest and the most used method or irrigation followed in Egypt, China, India and countries of the Middle East and is the most likely used methods. It conveys water from the source to fields in lined or unlined open channels or low head pipelines. Basins, borders and furrows are the

primary method of applying water. This is best suited for soil with low or moderate infiltration capacities and lands with relatively uniform terrain and slopes less than 2 to 3 % (Booher, 1974).

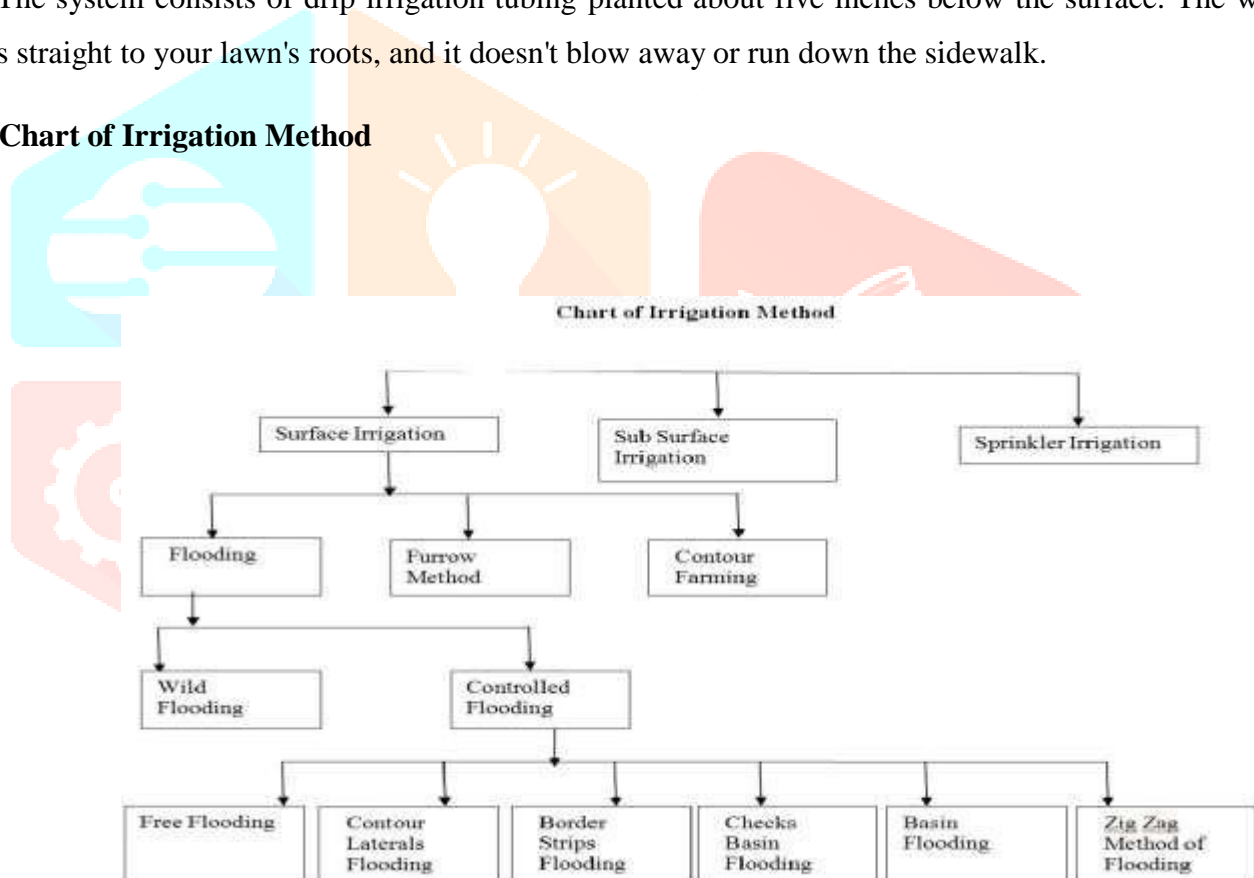
Sprinkler Irrigation

In the sprinkler method of irrigation, water is sprayed into the air and allowed to fall on the ground surface somewhat resembling rainfall. The spray is developed by the flow of water under pressure through small orifices or nozzles. The pressure is usually obtained by pumping. With careful selection of nozzle sizes, operating pressure and sprinkler spacing the amount of irrigation water required to refill the crop root zone can be applied nearly uniform at the rate to suit the infiltration rate of soil.

Sub Surface Irrigation

Subsurface irrigation is a highly-efficient watering technique that reduces outdoor water use by 30 to 40 %. The system consists of drip irrigation tubing planted about five inches below the surface. The water goes straight to your lawn's roots, and it doesn't blow away or run down the sidewalk.

1.1 Chart of Irrigation Method



Source: <http://www.civildserviceindia.com/subject/General-Studies/notes/different-types-of-irrigation-and-irrigation-systems-storage.html>

Today, Irrigation has assumed an increasing significance under Indian agriculture in the context of the new technology where high yielding varieties and multiple cropping patterns are being practiced. Indian economy is agricultural oriented in the sense water shortage for agriculture is also the main cause of rural poverty. Rural uplift is a focal point of our plan strategy. Water wastage in heavy rainfall areas and water shortages elsewhere draw our attention to the urgent need of creating proper and adequate irrigation facilities for overall and agricultural development. Niti Aayog has therefore, attached a marked significance to the problem of irrigation right from the first five year plan.

Importance of Irrigation:

Self sufficiency in food, creation of marketable surplus so, as to promote agro based industrial development and also to earn foreign exchange through export of food items demand agricultural development at an accelerated rate. Removal of agricultural backwardness so, as to increase agricultural productivity is the only solution. It could be possible through sufficient irrigation facilities, henceforth irrigation is a key to agriculture development. One of the major reasons for giving much attention to irrigation is Insufficient, uncertain and irregular rains, the duration of rainfall is available to only four months in a year i.e., June to September when monsoon arrives. Remaining eight months are dry; there is some rainfall during the month of December to January in some parts of nation. Even during monsoon, the rainfall is scare and undependable in many parts of the country. Most of the time monsoons are delayed. Considerably while sometimes they cease permanently. Sufficient or proper development of irrigation facilities can helps the nation in solving the problems created by insufficient, uncertain and irregular rains with the help of irrigation, droughts and famines can be effectively controlled. Second reason is higher productivity on irrigated land, Productivity of irrigated land is considerably more than the productivity of on unirrigated land and value of land will be increased.

Role of Irrigation in New Agricultural Strategy:

The successful implementation of high yielding varieties programme depends, to a large extent, on the timely availability of ample water supply. The high yielding varieties of seeds and chemical fertilizers require substantial water at regular intervals of time. Therefore benefits of new strategy can be extended only if more irrigation facilities are made available to larger areas of land and irrigation plays a protective role during drought years.

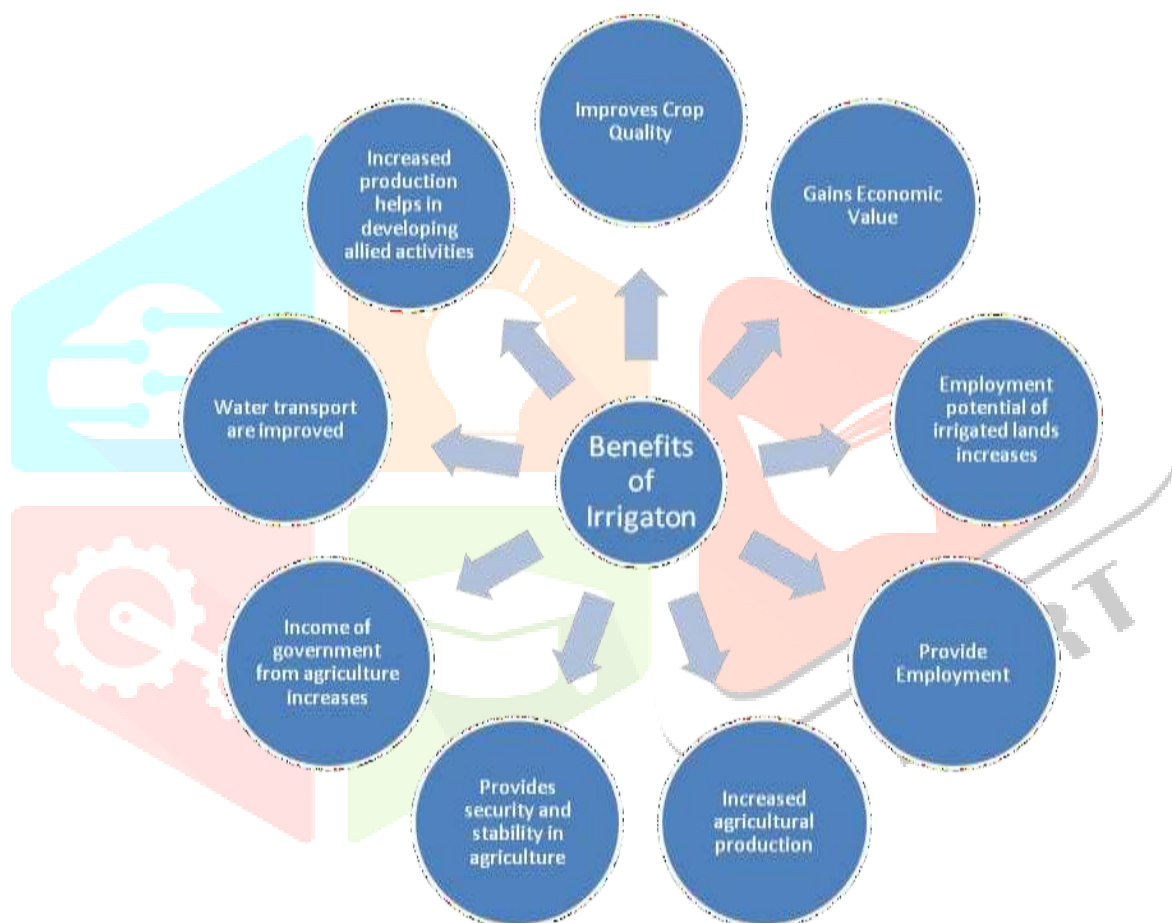
Benefits of Irrigation:

There are several benefits in irrigation; some of them are mentioned as follows;

- **Increase in Crop Yield:** the production of crop mainly dependent on sufficient water supply at right time and quantity.
- **Protection from Famine:** supply of irrigation facilities ensures protection against failure of crops due to famine. Without irrigation facilities in regions, farmers largely dependent on rainfall, since rainfall may not sufficient therefore irrigation facilities save the crops from timely drought.
- **Cultivation of Superior Crops:** assured irrigation facilities may encourage superior crops which may lead to grow high yield varieties otherwise, invested money would be wasted.
- **Elimination of Mixed Cropping:** farmers have tendency to cultivate more than one type of crop in a year with sufficient of water supply. Most of the time crops may die due to required amount of water. Farmers may prefer single crop for whole year, it may increases yield of the crop.
- **Economic Development:** sufficient irrigation facilities may leads to growth of farming community and to increase their socio-economic conditions. Also government earned their income through collecting tax from the farmers. Agricultural contribution to gross domestic product will also increase.

