IMPACT OF LIFT IRRIGATION PROJECTS ON RURAL HOUSEHOLDS: A STUDY OF UNDIVIDED MAHABUBNAGAR DISTRICT

Submitted to

Telangana Water Resources Development Corporation Ltd,
Government of Telangana

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REPORT

ON

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Submitted to

Telangana Water Resources Development Corporation Ltd,
Government of Telangana
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Abbreviations

APL	Above Poverty Line
BPL	Below Poverty Line
EPF	Employment Provident Fund
ESI	Employees State Insurance
FGD	Focus Group Discussion
GCC	Gulf Cooperation Council
HH	Household
ITI	Industrial Training Institute
JNLIP	Jawahar Nettempadu Lift Irrigation Project
KLIP	Koilsagar Lift Irrigation Project
LIP	Lift Irrigation Projects
MGKLIP	Mahatma Gandhi Kalwakurthy Lift Irrigation Project
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
OBC	Other Backward Classes
RBLIP	Rajiv Bheema Lift Irrigation Project
SC	Scheduled Caste
ST	Scheduled Tribes
WMC	Water Management Committee

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Authors

EXECUTIVE SUMMARY

Working-class migration is caused by several factors including economic backwardness, stagnant agriculture, unemployment, and dwindling alternative livelihood options. The state of Telangana is a significant source of labour migration to cities and towns outside the state. Migrant workers from the State are mostly uneducated, poor, underqualified, unskilled, and from diverse social backgrounds. They move to other regions of the state and nation, as well as overseas, particularly to Gulf Cooperation Council (GCC) countries that need manpower. Inter-state migration is dynamic in nature. According to 2011 Census, there are 4,14,22,917 interstate migrant workers in the country. The Periodic Labour Force Survey (PLFS) 2020– 21, indicates that India's total migration rate was 28.9 percent, with rural migration rates being 26.5 percent. Work-related migration accounted for about 10.8 percent of all migrations.

The Telangana State is home to 3.5 crore people and has an area of 1.12 lakh sq. km. Following the districts re-organisation, there are now 33 districts carved out of erstwhile 10 districts prior to 2016. The study area, or undivided Mahabubnagar, was a large district in the State, before 2016. The district has a total 18,432 sq.km area and comprised 40.5 lakhs population. Out of total area, 98 percent (18,432 sq.km) area was rural. A total 45.54 lakh acres (75.67 percent) of land in undivided Mahabubnagar district is arable, and the remaining 14 percent is forest land. The net sown area is 40.18 percent, and 34.38 percent is fallow land. Around 11.50 percent of gross sown area is irrigated. According to the DES 2014–15 data, a total of 2.48 lakh ha are classified as net area irrigated, and the district's gross area irrigated is 3.31 lakh ha. Out of the total irrigated net area, 3727 ha have tank irrigation, 29579 ha have canal irrigation, 197940 ha have tube well irrigation, 4472 ha have dug wells, and 12951 ha have other sources. Under the Mission Kakatiya project, the district also restored almost 1000 tanks, increasing their capacity. According to DES 2014-15 total water spread of the district is 6076 units and covered 1.1 lakhs ha of land which was the highest area in the entire State (5.89 lakh ha). The district is also home to 14 reservoirs covering 32852 ha of area; a total 5973 tanks with 77710 ha area and 89 ponds with 100 ha of land.

Due to drought and poor irrigation sources, people from Mahbubnagar migrated to other places. Palamuru, another name for the district, has been popular for large scale migrant labour engaged in construction works across the country. Palamuru labour travelled to far-flung locations such as Hyderabad, Chennai, Bengaluru, Mumbai, Kolkata, New Delhi, and the Northeast for work (Reddy 2003). Frequently shifting to different destinations during the

year or agricultural season is one of their distinct characteristics of Palamuru migrant labour (Korra 2015). The need for work, greater money, and better prospects for a living frequently drives short-term or transitory migration. A significant out-migration hotspot, the former Mahabubnagar district changed owing to lift irrigation projects initiated by State government since 2004. The government of separate Telangana has laid great emphasis on four lift irrigation projects viz., Mahatma Gandhi Kalwakurthy, Koilsagar, Jawahar Nettempadu and Rajiv Bheema, which have increased the irrigated area from 4.5 lakh acres in 2016–2017 to 6.5 lakh acres in 2017–2018 and 8 lakh acres in 2018–2019. Out-migrants from these regions, started returning as arable land, along with irrigation has expanded in the erstwhile district.

Objectives

- To study the implication of irrigation facilities on cultivated areas, irrigated areas, and agriculture production in the undivided Mahabubnagar district.
- To examine the changes in cropping pattern due to irrigation in the study district
- To study the patterns and magnitude of return migration and their livelihood strategies after the return to the study areas.
- To investigate the impact of return migration on agriculture and allied activities, income, and employment in the study areas.
- To evaluate the changes in the livelihoods of different rural households (farmers, wage labour, and caste-based occupations) as a result of irrigation facilities in the study areas.
- To explore the policy implications that emerged post-irrigation period and suggest the way forward.

Methodology

The study examined the impact of irrigation facilities on irrigated areas, and agriculture production in the undivided Mahabubnagar district. The research used secondary and primary data, secondary data from the Department of Irrigation and Department of Agriculture, Government of Telangana, and primary data from sample villages of four districts under four lift irrigation projects -Jawahar Nettempadu, Koilsagar, Rajiv Bheema, and Kalwakurthy in Gadwal, Wanaparthy, Nagarkurnool, and Mahabubnagar districts respectively. Mandals and villages in the four districts were selected on the basis of area brought under lift irrigation projects. The sample villages have been selected proportionately to the area irrigated by four lift irrigation projects.

The sample of 900 households was selected from ten mandals falling in the four districts viz., Nagarkurnool (15 villages from five mandals), Gadwal (6 villages from two mandals), Wanaparthy (6 villages from two mandals) and Mahbubnagar (3 villages from one mandal). Thirty households were selected from each village representing varying proportion of the households by occupation/ livelihood. A house listing of all households in the selected villages was taken up based on main occupation by income criterion. Based on the household listing data three categories of households were formed - farmer, wage labour, and traditional caste-based occupations. The fixed sample of 30 households was distributed proportionally to number of households in each category and households were selected randomly. The percentage of sample was - 46% wage labour, 34% farmers (20% small farmers <5 acres; 14% big farmers >5 acres) and 20% traditional occupations. Besides, the study examined the impact of irrigation on migration, magnitude of return migration to the study areas with a 'before' (2016-17)- 'after' (2021-22) methodology. Data for 2016-17 (before irrigation) was collected by recall method. As onset of irrigation was a milestone respondents could recollect the before situation effectively.

Sampling: Sample size was increased from 20 to 30 villages to capture variations found in areas under canal and ground water irrigation and crops cultivated in Kharif and Rabi. The 30-sample size of 30 at the village level is randomly selected proportional to the number of households in each category of farmers, agriculture labour and traditional occupations. In Table 2 the percentages given in brackets show the difference. Thus, the sample is representative of different categories of the households by occupation and their respective size in total number of households in the village.

Table 1: Lift Irrigation projects in Mahbubnagar District

Projects	IP created (acres)	IP Planned (in acres)	IP created to total IP (%)	Villages contemplated	Villages irrigated
Jawahar Nettempadu	1,42,000	2,00,000	22.48	104	84
MG Kalwakurthy	3,07,000	4,38,416	48.61	126	61
Rajeev Bheema	1,47,006	2,03,000	23.27	121	99
Koilsagar	35,600	50250	5.64	-	-
TOTAL	6,31,606	8,91,666	100	-	-

The sampling was planned to ensure proportionate representation of large and small Lift Irrigation projects in terms of their ayacut. The number of mandals benefited from irrigation

under Kalwakurthy, Bheema Phase I and Phase II are around 6-7. The IP created and planned is given in the Table 1. The Table 2 shows that sample has been drawn proportional to listed households under each LI project ensuring sample size under each LI Project to its respective size.

Table 2: Irrigation Project and Occupation wise listed and selected households

Irrigation Projects	Listed Households						Selected Households				
	Small Farmers	Big Farmers	Wage Labours	Tradition al	Others	Total	Small Farmers	Large Farmers	Wage Labour	Tradition al	Total
Jawahar Nettempadu	382		1023	49	154	1819	38	19	101	22	180
Koilsagar	132	93	269	238	0	732	17	11	33	29	90
MG Kalwakurthy	778	547	1635	254	353	3567	95	73	201	81	450
Rajiv Bheema	226	157	610	324	0	1317	32	23	80	45	180
Total	1518	1008	3537	865	507	7435	182	126	415	177	900
							20.2	14.0	46.1	19.6	100

The sample is representative and indicates the overall benefits from the four Lift Irrigation projects indicative of additional area brought under irrigation, in accordance with the Objectives of the study. The study does not give the overall estimation for the undivided district of the monetary benefits from irrigation and reverse migration as we have not used any weights to sample selected.

Key findings of the study

The objective of the study is to capture the impact of irrigation on agriculture as well as migration in Mahbubnagar district under 4 LI projects. The before-after methodology adopted is suitable to capture the impact. The impact was captured in terms of irrigated area, sources of irrigation, cropping pattern/ diversification, yields, costs, returns, labour usage (work generated) in the selected villages. The other major objective was to capture changes in incidence of migration as well as patterns of migration. The analysis is based on sound and unbiased methodology suitable to study the objectives and the findings drawn from the analysis. The study also mentioned the potential for further rise in benefits as farmers are facing several challenges in accessing water from the projects. If these are addressed the actual benefits would increase in making the rural economy significantly more vibrant.

The study examined basic entitlements, demographics, and occupational status of farm, labour, and caste-based occupational households. Most households possess basic

entitlements like Aadhar, ration cards, and bank accounts, with a gender gap prevalent among households from caste-based occupations. Most households belong to Hindu with OBC and SC households outnumbering others. Literacy levels are similar among farm and labour households, but better among traditional occupational households. Farm households own more land, while labour and traditional households have lower extent of land and mainly rely on rainfall for cultivation. The study found that irrigation facilities have significantly changed the situation, with the Kharif season being the most profitable. Farmers, labour, and traditional households benefited from improved cultivation due to irrigation.

Out-migrants from these areas seem motivated to return home, as the arable land is more now, particularly irrigated land. The average extent of land owned among the respondents of the study was 3.7 acres in 2016-17, with dry land extent more than irrigated land compared to 2021–2022. Irrigated land was more in the Nettempadu and Koilsagar project regions. The Kalwakurthy and Nettempadu project areas have greater extent of leased-in and leased-out land. The average landholding was 3.2 acres of irrigated land and 3.7 acres of dryland for the Rabi season in 2021–2022. In the Rabi season, tube wells provided water to 53% of farmers, lift irrigation canals 18.2%, tanks 13.3%, and open wells to more than 9%.

In the Kharif season of 2016-17, a majority of farmers relied on rainfall for cultivation, followed by tube wells and open wells. Area covered by project canal and piped water was less. Farmers in Nettempadu and Kalwakurthy relied on rainfall, while those in Koilsagar and Kalwakurthy used tube wells. Open wells were predominant under the Rajiv Bheema project but not under the Nettempadu and Kalwakurthy projects.

Area covered by lift irrigation projects in 2021-2022, was greater compared to 2016-17, with more diversified cropping pattern under lift irrigation projects like paddy, cotton, chili, groundnut, mango, groundnut, horticulture, and pulses. The Kharif season saw higher profits for farmers, and labour households, with farmers earning more from cultivation.

Most farm and labour households are short-term and seasonal migrants, with seasonal migrants being more prevalent in areas with frequent unemployment and low wages. Migrants work in urban-centric jobs and earn decent wages. In one instance a female migrant earned Rs. 20000 per month. Seasonal migrants are more likely to return due to land preparation for Kharif season.

On an overall basis percentage of farmers cultivating irrigated land increased from 58% to 84% and those cultivating dry land fell from 44% to 16%. Leasing in land has increased due to

irrigation. Around 30% farmers benefited by canal irrigation in 2021-22 while it was only 5% in 2016-17. However, farmers irrigating through ground water sources also increased from 455 to 47%. The level of groundwater has risen with more availability. On the other hand, farmers depending on rainfall has fallen from 45% to 20%.

Return migrants: The study reveals that 179 households (20% of households) in undivided Mahabubnagar district, have reported returned migrants. Of the return migrants a 57% were wage labour, 28% farmers and 14% traditional occupations. Most of the return migrants were seasonal migrants or long-term migrants under Nettempadu, Koilsagar, Rajiv Bheema, and Kalwakurthy project areas. The frequency of return migration varies depending on the location and the seasonality of farm operations in the village. In the study area, out-migration is influenced by seasonality, with 25.4 percent migrating in November, 18 percent in January,
11.2 percent in October, and 10.4 percent in February. The distance between the village and the destination place also plays a role in the migration patterns. The timing of agricultural activities in these project villages also influences the timing of out-migration.

The study concludes that 36.9 percent of return migrants migrated in the 2000s, followed by 28.5 percent between 2010 and 2016, and 16.2 percent between 2016 and 2022. Seasonal and short-term labour migrants mainly migrated between 2010 and 2016 and 2000. Long-term migrants migrated mainly between 2010 and 2016, and in the 1990s. Seasonal migrants had a short history, while short-term migrants had a longer history. Seasonal and short-term migrants return to their villages to cultivate their land. The main sources of employment for the local workforce include wage labour, cultivation, construction work, self-employment, traditional occupations, and agricultural allied activities. The access to irrigation facility through lift irrigation projects has led to farmers cultivating in two seasons reducing out-migration and allowing the workforce to engage in gainful economic activities in the village itself.

Traditional households in the study areas earn income from caste-based occupations and other allied activities. Farmers earn more from cultivation, while labour households get from agriculture, non-agriculture, and MGNREGA works. The study reveals that farm and labour households in the study villages are primarily short-term and seasonal migrants, often relocating due to lack of employment during certain seasons. Long-term migration is prevalent in all project areas except Rajiv Bheema.

The study revealed that villages near Hyderabad city experience more return migration, particularly among seasonal and long-term migrants. Workers migrate to Hyderabad for employment during agricultural slack season, while a moderate portion return to cultivate their land. Long-term migrants shift from agriculture to urban-oriented jobs. Lift irrigation projects in four districts have improved infrastructure, including roads and housing, and equipped rural areas with urban facilities. However, the benefits of lift irrigation projects could increase further if O&M, water usage, and cropping patterns are effectively addressed in a participatory manner. All this happened in a short period of time i.e., 2015 onwards when these districts started receiving irrigation water from newly built lift irrigation projects.

Qualitative changes

- Acreage for both the Kharif and Rabi seasons has increased due to the availability of irrigation thanks to the lift irrigation projects.
- Lift irrigation project increased piped and bore well irrigation due to the raised/ improved groundwater table.
- Cultivation of commercial crops particularly paddy, seed-cotton, and cotton has amplified. Farming of traditional crops has drastically come down.
- Increased agricultural activities made the local labour market vibrant because wage labour is getting employment for most part of the year.
- The wage rates have gone up which resulted in improved living standards in the study areas. The wage gap between rural and urban areas has come down.
- Long-term migration has come down and temporary seasonal migration is to some extent prevailing which is individual-centric and voluntary in nature.
- COVID-19 pandemic has increased return migration for a short while time but irrigation facilities made most of the regular migrants stay back.
- Agricultural practices have undergone tremendous changes. Modern cultivation practices came into existence. New businesses like fertilizers shops, mechanic shops, tractor repair shops, poultry, fish shops, Kirana shops, and hotels in the villages have come up due to modernization and brisk agricultural activities. All this is directly or indirectly caused by the irrigation water for cultivation received from lift irrigation projects.
- Agri-based industries like cold storage, fish processing units have come up and real estate is thriving due to all the associated developments

- The land value - both agriculture and non-agriculture have increased manifold across the districts.

Irrigation sector

- Lift irrigation works, especially the channels up to the tail end farmers, has not been completed in most of the villages.
- Canal works from the main to tail-end channels need to be completed to provide water to tail-end villages.
- Maintenance of the canals is poor and not regular leading to growth of bushes, plants, and trees causing obstacles for water to flow.
- Side and feeder channel works are still pending and need completion in several areas.
- Water leakages from the main canal are observed in several places.
- Leakage of water leads to salination in farmer's land whose land is adjacent to the canal.
- Water management committees are not formed and are required to strengthen the efficient use of irrigation water, appropriate cropping patterns and conflict resolution.
- Absence of water management bodies leads to confusion about the timings of the release of water to the farmers.
- Incomplete canal works for taking irrigation up to tail end land holdings is leading to indiscriminate digging of bore wells thus increasing the tube well-led private irrigation in the rural areas. Farmers drawing water through motors from the reservoirs is resulting in parallel lift irrigation system and subsequent costs of power consumption

Agriculture sector

- Use of fertilizers, chemicals, and pesticides has greatly increased. Some villages also witnessed problem of water logging
- Usage of tractors and other modern machinery has augmented the cost of cultivation.
- Access to irrigation facilities led to paddy cultivation exponentially across the district.
- Livestock has come down, milk and dairy products from traditional households declined

Wellbeing of the people

- Wage discrimination according to season and gender has widened in the recent years with access to irrigation
- Local labour market allows abled-bodied youth to take up migration and elders to stay back and take care of agriculture activities.
- Traditional and caste- based occupations are on decline. Households of traditional occupations continue to perform mostly ritual functions.

CHAPTER – 1

Introduction

1.1. Context

Migration of workers from one place to another is essentially stimulated by manifold factors such as economic backwardness, stagnated agriculture, unemployment, and the shrinking of alternative livelihood opportunities especially in the countryside. As a result, small and marginal farmers, agricultural wage labourers, and those engaged in caste-based occupations migrate to other regions. Telangana, India's 29th and youngest state is one of the major suppliers of labour migration to towns and cities outside the state. Migrant workers from the state are largely poor, illiterate or ill qualified, unskilled, and represent diverse social groups. Migration in the State is not intra- and inter-state but also other countries that have a dearth for workers such as Gulf Cooperation Council (GCC) countries. The migrants work mostly in the construction and several other sectors which need unskilled manual workers. The migrant workforce is highly concentrated in certain pockets / districts of the state, and the erstwhile Mahabubnagar district is one such major hub for out-migration (Korra, 2011). The district, also known as Palamuru is well recognized for the availability of affordable, hard-working, and obedient labour force. Palamuru labour migrates far and wide, to places like New Delhi, Kolkata, North Eastern States, Mumbai, Bengaluru, Chennai, and Hyderabad for employment (Reddy 2003). Palamuru migrants mostly take up short-term sojourns, travelling multiple times to several places within a year or during the agriculture season (Korra 2015).

However, the outflow of migrants from the erstwhile Mahabubnagar districts seems to be experiencing a marked change in recent times, owing to various government-led development initiatives such as lift irrigation projects. After the formation of the Telangana State, the Government has taken up several initiatives to expand the irrigation facilities in Mahabubnagar, one of the state's most backward and drought-prone districts. These initiatives, designed to enhance the agricultural landscape of the Palamuru region (which is now divided into five districts, namely, Nagarkurnool, Wanaparthy, Jogulamba Gadwal, Narayanpet and Mahabubnagar) include construction of medium irrigation projects which are in different stages of completion.

After the formation of Telangana in 2014, the government has taken up four lift irrigation projects, namely Mahatma Gandhi Kalwakurthy, Jawahar Nettempadu, Rajiv Bheema, and Koilsagar in the undivided Mahbubnagar district, which has resulted in the increase in irrigation area from 4.5 lakh acres in 2016-2017 to 6.5 lakh acres in 2017-2018 and 8 lakh acres in 2018-2019. Besides, around 1000 tanks have been revived, and the capacity of the tanks have increased under the Mission Kakatiya, a tank revival project of the State (Deshpande 2020).

Table 1: Land use pattern of undivided Mahabubnagar

Sl. No.	Classification of geographical area	Area in Lakh Acres	Percentage of total geographical area
1	Total geographical area	45.54	--
2	Forest	6.32	14.00
3	Cultivable area	34.92	76.67
4	Barren and un-cultivable land	2.19	4.80
5	Land put to non-agricultural use	2.09	4.41
6	Cultivable wasteland	0.48	1.04
7	Permanent pastures and other grazing lands	0.43	0.95
8	Land under miscellaneous trees	0.16	0.34
9	Other fallows	3.25	7.14
10	Current fallows	1.24	27.24
11	Net area sown	18.30	40.18
12	Gross Irrigated area	5.24	11.50

Source**:** https://irrigation.telangana.gov.in/icad/static/districtProfiles/Mahabubnagar-IP.html.

On the one hand, Reports from the Irrigation and Agriculture Departments as well as news articles suggest that the four projects have resulted in increase in extent of cultivable land, particularly wetlands (in the districts that span the Palamur region indicated alongside) resulting in increased enthusiasm on the part of out-migrants to return home. This return migration trend may be attributed to increased access to irrigation facilities and the newly instituted irrigation resources. These have prompted rural households to expand cultivation, seek wage employment in the agriculture sector, and adopt alternative livelihood options. Arguably, water resources from lift irrigation projects have also enhanced the potential to revive caste-based occupations such as fishing, livestock rearing, and other artisanal occupations, thus strengthening agricultural allied activities and paving the way for additional income-generating opportunities under the purview of lift irrigation project areas in the undivided Mahabubnagar.

Fig 1.1 Undivided Mahabubnagar District

The total geographical area in the erstwhile undivided Mahabubnagar is 45.54 lakh acres, of which nearly 77 percent is cultivable land and 14 percent is forest land. However, it is noteworthy that of the total cultivable land, actual cultivation is halved due to high percent of barren, fallow, uncultivable, and other unusable miscellaneous land, therefore the net sown area is only around 40.18 as shown in Table 1. Further, the land utilized for non-agricultural purposes is around 4.41 percent.

1.2. Review of literature

According to majority of literature on the subject, migration, particularly temporary or short-term, is for employment, earning higher wages/income, and better livelihood opportunities from an economically backward region to a more prosperous region. In this case, migrants maintain regular contact with their families, relatives, and villagers by occasionally visiting their villages (Korra, 2015). Typically, the working class does not prefer to leave their place of origin for long periods, but the lack of opportunities and subsistence forces them to migrate for a short duration, which continues year after year. In contrast, if employment and a regular

source of livelihood opportunities are available in the rural economy, then the working class may not be forced to migrate to other places. Therefore, such migrations are termed as not only temporary in nature but also involuntary out-migration (Bidita et al. 2020). The wage gaps between rural and urban areas further prompt surplus workforce to leave their native places. Some wanted to opt to give up agriculture and permanently engage in remunerative non-agricultural jobs in urban areas. The educated and skilled rural population is another category of the workforce that seeks jobs of their choice in urban areas based on their educational qualifications and skill levels (Khadria 2004).

On the contrary, an urban area may not invariably absorb and provide employment to migrant workers perpetually, but an improved infrastructural scenario in the rural economies can attract migrants back to their place of origin and engage them more productively than ever before (Chacko 2007). This seems to be factual in the case of Gadwal, Mahabubnagar, Nagarkurnool, Narayanpet, and Wanaparthy districts of Telangana which are now witnessing an influx of return migrants due to increased access to irrigation facilities via lift irrigation projects. Most of the return migrants are marginal, small, and medium farmers and agricultural labourers. The fallout of enhanced irrigation practices and return migration is an increase in the extent of wetland cultivation, conversion of uncultivated land into cultivable land, increased number of crops, change in the cropping pattern, and growth of commercial crops throughout the year. This has a significant bearing on the agricultural sector in terms of augmented farm produce, income, employment, and improvement in the socio-economic conditions and thereby the well-being of the rural farm households, particularly return migrants (Korra, 2015).

There are very limited studies done on this subject not just in the context of Telangana but the whole of India. Hence, there is a need for a comprehensive study to examine the impact of irrigation facilities on rural households and return migrants. Providing irrigation to an agriculturally backward or non-irrigated region may result in the creation of newer infrastructures like roads, market facilities, development projects, and Agri-based industries, which in turn cause development in agricultural and allied sectors (Zachariah, 2006). Thus, it can make the rural sector more economically vibrant and encourage out-migrants to return to their place of origin and engage in farming, allied activities, and caste-based occupations (Reddy, 2003). This way, multiple livelihood opportunities would be ensured and therefore involuntary out-migrants from areas known for large-scale migration like the Palamuru region

could be brought back thereby positively impacting the socio-economic, livelihood opportunities related and overall well-being indices of rural Telangana.

1.3. Pertinent questions

Based on the above inferences/hypothesis/assumptions, the current study has drawn the following relevant questions: to what extent was irrigation water provided, and how far has wetland cultivation been extended? What are the changes occurring in cropping patterns? What are the implications of expanding irrigation water on employment, income, agricultural allied activities, and caste-based occupations in rural (Mahabubnagar?)? How far have irrigation facilities altered the agrarian scenario and socio-economic conditions of the rural households in the undivided Mahabubnagar district? What factors attract out-migrants to return to their place of origin? What is the magnitude of return migration, reasons for return and how do they break the chain of cyclical migration? What are the implications of the return migration on agricultural activities, yields/output, and income from cultivation? What are the livelihood strategies adopted by rural households, including return migrants, in response to the irrigation facilities?

Further, how return migration affects agricultural allied activities, and what are their effects on the well-being of rural households? How does return migration affect employment and labour market scenario in the countryside? These are some of the vital, pertinent, and substantive questions that the current study aimed to address by taking the undivided Mahabubnagar district as the background since several lift irrigation projects were initiated in the recent past in the aforesaid region. Taking into consideration the above-raised questions, this study framed the following objectives for a detailed analysis.

1.4. Objectives

- To study the implication of irrigation facilities on cultivated areas, irrigated areas, and agriculture production in the undivided Mahabubnagar district.
- To examine the changes in cropping pattern due to irrigation in the study district
- To study the patterns and magnitude of return migration and their livelihood strategies after return to the study areas.
- To investigate the impact of return migration on agriculture and allied activities, income, and employment situation in the study areas.

- To evaluate the changes in the livelihoods of different rural households (farmers, wage labour, and caste-based occupations) as a result of irrigation facilities in the study areas.

- To explore the policy implications that emerged during the post-irrigation period and suggest the way forward.

1.5. Data and Methodology

The current study relied on both secondary and primary data sources to accomplish the specified objectives. Secondary data from various sources like the Department of Irrigation and Department of Agriculture, Government of Telangana have been utilized to develop a macro chapter to give a broad picture of irrigation in the state in general and erstwhile Mahabubnagar district. However, most of the stated objectives have been fulfilled with the utilization of primary data which was collected from the sample villages that come under the Jawahar Nettempadu, Koilsagar, Rajiv Bheema, and Kalwakurthy lift irrigation projects which fall within Gadwal, Wanaparthy, Nagarkurnool, and Mahabubnagar districts respectively. The selection of Mandals and Villages was done using the stratified sampling method, i.e., two *Mandals* from each district under which the lift irrigation projects come and further three villages from each *Mandals* with a high incidence of access to irrigation as well as out-migration were selected.

Sample households were selected through the purposive sampling method using the main occupation of the head of the household as the criterion and classifying them under Farm, Labour and Caste-based Occupations. The final sample households were selected based on a proportional sampling method in which at least 10 percent of the farm, labour, caste-based occupational, and return migrant households out of the total households in the sample villages were selected. Lastly, 30 households from each village were randomly selected to canvass the final survey tools. A total of 900 sample households from 30 villages from 10 Mandals were chosen for conducting the final survey (see Table 2). The pre- and post-access access to irrigation approach was followed to capture the impact of irrigation on various parameters including the area under wetland cultivation, cropping pattern, irrigation methods, out-migration, return migration, and many more such important parameters.

Table 2: Sample design and size of the study on the Impact of the Lift Irrigation Projects on rural households in the undivided Mahabubnagar district

Sl. No.	Name of the lift irrigation projects	Located in the Districts	Mandals	Villages	No. of Households
1	Jawahar Nettempadu	Jogulamba Gadwal	Maldakal	Maldakal	30
				Vittalapuram	30
				Palwai	30
			Ieeja	Ieeja	30
				Medikonda	30
				Uthanur	30
2	Koilsagar	Mahabubnagar	Devarakadra	Kowkuntla	30
				Gopanpally	30
				Dokur	30
3	Rajiv Bheema	Wanaparthy	Kottakota	Amadabakula	30
				Palem	30
				Cherla Pally	30
			Weepangandla	Kalwarala	30
				Bollaram	30
				Pulagacherla	30
4	Kalwakurthy	Nagarkurnool	Telkapally	Vattipally	30
				Gaddam Pally	30
				Karvanga	30
			Kodair	Yetham	30
				Mailaram	30
				Kodair	30
			Nagarkurnool	Tudukurthy	30
				Peddamudunur	30
				Sripuram	30
			Peddakottapally	Peddakottapally	30
				Kalwakol	30
				Mustipally	30
			Kalwakurthy	Gundur	30
				Mukaral	30
				Panjugula	30
Total	**4**	**4**	**10**	**30**	**900**

Source: Sample design for field survey of the current study.

The study employed a structured household schedule to collect primary data from the sample households. Besides, qualitative instruments like the Focus Group Discussions (FGDs) and Case Studies of the farm, labour, caste-based occupational, and return migrant households were carried out to supplement the quantitative data garnered through household questionnaires. Lastly, interviews with various stakeholders such as irrigation officials, local representatives, and members of a local water body/water management committees were carried out. The unit of the analysis is households. The analysis is based on calculation of percentages and cross-tabulations.

Fig 1.2 Location of the study villages

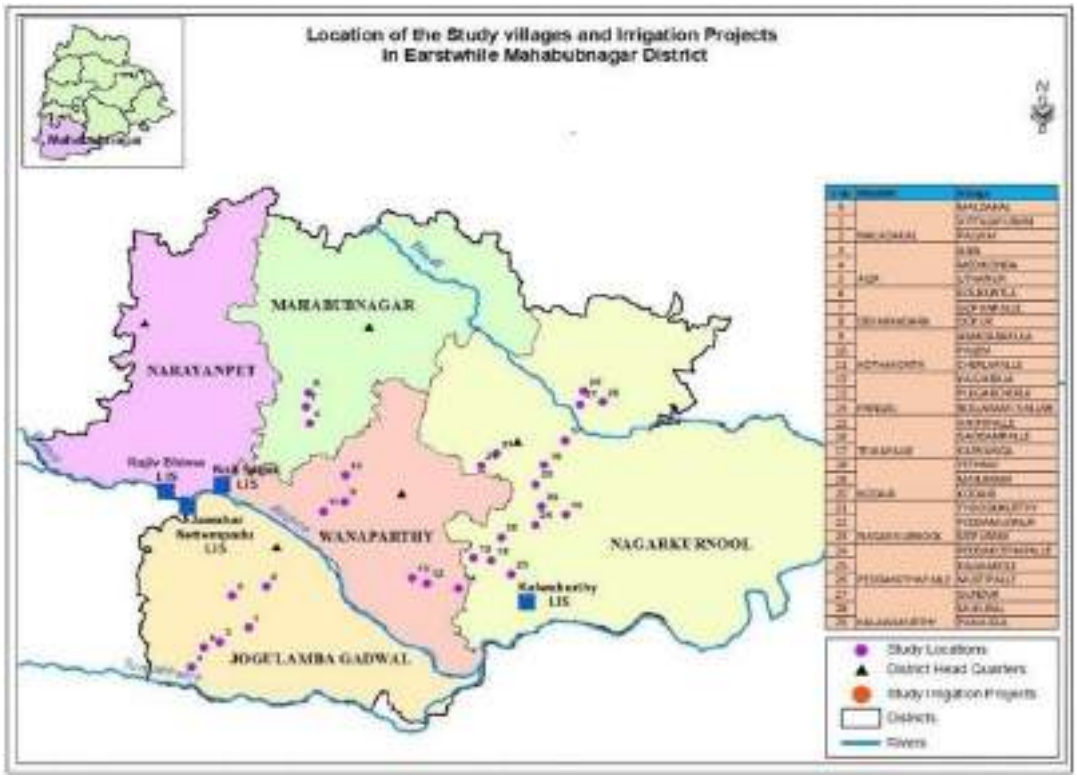
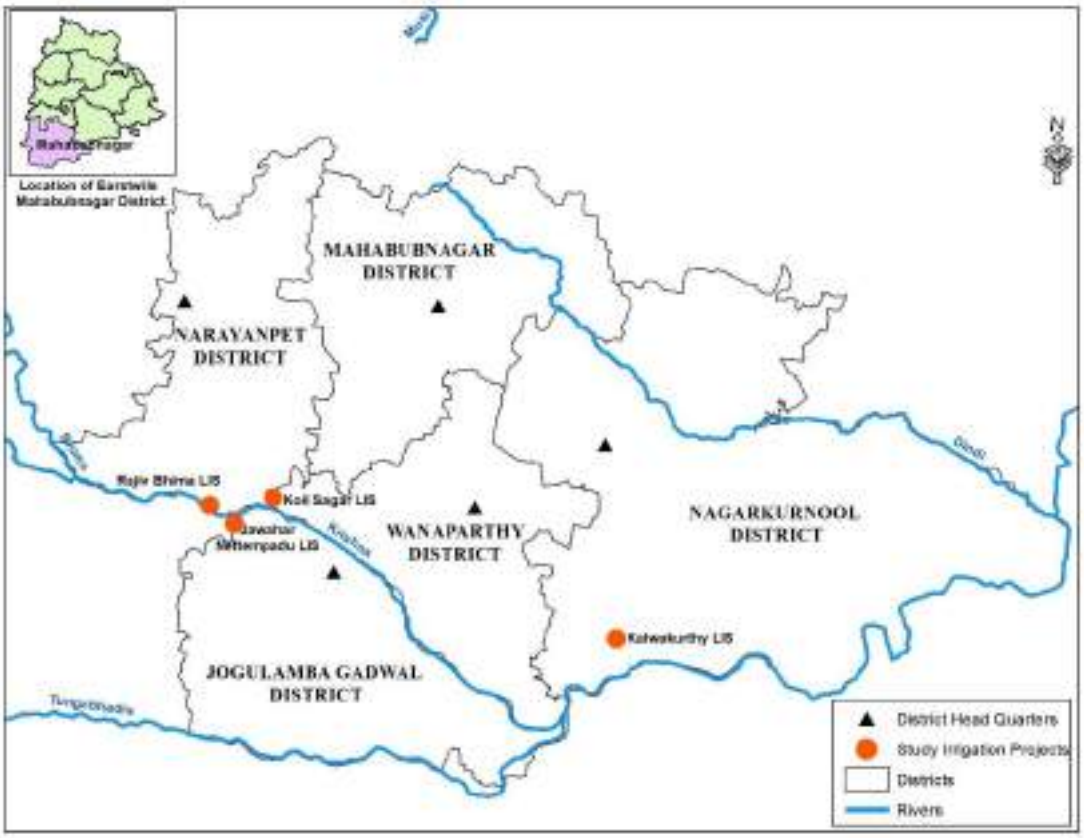


Fig 1.3 Location of the study Lift Irrigation Projects



CHAPTER – 2

Socio-Demographic Characteristics of Rural Households in Erstwhile Mahabubnagar District

2.0. Introduction

This chapter deals with the sample household's social, demographic, and basic entitlement situation. This examination is to check where they are placed in the above parameters in the sample villages. In so doing, categorical variables such as farmers, labour, and caste-based occupational households were taken under the jurisdictional areas of four Lift Irrigation Projects (LIP) of the erstwhile Mahabubnagar district for the analysis. First, it is analyzed based on the religion, caste, family size, gender, education, and occupational status of the different types of rural households in Nagarkurnool, Wanaparthy, Mahabubnagar, and Gadwal districts. It is imperative to know various households' social and demographic situations and how and to what extent they are accessing the basic entitlements, particularly government-provided ones. The chapter can act as a background and precursor to the upcoming chapters and thus offer a basic understanding of the sample rural household's prevailing status. The chapter is divided into five sections including the current introduction. The second section is about the basic characteristics of farmer households. The third section deals with the basic features of labour households, the fourth section is concerning the characteristics of caste-based occupational households, and the final section is concluding remarks.

2.1. Socio-demographic characteristics of farmers

To start with, farmers in the study villages access most of the basic entitlements such as Aadhar, bank accounts, and employment cards. Of them, almost every farmer holds an Aadhar card, one percent of them yet to open their bank accounts and a little over 20 percent of them did not possess government-sponsored Mahatma Gandhi National Rural Employment Guarantee Act Scheme (MGNREGA(S)) job cards. Eighty percent of farmers holding the MGNREGA job cards are in possession of small and marginal landholdings which may not allow them to derive enough income from cultivating it. Therefore, appear to be dependent on MGNREGA works to supplement their total family income (Table 2.1).

Table 2.1: Basic entitlements of the farm households in the study villages (in %)

Particulars	Famer households				
	Jawahar Nettempadu	Koilsagar	Rajiv Bheema	MG. Kalwakurthy	All
Aadhar	57	26	54	185	322
%	(100)	(100)	(98.2)	(100)	(99.7)
Bank A/C	57	26	55	182	320
%	(100)	(100)	(100)	(98.4)	(99.1)
Job card	38	24	49	146	257
%	(66.7)	(92.3)	(89.1)	(78.9)	(79.6)

Source: Field survey data collected in the undivided Mahabubnagar district in 2022.
Note: The same applies to the rest of the tables in the chapter.

Field data revealed that the farm households seem to be greater in number followed by labour and families that derive their livelihood by practicing traditional occupations. Farming in rural areas is practiced more by general caste and other backward classes and least by farmers from Scheduled Tribes (STs). The proportion of Scheduled Caste (SC) farmers is moderately quite good under these lift irrigation project areas when compared with other parts of the state. The percentage of farm households regardless of their social belonging is found more in Mahatma Gandhi Kalwakurthy and Jawahar Nettempadu henceforth simply called Kalwakurthy and Nettempadu lift irrigation project areas. Interestingly, SC and ST farm households were found to be practicing more cultivation under Kalwakurthy lift irrigation project than the rest of the lift irrigation projects. On the contrary, farmers from Other Backward Classes (OBC) and general castes seemed to be cultivating more under the Kalwakurthy and Nettempadu lift irrigation projects (Table 2.2). Land ownership, geographical location, and nature of the farmland are critical in accessing the irrigation water under various newly commenced lift irrigation projects in the erstwhile Mahabubnagar district.

Table 2.2: Farmer households by their caste under the lift irrigation projects (in %)

Social group	Famer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
SC	18	1	9	50	78
%	(25.4)	(6.3)	(22.5)	(29.2)	(26.2)
ST	0	0	0	2	2
%	(0)	(0)	(0)	(13.3)	(8.3)
OBC	31	19	34	110	194
%	(33.7)	(30.6)	(28.8)	(47.2)	(38.4)
General	8	6	12	23	49
%	(33.7)	(30.6)	(28.8)	(47.2)	(38.4)

Further, 98 percent of farm households belong to the Hindu faith, a little over 1 percent practice Christianity and less than 1 percent belong to the faith of Islam. The Hindu households can be

found across the lift irrigation projects in large proportions whereas Christians can be found only under the Nettempadu project and one-each family belongs to Islam are found to be living under Kalwakurthy and Nettempadu lift irrigation projects (Table 2.3). This could be owing to the predominant proportion of sample households that belong to the Hindu religion.

Table 2.3: Farm households by their religious status (in %)

Religion	Famer households				
%	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Hindu	78	30	78	188	374
%	(91.2)	(100)	(100)	(98.9)	(97.8)
Islam	1	0	0	2	3
%	(1.8)	(0)	(0)	(1.1)	(0.9)
Christianity	4	0	0	0	4
%	(7)	(0)	(0)	(0)	(1.2)

Despite practicing agriculture, numerous farm households possess white ration card which is given to Below Poverty Line (BPL) families, and 2.5 percent of them holds pink ration cards which are given to Above Poverty Line (APL) households. There are only a few of them that do not own any type of ration card indicating they either belong to economically well-off or large-size land-holding farm households. Of the total white card farm households, 100 percent of farmers under the Koilsagar lift irrigation project hold ration cards and the least of them (93 percent) were found in Kalwakurthy lift irrigation project. In contrast, farmers without any ration cards were found under Rajiv Bheema followed by Nettempadu projects and there were none under the Koilsagar project (Table 2.4). It is observed during the Focus Group Discussion (FGD) that holding ration cards is a common phenomenon in rural areas of the state and the same is true under these project areas and thus offers no striking results.

Table 2.4: Farm households possessing various types of rations cards in the study areas (in %)

Ration card	Famer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Pink	1	0	0	7	8
%	(1.8)	(0)	(0)	(3.8)	(2.5)
White	54	26	53	172	305
%	(94.7)	(100)	(96.4)	(93)	(94.4)
Antyodaya	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)
No Card	2	0	2	6	10
%	(3.5)	(0)	(3.6)	(3.2)	(3.1)

Under these lift irrigation projects, a greater proportion of sample households were found to be practicing cultivation on their own land (52.4%) as a main occupation followed by unpaid family work, particularly by respondent's spouses and female family members (6.7%), and private employment (6.2%) respectively. A little over 5 percent mentioned casual labour as their main occupation and 4.7 percent of them mainly depend on working in the non-agricultural sector as a daily wage labourer. In fact, there is not a single farmer that considers tenant cultivation as their main occupation.

Table 2.5: Main occupation of the head of the households under the lift irrigation projects (in %)

Main Occupation	Famer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own cultivation	130	46	98	360	634
%	(65.3)	(42.2)	(43)	(53.4)	(52.4)
Casual agriculture labour	3	10	14	35	62
%	(1.5)	(9.2)	(6.1)	(5.2)	(5.1)
Casual labour in non-agriculture	4	4	13	36	57
%	(2)	(3.7)	(5.7)	(5.3)	(4.7)
Tenants	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)
Government employee	3	4	15	13	35
%	(1.5)	(3.7)	(6.6)	(1.9)	(2.9)
Private employee	4	11	24	36	75
%	(2)	(10.1)	(10.5)	(5.3)	(6.2)
Petty trade	1	0	0	4	5
%	(0.5)	(0)	(0)	(0.6)	(0.4)
Unpaid family work	8	10	24	39	81
%	(4)	(9.2)	(10.5)	(5.8)	(6.7)
Unemployed	0	1	0	10	11
%	(0)	(0.9)	(0)	(1.5)	(0.9)
Dependent	41	19	34	121	215
%	(20.6)	(17.4)	(14.9)	(18)	(17.8)
Self-employment in non-agriculture	3	4	5	12	24
%	(1.5)	(3.7)	(2.2)	(1.8)	(2)
Attached farm servant	0	0	0	1	1
%	(0)	(0)	(0)	(0.1)	(0.1)
Livestock	2	0	1	7	10
%	(1)	(0)	(0.4)	(1)	(0.8)
Others	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)
Total	199	109	228	674	1210
%	(100)	(100)	(100)	(100)	(100)

However, nearly 3 percent of government employees still practice agriculture and consider farming as their main source of income/ occupation. At the project level, farmers whose occupation is cultivation happened to prevail under the Nettempadu project, and less of the same existed in the Koilsagar project. Similarly, casual labour in agriculture as the main occupation of the respondents was recorded more under the Koilsagar project and less of the

same under the jurisdictional areas of the Nettempadu project. Households with unpaid family work were more under Rajiv Bheema and least under the Nettempadu project. Government and private employees were relatively more under Rajiv Bheema and relatively less under the Nettempadu lift irrigation project. The inference here is that the Nettempadu project appears to benefit the farm households more while Koilsagar and Rajiv Bheema projects predominantly consist more of casual labour and employees in both government and private sectors. The larger the project size the greater the benefit it offers to rural households (Table 2.5). It should be noted that close to 95 percent of the farmers derive their income from cultivation and the rest of the income (5%) comes from various other sources which differ across the project areas under the surveyed districts. The demographic features of the farmer households reveal that the average family size of the farmer household under the four lift irrigation projects is 4.6 family members wherein the large size farmer households placed under the Koilsagar lift irrigation project and small size families have happened to reside under Kalwakurthy lift irrigation project (Table 2.6). In short, the family size appears to be smaller in the study villages under the jurisdictional areas of lift irrigation projects which has a bearing on the handling and sharing of responsibilities among the family members.

Table 2.6: Average family size among the farm households under the study areas (in %)

	Famer households				
Particulars	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Household size	4.7	5.1	4.9	4.5	4.6

Of the total population among the sample households of farmers, the male population stood at 766 and females at 734. Besides, both males and females accounted for more in the villages under the Kalwakurthy project, and less of the same was documented in the villages under the Koilsagar project. The overall sex ratio is 958.2 per 1000 males and it is more under the Kalwakurthy project and less under the Koilsagar project (Table 2.7). The gender gap in the study villages appears to be wide, although with a varied difference across the villages under the lift irrigation areas.

Table 2.7: Sex ratio among the farm households under the study regions (in%)

	Famer households				
Sex	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Male	140	76	137	413	766
Female	129	56	130	419	734
Sex Ratio	921.4	736.8	948.9	1014.5	958.2

The educational qualifications of the sample population of farm households indicate that nearly 36 percent of them are still illiterate and it is the predominant phenomenon across four lift irrigation project areas. However, among the literate 16.5 percent studied up to secondary education, 12 percent were educated up to intermediate, and 9.4 percent studied up to graduation. Close to 15 percent of them studied below the primary level.

Table 2.8: Educational qualifications of the sample population under the study areas (in%)

Educational particulars	Famer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Illiterate	91	42	76	287	496
%	(37.4)	(33.9)	(29.6)	(37.5)	(35.7)
Below primary	29	18	22	70	139
%	(11.9)	(14.5)	(8.6)	(9.1)	(10)
Primary (5th complete)	20	3	16	34	73
%	(8.2)	(2.4)	(6.2)	(4.4)	(5.3)
Upper primary (6-7th)	25	9	14	39	87
%	(10.3)	(7.3)	(5.4)	(5.1)	(6.3)
Secondary (8, 9 & 10th)	37	21	40	131	229
%	(15.2)	(16.9)	(15.6)	(17.1)	(16.5)
Intermediate (11-12th)	20	17	33	99	169
%	(8.2)	(13.7)	(12.8)	(12.9)	(12.2)
ITI/Diploma	0	1	1	5	7
%	(0)	(0.8)	(0.4)	(0.7)	(0.5)
Vocational/Professional	2	1	7	15	25
%	(0.8)	(0.8)	(2.7)	(2)	(1.8)
Graduation	13	10	37	70	130
%	(5.3)	(8.1)	(14.4)	(9.1)	(9.4)
Post-graduation & above	6	2	11	16	35
%	(2.5)	(1.6)	(4.3)	(2.1)	(2.5)
Total	243	124	257	766	1390
%	(100)	(100)	(100)	(100)	(100)

Interestingly, 2.5 percent of the population among farm households had educational qualifications of post-graduation. The illiterates appeared to be more under the Kalwakurthy project and the least of them were found under the Rajiv Bheema project. On the contrary, the population with secondary level education was located more under the Kalwakurthy and less under the Jawahar Nettempadu projects respectively. Similarly, intermediate as well as graduates were predominantly greater in the villages that fall under the Koilsagar project and less proportion of them were found in the villages under the Jawahar Nettempadu project region. There are differences in educational qualifications of the sample population across the projects wherein more of literates were found in the villages that fall under the Kalwakurthy, low-level educated were located under the Jawahar Nettempadu, and a higher level of educated

population was found under the Koilsagar project (Table 2.8). The proximity to major towns and district headquarters may have helped the people from the Koilsagar project to go for higher studies than people from far-off areas. Yet, there might be other factors that influence the farm household's educational attainments in the study regions.

2.2. Socio-demographic characteristics of labour households

The data as regards labour households reveals all the labour households possessing Aadhar cards across the study areas, 98.5 percent have bank accounts and 80 percent possess MGNREGA job cards. Under the Koilsagar project, labour households have fewer bank accounts, and more such accounts under the Nettempadu project. Correspondingly, labour households under Rajiv Bheema possess more job cards, and fewer of them were found in the villages under the purview of the Koilsagar project area (Table 2.9).

Table 2.9: Basic entitlements of the labour households across the project areas (in %)

Particulars	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Aadhar	101	32	81	194	408
%	(100)	(100)	(100)	(100)	(100)
Bank A/C	101	31	80	190	402
%	(100)	(96.9)	(98.8)	(97.9)	(98.5)
Job card	65	19	74	160	318
%	(64.4)	(59.4)	(91.4)	(82.5)	(77.9)

On the whole, 63 percent of the labour households belong to SCs, 50 percent were STs and each 39 percent of them belonged to OBC and General castes. Labour from SC communities accounted for more in the villages under Rajiv Bheema and fewer in the villages under Koilsagar projects. STs were documented significantly in the villages which come under Jawahar Nettempadu and none of them were found under the Koilsagar. The OBCs and general caste were predominantly recorded in the villages that come under the Nettempadu project and a few of them were located under Kalwakurthy lift irrigation project (Table 2.10). The inference is that labour households were chiefly dominated by SCs and ST households and the rest of the communities belong to OBCs and General Castes (GC). Note that, farmer households were predominantly by the OBC and General castes while labour households were largely dominated by the downtrodden communities like SC and STs.

Table 2.10: Social status of the labour households under various projects (in%)

Social groups	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
SC	47	9	27	106	189
%	(66.2)	(56.3)	(67.5)	(62)	(63.4)
ST	2	0	3	7	12
%	(100)	(0)	(50)	(46.7)	(50)
OBC	48	22	50	79	199
%	(52.2)	(35.5)	(42.4)	(33.9)	(39.4)
General	3	1	1	2	7
%	(52.2)	(35.5)	(42.4)	(33.9)	(39.4)

The religious status of the labour households shows that about 92 percent of them were Hindus, 6.4 percent were Christians and 2 percent of them were Muslims. Hindus were significantly more in the villages under the Kalwakurthy project and few of them were in the villages that come under the purview of the Nettempadu project. In contrast, villages under the Nettempadu project account for more Christians, and in the villages under the Koilsagar, it was Muslims. It should be noted that the overall non-Hindu households in the sample villages were less across four of the lift irrigation project areas (Table 2.11).

Table 2.11: Religious status of the labour households under lift irrigation regions (in %)

Religion	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Hindu	18	29	42	66	155
%	(77.2)	(93.8)	(96.3)	(96.9)	(91.7)
Islam	1	1	2	4	8
%	(1)	(3.1)	(2.5)	(2.1)	(2)
Christianity	22	1	1	2	26
%	(21.8)	(3.1)	(1.2)	(1)	(6.4)

The kind of ration cards that the labour households possess in fact proves their landlessness and dependency on the labour activity for earning income for daily subsistence. Further, amongst the labour households, 96 percent have white ration cards that is given to the Below Poverty Line (BPL) families, 2.5 percent do possess pink ration cards which are given to Above Poverty Line (APL) families. Interestingly, about 2 percent of them do not possess any ration card i.e., no ration card. Second, labour families under the jurisdiction of Koilsagar project hold white ration card in greater proportion and less of the same under the Bheema project, nonetheless the difference between them is very marginal. The Pink card labour households were prevailed more under the Kalwakurthy project and no one possess them in the villages under Koilsagar project area. Note that the greater proportion of labour households that did not

possess any ration cards were found in the villages under Rajiv Bheema and Koilsagar projects respectively (Table 2.12). The inference here is that the percentage of white ration card holders are more among the labour households than that of farmer households but the households without any ration cards appear to be the same for the labour and farm households in the study villages.

Table 2.12: Type of ration cards possessed by labour households under lift irrigation projects (in %)

Ration card	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Pink	3	0	1	6	10
%	(3)	(0)	(1.2)	(3.1)	(2.5)
White	97	31	77	186	391
%	(96)	(96.9)	(95.1)	(95.9)	(95.8)
Antyodaya	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)
No Card	1	1	3	2	7
%	(1)	(3.1)	(3.7)	(1)	(1.7)

Most of the labour households engage in various manual labour works both in agriculture and non-agriculture sectors as daily casual labourers (27.1 and 27.4 percent respectively). Nearly 10 percent of them practice their own cultivation but considered themselves as labour households due to marginal landholdings and scanty income from it. Further, 6.1 percent of them were unpaid workers, about 5 percent worked in the private sector, and close to 2 percent worked even in the government sector as small-scale employees. Labourers who work in the agriculture sector were found more in the villages under the Kalwakurthy project and less under the Jawahar Nettempadu project while labourers who worked in non-agricultural activities were widespread under Jawahar Nettempadu and less of the same under Kalwakurthy projects. Private employees were found more under Koilsagar and Kalwakurthy projects and government employees under Koilsagar and Rajiv Bheema projects respectively. Unpaid workers happened to prevail in the villages under Kalwakurthy and Koilsagar projects and few petty traders were found under Kalwakurthy project (Table 2.13).

Casual labour in the agriculture and the non-agriculture sector is the predominant source of employment for labour households in the study regions. However, they do engage in other activities but in a limited way such as cultivating their own farms, petty trade, tenants, etc. It is learned from the respondents that private employees from the sample households were engaged in menial and contractual works which are less remunerative. Marginal land-holding labour

households mainly engage in the casual labour market due to inadequate income from small scale farming. Some of them were self-employees that too in non-agricultural activities (2.4%), for instance running small tea shops, roadside vendors, hawkers, etc. The source of their main income indicates that 56 percent of them earn most of their income from casual labour in agriculture, 33 percent from non-agriculture, and over 6 percent from their own cultivation. And other activities offer them little or no income at all. Dependency on casual labour is the main characteristics of the labour households in the study regions under the lift irrigation projects in erstwhile Mahabubnagar district.

Table 2.13: Occupations of the labour households under lift irrigation project areas (in %)

Particulars	Labour households				
%	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own cultivation	35	11	17	70	133
%	(11.3)	(8.7)	(6)	(10.8)	(9.7)
Casual agriculture labour	73	34	79	184	370
%	(23.5)	(27)	(28.1)	(28.4)	(27.1)
Casual labour in non-agriculture	112	37	84	141	374
%	(36)	(29.4)	(29.9)	(21.8)	(27.4)
Tenants	0	0	0	1	1
%	(0)	(0)	(0)	(0.2)	(0.1)
Government employee	1	7	7	11	26
%	(0.3)	(5.6)	(2.5)	(1.7)	(1.9)
Private employee	11	11	11	41	74
%	(3.5)	(8.7)	(3.9)	(6.3)	(5.4)
Petty trade	1	0	1	3	5
%	(0.3)	(0)	(0.4)	(0.5)	(0.4)
Unpaid family work	8	9	17	49	83
%	(2.6)	(7.1)	(6)	(7.6)	(6.1)
Unemployed	1	0	1	10	12
%	(0.3)	(0)	(0.4)	(1.5)	(0.9)
Dependent	51	14	48	114	227
%	(16.4)	(11.1)	(17.1)	(17.6)	(16.6)
Self-employment in non-agriculture	9	2	13	9	33
%	(2.9)	(1.6)	(4.6)	(1.4)	(2.4)
Attached farm servant	2	0	2	9	13
%	(0.6)	(0)	(0.7)	(1.4)	(1)
Livestock	6	1	1	6	14
%	(1.9)	(0.8)	(0.4)	(0.9)	(1)
Others	1	0	0	0	1
	(0.3)	(0)	(0)	(0)	(0.1)
Total	311	126	281	648	1366
%	(100)	(100)	(100)	(100)	(100)

The family size among the labour households is 4.5 members. Further, the large-size families were accounted for in the villages under the Koilsagar project small-size families were documented under the Kalwakurthy project. However, the family size of the labour households

is akin to that of farmer households. The family in general presents 2 or 3 children and parents in the study region and this appears to be the same for most of the households (Table 2.14).

Table 2.14: Family size among the labour households (in %)

Particulars	Labour households				
Projects	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
HH Size	4.5	5.1	4.6	4.4	4.5

It is found that labour households account more for female family members than that of males. The male population of the sample households stood at 913 and the female population is 927. The labour households had more female members, therefore, the sex ratio stood at 1015 females per one thousand males, and it is found more in the villages under Rajiv Bheema and less under the Koilsagar project (Table 2.15).

Table 2.15: Sex ratio among the labour households under study areas (in%)

Particulars	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Sex					
Male	227	85	179	422	913
Female	227	78	194	428	927
Sex Ratio	1000.0	917.6	1083.8	1014.2	1015.3

The educational qualification of the labour households depicts the fact that most labour households are illiterate (41.7%) therefore they engage in the unorganized sector for employment. There is not much variance in educational attainments of the labour households across the region under the lift irrigation projects. However, there can be differences in their educational levels with marginal changes. Low levels of educational attainment might be acting as an active player in keeping the labour force in the unorganized sector for deriving their sustenance and/or for a thriving livelihood.

Among the literates, most of them studied up to the secondary level (16%), 11.2 percent studied intermediate, 8 percent attended/studied upper primary, and 6 percent were educated up to graduation. The illiterates seem to be more in the villages that fall under the Koilsagar and less under the Rajiv Bheema project. Labourers who studied up to the secondary level were mostly found under the Rajiv Bheema and Kalwakurthy projects respectively. Greater proportion of labourers were educated up to the intermediate level under the Kalwakurthy and Koilsagar projects. Labourers with the upper primary educational qualification were found under the Jawahar Nettempadu and Koilsagar projects. On the contrary, graduate labourers were found

under the Rajiv Bheema and Kalwakurthy project areas (Table 2.16). The inference here is that labour households seem more illiterate due to their economic or lower level of employment status.

Table 2.16: Educational qualification of members of the labour households under the project areas (in%)

Education particulars	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Illiterate	176	68	134	320	698
%	(43.3)	(45)	(39.4)	(41.2)	(41.7)
Below primary	55	15	31	66	167
%	(13.5)	(9.9)	(9.1)	(8.5)	(10)
Primary (5th complete)	33	9	16	33	91
%	(8.1)	(6)	(4.7)	(4.2)	(5.4)
Upper primary (6-7th)	38	13	20	62	133
%	(9.4)	(8.6)	(5.9)	(8)	(7.9)
Secondary (8, 9 & 10th)	45	20	79	122	266
%	(11.1)	(13.2)	(23.2)	(15.7)	(15.9)
Intermediate (11-12th)	29	17	30	111	187
%	(7.1)	(11.3)	(8.8)	(14.3)	(11.2)
ITI/Diploma	1	1	4	3	9
%	(0.2)	(0.7)	(1.2)	(0.4)	(0.5)
Vocational/Professional	2	1	0	2	5
%	(0.5)	(0.7)	(0)	(0.3)	(0.3)
Graduation	23	7	25	47	102
%	(5.7)	(4.6)	(7.4)	(6)	(6.1)
Post-graduation & above	4	0	1	11	16
%	(1)	(0)	(0.3)	(1.4)	(1)
Total	406	151	340	777	1674
%	(100)	(100)	(100)	(100)	(100)

2.3. Socio-demographic characteristics of caste-based occupational households

The data relating to caste-based occupational households, overall, reveals that all such households possess Aadhar cards, 98.8 percent have bank accounts and only 55 percent of them had employment guarantee job cards. Note that 97 percent of the traditional occupational households in the sample villages that come under the jurisdictional areas of the Kalwakurthy project had bank accounts and the rest of them did not hold them. Households that live by practicing their caste-based occupation receive less proportion of job cards wherein the households that come under the area of Jawahar Nettempadu possess the lower most job cards and households that come under the purview of Rajiv Bheema hold the highest number of job cards (Table 2.17). Traditional occupational households hold less proportion of job cards than their farmer and labour counterparts in the study villages under the four lift irrigation projects in the erstwhile Mahabubnagar district.

Table 2.17: Basic entitlements of the caste-based/ traditional occupational households (in %)

Particulars	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Aadhar	22	32	44	71	169
%	(100)	(100)	(100)	(100)	(100)
Bank A/C	22	32	44	69	167
%	(100)	(100)	(100)	(97.2)	(98.8)
Job card	4	18	38	33	93
%	(18.2)	(56.3)	(86.4)	(46.5)	(55)

The caste composition among the traditional occupational households divulged that 42 percent of the ST households practiced their caste-based occupations for employment, income, and ultimately for their livelihood. Interestingly, each 22 percent of the OBC and General Caste households still practice their caste-based occupations for their livelihood. In contrast, there are only 10 percent of the SC households still dependent on their caste-based occupations for livelihood. The SC households under the Koilsagar were outnumbered in practicing their caste-based occupations more than their fellow SC brethren in other project areas.

The ST households engaged in traditional occupations were outnumbered under the Koilsagar project and none of such families were found under the Jawahar Nettempadu project. Whereas the OBC and general caste households were more numerous than under the Koilsagar and the least of them were found under the Jawahar Nettempadu project villages (Table 2.18). The ST households who lived in remote villages largely practice their traditional occupations but the SCs relied on their caste-based occupations seems to be far less.

Interestingly, the families from the middle (OBC) and higher social hierarchy (General Caste) still depend on their caste-based occupations under the study areas. Practicing caste-based occupation could rest on the factors such as demand, income generation, and respect that emanate from practicing such age-old traditional occupations. It is observed during the FGD interaction that disrespectful caste-based occupations are gradually on the decline and occupations that still hold respect continue to be practiced widely in the study areas.

Table 2.18: Social status of the caste-based occupational households under different project areas (in%)

Social groups	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
SC	6	6	4	15	31
%	(8.5)	(37.5)	(10)	(8.8)	(10.4)
ST	0	1	3	6	10
%	(0)	(100)	(50)	(40)	(41.7)
OBC	13	21	34	44	112
%	(14.1)	(33.9)	(28.8)	(18.9)	(22.2)
General	3	4	3	6	16
%	(14.1)	(33.9)	(28.8)	(18.9)	(22.2)

Furthermore, 92 percent of the households that relied on their caste-based occupation belonged to the Hindu religion, 6.5 percent to Muslims and a marginal portion of them belong to the faith of Christianity. However, Hindus are seen to be less under the Jawahar Nettempadu and more of such households can be traced under the Rajiv Bheema project villages. Households from the Muslim community can be found more in the villages under the Koilsagar and less under the Rajiv Bheema project. Notably, Christian families can only be found in the sample villages under the Jawahar Nettempadu, and none are found in other project villages (Table 2.19). It could be stated that the proportion of Hindu households that practiced caste-based occupation is lesser than that of farm and labour households while it is the opposite for households that belong to the Muslim community. Christians too are less likely to depend on caste-based occupations. The results are a true sign of changing scenarios vis-à-vis traditional occupations. In other words, low-valued occupations were gradually abandoned and adaptation of newer occupations is slowly taking place in the study areas.

Table 2.19: Religious status of caste-based occupational households under different projects (in%)

Religion	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Hindu	148	85	175	437	845
%	(81.8)	(90.6)	(95.5)	(93)	(91.7)
Islam	2	3	1	5	11
%	(9.1)	(9.4)	(2.3)	(7)	(6.5)
Christianity	2	0	0	0	2
%	(9.1)	(0)	(0)	(0)	(1.2)

The type of ration card shows that 90.5 percent of the households that practiced caste-based occupation had white ration cards. Below 5 percent of them had pink ration cards and 3.6 percent of them still did not hold any ration cards. There was only one family that had an

Antyodaya ration card, which is given to the poorest of the poor families. Further, white card ration card holders were documented more in the villages under the Rajiv Bheema and fewer of them can be traced under the Jawahar Nettempadu project. While pink ration card holders were found numerously under the Jawahar Nettempadu and fewer of them happened to be presented under the project villages of Rajiv Bheema. Note that, households with no ration cards have prevailed in the villages under the purview of the Jawahar Nettempadu project, and under the Rajiv Bheema every household had possessed either pink or white cards given to above-poverty level and below-poverty-level families (Table 2.20).

Table 2.20: Type of ration cards possessed by caste-based occupational households under the project areas (in%)

Ration cards	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Pink	2	1	1	4	8
%	(9.1)	(3.1)	(2.3)	(5.6)	(4.7)
White	18	30	42	63	153
%	(81.8)	(93.8)	(95.5)	(88.7)	(90.5)
Antyodaya	0	0	0	1	1
%	(0)	(0)	(0)	(1.4)	(0.6)
No Card	2	1	0	3	6
%	(9.1)	(3.1)	(0)	(4.2)	(3.6)

Though most of the traditional occupational households declare themselves as practitioners of caste-based based occupations, however, a reasonable portion of them still depend on many other economic activities for deriving income for their livelihood. It is revealed that greater than 22 percent of them were self-employed in the non-agriculture sector, 13 percent were dependent family members, 11 percent were private employees, 8.4 percent were casual labourers, and 8 percent practiced agriculture.

The households with self-employed family members were found more in the villages under the Rajiv Bheema and fewer of them existed under the Jawahar Nettempadu project areas. Private employees were spotted more under the Kalwakurthy and fewer of them were found under the Koilsagar project. In addition, unpaid workers were also more under the Nettempadu project area villages, but casual labourers were found large in the villages that come under the Koilsagar project. Households who depend on cultivation again found more in the villages of Rajiv Bheema and fewer of them were recorded under the Kalwakurthy project villages (Table 2.21). What is clear here is that caste-based occupational households largely work away from both agriculture and casual labour and engage significantly in self-employment, private jobs,

unpaid workers, and casual labourers. Moreover, it shows that caste-based households may not solely rely on agriculture due to landlessness and/or marginal land holdings. The income they get also proves that most of them derived income from the occupations or economic activities discoursed above.

Table 2.21: Occupational status of the caste-based occupational households under different lift irrigation projects (in%)

Particulars	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own cultivation	6	10	16	15	47
%	(7.4)	(8.8)	(10.7)	(5.9)	(7.9)
Casual agriculture labour	6	11	17	16	50
%	(7.4)	(9.7)	(11.3)	(6.3)	(8.4)
Casual labour in non-agriculture	4	9	10	15	38
%	(4.9)	(8)	(6.7)	(5.9)	(6.4)
Tenants	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)
Government employee	2	8	6	11	27
%	(2.5)	(7.1)	(4)	(4.3)	(4.5)
Private employee	10	7	18	32	67
%	(12.3)	(6.2)	(12)	(12.6)	(11.2)
Petty trade	5	5	4	9	23
%	(6.2)	(4.4)	(2.7)	(3.6)	(3.9)
Unpaid family work	11	14	19	34	78
%	(13.6)	(12.4)	(12.7)	(13.4)	(13.1)
Unemployed	0	0	1	5	6
%	(0)	(0)	(0.7)	(2)	(1)
Dependent	20	23	16	45	104
%	(24.7)	(20.4)	(10.7)	(17.8)	(17.4)
Self-employment in non-agriculture	13	24	38	58	133
%	(16)	(21.2)	(25.3)	(22.9)	(22.3)
Attached farm servant	0	0	0	1	1
%	(0)	(0)	(0)	(0.4)	(0.2)
Livestock	3	2	5	11	21
%	(3.7)	(1.8)	(3.3)	(4.3)	(3.5)
Others	1	0	0	1	2
%	(1.2)	(0)	(0)	(0.4)	(0.3)
Total	81	113	150	253	597
%	(100)	(100)	(100)	(100)	(100)

The sample households of caste-based occupational households on average had a family size of 4.6 members. The family size is by and large the same across the villages under the lift irrigation project areas of the erstwhile Mahabubnagar district. The family size of these traditional occupational families is no different from that of other types of households i.e., farmers and labour households (Table 2.22).

Table 2.22: Family size among the caste-based occupational households in the project's areas (in %)

Particulars	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
HH Size	4.5	4.6	4.6	4.5	4.6

The female population among caste-based occupational households is very low when compared with farm and labour households. The gender gap in these communities was more in the villages that were surveyed under the Kalwakurthy project area and equal under the Jawahar Nettempadu project area villages. In short, the sex ratio among the traditional or caste-based occupational households is 903.7 per 1000 male population (Table 2.23). This poor state of the gender gap might be related to their volatile and non-agriculture but caste-based occupation that offers them insufficient income, therefore, opt for going out of the village to prosperous towns/ cities and that can be gauged in the demographic features of such households.

Table 2.23: Sex ratio among the caste-based occupational households under the project areas (in%)

Sex ratio	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Male	50	75	103	177	405
Female	50	72	100	144	366
Sex Ratio	1000.0	960.0	970.9	813.6	903.7

The educational qualification or attainment of the caste-based occupational households shows slightly a better picture, particularly regarding illiterates who stood at close to 28 percent much lower rate than that of the other two types of households (farm and labour households). Among the literate's 19 percent studied up to secondary level, 12.2 percent had educated up to graduation, 11.2 percent had intermediate as their educational qualification, and little over 10 percent studied below the primary level of schooling in their lives. Illiterates are found more in the villages under the Nettempadu project. The secondary-level educated population is found more in the villages under the Koilsagar and fewer of them are found under the Kalwakurthy project. Likewise, individuals with intermediate qualifications were found under Koilsagar and less portion was found under the Rajiv Bheema project jurisdictional areas. In contrast, individuals with graduation as their educational qualification were located in the villages under the Kalwakurthy and less under the Koilsagar project. The FGD results show that the people in the villages under the Koilsagar had a lower level of educational attainments and the individuals in the villages that came under the Kalwakurthy project areas reportedly had higher

educational qualifications (Table 2.24). Note that geographical proximity with the towns and Hyderabad city can have an influence on the individual educational qualifications apart from socio-economic factors.

Table 2.24: Educational qualifications of the caste-based occupational households under the project areas (in%)

Educational particulars	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Illiterate	22	36	63	78	199
%	(23.4)	(26.5)	(34.4)	(25.9)	(27.9)
Below primary	7	14	17	35	73
%	(7.4)	(10.3)	(9.3)	(11.6)	(10.2)
Primary (5th complete)	8	10	9	16	43
%	(8.5)	(7.4)	(4.9)	(5.3)	(6)
Upper primary (6-7th)	14	10	14	19	57
%	(14.9)	(7.4)	(7.7)	(6.3)	(8)
Secondary (8, 9 & 10th)	19	29	34	54	136
%	(20.2)	(21.3)	(18.6)	(17.9)	(19)
Intermediate (11-12th)	10	18	19	33	80
%	(10.6)	(13.2)	(10.4)	(11)	(11.2)
ITI/Diploma	1	1	1	3	6
%	(1.1)	(0.7)	(0.5)	(1)	(0.8)
Vocational/Professional	3	1	1	12	17
%	(3.2)	(0.7)	(0.5)	(4)	(2.4)
Graduation	10	14	21	42	87
%	(10.6)	(10.3)	(11.5)	(14)	(12.2)
Post-graduation & above	0	3	4	9	16
%	(0)	(2.2)	(2.2)	(3)	(2.2)
Total	94	136	183	301	714
%	(100)	(100)	(100)	(100)	(100)

2.4. Summary

This chapter analyzed the basic entitlements, demographic and educational, and occupational status of farm, labour, and caste-based occupational households suggesting that most of them possess basic entitlements such as Aadhar, ration cards, and bank accounts. But a good portion of households did not possess the MGNREGA job cards. The households under four different lift irrigation projects contained small families but the sex ratio (gender gap) did exist in some of the villages under some of these project areas. It prevailed more among caste-based occupational households. Most of the households belong to the Hindu and Christian faith and the OBC and SC households outnumbered the other sections. They possess mostly white ration cards and few of them hold pink ration cards. There are very few that did not possess any ration cards.

The literacy level among farm and labour households looked similar, but in the case of traditional occupational households' literacy levels were much better. The better educational attainments are seemingly reflected in the economic activities they engaged in in the study villages. Notwithstanding their primary occupations, most of them relied on secondary or tertiary economic activities for deriving additional income for their livelihood. It could be concluded that the surveyed rural households were better off in most of the parameters except in possessing employment cards and literacy aspects. Therefore, the socio-demographic parameters seemed better and improved in the study villages of the erstwhile Mahabubnagar district which was once regarded as socio-economically a backward region in Telangana. The arrival of irrigation facilities seems to have changed the whole scenario in the Palamuru region of the state.

CHAPTER - 3

Patterns of Land Holdings and Irrigation in the Erstwhile Mahabubnagar District

3.1. Introduction

This chapter presents the land holding patterns and access to irrigation facilities by different types of rural households under the four lift irrigation projects in the erstwhile Mahabubnagar district. It deliberated upon land-holding households across the projects i.e., their average land holdings, and wet and dry land holdings. Further, the chapter examined the sources of irrigation facilities, methods of irrigation, etc., across the project areas. It is carried out to capture the changes in the land-holding patterns, access to irrigation, method of irrigation, etc., especially before and after the commencement of four lift irrigation projects in the once-regarded drought-prone Palamuru region. It allows us to distinguish whether lift irrigation projects brought any positive changes and if they, then how and to what extent it caused the changes in the agriculture sector of the erstwhile Mahabubnagar district. The analysis is carried out according to farmers, labour, and traditional occupational households for both the Kharif and Rabi seasons for the years 2021-22 and 2016-17. The chapter is divided into seven sections including the current introduction. The second section is about landholding and irrigation of farmer households. The third section is on labour households' landholdings and access to irrigation. The fourth section examines traditional occupational households. The fifth section talks about the cropping patterns of the sample households. The sixth section is concerning the annual income and worked days of the sample households. The final section is the conclusion.

3.2. Patterns of landholdings of farmer households

First, the data on land holdings reveals that on average farmers own 3.4 acres of cultivable land, of them, on average 3.3 acres of wetland and 3.3 acres of dryland were owned by the households in the surveyed villages under the four lift irrigation project areas. Instances of farmers taking land from others (leased-in land) and cultivating were also recorded. Here in, on average 4.2 acres of land were taken as lease-in land from other farmers and only 2.6 acres were given to others or leased out their land in these study villages under the lift irrigation project areas for the Kharif season in the year 2021-2022. The large size of average own land was found in the areas that come under the Kalwakurthy lift irrigation project and less of the

same was witnessed under the Nettempadu project areas. When it comes to wetland the average holdings were more in the villages under Rajiv Bheema and it was Koilsagar for dryland holdings. The average leased-in land was recorded more under the Rajiv Bheema project areas and less of the same under the Nettempadu project villages. In contrast, the higher average leased-out land was recorded under the villages of Nettempadu and less of the same was witnessed in the villages under the Rajiv Bheema project.

Table 3.1: Average landholdings of farm households for the Kharif season in 2021-2022 and 2016-2017

Farmer households					
Average landholdings	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Kharif – 2021-2022					
Own land	3.4	3.6	3.8	3.8	3.4
Wet land	3.4	3.6	3.8	3.1	3.3
Dry land	3.2	3.8	2.5	3.4	3.3
Leased-in land	3.4	3.5	4.8	4.3	4.2
Leased-out land	3.7	2.8	1.7	2.3	2.6
Kharif – 2016-17					
Own land	3.9	3.9	3.8	3.6	3.7
Wet land	3.9	2.8	3.5	3.1	3.3
Dry land	3.3	4.2	3.3	3.6	3.6
Leased-in land	4.0	2.8	4.0	5.0	4.5
Leased-out land	5.0	5.0	2.5	3.2	3.6

The data for 2016-17 shows that the average owned land was greater than in the year 2021-2022 i.e., an average of 3.7 acres, wetland remains the same but dry land seems to be higher than that of the year 2021-2022. The average leased-in land and leased-out land were higher in the 2016-17 period than in the current year. During the 2016-17 year, the highest own land was found in the villages under the Nettempadu and Koilsagar projects, the wetland was accounted more under the Nettempadu, and dryland was detected under the Koilsagar project areas. Average leased-in land was higher under the Kalwakurthy and leased-out land was greater under the Nettempadu and Koilsagar projects (Table 3.1). The inference here is that own land holdings have declined from 2021-2022 to 2016-17 period, but in terms of the type of land owned by farmer households i.e., wet/dry land remains by and large the same. Lease transactions have appeared to be more in the year 2016-17 than in the period of 2021-22. This suggests the availability of water for cultivation may have reduced the land lease transactions under the various lift irrigation project areas.

The average land holding of the farmers for the Rabi season for the year 2021-2022 was 3.5 acres, wetland 3 acres, and 3.7 acres of dryland. The average land for the Rabi season appears to be slightly greater than that of the Kharif season. Leased-in land during the Rabi season for the current year stood at 3.7 acres and leased-out land was found to be 2.8 acres. The average owned land holdings were large in the villages under the Nettempadu, and wetland also higher in the same project areas. Dry land was found more under the Koilsagar, large size leased-in land was accounted for more under the Rajiv Bheema project areas, and for leased-out, it is again Rajiv Bheema project villages. Second, the average land holding for the Rabi season in the year 2016-17 shows that 4 acres of own land, 3.2 wet and 3.8 acres of dry land were in possession of the farmer households. The leased-in land was 4.2 acres and the leased-out land was just 2.5 acres. The own land holdings were bulky in the villages that come under Nettempadu, wet land was under the Rajiv Bheema project villages, and dryland again under the Koilsagar and Rajiv Bheema project areas. The leased-in land happened to be existing in the villages under the Kalwakurthy project and the leased-out land was under the Koilsagar project areas. The results suggest that own land holding for the Rabi seems to be higher than in the Kharif season.

Table 3.2: Average landholdings of farm households for the Rabi season in 2021-2022 and 2016-2017

Farmer households					
Average landholdings	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Rabi - 2021-2022					
Own Land	5.3	3.9	4.3	3.1	3.5
Wet Land	4.4	3.6	3.4	2.7	3.0
Dry Land	2.8	4.6	2.2	3.9	3.7
Leased-in Land	5.0	3.3	5.6	3.1	3.7
Leased-out Land	2.0	0	3.3	3.0	2.8
Rabi – 2016-17					
Own Land	5.9	3.9	4.6	3.6	4.0
Wet Land	3.0	2.9	3.6	3.0	3.2
Dry Land	0.0	4.1	4.1	3.3	3.8
Leased-in Land	0.0	2.8	3.0	5.3	4.2
Leased-out Land	0.0	3.0	0	2.3	2.5

The ownership of dryland holdings remained almost static for both seasons, but wetland during the Kharif season was higher. The dry land was more in the villages under the Koilsagar and leased-in land was more under the Kalwakurthy project villages. It is observed that where there is little/no irrigation option there seems to be more dryland cultivation and leased-in land cultivation found on a large scale (Table 3.2). The emergence of new resources such as access

to irrigation water through lift irrigation projects has resulted in more of wetland cultivation in the study villages in the erstwhile Mahabubnagar district.

Further, the information on the number of landholding households suggests that out of total land owners, 84 percent of them hold wetland, nearly 17 percent possessed dryland, 20 percent of them leased-in land from others and only 3 percent of them leased-out their land to other farmers under these project areas. Across the project areas, wetland was available more in the villages under the Rajiv Bheema project and less under Nettempadu project area. The dryland was greater in the villages that fall under the Nettempadu project and fewer under the Rajiv Bheema project. Leased-in land was more in the areas under Koilsagar and less under the Nettempadu project. The leased-out land was bulky in the villages under the Koilsagar and very marginal of the same was observed in the villages under the Kalwakurthy project.

The study noted that the land-holding households declined for the Kharif season in the year 2016-17 i.e., landholding households came down 1 percentage point from the Kharif season of the current year. Wetland holding was 58 percent, dryland 43.5 percent, leased-in land 6.3 percent and leased-out land was just 3 percent during the kharif season of the 2016-17 years. For the period 2016-17 own land holding was more under the villages of Koilsagar and Rajiv Bheema projects, wetland was large in the villages under the Rajiv Bheema projects, dryland was more under the Nettempadu project areas while leased-in land and leased-out land was slightly greater under the Koilsagar project.

Own landholding for the current (2021-2022) and previous (2016-2017) periods were slightly changed but the difference in wetland holding for the current period is 84 percent and the previous period was just 58 percent. The dry land came down to 16.8 percent from 43.5 percent from the year 2016-17 to 2021-22. Interestingly, leased-in land increased dramatically from 6.3 percent to the current 17 percent and there was no change in the case of leased-out land between the current and previous periods (Table 3.3). This establishes that the lift irrigation projects contributed to increase in the wetland cultivation as well as leased-in land transactions in the study villages under different lift irrigation projects in the erstwhile Mahabubnagar district. The number of landholding households during the Rabi season for the current year (2021-2022) stood at 69 percent, wetland holders at 60 percent, and dry landholders are 6.2 percent. Leased-in land is 1.5 percent and leased-out land are less than one percent. The number of land-holdings were found more in the villages under the Rajiv Bheema and fewer under the Nettempadu project. Households with wetland land-holdings are more under the Rajiv Bheema

compared to Nettempadu project areas. Further, dryland holding households were more under the Koilsagar and leased-in land households were greater in proportion under the Rajiv Bheema and leased-out households were found slightly more under the Nettempadu project jurisdictional areas.

Table 3.3: Number of landholdings by the farm households for the Kharif season in 2021-22 and 2016-17

Farmer households					
No. landholdings	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Kharif -2021-2022					
Own Land	57	26	55	183	321
%	(100)	(100)	(100)	(98.9)	(99.4)
Wet Land	39	18	54	159	270
%	(68.4)	(69.2)	(98.2)	(86.9)	(84.1)
Dry Land	20	9	2	23	54
%	(35.1)	(34.6)	(3.6)	(12.6)	(16.8)
Leased-in Land	8	7	11	38	64
%	(14)	(26.9)	(20)	(20.8)	(19.9)
Leased-out Land	3	2	3	2	10
%	(5.3)	(7.7)	(5.5)	(1.1)	(3.1)
Kharif – 2016-17					
Own Land	55	27	57	178	317
%	(96.5)	(100)	(100)	(96.2)	(98.1)
Wet Land	28	13	48	96	185
%	(50.9)	(48.1)	(84.2)	(53.9)	(58.4)
Dry Land	29	16	13	80	138
%	(52.7)	(59.3)	(22.8)	(44.9)	(43.5)
Leased-in Land	1	3	3	13	20
%	(1.8)	(11.1)	(5.3)	(7.3)	(6.3)
Leased-out Land	1	2	2	5	10
%	(1.8)	(7.4)	(3.5)	(2.8)	(3.2)

The data for 2016-17 year shows that the land-holding households came down to 43 percent from 69 percent from the 2021-2022 year to the year 2016-2017. Wetland holding was 30 percent, dry land was 6.6 percent, leased-in land was only two households and leased-out households were just 2.7 percent during the Rabi season of 2016-2017. The own land holding during the Rabi period was found more under the Rajiv Bheema project areas, wetland was again under the Rajiv Bheema and dry land holdings were found to be predominant under the Koilsagar project. While leased-out activities were found more under the Koilsagar and there is a little transaction of leased-in land across the project areas (Table 3.4).

It is learned that various types of land holding during the Rabi season for the year 2016-17 approximately declined to 50 percent down from the current Rabi season. The households under the Rajiv Bheema appear to be having more of wetland and households under the

Koilsagar were having more of dryland. During the rabi season of the current year, the land lease market was active whereas in the year 2016-17 (for the same season) it was almost static indicating the lack of demand for lease-in land from other farmers. This could be due to the lack of irrigation facilities in the past years. It should be noted that during the Rabi rainfed crops may not be grown because the end of the monsoon season and only those households with own private irrigation could go for a second crop in Rabi season.