- **Hydro Power Generations:** Irrigation not only part of agriculture also generates hydro power. It is also one of the commercial and also basic amenities for overall development.
- **Domestic and Industrial Water Supply:** Irrigation provides water supply for drinking purpose and for industrial purpose.
- **Tourism:** tourism is also one of the major benefits from irrigation, it gives wide publicity as tourist place, also earns profit from tourism.

1.2 Chart of Over All Benefits of Irrigation:



While the protective aspect helps in stabilizing agricultural production against droughts, the second aspect cannot be neglected by an alert agriculturalist, irrigation has also a third aspect it helps in augmenting and preserving the properties of soils by application of adequate supply of water. Irrigation studies in India are confined to relatively narrow issues in production economics. It is obvious that, viewed as an input rural development not merely agricultural production, irrigation has other points of contact with development economics as the irrigation in Indian rural economy begins to move from the wings towards the centre of the stage.

Wide distribution of the irrigation water implies a strategy of dispersing the development thrust of irrigation; it has to treat irrigation as only a component in a broader design for increasing Agricultural production and Rural Development. The function of irrigation in expanding crop output, in reducing output instability and in providing considerable protection to the farm sector against periodic drought. The benefits of irrigation have resulted in lower food prices, higher employment and a more rapid agricultural and economic development, increasing living standards of the farming communities.

Father of Indian Irrigation:

Father of irrigation in India was Kanuri Lakshmana Rao, well-known as **K.L. Rao**, designer of Nagarjunasagar and Bhakra Nangal dams, is acknowledged as the father of the Indian irrigation system that is providing livelihood to millions. K.L. Rao was served as a Union Minister in the central government twice. He was also awarded the Padma Bhushan for his services to the nation.

Significance of Irrigation in Agricultural Growth and Development:

India, as of now, has a huge populace. Reliable evidence is available to predict that it will be the world's highest populated country within the next twenty years. It should also be borne in mind that India's economy will soon surpass Japan's to end up plainly the world's third biggest. The subsequent increment in the demand for nourishment should be met through higher rural efficiency or by expanding sustenance imports and it would also be pertinent to mention that India has an especially extensive agricultural sector.

Then again, one of the fundamental issues in the agricultural advancement and rural improvement of the nation is the issue of lack of water. The best employments of water in the increment of agricultural items which shape real share of crops are viewed as a fundamental assignment. Agricultural growth and improvement rely upon the utilization of appropriate irrigation. Guaranteed water supply spells success, provides potential for work, increases income and improves capital development. The requirement for controlled supplies of water and excrement at consistent interims and in imperative measurements was for quite some time acknowledged for the increase in size in the effectiveness of land-living. Actually, the manufacturing of a crop needs soil, water, pip or seed, work organization, genuine preparation and direction. In 1945, the Famine Enquiry Commission expressed that surrounded by the compute that might be tackled to put up the assortment lower farming and the yield per acre of land, the primary position should be given to the labors for the supply and safeguarding of water.

In India, advancement of irrigation in the past had occurred as a measure of starvation-alleviation, and truth be told, starvations brought forth the possibility of irrigation. Presently with the populace duplicating quickly, irrigation has gained greater significance for increasing farming production. The significance of irrigation might be judged from defensive and gainful perspective. Defensive irrigation makes up for the dampness inadequacy in the dirt to guarantee the best possible and better maintained development of crops. Profitable irrigation makes possible the raising of a second and third crop on

the land that has been irrigated which could not in some other way or another be developed effectively, more especially, amid the post and pre-storm periods.

Problem of the Study:

Systematic improvement in the factors of production promotes agricultural growth, which is particularly valid on account of the irrigation. The accomplishment of the Green Revolution comprehended this reality, as farming was more fruitful just in those regions where nonstop irrigation was guaranteed, and especially in those areas in which canal irrigation was more prevalent in Punjab, Haryana, and parts of Uttar Pradesh, Tamil Nadu, and Andhra Pradesh. Nonetheless, throughout the years, the strength of channel (canal) irrigation has declined in relative terms as well as in total terms.

This brought about a spurt of areas under wells (particularly tube wells) at both the All-India and the Telangana state levels. Subsequently, extension in well irrigation is exceedingly capital intensive from the point of view of individual farmers. Not all farmers can be relied upon to use well irrigation as wells (regardless of whether surface or tube water) should be extended each year, which is plainly impossible for the tiny, minimal and small farmers who make up most of the cultivating families (farming households) in the nation. Many such farmers remain generally unreached by the institutional credit system. Hence, various sources of irrigation impact income levels of the farmers, and further, also the degree and normal agricultural growth of the area.

For example, surface well irrigation which is, generally, rain fed results in subsistence farming of food grains, while tube well irrigation promotes commercial farming of crops which are more water-intensive. It can likewise be inferred that the level of employment generation in agriculture depends to a great extent on the method of irrigation. Therefore, it becomes imperative to look at the nature and degree of agricultural development under various sources of irrigation, keeping in mind the end goal which is to comprehend the farming improvements of a specific area.

Importance of the Study:

The outline of agricultural improvement is influenced by various sources of irrigation. Agricultural progress of the farming segment is still essential not just for the quicker progression of the economy, it is additionally and all the more essential for a balanced growth. During the last twenty-five years, the share of headway of the economy has augmented; nevertheless, not in the case of agribusiness sector, consequently the energetic strength of mind for the sooner growth has been powered by the service division. This 'service sector-led growth' brought about a jobless and unband-centric kind of growth, indicating the disregarded of the rural areas of the nation. This 'growth vacuity' in the rural regions can be occupied just with the backing of agrarian development.

History of Nagarjuna Sagar Project:

The Nizam made the British engineers begin the survey work for this dam across the Krishna River in the year 1903. The project's construction was officially inaugurated by Prime Minister Jawaharlal Nehru on 10 December 1955 and preceded for the next twelve years. Raja Vasireddy Ramagopala Krishna Maheswara Prasad, popularly known as late Muktyala Raja, was instrumental in the construction of the Nagarjuna Sagar Dam through active political lobbying and the donation of crores of rupees (fifty-two lakhs in those day's money) and fifty-five thousand acres of land. It was the tallest masonry dam in the world at that time, built entirely with local know-how under the engineering leadership of Kanuri Lakshmana Rao.

The reservoir water was released into the left and right bank canals by Prime Minister Indira Gandhi on August 4, 1967. Construction of the hydroelectric power plant followed, with power generation increasing between 1978 and 1985 as additional units came into service. In 2015, diamond jubilee celebrations of project's inauguration were held, alluding to the prosperity the dam has ushered into the region.

The planning commission of India after several deliberations approved the construction of a high dam near Nandikonda village. Accordingly the chief engineers of the Andhra and erstwhile Hyderabad state submitted detailed proposals to the govt of India in 1954.

The central water and power commission scrutinized the proposals and gave the final shape to the project proposals.

The following salient features are incorporated.

1. Dam with FRL at 179.83 m
2. Right canal with sill at 149.0 m level with a capacity of 594.6 cumecs discharge.
3. Left canal with sill at 149.0 m with a capacity of 424.7 cumecs discharge.

Accordingly an investigating division was formed in Dec 1954. The investigation consists of detailed surveys, drawing contours, drilling operations to ascertain the substrata rock profiles, fixing the alignment of the dam and also finalization of the alignment of both the right and left canals, drawing contours and contour plans.

Pandit Nehru christened the project after the famous Buddhist saint Nagarjuna who used to preach Buddhism in that valley where the dam is proposed. Also the proposed camps on the north and south sides were named as Vijayapuri north and Vijayapuri south. There are many relics belonging to the saint Nagarjuna and all the relics were relocated at a higher place and a museum was constructed, since the site is going to be inundated the area when the project completes. The Buddhist countries of Srilanka, Burma, Tibet and Indonesia were very much satisfied by our action in relocating the relics of Acharya Nagarjuna and prevented them from submergence. The museum location is Lat. 160 31' north and Long. 790 14' minutes east.

OBJECTIVES OF THE STUDY:

1. To evaluate the impact of irrigation on the socio-economic conditions of the farmers in Nalgonda district.
2. To study the changing cropping pattern after irrigation development in the study area.
3. To estimate impact of irrigation in determining agricultural growth in terms of crop yield and farmer income among the sample farming households in the study area.
4. To find out the problems of farmers of irrigation users in the study area.

RESEARCH METHODOLOGY:

This study was conducted with the use of following methodology.

a) The area under study:

The present research study covers the catchment area of the Nagarjuna Sagar irrigation project (Left Canal) in Anumula mandal and Nidamanuru mandal of Nalgonda district. These two mandals were selected for the research work as it is having maximum irrigation facilities in the district.

b) Area Consider for the Study:

Nagarjuna Sagar Dam is a masonry dam across the Krishna River at Nagarjuna Sagar which straddles the border between Nalgonda district in Telangana and Guntur district in Andhra Pradesh. The dam provides irrigation water to the Nalgonda, Suryapet, Krishna, Khammam, West Godavari, Guntur, and Prakasam districts along with electricity generation.

The right canal or **Jawahar canal** is 203km long with 311.5 cumecs ("Cubic metres per second") capacity. It is helpful in irrigating the land in Prakasam and Guntur districts.

The left canal or **Lal Bahadur Shastri** canal is slightly smaller with a length of 179km and the same cumecs ("Cubic metres per second") capacity of 311.5. It is used in irrigating land in Krishna, Khammam, West Godavari, and Nalgonda districts.