Table 3.4: Number of landholdings by farm households for the Rabi season in 2021-22 and 2016-17

Farmer households					
No. of landholding	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Rabi 2021-22					
Own Land	14	24	51	134	223
%	(24.6)	(92.3)	(92.7)	(72.4)	(69)
Wet Land	13	16	46	119	194
%	(22.8)	(61.5)	(83.6)	(64.3)	(60.1)
Dry Land	2	8	3	7	20
%	(3.5)	(30.8)	(5.5)	(3.8)	(6.2)
Leased-in Land	0	0	2	3	5
%	(0)	(0)	(3.6)	(1.6)	(1.5)
Leased-out Land	1	0	0	1	2
%	(1.8)	(0)	(0)	(0.5)	(0.6)
Rabi 2016-17					
Own Land	13	21	58	84	176
%	(12.9)	(65.6)	(71.6)	(43.3)	(43.1)
Wet Land	11	12	45	54	122
	(10.9)	(37.5)	(55.6)	(27.8)	(29.9)
Dry Land	0	11	6	10	27
%	(0)	(34.4)	(7.4)	(5.2)	(6.6)
Leased-in Land	0	1	0	0	1
%	(0)	(3.1)	(0)	(0)	(0.2)
Leased- out Land	0	2	3	6	11
%	(0)	(6.3)	(3.7)	(3.1)	(2.7)

Of the total farmers, most of them were relied on tube well (42.5%) followed by natural rainfall, lift canal, and pipelines from lift irrigation canals and quite a few of them continue to depend on open wells as a source of irrigation water for farming their land. The presence of borewells have existed more in the villages under the Koilsagar project and a few of them under the Rajiv Bheema project. The Rainfed cultivation was predominant under the Koilsagar and Nettempadu project villages respectively. On the other hand, canal irrigation (canal from lift irrigation) was more prevalent in the villages of the Kalwakurthy project and no such facilities were gauged under the villages of the Koilsagar project.

Farmers who Draw water from the reservoir through motor pumps and pipes up to their respective cultivable lands since the distributary canals up to the fields is not yet taken up through pipes in the reservoirs or in its main canal and draw water to their fields are mostly present in the villages of Rajiv Bheema and no such phenomenon was observed under the villages of the Nettempadu project as far as the sample household is concerned. Tanks and open wells predominantly appear to be located under the Rajiv Bheema project (Table 3.5).

Fig 3.1 Cropping pattern in the Study area

The villages that accessed irrigation water from lift irrigation projects were less likely to depend on rainfall and tube well and vice versa. The reliance on open wells and private irrigation is high among the villages under the Nettempadu and Koilsagar projects. Relying more on tube well suggests that the benefit of lift irrigation projects is yet to reach in several villages under the study areas. If the work of distributary canals up to tail end villages were completed there would be full benefit that the farmers can receive from wetland cultivation facilitated through the lift irrigation projects which can change rural households with new development across the rural areas in the erstwhile Mahabubnagar district. During the rabi season, 53 percent of farmers obtained water from tube wells, 18.2 percent from canals of lift irrigation, 13.3 percent derived from tanks, and over 9 percent took from open wells.

Table 3.5: Source of irrigation for the Kharif season for the year 2021-22

Source of irrigation	Farmer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Project canal	9	0	6	65	80
%	(10.1)	(0)	(6.6)	(20.2)	(14.7)
Lift irrigation by pipes	0	3	39	35	77
%	(0)	(7.1)	(42.9)	(10.9)	(14.2)
Tank	3	1	12	1	17
%	(3.4)	(2.4)	(13.2)	(0.3)	(3.1)
Tube well	45	22	13	151	231
%	(50.6)	(52.4)	(14.3)	(46.9)	(42.5)
Open well	1	0	14	14	29
%	(1.1)	(0)	(15.4)	(4.3)	(5.3)
Check dam	0	1	1		2
	(0)	(2.4)	(1.1)	(0)	(0.4)
Rainfed	31	15	6	56	108
%	(34.8)	(35.7)	(6.6)	(17.4)	(19.9)
Total	89	42	91	322	544
%	(100)	(100)	(100)	(100)	(100)

Very few of the farm households depended on natural rainfall for cultivating their land during the rabi season under various lift irrigation project areas. The dependency on tube wells was rampant under the villages of Koilsagar and the Nettempadu projects respectively. Drawing water from lift irrigation canals widespread under the Kalwakurthy projects and getting water through pipes laid from the main canal to their farmlands and also drawing water from open wells was more under the Rajiv Bheema project. Relying on natural rainfall for growing crops is foremost under the Kalwakurthy project (Table 3.6).

Field observation suggests that areas that have fewer water resources either rely on canal irrigation when the facility comes into existence or until then they practice rainfed agriculture. Lack of expansion of lift irrigation projects may lead to more tube well intense agricultural practices therefore completion of these lift irrigation of projects is paramount for increasing canal irrigation and thus minimizing the dependency on other irrigation sources. During the Kharif season in the year 2016-17, a large proportion of farmers were depending on natural rainfall (45.3%) for cultivating their land followed by tube well and open wells with 36.2 and 9.1 percent respectively. During the year the farmers that were relying on project canal water and piped water (attached to various sources of lift irrigation projects) were not so widespread i.e., 3.2 and 2 percent respectively. Farmers from the Nettempadu and Kalwakurthy were relying on rainfall or practiced rain-fed agriculture while farmers from the Koilsagar and Kalwakurthy were drawing water from tube wells for farming their land.

Table 3.6: Source of irrigation during the Rabi season for the year 2021-2022

Source of irrigation	Farmer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Project canal	1	0	4	43	48
%	(5.9)	(0)	(9.1)	(23.1)	(18.2)
Lift irrigation by pipes	0	0	17	18	35
%	(0)	(0)	(38.6)	(9.7)	(13.3)
Tank	0	0	2	2	4
%	(0)	(0)	(4.5)	(1.1)	(1.5)
Tube well	14	17	12	97	140
%	(82.4)	(100)	(27.3)	(52.2)	(53)
Open well	1	0	9	14	24
%	(5.9)	(0)	(20.5)	(7.5)	(9.1)
Check dam	0	0	0	1	1
%	(0)	(0)	(0)	(0.5)	(0.4)
Rainfed	1	0	0	11	12
%	(5.9)	(0)	(0)	(5.9)	(4.5)
Total	17	17	44	186	264
%	(100)	(100)	(100)	(100)	(100)

Open wells were predominant under the Rajiv Bheema project and trivial the under Nettempadu and Kalwakurthy projects. Interestingly, none of the farmers under the Nettempadu and Koilsagar projects received water from the canals of the lift irrigation projects as well as from the pipes attached to the reservoirs and their main canals. Because the lift irrigation projects are still under construction, the full benefit of irrigation is yet to be received by the farmers under these two projects (Table 3.7).

Table 3.7: Source of irrigation during the Kharif season for the year 2016-17

Source of irrigation	Farmer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Project canal	0	0	6	7	13
%	(0)	(0)	(7.5)	(3.2)	(3.2)
Lift irrigation by pipes	0	0	5	3	8
%	(0)	(0)	(6.3)	(1.4)	(2)
Tank	1	1	11	3	16
%	(1.4)	(2.9)	(13.8)	(1.4)	(3.9)
Tube well	21	17	11	98	147
%	(29.6)	(50)	(13.8)	(44.3)	(36.2)
Open well	1	0	24	12	37
%	(1.4)	(0)	(30)	(5.4)	(9.1)
Check dam	0	0	1	0	1
%	(0)	(0)	(1.3)	(0)	(0.2)
Rainfed	48	16	22	98	184
%	(67.6)	(47.1)	(27.5)	(44.3)	(45.3)
Total	71	34	80	221	406
%	(100)	(100)	(100)	(100)	(100)

For the Rabi season, the main source of irrigation for cultivation in the year 2016-17 was tube well (52.5%) followed by natural rainfall (21%), and 14 percent of them relied on open wells. The canal water for agriculture was not widely spread due to the under-construction of lift irrigation projects in some areas. The same is true for lifting water through underground laid water pipes which could be possible only when there was water in the reservoirs or the main canal is full. Farmers under the Nettempadu and Kalwakurthy projects used tube wells for growing crops, under the Rajiv Bheema project farmers were depending more on open wells, and under the Koilsagar project farmers relied on natural rainfall to cultivate their land or grow crops. The prevalent of irrigation water either through the lift irrigation project's main canals or piped water drawn through pipes laid in the main canal for lifting water to farmer's fields to their standing crops is very marginal chiefly on account of unfinished work of the lift irrigation projects in some of the surveyed villages (Table 3.8).

Fig 3.2 Saralasagar Irrigation Project

The method that farmers adopted to irrigate their fields shows that most farmers adopted the method of pumping water through a tube well or lifting water from reservoirs through underground laid pipes to flow into their fields (60.8%) then the sprinkler method (24%) and drip irrigation method (15.2%). A greater portion of farmers under the Koilsagar adopted the method of supplying water through tube wells or pipelines.

Table 3.8: Source of irrigation during the Rabi season in the year 2016-17

Source of irrigation	Farmer				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Project canal	0	0	5	4	9
%	(0)	(0)	(17.2)	(4.4)	(5.7)
Lift irrigation by pipes	0	0	3	1	4
%	(0)	(0)	(10.3)	(1.1)	(2.5)
Tank	0	0	4	2	6
%	(0)	(0)	(13.8)	(2.2)	(3.8)
Tube well	8	13	8	54	83
%	(88.9)	(44.8)	(27.6)	(59.3)	(52.5)
Open well	1	0	8	13	22
%	(11.1)	(0)	(27.6)	(14.3)	(13.9)
Check dam	0	0	1	0	1
%	(0)	(0)	(3.4)	(0)	(0.6)
Rainfed	0	16	0	17	33
%	(0)	(55.2)	(0)	(18.7)	(20.9)
Total	9	29	29	91	158
%	(100)	(100)	(100)	(100)	(100)

Under the Kalwakurthy project area use of sprinklers was widespread but was not so under the Koilsagar project villages. The exercise of using drip irrigation was predominant under the Nettempadu and no such practice prevailed over in the areas of the Koilsagar project (Table 3.9). Farmers in the Koilsagar project area adopted the very traditional method of supplying water through tube wells or pipelines to their fields. In other project areas, both drip and sprinklers were deployed predominantly indicating efficient use of modern irrigation tools to cultivate their farms. The availability of water from the lift irrigation projects does have a role to play in the method of irrigation that farmers practice while farming their fields. For instance, accessibility of water will lead to better and water-saving practices through the adoption of modern irrigation methods rather than using traditional ones.

Table 3.9: Method of irrigation practiced under various lift irrigation projects during the Kharif of 2021-2022

Method of irrigation	Farmer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding via pipes	17	27	71	149	264
%	(29.3)	(100)	(84.5)	(56.2)	(60.8)
Drip Irrigation	38	0	2	26	66
%	(65.5)	(0)	(2.4)	(9.8)	(15.2)
Sprinkler Irrigation	3	0	11	90	104
%	(5.2)	(0)	(13.1)	(34)	(24)
Total	58	27	84	265	434
%	(100)	(100)	(100)	(100)	(100)

During the rabi season of 2021-2022, it was learned that 64 percent of farmers adopted supplying water through tube wells to their fields or pipes laid from the main canal to their fields. Further 28.4 percent of the farmer depended on sprinklers to supply water to their standing crops and the remaining 7.6 percent of them used drip irrigation to grow their crops under the various project areas. Farmers in the Koilsagar project areas supplied water directly through tube wells and pipes, farmers in the Nettempadu project areas adopted mostly drip irrigation while farmers in the Kalwakurthy project areas relied on sprinklers for growing their crops (Table 3.10).

Table 3.10: Method of irrigation practiced under various lift irrigation projects during the Rabi season of 2021-2022

Method of Irrigation	Farmer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	3	18	39	100	160
%	(18.8)	(100)	(88.6)	(58.1)	(64)
Drip Irrigation	10	0	0	9	19
%	(62.5)	(0)	(0)	(5.2)	(7.6)
Sprinkler Irrigation	3	0	5	63	71
%	(18.8)	(0)	(11.4)	(36.6)	(28.4)
Total	16	18	44	172	250
%	(100)	(100)	(100)	(100)	(100)

The outcome suggests that the Rabi season increases the use of traditional methods of irrigation to grow their crops. For instance, farmers in the Koilsagar projects had highly relied more on old methods than the rest of the farmers in other project areas. During the Kharif season of 2016-2017, farmers adopted supplying water directly through tube wells or pipes followed by sprinklers and drip irrigation with 77.2%, 15.2%, and 7.6 percent respectively

Table 3.11: Method of irrigation during the Kharif season (2016-17)

	Farmer households				
Method of irrigation	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	9	17	53	94	173
%	(39.1)	(94.4)	(93)	(74.6)	(77.2)
Drip Irrigation	11	0	0	6	17
%	(47.8)	(0)	(0)	(4.8)	(7.6)
Sprinkler Irrigation	3	1	4	26	34
%	(13)	(5.6)	(7)	(20.6)	(15.2)
Total	23	18	57	126	224
%	(100)	(100)	(100)	(100)	(100)

In this, farmers in the Koilsagar seemed to be adopted supplying water through tube wells or pipes, farmers in the Nettempadu chiefly adopted drip irrigation and farmers in the

Kalwakurthy relied upon sprinklers to irrigate their fields to grow crops (Table 3.11). Note that farmers in Koilsagar are known for using the traditional method, while farmers in Nettempadu are known for drip irrigation and farmers in Kalwakurthy are widely recognized for deploying sprinkler methods for farming their land. The use of drip irrigation is mainly found in the villages under the Nettempadu and moderately in the villages of Kalwakurthy projects respectively (Table 3.12). While the method of irrigation during both seasons was similar, the difference is that the use or dependency on supplying water through tube wells or pipes or underground water pipes to their fields was widespread during the Kharif season of 2016-17 and has come down to 10 percentage points in the Kharif season of 2021-2022. Thus, it allowed other efficient methods of irrigation practices in the current agricultural season and can be attributed to the availability of water through lift irrigation projects to these farmers in various lift irrigation projects in the erstwhile Mahabubnagar district.

Table 12: Method of irrigation under Lift irrigation projects during the Rabi (2016-17)

	Farmer				
Method of irrigation	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	4	13	24	45	86
%	(44.4)	(100)	(88.9)	(63.4)	(71.7)
Drip Irrigation	5	0	0	4	9
%	(55.6)	(0)	(0)	(5.6)	(7.5)
Sprinkler Irrigation	0	0	3	22	25
%	(0)	(0)	(11.1)	(31)	(20.8)
Total	9	13	27	71	120
%	(100)	(100)	(100)	(100)	(100)

3.3. Landholding patterns of labour households

The data concerning labour households shows that the average owned landholding during the Kharif season in the year 2021-2022 among the labour households is just 1.7 acres, of them, the wetland is 1.7 acres and dry land 1.6 acres. The average leased-in land seems to be more among the labour households while leased-out land is just 1.6 acres. The average owned land is more among the labour households that come under the Nettempadu project, and the same is the case with wetlands. The average dryland is more among the labour household that falls under the Koilsagar project areas, wherein the leased-in land is significant in size as compared with labour households from other project areas. The leased-out land was widespread among the labour households under the Rajiv Bheema, Nettempadu, and Kalwakurthy projects respectively (Table 3.13). The average land holding among labour households is half as

compared with the average land holding by the farm households. Note that, wetland holding was more among the labour households that come under the Nettempadu areas while Koilsagar holds more of average dryland and leased-in labour households.

Table 3.13: Average landholdings of labour households during the Kharif (2021-2022)

Average landholdings	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	1.9	1.7	1.5	1.5	1.7
Wetland	2.0	1.5	1.5	1.8	1.7
Dryland	1.7	1.9	1.5	1.4	1.6
Leased-in land	2.5	3.0	3.1	3.1	3.0
Leased-out land	1.8	1.3	1.9	1.8	1.6

The average landholding of labour households during Rabi season in the year 2021-22 is close to 2 acres, of which the average wetland is 1.9 acres, dryland is 1.7 acres, leased-in land is 3.1 acres and leased-out land is 1.9 acres. The labour households in the Nettempadu project were holding higher average land and a lesser number of the same in the Rajiv Bheema project. The average wetland was higher in the Nettempadu but a smaller number of the same was found among the labour households under the Koilsagar project. In the case of dryland holdings, it was equally found among the labour households under Koilsagar and Kalwakurthy projects. There were no such households found in the Nettempadu project areas. Significantly, average lease-in land was more under Nettempadu and leased-out land was greater under the Rajiv Bheema project. There was no leased-out land found among the labour households that fall under the Nettempadu project, signifying that the project has only a wetland (Table 3.14).

Table 3.14: Average landholdings of labour households during the Rabi (2021-2022)

Average landholdings	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	2.8	1.8	1.6	2.0	1.9
Wetland	2.8	1.5	1.6	2.1	1.9
Dryland	.	1.8	1.5	1.8	1.7
Leased-in land	4.0	2.3	2.7	3.3	3.1
Leased-out land	0	0.8	3.4	2.0	1.9

However, dryland possession was found more among the labour households located in the Koilsagar and Kalwakurthy projects which are akin to farm households. The average landholding of labour households for the Kharif season in 2016-17 was just 1.7 acres, and the same is true for wet and dryland holdings in the study villages. The average leased-in landholding was 4.3 acres and leased-out land was just 1.6 acres suggesting labour households were more inclined to take leased-in land. The average landholdings were found more under the Nettempadu project areas; wetland was high in Nettempadu but dryland holdings were more

among the labour households that come under the Koilsagar project. The leased-in transactions are more under Kalwakurthy while no such lands were recorded under Nettempadu and Koilsagar projects. On the contrary, leased-out land was more among the labour households under the Nettempadu project villages and a reduced number of the same was found under the areas of the Koilsagar project (Table 3.15).

Table 3.15: Average landholdings of labour households during the Kharif (2016-2017)

	Labour households				
Average landholdings	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own Land	1.9	1.6	1.4	1.8	1.7
Wet Land	2.1	1.4	1.4	2.1	1.7
Dry Land	1.5	1.9	1.8	1.6	1.7
Leased-in Land	.	.	3.6	5.5	4.3
Leased-out Land	2.0	1.4	1.8	1.9	1.6

The average own landholding of labour households for the Rabi season in the year 2016-17 was 1.8 acres, of them, the average wetland was 1.7 acres and dryland is stood at 1.8 acres. The average own land holding was more among the labour households in the Nettempadu project areas and a smaller number of the same was witnessed in the Rajiv Bheema project. In the case of average wet land holding, labour households that live under the Nettempadu project was greater and a lesser number of the same was documented in the Rajiv Bheema project and average dryland was more under Kalwakurthy project areas and no such labour households possess dryland in Nettempadu project areas. The leased-in land was found more again in the Kalwakurthy project areas and leased-out land possession was recorded more among the labour households that fall under the villages of the Rajiv Bheema project. It is observed that there are no lease transactions in the villages under Nettempadu project (Table 3.16).

Table 3.16: Average landholdings of labour households during the Kharif (2016-17)

2016-17	Labour households				
Average landholdings	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	2.9	1.8	1.5	2.1	1.8
Wet land	2.5	1.5	1.4	2.2	1.7
Dry land	0.0	2.1	1.5	2.2	1.8
Leased-in land	0.0	2.3	2.2	4.5	3.3
Leased-out land	0.0	1.0	3.0	2.1	1.5

Stimulatingly, average dryland holdings and leased-in transactions were taken place among the labour households under the Rajiv Bheema project. Second, where there are more dryland holdings there appears to be more of leased-in land transactions while where there were more wetland holdings there seem to be no lease transactions either.

Of the total labour households, 74.5 percent own land, of them, 67.1 percent have wetland and 31 percent dryland. There were around 9 percent of labour households were taken land from others (lease-in land) to extend farming and close to 16 percent of them leased-out their land to other labour households for cash in return. The land owned by labour households was more in the Koilsagar and fewer under the Nettempadu irrigation project areas. Labour households with wetlands were predominantly under the Rajiv Bheema and a smaller number was found among the labour households in the villages of the Koilsagar project. Dryland was documented more under the Koilsagar project areas. The leased-in-land households were also greater under the Rajiv Bheema project and leased-out households found more under the Koilsagar project areas (Table 3.17). The labour households appeared to be eying to enhance wetland cultivation, therefore, taking leased-in land from other farmers. Thus, want to earn more income from cultivation.

Table 3.17: Number of labour households holding land during the Kharif (2021-22)

2021-22	Labour households				
No. of. landholding households	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	57	26	59	132	304
%	(56.4)	(81.3)	(72.8)	(68)	(74.5)
Wet land	35	14	54	90	204
%	(61.4)	(53.8)	(91.5)	(68.2)	(67.1)
Dry land	20	13	4	37	94
%	(35.1)	(50)	(6.8)	(28)	(30.9)
Leased-in land	5	2	7	14	28
%	(8.8)	(7.7)	(11.9)	(10.6)	(9.2)
Leased-out land	2	9	11	9	48
%	(3.5)	(34.6)	(18.6)	(6.8)	(15.8)

The number of landholdings among the labour households for the Kharif season in the year 2016-17 was 74 percent, of them, 51.5 percent owned wetlands and 46 percent of them owned dryland. The leased-in households among the labour households formed just 2 percent and leased-out land among labour households accounted for 8.3 percent. The number of labour land-holding households located more in the villages under the Rajiv Bheema and a reduced

number of the same under the Nettempadu project areas. The wetland was slightly more among the households under Rajiv Bheema project villages while the dryland was more under Kalwakurthy project areas. Further, leased-in land was more under Rajiv Bheema and leased-out land holding labour households were more in the Koilsagar project (Table 3.18). Note that, labour households in the villages under the Rajiv Bheema project were outnumbered in own, wet and leased-in landholdings and fewer of them were in the Nettempadu project areas.

Table 3.18: Number of labour households holding land during the Kharif (2016-17)

No. of. landholding households	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	58	23	59	131	301
%	(57.4)	(71.9)	(72.8)	(67.5)	(73.8)
Wetland	31	13	48	53	155
%	(53.4)	(56.5)	(81.4)	(40.5)	(51.5)
Dryland	26	10	8	74	138
%	(44.8)	(43.5)	(13.6)	(56.5)	(45.8)
Leased-in land	0	0	4	2	6
%	(0)	(0)	(6.8)	(1.5)	(2)
Leased-out land	1	4	2	6	25
%	(1.7)	(17.4)	(3.4)	(4.6)	(8.3)

The number of landholding labour households during the rabi season in the year 2016-17 reveals that 38 percent of them hold their own land, of them 21.3 percent had wetland and 8 percent had dryland. The lease-in and leased-out land under these project areas during the Rabi season in 2016-17 was negligible. The own and wetland land-holdings among the labour households were found more in the Rajiv Bheema project area but dry landholdings were outnumbered under the Koilsagar project. There was only one household that had taken leased-in land but there are six households that leased-out their land and such households were found in the villages under the Koilsagar and Kalwakurthy projects (Table 3.19).

Table 3.19: Number of labour households possessing land during the Rabi (2016-17)

No. of landholding households	Labour				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	6	21	61	67	155
%	(5.9)	(65.6)	(75.3)	(34.5)	(38)
Wetland	6	12	39	30	87
%	(5.9)	(37.5)	(48.1)	(15.5)	(21.3)
Dryland	0	10	12	11	33
%	(0)	(31.3)	(14.8)	(5.7)	(8.1)
Leased-in land	0	0	0	1	1
%	(0)	(0)	(0)	(0.5)	(0.2)
Leased-out land	0	1	1	4	6
%	(0)	(3.1)	(1.2)	(2.1)	(1.5)

The implication here is that during the Rabi season in the year 2016-17, not many labour households cultivated their land as compared with the Kharif season may be due to a lack of irrigation facilities at that time (2016-17), though later each lift irrigation project was gradually commenced and cultivators started accessing irrigation water for their fields which can be seen in the Kharif season of 2021-2022.

Table 3.20: Source of irrigation of labour households during the Kharif (2021-22)

Source of irrigation	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Project Canal	5	0	8	30	43
%	(8.1)	(0)	(10.4)	(18.6)	(13.1)
Lift irrigation by pipes	0	1	39	31	71
%	(0)	(3.6)	(50.6)	(19.3)	(21.6)
Tank	4	2	11	5	22
%	(6.5)	(7.1)	(14.3)	(3.1)	(6.7)
Tube well	15	9	4	52	80
%	(24.2)	(32.1)	(5.2)	(32.3)	(24.4)
Open well	1	0	12	2	15
%	(1.6)	(0)	(15.6)	(1.2)	(4.6)
Rainfed	37	16	3	41	97
%	(59.7)	(57.1)	(3.9)	(25.5)	(29.6)
Total	62	28	77	161	328
%	(100)	(100)	(100)	(100)	(100)

The source of irrigation water for labour households that cultivated their land shows that a large of portion them depended on natural rainfall (30%) followed by tube wells and water through lift irrigation pipes. There are a quite number of labour households that accessed water from tanks, open wells, etc. The rainfed labour households were found in the villages that came under the Nettempadu project area, labour households that relied on tube wells were found more under the Kalwakurthy and Koilsagar project areas. Labour households who drawn water through pipes from the canals of the lift irrigation projects were recorded more in the villages under the Kalwakurthy project (Table 3.20). For labour households, both natural rainfall and tube wells form the core of their farming in the study villages.

The irrigation sources for labour households for the Rabi season in the study year (2021-22) shows that tube wells are the major source for them to irrigate their lands followed by water through pipes from irrigation projects and canal water (lift). Interestingly, the labour households that did not go for wet cultivation indeed depended entirely on rainfall (5.4%). The use of tube wells was greatly used by the labour households located in the villages that fall under the Koilsagar project whereas water from pipes was widespread under the Rajiv Bheema

areas. Similarly, labour households that accessed water from canals was recorded more in the villages under the Kalwakurthy project (Table 3.21).

Table 3.21: Source of irrigation of labour households during the Rabi (2021-22)

	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Source of irrigation					
Project Canal	2	0	3	10	15
%	(14.3)	(0)	(10.7)	(13.3)	(11.6)
Lift irrigation by pipes	0	0	15	13	28
%	(0)	(0)	(53.6)	(17.3)	(21.7)
Tank	1	0	3	1	5
%	(7.1)	(0)	(10.7)	(1.3)	(3.9)
Tube well	10	10	2	38	60
%	(71.4)	(83.3)	(7.1)	(50.7)	(46.5)
Open well	1	0	5	5	11
%	(7.1)	(0)	(17.9)	(6.7)	(8.5)
Check dam	0	0	0	3	3
%	(0)	(0)	(0)	(4)	(2.3)
Rainfed	0	2	0	5	7
%	(0)	(16.7)	(0)	(6.7)	(5.4)
Total	14	12	28	75	129
%	(100)	(100)	(100)	(100)	(100)

Further, the source of irrigation of labour households for the Kharif season in the year 2016-17 shows that rainfed cultivation was greater (42.3 %) followed by tube wells (24.3 %) and open wells (13.1 %) respectively.

Table 3.22: Source of irrigation for labour households during the Kharif (2016-17)

	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Source of irrigation					
Project Canal	0	0	6	0	6
%	(0)	(0)	(8.8)	(0)	(2.7)
Lift irrigation by pipes	0	1	12	2	15
%	(0)	(4.2)	(17.6)	(2.8)	(6.8)
Tank	3	2	11	5	21
%	(5.2)	(8.3)	(16.2)	(6.9)	(9.5)
Tube well	10	7	4	33	54
%	(17.2)	(29.2)	(5.9)	(45.8)	(24.3)
Open well	1	0	22	6	29
%	(1.7)	(0)	(32.4)	(8.3)	(13.1)
Check dam	0	1	2	0	3
%	(0)	(4.2)	(2.9)	(0)	(1.4)
Rainfed	44	13	11	26	94
%	(75.9)	(54.2)	(16.2)	(36.1)	(42.3)
Total	58	24	68	72	222
%	(100)	(100)	(100)	(100)	(100)

The labour households that relied on rainfall were more under the Nettempadu project areas while labour households that used tube wells were found more under the Kalwakurthy project and open wells as a major source of irrigation were documented under the Rajiv Bheema project. The FGDs reveal that the labour households prior to getting the lift irrigation water were dependent on natural rainfall and private irrigation sources like tube wells and open wells (Table 3.22).

Main source of irrigation for labour households during rabi season in 2016-17 was tube wells (44.2 %) followed by piped water and natural rainfall respectively. Other irrigation sources included open wells and canal water from lift irrigation projects. The tube wells were prevalent more in the villages under the Nettempadu project, while piped irrigation water was predominant under Rajiv Bheema, and natural rainfall under the Koilsagar project. Open wells as a source of irrigation are more widespread under the Rajiv Bheema project than in other project areas (Table 3.23).

Table 3.23: Source of irrigation for labour households during the Rabi (2016-17)

Source of irrigation	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Project canal	0	1	5	1	7
%	(0)	(7.7)	(14.7)	(2.4)	(7.4)
Lift irrigation by pipes	0	0	11	2	13
%	(0)	(0)	(32.4)	(4.8)	(13.7)
Tank	0	0	7	2	9
%	(0)	(0)	(20.6)	(4.8)	(9.5)
Tube well	6	9	3	24	42
%	(100)	(69.2)	(8.8)	(57.1)	(44.2)
Open well	0	0	6	4	10
%	(0)	(0)	(17.6)	(9.5)	(10.5)
Check dam	0	0	1	0	1
%	(0)	(0)	(2.9)	(0)	(1.1)
Rainfed	0	3	1	9	13
%	(0)	(23.1)	(2.9)	(21.4)	(13.7)
Total	6	13	34	42	95
%	(100)	(100)	(100)	(100)	(100)

Labour households during the Kharif season in the year 2021-22 utilized water directly through pipes from reservoirs as well as tube well pipes (79.4%) followed by sprinklers and drip irrigation. The water utilized through direct pipes was found more under the Koilsagar and Rajiv Bheema projects while the use of sprinklers was more prevalent under the Kalwakurthy project areas, and drip irrigation was widely adopted irrigation method under the Nettempadu project areas. The pattern of different irrigation sources adopted by the farm households in the surveyed villages in the erstwhile Mahabubnagar district is furnished in Table 3.24.

Table 3.24: Method of irrigation by labour households during the Kharif (2021-22)

	Labour households				
Method of irrigation	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	15	12	70	84	181
%	(60)	(100)	(97.2)	(70.6)	(79.4)
Drip Irrigation	9	0	0	6	15
%	(36)	(0)	(0)	(5)	(6.6)
Sprinkler Irrigation	1	0	2	29	32
%	(4)	(0)	(2.8)	(24.4)	(14)
Total	25	12	72	119	228
%	(100)	(100)	(100)	(100)	(100)

The method of irrigation adopted during the Rabi season by the labour households shows that they have relied on piped water supplied through pipes laid from reservoir/main channel to their fields followed by drip and sprinklers irrigation. The households that followed supplying of water through pipes were predominant under the Koilsagar and Rajiv Bheema while it is drip and sprinkler irrigation respectively under Nettempadu and Kalwakurthy project areas. Prevalence of irrigation methods among the labour households varied across the lift irrigation projects during rabi season of 2021-22. In short, the adoption of irrigation methods across the project areas seemed to be similar (Table 3.25).

Table 3.25: Method of irrigation by labour households during the Rabi (2021-22)

2021-22	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Method of irrigation					
Flooding	5	10	27	52	94
%	(35.7)	(100)	(96.4)	(76.5)	(78.3)
Drip Irrigation	8	0	0	5	13
%	(57.1)	(0)	(0)	(7.4)	(10.8)
Sprinkler Irrigation	1	0	1	11	13
%	(7.1)	(0)	(3.6)	(16.2)	(10.8)
Total	14	10	28	68	120
%	(100)	(100)	(100)	(100)	(100)

Similarly, the method of irrigation for the Kharif season in the year 2016-17 shows that most of the labour households supplied water through pipes and it was rampant in the villages under the Koilsagar and a smaller number under the Nettempadu project areas. The use of drip irrigation was restricted to 7 percent which is practiced to a great extent by the labour households in the villages under the Nettempadu. Similarly, the use of sprinklers was restricted to 5.6 percent and it was relatively more prominent in the villages under the Kalwakurthy project areas (Table 3.26).

Table 3.26: Method of irrigation by labour households during the Kharif season in the year 2016-17

Method of irrigation	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	8	11	55	36	110
%	(57.1)	(100)	(96.5)	(81.8)	(87.3)
Drip Irrigation	6	0	0	3	9
%	(42.9)	(0)	(0)	(6.8)	(7.1)
Sprinkler Irrigation	0	0	2	5	7
%	(0)	(0)	(3.5)	(11.4)	(5.6)
Total	14	11	57	44	126
%	(100)	(100)	(100)	(100)	(100)

The method of irrigation adopted by labour households for the Rabi season in the year 2016-17 indicates that 90 percent of them used the traditional method of irrigation through pipes. Only 6.3 percent of the labour households adopted drip irrigation to grow their crops and close to 4 percent of them adopted sprinklers. The use of pipes was more predominant in the villages under the Koilsagar and Rajiv Bheema projects, while drip irrigation was deployed more under the Nettempadu project, and sprinklers were found only in the villages under the Kalwakurthy project. Before the commencement of the lift irrigation projects, most of the labour households adopted pipes through which they supplied water to their fields to grow crops (Table 3.27).

Table 3.27: Method of irrigation by labour households during the Rabi (2016-17)

Method of irrigation	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	4	9	33	26	72
%	(66.7)	(100)	(100)	(81.3)	(90)
Drip Irrigation	2	0	0	3	5
%	(33.3)	(0)	(0)	(9.4)	(6.3)
Sprinkler Irrigation	0	0	0	3	3
%	(0)	(0)	(0)	(9.4)	(3.8)
Total	6	9	33	32	80
%	(100)	(100)	(100)	(100)	(100)

3.4. Landholding patterns of the traditional occupational households

The land details with respect to the traditional / caste-based occupational households show that 2.1 acres of the average land they own overall during the Kharif season in the year of 2021-2022. Of which, 1.8 acres was wetland and 2.6 acres of dryland in the surveyed villages under the four lift irrigation projects. The average leased-in land was 2.6 acres and leased-out land were 2.3 acres among the traditional occupational households. The own land holdings were more under the irrigation project of Nettempadu whilst wetland was recorded to a great extent in the villages of Nettempadu and Kalwakurthy projects and dryland was predominantly prevalent under the Rajiv Bheema and Kalwakurthy project. Lease-in land was greater under the Kalwakurthy and the same is the case with the dryland of the traditional communities (Table 3.28). It is observed that the traditional occupational households owned reduced land-holdings as compared with the farmers and slightly greater than that of labour households.

Table 3.28: Average landholdings by traditional occupant households during the Kharif in the year 2021-22

	Caste-based occupational households				
Average landholdings	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	2.2	1.8	1.5	1.5	2.1
Wet land	2.1	1.7	1.5	2.1	1.8
Dry land	2.1	1.7	3.0	3.0	2.6
Leased-in land	.	.	0.8	3.5	2.6
Leased-out land	3.0	1.3	1.4	3.6	2.3

The average land holdings of the traditional occupational households for Rabi season in the year of 2021-2022 shows that they own on average of 2 acres of land. Of which 1.8 acres was wetland and 2.9 acres is dryland. The leased-in land transactions were greatly observed under the Kalwakurthy project areas and leased-out land is under the Kalwakurthy and Nettempadu projects correspondingly. The average own land was more under the Kalwakurthy, the wetland under Nettempadu, and the dryland was found more under the Rajiv Bheema projects (Table 3.29). For traditional/caste-based households/communities' landholdings were small in extent wherein dryland outnumbered the former. They take more leased-in land than that of leased-out land given to other cultivators in the study villages. Note that, traditional occupational households were found more in the Kalwakurthy and Nettempadu project areas than in the rest of the project areas.

Table 3.29: Average landholdings by traditional occupant households during the Rabi in the year 2021-22

Average landholdings	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	2.3	1.8	1.4	2.6	2.0
Wetland	2.2	1.9	1.2	2.1	1.8
Dryland	.	1.7	2.8	5.2	2.9
Leased-in land	.	.	0.2	3.3	2.6
Leased-out land	3.0	1.1	1.3	4.0	2.3

The average land holding of traditional/caste-based occupational households for Kharif season in the year 2016-17 shows that they owned 2.1 acres of land, of which, 1.8 acres was wetland and 2.5 was dryland. The leased-in land was 0.8 acres and leased-out was much greater (2.8 acres). The own land holdings were documented higher in the villages of the Kalwakurthy project while wetland was found more under the Nettempadu, and dry land holdings by the caste-based occupational households were found more in the villages under the Kalwakurthy project. The land-lease transactions did not take place in some of the project villages and were significantly recorded in villages under Kalwakurthy project (Table 3.30). The own land holdings remained constant but the other types of land holdings varied depending on the availability of irrigation facilities and factors such as input cost, labour charges, family size, etc. Note that these patterns are similar/same even for the Rabi season in the year 2016-17 across the project areas.

Table 3.30: Average landholdings by caste-based occupational households during the Kharif season in the year 2016-17

Average landholdings	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	2.2	1.9	1.5	2.5	2.1
Wet land	2.1	1.9	1.4	2.0	1.8
Dry land	2.0	1.9	1.7	2.6	2.5
Leased-in land	.	0.5	.	1.0	0.8
Leased-out land	.	1.1	1.3	4.2	2.8

Of the total caste-based occupational households, 60 percent of them owned land, of them, 76 percent had owned wetland, 21 percent owned dryland, 33 percent leased-out and only 6 percent of them leased-in land from other farmers during the Kharif season in the year 2021-2022. The number of traditional caste-based occupational households owned relatively more land in the villages under the Rajiv Bheema project and a lesser number of them were found under the Nettempadu project. The wetland owners were recorded in more numbers in the

villages under the Rajiv Bheema and dryland owners were more under the Nettempadu and Kalwakurthy project areas. The leased-in land owners were greatly found in the villages of Kalwakurthy and Rajiv Bheema and leased-out households were more under Koilsagar and Rajiv Bheema project areas (table 3.31). The land owners among the traditional or caste-based occupational households were relatively low compared with farmer households. However, leased-out households among the caste-based occupational households were high which suggests the fact these households may not be entirely relying on agriculture but dependent on a blend of their traditional occupations as well as on non-agricultural activities for their livelihood.

Table 3.31: Number of landholdings by caste-based occupational households during the Kharif season in the year 2021-22

	Caste-based occupational households				
No. of. landholding households	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	10	19	27	43	101
%	(45.5)	(59.4)	(61.4)	(60.6)	(59.8)
Wet land	5	15	25	31	77
%	(50)	(78.9)	(92.6)	(72.1)	(76.2)
Dry land	4	4	1	11	21
%	(40)	(21.1)	(3.7)	(25.6)	(20.8)
Leased-in land			2	4	6
%	(0)	(0)	(7.4)	(9.3)	(5.9)
Leased-out land	1	9	9	11	33
%	(10)	(47.4)	(33.3)	(25.6)	(32.7)

During the Rabi season of 2021-2022, the number of land holdings among the traditional occupational households shows a decline compared with the Kharif season of the same year (48 percent). Of the total land holdings, 36.7 percent of them owned wetlands and 6.5 percent were held dryland. The leased-in land was below 1 percent and the leased-out land was 8.3 percent. More of land holdings were found among the households under the Koilsagar project, wetland was found under Rajiv Bheema, and dryland under the Koilsagar project areas respectively. Leased-out land holdings were significant in the villages under Rajiv Bheema and Koilsagar projects respectively (Table 3.32).

Table 3.32: Number of landholdings of caste-based occupational households during the Kharif season in the year 2021-22

No. of. landholdings	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own land	6	20	27	28	81
%	(27.3)	(62.5)	(61.4)	(39.4)	(47.9)
Wet land	5	13	21	23	62
%	(22.7)	(40.6)	(47.7)	(32.4)	(36.7)
Dry land	0	6	2	3	11
%	(0)	(18.8)	(4.5)	(4.2)	(6.5)
Leased-in land	0	0	0	1	1
%	(0)	(0)	(0)	(1.4)	(0.6)
Leased-out land	1	4	6	3	14
%	(4.5)	(12.5)	(13.6)	(4.2)	(8.3)

Data on Kharif season in the year 2016-17 reveals that the land owned households gone up to 61.5 percent, while wetland has come down to 54.8 percent and dryland has increased to 40.4 percent vis-a-vis Kharif season of 2021-2022. The lease-in land fell sharply and leased-out land halved to 17 percent as compared with the kharif season in 2021-22. Further the owned land was found more in the villages under the Kalwakurthy project, while wetland was greater under the Nettempadu, and dryland recorded slightly more under the Kalwakurthy. The households that leased-out their land to other cultivators were in the villages of the Rajiv Bheema projects and leased-in transactions were slightly large in the villages that located under the Koilsagar and Kalwakurthy projects respectively (Table 3.33).

Table 3.33: Number of landholdings of caste-based occupational households during the Kharif season in the year 2021-22

No. of. landholding households	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own Land	9	20	26	47	104
%	(40.9)	(62.5)	(59.1)	(66.2)	(61.5)
Wet Land	6	13	19	19	57
%	(66.7)	(65)	(73.1)	(40.4)	(54.8)
Dry Land	3	7	5	25	42
%	(33.3)	(35)	(19.2)	(53.2)	(40.4)
Leased-in Land	0	1	0	1	2
%	(0)	(5)	(0)	(2.1)	(1.9)
Leased- out Land	0	3	6	7	18
%	(0)	(15)	(23.1)	(14.9)	(17.3)

The source of irrigation for traditional occupational households revealed that they derive irrigation water largely from tube wells (40%), followed by reliance on the natural rainfall (19.3%), and fetching irrigation water through pipes and open wells (10% each). About 8.4 percent of them utilized canal water for growing their crops. The tube wells were so helpful to the traditional occupational households in the villages of Koilsagar, and the rainfed agriculture was also predominant under the Koilsagar areas. Irrigation by pipes was prominent under Rajiv Bheema and open wells as a major source of irrigation was prevalent in the villages under the Nettempadu and Rajiv Bheema projects respectively (Table 3.34). The overall pattern of source of irrigation suggests that the pervasive presence of tube wells was so useful for the traditional occupational households. The other sources such as rainfall, piped water and open wells did help them in growing their crops. Note that, the similar patterns can be seen in the case of farmers and labour households too in the villages under the lift irrigation projects in the erstwhile Mahabubnagar district.

Table 3.34: Source of irrigation by caste-based occupational households during the Kharif season in the year 2021-22

	Caste-based occupational households				
Source of irrigation	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Project canal	1	0	2	7	10
%	(11.1)	(0)	(6.7)	(12.5)	(8.4)
Lift irrigation by pipes	0	1	7	5	13
%	(0)	(4.2)	(23.3)	(8.9)	(10.9)
Tank	0	0	10	1	11
%	(0)	(0)	(33.3)	(1.8)	(9.2)
Tube well	4	13	3	27	47
%	(44.4)	(54.2)	(10)	(48.2)	(39.5)
Open well	2	2	6	2	12
%	(22.2)	(8.3)	(20)	(3.6)	(10.1)
Check dam	0	1	1	1	3
%	(0)	(4.2)	(3.3)	(1.8)	(2.5)
Rainfed	2	7	1	13	23
%	(22.2)	(29.2)	(3.3)	(23.2)	(19.3)
Total	9	24	30	56	119
%	(100)	(100)	(100)	(100)	(100)

The sources of irrigation for the Rabi season of the year 2021-22 for traditional occupational households show that 62 percent of them depended on tube well irrigation followed by 17.5 percent of them relying on open wells and tanks and irrigation water through pipes. The tube well was the major source of water in the villages under the Koilsagar, open wells, piped water and tanks were predominant in the villages under the Rajiv Bheema. Rainfed agriculture is less across the project areas due to a lack of access to irrigation sources for traditional occupational

households. Monsoon ends in September and after that cultivation has largely relied on private irrigation sources, therefore, rainfed agriculture is observed marginally across the project areas (Table 3.35).

Table 3.35: Source of irrigation by caste-based occupational households during the Rabi season in the year 2021-22

	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Source of Irrigation					
Project canal	0	0	1	1	2
%	(0)	(0)	(7.1)	(3.2)	(3.2)
Lift irrigation by pipes	0	0	2	2	4
%	(0)	(0)	(14.3)	(6.5)	(6.3)
Tank	0	0	4	0	4
%	(0)	(0)	(28.6)	(0)	(6.3)
Tube well	4	10	2	23	39
%	(66.7)	(83.3)	(14.3)	(74.2)	(61.9)
Open well	2	1	5	3	11
%	(33.3)	(8.3)	(35.7)	(9.7)	(17.5)
Check dam	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)
Rainfed	0	1	0	2	3
%	(0)	(8.3)	(0)	(6.5)	(4.8)
Total	6	12	14	31	63
%	(100)	(100)	(100)	(100)	(100)

The data for the Kharif season in the year 2016-17 for traditional occupational households revealed that 47.4 percent of them utilized tube wells, 15.4 percent of each relied on the open wells and rainfall. The utilization of the water from lift irrigation reservoirs was around 7.7 percent and piped water was about 5 percent. The tube well use was more under the Kalwakurthy, open well was greater the under Rajiv Bheema, traditional occupational households that depended on the natural rainfall water was slightly more under the Nettempadu. Note that, households that drawn water from the reservoirs was greater under the Rajiv Bheema and Kalwakurthy and piped water was more under Rajiv Bheema project (Table 3.36). The trend is not so different from that of others like farmers and labour households. The source of irrigation for the Rabi season in 2016-17 shows that the dependency on tube wells increased tremendously (59 percent) and open well remains around 15 percent as their main sources of irrigation. In all other sources of irrigation, there was decline in the use of such sources in growing their crops. Tube well irrigation was more dominant under the Kalwakurthy and Koilsagar project areas while it was the open wells under the Nettempadu and Rajiv Bheema projects.

Table 3.36: Source of irrigation by caste-based occupational households during the Kharif season in the year 2016-17

	Caste-based occupational households				
Source of Irrigation	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Project Canal	0	0	3	3	6
%	(0)	(0)	(11.1)	(11.1)	(7.7)
Lift irrigation by pipes	0	1	3	0	4
%	(0)	(7.1)	(11.1)	(0)	(5.1)
Tank	0	0	3	2	5
%	(0)	(0)	(11.1)	(7.4)	(6.4)
Tube well	4	10	4	19	37
%	(40)	(71.4)	(14.8)	(70.4)	(47.4)
Open well	2	2	7	1	12
%	(20)	(14.3)	(25.9)	(3.7)	(15.4)
Check dam	0	1	1	0	2
%	(0)	(7.1)	(3.7)	(0)	(2.6)
Rainfed	4	0	6	2	12
%	(40)	(0)	(22.2)	(7.4)	(15.4)
Total	10	14	27	27	78
%	(100)	(100)	(100)	(100)	(100)

The rainfed cultivation has drastically come down and found more under the Kalwakurthy project areas. The reservoirs and piped water usage remained below 5 percentage and found only under Rajiv Bheema project while it is absent in other projects which is quite interesting (Table 3.37). The access and utilization of lift irrigation projects was found under only Rajiv Bheema and not in any other projects. Dependency on the tube well for cultivation increased across the project areas during the Rabi season of the 2016-2017.

Table 3.37: Source of irrigation by Caste-based occupational HH -Kharif 2016-17

	Caste-based occupational households				
Source of irrigation	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Project canal	0	0	2	0	2
%	(0)	(0)	(12.5)	(0)	(4.3)
Lift irrigation - pipes	0	0	2	0	2
%	(0)	(0)	(12.5)	(0)	(4.3)
Tank	0	0	4	0	4
%	(0)	(0)	(25)	(0)	(8.7)
Tube well	3	8	3	13	27
%	(75)	(80)	(18.8)	(81.3)	(58.7)
Open well	1	1	4	1	7
%	(25)	(10)	(25)	(6.3)	(15.2)
Check dam	0	0	1	0	1
%	(0)	(0)	(6.3)	(0)	(2.2)
Rainfed	0	1	0	2	3
%	(0)	(10)	(0)	(12.5)	(6.5)
Total	4	10	16	16	46
%	(100)	(100)	(100)	(100)	(100)

Most probably the traditional occupational households directly used the water supplied through pipes into their fields or channels from tube wells (85.3%) then rest of them relied on the sprinklers and drip irrigation methods. The flooding method was largely found under Koilsagar and Rajiv Bheema, sprinklers was only found under the Kalwakurthy project areas and drip irrigation was under the Nettempadu projects (table 3.38). It should be noted that the very similar results and/or patterns can be found for both the Kharif and Rabi seasons in the year of 2016-17) see appendix 2 and 3.

Table 3.38: Method of irrigation by caste-based occupational HH- Kharif 2021-22

	Caste-based occupational households				
Method of irrigation	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	4	16	29	32	81
%	(57.1)	(100)	(100)	(74.4)	(85.3)
Drip Irrigation	3	0	0	3	6
%	(42.9)	(0)	(0)	(7)	(6.3)
Sprinkler Irrigation	0	0	0	8	8
%	(0)	(0)	(0)	(18.6)	(8.4)
Total	7	16	29	43	95
%	(100)	(100)	(100)	(100)	(100)

The method of irrigation for the Rabi season for traditional occupational households 2021-2022 reveals that 80 percent of them used flooding method followed by sprinklers and drip irrigation. The flooding method predominantly found under the Koilsagar and Rajiv Bheema, sprinklers was only found under the Kalwakurthy, and drip irrigation in the Nettempadu project areas (Table 3.39). The results are like the Kharif season in the same year i.e., 2021-2022.

Table 3.39: Method of irrigation by Caste-based occupational households -Rabi 2021-22

	Caste-based occupational households				
Method of irrigation	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	1	11	14	22	48
%	(16.7)	(100)	(100)	(75.9)	(80)
Drip Irrigation	5	0	0	1	6
%	(83.3)	(0)	(0)	(3.4)	(10)
Sprinkler Irrigation	0	0	0	6	6
%	(0)	(0)	(0)	(20.7)	(10)
Total	6	11	14	29	60
%	(100)	(100)	(100)	(100)	(100)

3.5. Cropping pattern of the households in the project areas

The data on cropping patterns during the Kharif season in the year 2021-22 under the Nettempadu project area showed that a total of 291 acres were cultivated by farmers wherein cotton, Chilli, and redgram were the predominantly grown crops in terms of their acreage. However, the average yield was highest for the paddy followed by maize, and Chilli. Further, the average cost per crop (cost of cultivation) suggested that Chilli required more investment followed by growing the seed cotton and groundnut crops under the Nettempadu project areas. In contrast, the more remunerative crops were Chilli, seed cotton, and groundnut crops respectively. The crops that were grown in less acreage offered more income to the cultivators than that of crops grown on a large scale.

Table 3.40: Cropping pattern of farm households under Nettempadu project areas

Current Cropping Pattern (2021-22)										Previous Cropping Pattern (2016-17)		
Crops	Nettempadu Project											
	Farmer households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Bengalgram	1	6	10000	31200	0	0	0	0	0	0	0	0
Castor	4	3	30000	42000	0	0	0	0	19	5	0	0
Chilli	43	10.1	208571	305821	2	10	160000	250000	10	15	0	0
Cotton	178	5.8	88500	161434	0	0	0	0	136	6.5	0	0
Groundnut	7	9	110000	122800	36	6.2	82640	131125	22	13.3	6	6
Jowar	0	0	0	0	4	4	15000	72000	10	3.8	0	0
Maize	2	15	30000	37500	2	26.5	10000	45700	4	22.5	4	20
Millets	0	0	0	0	0	0	0	0	13	16	0	0
Paddy	19	16.3	29500	57000	6	19	50000	81653	15	30	10	29.6
Redgram	30	2.9	25100	48400	4	3	30000	54000	35	3	0	0
Seed cotton	8	4.1	122000	222500	0	0	0	0	5	15	0	0
Vegetables	0	0	0	0	3	16	5000	10720	4	40	0	30
Total	291	7.4	92847	157190	57	11.1	60570	102253	272	9.6	24	21.6

The data for the Rabi season in the year 2021-2022 shows similar pattern except for seed cotton which is grown only during the Kharif season. On the other hand, crops grown in the Kharif season of 2016-17, disclosed that the total area cultivated has slightly declined to 272 acres from 291 acres, but cultivators got highest average output from crops such as vegetables, paddy, maize, and Chilli respectively. Interesting to note that, during the Rabi season not many crops were grown, that too only paddy and maize were grown in just 24 acres and yields were

too less from these crops. It is important to observe that that cultivators have grown more crops during the Kharif season in 2021-22 compared with the same season in the year 2016-17. Secondly, cultivators have grown more crops during the Rabi season in the current year while it was very negligible in 2016-17 for the same season. This can be attributed to the emergence of new irrigation facilities such as lift irrigation projects which made irrigation available for cultivators to grow two crops as well as diversify their crop portfolio. For instance, the situation in the year 2016-17 is a clear indication of lack of irrigation facilities (Table 3.40).

During the Kharif season in the year 2021-22 the labour households cultivated a total of 115 acres of land, in which cotton was grown in large area followed by paddy and redgram crops. Labour households appear to be cultivating few crops than their farmer counterparts. The average yield per acre that the labour households got from paddy is greater followed by Chilli and cotton crops respectively. They incurred more cost towards cultivating Chilli crop followed by seed cotton, and normal cotton crop respectively. However, the higher amount of income they received was from Chilli, seed cotton and cotton crops. During the Rabi season of 2021-22 the labour households raised only groundnut, paddy, and vegetables in a total of 36 acres. Groundnut was grown in large area and vegetables in just two acres.

Table 3.41: Cropping pattern of the labour households under Nettempadu project areas

Crops	Current Cropping Pattern (2021-22)								Previous Cropping Pattern (2016-17			
	Nettempadu											
	Labour households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Castor	0	0	0	0	0	0	0	0	5	5.5	0	0
Chilli	7	10.3	76667	144667	0	0	0	0	4	5	0	0
Cotton	75	5.5	39146	75020	0	0	0	0	58	4.1	0	0
Groundnut	1	5	15000	22500	23	6	59350	98550	1	6	5	12.5
Jowar	0	0	0	0	0	0	0	0	7	9.3	0.5	3
Maize	0	0	0	0	0	0	0	0	6	28	3	40
Millets	0	0	0	0	0	0	0	0	2	12	0	0
Paddy	16	16.5	29273	56785	11	17	25986	64231	10	20.7	7	23.5
Redgram	13	3.3	16875	29875	0	0	0	0	9	3.4	0	0
Seed cotton	4	3.3	70000	140000	0	0	0	0	3	8	0	0
Vegetables	0	0	0	0	2	10	18000	13500	0	0	0	0
Total	115	7.3	39243	74999	36	10.5	44078	80479	103	7.6	15	20.25

The yields from paddy outnumbered the yields from other crops but the groundnut offered them more income followed by paddy and vegetables. In the year 2016-17, during the Kharif season the area cultivated came down to the 103 acres and of them cotton, paddy and redgram were grown in more extent than the rest of the crops. However, the yields they got was much higher from the crops like maize, paddy, and millets. In the same year for the Rabi, they have cultivated only 15 acres in which paddy, groundnut and maize were grown and received more yields from maize, paddy and then from groundnut respectively (Table 3.40). The agricultural activities by the labour households were more proactive in the Kharif season of the current year of 2021-22 than in the year 2016-17. In 2016-17, particularly during Rabi season, the labour households having some source of irrigation cultivated only a few crops, and others dependent on rainfall left their land without cultivation (Table 3.41).

In the case of traditional cum caste-based households it was just 18 acres that had been cultivated during the Kharif season of 2021-22. Cotton was grown in 12 acres, paddy in 4 acres and redgram in 3 acres. The average output was more from paddy, cotton and redgram crops. Similarly, they spent more on cotton, paddy and redgram for cultivating and received higher income from the same crops. During the Rabi season they have cultivated only 11 acres wherein they have grown groundnut and paddy and received more production from paddy crop. However, they had spent more for growing groundnut and got more income too.

Table 3.42: Cropping pattern of the Caste-based occupational households under Nettempadu project areas

Current Cropping Pattern (2021-22)									Previous Cropping Pattern (2016-17)			
Crops	Nettempadu											
	Caste-based occupational households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Cotton	12	6.2	44667	92750	0	0	0	0	5	9.5	0	0
Groundnut	0	0	0	0	9	8	50500	105700	6	7	5	5.5
Jowar	0	0	0	0	0	0	0	0	3	4	0	0
Paddy	4	19.3	21333	47693	2	18	12000	27200	4	22	3	25
Redgram	3	3	18000	35000	0	0	0	0	2	4	0	0
Total	18	9.8	35000	73458	11	11.3	37667	79533	20	11.1	8	15.25

During the Kharif season of 2016-17, these households cultivated only 20 acres comprising groundnut, cotton and paddy crops and received more output from paddy, cotton, and

groundnut respectively. For the Rabi season they cultivated groundnut and paddy in more areas and got more yields from paddy followed by groundnut (Table 3.42). The results indicate that the traditional or caste based occupational households were less into the farming as compared with farmers and labour households, therefore, they seem to be not diversifying the crops to get assured income from growing such crops.

The cropping pattern of farmers under the Koilsagar project areas shows that there was a total of 151 acres cultivated by them wherein cotton and paddy was grown in more areas and in just 2 acres castor was grown. The average yield per acre was more from paddy and cotton crops. However, the cost incurred to grow crops was more for paddy but more income was received from cotton crop. During the Rabi season they have cultivated 60 acres comprising particularly paddy and vegetables. The paddy required them to spent more money to grow but at the same time they also got more income from paddy followed by vegetables. In the year of 2016-17, during the Kharif season farmers grown crops such as cotton, paddy, and castor in a total 120 acres and received highest harvest per acre from paddy and cotton. In the same year for the Rabi season, the area under cultivation came down to 31 acres and it was mostly paddy that they had grown vegetables and cotton crops in small portion. Paddy gave them more harvest than other crops (Table 3.43).

Table 3.43: Cropping pattern of the farmer HH under the Koilsagar project areas

Current Cropping Pattern (2021-22)									Previous Cropping Pattern (2016-17)			
Crops	Koilsagar											
	Farmer households											
	Kharif				Rabi				Kharif			
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Castor	2	6	22000	2000	0	0	0	0	2	8	0	0
Cotton	78	9.7	132500	347031	0	0	0	0	75	10.6	1	6
Groundnut	0	0	0	0	0	0	0	0	3	10	0	0
Horticulture	0	0	0	0	0	0	0	0	0	0	1	0
Jowar	0	0	0	0	0	0	0	0	0	0	0	5
Paddy	71	19.3	82444	124406	59	19.5	82467	125366	41	17.6	28	17.6
Vegetables	0	0	0	0	2	30	20000	80000	0	0	2	5
Total	151	14.4	103600	225571	60	20.2	78563	122531	120	13.8	31	15

It's important to observe during the Kharif season of 2021-22 there was crop diversification owing to the availability of irrigation water including plentiful rainfall from last couple of years. On the contrary, during both seasons in the earlier years and particularly the Rabi in

2016-17 comprised a few crops and less crop diversification. It reveals that plenty of irrigation resources allowed farmers to go for not only two crops but also adopt crop diversification though which they have raised a variety of crops offering them more income.

The cropping pattern of the labour households for the Kharif season in the year 2021-22 disclosed that only 46 acres were cultivated of which cotton and paddy crops constituted 99 percent. The harvests were more from paddy followed by cotton. The expenses they incurred was large for cotton and paddy crops respectively. The income they received however was much greater from cotton cultivation. During the Rabi season of 2021-2022 only 17 acres were cultivated by labour households wherein only paddy crop was raised. On the other hand, during the Kharif season of 2016-17 the labour households cultivated 35 acres in which paddy and cotton crops were grown in large extent and received more yields by from paddy and cotton respectively. In the same year, during the Rabi season labour households cultivated a reduced land parcels which came down to 14 acres from that of the Rabi season of 2021-2022. Herein, only paddy was cultivated with an output of 14 quintals per acre (Table 3.44). The labour households have cultivated paddy and cotton crops in large extent thus not inclined to diversification of crops characteristic of other farmers. Under Labour households under Koilsagar project seemed not in a position to cultivate their entire land due to several predicaments including the lack of irrigation facilities during the post monsoon season.

Table 44: Cropping pattern of labour households under the Koilsagar project areas

Current Cropping Pattern (2021-22)									Previous Cropping Pattern (2016-17)			
Crops	Koilsagar											
	Labour households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Cotton	27	9.2	79864	136909	0	0	0	0	15	8.9	0	0
Jowar	1	6	18000	18000	0	0	0	0	1	6	0	0
Paddy	18	18	30000	46140	17	17.2	36833	55628	18	18.2	14	16.3
Redgram	0	0	0	0	0	0	0	0	2	5.5	0	0
Total	46	13.6	51460	84953	17	17.2	36833	55628	35	13.5	14	16.3

The cropping pattern of the traditional households for the Kharif in the year 2021-22 show that 39 acres comprising paddy and cotton was cultivated by them and yields were more from paddy than cotton. The expenses they incurred was excessive for paddy but income came largely by growing cotton crop. During the Rabi season, they cultivated 18 acres exclusively paddy and cost was less than the profit. When examined the cropping pattern for the year 2016-17, 36

acres was cultivated by them during the Kharif season, and major crops included paddy and cotton. The yields were more from paddy crop trailed by cotton crop. During the Rabi season the cultivated land came down to just 14 acres in which again paddy was grown and the average yield was 18 quintals per acre (Table 3.45). Like the labour households, traditional households too cultivated mainly paddy and cotton crops. This indicates that cultivation of paddy which requires water has gone up drastically due to increased access to irrigation resources like water from lift irrigation projects and private irrigation sources like tube wells and open wells in the study villages under the lift irrigation projects.

Table 3.45: Cropping pattern of traditional HH under the Koilsagar project areas

Current Cropping Pattern (2021-22)									Previous Cropping Pattern (2016-17)			
Crops	Koilsagar											
	Caste-based occupational households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Cotton	14	9.2	38143	134333	0	0	0	0	13	8.8	0	0
Jowar	0	0	0	0	0	0	0	0	1	6	0	0
Paddy	25	19.5	40214	64170	18	20.4	49000	83174	22	18.9	14	18.6
Total	39	16.4	39524	85219	18	20.4	49000	83174	36	15.4	14	18.6

Furthermore, the data for the Rajiv Bheema project shows that the total land cultivated by farmers during the Kharif season in the year 2021-22 stood at 347 acres in which paddy alone cultivated in 221 acres followed by groundnut and pulses. The yields were much higher for paddy followed by groundnut and horse gram. The expenses incurred to grow crops was more for paddy, groundnut, and pulses. The income earned from marketing the output was more for groundnut followed by horse gram and paddy.

During the Rabi season the total cultivated land drastically declined to 192 acres in which paddy, groundnut and pulses were the predominant crops. The cost was same for growing paddy and groundnut but the income from these crops was more particularly from groundnut followed by pulses and red gram. On the other hand, during the Kharif season of 2016-17, farmers cultivated 278 acres in mainly comprising paddy, groundnut and red gram. The yields were more from paddy, groundnut, and maize respectively. For the Rabi season, the total cultivated land stood at 97 acres where paddy, groundnut, horticulture, and pulses were grown. The yields were more from paddy and pulses. Pulses were predominant under the Rajiv Bheema project than other projects. Similarly, crop diversification is also more under the

current project areas. The yields, cost, and income (value) of crops were less for the Rabi season in both the reference period (Table 3.46).

Table 3.46: Cropping pattern of farmer HH under the Rajiv Bheema project areas

Crops	Current Cropping Pattern (2021-22)								Previous Cropping Pattern (2016-17)			
	Rajiv Bheema Farmer households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Castor	0	0	0	0	0	0	0	0	5	4.5	0	0
Groundnut	48	8.4	98700	248720	48	8.1	111700	214967	50	7.6	9	4.3
Horsegram	11	6.4	20000	210000	0	0	0	0	2	4	0	0
Horticulture	13	0	30000	76667	0	0	0	0	13	0	3	0
Jowar	2	6	12000	26000	2	6	20000	25000	13	5	2	4
Maize	3	5	36000	30000	0	0	0	0	3	6	0	0
Millets	0	0	0	0	0	0	0	0	1	2	0	0
Paddy	221	20.2	100587	157108	110	19.7	110361	133172	150	18.6	81	17.2
Pulses	40	4.8	76333	124133	21	6.2	85500	195280	8	4.7	3	8
Redgram	9	3.1	24250	35500	12	5	68000	134000	33	3.5	0	0
Total	347	15.4	88389	153235	192	14.7	104006	154540	278	12.2	97	14.9

Cropping pattern of the labour households for the Kharif in 2021-22 covering a total extent of 106 acres comprised paddy in 81 acres followed by red gram and groundnut in below 10 acres. The yields were more from paddy, groundnut and jowar cultivation. The cost incurred was more for the paddy, groundnut, and pulses. Nonetheless, higher income was derived mostly from paddy, groundnut, and red gram. During the Rabi season the labour households cultivated only 34 acres wherein only three crops viz., paddy, groundnut and pulses were grown. They have received more output from paddy, groundnut, and pulses respectively. Secondly, they had incurred higher cost for groundnut followed by paddy and pulses, and earned more income from pulses, groundnut, and paddy respectively. In the year 2016-17, the labour households cultivated only in 87 acres during the kharif season wherein in 56 acres paddy was grown, in 15 acres red gram and in 9 acres groundnut was cultivated.

The yields they got was more from paddy, groundnut, and red gram. In the Rabi season of 2016-17, only 50 acres was cultivated wherein paddy and groundnut were grown moderately and got more yields from the same crops respectively. It should be noted that the land has drastically declined during the Rabi season in the current year. Second, the land cultivated in the year 2016-17 was much lower than the land cultivated during the latest year. Third, land cultivated during the Rabi season in the previous year is more than that of land cultivated during

the Rabi season of the latest (study year) for the reasons unknown which demands further probe to know the causes (Table 3.47).

Table 3.47: Cropping pattern of the labour HH under the Rajiv Bheema project areas

Current Cropping Pattern (2021-22)									Previous Cropping Pattern (2016-17)			
Crops	Rajiv Bheema Labour households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Castor	0	0	0	0	0	0	0	0	0	15	0	0
Blackgram	3	7.5	27500	35500	0	0	0	0	0	0	0	0
Cotton	1	4	20000	24000	0	0	0	0	0	0	0	0
Groundnut	8	9.2	30833	66400	3	6.5	47000	78800	9	7.1	11	12
Horticulture	1	0	10000	28000	0	0	0	0	1	3	0	0
Jowar	0	8	6000	40000	0	0	8000	24000	4	5	2	6
Maize	0	0	0	0	0	0	0	0	2	1	0	0
Paddy	81	20.2	37357	68237	29	20.4	45737	50897	56	17.7	35	17.8
Pulses	4	3.5	27500	42100	2	6	12000	91200	0	0	1	4
Redgram	9	4	17250	43500	0	0	0	0	15	3.5	1	6
Total	106	16.9	33795	63156	34	17.9	42739	53907	87	13.8	50	16

The crops grown by the traditional occupational households during the Kharif season of 2021-22 covered an extent of 41 acres, of which paddy comprised 31 acres, horticulture in 6 acres and red gram in 3 acres. They got higher harvest by growing paddy, horticulture, and red gram. Interesting to note that they had spent greater amount for growing red gram followed by horticulture and paddy crops respectively. In contrast, they had received higher income from cultivation of horticulture, red gram, and paddy. While during the Rabi season, they cultivated just 24 acres comprising paddy, pulses, and groundnut respectively. Herein they had incurred more expenses for growing paddy and groundnut crops and in return received higher returns from selling groundnut, paddy, and pulses in the market. In the year 2016-17, total cultivated land during the Kharif season was 32 acres comprising paddy, red gram, horticulture, and jowar and received higher yields from paddy, groundnut and jowar.

During the Rabi season they cultivated only 10 acres in which paddy was grown in 9 acres followed by groundnut just in 1 acre. The yields were obviously more from paddy followed by groundnut. The land under cultivation for traditional occupational households was much less as compared to other types of cultivators, this is more so during the Rabi season of year 2016-17 (Table 3.48).

Table 3.48: Cropping pattern of the caste-based occupational households under the Rajiv Bheema project areas

Crops	Current Cropping Pattern (2021-22)								Previous Cropping Pattern (2016-17)			
	Rajiv Bheema											
	Caste-based occupational households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Castor	0	0	0	0	0	0	0	0	2	6	0	0
Groundnut	0	0	0	0	2	6.5	20500	43700	2	10	1	6
Horticulture	6	4	45000	95000	0	0	0	0	3	0	0	0
Jowar	0	0	0	0	0	0	0	0	3	4	0	0
Paddy	32	21.4	32540	52209	17	21	38318	40287	18	19.6	9	20
Pulses	0	0	0	0	5	6	12000	35000	0	0	0	0
Redgram	3	3	50000	63000	0	0	0	0	5	6.3	0	0
Total	41	20.1	34054	55651	24	17.9	33893	40397	32	16.2	10	18.8

The data for the Kalwakurthy Lift Irrigation project shows that on the whole farmers under this project cultivated a total of 975 acres of cultivable land during the Kharif season in the year 2021-22. Of which cotton comprised 319 acres cotton, followed by paddy in 277 and groundnut in 118 acres. The average yield per acre was highest for the paddy followed by Chilli, maize, groundnut, etc. The cost per crop shows that they had spent higher amount for growing Chilli, horticulture, and mango orchards. Nonetheless, the higher value from harvest was mainly derived by marketing the mangos, Chilli and horticulture crops. They earned moderate income from other crops too. For the Rabi season farmers have cultivated 484 acres comprising paddy, groundnut, and pulses.

The average yields per acre was more for mangos, paddy, maize, and vegetables. However, the cost was more for growing groundnut and mango crops. Crops such as groundnut, mango, and paddy offered the farmer more income. In the year 2016-17, farmers cultivated an extent of 833 acres during the Kharif season in which cotton was grown in 324 acres, paddy was cultivated in 139 acres and maize in 85 acres. The yields came more from paddy, maize, and Chilli crops. Overall, the Rabi season witnessed cultivation in 266 acres where groundnut was grown in 121 acres, paddy was in 68 acres and cotton in 17 acres and rest of the crops were cultivated in small extent. Interestingly, the yield per acre was highest for the maize crop followed by cotton, jowar, and paddy (Table 3.48). Important to note that some farmers have grown fodder as a separate crop for animals and it was huge in terms of yield in quintals. The diversification of crops was very widespread in the villages under the Kalwakurthy project than

in other project areas. Cotton, mangos, groundnut, and paddy were the major crops in this project area. However, cereals were also grown in the villages but in less acreage. The rest of the patterns (results) seem similar for both the Kharif and Rabi seasons in the two periods i.e., 2021-22 and 2016-17 (Table 3.49).

Table 3.49: Cropping pattern of the farmer HH under the Kalwakurthy project areas

Current Cropping Pattern (2021-22)									Previous Cropping Pattern (2016-17)			
Crops	Kalwakurthy											
	Farmer households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Castor	0	0	0	0	0	0	0	0	27	4	6	5.5
Chilli	40	14.5	256154	385539	0	0	0	0	17	12.2	0	0
Cotton	319	7.8	102430	193392	1	6	23000	42000	324	7.1	17	25.3
Fodder	8	200	20000	40000	4	90	10000	18000	15	60	11	15
Groundnut	118	8.2	62079	145292	193	8	58849	132076	82	10.1	121	9.7
Horticulture	53	6.4	218333	281700	0	0	0	0	38	10.4	4	0
Jowar	9	3.4	7625	11000	0	0	0	0	28	4.4	5	25
Maize	75	9.4	30667	46700	22	11.5	27800	43722	85	15.1	13	28
Mango	19	80	173333	596667	3	50	50000	100000	22	7	3	7
Millets	0	0	0	0	2	2	20000	50000	4	2.8	2	2
Paddy	277	17.9	45020	78642	204	15.6	42810	71634	139	16.6	68	14.9
Pulses	27	5.8	33071	101563	44	5.5	29412	61062	8	9.2	10	9.2
Redgram	30	3.1	17962	24969	10	5.5	61333	25667	44	4.1	6	4
Vegetables	2	6	15000	27000	2	10	20000	45000	1	5	1	4
Total	975	12.7	72119	129989	484	12.2	46087	89177	833	10.7	266	12.5

The labour households cultivated 296 acres during the Kharif season in the year 2021-22, of which paddy was cultivated in 93 acres, cotton in 84 acres and groundnut in 62 acres. The yield per acre in average terms was more for the paddy, maize, and groundnut respectively. They had spent more money for growing Chilli followed by cotton and groundnut crops. The income they got in huge amount was from Chilli, groundnut, and castor crops. For the Rabi season, they have cultivated 149 acres in which groundnut and paddy were grown in more extent. In the previous year i.e., 2016-17 labour households cultivated a total of 252 acres in which cotton, paddy and groundnut were the major crops and yields were greater from maize, Chilli, paddy, and groundnut crops respectively. For the Rabi season, they had only cultivated 96 acres mainly comprising groundnut, paddy and maize. The yields were more for the paddy, maize, and groundnut crops (Table 3.50). Significant to note that, the land cultivated during the Rabi season has declined to half compared to the Kharif season for the study periods.

Table 3.50: Cropping pattern of the labour HH under the Kalwakurthy project areas

Current Cropping Pattern (2021-22)									Previous Cropping Pattern (2016-17)			
Crops	Kalwakurthy											
	Labour households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Blackgram	3	2	14000	18000	0	0	0	0	0	0	0	0
Castor	3	4	30000	45000	0	0	0	0	7	3.2	2	4
Chilli	2	8	100000	160000	0	0	0	0	9	18.7	1	4
Cotton	84	6.8	48452	87760	1	8	18000	16000	60	5.6	4	5.5
Groundnut	62	8.9	39391	141700	79	7.7	52700	98655	45	8.9	35	9.9
Horticulture	13	4	14333	26000	3	1	15000	0	1	0	0	0
Jowar	7	2.6	7000	15200	2	6	16000	70000	22	3.8	5	4
Maize	15	14.4	19727	36355	5	10	16200	20720	34	20.1	10	14
Millets	0	0	0	0	0	0	0	0	2	3	1	3
Paddy	93	16.7	27859	42766	50	15.6	26331	48212	55	15.2	34	18.3
Pulses	6	3.8	17000	21300	4	4	35000	66000	1	4	0	0
Redgram	8	3.6	9286	22943	6	5.5	35750	82100	17	4.3	5	4.7
Total	296	11.2	32265	66050	149	10.6	36522	69951	252	9.9	96	11.6

The total land cultivated by traditional / caste-based occupational households during the Kharif season in the year 2021-22 covered an extent of 85 acres which is much less from that of farm households and labour households. These households have cultivated paddy, cotton, and groundnut in large extent and got more yields from maize, paddy, and groundnut crops respectively. The most expensive crop in terms of input cost was cotton, paddy, and Chillis and the most remunerative crops were horticulture, cotton, and pulses. The less lucrative crops were jowar, and red gram.

During the Rabi season, these households cultivated 57 acres of land and grown mostly paddy and groundnut and got higher yields from paddy, maize, and groundnut crops. The most profitable crop for them are groundnut, maize, and paddy respectively. In 2016-17, during the Kharif season traditional households cultivated a total area of 85 acres which is static compared to the current year. Paddy, groundnut and maize were the major crops and got more yield per acre from maize, paddy and groundnut crops which is very similar to that of current year. During the Rabi season they had cultivated only 30 acres comprising mainly paddy and groundnut and the average yield was more for the maize, paddy and groundnut which is similar to the Kharif season for both the period under the project areas (Table 3.51).

Table 3.51: Cropping pattern of traditional HH under the Kalwakurthy project areas

Crops	Current Cropping Pattern (2021-22)								Previous Cropping Pattern (2016-17)			
	Kalwakurthy											
	Caste-based occupational households											
	Kharif				Rabi				Kharif		Rabi	
	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yields	Avg. Cost	Avg. Value	Total Area	Avg. Yield	Total Area	Avg. Yield
Castor	0	0	0	0	0	0	0	0	3	4	0	0
Chilli	3	5	45000	52500	0	0	0	0	0	0	0	0
Cotton	14	7.1	47429	93143	0	0	0	0	25	6.4	0	0
Groundnut	11	8.8	36250	73450	21	10.2	45600	102270	4	8	12	9.5
Horticulture	7	0	27750	200000	3	4	70000	15000	5	0	0	0
Jowar	1	1	16000	6000	0	0	0	0	8	5.3	2	10
Maize	1	20	15000	20000	5	13	39000	83000	11	22.8	4	24
Paddy	43	17.4	45652	61623	26	15.4	29813	44073	28	15.2	13	19.4
Pulses	4	3	30000	84000	3	5.3	19000	36500	0	0	0	0
Redgram	3	2	6000	12000	0	0	0	0	2	2.4	0	0
Total	85	13.2	40698	71650	57	12.6	36097	63931	85	11.3	30	15.1

3.6. Patterns of income and working days of the sample households

There were many economic activities in which members of the farm households involved, for instance, dairy, heavy machinery drivers, petty trade, tailoring, etc. Altogether 976 members were engaged in various gainful activities. Of them, 335 worked as agricultural labourers, 290 involved in the MGNREGA as wage labourers, 149 worked as non-farm labourers and 100 of them engaged in other gainful economic activities. The minimum income was earned by the MGNREGA workers and maximum income was earned by business people under the study areas. The average income of the members involved in business earned more than 2 lakhs followed by potters and labourers involved in 'other activities' respectively. The low mean income earners were the MGNREGA workers, tailors, and fishermen respectively. For the year 2016-17, there were a total of 811 members engaged in various economic activities.

A majority were engaged in agriculture sector as daily wage workers, the MGNREGA workers, non-farm workers and workers that engaged in 'other activities. The mean income was higher among the people who did business followed by Jangidi work[1] and other activities. The lowest

[1] 'Jangidi' work refers to seasonal or annual contract for grazing the livestock (mostly sheep and goats) for wages fixed on number of livestock

mean income earners were observed among the MGNREGA, mechanics and weavers. The minimum income was Rs 900 which was earned by the MGNREGA worker and followed by agriculture labourers and weavers. The maximum income was earned by business people, auto drivers and others. The least maximum income was reported by farm machinery mechanics and weavers (Table 3.52). Members engaged in business and trade such as dairy, pot making and auto drivers earned higher annual income, while manual workers in the MGNREGA, agricultural workers and non-agriculture labourers, weavers were tend to earn less income in the given year. Both labour and traditional occupational households who did not upgrade their employment skills relied on manual labour and caste based occupational activities for earning income throughout the year for their subsistence.

Table 3.52: Annual income of farm households from allied activities in the study villages

Annual Income of farmers from Allied economic Activities								
	Farm households (All)							
	2021-22				**2016-17**			
	Mean	**Minimum**	**Maximum**	**N**	**Mean**	**Minimum**	**Maximum**	**N**
Agriculture labour	34587	3000	125000	335	22783	1500	80000	277
Auto/Car Driver	125767	22500	300000	15	58059	4500	216000	17
Business	202080	18000	600000	5	293332	99996	600000	3
Diary	132273	15000	420000	11	97200	36000	162000	7
Fishing	22333	18000	25000	3	19500	12000	27000	2
Fruit Vendor	26429	6000	48000	7	37750	27000	48000	4
Jangidi	90000	72000	108000	2	144000	144000	144000	1
Mechanic	120000	40000	200000	3	15000	15000	15000	1
MGNREGA	5950	900	20000	290	5482	900	16200	266
Farm Machinery Repairs	74000	40000	108000	2	7500	7500	7500	1
Non-farm labour	51489	4000	250000	149	47126	4000	200000	141
Others	187054	12000	600000	100	126891	16800	420000	53
Petty trade	77909	9000	150000	11	56500	15000	120000	6
Potter	200000	200000	200000	1	0	0	0	0
Shepherd	83250	24000	165000	8	84556	18000	160000	9
Tailoring	16500	7500	35000	6	25000	6000	60000	4
Tractor Driver	130786	6000	360000	28	75456	21000	180000	18
Weaving	0	0	0	0	3000	3000	3000	1
Total	51706	900	600000	976	32804	900	600000	811

On the other hand, there were 1784 members from the labour households that engaged in various agricultural allied activities under the four lift irrigation project areas. Of them, 659 were engaged in agricultural sector as daily wage labourers, 460 worked in non-agricultural sector and 448 worked in the MGNREGA scheme. A moderate number of them engaged in

'other activities,' drivers, dairy workers, shepherd, mechanics, etc. The uppermost mean income was earned by barbers followed by mechanics, workers in other activities, shepherds, and heavy machinery drivers respectively. The minimum income was Rs 525 and it was earned through the MGNREGA works. The maximum income was 3 lakhs earned by heavy vehicle drivers followed by non-farm labourers. There are a half a dozen other activities that offered more than 2.4 lakhs income per annum. For the year 2016-17, the total number of workers engaged in various activities stood at 1522 of them 553, 435 and 399 were agricultural wage labourers, MGNREGA workers and non-farm wage labourers respectively.

Table 3.53: Annual income of labour households from allied activities in the study villages

Annual income from allied activities								
	Labour households (All)							
	2021-22				**2016-17**			
	Mean	**Minimum**	**Maximum**	**N**	**Mean**	**Minimum**	**Maximum**	**N**
Agri labour	49558	1800	186000	659	30126	2000	192000	553
Auto/Car Driver	97648	18000	240000	31	63227	3000	240000	43
Barber	240000	240000	240000	1	150000	150000	150000	1
Business	51800	18000	100000	5	0	0	0	0
Diary	107325	45000	240000	10	55000	45000	60000	3
Fishing	48000	48000	48000	1	0	0	0	0
Fruit Vendor	56000	12000	240000	8	13500	13500	13500	1
Jangidi	55625	24500	90000	4	19500	15000	24000	2
Mechanic	163500	90000	219000	4	99750	90000	109500	2
MGNREGA	6404	525	50000	448	5664	300	42000	435
Machinery Repairs	67333	50000	80000	3	68000	36000	100000	2
Non-farm labour	73160	4000	256000	460	53235	1500	192000	399
Others	130158	9000	300000	93	83320	16000	200000	49
Petty trade	103500	24000	190000	8	45750	15000	90000	4
Potter	90000	90000	90000	1	0	0	0	0
Shepherd	114788	30000	174000	8	96000	72000	120000	3
Tailoring	61875	10000	200000	8	63320	21600	175000	5
Toddy tapping	0	0	0	0	36000	36000	36000	1
Heavy-Driver	113856	14000	300000	32	70432	7200	216000	19
Total	52374	525	300000	1784	32871	300	240000	1522

The mean income was more for those who worked as barber, mechanics, and shepherd and lowest was earned by working in the MGNREGA, fruit vendors and Jangidi workers. The minimum wage was offered by the MGNREGA scheme and maximum income was recorded among the auto/car drivers followed by other workers and heavy machinery drivers (Table 3.53). Note that, in the year 2016-17, fishing, business, and pottery activities did not exist

indicating the absence of irrigation water. Economic activities in the rural areas are eventually associated with agriculture which are transformed with availability of irrigation. The recent changes in employment opportunities in the villages are attributed to the access to water from the newly constructed lift irrigation projects in the erstwhile Mahabubnagar district.