This study depends on primary data which is collected from farming households which embraces Nagarjunasagar Left Canal area irrigation for their cultivation.

c) Sampling design:

Sample respondents of the study

Sl. No	Mandals	Villages	Sampling Households
1.	Anumula	1. Perur	102
		2. Rajavaram	83
2.	Nidamanuru	1. Tummadam	125
		2. Kannekal	90
Total			400

This study depends on only primary data which is collected from farming households which embraces Nagarjunasagar Left Canal area irrigation for their cultivation.

For this reason, Nalgonda district in Telangana state has been chosen as a sample district for the study. From this district, two mandals have been chosen- Anumula mandal and Nidamanuru mandal. From these two mandals, two villages from each of the mandals have been chosen, viz., Perur and Rajavaram villages from the Anumula mandal and Tummadam and Kannekal villages from the Nidamanuru mandal. These four villages shape the study area. The size of sample is 400 Sample respondents in Nalgonda district. Mandal wise stratification (arrangement of layers) is adopted and which 2 Mandals will be selected for the study. Sample element is identified on the basis of lottery random sampling (Sampling method).

d) Data Collection:

The study was restricted to only primary data. The information has been collected only primary data through discussion well-structured designed questionnaire of beneficiaries. The relevant primary data was collected in 2020-21.

e) Period of the Study:

The relevant primary data was collected in 2020-21 agricultural year.

f) Data analysis:

The collected data has been analyzed with the application of appropriate statistical tools. These incorporate ratio analysis, diagrammatic representation, descriptive statistics, t-test, chi-square test, ANOVA and Regression model.

Limitation of the Study:

The study was restricted to only primary data. The essential point of the study is to trace the role of irrigation in the agricultural growth of the study area. For this reason, information with respect to area under irrigation, yearly cost of irrigation, yearly agricultural income, and yearly household expenditure has been collected from the households. These data are required to be precise in view of which the analysis is finished. In addition, the sample households were not open to giving data on irrigation and the size of their land holding, farm income; and so on, for certain clear reasons. Time and money related components caused the choice of number of villages, and furthermore, the number of sample households.

Data Analysis and Interpretation

Social- Economic Characteristics of the Respondents:-

Area-wise Gender of the Respondents:

It is revealed that among the 400 sample respondents, 306 (76.5%) are male and 94(23.5%) are female. On the basis of their area, 102 (25.5%) belong to Perur, 83 (20.8%) are located in Rajavaram, 125 (31.2%) reside in Tummadam and 90 respondents (22.5%) belong to Kannekal.

Table-1(A) Area-wise Gender of the Respondents

Area	Gender		Total
	Male	Female	
Perur	76 (74.5) [24.8]	26 (25.5) [27.7]	102 (100.0) [25.5]
Rajavaram	61 (73.5) [19.9]	22 (26.5) [23.4]	83 (100.0) [20.8]
Tummadam	98 (78.4) [32.0]	27 (21.6) [28.7]	125 (100.0) [31.2]
Kannekal	71 (78.9) [23.2]	19 (21.1) [20.2]	90 (100.0) [22.5]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Note: Figures in round brackets () are row-wise percentage and those in square brackets [] are column-wise percentage.

Source: Field survey.

Out of the 102 respondents who reside in Perur, 76 (74.5%) are male and 26 (25.5%) are female; in the case of 83 respondents who are situated in Rajavaram, 61 (73.5%) are male and 22 (26.5%) are female; the 125 respondent who belong to Tummadam, comprise 98 (78.4%) male and 27 (21.6%) female and in the case of the 90 respondents who are to be found in Kannekal, 71 (78.9%) are male respondents and 19 (21.1%) are female respondents. Thus, overall, around 23.5% of the sample respondents are female, which is marginally higher in Perur (25.5%) and Rajavaram (26.5%) villages than in Tummadam (21.6%) and Kannekal (21.1%) villages.

The age levels of the respondents are examined on the basis of their gender with the help of the data shown in Table-1(B). It is observed that among the 400 respondents, 64 (16.0%) belong to the age group of up to 40, 130 (32.5%) come under the age group of 41-50, 124 (31.0%) fall in the age group of 51-60 and 82 respondents (20.5%) belong to the above 60 age group.

Gender-wise Age of the Respondents:

Gender-wise, in the case of 306 male respondents, 50 (16.3%) come under the age group of upto 40, 95 (31.0%) belong to the 41-50 age group, 91 (29.7%) fall in the 51-60 age group and 70 (22.9%) belong to the above 60 age group, and among the 94 female respondents, 14 (14.9%) belong to the age group of up to 40, 35 (37.2%) come under the age group of 41-50, 33 (35.1%) fall into the age group of 51-60, and 12 respondents (12.8%) belong to the above 60 age group. This shows that among the total respondents, 48.5% belong to the age group of upto 50 years, which is 47.3% in the case of men and 52.1% in the case of women, while 51.5 per cent of the total respondents come under the above 50 years age group, which is 52.6% and 47.9% among the men and women, respectively, which indicates that the male respondents are older than the female respondents.

Table-1(B) Gender-wise Age of the Respondents

Age	Gender		Total
	Male	Female	
Upto 40	50 (78.1) [16.3]	14 (21.9) [14.9]	64 (100.0) [16.0]
41-50	95 (73.1) [31.0]	35 (26.9) [37.2]	130 (100.0) [32.5]
51-60	91 (73.4) [29.7]	33 (26.6) [35.1]	124 (100.0) [31.0]
Above 60	70 (85.4) [22.9]	12 (14.6) [12.8]	82 (100.0) [20.5]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

Area-wise Age of the Respondents:

The age levels of the respondents are further examined on the basis of their area of residence and the required data is presented in Table-1(C). It is inferred that among the 102 respondents who belong to Perur, 16 (15.7%) come under the age group of upto 40, 37 (36.3%) belong to the 41-50 age group, 33 (32.4%) fall into the 51-60 age group and 16 (15.7%) belong to the above 60 age group; out of the 83 respondents who are located in Rajavaram, 10 (12.0%) belong to the age group of upto 40, 22 (26.5%) come under the age group of 41-50, 29 (34.9%) fall into the age group of 51-60 and 22 (26.5%) belong to above 60 age group; in the case of the 125 respondents who reside in Tummadam, 24 (19.2%) come under the age group of upto 40, 46 (36.8%) belong to the 41-50 age group, 33 (26.4%) fall in the 51-60 age group and 22 (17.6%) belong to the above 60 age group; and among the 90 respondents who belong to Kannekal, 14 (15.6%) belong to the age group of upto 40, 25 (27.8%) come under the age group of 41-50, 29 (32.2%) fall into the age group of 51-60 and 22

respondents (24.4%) belong to the above 60 age group.

Table-1(C) Area-wise Age of the Respondents

Area	Age				Total
	Upto 40	41-50	51-60	Above 60	
Perur	16 (15.7) [25.0]	37 (36.3) [28.5]	33 (32.4) [26.6]	16 (15.7) [19.5]	102 (100.0) [25.5]
Rajavaram	10 (12.0) [15.6]	22 (26.5) [16.9]	29 (34.9) [23.4]	22 (26.5) [26.8]	83 (100.0) [20.8]
Tummadam	24 (19.2) [37.5]	46 (36.8) [35.4]	33 (26.4) [26.6]	22 (17.6) [26.8]	125 (100.0) [31.2]
Kannekal	14 (15.6) [21.9]	25 (27.8) [19.2]	29 (32.2) [23.4]	22 (24.4) [26.8]	90 (100.0) [22.5]
Total	64 (16.0) [100.0]	130 (32.5) [100.0]	124 (31.0) [100.0]	82 (20.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

Thus, in the age case of the sample villages, the proportion of respondents who fall in the age group of upto 50 years is 52% in Perur, 38.5% in Rajavaram in the case of Tummadam and 56% in the case Kannekal, which underlines the fact that the age levels of the respondents differ among the sample villages.

Gender-wise Educational Levels of the Respondents:

The educational levels of the respondents play a crucial role in determining their societal as well as economic importance, which is particularly true in the case of farmers. Table-1(D) presents the gender-wise educational levels of the sample respondents. It shows that among the 400 respondents, 54 (13.5%) are illiterate, 100 (25.0%) are literate upto the primary levels, 166 (41.5%) are literate upto the high school level, 54 (13.5%) have completed their higher secondary schooling and 26 respondents (6.5%) are graduates or have attained even higher education than that.

Table-1.1(D) Gender-wise Educational Levels of the Respondents

Educational Levels	Gender		Total
	Male	Female	
Illiterate	32 (59.3) [10.5]	22 (40.7) [23.4]	54 (100.0) [13.5]
Upto Primary	68 (68.0) [22.2]	32 (32.0) [34.0]	100 (100.0) [25.0]
High School	138 (83.1)	28 (16.9)	166 (100.0)

	[45.1]	[29.8]	[41.5]
Higher Secondary	44 (81.5) [14.4]	10 (18.5) [10.6]	54 (100.0) [13.5]
Graduate & Above	24 (92.3) [7.8]	2 (7.7) [2.1]	26 (100.0) [6.5]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

On the basis of their gender, out of the 306 male respondents, 32 (10.5%) are literate, 68 (22.2%) are literate upto the primary level, 138 (45.1%) are literate upto the high school level, 44 (14.4%) have completed upto higher secondary level and 24 (7.8%) are graduates or more highly educated; and among the 94 female respondents, 22 (23.4%) are illiterate, 32 (34.0%) are literate upto the primary level, 28 (29.8%) are literate upto the high school level, 10 (10.6%) have completed the higher secondary level and 2 (2.1%) are graduate or more highly educated. This clearly suggests that the educational qualifications of the male respondents are higher than that of their female respondents, since among the males, only 10.5% is illiterate, which is 23.4% among the men, while 14% of the former is literate upto a minimum of higher secondary, which is only 10.6% among the latter. However, the level of education of the sample respondents, in general, is high, as around 67% of them are literate but only upto the high school level.

Age-wise Educational Levels of the Respondents

Table-1(E) Age-wise Educational Levels of the Respondents

Educational Levels	Age				Total
	Upto 40	41-50	51-60	Above 60	
Illiterate	-- -- --	21 (38.9) [16.2]	16 (29.6) [12.9]	17 (31.5) [20.7]	54 (100.0) [13.5]
Upto Primary	12 (12.0) [18.8]	23 (23.0) [17.7]	40 (40.0) [32.3]	25 (25.0) [30.5]	100 (100.0) [25.0]
High School	26 (15.7) [40.6]	62 (37.3) [47.7]	46 (27.7) [37.1]	32 (19.3) [39.0]	166 (100.0) [41.5]
Higher Secondary	17 (31.5) [26.6]	18 (33.3) [13.8]	15 (27.8) [12.1]	4 (7.4) [4.9]	54 (100.0) [13.5]
Graduate & Above	9 (34.6) [14.1]	6 (23.1) [4.6]	7 (26.9) [5.6]	4 (15.4) [4.9]	26 (100.0) [6.5]
Total	64 (16.0)	130 (32.5)	124 (31.0)	82 (20.5)	400 (100.0)

	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]
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Source: Data are obtained from same sources.