The following Tables present the overall pattern of employment and annual incomes in the villages before and after lift irrigation. The data regarding the annual income of the caste-based or traditional households for the year 2021-22 shows that a total of 526 workers participated in various economic activities. Many of them were engaged in agriculture sector, MGNREGA and other economic activities. Individuals engaged in business earned higher average income followed by heavy machinery drivers, barbers and shepherds and lowest mean income was earned by weavers, MGNREGA workers and pot makers. The minimum income was Rs 1800 earned by the MGNREGA workers and maximum income was earned by heavy machinery drivers, business and shepherds and half a dozen activities offered them more than Rs 1.5 lakhs annual income.

Fig 3.3 Household interview with artisans

For the year 2016-17, a total of 448 workers engaged in agricultural allied activities, of them, majority worked as agricultural workers, MGNREGA workers and non-farm labourers. Numerous of them were engaged in other activities such as private jobs in various urban oriented economic activities. The mean income was higher for the shepherd, business, barbers, and heavy drivers. The minimum income was 1000 and maximum income was more than five lakhs which was earned by people who carried business activities respectively (Table 3.54). Caste based occupations like Shepherd, barber and toddy tapping seems to offer more income among the traditional or caste based occupational households than that of farm and labour households.

Table 3.54: Annual income of caste-based occupational households from allied activities

	Annual income from allied activities of caste-based occupational households (All)							
	2021-22				2016-17			
	Mean	Minimum	Maximum	N	Mean	Minimum	Maximum	N
Agriculture labour	36605	7500	105000	96	26826	1500	168000	95
Auto/Car Driver	147150	36000	240000	10	109223	2700	365000	11
Barber	174417	96000	300000	12	126000	60000	198000	12
Business	198916	18000	600000	12	138625	50000	492000	8
Carpenter	142857	72000	240000	14	98846	24000	180000	13
Fishing	140000	60000	180000	3	24000	24000	24000	1
Jangidi	96000	96000	96000	1	0	0	0	0
Mechanic	108400	56000	156000	5	73000	24000	135000	3
MGNREGA	6488	1800	20000	81	5744	1000	13500	81
Farm machinery repairs	141000	72000	192000	4	81333	30000	144000	3
Non-farm labour	56423	3600	250000	56	43111	6000	160000	54
Others	155042	2000	600000	135	108622	4000	528000	103
Petty trade	91650	24000	300000	36	71560	24000	210000	30
Potter	24000	24000	24000	2	18000	18000	18000	2
Shepherd	133633	18000	499992	15	147000	48000	456000	8
Tailoring	90231	9000	225000	13	45188	9000	72000	8
Toddy-tapping	96375	45000	150000	8	96000	48000	120000	3
Heavy machinery driver	187300	18000	672000	20	125500	36000	180000	12
Traders	126750	13500	240000	2	0	0	0	0
Weaving	4800	4800	4800	1	3600	3600	3600	1
Total	93163	1800	672000	526	61701	1000	528000	448

On the other side, the number of days worked in allied economic activities of the famer households during the year 2021-22 shows that out of the total members, the mean worked days of auto/car driver, dairy, and business was very high and low mean worked days was observed for those employed as MGNREGA worker, fishermen and fruit vendors respectively. The minimum days worked was five days, recorded among the agricultural wage labourer, and maximum number of days worked was 365 days observed among the tractor and heavy machinery drivers, businessmen, auto/car drivers, non-farm, and other workers.

The following Tables provides details of the shift in occupational pattern and consequent changes in income and employment in the villages. Most of the activities were carried out in maximum of days in a year indicates active local labour market that engaged the workforce throughout the year in economically gainful activity. For the year 2016-17, the mean number of worked day was 101 days, compared to 108 mean number of days employment in 2021-22. There is a noticeable occupational shift in terms economic activities and consequent income and employment in the villages after introduction of irrigation facility. There is a change over the years in the type of work the households were employed in with certain activities employing for more days or lesser number of days indicating the decline of certain activities and growth of certain activities with the access to introduction in the study villages. There is an increase from 2016-17 to 2021-22 in mean days employed in activities like auto driving and car driving, mechanics, farm machinery repairs, petty trade, fishing, agricultural labour and jangidi indicating increased employment in farm as well as growth of non-farm as well as business activities owing to lift irrigation bringing in transformation of the village economy. Along with certain activities gaining prominence there has been decline in the mean days employed by certain activities like MNREGA, fruit vendors, non-farm labour, shepherd, weaving, Jangidi etc. The shift in type of employment indicates a move towards activities that provide higher incomes.

The lowest means of days worked was observed in the case of fishermen, MGNREGA and motor mechanics while highest mean of days worked was found in the case of businessmen, dairy and pot making activities. The agricultural labourers worked accounted minimum number of days worked (6 days) and maximum number of days worked was found among the auto/car driver, heavy machinery drivers, non-farm workers and other types of workers (Table 3.55). It is interesting to note that some of the workers were employed less than a week in agricultural activities and some of the lucrative economic activities allowed them to work throughout the

year indicating the declining trend of dependency on the agriculture sector as a source of employment and income in the study villages.

Further, the data on the number of days worked among the labour households for the year 2021-22 depicts that a total of 804 individuals actively participated in the agricultural allied economic activities. Of them, a majority were engaged in agricultural sector as a daily wage labourers followed by working in the MGNREGA scheme, and non-farm sector workers. The highest mean days worked was found in the case of fruit vendors, barbers, petty traders and other workers and the lowest average days worked was recorded for the MGNREGA workers, agricultural wage labourers and non-farm labourers respectively.

Table 3.55: Number of worked days by the members of the farmer households (allied economic activity)

Number of worked days in allied activities								
	Farm households (All)							
	2021-22				2016-17			
	Mean	Minimum	Maximum	N	Mean	Minimum	Maximum	N
Agriculture labour	90	5	250	335	84	6	300	277
Auto/Car Driver	231	45	365	15	159	30	365	17
Business	212	60	360	5	287	200	360	3
Diary	215	30	350	11	224	90	300	7
Fishing	47	30	60	3	45	30	60	2
Fruit Vendor	90	30	140	7	170	120	200	4
Jangidi	180	180	180	2	120	120	120	1
Mechanic	203	80	330	3	50	50	50	1
MGNREGA	46	10	100	290	50	10	100	266
Farm machinery repairs	140	100	180	2	50	50	50	1
Non-farm labour	110	10	365	149	131	20	365	141
Others	287	12	365	100	274	30	365	53
Petty trade	213	60	360	11	155	120	300	6
Potter	200	200	200	1	0	0	0	0
Shepherd	193	100	300	8	205	100	300	9
Tailoring	93	30	150	6	105	60	200	4
Heavy machinery driver	134	20	365	28	152	25	365	18
Weaving	0	0	0	0	50	50	50	1
Total	108	5	365	976	101	6	365	811

The minimum worked days was 3 which was documented among the other workers followed by the MGNREGA and non-farm labourers. The maximum worked days was 365 days wherein tractor, heavy machinery drivers, Jangidi workers and shepherd were outnumbered the other types of workers. The data for 2016-17 revealed that a total of 1522 of individuals were engaged in various economic activities in which a greater number of them were engaged in

agriculture sector, MGNREGA scheme and non-farm labour activities. The higher average number of days worked was among the mechanics, barbers, shepherd and lowest of the same was found among the fruit vendors, MGNREGA workers and agricultural labour workers.

Table 3.56: Number of worked days by the members of the labour households (allied economic activity)

Number of worked days in allied activities								
	Labour households (All)							
	2021-22				2016-17			
	Mean	Minimum	Maximum	N	Mean	Minimum	Maximum	N
Agriculture labour	132	9	310	320	109	7	330	553
Auto/Car Driver	160	30	300	14	145	10	320	43
Barber	300	300	300	1	300	300	300	1
Business	105	40	200	4	0	0	0	0
Diary	195	90	300	2	183	150	200	3
Fruit Vendor	310	310	310	1	30	30	30	1
Jangidi	213	120	360	3	70	60	80	2
Mechanic	0	0	0	0	333	300	365	2
MGNREGA	51	10	250	234	54	10	300	435
Machinery Repairs	160	160	160	1	140	80	200	2
Non-farm labour	132	15	300	162	135	6	365	399
Others	278	3	365	35	267	30	365	49
Petty trade	263	200	310	3	173	60	300	4
Potter	180	180	180	1	0	0	0	0
Shepherd	237	100	360	3	270	240	320	3
Tailoring	133	100	180	3	176	100	250	5
Toddy-tapping	0	0	0	0	120	120	120	1
Heavy machinery Driver	217	36	365	17	176	30	365	19
Total	119	3	365	804	108	6	365	1522

The non-farm labourers seemed to be working minimum number of days that is just six days, and the maximum days worked were found in the case of the mechanic, heavy machinery drivers, and non-farm labour respectively. It should be noted that in the year 2016-17 not a single individual was engaged in business activities (Table 3.56). The major source of work for the labour households is agriculture, non-agriculture labour, and the MGNREGA scheme. They appear to be mostly engaged in manual and low-skill work which offers them low wages or salaries whereas this is not true for the farmer households.

There were a total of 526 members employed among the traditional occupational households who were largely engaged in agriculture sector, MGNREGA scheme, non-farm sector and other activities. The average (mean) number of days worked for the year 2021-22 was 178 days. In this, the highest average days worked were recorded among the barber, business and Jangidi workers and lowest in the case of the MGNREGA workers, weavers, and agriculture labourers. The minimum number of days worked stood at 10 days which is found among the non-farm labourers followed by the MGNREGA workers and agricultural labourers. The maximum number of days worked was 365 days which was found in more than five economic activities while a half a dozen activities recorded a moderate number of worked days.

Table 3.57: Number of worked days by members of caste-based occupational households (allied economic activity)

Number of worked days								
	Caste-based occupational households (All)							
	2021-22				2016-17			
	Mean	Minimum	Maximum	N	Mean	Minimum	Maximum	N
Agriculture labour	106	20	290	96	105	9	360	95
Auto/Car Driver	239	60	365	10	231	9	365	11
Barber	320	300	350	12	316	280	350	12
Business	301	200	365	12	272	100	365	8
Carpenter	231	90	365	14	220	60	365	13
Fishing	220	60	300	3	40	40	40	1
Jangidi	160	160	160	1	0	0	0	0
Mechanic	240	80	350	5	187	60	300	3
MGNREGA	47	14	100	81	49	10	120	81
Machinery Repairs	188	100	270	4	150	100	200	3
Non-farm labour	116	10	310	56	130	15	350	54
Others	261	20	365	135	252	40	365	103
Petty trade	203	40	350	36	217	80	300	30
Potter	140	100	180	2	200	200	200	2
Shepherd	269	60	365	15	308	200	365	8
Tailoring	197	90	300	13	171	90	210	8
Toddy-tapping	256	150	350	8	267	200	300	3
Heavy machinery driver	263	20	365	20	265	90	360	12
Traders	180	90	270	2	0	0	0	0
Weaving	60	60	60	1	25	25	25	1
Total	178	10	365	526	165	9	365	448

During the year 2016-17, there were a total of 448 who worked in agriculture, MGNREGA, non-farm activities and other works. The mean days worked during the year was 165 and

highest of the same was found among the barbers, shepherd, businessmen, etc., while the lowest was found among the fishermen, weavers and MGNREGA workers. The minimum number of worked days was 9 days and maximum was 365 days. Workers in the agriculture sector, drivers seemed to be working less days while businessmen, carpenters, auto drivers and shepherd recorded highest number of days worked. The number of days were more in non-manual labour activities. It can be said that most of the traditional occupational households were engaged in agriculture, non- agriculture, MGNREGA and related activities but their number of days worked in them appears be the lowest compared to their engagement in other activities like business, shepherd, carpenters, etc. In other words, the traditional occupational households were involved more in their traditional economic or caste-based occupations and were supplementing their incomes by engaging in various economic activities whenever they required money rather than completely shifting to other economic activities (Table 3.57).

3.7. Summary

The study results clearly reveal that that the farm households own more land and labour households own dry land. Traditional occupational households leased out their land while labour households have leased in land. The cultivated land was more among farm households followed by labour and traditional households. The major source of irrigation was tube wells for all cultivators; however, natural rainfall was still a major source of cultivation for the labour and traditional households. Farmers during the Kharif season relied on canal and piped water for cultivation while the labour and traditional households relied more on tube wells, open wells, tanks and rainfall. The irrigation for year 2021-2022 was greater compared with the year 2016-17. Cultivators adopted supplying water through pipe methods followed by sprinklers and drip irrigation. The entire land was cultivated during the kharif season in the current year but it has come down during the Rabi and previous years.

The crops grown in most of the villages under lift irrigation projects comprised paddy, cotton, chilli, groundnut, and most cost was incurred on cotton, chilli, groundnut, and paddy. The most profitable crops were mango, groundnut, horticulture, pulses, and paddy. The profit was more during the Kharif season than Rabi. Major beneficiaries from cultivation were farmers followed by labour and traditional households. Labour households supplement their income from participating in the local labour market as daily wage earners and contribute to their total income. Traditional households generate income from caste-based occupation and working in other activities. Farmers earned more income from cultivation including commercial crops,

while labour households earned from agriculture, non-agriculture and MGNREGA works. Traditional households were dependent on caste-based occupations though they were engaged in all sorts of allied activities. Businessmen, carpenters, dairy workers were employed throughout the year and less employed workers were MGNREGA workers, manual labourers in farm and non-farm sectors.

CHAPTER – 4

Patterns of Labour Migration from Erstwhile Mahabubnagar District

4.1. Introduction

One of the major objectives of this study is to capture the current migration trends under the jurisdiction of four lift irrigation projects in the erstwhile Mahabubnagar district. Labour migration from the erstwhile Mahabubnagar district is well known as "Palamuru labour", particularly for seasonal and short-term migration to other places. They migrate mostly after or end of the harvest season and engage in multiple economic activities and thus earned the name of a hard-working migrant workforce throughout the country. Meanwhile, after the formation of Telangana as a separate state the government initiatives like the construction of new lift irrigation projects have started to function and rural households are accessing and utilizing irrigation water for cultivation since their inception. It is in this backdrop, what changes the lift irrigation projects had brought out in the rural areas and how it affected the whole gamut of out-migration from the erstwhile Mahabubnagar district of Telangana. This chapter is divided into three sections including the current introduction. The second section brings out the current patterns of migration from the study villages. The final section is including the conclusions.

4.2. Patterns of current migration from the study areas

The data based on household survey reveals that out of the total households, 16.6 percent accounts for at least one migrant member. Of them, 8.7 percent were long-term migrants, 4.6 percent were short-term migrants and 3.3 percent of them were seasonal migrants. Seasonal migration is defined as a migrant worker who migrates out and stays less than one year, while short-term is a migrant worker who stays from one to two years at the destination and long-term migrant is defined as a migrant worker whose duration of stay is more than two years at the destination i.e., away from their villages for economic opportunities. The disaggregate data shows that 25 percent of the households migrated from the Rajiv Bheema project areas followed by the Koilsagar, and Kalwakurthy, and the least of them was from the Nettempadu project villages. Long-term migration is a common phenomenon in the region. Note that no short-term migrant was observed from the Nettempadu while a large percentage of seasonal migrants were observed from the Rajiv Bheema than that of short-term migrants. Within the

migrant households, the data shows that there was a total of 149 households which reported out-migration by their family members. Of them, 52.3 percent were long-term migrants, 27.5 percent were short-term migrants, and 20.1 percent seasonal migrants. Overall, long-term migration is very much prevalent in villages under Rajiv Bheema project, seasonal migration outnumbered short-term migrations. Despite the commencement of lift irrigation projects and provision of the irrigation water for the last couple of years the erstwhile Mahabubnagar district recorded close to 17 percent of migrants indicating the decline of migration compared to previous decades. Out-migration from the region cannot be completely curbed because of their dependence on the income earned from working outside their villages. It can be concluded that the lift irrigation projects have reduced migration and allowed more individual and voluntary migration for a shorter duration than long and more rounds of distress out-migration from the region. Secondly, coping and migration strategies have come up due to changes in the village economies caused by the lift irrigation projects in the study villages (Table 4.1).

The data on migration history of the households in the study areas on the whole shows that 63.1 percent of the migrant workers migrated between 2016-2022 followed by 18.8 percent of them migrated between the year 2010-2015, 14.1 percent moved out in the 2000s, and only 4 percent of them migrated to other places in 1990s to various destinations. Utmost of them happened to be migrating for a longer duration followed by short-duration and seasonal sojourns. Nonetheless, when examined year-wise, the data for 2016-22 demonstrates short-term migration was greater followed by seasonal and long-term migrations from the study villages. From 2010-2015 long-term and seasonal migrants reported migrating out of their villages respectively. In this, no short migrations took place. During the years of 1990 and 2000s majority of the migrants stayed long duration followed by seasonal sojourns and very few stayed short duration at the destinations. The migration rate was high during the latest years of migration, and fewer as their year of migration goes back or becomes older for all three types of migrants. Under the Nettempadu project areas, migration took place only between 2016-2022. Migration from the Koilsagar study villages shows that there were no seasonal or short-term migrations in the 1990s, 2000s, and 2010-15 but long-term migration was reported across the years. Under the Rajiv Bheema, more migration took place in recent years, the same for the Kalwakurthy project villages (Table 4.2). It can be concluded that labour and farmer households from erstwhile Mahabubnagar seem to be short and seasonal migrants rather than preferring to migrate for longer durations. Out- migration continues to occur in the

study areas due to lack of employment during the post-monsoon, post-harvest, or summer seasons. However, this scenario is gradually changing since COVID-19.

The data regarding the reasons for migration of the members from the sample households revealed that out of the total migrants, 28.1 percent of them migrated due to lack of work in the villages, 21 percent because of lower wage rates in the local markets, 18 percent of them moved out of their villages to other places to earn regular income and 3.8 percent travelled due to inadequate work in the local labour market and 5.3 percent migrated due to debts. Interestingly, 11.5 percent of them informed that they had to migrate owing to a lack of access to irrigation facilities in their villages. Furthermore, long-term migrants stated that they had migrated due to no work or lack of work, low wage rates, and to earn income respectively. Similarly, short-term migrants also migrated mostly because of no work, lower wage rates, and no demand for their skills in the villages respectively.

Correspondingly, seasonal migrants too basically migrated because of no work or lack of work, to earn income and low wage rates in the villages. The migrants who moved out of the village to various destinations due to lack of access to irrigation facilities were more among the seasonal migrants followed by long-term and short-term migrants respectively. Under the Nettempadu project areas a majority of them migrated owing to low wage rates, to earn income and no demand for their skills in the village/s. Under the Koilsagar project areas, only one seasonal migrant was found and others migrated as a result of no work, fewer wage rates, and to earn money. Similar patterns can be found under the Rajiv Bheema and Kalwakurthy project areas. The sample villages witnessed the problem of frequent unemployment, and low wage rates, particularly during the post-harvest season, therefore, migrate to other destinations to engage in an economically gainful activity to overcome such problems and thus earn income to supplement their overall family income. There are quite a moderate of them migrated outside their villages due to debts and wish to clear them. Though a moderate proportion of the workforce moved out of the villages, the magnitude of such out-migration has in the recent past drastically come down due to the arrival of irrigation water from the newly constructed lift irrigation projects as most of them have lands and cultivate now, get work in agricultural activities and through MGNREGA, therefore, did not any longer prefer to migrate out to other places (Table 4.3).

The employment of the migrant workers at the destination reveals that 54.4 percent of the migrants work in numerous economic activities in the private sector followed by 19 percent of them working as construction workers and heavy machinery drivers. This apart, other migrant also worked as clay workers, car drivers, auto drivers, and in some other economic activities in marginal proportions. This trend can be found across all the types of migrations i.e., seasonal, short-term, and long-term migration. Migrants from the Nettempadu were mostly engaged in 'other activities' and attached labour. In other project areas, the overall trends of employment prevail (Table 4.4). It is observed during the FGD interviews that many of the migrant workers are engaged in the urbanized modern economic activities along with unskilled manual labour works.

The pattern of male wage rates of the migrant workers at the destination discloses that out of the total wage reported migrant households, 80.5 percent of them earned wages between Rs.500-1000 per day followed by 16 percent of them received wages ranging from Rs. 300-500 and 3.7 percent of them earned wages that range between Rs. 1000-1600. The greater proportion of short-term migrants appear to be earning Rs. 500-1000 than that of long-term migrants and it is same for those earning wage rates ranging between Rs.1000-1600. Under the Nettempadu project areas only long-term migrants were found to be earning wages ranged between Rs.1000-1600. Short-term and seasonal migrants from the Rajiv Bheema project areas were earning higher wages, similar to the migrants from the Koilsagar project areas. Both short-term and long-term migrants from Kalwakurthy project villages by and large earned similar wage rates at the destinations (Table 4.5). The patterns of the wage rates suggest that there seem to be two likely scenarios in which migrants can get higher wages, first, the long duration of migration offers higher wages as they gain skills by pursuing the same work for several years and thus get higher wages. In case of short-term migrants, they largely stay short duration and hence aim to engage in those activities that offers them higher wages. They want to earn higher wages than what they get in their villages, therefore, prefer to migrate to urban centres. There are only 11 female workers that reported wage rates and all of them earned wages ranging from Rs.250-600, of them, long-term migrants were slightly more.

There are a total of 85 migrant workers who got their wages in the form of monthly salary, of them, 61.2 percent received a salary between Rs.10000 and Rs. 20000 followed by 18.8 percent of them got a monthly salary ranging from Rs.6000 to Rs.10000, 16.5 percent received the monthly salary from Rs.20000 to Rs. 30000 and 3.5 percent got a monthly salary of above

Rs.30000. Further, 75 percent of the seasonal labour migrants received a monthly salary between Rs.10000-20000, and this is 66.7 percent for short-term migrants and 55.1 percent of long-term migrants. Migrants whose salaries range from Rs. 20000 to Rs. 30000 were largely more among the long-term migrants. However, migrants from Nettempadu project areas earned salaries that range from Rs.20000 to Rs. 30000, while migrants from Koilsagar, Rajiv Bheema, and Kalwakurthy projects earned salaries between Rs10000 and Rs. 20000. Note that monthly salaries were higher for the long-term migrants. Most of the migrants from Koilsagar also earn higher monthly salaries compared to their counterparts in other lift irrigation projects (Table 4.6). The salaries of migrants that is below Rs.20000 indicating a large portion of migrant workers work in the low paid jobs for various reasons. Note that, there was only one female migrant from the Kalwakurthy project who works on a salary basis at the destination and earned a monthly salary of Rs. 20000. In rest of the project areas, not a single female migrant was found to be working on the basis of monthly salary.

Overall, a total of 124 households reported to receiving remittances from migrant worker to their families back home. Of them, 65 households had long-term migrants, 34 households belong to short-term migrants and 25 of them belong to seasonal migrant households. When it comes to the amount they have received, a larger proportion of them sent an amount that ranges from Rs. 2000 to Rs.10000 followed by Rs.10000 to Rs. 20000 and Rs.20000 and Rs. 30000. There were 13 percent of the households received an amount between Rs.50000 to Rs.100000. Further, 40 percent of the seasonal migrant households received remittances ranged between Rs. 20000 to Rs. 30000 and 20 percent received between Rs. 50000 and Rs.100000. On the contrary, long-term migrants seemed to be sending smaller amounts while short-term migrant outnumbered in sending a medium range of remittances. Migrants from Nettempadu project areas sent a greater portion of remittances that ranged below Rs. 10000. The majority of the migrant workers from Koilsagar sent remittances between Rs.10000 and Rs.20000, migrants from Rajiv Bheema sent between Rs. 20000 and Rs. 30000, while it was the smaller amount for the migrants from Kalwakurthy project areas. Long-term migrants are less persuaded to send larger amounts of remittances than that of other types of migrants due to the expenses they incur at the destination. Migrants from Rajiv Bheema and Koilsagar projects sent relatively higher remittances than migrants from Nettempadu and Kalwakurthy projects (Table 4.7).

Less than half the migrant workers had 8 hours work schedule. Most of the migrants (44.5%) worked 8 hours per day at the destination; while remaining 55.5% migrants had longer wrought hours like 9 to 14 hours a day. Working hours ranged from 9 hours (24.8%), 10 hours (14.6%) and 12 hours (12 %) per day at their work site. It seems that a majority of the short-term and long-term migrants worked 8 hours and 48.3 percent of the seasonal migrants worked 9 hours per day. Longer working hours were observed among seasonal migrants but then about 3 percent of the short-term migrants worked 14 hours. It is also learned that 18.4 percent of the short-term migrants worked 12 hours. The majority of the migrants from the Nettempadu worked 12 hours, while it is 8-9 hours for the migrants from Koilsagar, Rajiv Bheema and Kalwakurthy project areas. Seasonal migrants, by and large, work for longer hours while other types of migrants worked 8 hours and some among them worked for 10 hours (Table 4.8). One of the respondents pointed out that the longer they stay the lesser the exploitation at the destination. For instance, seasonal migrants were subjected to longer work hours, extra time without payments, extra days or beyond the contract and thus encounter frequent labour exploitations at the destination places.

Of the total migrant households, 44.6 percent of them are working for more than five years in the current job followed by 18.9 percent of them working from 1-2 years and 10.8 percent were working from six months to one year at the destination. On the contrary, close to 9 percent of them were working from 0-6 months. Further, 69.2 percent of the long-term migrants working in current employment for more than five years, while 56.1 percent of the short-term migrants working for the last 1-2 years. About 31 percent of the seasonal migrants were working from 0-6 months, and 24.1 percent of them were working for more than five years. About 66.7 percent of the migrants who migrated from the Nettempadu worked for 2-3 years, 63.6 percent from the Koilsagar worked for more than five years, 59.1 percent of migrants from Rajiv Bheema and 34 percent from Kalwakurthy worked for more than five years. The migrants who are working for more than five years in current employment are largely long-term migrants across all four project areas. It is learned that seasonal migrants were the latest entrants into the current employment while short-term migrants were working between 1-2 years and 2-3 years (Table 4.9).

The data concerning migrant's duration of stay at the destination shows that 44.3 percent of them were staying for more than five years followed by 12.1 percent were staying for 2-3 years and18.1 percent staying for 1-2 years. In contrast, 10 and 11 percent of them staying for 0-6

months and six months to one year. Most of the long-term migrants (68%) stay for more than five years and 14 percent staying for 2-3 years. Further, nearly 49 percent of the short-term migrants were staying for 1-2 years and 22 percent of them were staying above five years. A total of 60 percent of the seasonal migrants were staying from 0-1 years and there were few who also stayed longer period. Around 66.7 percent of migrants from Nettempadu were staying for the last two-three years, little over 59 percent of the migrants staying for more than five years, and 57.8 percent from Rajiv Bheema were also staying for more than five years while there were only 35 percent of them were staying for more than five years under Kalwakurthy project areas. The short-term and seasonal migrants who migrated from Nettempadu and Koilsagar were staying shorter periods and in the rest of the project areas, long duration of stay by the migrants at the destination was more prevalent (Table 4.10). Location of the migrant or more particularly distance from nearby cities also determines duration of migration. For instance, migrants from Kalwakurthy project areas stay shorter periods as their villages are close to Hyderabad city, where they usually migrate to.

Out-migrants from the study areas informed that air pollution, sound pollution, extra work, and poor hygienic conditions were the major problems they faced while working at the destination place. In contrast, over 7 percent worked under hazardous conditions and 8 percent of them worked under fume, gas, and dusty conditions. Short-term migrants were outnumbered in working hazardous conditions, while seasonal migrants worked extra/overtime more than other types of migrants. Air pollution is a common problem for all the migrants. Similarly, a varied proportion of them expressed sound pollution is a common and widespread problem for most of them. In another category of working conditions, all types of migrants reported those problems in a moderate proportion. Migrants from Nettempadu were predominantly working extra time compared to migrants from other project areas. Main problem faced by migrants from Koilsagar, Rajiv Bheema and Kalwakurthy projects include sound and air pollution. Seasonal and short-term migrants' likelihood of working under hazardous and extra time is higher, while other migrant workers suffer from unhygienic and harsh conditions (Table 4.11).

Three out of four migrant labour have company of their family members or friends. The migrant workers from the study villages basically migrated with family (26%), wife and husband (20%), individually (25.4%) and with friends (11%). There were not many migrated on contract (3%) and in groups (3.5%). The migrants who travel individually to the destination are found more among the short-term migrants, wife and husband migration was largely taken by

seasonal migrants, and long-term migrants moved out with family. Likewise, migrants who moved out with friends were basically short-term migrants. It is found that from Nettempadu migration by the entire family and head of the household or husband only migration was widespread. From Koilsagar it is the individual, wife and husband and family migration is predominant. From Rajiv Bheema migration by wife and husband, individuals, with family and friends is taking place in a large way. From Kalwakurthy project areas, most of the migrants travelled with their family members followed by individual migration and migration by couples i.e., wife and husbands. Long-term migrants preferred to migrate out of their villages with their spouse (wife or husband), and with their entire family while individuals migrated largely seasonally and fewer of them migrated with their spouses (Table 4.12).

The practice of migrant labour recruited by contractors or employers by giving advance amount, which was rampant in the past when labour contractors called as 'Gumpu Maistris' recruited hundreds of workers for construction sites in distant locations on annual contracts, is no more practiced now in erstwhile Mahabubnagar. Household data of migrant labour revealed that only 8.7 percent of them took advance from employers/contractors/maistris. Seasonal and short-term migrants outnumbered long term migrants among such migrant labour recruited by offering advance amount. There were two seasonal migrants Rajiv Bheema project who took advance, followed by one seasonal migrant a village under Nettempadu project. There were 10 migrants from the villages that came under the Kalwakurthy project took an advance amount from employers or maistris for working as short-term and seasonal migrants (Table 4.13).

Out of the total 149 migrant households, about 28.2 percent of the migrant labourers were provided one or the other social security (like medical allowance, Employment Provident Fund (EPF), Employees State Insurance (ESI), health insurance) by employer or the contractor at the destination. Interestingly, seasonal migrants got more of such social security followed by short-term and long-term migrants. Not a single migrant under the Nettempadu project received any social security. The percentage of migrants that received social security was outnumbered under the Rajiv Bheema project followed by Koilsagar and Kalwakurthy projects respectively. Short-term migrants from Koilsagar benefited most in availing social securities at the destinations while none of the seasonal migrants got such benefits from the same project. In contrast, seasonal migrants from the Rajiv Bheema and Kalwakurthy project areas happened to get access to social security more than the rest of the migrants at the destination places (Table 4.14).

Out of the total 64 households that availed various social securities, 50 percent had a medical allowance, 22 percent of them had an Employment Provident Fund (EPF), 19 percent Employees State Insurance (ESI), and 9.4 percent had health insurance at the destination. Seasonal migrants appear to be received more of medical allowance or provision than the rest of the migrants. EPF subscription was largely accessed by short-term and long-term migrants. On the contrary, ESI was not received by seasonal migrants but short-term and long-term migrants were the most beneficiaries. In all the projects, many of them received a medical allowance or provisions thereafter Provident Fund (PF) and ESI (Table 4.15). Migrant households informed during the FGD that only in case of emergencies that these migrant workers get any provisions from their employers/ contractors at the destinations. A respondent that had a member of a short-term migrant pointed out that notwithstanding paying a nominal amount towards the subscription or membership charges towards a given social security scheme many would not avail of the benefit until any untoward incident occurs to them.

Out of the total labour migrant households, more than three fourths planned to continue working as short term or long-term migrant labour in their destinations. Long term migrant labour is less likely to return to their villages perhaps due to greater association with the lifestyle and opportunities available in the destination, higher wages, multiple options available for the members of the migrant household, etc. Migrant labour who hasn't lived long years away from home are more likely to consider returning to the village. It is observed that seasonal migrants are more inclined to rerun to their homes before the monsoon begins as they must prepare their land for the Kharif cultivation. Only 23.5 percent of them informed that they wanted to return home after completion of the season or their contract with the employer or contractor. Secondly, 46.7 percent of the migrants from the seasonal category wanted to return to their homes while it was 22 percent of the short-term migrants wanted to return home and 15.4 percent of the long-term migrants wanted to return to their homes. Further, there was only one seasonal migrant from the Nettempadu who wanted to return home, while 50 percent of the short-term migrants wished to return to their villages. Around 26.7 percent of the seasonal migrants from Rajiv Bheema wanted to go back to their homes after end of the contract or season. Close to 70 percent of them from Kalwakurthy project areas who wanted to return to home are seasonal migrants (Table 4.16).

Out of the total migrants who wanted to return to their villages, 25 percent reasoned that adequate work was available in the village, followed by migrants who wanted to return home

to cultivate their own land (20%), wish to stay in the village (17.5%), and wanted to take care of family members (8.8%) respectively. On the other hand, 6.3 percent of them wanted to return due to health complications. Other five percent told that they have got canal irrigation, therefore, wanted to return and few others desired to return owing to the end of their contract, difficult work, and aging-related problems. Nearly 32 percent of the short-term migrants stated that work is available in the village and the same is true for seasonal migrants, although of a lesser extent. Most of them who wish to return for cultivating their own farmland were largely short-term migrants followed by long-term and seasonal migrants. Likewise, short-term migrants outnumbered their other counterparts in saying that they needed to go back to their villages to stay at home. Seasonal migrants from Nettempadu wanted to return for cultivation, on termination of contract and health issues. Short-term and long-term migrants from Koilsagar sought to return home for cultivation, to work in the village, and stay back in the villages. In the other two projects, most of the migrants desired to return to the village due to the aforesaid reasons (Table 4.17). It could be said that due to the improved situation in the local villages brought by lift irrigation projects, there have been increased opportunities that influence the minds of migrants working outside the village/s. In other words, there are better conditions in the agriculture, employment, and allied sectors in the study villages today compared to a few decades. This reduced the distress kind of situation that prevailed earlier than now.

Of the total migrant households, 62.4 percent of them returned to their village during the COVID-19 lockdown period and 37.6 did not return to their villages during the pandemic. Among the seasonal migrants, 73.3 percent of them returned to the village, while it was 58.5 percent for short-term migrants and 60.3 percent for long-term migrants. Villages that fall under the Nettempadu and the Koilsagar projects witnessed the return of long-term and short-term migrants from their destinations to their homes. In contrast, the seasonal migrant from Rajiv Bheema returned from the destination, and similar patterns were observed under the Kalwakurthy project jurisdictional villages. Migrants in the villages informed that seasonal and short-term are more likely returned due to non-agreement or contract with their employers. Second, seasonal and short-term migrants were likely to work in agriculture, allied, and temporary works therefore they are likely to return during the summer when the pandemic began (Table 4.18).

Among the total migrants who returned to their villages during the pandemic period (93), 50.5 percent of them stayed 1-5 months, 25.8 percent of them stayed 6-10 months and 23.7 percent

stayed above 10 months in their villages. The long-term migrants stayed a shorter duration in their village as they must return to engage in the labour market at the destination due to a pre-existing job or agreed contract or they have to work in the destination to survive or cope with the poor financial conditions of their family. Short-term migrants too stayed a shorter period in the village i.e., 15 months. In Nettempadu all the migrants stayed 1-5 months period while in Koilsagar, Rajiv Bheema, and Kalwakurthy projects, a majority of them were stayed shorter periods in their villages during the covid-19 pandemic. Nevertheless, the high percentage of seasonal migrants staying more than 10 months was recorded under the Rajiv Bheema and under the Koilsagar project areas respectively. The situation of the family and their needs in fact decides whether to stay back or return to their destination places (Table 4.19).

4.3. Summary

The chapter on the current migration has clearly shown that farm and labour households from the study villages are short-term and seasonal migrants rather than long-term migrants. The lack of employment during the post-harvest and summer seasons pushes them to migrate out to other areas. Except in Rajiv Bheema project areas in other project areas long-term migrant is widespread. These villages witnessed frequent unemployment, low wage rates, desire to earn and clear old debts and therefore migrated to other destinations. Migrants worked in urban-centric employments apart from manual labour work and earned decent wages or salaries. There was only one female migrant worker who worked salary basis and earned Rs. 20000 per month. In the rest of the projects, no female migrants were found to be working on a salary basis for reasons not known.

The need of the day of the left behind family members increases the likelihood of remittances and vice versa. Longer stay reduced labour exploitation therefore seasonal migrants were subjected to more of exploitation such as longer working times and its associated effects. Seasonal migrants were the latest entrants into the current employment while short-term migrants were stayed between 1-2 and 2-3 years and worked under hazardous, extra/overtime, work under unhygienic, and harsh working conditions. Seasonal and short-term migrants tend to stay lesser duration as compared to long-term migrants but this is less so under the Kalwakurthy project due to the proximity of Hyderabad city is where they usually migrate to. Long-term migrants preferred to migrate with their spouse and with their entire family while individuals migrate largely seasonally and some migrate with their spouse. Majority of them

did not take any advance from employers and a moderate of them accessed social security at the destination. Seasonal migrants are more inclined to rerun before monsoon begins as they must prepare their land for the Kharif season. It could be said that due to improved situation in the local villages due to new arrival of irrigation facilities their increased opportunities and that has positive impact on the mind of migrants working outside the village/s. In short, there is better conditions in the villages today as compared to few decades ago and reduced distress kind of situation that prevailed a couple of years ago. Seasonal and short-term migrants are more likely returned due to the termination of agreement or works completed at the destinations. The situation of the family and their needs decides whether to return to the destination place or not.

Table 4.1: Number of households reported migration in the year 2021-22

Current Migration	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Current Migrant				Current Migrant				Current Migrant				Current Migrant				Current Migrant			
	Seasonal	Short term	Long term	All	Seasonal	Short term	Long term	All	Seasonal	Short term	Long term	All	Seasonal	Short term	Long term	All	Seasonal	Short term	Long term	All
Yes	1	0	5	6	1	4	17	22	15	10	20	45	13	27	36	76	30	41	78	149
	(16.7)	(0)	(83.3)	(100)	(4.5)	(18.2)	(77.3)	(100)	(33.3)	(22.2)	(44.4)	(100)	(17.1)	(35.5)	(47.4)	(100)	(20.1)	(27.5)	(52.3)	(100)
Total sample for each project				180				90				180				450				900
	(0.6)	(0)	(2.8)	(3.3)	(1.1)	(4.4)	(18.9)	(24.4)	(8.3)	(5.6)	(11.1)	(25)	(2.9)	(6)	(8)	(16.9)	(3.3)	(4.6)	(8.7)	(16.6)

Table 4.2: Percentage of years of migration by the migrant workers from the study areas

Year of migration	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
1990s	0	0	0	0	0	1	1	1	1	0	2	0	0	3	3	1	1	4	6
%	(0)	(0)	(0)	(0)	(0)	(5.9)	(4.5)	(6.7)	(10)	(0)	(4.4)	(0)	(0)	(8.3)	(3.9)	(3.3)	(2.4)	(5.1)	(4)
2000s	0	0	0	0	0	7	7	1	0	4	5	1	0	8	9	2	0	19	21
%	(0)	(0)	(0)	(0)	(0)	(41.2)	(31.8)	(6.7)	(0)	(20.0)	(11.1)	(7.7)	(0)	(22.2)	(11.8)	(6.7)	(0)	(24.4)	(14.1)
2010-2015	0	0	0	0	0	5	5	3	0	12	15	2	0	6	8	5	0	23	28
%	(0)	(0)	(0)	(0)	(0)	(29.4)	(22.7)	(20.0)	(0)	(60.0)	(33.3)	(15.4)	(0)	(16.7)	(10.5)	(16.7)	(0)	(29.5)	(18.8)
2016-2022	1	5	6	1	4	4	9	10	9	4	23	10	27	19	56	22	40	32	94
%	(100)	(100)	(100)	(100)	(100)	(23.5)	(40.9)	(66.7)	(90.0)	(20.0)	(51.1)	(76.9)	(100)	(52.8)	(73.7)	(73.3)	(97.6)	(41.0)	(63.1)
Total	1	5	6	1	4	17	22	15	10	20	45	13	27	36	76	30	41	78	149
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.3: Reasons for migration of migrant workers from the study areas

Reasons for migration	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
No Irrigation facility	1	0	1	0	2	8	10	8	1	4	13	5	2	8	15	14	5	20	39
	(33.3)	(0)	(7.1)	(0)	(18.2)	(19)	(18.5)	(25)	(5.3)	(8)	(12.9)	(14.7)	(3.3)	(10.7)	(8.9)	(20)	(5.6)	(11.2)	(11.5)
No work	1	1	2	0	4	14	18	15	7	12	34	10	13	18	41	26	24	45	95
	(33.3)	(9.1)	(14.3)	(0)	(36.4)	(33.3)	(33.3)	(46.9)	(36.8)	(24)	(33.7)	(29.4)	(21.7)	(24)	(24.3)	(37.1)	(26.7)	(25.3)	(28.1)
Less wages	0	3	3	0	4	11	15	3	1	13	17	5	14	17	36	8	19	44	71
	(0)	(27.3)	(21.4)	(0)	(36.4)	(26.2)	(27.8)	(9.4)	(5.3)	(26)	(16.8)	(14.7)	(23.3)	(22.7)	(21.3)	(11.4)	(21.1)	(24.7)	(21)
To earn money	0	3	3	0	1	7	8	5	1	11	17	8	12	13	33	13	14	34	61
	(0)	(27.3)	(21.4)	(0)	(9.1)	(16.7)	(14.8)	(15.6)	(5.3)	(22)	(16.8)	(23.5)	(20)	(17.3)	(19.5)	(18.6)	(15.6)	(19.1)	(18)
inadequate work	0	1	1	0	0	2	2	0	0	2	2	1	5	2	8	1	5	7	13
	(0)	(9.1)	(7.1)	(0)	(0)	(4.8)	(3.7)	(0)	(0)	(4)	(2)	(2.9)	(8.3)	(2.7)	(4.7)	(1.4)	(5.6)	(3.9)	(3.8)
No demand for skills	0	3	3	0	0	0	0	0	6	6	12	2	10	8	20	2	16	17	35
	(0)	(27.3)	(21.4)	(0)	(0)	(0)	(0)	(0)	(31.6)	(12)	(11.9)	(5.9)	(16.7)	(10.7)	(11.8)	(2.9)	(17.8)	(9.6)	(10.4)
Due to Debt	1	0	1	0	0	0	0	0	1	1	2	3	4	8	15	4	5	9	18
	(33.3)	(0)	(7.1)	(0)	(0)	(0)	(0)	(0)	(5.3)	(2)	(2)	(8.8)	(6.7)	(10.7)	(8.9)	(5.7)	(5.6)	(5.1)	(5.3)
Others	0	0	0	1	0	0	1	1	2	1	4	0	0	1	1	2	2	2	6
	(0)	(0)	(0)	(100)	(0)	(0)	(1.9)	(3.1)	(10.5)	(2)	(4)	(0)	(0)	(1.3)	(0.6)	(2.9)	(2.2)	(1.1)	(1.8)
Total	3	11	14	1	11	42	54	32	19	50	101	34	60	75	169	70	90	178	338
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.4: Employment of the migrant workers at the destination

Current work	Nettempadu			Koilsagar				Kalwakurthy				Rajiv Bheema				Total			
	Seasonal	Long-term	Total	Seasonal	Short-term	Long-term	Total	Seasonal	Short-term	Long-term	Total	Seasonal	Short-term	Long-term	Total	Seasonal	Short-term	Long-term	Total
Attached labour	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	(100)	(0)	(16.7)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(3.3)	(0)	(0)	(0.7)
Auto-driver	0	0	0	0	0	0	0	0	1	1	2	1	1	1	3	1	2	2	5
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(3.7)	(2.8)	(2.6)	(6.7)	(10)	(5)	(6.7)	(3.3)	(4.9)	(2.6)	(3.4)
Car Drivers	0	0	0	0	0	0	0	1	3	2	6	0	1	1	2	1	4	3	8
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(7.7)	(11.1)	(5.6)	(7.9)	(0)	(10)	(5)	(4.4)	(3.3)	(9.8)	(3.8)	(5.4)
Clay work	0	0	0	0	1	2	3	2	0	0	2	2	1	1	4	4	2	3	9
	(0)	(0)	(0)	(0)	(25)	(11.8)	(13.6)	(15.4)	(0)	(0)	(2.6)	(13.3)	(10)	(5)	(8.9)	(13.3)	(4.9)	(3.8)	(6)
Construction work	0	0	0	0	1	5	6	2	6	7	15	6	0	1	7	8	7	13	28
	(0)	(0)	(0)	(0)	(25)	(29.4)	(27.3)	(15.4)	(22.2)	(19.4)	(19.7)	(40)	(0)	(5)	(15.6)	(26.7)	(17.1)	(16.7)	(18.8)
Digging trench	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(7.7)	(0)	(0)	(1.3)	(0)	(0)	(0)	(0)	(3.3)	(0)	(0)	(0.7)
Heavy machinery	0	0	0	0	0	0	0	3	2	3	8	0	1	2	3	3	3	5	11
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(23.1)	(7.4)	(8.3)	(10.5)	(0)	(10)	(10)	(6.7)	(10)	(7.3)	(6.4)	(7.4)
Others	0	5	5	1	2	10	13	4	13	23	40	5	6	12	23	10	21	50	81
	(0)	(100)	(83.3)	(100)	(50)	(58.8)	(59.1)	(30.8)	(48.1)	(63.9)	(52.6)	(33.3)	(60)	(60)	(51.1)	(33.3)	(51.2)	(64.1)	(54.4)
Poultry worker	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(6.7)	(0)	(0)	(2.2)	(3.3)	(0)	(0)	(0.7)
Sanitation worker	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(5)	(2.2)	(0)	(0)	(1.3)	(0.7)
Shop-keeper	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	0	1	1	2
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(3.7)	(0)	(1.3)	(0)	(0)	(5)	(2.2)	(0)	(2.4)	(1.3)	(1.3)
Watchman	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(3.7)	(0)	(1.3)	(0)	(0)	(0)	(0)	(0)	(2.4)	(0)	(0.7)
Total	1	5	6	1	4	17	22	13	27	36	76	15	10	20	45	30	41	78	149
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.5: Male wage rates of migrant workers at the destination

	Nettempadu		Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Male wages	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Rs.300-500	0	0	0	0	1	1	1	0	1	2	3	1	6	10	4	1	8	13
%	(0)	(0)	(0)	(0)	(11.1)	(9.1)	(11.1)	(0)	(16.7)	(11.1)	(50)	(9.1)	(17.1)	(19.2)	(26.7)	(6.3)	(15.7)	(15.9)
Rs.500-1000	0	0	0	2	8	10	8	3	5	16	3	9	28	40	11	14	41	66
%	(0)	(0)	(0)	(100)	(88.9)	(90.9)	(88.9)	(100)	(83.3)	(88.9)	(50)	(81.8)	(80)	(76.9)	(73.3)	(87.5)	(80.4)	(80.5)
Rs.1000-1600	1	1	0	0	0	0	0	0	0	0	0	1	1	2	0	1	2	3
%	(100)	(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(9.1)	(2.9)	(3.8)	(0)	(6.3)	(3.9)	(3.7)
Total	1	1	0	2	9	11	9	3	6	18	6	11	35	52	15	16	51	82
%	(100)	(100)	(0)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.6: Male migrant's monthly salary status at the destination

	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Male salary	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Rs.6000-10000	0	0	0	0	0	3	3	1	1	3	5	1	5	2	8	2	6	8	16
	(0)	(0)	(0)	(0)	(0)	(37.5)	(27.3)	(25)	(14.3)	(21.4)	(20)	(16.7)	(33.3)	(8.7)	(18.2)	(16.7)	(25)	(16.3)	(18.8)
Rs.10000-20000	1	0	1	1	2	4	7	3	5	9	17	4	9	14	27	9	16	27	52
	(100)	(0)	(20)	(100)	(100)	(50)	(63.6)	(75)	(71.4)	(64.3)	(68)	(66.7)	(60)	(60.9)	(61.4)	(75)	(66.7)	(55.1)	(61.2)
Rs.20000-30000	0	4	4	0	0	1	1	0	1	2	3	1	1	4	6	1	2	11	14
	(0)	(100)	(80)	(0)	(0)	(12.5)	(9.1)	(0)	(14.3)	(14.3)	(12)	(16.7)	(6.7)	(17.4)	(13.6)	(8.3)	(8.3)	(22.4)	(16.5)
Above Rs.30000	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0	0	3	3
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(13)	(6.8)	(0)	(0)	(6.1)	(3.5)
Total	1	4	5	1	2	8	11	4	7	14	25	6	15	23	44	12	24	49	85
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.7: Remittances sent by migrants from the destination during the year 2021-22

Remittances - 2021-22	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Rs. 2000-10000	0	2	2	0	1	5	6	1	1	2	4	3	8	12	23	4	10	21	35
%	(0)	(40)	(33.3)	(0)	(25)	(31.3)	(28.6)	(9.1)	(14.3)	(13.3)	(12.1)	(25)	(34.8)	(41.4)	(35.9)	(16)	(29.4)	(32.3)	(28.2)
Rs. 10000-20000	0	3	3	1	1	5	7	2	0	5	7	1	3	5	9	4	4	18	26
%	(0)	(60)	(50)	(100)	(25)	(31.3)	(33.3)	(18.2)	(0)	(33.3)	(21.2)	(8.3)	(13)	(17.2)	(14.1)	(16)	(11.8)	(27.7)	(21)
Rs. 20000-30000	0	0	0	0	0	3	3	7	1	3	11	3	4	2	9	10	5	8	23
%	(0)	(0)	(0)	(0)	(0)	(18.8)	(14.3)	(63.6)	(14.3)	(20)	(33.3)	(25)	(17.4)	(6.9)	(14.1)	(40)	(14.7)	(12.3)	(18.5)
Rs. 30000-40000	0	0	0	0	1	0	1	0	0	1	1	0	2	2	4	0	3	3	6
%	(0)	(0)	(0)	(0)	(25)	(0)	(4.8)	(0)	(0)	(6.7)	(3)	(0)	(8.7)	(6.9)	(6.3)	(0)	(8.8)	(4.6)	(4.8)
Rs. 40000-50000	0	0	0	0	0	1	1	0	1	1	2	1	2	3	6	1	3	5	9
%	(0)	(0)	(0)	(0)	(0)	(6.3)	(4.8)	(0)	(14.3)	(6.7)	(6.1)	(8.3)	(8.7)	(10.3)	(9.4)	(4)	(8.8)	(7.7)	(7.3)
Rs. 50000-100000	0	0	0	0	1	0	1	1	2	2	5	4	2	4	10	5	5	6	16
%	(0)	(0)	(0)	(0)	(25)	(0)	(4.8)	(9.1)	(28.6)	(13.3)	(15.2)	(33.3)	(8.7)	(13.8)	(15.6)	(20)	(14.7)	(9.2)	(12.9)
Above Rs.100000	1	0	1	0	0	2	2	0	2	1	3	0	2	1	3	1	4	4	9
%	(100)	(0)	(16.7)	(0)	(0)	(12.5)	(9.5)	(0)	(28.6)	(6.7)	(9.1)	(0)	(8.7)	(3.4)	(4.7)	(4)	(11.8)	(6.2)	(7.3)
Total	1	5	6	1	4	16	21	11	7	15	33	12	23	29	64	25	34	65	124
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 8: Working hours per day of the migrants at the destination

Working hours per day	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
5	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	1
%	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(6.7)	(0)	(0)	(2.4)	(0)	(0)	(0)	(0)	(3.4)	(0)	(0)	(0.7)
6	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0	0	1	0	1	2
%	(0)	(0)	(0)	(0)	(0)	(0)	(7.7)	(5.9)	(6.7)	(0)	(0)	(2.4)	(0)	(0)	(0)	(0)	(3.4)	(0)	(1.4)	(1.5)
8	0	0	1	1	0	2	6	8	4	6	11	21	0	12	19	31	4	20	37	61
%	(0)	(0)	(20)	(16.7)	(0)	(50)	(46.2)	(47.1)	(26.7)	(66.7)	(61.1)	(50)	(0)	(48)	(55.9)	(43.1)	(13.8)	(52.6)	(52.9)	(44.5)
9	1	0	0	1	0	2	4	6	7	1	3	11	6	7	3	16	14	10	10	34
%	(100)	(0)	(0)	(16.7)	(0)	(50)	(30.8)	(35.3)	(46.7)	(11.1)	(16.7)	(26.2)	(46.2)	(28)	(8.8)	(22.2)	(48.3)	(26.3)	(14.3)	(24.8)
10	0	0	1	1	0	0	2	2	2	0	2	4	4	1	8	13	6	1	13	20
%	(0)	(0)	(20)	(16.7)	(0)	(0)	(15.4)	(11.8)	(13.3)	(0)	(11.1)	(9.5)	(30.8)	(4)	(23.5)	(18.1)	(20.7)	(2.6)	(18.6)	(14.6)
12	0	0	2	2	0	0	0	0	0	2	2	4	2	5	3	10	2	7	7	16
%	(0)	(0)	(40)	(33.3)	(0)	(0)	(0)	(0)	(0)	(22.2)	(11.1)	(9.5)	(15.4)	(20)	(8.8)	(13.9)	(6.9)	(18.4)	(10)	(11.7)
14	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
%	(0)	(0)	(20)	(16.7)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(2.9)	(1.4)	(0)	(0)	(2.9)	(1.5)
16	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1
%	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(7.7)	(0)	(0)	(1.4)	(3.4)	(0)	(0)	(0.7)
Total	1	0	5	6	0	4	13	17	15	9	18	42	13	25	34	72	29	38	70	137
%	(100)	(0)	(100)	(100)	(0)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.9: Duration of migrant worker's current employment at the destination

Current duration	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
0 to 6 months	0	0	0	0	1	0	1	3	0	0	3	6	3	0	9	9	4	0	13
	(0)	(0)	(0)	(0)	(25)	(0)	(4.5)	(21.4)	(0)	(0)	(6.8)	(46.2)	(11.1)	(0)	(11.8)	(31)	(9.8)	(0)	(8.8)
6 months – 1 ye	1	0	1	0	1	0	1	3	1	1	5	4	2	3	9	8	4	4	16
	(100)	(0)	(16.7)	(0)	(25)	(0)	(4.5)	(21.4)	(10)	(5)	(11.4)	(30.8)	(7.4)	(8.3)	(11.8)	(27.6)	(9.8)	(5.1)	(10.8)
1 to 2 years	0	0	0	0	2	0	2	2	5	0	7	1	16	2	19	3	23	2	28
	(0)	(0)	(0)	(0)	(50)	(0)	(9.1)	(14.3)	(50)	(0)	(15.9)	(7.7)	(59.3)	(5.6)	(25)	(10.3)	(56.1)	(2.6)	(18.9)
2 to 3 year	0	4	4	0	0	2	2	0	2	0	2	2	3	5	10	2	5	11	18
	(0)	(80)	(66.7)	(0)	(0)	(11.8)	(9.1)	(0)	(20)	(0)	(4.5)	(15.4)	(11.1)	(13.9)	(13.2)	(6.9)	(12.2)	(14.1)	(12.2)
4 to 5 years	0	1	1	0	0	2	2	0	0	1	1	0	0	3	3	0	0	7	7
	(0)	(20)	(16.7)	(0)	(0)	(11.8)	(9.1)	(0)	(0)	(5)	(2.3)	(0)	(0)	(8.3)	(3.9)	(0)	(0)	(9)	(4.7)
Above 5 years	0	0	0	1	0	13	14	6	2	18	26	0	3	23	26	7	5	54	66
	(0)	(0)	(0)	(100)	(0)	(76.5)	(63.6)	(42.9)	(20)	(90)	(59.1)	(0)	(11.1)	(63.9)	(34.2)	(24.1)	(12.2)	(69.2)	(44.6)
Total	1	5	6	1	4	17	22	14	10	20	44	13	27	36	76	29	41	78	148
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.10: Duration of migrant's stay at the destination place

Duration of stay	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
0 to 6 months	0	0	0	0	1	1	2	4	0	0	4	5	4	0	9	9	5	1	15
%	(0)	(0)	(0)	(0)	(25)	(5.9)	(9.1)	(26.7)	(0)	(0)	(8.9)	(38.5)	(14.8)	(0)	(11.8)	(30)	(12.2)	(1.3)	(10.1)
6 months – 1 ye	1	0	1	0	1	0	1	4	1	1	6	4	2	3	9	9	4	4	17
%	(100)	(0)	(16.7)	(0)	(25)	(0)	(4.5)	(26.7)	(10)	(5)	(13.3)	(30.8)	(7.4)	(8.3)	(11.8)	(30)	(9.8)	(5.1)	(11.4)
1 to 2 years	0	0	0	0	2	0	2	2	3	0	5	2	15	3	20	4	20	3	27
%	(0)	(0)	(0)	(0)	(50)	(0)	(9.1)	(13.3)	(30)	(0)	(11.1)	(15.4)	(55.6)	(8.3)	(26.3)	(13.3)	(48.8)	(3.8)	(18.1)
2 to 3 year	0	4	4	0	0	2	2	2	1	0	3	2	2	5	9	4	3	11	18
%	(0)	(80)	(66.7)	(0)	(0)	(11.8)	(9.1)	(13.3)	(10)	(0)	(6.7)	(15.4)	(7.4)	(13.9)	(11.8)	(13.3)	(7.3)	(14.1)	(12.1)
4 to 5 years	0	1	1	0	0	2	2	0	0	1	1	0	0	2	2	0	0	6	6
%	(0)	(20)	(16.7)	(0)	(0)	(11.8)	(9.1)	(0)	(0)	(5)	(2.2)	(0)	(0)	(5.6)	(2.6)	(0)	(0)	(7.7)	(4)
Above 5 years	0	0	0	1	0	12	13	3	5	18	26	0	4	23	27	4	9	53	66
%	(0)	(0)	(0)	(100)	(0)	(70.6)	(59.1)	(20)	(50)	(90)	(57.8)	(0)	(14.8)	(63.9)	(35.5)	(13.3)	(22)	(67.9)	(44.3)
Total	1	5	6	1	4	17	22	15	10	20	45	13	27	36	76	30	41	78	149
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.11: Working conditions of the migrant workers at the destination places

Working conditions	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Sound pollution	0	0	0	0	4	11	15	12	4	13	29	7	7	14	28	19	15	38	72
	(0)	(0)	(0)	(0)	(36.4)	(31.4)	(30.6)	(30.8)	(26.7)	(31)	(30.2)	(20.6)	(16.3)	(25.5)	(21.2)	(24.1)	(21.7)	(27.1)	(25)
Air pollution	0	0	0	1	4	11	16	12	3	10	25	8	12	18	38	21	19	39	79
	(0)	(0)	(0)	(33.3)	(36.4)	(31.4)	(32.7)	(30.8)	(20)	(23.8)	(26)	(23.5)	(27.9)	(32.7)	(28.8)	(26.6)	(27.5)	(27.9)	(27.4)
Poor hygienic conditions	0	1	1	0	1	2	3	5	2	6	13	2	4	6	12	7	7	15	29
	(0)	(12.5)	(9.1)	(0)	(9.1)	(5.7)	(6.1)	(12.8)	(13.3)	(14.3)	(13.5)	(5.9)	(9.3)	(10.9)	(9.1)	(8.9)	(10.1)	(10.7)	(10.1)
Insufficient lighting	1	0	1	0	1	0	1	0	0	0	0	0	2	0	2	1	3	0	4
	(33.3)	(0)	(9.1)	(0)	(9.1)	(0)	(2)	(0)	(0)	(0)	(0)	(0)	(4.7)	(0)	(1.5)	(1.3)	(4.3)	(0)	(1.4)
Fumes, gases and dust	0	1	1	1	0	4	5	3	1	2	6	2	3	6	11	6	4	13	23
	(0)	(12.5)	(9.1)	(33.3)	(0)	(11.4)	(10.2)	(7.7)	(6.7)	(4.8)	(6.3)	(5.9)	(7)	(10.9)	(8.3)	(7.6)	(5.8)	(9.3)	(8)
Extra work without pay	1	4	5	0	0	3	3	5	1	3	9	8	7	6	21	14	8	16	38
	(33.3)	(50)	(45.5)	(0)	(0)	(8.6)	(6.1)	(12.8)	(6.7)	(7.1)	(9.4)	(23.5)	(16.3)	(10.9)	(15.9)	(17.7)	(11.6)	(11.4)	(13.2)
Working at heights	0	1	1	0	1	2	3	0	0	3	3	5	5	4	14	5	6	10	21
	(0)	(12.5)	(9.1)	(0)	(9.1)	(5.7)	(6.1)	(0)	(0)	(7.1)	(3.1)	(14.7)	(11.6)	(7.3)	(10.6)	(6.3)	(8.7)	(7.1)	(7.3)
Hazardous work	1	1	2	1	0	2	3	2	3	5	10	2	3	1	6	6	6	9	21
	(33.3)	(12.5)	(18.2)	(33.3)	(0)	(5.7)	(6.1)	(5.1)	(20)	(11.9)	(10.4)	(5.9)	(7)	(1.8)	(4.5)	(7.6)	(8.7)	(6.4)	(7.3)
Others	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(6.7)	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(1.4)	(0)	(0.3)
Total	3	8	11	3	11	35	49	39	15	42	96	34	43	55	132	79	69	140	288
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.12: Mode of migration by the workers under the project areas

Mode of migration	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Contract	0	0	0	0	0	0	0	1	0	1	2	2	1	1	4	3	1	2	6
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(5)	(0)	(3.8)	(3.3)	(10.5)	(3.4)	(2.1)	(4.2)	(7.3)	(2)	(1.8)	(3)
Group	0	0	0	1	0	1	2	1	2	0	3	0	0	2	2	2	2	3	7
	(0)	(0)	(0)	(100)	(0)	(3.6)	(5.6)	(5)	(13.3)	(0)	(4.9)	(0)	(0)	(4.3)	(2.1)	(4.9)	(3.9)	(2.8)	(3.5)
Individually	0	1	1	0	3	7	10	2	2	6	10	7	10	13	30	9	15	27	51
	(0)	(12.5)	(11.1)	(0)	(42.9)	(25)	(27.8)	(10)	(13.3)	(23.1)	(16.4)	(36.8)	(34.5)	(27.7)	(31.6)	(22)	(29.4)	(24.8)	(25.4)
Husband only	1	1	2	0	0	2	2	0	0	2	2	0	0	0	0	1	0	5	6
	(100)	(12.5)	(22.2)	(0)	(0)	(7.1)	(5.6)	(0)	(0)	(7.7)	(3.3)	(0)	(0)	(0)	(0)	(2.4)	(0)	(4.6)	(3)
Wife and Husband only	0	1	1	0	1	9	10	6	3	4	13	3	6	7	16	9	10	21	40
	(0)	(12.5)	(11.1)	(0)	(14.3)	(32.1)	(27.8)	(30)	(20)	(15.4)	(21.3)	(15.8)	(20.7)	(14.9)	(16.8)	(22)	(19.6)	(19.3)	(19.9)
With Family	0	3	3	0	0	6	6	5	1	4	10	3	8	22	33	8	9	35	52
	(0)	(37.5)	(33.3)	(0)	(0)	(21.4)	(16.7)	(25)	(6.7)	(15.4)	(16.4)	(15.8)	(27.6)	(46.8)	(34.7)	(19.5)	(17.6)	(32.1)	(25.9)
With friends	0	1	1	0	3	1	4	2	3	5	10	3	3	1	7	5	9	8	22
	(0)	(12.5)	(11.1)	(0)	(42.9)	(3.6)	(11.1)	(10)	(20)	(19.2)	(16.4)	(15.8)	(10.3)	(2.1)	(7.4)	(12.2)	(17.6)	(7.3)	(10.9)
With co-villagers	0	0	0	0	0	2	2	2	3	3	8	1	0	1	2	3	3	6	12
	(0)	(0)	(0)	(0)	(0)	(7.1)	(5.6)	(10)	(20)	(11.5)	(13.1)	(5.3)	(0)	(2.1)	(2.1)	(7.3)	(5.9)	(5.5)	(6)
Others	0	1	1	0	0	0	0	1	1	1	3	0	1	0	1	1	2	2	5
	(0)	(12.5)	(11.1)	(0)	(0)	(0)	(0)	(5)	(6.7)	(3.8)	(4.9)	(0)	(3.4)	(0)	(1.1)	(2.4)	(3.9)	(1.8)	(2.5)
Total	1	8	9	1	7	28	36	20	15	26	61	19	29	47	95	41	51	109	201
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 13: Advance taken by migrants from their employers/contractors/maistris

Advance taken	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
No	0	5	5	1	4	17	22	13	10	20	43	10	22	34	66	24	36	76	136
%	(0)	(100)	(83.3)	(100)	(100)	(100)	(100)	(86.7)	(100)	(100)	(95.6)	(76.9)	(81.5)	(94.4)	(86.8)	(80)	(87.8)	(97.4)	(91.3)
Yes	1	0	1	0	0	0	0	2	0	0	2	3	5	2	10	6	5	2	13
%	(100)	0	(16.7)	(0)	(0)	(0)	(0)	(13.3)	(0)	(0)	(4.4)	(23.1)	(18.5)	(5.6)	(13.2)	(20)	(12.2)	(2.6)	(8.7)
Total	1	5	6	1	4	17	22	15	10	20	45	13	27	36	76	30	41	78	149
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.14: Social Security provided to migrant workers at the destinations

Social security	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
No	1	5	6	1	2	13	16	7	7	14	28	9	20	28	57	18	29	60	107
%	(100)	(100)	(100)	(100)	(50)	(76.5)	(72.7)	(46.7)	(70)	(70)	(62.2)	(69.2)	(74.1)	(77.8)	(75)	(60)	(70.7)	(76.9)	(71.8)
Yes	0	0	0	0	2	4	6	8	3	6	17	4	7	8	19	12	12	18	42
%	(0)	(0)	(0)	(0)	(50)	(23.5)	(27.3)	(53.3)	(30)	(30)	(37.8)	(30.8)	(25.9)	(22.2)	(25)	(40)	(29.3)	(23.1)	(28.2)
Total	1	5	6	1	4	17	22	15	10	20	45	13	27	36	76	30	41	78	149
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.15: Type of social security migrants received at the destination

Type of social security	Koilsagar			Rajiv Bheema				Kalwakurthy				All			
	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Medical	1 (100)	3 (60)	4 (66.7)	8 (100)	0 (0)	6 (50)	14 (51.9)	4 (66.7)	4 (57.1)	6 (33.3)	14 (45.2)	12 (85.7)	5 (33.3)	15 (42.9)	32 (50)
Health insurance	0 (0)	0 (0)	0 (0)	0 (0)	1 (14.3)	1 (8.3)	2 (7.4)	1 (16.7)	0 (0)	3 (16.7)	4 (12.9)	1 (7.1)	1 (6.7)	4 (11.4)	6 (9.4)
ESI	0 (0)	1 (20)	1 (16.7)	0 (0)	3 (42.9)	3 (25)	6 (22.2)	0 (0)	1 (14.3)	4 (22.2)	5 (16.1)	0 (0)	4 (26.7)	8 (22.9)	12 (18.8)
EPF	0 (0)	1 (20)	1 (16.7)	0 (0)	3 (42.9)	2 (16.7)	5 (18.5)	1 (16.7)	2 (28.6)	5 (27.8)	8 (25.8)	1 (7.1)	5 (33.3)	8 (22.9)	14 (21.9)
Total	1 (100)	5 (100)	6 (100)	8 (100)	7 (100)	12 (100)	27 (100)	6 (100)	7 (100)	18 (100)	31 (100)	14 (100)	15 (100)	35 (100)	64 (100)

Table 4.16: Migrants plan to return to their village from the destination place

Plan to return	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Yes	1 (100)	0 (0)	1 (16.7)	0 (0)	2 (50)	2 (11.8)	4 (18.2)	4 (26.7)	2 (20)	4 (20)	10 (22.2)	9 (69.2)	5 (18.5)	6 (16.7)	20 (26.3)	14 (46.7)	9 (22)	12 (15.4)	35 (23.5)
No	0 (0)	5 (100)	5 (83.3)	1 (100)	2 (50)	15 (88.2)	18 (81.8)	11 (73.3)	8 (80)	16 (80)	35 (77.8)	4 (30.8)	22 (81.5)	30 (83.3)	56 (73.7)	16 (53.3)	32 (78)	66 (84.6)	114 (76.5)
Total	1 (100)	5 (100)	6 (100)	1 (100)	4 (100)	17 (100)	22 (100)	15 (100)	10 (100)	20 (100)	45 (100)	13 (100)	27 (100)	36 (100)	76 (100)	30 (100)	41 (100)	78 (100)	149 (100)

Table 4.17: Reason for returning to their village given by migrant workers

Reason for return	Nettempadu		Koilsagar			Rajiv Bheema				Kalwakurthy				All			
	Seasonal	All	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Own cultivation	0 (0)	0 (0)	1 (20)	1 (20)	2 (20)	1 (14.3)	1 (25)	2 (33.3)	4 (23.5)	5 (22.7)	3 (23.1)	2 (13.3)	10 (20)	6 (18.8)	5 (22.7)	5 (19.2)	16 (20)
Work available in the village	1 (33.3)	1 (33.3)	2 (40)	1 (20)	3 (30)	1 (14.3)	1 (25)	1 (16.7)	3 (17.6)	6 (27.3)	4 (30.8)	3 (20)	13 (26)	8 (25)	7 (31.8)	5 (19.2)	20 (25)
Wish to stay in the village	0 (0)	0 (0)	1 (20)	1 (20)	2 (20)	2 (28.6)	1 (25)	0 (0)	3 (17.6)	3 (13.6)	3 (23.1)	3 (20)	9 (18)	5 (15.6)	5 (22.7)	4 (15.4)	14 (17.5)
Lease farming	0 (0)	0 (0)	1 (20)	0 (0)	1 (10)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (7.7)	0 (0)	1 (2)	0 (0)	2 (9.1)	0 (0)	2 (2.5)
Contract over	1 (33.3)	1 (33.3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (4.5)	0 (0)	0 (0)	1 (2)	2 (6.3)	0 (0)	0 (0)	2 (2.5)
Difficult work	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (15.4)	0 (0)	2 (4)	0 (0)	2 (9.1)	0 (0)	2 (2.5)
Health issues	1 (33.3)	1 (33.3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (4.5)	0 (0)	3 (20)	4 (8)	2 (6.3)	0 (0)	3 (11.5)	5 (6.3)
Ageing	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (14.3)	0 (0)	0 (0)	1 (5.9)	0 (0)	0 (0)	0 (0)	0 (0)	1 (3.1)	0 (0)	0 (0)	1 (1.3)
Due to Covid-19	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (25)	0 (0)	1 (5.9)	1 (4.5)	0 (0)	0 (0)	1 (2)	1 (3.1)	1 (4.5)	0 (0)	2 (2.5)
Got canal irrigation	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (9.1)	0 (0)	2 (13.3)	4 (8)	2 (6.3)	0 (0)	2 (7.7)	4 (5)
Taking care of family members	0 (0)	0 (0)	0 (0)	1 (20)	1 (10)	1 (14.3)	0 (0)	0 (0)	1 (5.9)	3 (13.6)	0 (0)	2 (13.3)	5 (10)	4 (12.5)	0 (0)	3 (11.5)	7 (8.8)
Others	0 (0)	0 (0)	0 (0)	1 (20)	1 (10)	1 (14.3)	0 (0)	3 (50)	4 (23.5)	0 (0)	0 (0)	0 (0)	0 (0)	1 (3.1)	0 (0)	4 (15.4)	5 (6.3)
Total	3 (100)	3 (100)	5 (100)	5 (100)	10 (100)	7 (100)	4 (100)	6 (100)	17 (100)	22 (100)	13 (100)	15 (100)	50 (100)	32 (100)	22 (100)	26 (100)	80 (100)

Table 4.18: Percentage of migrants returned during the COVID-19 lockdown period

Return during covid	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Yes	0	2	2	0	1	10	11	11	6	12	29	11	17	23	51	22	24	47	93
	(0)	(40)	(33.3)	(0)	(25)	(58.8)	(50)	(73.3)	(60)	(60)	(64.4)	(84.6)	(63)	(63.9)	(67.1)	(73.3)	(58.5)	(60.3)	(62.4)
No	1	3	4	1	3	7	11	4	4	8	16	2	10	13	25	8	17	31	56
	(100)	(60)	(66.7)	(100)	(75)	(41.2)	(50)	(26.7)	(40)	(40)	(35.6)	(15.4)	(37)	(36.1)	(32.9)	(26.7)	(41.5)	(39.7)	(37.6)
Total	1	5	6	1	4	17	22	15	10	20	45	13	27	36	76	30	41	78	149
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.19: Duration of stay at the village during the lockdown period

Duration of Stay during covid	Nettempadu		Koilsagar			Kalwakurthy				Rajiv Bheema				Total			
	Long-term	Total	Long-term	Short-term	Total	Long-term	Seasonal	Short-term	Total	Long-term	Seasonal	Short-term	Total	Long-term	Seasonal	Short-term	Total
1-5months	2	2	5	0	5	13	4	8	25	8	3	4	15	28	7	12	47
	(100)	(100)	(50)	(0)	(45.5)	(56.5)	(36.4)	(47.1)	(49)	(66.7)	(27.3)	(66.7)	(51.7)	(59.6)	(31.8)	(50)	(50.5)
6-10months	0	0	2	1	3	5	5	6	16	2	3	0	5	9	8	7	24
	(0)	(0)	(20)	(100)	(27.3)	(21.7)	(45.5)	(35.3)	(31.4)	(16.7)	(27.3)	(0)	(17.2)	(19.1)	(36.4)	(29.2)	(25.8)
>10months	0	0	3	0	3	5	2	3	10	2	5	2	9	10	7	5	22
	(0)	(0)	(30)	(0)	(27.3)	(21.7)	(18.2)	(17.6)	(19.6)	(16.7)	(45.5)	(33.3)	(31)	(21.3)	(31.8)	(20.8)	(23.7)
Total	2	2	10	1	11	23	11	17	51	12	11	6	29	47	22	24	93
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

CHAPTER – 5

Magnitude and Patterns of Return Migration in the Erstwhile Mahabubnagar District

5.1. Introduction

This chapter reflects upon the return migrations to the study areas from various destination places. It especially examines the aspects such as the extent of return migration, why they have returned, when they have returned, what were they doing at the destination, how much salaries they earned, remittances sent to families back home during their stay at the destination, social security and facilities provided to them by the employers at the destination. On the other hand, it explored what they are doing currently in the native village, their level of participation in the local labour market, how much they earn in the village, and whether they are planning to migrate again or not are some of the important questions that the current chapter tried to address. Examining these variables garners significance in the context of a region that was once known for out-migration. The magnitude of migration from the erstwhile Mahabubnagar district to other prosperous places was enormous and characterized by involuntary, distress-led, temporary in nature, and survival migration.

However, the process of out-migration from the Palamuru region has gradually changed over the years owing to irrigation water from newly constructed lift irrigation projects. Because of such developmental initiatives, the erstwhile Mahabubnagar district has started receiving irrigation water from the lift irrigation projects for the last couple of years. As a result, there appear to be changes in agriculture, employment, wage rate rates, and development scenarios in the rural areas of the districts. Agricultural activities have gone under a tremendous shift from traditional crops to modern commercial crops. Further, it facilitated the allied activities to grow in the region therefore the implications on rural households in terms of cropping pattern, income from farming, employment, and associated opportunities is huge. For instance, the entire landscape of the Palamuru region has turned from dry to green in most villages due to water availability from lift irrigation projects. To capture such changes, it is vital to examine the effects of lift irrigation projects and assess the policies so as to frame better policies for the development of the backward regions of the state. The chapter is divided into three sections

including the current introduction. The second section presents the patterns of the return migration in the erstwhile Mahabubnagar district where several lift irrigation projects came into existence in recent times. The final section is the concluding remarks.

5.2. Patterns of return migration in the erstwhile Mahabubnagar district

A total of 179 households reported having a returned migrant member from other places. Of them, 37.4 percent were seasonal migrants, 34.6 percent were long-term migrants, and 27.9 percent of them were short-term migrants. Migrants who returned to villages under Nettempadu stood at 90.3 percent and are seasonal migrants and 6.5 percent were long-term migrants. Under the Koilsagar project areas, 50 percent of the returned migrants were long-term migrants followed by short-term and seasonal migrants respectively. Under Rajiv Bheema 40.4 percent of return migrants were long-term and 38.3 were short-term migrants and the rest of them were seasonal migrants. Under the Kalwakurthy project areas, most of the returned migrants were long-term migrants (38%) followed by short-term and seasonal migrants with 31.6 percent and 30.4 percent respectively. It is worthwhile to note that, seasonal migrants returned more under the Nettempadu, long-term migrants returned in large amounts under the Koilsagar and Rajiv Bheema project areas while under the Kalwakurthy project areas, it is the seasonal migrants who returned to the villages in large amounts, but the variation between seasonal and long-term migrants was very marginal (Table 5.1). It is found that villages that are located close to Hyderabad city seemed to witness more of return migration, both by seasonal and long-term migrants, and the best example of that is villages under the Kalwakurthy lift irrigation project.

The month during which the migrants migrated to various destination places for several purposes reveals that 25.4 percent of them migrated in the month of November, 18 percent in January, 12 percent in October, and 10.4 percent migrated to other places in the month of February. At the project level, data shows that 53.6 percent of migrants from the Nettempadu project areas migrated in the month of November. Migrants from Rajiv Bheema migrated largely during the months of January and February. Likewise, migrants from Kalwakurthy project areas mostly migrated in the months of April, January and March, and June. The inference here is that the distance between their village and the destination place may be playing a greater role in deciding the month of migration. For instance, Nettempadu is located far from Hyderabad while Kalwakurthy is closer to the city therefore migration is greater. Second, the timings of the culmination of agricultural activities in these project villages is another factor that influences the timing of out-migration. On the other hand, migrants from

villages under the Kalwakurthy project travel in the months of January to April when the Rabi season comes to an end, therefore, migrate to Hyderabad city for employment for a shorter period. January and February are the main months of migration for migrants from the Rajiv Bheema project. In a nutshell, when there are fewer agricultural activities then the workers tend to migrate to other places. Second, during the summertime when they find no work in village/s, they migrate to Hyderabad for employment and income. Third, fewer out-migration throughout the monsoon period is an indication of a reliant and efficient functioning of the local employment market (Table 5.2).

The time of return migrants revealed that nearly 21 percent of them returned in the month of May, 16.4 percent returned in June, and close to 12 percent returned in the month of February. There was about 7.5 percent of each happened to return in March and April and in the rest of the months there were some return migrations although in marginal proportions. Migrants from the Nettempadu largely returned in the month of May, it is June for migrants from Koilsagar, and for Rajiv Bheema it was June, November, and December. Migrants from Kalwakurthy project areas returned chiefly in the month of June and July. The seasonal followed by short-term and long-term migrants respectively returned to their villages to cultivate their land which is reflected in Table 5.3.

The data regarding the last time they returned to their village from various destination places show that 87.2 percent of migrants returned between the years 2016 and 2022 followed by 10.6 percent and 2.2 percent of them returned during the period between 2011 and 2016 and 2000 to 2010 respectively. The seasonal migrants were greater in the proportion that returned between the period 2016 and 2022 followed by short-term and long-term migrants. The long-term migrants were outnumbered that returned between the years 2011 and 2016. There were no long-term migrants that returned between the years 2000 and 2010 and other types of migrants were reported in marginal proportion. Under Nettempadu and Koilsagar project areas, more than 95 percent of the migrants returned between the years 2016 and 2022. Under the Rajiv Bheema 85 percent and under the Kalwakurthy project areas 82.3 percent were returned between 2016 and 2022. Under Nettempadu it is the short-term and long-term migrants returned in large proportion during the latest period while it is seasonal and short-term migrants under Koilsagar, seasonal migrants under Rajiv Bheema, and seasonal and long-term migrants under Kalwakurthy project areas (Table 5.4). In short, the return migration to the project areas has begun in a large way only between the periods of 2016 and 2022 which is when most of

the lift irrigation projects were commenced and cultivators started getting water for their fields or farms. This is one of the main reasons why return migrants were rampant during the stated period. Old return migrants were predominantly found under Rajiv Bheema and Kalwakurthy project areas.

From the study villages, a majority of migrants were headed to urban areas for work (85%) and only 15 percent of them migrated to rural areas. Short-term and long-term migrant workers travelled essentially to urban destinations while seasonal migrants took an outing to rural areas for work. When seen within the seasonal migration it is again the urban areas rather than rural where most of the seasonal migrants migrated for work. Under the purview of the Koilsagar project, seasonal migrants basically migrated to the rural areas and no short-term and long-term migrants travelled to rural areas. Note that under the purview of the Koilsagar and Rajiv Bheema projects, 99 percent of the migrants migrated to the urban areas. Under the Kalwakurthy project area villages, it is around 92 percent of them migrated to urban areas and only 8 percent of them journeyed to rural areas overall (Table 5). Note that most of the villages under these project areas are not far away from Hyderabad hence most of them travelled to such urban centres. This has a bearing on the decline of seasonal migration from the regions. Second, when there were no irrigation facilities working classes used to migrate to rural areas for employment but after receiving irrigation water from the lift irrigation projects now the study villages shifted raising from traditional to commercial crops. Lastly, most of the landholders cultivate during both seasons which in turn has prevented out-migration specifically to other rural areas and paved for more of shorter migration to Hyderabad and other towns in Telangana.

The time of first migration by the return migrants reveals that 36.9 percent migrated in the 2000s followed by 28.5 percent between 2010 and 2016, and 16.2 percent migrated between 2016 and 2022. Seasonal and short-term labour migrants largely travelled between 2010 and 2016 and during the year 2000. The long-term migrants migrate largely in the 2000s followed by migration between 2010 and 2016, and in the 1990s. Migrants from Nettempadu migrated mostly during the 2000s and 2010-2016 which was led by long-term and seasonal migrants respectively. From Koilsagar, Rajiv Bheema and Kalwakurthy projects migration took place during the same periods and it was largely by short-term and long-term migrants. Seasonal migrants were having a short history of migration as they began migrating most recent times.

Short-term migrants had relatively longer history of migration but long-term migrants exceeded them in this regard across the study regions in the erstwhile Mahabubnagar district (Table 5.6).