The levels of education of the sample respondents are also analyzed on the basis of their age and Table-1(E) presents the relevant data. It is noted that out of the 64 respondents who belong to the upto 40 years age group, none of them is illiterate, while 12 (18.8%) are literate upto the primary level, 26 (40.6%) are literate upto the high school level, 17 (26.6%) have completed the higher secondary level and 9 (14.1%) are graduates or educated even higher; among the 130 respondents who belong to the age group of 41- 50, 21 (16.2%) illiterate, 23 (17.7%) are literate upto the primary level, 62 (47.7%) are literate upto the high school level, 18 (13.8%) are literate upto the higher secondary level and 6 respondents (4.6%) are graduates or educated even higher; in the case of the 124 respondents who come under the age group of 51-60, 16 (12.9%) are illiterate, 40 (32.3%) literate upto the primary level, 46 (37.1%) are literate upto the high school level, 15 (12.1%) have completed the higher secondary level and 7 (5.6%) are graduates or more highly educated; and out of the 82 respondents who fall in the above 60 years age group, 17 (20.7%) are illiterate, 25 (30.5%) are literate upto the primary level, 32 (39.0%) are literate upto the high school level, 4 (4.9%) are literate upto the higher secondary level, and 4 (4.9%) are graduate or more highly educated. Thus, the level of education of the respondents declines as their ages increase.

For example, among those of the 40 years group, none of them is illiterate, which is 16.2%, 12.9% and 20.7% in the successive age groups, while, in the same group, 14.1% are graduates, which is 4.6%, 5.6%, 4.9% in the successive age groups.

Area-wise Religions of the Respondents:

Table-1(F) Area-wise Religions of the Respondents

Area	Religion		Total
	Hindu	Christian	
Perur	87 (85.3) [24.9]	15 (14.7) [30.0]	102 (100.0) [25.5]
Rajavaram	71 (85.5) [20.3]	12 (14.5) [24.0]	83 (100.0) [20.8]
Tummadam	115 (92.0) [32.9]	10 (8.0) [20.0]	125 (100.0) [31.2]
Kannekal	77 (85.6) [22.0]	13 (14.4) [26.0]	90 (100.0) [22.5]
Total	350 (87.5) [100.0]	50 (12.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

The religion of the sample respondents is examined here on the basis of their area and the required data is presented in Table-1(F). It indicate that among the 400respondents, 350 (87.5%) are Hindus and, 50 (12.5%) are Christians. Area-wise, out of the102 respondents who reside in Perur, 87 (85.3%) are Hindus, and 15 (14.7%) are Christians; among the 83 respondents who belong to Rajavaram, 71 (85.5%) are Hindus, and 12 respondents (14.5%) are Christians; in the case of the 125 respondents living in Tummadam, 115 (92.0%) are Hindus, and 10 (8.0%) are Christians; and among the 90 respondents who reside in Kannekal, 77 (85.6%) are Hindus, while 13 respondents (14.4%) are Christians. Thus, more than 87% of the respondents overall, are Hindus which is 85.3% in Perur, 85.5% in Rajavaram, 92.0% in Tummadam and 85.6% in Kannekal.

Area-wise Community of the Respondents:

The community of the respondents influences their degree of socio-economic inequality, which is examined here on the basis of the data presented in Table-4.1.1(G). It is noted that among the 400 sample respondents, 182 (45.5%) come from the Most Backward Class (MBC) community, 122 (30.5%) belong to the Backward Class (BC) community, and 62 (15.5%) belong to the Scheduled Caste (SC) and Scheduled Tribe (ST) communities, while 34 (8.5%) belong to Other Communities (OC).

Table-1(G) Area-wise Community of the Respondents

Area	Community				Total
	OC	BC	MBC	SC & ST	
Perur	11 (10.8) [32.4]	37 (36.3) [30.3]	41 (40.2) [22.5]	13 (12.7) [21.0]	102 (100.0) [25.5]
Rajavaram	4 (4.8) [11.8]	29 (34.9) [23.8]	35 (42.2) [19.2]	15 (18.1) [24.2]	83 (100.0) [20.8]
Tummadam	8 (6.4) [23.5]	34 (27.2) [27.9]	63 (50.4) [34.6]	20 (16.0) [32.3]	125 (100.0) [31.2]
Kannekal	11 (12.2) [32.4]	22 (24.4) [18.0]	43 (47.8) [23.6]	14 (15.6) [22.6]	90 (100.0) [22.5]
Total	34 (8.5) [100.0]	122 (30.5) [100.0]	182 (45.5) [100.0]	62 (15.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

Village-wise, in the case of the 102 respondents who reside in Perur, 11 (10.8%) belong to the OC community, 37 (36.3%) belong to the BC community, 41 (40.2%) come from the MBC community and 13 (12.7%) belong to the SC and ST communities; among the 83 respondents who reside in Rajavaram, 4 (4.8%) belong to the OC community, 29 (34.9%) come from the BC community, 35 (42.2%) belong

to the MBC community and there are 15 respondents (18.1%) who belong to the SC and ST communities; out of the 125 respondents who are located in Tummadam, 8 (6.4%) belong to the OC community, 34 (27.2%) belong to the BC community, 63 (50.4%) come from the MBC community and 20 (16.0%) belong to the SC and ST communities; and among the 90 respondents who reside in Kannekal, 11 (12.2%) are OC respondents, 22 (24.4%) are BC respondents, 43 (47.8%) are MBC respondents, and there are 14 respondents (15.6%) who belong to the SC and ST communities.

Therefore, among the total respondents, most of them belong to the MBC community (45.5%) which is followed by BC, SC and ST and OC respondents, in that order. However, the proportion of BC is the highest in Perur (36.3%) and Rajavaram (34.9%), while that of the MBC is the highest in Tummadam (50.4%) and Kannekal (47.8%).

Gender-wise Community of the Respondents:

Table-1(H) Gender-wise Community of the Respondents

Community	Gender		Total
	Male	Female	
OC	27 (79.4) [8.8]	7 (20.6) [7.4]	34 (100.0) [8.5]
BC	83 (68.0) [27.1]	39 (32.0) [41.5]	122 (100.0) [30.5]
MBC	148 (81.3) [48.4]	34 (18.7) [36.2]	182 (100.0) [45.5]
SC & ST	48 (77.4) [15.7]	14 (22.6) [14.9]	62 (100.0) [15.5]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

The community of the respondents is similarly observed on the basis of their gender and Table-1(H) presents the data pertaining to these two factors. It is observed that among the 306 male respondents, 27 (8.8%) are OC respondents, 83 (27.1%) are BC respondents, 148 (48.4%) are MBC respondents and 48 respondents (15.7%) belong to the SC and ST communities; and in the case of the 94 females, 7 (7.4%) belong to the OC community, 39 (41.5%) come from the BC community, 34 (36.2%) belong to the MBC community, while 14 (14.9%) belong to the SC and ST communities. This suggests that among the men, most of them belong to the MBC community (48.4%), while in the case of female respondents, most of them belong to the BC community (41.5%) and the proportion of SC and ST respondents is lower among

the females (14.9%) than among the males (15.7%).

Community-wise Educational Levels of the Respondents:

Table-1(I) Community-wise Educational Levels of the Respondents

Educational Levels	Community				Total
	OC	BC	MBC	SC & ST	
Illiterate	1 (1.9) [2.9]	14 (25.9) [11.5]	25 (46.3) [13.7]	14 (25.9) [22.6]	54 (100.0) [13.5]
Upto Primary	6 (6.0) [17.6]	26 (26.0) [21.3]	50 (50.0) [27.5]	18 (18.0) [29.0]	100 (100.0) [25.0]
High School	19 (11.4) [55.9]	56 (33.7) [45.9]	75 (45.2) [41.2]	16 (9.6) [25.8]	166 (100.0) [41.5]
Higher Secondary	6 (11.1) [17.6]	19 (35.2) [15.6]	18 (33.3) [9.9]	11 (20.4) [17.7]	54 (100.0) [13.5]
Graduate & Above	2 (7.7) [5.9]	7 (26.9) [5.7]	14 (53.8) [7.7]	3 (11.5) [4.8]	26 (100.0) [6.5]
Total	34 (8.5) [100.0]	122 (30.5) [100.0]	182 (45.5) [100.0]	62 (15.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

The educational levels of the respondents are also influenced by their communities, which is analyzed here and Table-1(I) presents the distribution of the respondents on the basis of their community and educational level. It is observed that among the 34 respondents who belong to the OC community, 1 (2.9%) are illiterate, 6 (17.6%) are literate upto the primary level, while 19 (55.9%) are literate upto the high school level and 6 (17.6%) have completed upto the higher secondary level, and 2 (5.9%) are graduates or more highly educated; out of 122 respondents who belong to the BC community, 14 (11.5%) are illiterate, 26 (21.3%) are literate upto the primary level, 56 (45.9%) are literate upto high school level, 19 (15.6%) have completed the higher secondary level and 7 (5.7%) are graduates or more highly educated; in the case of the 182 respondents who belong to the MBC community, 25 (13.7%) are illiterate, 50 (27.5 %) are literate upto the primary level, 75 (41.2%) are literate upto the high school, 18 (9.9%) are literate upto the higher secondary level and 14 (7.7%) are graduates or more highly educated; and among the 62 respondents who belong to the SC and ST communities, 14 (22.6%) are illiterate, 18 (29.0%) are literate upto the primary level, 16 (25.8%) respondents are literate upto the high school level, 11 (17.7%) are literate upto the higher secondary level and 3 (4.8%) are graduates or more highly educated.