The data concerning the age at the time of migrant's first out-migration divulges that 35.8 percent of them migrated at the age of 30 and 40 years followed by 29 percent each at the age between 20 and 30 years and 15-20 years. There are 19 percent of them migrated first time at the age of 40 to 50 years and 5 percent of them migrated when they were below 15 years of age or migrated as child labourers. A large proportion of seasonal migrants migrated at the age ranging between 30-40 years followed by 20-30 years, and 15-20 years of age. Short-term migrants too migrated at the age amongst 30-40 years, 30-20 years, and 40-50 years respectively. The long-term migrants migrated for the first time when they were aged between 40-50 years followed by 30-40 years and 20-30 years of age groups. Migrants under the Nettempadu and Kalwakurthy projects migrated at a young age i.e. 15-20 years and 20-30 years, which is dominated by short-term and long-term migrants. Return migrants under Koilsagar and Rajiv Bheema largely migrated in the age group of 30-40 years and 40-50 years (Table 5.7). The villages where irrigation was not available for decades like Nettempadu and Kalwakurthy project areas accounted for more return migrants who migrated at the early or young age. In contrast, return migrants under Koilsagar were reported to be migrated at an older age when they first migrated and this could be attributed to the irrigation resources in those villages that give both livelihood and employment opportunities for the local working and farming classes at least one season i.e., Kharif season.

Before migrant workers migrated to other places about 46.4 percent of them worked in the local labour market as daily wage earners and the rest of them were in own cultivation and worked in construction work as a daily wage labourer. There was about 17 percent of them were engaged in multiple (others) economic activities in the village or local economy before their first migration to other areas for employment purposes. This tendency is reflected across different types of migrants but the proportion is marginally high among the seasonal migrants, though it changes as per the work they were doing. Second, this whole trend also reflected across the project areas wherein migrants from Nettempadu and Kalwakurthy outnumbered migrants from other projects who worked as labourers. Moreover, seasonal migrants were more predominant than the rest of the migrants the Koilsagar while in the Rajiv Bheema, it was the short-term and long-term migrants that outnumbered as daily wage workers. The same is true for other categories of works (Table 5.8). Labour, cultivation, construction work, self-

employment, traditional occupations, and agricultural allied activities were the main sources of employment for the local workforce to earn income. Nevertheless, these factors are steadily changing due to irrigation facilities in the study villages.

Of the total migrated households, 24.7 percent migrated 5-10 times till the survey year followed by 10-15 times and 15-20 times respectively. In this, seasonal migrants were migrated a greater number of times followed by short-term and long-term migrants. However, this varies across the project areas, for instance, under the Nettempadu seasonal migrants were migrated a greater number of times and there were no long-term migrants. Second, long-term migrants were outnumbered under the Koilsagar and no short-term and seasonal migrants were found for most of the categories. Migrants under the Rajiv Bheema and Kalwakurthy projects most migrants migrated more times but there is no standard pattern about which type of migrant that migrated a greater number of times (Table 9). In short, it is apparent that most of them were having an experience of migration to other places at least ten times as of the survey date in their lives. This long historical migration is proof of how the working class in the Palamuru region relies on out-migration for several economic and survival needs.

Out of the total first-time travelled migrants most of them travelled in a group (21.5%), 20.8 percent travelled with their spouses (wife and husband), 17.6 percent migrated along with family, and close to 14 percent with contractors. Seasonal migrants were largely migrated in groups, short-term migrants travelled with spouses, and long-term migrants with their entire family. Long-term and short-term migrants go on contract more frequently than that of seasonal migrants. In all the project areas seasonal migrants migrated largely in groups (Table 5.10). It is true that seasonal migrants take place after the harvest season and during this time some of the family members migrated along with fellow villagers for working in agriculture and non-agriculture sectors for a couple of months i.e., 3-4 months while spouse migration is either for a year or more but less than two years and long-term migrations is for more than two years.

Further the current mode of the migrants last migration indicates that 30 percent of them migrated with their families, 22.5 percent only wife and husband, 17.4 percent in groups with the fellow villagers. On the contrary, there were 13 percent of them migrated through a contractor, 5.5 percent each migrated individually and with friends respectively. Family migration was dominated with long-term migrants, couples' migration is largely taken place by short-term migrants, group migration was prevailed more among the seasonal migrants, contract migration among the short-term and seasonal migrants, individual migration also

dominated by seasonal migrants while migration along with friends is prevalent more among the long-term migrants. In Nettempadu, Rajiv Bheema and Kalwakurthy project areas family migration took place among the long-term migrants, in Koilsagar it is by short-term migrants. Couples' migration was more among the seasonal migration in Nettempadu and Kalwakurthy projects and in other projects it led by short and long-term migrants. It can be concluded that group, contract, and individual migration is more prevalent among the seasonal migrants and the rest of the migration took place among the long-term and short-term migrants respectively (Table 5.11).

The data regarding migrants' last stay at the destination reveals that 38 percent of migrants stayed 1-5 years, 25.7 percent stayed less than six months, and 18.4 percent of them stayed six to one year at the destination before they returned to their villages. Contrary to that, close to 11 percent stayed for 5-10 years five percent of them stayed 10-15 years and a marginal portion of the migrants stayed more than 15 years. Returned migrants who stayed less than six months and six months to one year were principally seasonal migrants and they were largely found in Nettempadu, Rajiv Bheema, and Kalwakurthy project areas. Migrants with a 1-5 years stay was basically dominated by short-term migrants followed by long-term and seasonal migrants and was dominated by short-term migrants in all the project areas except for Rajiv Bheema wherein long-term migrants were slightly more than them. Migrants who stayed above five years were predominantly long-term migrants across the study areas (Table 5.12). Seasonal migrants mainly go out of their villages to find a job for a short period that ranges a couple of months but mostly either less than six months or less than one year. Whilst, others particularly long-term migrants stayed longer duration at the destinations and short-term stayed for 1-5 or below five years only. The long-term migration is not virtually linked to the better or improved conditions of migrant households in the villages because their extended family members still depend on agriculture back home. Thus, long-term migration is part of a diversification strategy of family labour from the agriculture sector to urban-oriented jobs that are aimed at earning higher or regular income by staying for a longer period at the destinations.

The data concerning the wage per day earned by male migrants at the destination discloses that 45.5 percent of the male migrants earned wages between Rs.250 and Rs.500 per day in which long-term migrants outnumbered the seasonal and short-term migrants. Second, 43.8 percent of the male migrants earned wages between Rs.500 and Rs.1000 per day wherein seasonal migrants and short-term migrants prevailed over the long-term migrants. In contrast, 6.3

percent earned wages between Rs.150 and Rs.250 per day. Further, 4.5 percent of workers earned more than Rs.1000 per day at the destination in which again seasonal migrants were earned more than other types of migrant workers. In Nettempadu majority of the migrants earned wages between Rs.500 and Rs.1000 where long-term migrants outnumbered the rest of the migrants. In Koilsagar most of the migrants earned wages between Rs.250 and Rs.500 and the same is observed in Rajiv Bheema and Kalwakurthy projects wherein long-term migrants appeared greater in number. It is concluded that the seasonal migrants were earning higher wages followed by short-term migrants and long-term migrants. It is quite thought-provoking that the long-term migrants are seen earning lower wages than the rest of the migrants despite their advantage of working for a longer period, work acquaintances, stronger network, and improved skills (Table 5.13).

On the other hand, female migrants by and large earned between Rs.250 and Rs.500 as a daily wage followed by Rs.150 and Rs.250 and there were only 2 females who earned daily wage above Rs.500. Female long-term migrants earned higher wages followed by short-term and seasonal migrants. In the lower wage categories, female short-term migrants outnumbered than the rest of the migrants. There was only one female migrant who earned wages between Rs.500 and Rs.1000 and in Koilsagar there only two of them found to be earning lower wages. The same is the case with female migrants that reported to be returned from various destinations to the villages under the Rajiv Bheema and Kalwakurthy projects. Females have happened to earn lesser wages as compared to male migrants despite their lower rate of out-migration from the study regions (Appendix 5.1). There was a total of 38 migrants getting monthly salary where most of them were getting a salary between Rs.5000-10000 (47.4%), closed to 30 percent got a monthly salary ranging from Rs. 10000 to Rs.15000, 18.4 percent got between Rs1400 and Rs.5000 and only two migrants earned a monthly salary between Rs.15000 and Rs.20000. Most of the long-term migrants earned salaries ranging between Rs.5000 and Rs.10000 but in category of wages that range between Rs.10000 and Rs.15000 short-term migrants outnumbered the other types of migrants. Seasonal migrants though few were happened to earn higher salaries than the rest of the migrants. Long-term migrants from Nettempadu earned higher salaries while in other projects it was short-term and seasonal migrants who happened to earn medium range of salaries (Appendix 5.2).

Of the total return migrant households, 54.2 percent of them worked up to 9-12 hours per day at the destination wherein seasonal migrants outnumbered their other counterparts. Further, 40

percent worked 8 hours per day in which short-term migrants outnumbered seasonal and long-term migrants. There were 5 percent of the return migrants who worked more than 12 hours at the destination in which long-term migrants were more than that of the rest of the return migrants. Return migrants in Nettempadu, Rajiv Bheema and Kalwakurthy project areas worked from 9 to 12 hours per day in which seasonal and short-term migrants greater in number than the rest of the migrants. In Koilsagar most of them worked 8 hours per day whereas short-term migrants found to be more than others. Short-term migrants worked statutory work hours (fewer) and seasonal migrants worked 1-3 hours extra whereas long-term migrants outnumbered in the category 12 hours of work. Migrant whose duration of stay is less tend to engage in longer working hours, for instance, seasonal migration who are susceptible to extra working hours (Table 5.14).

Furthermore, nearly 400 individual migrants responded about the working conditions at the destination of which 22.6 percent informed that there was air pollution at workplace where short-term and long-term migrants outnumbered the seasonal migrants. Further, 17.8 percent of them reported sound pollution which is equally reported by the short-term and long-term migrants. Little over 16 percent faced fumes, gas, and dust pollution wherein seasonal migrants happened to be more than the rest of them. Close to 12 percent supposed that they have worked extra time without any additional payment and it is more among the short-term migrants followed by seasonal migrants. Likewise, there were 7.3 percent of them worked at high range building constructions where short-term migrants were more. Nearly six percent worked in hazardous activities more so by seasonal and long-term migrants. In Nettempadu 42.6 percent worked under fume, gas, and dusty conditions. Migrants from Koilsagar, Rajiv Bheema and Kalwakurthy worked under air pollution particularly by long-term migrants. Seasonal and long-term migrants were more vulnerable in terms of working in more extreme or hazardous working conditions, however, this varies slightly across the projects (Table 5.15).

Of the total migrants who were provided facilities at the destination revealed that 39 percent got accommodation, 21 percent were provided food, 18 percent received transportation facilities and 11 percent received an advance amount for migrating to the destination to work. Seasonal migrants received accommodation, transportation, and received an advance before their migration to the destination while long-term migrants were provided food. In Nettempadu only seasonal migrants reported to be provided certain facilities such as accommodation, transportation, and advance. Migrants from Koilsagar provided food, accommodation, and

medical provisions. Migrants from Rajiv Bheema received accommodation, particularly by long-term migrants, seasonal migrants were provided food and an advance amount. Under the Kalwakurthy project areas seasonal and long-term migrants received accommodation, food, and transportation (Table 5.16). Migration to rural and semi-rural areas is associated with provisions of accommodation, food, and transportation and sometimes an advance amount which is normally given to seasonal and to some extent short-term migrants.

Of the total migrant households, 21.2 percent of return migrants reported to have acquired new skills while working at the destination places in which long-term migrants gained more such skills followed by seasonal and short-term migrants respectively. In Nettempadu 45.2 percent of them acquired new skills mostly by long-term and short-term migrants. There was not a single migrant who informed of acquiring any new skills at the destination in Koilsagar project areas. Migrants from Rajiv Bheema stated that they learned new skills, particularly by short-term migrants. Long-term migrants followed by short-term migrants from Kalwakurthy project areas attained new skills while they were working at the destination place. It is said that the longer the duration of migrants at the destination the better the chances of attaining new skills which allows them to enter newer but upgraded jobs. This has happened across all types of migrants with a varied proportion but the high likelihood was found among the long-term migrants than the rest of the migrants (Table 5.17).

There was a total of 47 families that informed that they had received social security benefits at the destination. Of them, 78.7 percent received medical allowances in which seasonal migrants received them the most than other migrants. Second, 10.6 percent received Employment Provident Fund (EPF) benefits wherein long-term migrants outnumbered the other types of migrants and not a single seasonal migrants received such social security benefits at the destination. Lastly, 8.5 percent got Employees State Insurance (ESI) benefits wherein long-term migrants were more significant in number than the rest of the migrants. There was not a single beneficiary of social security that was found under the Nettempadu project. Under the Koilsagar project all the migrants received medical benefits while under the Rajiv Bheema 94.4 percent were received medical benefits in which seasonal and long-term migrants got the benefit fully. Under the Kalwakurthy project areas 61 percent were received medical benefits and close to 22 percent received EPF benefits wherein short-term migrants benefited largely than other types of migrants (Table 5.18). Medical benefits as part of a social security arrangements seems to be a common phenomenon that prevailed at the destination place as a

social security for the migrant workers. Long-term and short-term migrants got other standard social security benefits like ESI and PF which is an indication of regularity of employment and security that the job they were into gives them.

When probed about why have migrants returned from working place to their village, 24.7 percent of them informed that they have returned to work in their village since the work is available for them throughout the years now wherein seasonal migrants were greater in proportion followed by short- term and long-term migrants stated to have come back home. Further, 19 percent of them have come back to cultivate their own land where long-term migrants outnumbered followed by short-term and seasonal migrants respectively. Another 13.5 percent of them returned from destination to stay back in the village and most of them were long-term migrants. Nearly, 6 percent were returned because of the end of their work contract and most of them were seasonal migrants. Around 5.2 percent had returned due to health issues, particularly by short-term migrants. The rest of them returned for several other reasons though in marginal proportion. Seasonal migrants in Nettempadu returned due to work available in the village and the culmination of their contract. The same is true in the case of Koilsagar but the short-term migrants outnumbered the seasonal and long-term migrants in doing so. In Rajiv Bheema seasonal migrants returned for working in the village while long-term migrants returned to stay back in the village. Migrants from Kalwakurthy returned to cultivate their land. The inference here is that long-term migrants largely returned to cultivate their land, and stay back in the village. This could be owing to the changes caused by newly arrived water from lift irrigation projects. The other types of migrants returned due to end of contract, health issues, difficult work, etc. Therefore, lift irrigation projects have certainly caused return migration to the region that once known for labour exodus (Table 5.19).

After returning from working in various destinations 42.5 percent of the migrants were doing their own cultivation chiefly by short-term migrants followed by long-term and seasonal migrants but the difference between them is no so wide. Second, 31.3 percent of them were engaged in as daily wage labourers in the native village labour market in which seasonal and short-term migrants were outnumbered the long-term migrants. Third, a little over 6 percent were working in construction works in and around the village labour markets where long-term migrants were more into such activities. And lastly close to 9 percent of them were engaged in several other economic activities and it was largely by long-term migrants than that of other migrants. In Nettempadu most of the migrants (99%) were into own cultivation and labour

activities and only one works in construction in particular seasonal migrants. In Koilsagar migrants were equally into cultivation and wage labour market where in seasonal migrants were into cultivation and short-term migrants into labour. In Rajiv Bheema most of them in wage labour and cultivation where seasonal migrants outnumbered the others. In Kalwakurthy project areas 52 percent were into cultivation followed by 23 percent of them into labour activities wherein long-term migrants were into agriculture and seasonal into labour activities (Table 5.20). Cultivation, wage labour, construction activities were the prevalent economic activities in the local economies. Self-employment and is found only in Rajiv Bheema and Kalwakurthy projects and it was largely dominated by long-term and seasonal migrants across the two projects. It seems that the village economy is in the transition from traditionally agricultural based economy to a more of an expanded non-agricultural labour market. This can be attributed to the advent of irrigation water from lift irrigation projects commenced few years back in the four study districts of erstwhile Mahabubnagar district.

Return migrants who are into cultivation informed that 80.3 percent of them were cultivating their own land from less than six years and only 19.7 percent of them cultivating their land beyond six years. Short-term and long-term migrants were cultivating their land from recent years while seasonal migrants were cultivating own land for more than six years and above. This means that seasonal migrants cultivate their land regularly and migrate to other places only after they complete the harvest season. In contrast, short-term and long-term migrants with own land have started cultivating from last six years indicating that before six years they might have either abandoned or leased out their land and migrated to other areas. But on the advent of water resources through lift irrigation they have started staying back exclusively to cultivate their land. This is a direct outcome of the lift irrigation projects. In Nettempadu seasonal migrants cultivating from last six years and the rest of them were doing so beyond six years. In Koilsagar and Rajiv Bheema project areas, short, long term and seasonal migrants cultivating from last six years respectively. Further, 90 percent of the migrants from Kalwakurthy cultivating from last six years wherein seasonal and short-term migrants outnumbered their long-term migrant counterparts (Table 5.21).

The data further reveals that, of the total return migrants, 74.9 percent informed that they work as daily wage labourers apart from own cultivation and doing other economic activities wherein seasonal migrants were more significant followed by long-term and short-term migrants. In Nettempadu 93.5 percent work as wage labourers particularly by short-term and seasonal

migrants. In Rajiv Bheema and Kalwakurthy project areas seasonal and long-term migrants working more in local labour market as daily wage labourers. It is very common for the sample households to engage in multiple economic activities in the local but sometimes nearby labour market apart from their main activity or occupation to supplement their family's total income. The seasonal and long-term migrants tend to work more as daily wage workers as they entirely rely on cultivation of their land and when there is an opportunity to work in other farmer's fields, this is they do so to earn additional income (Table 5.22).

Out of total migrants who worked as daily wage labourers, 47 percent worked for 3-6 months wherein seasonal migrants were predominantly more followed by short-term and long-term migrants. Nearly 18 percent of them worked for 6-9 months in which long-term and short-term migrants were outnumbered. Third, nearly 16 percent worked between 1-3 months as daily wage labourers where seasonal and long-term migrants were more in proportion. In Nettempadu seasonal migrants worked for 3-6 months followed by 1-3 months. In Koilsagar project areas short-term migrants seemed to be working from 3 to 6 months. In Rajiv Bheema it was the long-term migrants and seasonal migrants in Kalwakurthy project areas appeared to be working from 3 to 6 months than rest of the migrants (Table 5.23). In short, agricultural activities particularly in Kharif season continues for beyond six months i.e., from June to January during which cultivators and labourers and traditional households work in agricultural activities as daily wage earners apart from continuing their main occupation.

On the whole, 49.6 percent of the return migrants earned wages between Rs.500 to Rs.1000 followed by 48.8 percent earned wages ranging from Rs.100 to Rs.500 and there were 1.6 percent who earned even less than Rs.100 while working in the local village labour market. Furth short-term and long-term migrants were equally earning wages between Rs.500 and Rs.1000 followed by seasonal migrants who outnumbered in the wage category of Rs.100 and Rs.500. In Nettempadu most of them earned wages between Rs.500 and Rs.1000 particularly by short-term and long-term migrants while in Koilsagar short-term migrants were placed better in the same wage category but long-term migrants were more in the wage category of Rs.100-500. In Rajiv Bheema long-term migrants were more in the wage category of Rs.500 and Rs.1000 and seasonal migrants earned wages between Rs.100 and Rs.500 and the very similar pattern can be seen in Kalwakurthy project as well (Table 5.24). The wage rates in the study areas fluctuates based on the season, for instance, during the Kharif season labourers get higher wages ranging between Rs.500 and Rs.1000 and after harvest or during the Rabi season

the wages rates goes down for both male and females, therefore, earns lower wages between Rs.100 and Rs.500. The decline in wage rates for female workers is sharper than that of males. The wage rates for special work will be higher, for instance, ploughing, tractor driving, mechanic, weeding, etc. In short, though wage rates in the villages gone up the volatility in wage rates still exists which in turn influences the decision to migrate or not.

Lastly, when asked whether the return migrants planning to migrate again or not from their villages to other places for various purposes the data disclosed that nearly 23 percent of them are planning to out-migrate again and the rest of the 77 percent said that they are not planning to migrate again in the current year. Seasonal migrants were mainly willing to migrate again and only a negligible portion of long-term migrants did want to migrate to other places but the difference between them is huge. In Nettempadu most of the return migrants said that they wanted to migrate again and it is expressed mainly by the seasonal migrants and same is the case in the Koilsagar project villages. In Rajiv Bheema only long-term migrants wanted to migrate again while it is seasonal and short-term migrants from Kalwakurthy project villages that wanted to migrate again (Table 5.25). It is learned that a quarter of migrant households always willing to migrate out of the village to other places for earning income especially when they do not get work in the local labour market wherein seasonal migrants and few other types of migrants outnumbered. The availability of employment opportunities and wage rates in the local labour market seemed to be acting as a deciding factor whether a worker migrates out or remains in the village/s. labour diversification among the households is another factor that play a critical role in households' decision to migrate or not.

5.3. Summary

This chapter clearly brought out that the villages that are closer to Hyderabad city witnessed more of return migration particularly by seasonal and long-term migrants. Agricultural slack season the workers tend to migrate out of their villages to Hyderabad for employment. A moderate portion of seasonal and short-term migrants return to their villages to cultivate their land. The proximity between the origin village and the destination plays a significant role apart from the water received from the newly constructed lift irrigation projects in the study areas. Irrigation facilities have reduced the migration in these study areas. Long-term migrants had longer history of migration under the study regions in the erstwhile Mahabubnagar district. The villages where access to irrigation water was not there for decades like Nettempadu and

Kalwakurthy accounted longer history of migration while it is quite opposite in the Koilsagar project areas.

Wage labour, cultivation, construction work, self-employment, traditional occupations, and agricultural allied activities were the main sources of employment for the local workforce to engage in for income earnings. Most of the return migrants migrated at least ten times in their lives and migrated in groups, via contractor and individual migration. The long-term migration is a shift from agriculture sector to urban oriented jobs that aimed at either staying permanently or working for a longer period. Seasonal migrants were earning more wages than the rest of the migrants while long-term migrants worked on contractual jobs and travelled far off places to get lower wages than that of individual and short-distance migrants. Seasonal migration is for few months therefore they were vulnerable to extra working time while short-term migrants were relatively better off due to their duration of stay at the destination. Seasonal and long-term migrants were more vulnerable in terms of working in extreme or hazardous conditions. Migration to rural and semi-rural areas is associated with provisions of accommodation, food, and transportation and to some extent advance amount given to migrants before migration which is normally preferred by seasonal and short-term migrants.

Long-term and short-term migrants got other standard social security benefits like ESI and PF which is an indication of job security. It seemed that the village economy is in the transition from traditional agricultural base economy to a more expanded non-agricultural labour market. The seasonal and long-term migrants tend to work more as daily wage workers as they entirely rely on cultivation of their land and when there is opportunity to work in others fields, they do so for earning additional income. In short, agriculture activities particularly in the Kharif season continues more than six months i.e. from June to January/February during the period cultivators and labour and traditional households work in agriculture activities as daily wage earners apart from continuing their main occupation to earn additional income. The wage rates fluctuate based on the season most of them earn wages between Rs.500 and Rs.1000. Wages would decline during the slack agricultural season therefore earns wages between Rs.100 and Rs.500. It is learned that a quarter of migrant households always willing to migrate out and earn income when they did not get work in the local labour market and its more so by seasonal migrants and few other types of migrants. In short, water from lift irrigation projects improved agricultural activities, increased wage labour days, brought down out migration, attracted migrants to return to their villages, and allowed diversification of family labour based on their financial needs. These recent developments are now widespread across the study villages.

Table 5.1: Percentage of return migrant households in the study villages under lift irrigation project areas

Return migrants	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Yes	28	1	2	31	4	7	11	22	10	18	19	25	24	30	79	67	50	62	179
	(90.3)	(3.2)	(6.5)	(100)	(18.2)	(31.8)	(50)	(100)	(21.3)	(38.3)	(40.4)	(31.6)	(30.4)	(38)	(100)	(37.4)	(27.9)	(34.6)	(100)

Table 5.2: Time of migration by the migrant workers to various destinations

Starting month	Nettempadu		Koilsagar		Rajiv Bheema		Kalwakurthy		All	
	Seasonal	Percentage	Seasonal	Percentage	Seasonal	Percentage	Seasonal	Percentage	Seasonal	Percentage
January	2	7.1	1	25	4	40	5	20.0	12	17.9
February	2	7.1	1	25	3	30	1	4.0	7	10.4
March	0	0.0	0	0	1	10	3	12.0	4	6.0
April	0	0.0	0	0	0	0	6	24.0	6	9.0
May	0	0.0	0	0	0	0	0	0.0	0	0.0
June	0	0.0	1	25	0	0	3	12.0	4	6.0
July	1	3.6	0	0	0	0	0	0.0	1	1.5
August	1	3.6	0	0	1	10	0	0.0	2	3.0
September	0	0.0	0	0	0	0	1	4.0	1	1.5
October	4	14.3	1	25	1	10	2	8.0	8	11.9
November	15	53.6	0	0	0	0	2	8.0	17	25.4
December	3	10.7	0	0	0	0	2	8.0	5	7.5
Total	28	100.0	4	100	10	100	25	100.0	67	100.0

Table 5.3: Time of return to the village from destination place/s

Seasonal pattern Ending Month										
	Nettempadu		Koilsagar		Rajiv Bheema		Kalwakurthy		All	
Ending/returning month	Seasonal	Percentage	Seasonal	Percentage	Seasonal	Percentage	Seasonal	Percentage	Seasonal	Percentage
January	2	7.1	0	0	0	0	0	0.0	2	3.0
February	5	17.9	0	0	0	0	3	12.0	8	11.9
March	1	3.6	0	0	1	10	3	12.0	5	7.5
April	4	14.3	0	0	1	10	0	0.0	5	7.5
May	13	46.4	0	0	1	10	0	0.0	14	20.9
June	1	3.6	2	50	2	20	6	24.0	11	16.4
July	0	0.0	0	0	0	0	4	16.0	4	6.0
August	0	0.0	0	0	0	0	2	8.0	2	3.0
September	0	0.0	1	25	0	0	2	8.0	3	4.5
October	0	0.0	1	25	1	10	2	8.0	4	6.0
November	1	3.6	0	0	2	20	1	4.0	4	6.0
December	1	3.6	0	0	2	20	2	8.0	5	7.5
Total	28	100.0	4	100	10	100	25	100.0	67	100.0

Table 5.4: Migrant's time of last return to the village from the destinations

Time of last return from the destination																				
	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Time of last return	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
	1	0	0	1	0	0	0	0	0	0	0	0	1	2	0	3	2	2	0	4
2000-2010	(3.6)	(0)	(0)	(3.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(4)	(8.3)	(0)	(3.8)	(3)	(4)	(0)	(2.2)
	0	0	0	0	0	0	1	1	0	3	4	7	3	3	5	11	3	6	10	19
2011-2016	(0)	(0)	(0)	(0)	(0)	(0)	(9.1)	(4.5)	(0)	(16.7)	(21.1)	(14.9)	(12)	(12.5)	(16.7)	(13.9)	(4.5)	(12)	(16.1)	(10.6)
	27	1	2	30	4	7	10	21	10	15	15	40	21	19	25	65	62	42	52	156
2016-2022	(96.4)	(100)	(100)	(96.8)	(100)	(100)	(90.9)	(95.5)	(100)	(83.3)	(78.9)	(85.1)	(84)	(79.2)	(83.3)	(82.3)	(92.5)	(84)	(83.9)	(87.2)
	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
Total	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.5: Type of migrant's destination places at the time of return

Type of the destination																				
	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Type of destination	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Rural	19	0	0	19	0	0	1	1	1	0	0	1	2	2	2	6	22	2	3	27
%	(68)	(0)	(0)	(61)	(0)	(0)	(9)	(5)	(10)	(0)	(0)	(2)	(8)	(8)	(7)	(8)	(33)	(4)	(5)	(15)
Urban	9	1	2	12	4	7	10	21	9	18	19	46	23	22	28	73	45	48	59	152
%	(32)	(100)	(100)	(39)	(100)	(100)	(91)	(95)	(90)	(100)	(100)	(98)	(92)	(92)	(93)	(92)	(67)	(96)	(95)	(85)
Total	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.6: Time of first migration by the return migrant workers in the study villages

First migration by return migrants																				
	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Year	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
1970s	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	2	1	0	2	3
%	(3.6)	(0)	(0)	(3.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(6.7)	(2.5)	(1.5)	(0)	(3.2)	(1.7)
1980s	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	6	2	2	2	6
%	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(8)	(8.3)	(6.7)	(7.6)	(3)	(4)	(3.2)	(3.4)
1990s	4	1	0	5	0	0	1	1	0	2	4	6	5	1	6	12	9	4	11	24
%	(14.3)	(100)	(0)	(16.1)	(0)	(0)	(9.1)	(4.5)	(0)	(11.1)	(21.1)	(12.8)	(20)	(4.2)	(20)	(15.2)	(13.4)	(8)	(17.7)	(13.4)
2000s	9	0	2	11	1	1	6	8	4	7	9	20	6	8	13	27	20	16	30	66
%	(32.1)	(0)	(100)	(35.5)	(25)	(14.3)	(54.5)	(36.4)	(40)	(38.9)	(47.4)	(42.6)	(24)	(33.3)	(43.3)	(34.2)	(29.9)	(32)	(48.4)	(36.9)
2010-2016	11	0	0	11	1	3	4	8	2	6	4	12	7	9	4	20	21	18	12	51
%	(39.3)	(0)	(0)	(35.5)	(25)	(42.9)	(36.4)	(36.4)	(20)	(33.3)	(21.1)	(25.5)	(28)	(37.5)	(13.3)	(25.3)	(31.3)	(36)	(19.4)	(28.5)
2016-2022	3	0	0	3	2	3	0	5	4	3	2	9	5	4	3	12	14	10	5	29
%	(10.7)	(0)	(0)	(9.7)	(50)	(42.9)	(0)	(22.7)	(40)	(16.7)	(10.5)	(19.1)	(20)	(16.7)	(10)	(15.2)	(20.9)	(20)	(8.1)	(16.2)
Total	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.7: Percentage of migrants age at the time of first migration

	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Age	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
<15	2	0	0	2	0	0	0	0	1	0	0	1	1	3	2	6	4	3	2	9
%	(7.1)	(0)	(0)	(6.5)	(0)	(0)	(0)	(0)	(10)	(0)	(0)	(2.1)	(4)	(12.5)	(6.7)	(7.6)	(6)	(6)	(3.2)	(5)
15-20	12	1	2	15	1	0	1	2	0	2	5	7	8	10	10	28	21	13	18	52
%	42.9	100	100	48.4	25	0	9.1	9.1	0	11.1	26.3	14.9	32	41.7	33.3	35.4	31.3	26	29	29.1
20-30	9	0	0	9	2	5	3	10	7	8	6	21	11	4	9	24	29	17	18	64
%	(42.9)	(100)	(100)	(48.4)	(25)	(0)	(9.1)	(9.1)	(0)	(11.1)	(26.3)	(14.9)	(32)	(41.7)	(33.3)	(35.4)	(31.3)	(26)	(29)	(29.1)
30-40	3	0	0	3	0	1	6	7	1	5	6	12	1	4	7	12	5	10	19	34
%	(32.1)	(0)	(0)	(29)	(50)	(71.4)	(27.3)	(45.5)	(70)	(44.4)	(31.6)	(44.7)	(44)	(16.7)	(30)	(30.4)	(43.3)	(34)	(29)	(35.8)
40-50	2	0	0	2	1	0	1	2	1	3	2	6	3	3	2	8	7	6	5	18
%	(10.7)	(0)	(0)	(9.7)	(0)	(14.3)	(54.5)	(31.8)	(10)	(27.8)	(31.6)	(25.5)	(4)	(16.7)	(23.3)	(15.2)	(7.5)	(20)	(30.6)	(19)
50>	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	1	1	0	2
%	(7.1)	(0)	(0)	(6.5)	(25)	(0)	(9.1)	(9.1)	(10)	(16.7)	(10.5)	(12.8)	(12)	(12.5)	(6.7)	(10.1)	(10.4)	(12)	(8.1)	(10.1)
Total	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.8: Percentage of migrant's status prior to their migration to various destination places

Work prior to migration	Nettempadu				Koilsagar				Kalwakurthy				Rajiv Bheema				Total			
	Seasonal	Short-term	Long-term	Total	Seasonal	Short-term	Long-term	Total	Seasonal	Short-term	Long-term	Total	Seasonal	Short-term	Long-term	Total	Seasonal	Short-term	Long-term	Total
Construction work	1	0	0	1	0	1	1	2	2	1	4	7	0	2	2	4	3	4	7	14
%	(3.6)	(0)	(0)	(3.2)	(0)	(14.3)	(9.1)	(9.1)	(8)	(4.2)	(13.3)	(8.9)	(0)	(11.1)	(10.5)	(8.5)	(4.5)	(8)	(11.3)	(7.8)
Labour	18	1	1	20	3	3	6	12	8	10	12	30	7	7	7	21	36	21	26	83
%	(64.3)	(100)	(50)	(64.5)	(75)	(42.9)	(54.5)	(54.5)	(32)	(41.7)	(40)	(38)	(70)	(38.9)	(36.8)	(44.7)	(53.7)	(42)	(41.9)	(46.4)
Lease farming	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
%	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(4.2)	(0)	(1.3)	(0)	(0)	(0)	(0)	(0)	(2)	(0)	(0.6)
Livestock	0	0	0	0	0	0	0	0	1	2	0	3	1	0	1	2	2	2	1	5
%	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(4)	(8.3)	(0)	(3.8)	(10)	(0)	(5.3)	(4.3)	(3)	(4)	(1.6)	(2.8)
Others	1	0	1	2	0	1	3	4	5	5	8	18	2	3	2	7	8	9	14	31
%	(3.6)	(0)	(50)	(6.5)	(0)	(14.3)	(27.3)	(18.2)	(20)	(20.8)	(26.7)	(22.8)	(20)	(16.7)	(10.5)	(14.9)	(11.9)	(18)	(22.6)	(17.3)
Own cultivation	8	0	0	8	0	2	1	3	7	5	6	18	0	4	5	9	15	11	12	38
%	(28.6)	(0)	(0)	(25.8)	(0)	(28.6)	(9.1)	(13.6)	(28)	(20.8)	(20)	(22.8)	(0)	(22.2)	(26.3)	(19.1)	(22.4)	(22)	(19.4)	(21.2)
Petty Trade	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
	(0)	(0)	(0)	(0)	(25)	(0)	(0)	(4.5)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1.5)	(0)	(0)	(0.6)
Self-employment	0	0	0	0	0	0	0	0	2	0	0	2	0	1	1	2	2	1	1	4
%	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(8)	(0)	(0)	(2.5)	(0)	(5.6)	(5.3)	(4.3)	(3)	(2)	(1.6)	(2.2)
Traditional occupation	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	1	1	2
%	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(5.6)	(5.3)	(4.3)	(0)	(2)	(1.6)	(1.1)
Total	28	1	2	31	4	7	11	22	25	24	30	79	10	18	19	47	67	50	62	179
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.9: Number of times migrated prior to their return to the villages

Number of times	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
5-10 times	13	1	0	14	0	0	3	3	2	5	6	13	3	6	5	14	18	12	14	44
%	(46.4)	(100)	(0)	(45.2)	(0)	(0)	(27.3)	(13.6)	(20)	(29.4)	(31.6)	(28.3)	(12)	(25)	(16.7)	(17.7)	(26.9)	(24.5)	(22.6)	(24.7)
10-15 times	7	0	0	7	0	0	1	1	0	1	0	1	1	0	1	2	8	1	2	11
%	(25)	(0)	(0)	(22.6)	(0)	(0)	(9.1)	(4.5)	(0)	(5.9)	(0)	(2.2)	(4)	(0)	(3.3)	(2.5)	(11.9)	(2)	(3.2)	(6.2)
15-20 times	1	0	0	1	0	0	1	1	1	0	0	1	0	0	1	1	2	0	2	4
%	(3.6)	(0)	(0)	(3.2)	(0)	(0)	(9.1)	(4.5)	(10)	(0)	(0)	(2.2)	(0)	(0)	(3.3)	(1.3)	(3)	(0)	(3.2)	(2.2)
20-30 times	1	0	0	1	0	0	1	1	0	0	0	0	0	0	1	1	1	0	2	3
%	(3.6)	(0)	(0)	(3.2)	(0)	(0)	(9.1)	(4.5)	(0)	(0)	(0)	(0)	(0)	(0)	(3.3)	(1.3)	(1.5)	(0)	(3.2)	(1.7)
Total	28	1	2	31	4	7	11	22	10	17	19	46	25	24	30	79	67	49	62	178
%	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.10: The mode of migration when they first migrated to various destinations

First-time migration	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Contract	6	0	0	6	1	2	1	4	4	2	4	10	5	6	9	20	16	10	14	40
	(9.7)	(0)	(0)	(9.1)	(16.7)	(25)	(7.1)	(14.3)	(25)	(9.1)	(14.3)	(15.2)	(10.6)	(16.2)	(20)	(15.5)	(12.2)	(14.5)	(15.7)	(13.8)
Group	27	1	0	28	2	0	3	5	3	2	2	7	8	8	6	22	40	11	11	62
	(43.5)	(50)	(0)	(42.4)	(33.3)	(0)	(21.4)	(17.9)	(18.8)	(9.1)	(7.1)	(10.6)	(17)	(21.6)	(13.3)	(17.1)	(30.5)	(15.9)	(12.4)	(21.5)
Individually	9	1	2	12	1	0	1	2	1	2	4	7	3	3	5	11	14	6	12	32
	(14.5)	(50)	(100)	(18.2)	(16.7)	(0)	(7.1)	(7.1)	(6.3)	(9.1)	(14.3)	(10.6)	(6.4)	(8.1)	(11.1)	(8.5)	(10.7)	(8.7)	(13.5)	(11.1)
Husband only	0	0	0	0	0	1	1	2	0	0	1	1	2	2	0	4	2	3	2	7
	(0)	(0)	(0)	(0)	(0)	(12.5)	(7.1)	(7.1)	(0)	(0)	(3.6)	(1.5)	(4.3)	(5.4)	(0)	(3.1)	(1.5)	(4.3)	(2.2)	(2.4)
Wife only	0	0	0	0	0	0	0	0	0	1	1	2	0	0	1	1	0	1	2	3
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(4.5)	(3.6)	(3)	(0)	(0)	(2.2)	(0.8)	(0)	(1.4)	(2.2)	(1)
Wife and Husband	10	0	0	10	0	4	5	9	2	8	5	15	9	9	8	26	21	21	18	60
	(16.1)	(0)	(0)	(15.2)	(0)	(50)	(35.7)	(32.1)	(12.5)	(36.4)	(17.9)	(22.7)	(19.1)	(24.3)	(17.8)	(20.2)	(16)	(30.4)	(20.2)	(20.8)
Family	7	0	0	7	2	1	2	5	1	4	3	8	12	6	13	31	22	11	18	51
	(11.3)	(0)	(0)	(10.6)	(33.3)	(12.5)	(14.3)	(17.9)	(6.3)	(18.2)	(10.7)	(12.1)	(25.5)	(16.2)	(28.9)	(24)	(16.8)	(15.9)	(20.2)	(17.6)
With friends	1	0	0	1	0	0	1	1	2	1	4	7	6	2	3	11	9	3	8	20
	(1.6)	(0)	(0)	(1.5)	(0)	(0)	(7.1)	(3.6)	(12.5)	(4.5)	(14.3)	(10.6)	(12.8)	(5.4)	(6.7)	(8.5)	(6.9)	(4.3)	(9)	(6.9)
With co-villagers	2	0	0	2	0	0	0	0	3	2	2	7	2	0	0	2	7	2	2	11
	(3.2)	(0)	(0)	(3)	(0)	(0)	(0)	(0)	(18.8)	(9.1)	(7.1)	(10.6)	(4.3)	(0)	(0)	(1.6)	(5.3)	(2.9)	(2.2)	(3.8)
Others	0	0	0	0	0	0	0	0	0	0	2	2	0	1	0	1	0	1	2	3
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(7.1)	(3)	(0)	(2.7)	(0)	(0.8)	(0)	(1.4)	(2.2)	(1)
Total	62	2	2	66	6	8	14	28	16	22	28	66	47	37	45	129	131	69	89	289
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.11: Mode of migration by the current migrant workers in the study villages under lift irrigation project areas