Gender-wise Types of Family of the Respondents:

Table-1(J) Gender-wise Types of Family of the Respondents

Type of Family	Gender		Total
	Male	Female	
Uni-member	32 (74.4) [10.5]	11 (25.6) [11.7]	43 (100.0) [10.8]
Nuclear	170 (73.3) [55.6]	62 (26.7) [66.0]	232 (100.0) [58.0]
Joint	104 (83.2) [34.0]	21 (16.8) [22.3]	125 (100.0) [31.2]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

The sample respondents live in different types of families and Table-1 (J) presents their distribution pertaining to the gender and type of family in which they live. It is revealed that among the 400 sample respondents, 43 (10.8%) live in uni-member families, 232 (58.0%) live in nuclear families and 125 respondents (31.2%) live in joint families. On the basis of their gender, among the 306 male respondents, 32 (10.5%) live in uni-member families, 170 (55.6%) live in nuclear families and there are 104 respondents (34.0%) who live in joint families and out of the 94 female respondents, 11 (11.7%) live in uni-member families, 62 (66.0%) come under the nuclear family type and 21 (22.3%) live in joint families. Thus, exactly 58.0% of the respondents live in nuclear families, which is 55.6% among the males and 66.0% in the case of females, while, 31.2% of the total respondents live in joint families, which is 34.0% in the case of males, while 22.3% of the female respondents come under this type of family.

Area-wise Types of Family of the Respondents:

Table-1(K) Area-wise Types of Family of the Respondents

Area	Type of Family			Total
	Uni-member	Nuclear	Joint	
Perur	6 (5.9) [14.0]	64 (62.7) [27.6]	32 (31.4) [25.6]	102 (100.0) [25.5]
Rajavaram	16 (19.3) [37.2]	34 (41.0) [14.7]	33 (39.8) [26.4]	83 (100.0) [20.8]
Tummadam	12 (9.6)	83 (66.4)	30 (24.0)	125 (100.0)

	[27.9]	[35.8]	[24.0]	[31.2]
Kannekal	9 (10.0) [20.9]	51 (56.7) [22.0]	30 (33.3) [24.0]	90 (100.0) [22.5]
Total	43 (10.8) [100.0]	232 (58.0) [100.0]	125 (31.2) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

The type of family of the respondents is also inspected on the basis of their area and Table-1(K) presents the essential data. It directs that among the 102 respondents who reside in Perur, 6 (5.9%) live in uni-member families, 64 (62.7%) live in nuclear families and 32 (31.4%) live in joint families; in the case of the 83 respondents who belong to Rajavaram, 16 (19.3%) come under the type of uni-member family, 34 (41.0%) belong to the type nuclear family and there are 33 respondents (39.8%) who live in joint families; out of the 125 respondents who reside in Tummadam, 12 (9.6%) live in uni-member families, 83 (66.4%) live in nuclear families and 30 (24.0%) live in joint families; and among the 90 respondents who are in Kannekal, 9 (10.0%) come under the type of uni-member family, 51 (56.7%) belong to the type of nuclear family and there are 30 respondents (33.3%) who live in joint families. Hence, the proportion of respondents who live in the joint type of family is the highest in Rajavaram (26.4%) among all the other villages, while in the case of those who live within a nuclear type of family; it is the highest in Tummadam (35.8%).

Gender-wise Types of House of the Respondents:

Table-1(L) Gender-wise Types of House of the Respondents

Type of House	Gender		Total
	Male	Female	
Hut	32 (72.7) [10.5]	12 (27.3) [12.8]	44 (100.0) [11.0]
Tiled	54 (74.0) [17.6]	19 (26.0) [20.2]	73 (100.0) [18.2]
Pucca	220 (77.7) [71.9]	63 (22.3) [67.0]	283 (100.0) [70.8]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

The sample respondents residing in different types of houses, which include huts, tiled house and pucca houses are shown next. Table-1(L) presents the gender-wise types of houses in which the respondents reside. It is observed that among the 400 respondents, 44 (11.0%) reside in huts, 73 (18.2%) reside in tiled houses, while 283 respondents (70.8%) reside in pucca houses. On the basis of

their gender, among the 306 male respondents, 32 (10.5%) reside in huts, 54 (17.6%) reside in tiled houses and 226 (71.9%) reside in pucca houses. On the other hand, in the case of the 94 female respondents, 12 (12.8%) reside in huts, 19 (20.2%) reside in tiled house, while there are 64 respondents (67.0%) who reside in pucca houses.

Thus, overall, around 71% of the respondents reside in pucca houses, which is 71.9% among the males and 67.0% among the females. However, the proportion of respondents who reside in huts is higher among the females (12.8%) than that of their male counterparts (10.5%).

Area-wise Types of House of the Respondents:

Table-1(M) Area-wise Types of House of the Respondents

Area	Type of House			Total
	Hut	Tiled	Pucca	
Perur	9 (8.8) [20.5]	27 (26.5) [37.0]	66 (64.7) [23.3]	102 (100.0) [25.5]
Rajavaram	8 (9.6) [18.2]	17 (20.5) [23.3]	58 (69.9) [20.5]	83 (100.0) [20.8]
Tummadam	19 (15.2) [43.2]	20 (16.0) [27.4]	86 (68.8) [30.4]	125 (100.0) [31.2]
Kannekal	8 (8.9) [18.2]	9 (10.0) [12.3]	73 (81.1) [25.8]	90 (100.0) [22.5]
Total	44 (11.0) [100.0]	73 (18.2) [100.0]	283 (70.8) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

The type of house of the respondents is also analyzed on the basis of their area and the relevant data is shown in Table-1(M). It shows that among the 102 respondents who are located in Perur, 9 (8.8%) reside in huts, 27 (26.5%) reside in tiled houses and 66 (64.7%) reside in pucca houses; out of the 83 respondents who reside in Rajavaram, 8 (9.6%) reside in huts, 17 (20.5%) reside in tiled houses and 58 (69.9%) reside in pucca houses; in the case of the 125 respondents who belong to Tummadam, 19 (15.2%) reside in huts, 20 (16.0%) reside in tiled houses, while 86 (68.8%) reside in pucca houses; and among the 90 respondents who are located in Kannekal, 8 (8.9%) reside in huts, 9 (10.0%) reside in tiled houses and 73 (81.1%) reside in pucca houses.

Hence, the proportion of respondents who reside in pucca houses is the highest in Illalu (81.1%) followed by Rajavaram (69.9%), Tummadam (68.8%) and Perur (64.7%), while the proportion of respondents who reside in huts is higher in the latter two villages compared to that of the former two villages.

Land Holding Among the Sample Respondents:-

All the sample respondents own land, since the present study is based on the farming households. However, the size of the land holding differs among them, naturally, and this part analyses the extent of land holding among the sample respondents. Table-2(A) presents the distribution of sample respondents on the basis of their gender and size of land holding.

Gender-wise Land Holding of the Respondents:

Table-2(A) Gender-wise Land Holding of the Respondents

Land Size	Gender		Total
	Male	Female	
Upto 2 Acres	99 (73.9) [32.4]	35 (26.1) [37.2]	134 (100.0) [33.5]
3-5 Acres	85 (74.6) [27.8]	29 (25.4) [30.9]	114 (100.0) [28.5]
6-10 Acres	74 (81.3) [24.2]	17 (18.7) [18.1]	91 (100.0) [22.8]
Above 10 Acres	48 (78.7) [15.7]	13 (21.3) [13.8]	61 (100.0) [15.2]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

The table reveals that among the 400 respondents, 134 (33.5%) possess upto 2 acres of land, 114 (28.5%) hold 3-5 acres, 91 (22.8%) own 6-10 acres and 61 respondents (15.2%) have more than 10 acres of land.

Gender-wise, in the case of the 306 male respondents, 99 (32.4%) possess upto 2 acres, 85 (27.8%) have 3-5 acres, 74 respondents (24.2%) own 6-10 acres and there are 46 respondents (15.7%) who possess more than 10 acres of land; and in the case of the 94 female respondents, 35 (37.2%) possess upto 2 acres, 29 (30.9%) have 3-5 acres, 17 (18.1%) own 6-10 acres and 13 respondents (13.8%) hold more than 10 acres of land.

Thus, among the total respondents, 62% hold upto 5 acres of land, which is 60.2% among the males and 68.1% among the females. On the other hand, 38% of the total respondents possess more than 5 acres of land, which is 39.9% and 31.9% among the male and female respondents, respectively. This suggests a considerable degree of inequality in land possession among the sample respondents.

Area-wise Size of Land Holding of the Respondents:**Table-2(B) Area-wise Size of Land Holding of the Respondents**

Area	Size of Land				Total
	Upto 2 Acres	3-5 Acres	6-10 Acres	Above 10 Acres	
Perur	46 (45.1) [34.3]	25 (24.5) [21.9]	14 (13.7) [15.4]	17 (16.7) [27.9]	102 (100.0) [25.5]
Rajavaram	19 (22.9) [14.2]	28 (33.7) [24.6]	21 (25.3) [23.1]	15 (18.1) [24.6]	83 (100.0) [20.8]
Tummadam	44 (35.2) [32.8]	32 (25.6) [28.1]	33 (26.4) [36.3]	16 (12.8) [26.2]	125 (100.0) [31.2]
Kannekal	25 (27.8) [18.7]	29 (32.2) [25.4]	23 (25.6) [25.3]	13 (14.4) [21.3]	90 (100.0) [22.5]
Total	134 (33.5) [100.0]	114 (28.5) [100.0]	91 (22.8) [100.0]	61 (15.2) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

Land possession among the respondents is also examined on the basis of their area and Table-2(B) presents the necessary data. Among the 102 respondents who reside in Perur, 46 (45.1%) have upto 2 acres, 25 (24.5%) possess 3-5 acres, 14 (13.7%) own land sizes of 6-10 acres and there are 17 respondents (16.7%) who hold more than 10 acres of land; out of the 83 respondents who belong to Rajavaram, 19 (22.9%) possess upto 2 acres, 28 (25.3%) hold 3-5 acres, 21 (25.3%) own 6-10 acres and 15 (18.1%) hold more than 10 acres of land; in the case of the 125 respondents who are located in Tummadam, 44 (35.2%) hold upto 2 acres of land, 32 (25.6%) possess 3-5 acres, 33 (26.4%) own 6-10 acres and 16 (12.8) hold more than 10 acres; among the 90 respondents who belong to Kannekal, 25 (27.8%) own upto 2 acres, 29 (32.2%) possess 3-5 acres, 23 (25.6%) have 6-10 acres and 13 (14.4%) hold more than 10 acres.

Thus, in Perur, 69.6% of the respondents possess upto 5 acres, which is 56.6% in Rajavaram, 60.8% in Tummadam and 60% in Kannekal on the other hand, 30.4% of the respondents who reside in Perur own more than 5 acres, which is 43.4%, 39.2% and 40% in Rajavaram, Tummadam and Kannekal respectively. Thus, the extent of land possession is marginally higher among those who belong to Perur and Tummadam than that of those who reside in Rajavaram and Kannekal.

Community-wise Size of Land Holding of the Respondents:**Table-2(C) Community-wise Size of Land Holding of the Respondents**

Community	Size of Land				Total
	Upto 2 Acres	3-5 Acres	6-10 Acres	Above 10 Acres	
OC	11 (32.4) [8.2]	4 (11.8) [3.5]	7 (20.6) [7.7]	12 (35.3) [19.7]	34 (100.0) [8.5]
BC	38 (31.1) [28.4]	34 (27.9) [29.8]	33 (27.0) [36.3]	17 (13.9) [27.9]	122 (100.0) [30.5]
MBC	62 (34.1) [46.3]	52 (28.6) [45.6]	41 (22.5) [45.1]	27 (14.8) [44.3]	182 (100.0) [45.5]
SC & ST	23 (37.1) [17.2]	24 (38.7) [21.1]	10 (16.1) [11.0]	5 (8.1) [8.2]	62 (100.0) [15.5]
Total	134 (33.5) [100.0]	114 (28.5) [100.0]	91 (22.8) [100.0]	61 (15.2) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

The degree of land possession is further analysed on the basis of the community of the respondents with the help of the data presented in Table 4.1.2(C). It is noted that out of the 34 respondents who belong the OC community, 11 (32.4%) hold up to 2 acres of land, 4 (11.8%) possess 3-5 acres, 7 (20.6%) own 6-10 acres and 12 (35.3%) possess more than 10 acres, among the 122 respondents who belong to the BC community, 38 (31.1%) possess upto 2 acres, 34 (27.9%) hold 3-5 acres of land, 33 (27.0%) own 6-10 acres and 17 respondents (13.9%) hold more than 10 acres, in the case of the 182 respondents who belong to the MBC community, 62 (34.1%) hold upto 2 acres, 52 (28.6%) possess 3-5 acres, 41 (22.5%) own 6-10 acres and there are 27 respondents (14.8%) who possess more than 10 acres; and among the 62 respondents who belong to the SC and ST communities, 23 (37.1%) possess up to 2 acres, 24 (38.7%) hold 3-5 acres, 10 (16.1%) own 6-10 acres and 5 respondents (8.1%) hold more than 10 acres of land.

Therefore, among the OC respondents, 44.2% possess upto 5 acres, while, 59% of the BC respondents, 62.7% of the MBC respondents and 75.8% of the SC and ST respondents also fall in this group; on the other, 55.9% of the OC respondents, 40.9% of the BC respondents, 37.3% of the MBC respondents and 24.2% of the SC and ST respondents own more than 5 acres of land. Thus, land possession is the highest among theMBC respondents, followed by the OC, BC and SC and ST respondents, in that order.

Annual Income of the Respondents:-

The yearly income earned by the respondents from their agricultural activities is a very important pointer not only to measure their relative economic status, but also to be aware of the role of irrigation in determining their earning ability. This part examines the pattern of annual income of the sample respondents and to begin with, Table-3(A) presents the gender-wise annual income.

Gender-wise Annual Income of the Respondents:

Table-3(A) Gender-wise Annual Income of the Respondents

Annual Income	Gender		Total
	Male	Female	
Upto `50000	113 (71.1) [36.9]	46 (28.9) [48.9]	159 (100.0) [39.8]
`50001-1 Lakh	107 (80.5) [35.0]	26 (19.5) [27.7]	133 (100.0) [33.2]
`1-2 Lakhs	49 (75.4) [16.0]	16 (24.6) [17.0]	65 (100.0) [16.2]
Above `2 Lakhs	37 (86.0) [12.1]	6 (14.0) [6.4]	43 (100.0) [10.8]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

It is inferred that from among the 400 sample respondents, 159 (39.8%) earn upto `50000 per annum, 133 (33.2%) come under the annual income range of `50001-1 lakh, 65 (16.2%) fall in the income slab of `1-2 lakhs per year and 43 respondents (10.8%) earn above `2 lakhs per annum. Gender-wise, in the case of the 306 male respondents, 113 (36.9%) belong to the income slab of upto `50000 per annum, 107 (35.0%) earn in the range of `50001-1 lakh per year, 49 (16.0%) fall in the income class of `1-2 lakhs per annum and there are 37 respondents (12.1%) who earn above `2 lakhs per annum; among the 94 female respondents, 46 (48.9%) earn upto `50000 per annum, 26 (27.7%) come under the annual income range of `50001-1 lakh, 16 (17.0%) fall in the income slab of `1-2 lakhs per year and 6 respondents (6.4%) earn above `2 lakhs per annum.

Hence, among the total respondents, 73% earn upto `1 lakh per annum, while the remaining 27% earn above `1 lakh per annum. In the case of men, 71.9% come under the income range of upto `1 lakh, which is 76.6% in the case of women, while 28.1% of the male respondents earn above `1 lakh per year, which is only 23.4% in the case of females. Thus, the earning capacity of the respondents, in general, is low, and which is much lower in the case of the female respondents.

Area-wise Annual Income of the Respondents:

The annual income of the respondents is also examined on the basis of their area of residence and Table-3(B) presents the required data. It indicates that among the 102 respondents who reside in Perur, 39 (38.2%) belong to the income slab of upto `50000 per annum, 37 (36.3%) earn in the range of `50001-1 lakh per year, 9 (8.8%) fall in the income slab of `1-2 lakhs per annum and there are 17 respondents (16.7%) who earn above `2 lakhs per annum. Out of the 83 respondents who belong to Rajavaram, 30 (36.1%) earn upto `50000 per annum, 30 (36.1%) come under the annual income range of `50001-1 lakh, 15 (18.1%) fall in the income slab of `1-2 lakhs per year and 8 (9.6%) earn above `2 lakhs per annum. In the case of the 125 respondents who are located in Tummadam, 56(44.8%) come under the annual income slab of upto `50000, 36 (28.8%) belong to the annual income class of `50001-1 lakh, 22 (17.6%) fall in the income slab of `1-2 lakhs per annum and there are 11 respondents (8.8%) who earn above `2 lakhs per annum; and among the 90 respondents who reside in Kannekal, 34 (37.8%) earn upto `50000 per annum. 30 (33.3%) come under the annual income range of `50001-1 lakh, 19 (21.1%) fall in the income slab of `1-2 lakhs per year and 7 respondents (7.8%) earn above `2 lakhs per annum.

Table-3(B) Area-wise Annual Income of the Respondents

Area	Annual Income				Total
	Upto `50000	`50001-1 Lakh	`1-2 Lakhs	Above `2 Lakhs	
Perur	39 (38.2) [24.5]	37 (36.3) [27.8]	9 (8.8) [13.8]	17 (16.7) [39.5]	102 (100.0) [25.5]
Rajavaram	30 (36.1) [18.9]	30 (36.1) [22.6]	15 (18.1) [23.1]	8 (9.6) [18.6]	83 (100.0) [20.8]
Tummadam	56 (44.8) [35.2]	36 (28.8) [27.1]	22 (17.6) [33.8]	11 (8.8) [25.6]	125 (100.0) [31.2]
Kannekal	34 (37.8) [21.4]	30 (33.3) [22.6]	19 (21.1) [29.2]	7 (7.8) [16.3]	90 (100.0) [22.5]
Total	159 (39.8) [100.0]	133 (33.2) [100.0]	65 (16.2) [100.0]	43 (10.8) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

Thus, in Perur, 74.5% of the respondents earn upto `1 lakh per annum, which is 72.2% in Rajavaram, 73.6% in Tummadam, and 71.1% in Kannekal. On the other hand, 25.5% of the respondents in Perur belong to the income group of above `1 lakh per annum, which is 27.7%, 26.4% and 28.9% in the Rajavaram, Tummadam, and Kannekal villages, respectively.

Community-wise Annual Income of the Respondents

The annual income of the respondents is further analyzed on the basis of their community and Table-3(C) presents the necessary data.

Table-3(C) Community-wise Annual Income of the Respondents

Community	Annual Income				Total
	Upto `50000	`50001-1 Lakh	`1-2 Lakhs	Above `2 Lakhs	
OC	8 (23.5) [5.0]	14 (41.2) [10.5]	6 (17.6) [9.2]	6 (17.6) [14.0]	34 (100.0) [8.5]
BC	46 (37.7) [28.9]	40 (32.8) [30.1]	21 (17.2) [32.3]	15 (12.3) [34.9]	122 (100.0) [30.5]
MBC	72 (39.6) [45.3]	65 (35.7) [48.9]	30 (16.5) [46.2]	15 (8.2) [34.9]	182 (100.0) [45.5]
SC & ST	33 (53.2) [20.8]	14 (22.6) [10.5]	8 (12.9) [12.3]	7 (11.3) [16.3]	62 (100.0) [15.5]
Total	159 (39.8) [100.0]	133 (33.2) [100.0]	65 (16.2) [100.0]	43 (10.8) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

It is noted that out of the 34 respondents who belong to the OC community, 8 (23.5%) earn upto `50000 per annum, 14 respondents (41.2%) come under the annual income range of `50001-1 lakh, 6 respondents (17.6%) are come under `1-2 lakhs, and other 6 respondents (17.6%) fall in the income slab of above `2 lakhs per annum; in the case of the 122 respondents who belong to the BC community, 46 (37.7%) come under the annual income slab of upto `50000, 40 (32.8%) belong to the annual income class of `50001-1 lakh, 21 (17.2%) fall in the income slab of `1-2 lakhs per annum and there are 15 respondents (12.3%) who earn above `2 lakhs per annum; among the 182 MBC respondents, 72 (39.6%) earn upto `50000 per annum, 65 (35.7%) belong to the annual income class of `50001-1 lakh, 30 (16.5%) fall in the income slab of `1-2 lakhs per year and 15 (8.2%) earn above `2 lakhs per annum; and out of the 62 respondents who belong to the SC and ST communities, 33 (53.2%) belong to the income slab of upto `50000 per annum, 14 (22.6%) earn in the range of `50001-1 lakh per year, 8 (12.9%) fall in the income slab of `1-2 lakhs per annum and there are 7 respondents (11.3%) who earn above `2 lakhs per annum.

Thus, among the OC respondents, 64.7% upto ₹1 lakh per year, which is 70.5% among the BC, 75.3% among the MBC and 75.8% among the SC and ST respondents, while 35.2% of the OC respondents earn above ₹1 lakh per annum, which is 29.5%, 24.7 per cent and 24.2% among the BC, MBC and SC and ST respondents, respectively.

Land Size-wise Annual Income of the Respondents:

Table-3(D) Land Size-wise Annual Income of the Respondents

Land Size	Annual Income				Total
	Upto ₹50000	₹50001-1 Lakh	₹1-2 Lakhs	Above ₹2 Lakhs	
Upto 2 Acres	88 (65.7) [55.3]	46 (34.3) [34.6]	-- -- --	-- -- --	134 (100.0) [33.5]
3-5 Acres	47 (41.2) [29.6]	38 (33.3) [28.6]	21 (18.4) [32.3]	8 (7.0) [18.6]	114 (100.0) [28.5]
6-10 Acres	24 (26.4) [15.1]	37 (40.7) [27.8]	20 (22.0) [30.8]	10 (11.0) [23.3]	91 (100.0) [22.8]
Above 10 Acres	-- -- --	12 (19.7) [9.0]	24 (39.3) [36.9]	25 (41.0) [58.1]	61 (100.0) [15.2]
Total	159 (39.8) [100.0]	133 (33.2) [100.0]	65 (16.2) [100.0]	43 (10.8) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

It is observed that among the 134 respondents who own upto 2 acres, 88 (65.7%) earn upto ₹50000 per annum and 46 respondents (34.3%) come under the annual income range of ₹50001-1 lakh; in the case of the 114 respondents who possess 3-5 acres, 47 (41.2%) come under the annual income slab of upto ₹50000, 38 (33.3%) belong to the annual income class of ₹50001-1 lakh, 21 (18.4%) fall in the income slab of ₹1-2 lakhs per annum and 8 (7.0%) earn above ₹2 lakhs per annum; out of the 91 respondents who hold 6-10 acres, 24 (26.4%) earn upto ₹50000 per annum, 37 (40.7%) belong to the annual income class of ₹50001-1 lakh, 20 (22.0%) fall in the income slab of ₹1-2 lakhs per year and 10 (11.0%) earn above ₹2 lakhs per annum; and out of the 61 respondents who own above 10 acres, none of them earn upto ₹50000 per annum, while 12 (19.7%) earn in the range of ₹50001-1 lakh per year, 24 (39.3%) fall in the income slab of ₹1-2 lakhs per annum and there are 25 respondents (41.0%) who earn above ₹2 lakhs per annum. Thus, there is a positive relationship between size of land holding among the respondents and their earning ability. For instance, among those who hold upto 2 acres, none of them earns above ₹1 lakh per annum, which is 37% among those who hold 3-5 acres, 33.0% in the case of those who possess 6-10 acres and 80.3% among those who hold above 10 acres of land.

Monthly Food and Non-Food Expenditure among the Sample Respondents:-**Gender-wise Monthly Food Expenditure by the Respondents:****Table-4(A) Gender-wise Monthly Food Expenditure by the Respondents**

Monthly Food Expenditure	Gender		Total
	Male	Female	
Upto `2000	120 (74.5) [39.2]	41 (25.5) [43.6]	161 (100.0) [40.2]
`2001-`2500	78 (74.3) [25.5]	27 (25.7) [28.7]	105 (100.0) [26.2]
`2501-`3000	63 (80.8) [20.6]	15 (19.2) [16.0]	78 (100.0) [19.5]
Above `3000	45 (80.4) [14.7]	11 (19.6) [11.7]	56 (100.0) [14.0]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

This section presents analysis concerning the area-wise monthly food and non-food expenditure among the sample respondents in order to mark out the differences in them. Table-4(A), presents information regarding the gender-wise monthly food expenditure. It reveals that among the 400 sample respondents, 161 (40.2%) spend upto `2000 per month on their food requirements, 105 (26.2%) spend in the range of `2001-2500 per month, 78 (19.5%) come under the monthly expenditure slab of `2501-3000 and 56 respondents (14.0%) fall in the above `3000 expenditure group.

Gender-wise, among the 306 male respondents, 120 (39.2%) spend upto `2000 per month, 78 (25.5%) spend `2001-2500 per month, 63 (20.6%) come under the monthly expenditure slab of `2501-3000 and 45 (14.7%) spend above `3000 per month; out of the 94 female respondents, 41 (43.6%) spend upto `2000 per month, 27 (28.7%) spend in the range of `2001-2500 per month, 15 (16.0%) come under the monthly expenditure slab of `2501-3000 and 11 respondents (11.7%) fall in the above `3000 expenditure range.

This indicates that the proportion of respondents who spend upto `2500 per month on their food requirements is 66.4% overall, which is 64.7 per cent among the males and 72.3% females, while 33.5% of the total respondents spend above `2500 per month, which is 35.3% among the males and 27.7% among the females. Thus, the male respondents are capable of spending more than the female respondents for their food requirements.

Gender-wise Monthly Non-Food Expenditure by the Respondents:

Table- 4(B) presents the gender-wise monthly non-food expenditure among the sample respondents.

It is revealed that among the 400 respondents, 157 (39.2%) spend upto `2000 per month as their non-food expenditure, 119 (29.8%) spend in the assortment of `2001-2500 per month, 75 (18.8%) come under the monthly expenditure slab of `2501-3000 and 49 (12.2%) fall in the above `3000 expenditure category. On the basis of their gender, out of the 306 male respondents, 125 (40.8%) spend upto `2000 per month, 85 (27.8%) spend in the range of `2001-2500 per month, 60 (19.6%) come under the monthly expenditure slab of `2501-3000 and 36 (11.8%) spend above `3000 per month; and in the case of the 94 female respondents, 32 (34.0%) spend upto `2000 per month, 34 (36.2%) spend in the range of `2001-2500 per month, 15 (16.0%) come under the monthly expenditure class of 2501-3000 and 13 respondents (13.8%) fall in the above `3000 expenditure range.

Hence, overall, 69% of the respondents spend upto `2500 per month on their non-food expenditure, while 68.6% of the males and 70.2% of the females fall in this category, and 33% of the total respondents spend above `2500 per month, which is 31.4% among the males and 29.8% among the females.

Table-4(B) Gender-wise Monthly Non-Food Expenditure by the Respondents

Monthly Non-Food Expenditure	Gender		Total
	Male	Female	
Upto `2000	125 (79.6) [40.8]	32 (20.4) [34.0]	157 (100.0) [39.2]
`2001-`2500	85 (71.4) [27.8]	34 (28.6) [36.2]	119 (100.0) [29.8]
`2501-`3000	60 (80.0) [19.6]	15 (20.0) [16.0]	75 (100.0) [18.8]
Above `3000	36 (73.5) [11.8]	13 (26.5) [13.8]	49 (100.0) [12.2]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

Thus, both males and females spend more on their non-food requirements than on their food, while in this case also, the male respondents spend more than the female respondents.

Area-wise Monthly Food Expenditure by the Respondents:

The monthly food and non-food expenditure of the sample respondents are also examined on the basis of their area and Table-4(C) presents the area-wise monthly food expenditure. It is inferred that among the 102 respondents who are located in Perur, 48 (47.1%) spend upto `2000 per month on their food requirements, 28 (27.5%) spend in the range of `2001-2500 per month, 17 (16.7%) come under the monthly expenditure slab of `2501-3000 and 9 respondents (8.8%) fall in the above `3000 expenditure class; in the case of the 83 respondents who belong to Rajavaram, 25 (30.1%) spend upto `2000 per month, 23 (27.7%) spend `2000-2500 per month, 16 (19.3%) come under the monthly expenditure range of `2501-3000 and there are 19 respondents (22.9%) who spend above `3000 per month; out of the 125 respondents who reside in Tummadam, 58 (46.4%) spend upto `2000 per month, 31 (24.8%) spend in the range of `2001-2500, 21 (16.8%) come under the monthly expenditure slab of `2501-3000 and 15 respondents (12.0%) fall in the above `3000 expenditure range; in the case of the 90 respondents who reside in Kannekal, 30 (33.3%) spend upto `2000 per month on their food requirements, 23 (25.6%) fall in the expenditure slab of `2001-2500 per month, 24 (26.7) belong to the monthly expenditure slab of `2501-3000 and 13 respondents (14.4%) fall in the above `3000 expenditure range. This indicates that the proportion of respondents who spend above `2500 per month is 25.5% in Perur, which is 42.2% in Rajavaram, 28.8% in Tummadam and 41.1 per cent in Kannekal.

Table-4(C) Area-wise Monthly Food Expenditure by the Respondents

Area	Food Expenditure				Total
	Upto `2000	`2001-`2500	`2501-`3000	Above `3000	
Perur	48 (47.1) [29.8]	28 (27.5) [26.7]	17 (16.7) [21.8]	9 (8.8) [16.1]	102 (100.0) [25.5]
Rjavaram	25 (30.1) [15.5]	23 (27.7) [21.9]	16 (19.3) [20.5]	19 (22.9) [33.9]	83 (100.0) [20.8]
Tummadam	58 (46.4) [36.0]	31 (24.8) [29.5]	21 (16.8) [26.9]	15 (12.0) [26.8]	125 (100.0) [31.2]
Kannekal	30 (33.3) [18.6]	23 (25.6) [21.9]	24 (26.7) [30.8]	13 (14.4) [23.2]	90 (100.0) [22.5]
Total	161 (40.2) [100.0]	105 (26.2) [100.0]	78 (19.5) [100.0]	56 (14.0) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

Area-wise Monthly Non-Food Expenditure by the Respondents:

The area-wise monthly non-food expenditure is examined with help of the data presented in Table-4(D). The table suggests that among the 102 respondents who belong to Perur, 49 (48.0%) spend upto `2000 per month as their non-food expenditure, 26 (25.5%) spend in the range of `2001-2500 per month, 17 (16.7%) come under the monthly expenditure slab of `2501-3000 and 10 respondents (9.8%) fall in the above `3000 expenditure class; out of the 83 respondents who reside in Rajavaram, 20 (24.1%) spend upto `2000 per month, 32 (38.6%) spend `2001-2500 per month, 16 (19.3%) come under the monthly expenditure range of `2501-3000 and 15 (18.1%) spend above `3000 per month; out of the 125 respondents who are located in Tummadam, 51 (40.8%) spend upto `2000 per month, 32 (38.6%) spend in the range of `2001-2500, 25 (20.0%) come under the monthly expenditure slab of `2501-3000 and 17 respondents (13.6%) fall in the above `3000 expenditure range; in the case of the 90 respondents who belong to Kannekal, 37 (41.1%) spend upto `2000 per month on their non-food requirements, 29 (32.2%) fall in the expenditure group `2001-2500 per month, 17 (18.9%) belong to the monthly expenditure slab of `2501-3000 and 7 respondents (7.8%) fall in the above `3000 expenditure range.

Table-4(D) Area-wise Monthly Non-Food Expenditure by the Respondents

Area	Non-Food Expenditure				Total
	Upto `2000	`2001-`2500	`2501-`3000	Above `3000	
Perur	49 (48.0) [31.2]	26 (25.5) [21.8]	17 (16.7) [22.7]	10 (9.8) [20.4]	102 (100.0) [25.5]
Rajavaram	20 (24.1) [12.7]	32 (38.6) [26.9]	16 (19.3) [21.3]	15 (18.1) [30.6]	83 (100.0) [20.8]
Tummadam	51 (40.8) [32.5]	32 (25.6) [26.9]	25 (20.0) [33.3]	17 (13.6) [34.7]	125 (100.0) [31.2]
Kannekal	37 (41.1) [23.6]	29 (32.2) [24.4]	17 (18.9) [22.7]	7 (7.8) [14.3]	90 (100.0) [22.5]
Total	157 (39.2) [100.0]	119 (29.8) [100.0]	75 (18.8) [100.0]	49 (12.2) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

Thus, 26.5% of the respondents who reside in Perur spend above `2500 per month as their non-food expenditure, whereas, 37.4% of the respondents in the case of Rajavaram, 33.6% in the case of Tummadam and 26.7% in the case of Kannekal come under this expenditure bracket. This indicates that the spending capacity of the respondents differ noticeably because their earning

abilities also differ.

This section has revealed the socio-economic individuality of the sample respondents who live in four different villages on the basis of their area, gender and other factors. This brings out the fact that the age level, level of education, types of family, types of house and community of the respondents all differ to a substantial extent. The size of land holding, the annual income they obtain from their agricultural activities and their monthly food and non-food expenditure also differ.

Sources of Irrigation and Agricultural Growth in the Study Area:-

The sample respondents in the study area depend on various sources of irrigation, which is predictable to determine the pattern of croppings, and number of cropping, nature of cropping, yield of the crops, total output and their income levels. This warrants an analysis pertaining to the sources of irrigation, cropping pattern, number of croppings, nature of cropping, etc., which is completed in this part on the basis of factors like area, gender and others.

Sources of Irrigation Adopted by the Respondents:

Gender-wise Source of Irrigation used by the Respondents:

Table-2.1(A) presents the distribution of respondents on the basis of their gender and sources of irrigation. It reveals that among the 400 respondents, 78 (19.5%) use canal irrigation, 152 (38.0%) depend on surface well irrigation, 158 (39.5%) adopt tube well irrigation and 12 respondents (3.0%) make use of drip irrigation.

Table-2.1(A) Gender-wise Source of Irrigation used by the Respondents

Source	Gender		Total
	Male	Female	
Canal	63 (80.8) [20.6]	15 (19.2) [16.0]	78 (100.0) [19.5]
Surface Well	108 (71.1) [35.3]	44 (28.9) [46.8]	152 (100.0) [38.0]
Tube Well	125 (79.1) [40.8]	33 (20.9) [35.1]	158 (100.0) [39.5]
Drip Irrigation	10 (83.3) [3.3]	2 (16.7) [2.1]	12 (100.0) [3.0]
Total	306 (76.5) [100.0]	94 (23.5) [100.0]	400 (100.0) [100.0]

Note: Figures in round brackets () are row-wise percentage and those in square brackets [] are column-wise percentage., Source: Field survey.

Gender-wise, in the case of the 306 male respondents, 63 (20.6%) adopt canal irrigation, 108 (35.3%) depend on surface well irrigation, 125 (40.8%) practice tube well irrigation, while 10 (3.3%) use drip irrigation; and in the case of the 94 female respondents, 15 (16.0%) use canal irrigation. 44 (46.8%) depend on surface well irrigation and 33 (35.1%) adopt tube well irrigation, while 2 (2.1%) female respondents make use of drip irrigation.

This suggests that along with the female respondents, the use of irrigation sources like surface well (46.8%) is higher than that of male respondents (35.3%). On the other hand, among the male respondents, the use of tube well irrigation (40.8%) and drip irrigation (3.3%) is higher than the female respondents (35.1% and 2.1% responsibility). Therefore, the sources of irrigation vary among the male and female respondents in the study area.

Area-wise Source of Irrigation Used by the Respondents:

The sources of irrigation are also examined on the basis of the area of the respondents and Table-2.1(B) presents the required data.

Table-2.1(B) Area-wise Source of Irrigation Used by the Respondents

Source	Area				Total
	Perur	Rajavaram	Tummadam	Kannekal	
Canal	27 (34.6) [26.5]	6 (7.7) [7.2]	33 (42.3) [26.4]	12 (15.4) [13.3]	78 (100.0) [19.5]
Surface Well	44 (28.9) [43.1]	31 (20.4) [37.3]	43 (28.3) [34.4]	34 (22.4) [37.8]	152 (100.0) [38.0]
Tube Well	31 (19.6) [30.4]	34 (21.5) [41.0]	49 (31.0) [39.2]	44 (27.8) [48.9]	158 (100.0) [39.5]
Drip Irrigation	-- -- --	12 (100.0) [14.5]	-- -- --	-- -- --	12 (100.0) [3.0]
Total	102 (25.5) [100.0]	83 (20.8) [100.0]	125 (31.2) [100.0]	90 (22.5) [100.0]	400 (100.0) [100.0]

Source: Data are obtained from same sources.

It is observed that among the 102 respondents who reside in Perur, 27 (26.5%) of the respondents depend on canal irrigation, while 44 (43.1%) depend on surface well irrigation, 31 (30.4%) use tube well irrigation and none of them adopt drip irrigation; in the case of the 83 respondents who belong to Rajavaram, 6 (7.2%) adopt canal irrigation, while 31 (37.3%) depend on surface well irrigation, 34 (41.0%) adopt tube well irrigation and 12 (14.5%) use drip irrigation; out of the 125 respondents located at Tummadam, 33 (26.4%) adopt canal irrigation, 43 (34.4%) depend on surface well irrigation and 49 (39.2%) practice tube well irrigation, while

none of them uses drip irrigation, and in the case of the 90 respondents who reside in Kannekal, 12 (13.3%) use canal irrigation, 34 (37.8%) depend on surface well irrigation and 44 (48.9%) adopt tube well irrigation, while none of them uses drip irrigation.

Thus, the use of tube well irrigation is higher in Tummadam and Kannekal (58.8%) than in Perur and Rajavaram (41.1%) whereas, drip irrigation is practiced only in Rajavaram. On the other hand, canal, surface well, and tube well irrigation is adopted in all the study areas of Perur, Rajavaram, Tummadam, and Kannekal.

Suggestions and Policy Implications:-

- ❖ Both central and state governments need to take necessary steps to deepen lakes, ponds, wells, and canals which are currently being used as major sources of irrigation for crop cultivation in the study areas.
- ❖ At least, twice a year, lakes, canals and wells need to be deepened with the help of locals or farmers and officials.
- ❖ At least once a year, an awareness programmes should be arranged to explain the importance or deepening of lakes, canals, and other sources of irrigation, to the farmers.
- ❖ The Government needs to give more subsidies for deepening of lakes, canals, wells and other sources of irrigations which are largely practiced by the farmers for their cultivation.
- ❖ The irrigation departments of the state and the central governments should indicate their annual targets, and its reports along with structure, preservation and financial plan niceties.
- ❖ Appropriate areas for future irrigated agriculture should be distinguished through more vital and coordinated land and water asset arranging.
- ❖ Adequate water is accessible for irrigation but the shortage and unpredictable power supply for running the irrigation pump sets is a notable hindrance in the route for agriculturists to enhance their farms income under well and lift sources of irrigation. The government must ensure and assurance expected power supply to the farm division.
- ❖ The central and state governments ought to set up policies and plans for their irrigation sector.
- ❖ Extending self-management of water resources and large density irrigated agriculture areas need to be investigated to provide equal opportunities and mechanisms.
- ❖ The mediations should concentrate on connecting with the poor through enhanced monetary, institutional, and administration measures on irrigation.
- ❖ The investigation suggests that there is a requirement for additional research and open deliberation on irrigation change strategy procedures and contemporary models of institutional development.
- ❖ There are regions that would require further and watchful investigation, especially with respect to guaranteeing the monetary execution of significant investments in irrigation with regards to expanding water shortage.

- ❖ The department of agriculture should arrange Crops Exhibitions.
- ❖ The existing water utilization effectiveness should be expanded with the specific end goal of improving farming development.
- ❖ Additional endeavors promoting support to agriculturists ought to be fortified to present crop enhancement, especially, in the wet season.
- ❖ Irrigation is to be seen as a support for the farmers to improve farm production and income. The linkage between irrigation and agribusiness functionaries should be reinforced to tap the potential and achieve change in cultivation, improvement of farmers, and state's economy.
- ❖ Wherever possible, micro-irrigation techniques should be adopted to increase agriculture production.
- ❖ Procedures ought to be taken to energize conjunctive utilization of water in canal command area by methods of lift irrigation and bore well irrigation in order to increase the utilizable charge region.
- ❖ Audacious institutional and authoritative strides should be taken up critically in India for groundwater.
- ❖ The quantum of appropriate water required tends to be disregarded by the farmer which goes against the recommended cropping pattern. Hence, initially they must be trained about the recommended cropping pattern.
- ❖ Areas under new and on-going irrigation improvement activities might be given instructions regarding sprinkler and drip irrigation innovations. It ought to be made compulsory to introduce these frameworks under the command area improvement.
- ❖ Governments need to demonstrate the importance of drip irrigation in the command area.
- ❖ The local body or the officials of the irrigation department should create an awareness programme on drip irrigation for farmers who are involved in crops cultivation in the command area.
- ❖ During summer, water demand increases for crop cultivation; the farmers have no other option but to migrate or change the cropping pattern, thus, the farmers need to be educated on the importance of drip irrigation to go in for different cropping patterns.
- ❖ Practicing drip irrigation entails high cost of equipment. So, the government needs to provide the required equipment at a subsidized rate to give confidence to the farmers to continue drip irrigation for their crop production.

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