Mode of migration	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Contract	7	0	0	7	1	2	1	4	2	2	3	7	5	5	5	15	15	9	9	33
	(12.1)	(0)	(0)	(11.3)	(16.7)	(22.2)	(7.7)	(14.3)	(15.4)	(10)	(10.3)	(11.3)	(14.3)	(16.7)	(13.9)	(14.9)	(13.4)	(14.8)	(11.3)	(13)
Group	23	1	0	24	2	0	1	3	2	2	3	7	5	1	4	10	32	4	8	44
	(39.7)	(50)	(0)	(38.7)	(33.3)	(0)	(7.7)	(10.7)	(15.4)	(10)	(10.3)	(11.3)	(14.3)	(3.3)	(11.1)	(9.9)	(28.6)	(6.6)	(10)	(17.4)
Individually	1	1	0	2	1	0	0	1	1	2	0	3	4	2	2	8	7	5	2	14
	(1.7)	(50)	(0)	(3.2)	(16.7)	(0)	(0)	(3.6)	(7.7)	(10)	(0)	(4.8)	(11.4)	(6.7)	(5.6)	(7.9)	(6.3)	(8.2)	(2.5)	(5.5)
Husband only	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1	0	1	1	2
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(3.4)	(1.6)	(0)	(3.3)	(0)	(1)	(0)	(1.6)	(1.3)	(0.8)
Wife and Husband only	8	0	0	8	0	3	5	8	3	9	6	18	9	7	7	23	20	19	18	57
	(13.8)	(0)	(0)	(12.9)	(0)	(33.3)	(38.5)	(28.6)	(23.1)	(45)	(20.7)	(29)	(25.7)	(23.3)	(19.4)	(22.8)	(17.9)	(31.1)	(22.5)	(22.5)
Family migration	18	0	2	20	2	3	5	10	2	3	6	11	8	11	16	35	30	17	29	76
	(31)	(0)	(100)	(32.3)	(33.3)	(33.3)	(38.5)	(35.7)	(15.4)	(15)	(20.7)	(17.7)	(22.9)	(36.7)	(44.4)	(34.7)	(26.8)	(27.9)	(36.3)	(30)
With friends	0	0	0	0	0	1	1	2	1	0	5	6	2	2	2	6	3	3	8	14
	(0)	(0)	(0)	(0)	(0)	(11.1)	(7.7)	(7.1)	(7.7)	(0)	(17.2)	(9.7)	(5.7)	(6.7)	(5.6)	(5.9)	(2.7)	(4.9)	(10)	(5.5)
With co-villagers	1	0	0	1	0	0	0	0	2	2	4	8	1	0	0	1	4	2	4	10
	(1.7)	(0)	(0)	(1.6)	(0)	(0)	(0)	(0)	(15.4)	(10)	(13.8)	(12.9)	(2.9)	(0)	(0)	(1)	(3.6)	(3.3)	(5)	(4)
Others	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	2	1	1	1	3
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(3.4)	(1.6)	(2.9)	(3.3)	(0)	(2)	(0.9)	(1.6)	(1.3)	(1.2)
Total	58	2	2	62	6	9	13	28	13	20	29	62	35	30	36	101	112	61	80	253
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.12: Percentage of migrant's last stay at the destination place/s

Duration of last stay	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
<6 months	16	0	0	16	1	0	0	1	3	4	1	8	13	2	6	21	33	6	7	46
	(57.1)	(0)	(0)	(51.6)	(25)	(0)	(0)	(4.5)	(30)	(22.2)	(5.3)	(17)	(52)	(8.3)	(20)	(26.6)	(49.3)	(12)	(11.3)	(25.7)
6 months to 1 year	9	0	0	9	1	0	2	3	4	2	0	6	10	2	3	15	24	4	5	33
	(32.1)	(0)	(0)	(29)	(25)	(0)	(18.2)	(13.6)	(40)	(11.1)	(0)	(12.8)	(40)	(8.3)	(10)	(19)	(35.8)	(8)	(8.1)	(18.4)
1 to 5	3	1	1	5	1	7	6	14	2	10	11	23	1	16	9	26	7	34	27	68
	(10.7)	(100)	(50)	(16.1)	(25)	(100)	(54.5)	(63.6)	(20)	(55.6)	(57.9)	(48.9)	(4)	(66.7)	(30)	(32.9)	(10.4)	(68)	(43.5)	(38)
5 to 10	0	0	1	1	1	0	1	2	1	2	5	8	0	3	5	8	2	5	12	19
	(0)	(0)	(50)	(3.2)	(25)	(0)	(9.1)	(9.1)	(10)	(11.1)	(26.3)	(17)	(0)	(12.5)	(16.7)	(10.1)	(3)	(10)	(19.4)	(10.6)
10 to 15	0	0	0	0	0	0	2	2	0	0	2	2	0	1	4	5	0	1	8	9
	(0)	(0)	(0)	(0)	(0)	(0)	(18.2)	(9.1)	(0)	(0)	(10.5)	(4.3)	(0)	(4.2)	(13.3)	(6.3)	(0)	(2)	(12.9)	(5)
<15	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	4	1	0	3	4
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(4)	(0)	(10)	(5.1)	(1.5)	(0)	(4.8)	(2.2)
Total	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.13: Wage per day for male migrants at the destinations

Male wage rates	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Rs.150-250	0	0	0	0	1	1	2	1	2	0	3	2	0	0	2	3	3	1	7
	(0)	(0)	(0)	(0)	(25)	(12.5)	(14.3)	(20)	(20)	(0)	(11.5)	(10.5)	(0)	(0)	(4.1)	(6.3)	(10.3)	(2.9)	(6.3)
Rs.250-500	5	0	5	1	1	5	7	3	5	9	17	7	6	9	22	16	12	23	51
	(22.7)	(0)	(21.7)	(50)	(25)	(62.5)	(50)	(60)	(50)	(81.8)	(65.4)	(36.8)	(42.9)	(56.3)	(44.9)	(33.3)	(41.4)	(65.7)	(45.5)
Rs.500-1000	15	1	16	0	2	2	4	1	3	1	5	10	7	7	24	26	13	10	49
	(68.2)	(100)	(69.6)	(0)	(50)	(25)	(28.6)	(20)	(30)	(9.1)	(19.2)	(52.6)	(50)	(43.8)	(49)	(54.2)	(44.8)	(28.6)	(43.8)
Above Rs.1000	2	0	2	1	0	0	1	0	0	1	1	0	1	0	1	3	1	1	5
	(9.1)	(0)	(8.7)	(50)	(0)	(0)	(7.1)	(0)	(0)	(9.1)	(3.8)	(0)	(7.1)	(0)	(2)	(6.3)	(3.4)	(2.9)	(4.5)
Total	22	1	23	2	4	8	14	5	10	11	26	19	14	16	49	48	29	35	112
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.14: Migrants working hours per day at the destination

Working hours per day																				
Working hours	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
<8	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1
	(0)	(0)	(0)	(0)	(33.3)	(0)	(0)	(4.8)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1.5)	(0)	(0)	(0.6)
8	6	1	0	7	1	4	6	11	5	7	7	19	12	11	11	34	24	23	24	71
	(21.4)	(100)	(0)	(22.6)	(33.3)	(57.1)	(54.5)	(52.4)	(50)	(38.9)	(36.8)	(40.4)	(48)	(45.8)	(37.9)	(43.6)	(36.4)	(46)	(39.3)	(40.1)
9 to 12	22	0	1	23	1	3	5	9	5	11	12	28	11	12	13	36	39	26	31	96
	(78.6)	(0)	(50)	(74.2)	(33.3)	(42.9)	(45.5)	(42.9)	(50)	(61.1)	(63.2)	(59.6)	(44)	(50)	(44.8)	(46.2)	(59.1)	(52)	(50.8)	(54.2)
>12	0	0	1	1	0	0	0	0	0	0	0	0	2	1	5	8	2	1	6	9
	(0)	(0)	(50)	(3.2)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(8)	(4.2)	(17.2)	(10.3)	(3)	(2)	(9.8)	(5.1)
Total	28	1	2	31	3	7	11	21	10	18	19	47	25	24	29	78	66	50	61	177
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.15: Working conditions of the return migrants at the destination places

Working condition	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Sound pollution	1	0	1	2	0	5	7	12	5	11	10	26	9	9	13	31	15	25	31	71
	(1.8)	(0)	(33.3)	(3.3)	(0)	(23.8)	(25)	(21.4)	(19.2)	(25)	(23.3)	(23)	(16.1)	(18.8)	(20)	(18.3)	(10.4)	(21.6)	(22.3)	(17.8)
Air pollution	5	1	1	7	2	5	10	17	6	12	11	29	13	11	13	37	26	29	35	90
	(9.1)	(33.3)	(33.3)	(11.5)	(28.6)	(23.8)	(35.7)	(30.4)	(23.1)	(27.3)	(25.6)	(25.7)	(23.2)	(22.9)	(20)	(21.9)	(18.1)	(25)	(25.2)	(22.6)
Poor hygienic conditions	14	0	0	14	1	3	5	9	2	8	3	13	5	7	9	21	22	18	17	57
	(25.5)	(0)	(0)	(23)	(14.3)	(14.3)	(17.9)	(16.1)	(7.7)	(18.2)	(7)	(11.5)	(8.9)	(14.6)	(13.8)	(12.4)	(15.3)	(15.5)	(12.2)	(14.3)
Insufficient lighting	7	0	0	7	0	0	0	0	2	0	3	5	0	2	1	3	9	2	4	15
	(12.7)	(0)	(0)	(11.5)	(0)	(0)	(0)	(0)	(7.7)	(0)	(7)	(4.4)	(0)	(4.2)	(1.5)	(1.8)	(6.3)	(1.7)	(2.9)	(3.8)
Fumes, gases and dust	25	0	1	26	2	5	4	11	3	1	6	10	5	4	9	18	35	10	20	65
	(45.5)	(0)	(33.3)	(42.6)	(28.6)	(23.8)	(14.3)	(19.6)	(11.5)	(2.3)	(14)	(8.8)	(8.9)	(8.3)	(13.8)	(10.7)	(24.3)	(8.6)	(14.4)	(16.3)
Extra work without pay	1	0	0	1	1	2	2	5	3	9	4	16	10	7	7	24	15	18	13	46
	(1.8)	(0)	(0)	(1.6)	(14.3)	(9.5)	(7.1)	(8.9)	(11.5)	(20.5)	(9.3)	(14.2)	(17.9)	(14.6)	(10.8)	(14.2)	(10.4)	(15.5)	(9.4)	(11.5)
Working at heights	1	1	0	2	0	0	0	0	2	2	2	6	7	7	7	21	10	10	9	29
	(1.8)	(33.3)	(0)	(3.3)	(0)	(0)	(0)	(0)	(7.7)	(4.5)	(4.7)	(5.3)	(12.5)	(14.6)	(10.8)	(12.4)	(6.9)	(8.6)	(6.5)	(7.3)
Hazardous work	1	1	0	2	1	1	0	2	3	1	4	8	6	0	5	11	11	3	9	23
	(1.8)	(33.3)	(0)	(3.3)	(14.3)	(4.8)	(0)	(3.6)	(11.5)	(2.3)	(9.3)	(7.1)	(10.7)	(0)	(7.7)	(6.5)	(7.6)	(2.6)	(6.5)	(5.8)
Others	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	3	1	1	1	3
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1.8)	(2.1)	(1.5)	(1.8)	(0.7)	(0.9)	(0.7)	(0.8)
Total	55	3	3	61	7	21	28	56	26	44	43	113	56	48	65	169	144	116	139	399
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.16: Facilities provided to the migrants prior to their return to home from the destination

Facilities at the destination																		
	Nettempadu		Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Facilities	Seasonal	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Accommodation	23	23	2	2	4	8	2	8	9	19	4	9	4	17	31	19	17	67
	(54.8)	(54.8)	(50)	(25)	(26.7)	(29.6)	(22.2)	(38.1)	(47.4)	(38.8)	(30.8)	(32.1)	(30.8)	(31.5)	(45.6)	(33.3)	(36.2)	(39)
Food	1	1	1	3	5	9	3	6	6	15	2	5	4	11	7	14	15	36
	(2.4)	(2.4)	(25)	(37.5)	(33.3)	(33.3)	(33.3)	(28.6)	(31.6)	(30.6)	(15.4)	(17.9)	(30.8)	(20.4)	(10.3)	(24.6)	(31.9)	(20.9)
Transport	10	10	0	2	1	3	1	2	1	4	4	7	3	14	15	11	5	31
	(23.8)	(23.8)	(0)	(25)	(6.7)	(11.1)	(11.1)	(9.5)	(5.3)	(8.2)	(30.8)	(25)	(23.1)	(25.9)	(22.1)	(19.3)	(10.6)	(18)
Medical	1	1	1	1	4	6	1	2	1	4	1	4	0	5	4	7	5	16
	(2.4)	(2.4)	(25)	(12.5)	(26.7)	(22.2)	(11.1)	(9.5)	(5.3)	(8.2)	(7.7)	(14.3)	(0)	(9.3)	(5.9)	(12.3)	(10.6)	(9.3)
Advance	7	7	0	0	1	1	2	3	2	7	2	2	1	5	11	5	4	20
	(16.7)	(16.7)	(0)	(0)	(6.7)	(3.7)	(22.2)	(14.3)	(10.5)	(14.3)	(15.4)	(7.1)	(7.7)	(9.3)	(16.2)	(8.8)	(8.5)	(11.6)
Paid leaves	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	1	1	2
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(3.6)	(7.7)	(3.7)	(0)	(1.8)	(2.1)	(1.2)
Total	42	42	4	8	15	27	9	21	19	49	13	28	13	54	68	57	47	172
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.17: Skills acquired by migrants while working at the destination places

Skills at the destination	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Yes	11	1	2	14				0	1		7	8	3	5	8	16	15	6	17	38
	(39.3)	(100)	(100)	(45.2)	(0)	(0)	(0)	(0)	(10)	(0)	(36.8)	(17)	(12)	(20.8)	(26.7)	(20.3)	(22.4)	(12)	(27.4)	(21.2)
No	17	0	0	17	4	7	11	22	9	18	12	39	22	19	22	63	52	44	45	141
	(60.7)	(0)	(0)	(54.8)	(100)	(100)	(100)	(100)	(90)	(100)	(63.2)	(83)	(88)	(79.2)	(73.3)	(79.7)	(77.6)	(88)	(72.6)	(78.8)
Total	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.18: Types of social security benefits received by migrants at the destination (current return)

Social Securities															
Social Security	Koilsagar			Rajiv Bheema				Kalwakurthy				All			
	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Medical	2	4	6	2	11	4	17	4	6	4	14	6	19	12	37
	(100)	(100)	(100)	(100)	(91.7)	(100)	(94.4)	(100)	(60)	(44.4)	(60.9)	(100)	(79.2)	(70.6)	(78.7)
Health insurance	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1
	(0)	(0)	(0)	(0)	(8.3)	(0)	(5.6)	(0)	(0)	(0)	(0)	(0)	(4.2)	(0)	(2.1)
ESI	0	0	0	0	0	0	0	0	2	2	4	0	2	2	4
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(22.2)	(17.4)	(0)	(8.3)	(11.8)	(8.5)
EPF	0	0	0	0	0	0	0	0	2	3	5	0	2	3	5
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(33.3)	(21.7)	(0)	(8.3)	(17.6)	(10.6)
Total	2	4	6	2	12	4	18	4	10	9	23	6	24	17	47
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.19: Reason for return to the village from the destination places (latest return)

Reasons for return	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Own cultivation	12	1	1	14	2	2	7	11	3	7	6	16	10	11	14	35	27	21	28	76
	(16)	(33.3)	(20)	(16.9)	(28.6)	(18.2)	(25.9)	(24.4)	(15.8)	(15.9)	(13.6)	(15)	(17.9)	(22)	(23.3)	(21.1)	(17.2)	(19.4)	(20.6)	(19)
Work available	27	1	2	30	2	5	9	16	4	10	8	22	14	10	7	31	47	26	26	99
	(36)	(33.3)	(40)	(36.1)	(28.6)	(45.5)	(33.3)	(35.6)	(21.1)	(22.7)	(18.2)	(20.6)	(25)	(20)	(11.7)	(18.7)	(29.9)	(24.1)	(19.1)	(24.7)
Stay in the village	9	0	1	10	1	1	5	7	0	8	13	21	5	4	7	16	15	13	26	54
	(12)	(0)	(20)	(12)	(14.3)	(9.1)	(18.5)	(15.6)	(0)	(18.2)	(29.5)	(19.6)	(8.9)	(8)	(11.7)	(9.6)	(9.6)	(12)	(19.1)	(13.5)
Lease farming	0	0	0	0	0	0	1	1	2	0	0	2	1	1	0	2	3	1	1	5
	(0)	(0)	(0)	(0)	(0)	(0)	(3.7)	(2.2)	(10.5)	(0)	(0)	(1.9)	(1.8)	(2)	(0)	(1.2)	(1.9)	(0.9)	(0.7)	(1.2)
Contract over	18	0	0	18	0	0	1	1	1	0	1	2	2	0	0	2	21	0	2	23
	(24)	(0)	(0)	(21.7)	(0)	(0)	(3.7)	(2.2)	(5.3)	(0)	(2.3)	(1.9)	(3.6)	(0)	(0)	(1.2)	(13.4)	(0)	(1.5)	(5.7)
Difficult work	0	0	0	0	0	0	1	1	1	4	3	8	3	4	2	9	4	8	6	18
	(0)	(0)	(0)	(0)	(0)	(0)	(3.7)	(2.2)	(5.3)	(9.1)	(6.8)	(7.5)	(5.4)	(8)	(3.3)	(5.4)	(2.5)	(7.4)	(4.4)	(4.5)
Exploitation	0	0	0	0	0	0	0	0	1	0	1	2	2	0	0	2	3	0	1	4
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(5.3)	(0)	(2.3)	(1.9)	(3.6)	(0)	(0)	(1.2)	(1.9)	(0)	(0.7)	(1)
Harsh work	0	0	1	1	0	0	0	0	1	0	0	1	1	0	0	1	2	0	1	3
	(0)	(0)	(20)	(1.2)	(0)	(0)	(0)	(0)	(5.3)	(0)	(0)	(0.9)	(1.8)	(0)	(0)	(0.6)	(1.3)	(0)	(0.7)	(0.7)
Health issues	1	0	0	1	0	1	0	1	1	4	2	7	4	5	3	12	6	10	5	21
	(1.3)	(0)	(0)	(1.2)	(0)	(9.1)	(0)	(2.2)	(5.3)	(9.1)	(4.5)	(6.5)	(7.1)	(10)	(5)	(7.2)	(3.8)	(9.3)	(3.7)	(5.2)
Ageing	0	0	0	0	0	0	0	0	1	2	0	3	1	0	2	3	2	2	2	6
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(5.3)	(4.5)	(0)	(2.8)	(1.8)	(0)	(3.3)	(1.8)	(1.3)	(1.9)	(1.5)	(1.5)
Work not available	3	0	0	3	0	0	2	2	0	3	2	5	1	3	0	4	4	6	4	14
	(4)	(0)	(0)	(3.6)	(0)	(0)	(7.4)	(4.4)	(0)	(6.8)	(4.5)	(4.7)	(1.8)	(6)	(0)	(2.4)	(2.5)	(5.6)	(2.9)	(3.5)
Got canal irrigation	1	0	0	1	0	0	0	0	1	0	2	3	1	1	3	5	3	1	5	9
	(1.3)	(0)	(0)	(1.2)	(0)	(0)	(0)	(0)	(5.3)	(0)	(4.5)	(2.8)	(1.8)	(2)	(5)	(3)	(1.9)	(0.9)	(3.7)	(2.2)
Due to Covid-19	0	1	0	1	0	1	0	1	1	2	0	3	5	5	9	19	6	9	9	24
	(0)	(33.3)	(0)	(1.2)	(0)	(9.1)	(0)	(2.2)	(5.3)	(4.5)	(0)	(2.8)	(8.9)	(10)	(15)	(11.4)	(3.8)	(8.3)	(6.6)	(6)
Elderly Care	3	0	0	3	1	1	0	2	0	2	4	6	3	3	7	13	7	6	11	24
	(4)	(0)	(0)	(3.6)	(14.3)	(9.1)	(0)	(4.4)	(0)	(4.5)	(9.1)	(5.6)	(5.4)	(6)	(11.7)	(7.8)	(4.5)	(5.6)	(8.1)	(6)
Others	1	0	0	1	1	0	1	2	2	2	2	6	3	3	6	12	7	5	9	21
	(1.3)	(0)	(0)	(1.2)	(14.3)	(0)	(3.7)	(4.4)	(10.5)	(4.5)	(4.5)	(5.6)	(5.4)	(6)	(10)	(7.2)	(4.5)	(4.6)	(6.6)	(5.2)
Total	75	3	5	83	7	11	27	45	19	44	44	107	56	50	60	166	157	108	136	401
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.20: Economic activities of return migrants in the village (after their return)

Work after return	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Own cultivation	13	1	1	15	1	3	3	7	3	5	5	13	11	13	17	41	28	22	26	76
	(46.4)	(100)	(50)	(48.4)	(25)	(42.9)	(27.3)	(31.8)	(30)	(27.8)	(26.3)	(27.7)	(44)	(54.2)	(56.7)	(51.9)	(41.8)	(44)	(41.9)	(42.5)
Labour	13	0	0	13	2	2	3	7	4	7	7	18	8	5	5	18	27	14	15	56
	(46.4)	(0)	(0)	(41.9)	(50)	(28.6)	(27.3)	(31.8)	(40)	(38.9)	(36.8)	(38.3)	(32)	(20.8)	(16.7)	(22.8)	(40.3)	(28)	(24.2)	(31.3)
Self-employment	0	0	0	0	0	0	0	0	0	4	3	7	2	1	0	3	2	5	3	10
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(22.2)	(15.8)	(14.9)	(8)	(4.2)	(0)	(3.8)	(3)	(10)	(4.8)	(5.6)
Business	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	1	1	2
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(4.2)	(3.3)	(2.5)	(0)	(2)	(1.6)	(1.1)
Petty Trade	0	0	0	0	1	0	0	1	1	1	0	2	0	0	0	0	2	1	0	3
	(0)	(0)	(0)	(0)	(25)	(0)	(0)	(4.5)	(10)	(5.6)	(0)	(4.3)	(0)	(0)	(0)	(0)	(3)	(2)	(0)	(1.7)
Construction work	1	0	0	1	0	0	2	2	1	0	2	3	1	2	2	5	3	2	6	11
	(3.6)	(0)	(0)	(3.2)	(0)	(0)	(18.2)	(9.1)	(10)	(0)	(10.5)	(6.4)	(4)	(8.3)	(6.7)	(6.3)	(4.5)	(4)	(9.7)	(6.1)
Livestock	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(4.2)	(0)	(1.3)	(0)	(2)	(0)	(0.6)
Traditional occupation	0	0	0	0	0	0	1	1	0	1	1	2	0	0	1	1	0	1	3	4
	(0)	(0)	(0)	(0)	(0)	(0)	(9.1)	(4.5)	(0)	(5.6)	(5.3)	(4.3)	(0)	(0)	(3.3)	(1.3)	(0)	(2)	(4.8)	(2.2)
Others	1	0	1	2	0	2	2	4	1	0	1	2	3	1	4	8	5	3	8	16
	(3.6)	(0)	(50)	(6.5)	(0)	(28.6)	(18.2)	(18.2)	(10)	(0)	(5.3)	(4.3)	(12)	(4.2)	(13.3)	(10.1)	(7.5)	(6)	(12.9)	(8.9)
Total	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.21: Migrant's year of cultivation after their return from the destination places

	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Years of farming	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
	4	0	1	5	1	3	3	7	3	2	4	9	11	12	13	36	19	17	21	57
<6 years	(30.8)	(0)	(100)	(33.3)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(92.3)	(81.3)	(90)	(67.9)	(89.5)	(87.5)	(80.3)
	9	1	0	10	0	0	0	0	0	0	0	0	0	1	3	4	9	2	3	14
>6 years	(69.2)	(100)	(0)	(66.7)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(7.7)	(18.8)	(10)	(32.1)	(10.5)	(12.5)	(19.7)
	13	1	1	15	1	3	3	7	3	2	4	9	11	13	16	40	28	19	24	71
Total	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.22: Migrant households that works in local labour market in the study areas

	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Wage Labour	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
	27	1	1	29	3	5	9	17	7	10	12	29	19	17	23	59	56	33	45	134
Yes	(96.4)	(100)	(50)	(93.5)	(75)	(71.4)	(81.8)	(77.3)	(70)	(55.6)	(63.2)	(61.7)	(76)	(70.8)	(76.7)	(74.7)	(83.6)	(66)	(72.6)	(74.9)
	1		1	2	1	2	2	5	3	8	7	18	6	7	7	20	11	17	17	45
No	(3.6)	(0)	(50)	(6.5)	(25)	(28.6)	(18.2)	(22.7)	(30)	(44.4)	(36.8)	(38.3)	(24)	(29.2)	(23.3)	(25.3)	(16.4)	(34)	(27.4)	(25.1)
	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
Total	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.23: Number of working days / months in the local labour market in the current year (2021-2022)

Months	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
< 1 month	0	0	0	0	0	1	1	2	0	3	0	3	0	3	2	5	0	7	3	10
	(0)	(0)	(0)	(0)	(0)	(20)	(11.1)	(11.8)	(0)	(33.3)	(0)	(10.3)	(0)	(17.6)	(8.7)	(8.5)	(0)	(21.9)	(6.5)	(7.5)
1 to 3 month	5	0	0	5	0	0	0	0	2	0	1	3	3	4	6	13	10	4	7	21
	(18.5)	(0)	(0)	(17.2)	(0)	(0)	(0)	(0)	(28.6)	(0)	(7.7)	(10.3)	(15.8)	(23.5)	(26.1)	(22)	(17.9)	(12.5)	(15.2)	(15.7)
3 to 6	21	0	1	22	2	4	2	8	1	2	4	7	14	6	6	26	38	12	13	63
	(77.8)	(0)	(100)	(75.9)	(66.7)	(80)	(22.2)	(47.1)	(14.3)	(22.2)	(30.8)	(24.1)	(73.7)	(35.3)	(26.1)	(44.1)	(67.9)	(37.5)	(28.3)	(47)
6 to 9	1	1	0	2	1	0	3	4	2	3	4	9	1	3	5	9	5	7	12	24
	(3.7)	(100)	(0)	(6.9)	(33.3)	(0)	(33.3)	(23.5)	(28.6)	(33.3)	(30.8)	(31)	(5.3)	(17.6)	(21.7)	(15.3)	(8.9)	(21.9)	(26.1)	(17.9)
9 to 12	0	0	0	0	0	0	3	3	2	1	4	7	1	1	4	6	3	2	11	16
	(0)	(0)	(0)	(0)	(0)	(0)	(33.3)	(17.6)	(28.6)	(11.1)	(30.8)	(24.1)	(5.3)	(5.9)	(17.4)	(10.2)	(5.4)	(6.3)	(23.9)	(11.9)
Total	27	1	1	29	3	5	9	17	7	9	13	29	19	17	23	59	56	32	46	134
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.24: Wage per day earned by return migrants by working in the local labour market in the villages

Wage per day	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
<100	1	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	1	0	1	2
	(3.7)	(0)	(0)	(3.4)	(0)	(0)	(0)	(0)	(0)	(0)	(9.1)	(3.7)	(0)	(0)	(0)	(0)	(1.9)	(0)	(2.4)	(1.6)
100 to 500	11	0	0	11	1	1	5	7	6	4	3	13	12	9	10	31	30	14	18	62
	(40.7)	(0)	(0)	(37.9)	(50)	(25)	(55.6)	(46.7)	(85.7)	(44.4)	(27.3)	(48.1)	(66.7)	(52.9)	(47.6)	(55.4)	(55.6)	(45.2)	(42.9)	(48.8)
500 to 1000	15	1	1	17	1	3	4	8	1	5	7	13	6	8	11	25	23	17	23	63
	(55.6)	(100)	(100)	(58.6)	(50)	(75)	(44.4)	(53.3)	(14.3)	(55.6)	(63.6)	(48.1)	(33.3)	(47.1)	(52.4)	(44.6)	(42.6)	(54.8)	(54.8)	(49.6)
Total	27	1	1	29	2	4	9	15	7	9	11	27	18	17	21	56	54	31	42	127
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 5.25: Return migrants plan to migrate again to other places from the villages

Planning to go again	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Yes	22			22	1			1			3	3	6	5	4	15	29	5	7	41
	(78.6)	(0)	(0)	(71)	(25)	(0)	(0)	(4.5)	(0)	(0)	(15.8)	(6.4)	(24)	(20.8)	(13.3)	(19)	(43.3)	(10)	(11.3)	(22.9)
No	6	1	2	9	3	7	11	21	10	18	16	44	19	19	26	64	38	45	55	138
	(21.4)	(100)	(100)	(29)	(75)	(100)	(100)	(95.5)	(100)	(100)	(84.2)	(93.6)	(76)	(79.2)	(86.7)	(81)	(56.7)	(90)	(88.7)	(77.1)
Total	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

CHAPTER – 6

Conclusions and Policy Implications

6.1. Context- Impact of Lift Irrigation on Migrant Labour

The study on the impact of the lift irrigation projects on rural households particularly farmers, labour, and traditional occupational households conducted in the sample villages under four lift irrigation projects namely Jawahar Nettempadu, Koilsagar, Rajiv Bheema, and Kalwakurthy in the undivided Mahabubnagar focused on how far water received from lift irrigation projects benefited the rural households, what are the changes that brought into the agriculture and allied sector, the impact on the local labour market, out-migration, and return migration. The study was carried out in the jurisdictional areas of four lift irrigation projects located in four districts namely Gadwal, Wanaparthy, Nagarkurnool, and Mahabubnagar of Telangana revealed interesting results. At the outset, the results have shown substantial and encouraging outcomes accrued by cultivators owing to irrigation water received from lift irrigation projects. The impact is such that cultivators assumed two-season cultivation by growing paddy, seed cotton, cotton, and other commercial crops when it was unthinkable as the study region was depended on natural rainfall and deprived of irrigation facilities. Today, apart from cultivators, the workforce can get employment locally, stopped migration to other places, and returned back home from various destinations to cultivate their land, work in the local labour market and stay back to engage in gainful economic activities. Against this backdrop, this chapter gives a brief summary of each chapter. This chapter is divided into four sections including the current introduction. The second section presents the core results from the main chapters developed based on primary data. The third section offers policy suggestions. The final section is about concluding remarks.

Chapter Three analyzed the basic entitlements, demographic and educational, and occupational status of farm, labour, and caste-based occupational households suggesting that most of them possess basic entitlements such as Aadhar, ration cards, and bank accounts. But a good portion of households did not possess the MGNREGA job cards. The households under four different lift irrigation projects contained small families but the sex ratio (gender gap) did exist in some of the villages under some of these project areas. It prevailed more among caste-based occupational households. Most of the households belong to the Hindu and Christian faith and the OBC and SC households outnumbered the other sections. They

possess mostly white ration cards and very few hold pink ration cards. There are very few that did not possess any ration cards. The literacy level among farm and labour households looked similar, but in the case of traditional occupational households' literacy levels were much better. The better educational attainments are seemingly reflected in their economic activities they engaged in in the study villages. Notwithstanding their primary occupations, most of them relied on secondary or tertiary economic activities for deriving additional income for their livelihood. It could be concluded by saying that the surveyed rural households were better off in most of the parameters except in possessing employment cards and literacy aspects. Therefore, the socio-demographic parameters seemed better and improved in the study villages of the erstwhile Mahabubnagar district which was once regarded as socio-economically a backward region in Telangana. The arrival of irrigation facilities seems to have changed the whole scenario in the Palamuru region of the state.

Chapter Four results clearly shown that that the farm households own more average land and labour households own dry land. Traditional occupational households leased out their land while labour households taken leased in land. The cultivated land was more among farm households followed by labour and traditional households. The major source of irrigation was tube wells for all cultivators, however, natural rainfall still a major source of cultivation for the labour and traditional households. Farmers during the Kharif season relied on canal and piped water for cultivation the labour and traditional households relied more on tube well, open well, tanks and rainfall. The irrigation for year 2021-2022 was greater as compared with the year 2016-17 years. Cultivators adopted supplying water through pipe methods followed by sprinklers and drip irrigation. The entire land was cultivated during the kharif season in the current year but it has come down for the Rabi and previous years. The crops grown in most of the projects were paddy, Cotton, Chilli, groundnut, and most cost incurred crop were cotton, Chilli, groundnut and paddy. The most profitable crops were mango, groundnut, horticulture, pulses, and paddy. The profit is more for the Kharif season than Rabi. Most beneficiary from cultivation were farmers followed by labour and traditional households. Labour households supplement their income from participating in the local labour market as daily wage earners and contribute to their total income. Traditional households generate income from caste-based occupation and working in other works. Farmers get more income from cultivation including commercial crops, labour households get from agriculture, non-agriculture and MGNREGA works. Traditional households depend on caste-based occupation though they engage in all sorts of allied activities. Those engaged in business, carpentry, and dairy worked throughout the year and those who worked less include MGNREGA workers, manual labourers in farm and non-farm sectors. Field data reveals that the irrigation water from lift projects gradually but steadily reached the cultivators in the study region. If water from irrigation projects reaches to tail end villages and for the both seasons then the most of the cultivators would go for two crops. The sign of development through agriculture and allied sectors in the villages under the four lift irrigation projects has already been witnessed. In other words, significant change in

agriculture along with consequent opportunities of labour and incomes have improved rural development in the erstwhile Mahabubnagar district thanks to the newly constructed lift irrigation projects.

Chapter Five on the current migration has clearly shown that farm and labour households from the study villages are short-term and seasonal migrants rather than long-term migrants. The lack of employment during the post-harvest and summer seasons pushes them to migrate out to other areas. Except in Rajiv Bheema project areas in other project areas long-term migrant is widespread. These villages witnessed frequent unemployment, low wage rates, desire to earn and clear old debts therefore migrated to other destinations. Migrants worked in urban-centric employments apart from manual labour work and earned decent wages or salaries. There was only one female migrant worker who worked salary basis and earned Rs. 20000 per month. In the rest of the projects no female migrants was found to be working on a salary basis for reasons not known. The need of the day of the left behind family members increases the likelihood of remittances and vice versa. Longer stay reduced labour exploitation therefore seasonal migrants were subjected to more of exploitation such as longer working times and its associated effects. Seasonal migrants were the latest entrants into the current employment while short-term migrants were stayed between 1-2 and 2-3 years and worked under hazardous, extra/over time, work under unhygienic and harsh working conditions. Seasonal and short-term migrants tend to stay lesser duration as compared to long-term migrants but this is less so under the Kalwakurthy project due to proximity of Hyderabad city is where they usually migrate to. Long-term migrants preferred to migrate with their spouse and with entire family while individuals migrate largely seasonally and some migrate with their spouse. Majority of them did not take any advance from employers and a moderate of them accessed social security at the destination. Seasonal migrants are more inclined to rerun before monsoon begins as they must prepare their land for the Kharif season. It could be said that due to improved situation in the local villages due to new arrival of irrigation facilities increased manifold opportunities and that has positive impact on the mind of migrants working outside the village/s. In short, there is better conditions in the villages today as compared to few decades ago and reduced distress kind of situation that prevailed a couple of years ago. Seasonal and short-term migrants are more likely returned due to the termination of agreement or works completed at the destinations. The situation of the family and their needs decides whether to return to the destination place or not.

Chapter Six clearly brought out that the villages that are closer to Hyderabad city witnessed more of return migration particularly by seasonal and long-term migrants. Agricultural slack season the workers tend to migrate out of their villages to Hyderabad for employment. A moderate portion of seasonal and short-term migrants return to their villages to cultivate their

land. The proximity between the origin village and the destination plays a significant role apart from the water received from the newly constructed lift irrigation projects in the study areas. Irrigation facilities have reduced the migration in these study areas. Long-term migrants had longer history of migration under the study regions in the erstwhile Mahabubnagar district. The villages where access to irrigation water was not there for decades like Nettempadu and Kalwakurthy accounted longer history of migration while it is quite opposite in the Koilsagar project areas. Wage labour, cultivation, construction work, self-employment, traditional occupations and agricultural allied activities were the main sources of employment for the local workforce to engage in for income earnings.

Most of the return migrants migrated at least ten times in their lives and migrated in groups, via contractor and individual migration. The long-term migration is a shift from agriculture sector to urban oriented jobs that aimed at either staying permanently or working for a longer period. Seasonal migrants were earning more wages than the rest of the migrants while long-term migrants worked on contractual jobs and travelled far off places to get lower wages than that of individual and short-distance migrants. Seasonal migration is for few months therefore they were vulnerable to extra working time while short-term migrants were relatively better off due to their duration of stay at the destination. Seasonal and long-term migrants were more vulnerable in terms of working in extreme or hazardous conditions. Migration to rural and semi-rural areas is associated with provisions of accommodation, food, and transportation and to some extent advance amount given to migrants before migration which is normally preferred by seasonal and short-term migrants. Long-term and short-term migrants got other standard social security benefits like ESI and PF which is an indication of job security. It seemed that the village economy is in the transition from traditional agricultural base economy to a more expanded non-agricultural labour market.

The seasonal and long-term migrants tend to work more as daily wage workers as they entirely rely on cultivation of their land and when there is opportunity to work in others fields, they do so for earning additional income. In short, agriculture activities particularly in the Kharif season continues more than six months i.e. from June to January/February during the period cultivators and labour and traditional households work in agriculture activities as daily wage earners apart from continuing their main occupation to earn additional income. The wage rates fluctuate based on the season most of them earn wages between Rs.500 and Rs.1000. Wages would decline during the slack agricultural season therefore earns wages between Rs.100 and Rs.500.

It is learned that a quarter of migrant households are always willing to migrate out and earn income when they did not get work in the local labour market and its more so by seasonal migrants and few other types of migrants. In short, water from lift irrigation projects improved agricultural activities, increased wage labour days, brought down migration, attracted migrants to return to their villages, and allowed diversification of family labour based on their financial needs as recent developments are now widespread across the study villages.

6.2 Policy implications

The recently commenced lift irrigation projects in four districts namely Gadwal, Nagarkurnool, Mahabubnagar, and Wanaparthy brought about tremendous changes not only to the agriculture sector but rural sector which has increasingly undergone developmental changes. As a result, the landscape of rural areas of once regarded as backward districts of the undivided Mahabubnagar district. The changes were merely not confined to agriculture but spread to the areas of agricultural-allied activities, non-farm labour markets, commercial activities, and socio and cultural aspects. The rural infrastructure from roads to housing has significantly upgraded consequently rural areas in the undivided Mahabubnagar district are equipped with all urban facilities and give the impression of semi-urban areas (rurban). All this happened in a short period of time i.e., 2015 onwards when these districts started receiving irrigation water from newly constructed lift irrigation projects. This section presents both positive implications as well as some drawbacks that are observed at the grassroots level vis-à-vis implementation of the projects and water management under the jurisdictional areas of these projects.

6.2.1 Qualitative changes

1. Acreage for both the Kharif and Rabi seasons has increased due to the availability of irrigation owing to the construction of Nettempadu, Kalwakurthy, Rajiv Bheema, and Koilsagar lift irrigation projects in the rainfed region of the state.

2. Wetland cultivation has increased significantly. Cultivation of commercial crops particularly paddy, seed-cotton, and cotton has amplified. Farming of traditional crops has drastically come down.

3. The most benefited sections from irrigation are the farmers followed by labour and traditional occupational households.

4. Lift irrigation project increased piped and bore well irrigation due to the raised/ improved groundwater table. Canal irrigation is steadily increasing. If the remaining works of lift irrigation projects get completed then it can drastically increase wetland

and reduce the cost of lifting water through pipes from the main channels of the projects.

5. Increased agricultural activities made the local labour market vibrant because workers are getting employment for the most part of the year.

6. Women's work participation has increased due to brisk agricultural activities.

7. The wage rates have gone up which resulted in improved living standards in the study areas. The wage gap between rural and urban areas has come down.

8. As employment opportunities grow in the local economy there is a decline in out- migration across the project areas.

9. Long-term migration has come down and temporary seasonal migration is to some extent prevailing which is individual-centric and voluntary in nature.

10. The opportunities in the local economies stimulated migrants from the villages to return to their villages and engage in cultivation and seek work in local labour market.

11. Pandemic has increased return migration for a short while time but irrigation facilities made most of the regular migrants stay back.

12. Return migrants led to increase in cultivation, lease-in farming, and working in other farmer's fields.

13. Employment in local villages coincided with other schemes like MGNREGA and welfare schemes most of the migrant households stopped migration to other places. It is facilitated by irrigation facilities in the villages.
14. Agricultural activities have gone through tremendous changes. Modern cultivation practices came into existence. The agricultural tools and machinery are made in local villages by the traditional occupational households, for instance, carpenters, blacksmiths, etc.

15. New businesses like fertilizers shops, mechanic shops, tractor repair shops, poultry, fish shops, Kirana shops, and hotels in the villages have come up due to modernization and brisk agricultural activities. All this is directly or indirectly caused by the irrigation water for cultivation received from lift irrigation projects.

16. The land value - both agriculture and non-agriculture have increased manifold across the districts.

17. Agri-based industries like cold storage, fish processing units have come up and real estate is thriving due to all the associated developments

18. Use and spread of modern irrigation practices like drip and sprinkler growing steadily, as a result, the area of horticulture crops expanded significantly thus increasing alternative income sources and employment opportunities for the local cultivators and labourers.

6.2.2. Irrigation sector

1. Lift irrigation work has not been completed in some villages. It can provide water to larger area under the lift irrigation projects by fixing such problems.

2. Canal works from the main to tail-end channels need to be completed to provide water to tail-end villages.

3. Maintenance of the canals is poor or ignored resulting growth of bushes, plants, and trees posing obstacles to flow of water.

4. Canal plastic work is still pending in many areas, if done so, it can stop water from wastage and canal erosion. Side and feeder channel works are still pending and need completion in several areas.

5. Water leakages from the main canal are observed in several places which needs to be fixed and thus can reduce water wastage.

6. Water management committees are invisible and need to be formed and strengthened for the efficient use of irrigation water as well as appropriate cropping patterns.
7. Absence of water management bodies leads to confusion about the timings of the release of water to the farmers. Water disputes were observed due to the absence of management committees and leading to civil and criminal disputes in the rural areas.

8. Incomplete canal works taking irrigation up to tail end land holdings is leading to indiscriminate digging of bore wells thus increasing the tube well-led private irrigation in the rural areas. Farmers drawing water through motors from the reservoirs is resulting in parallel lift irrigation system and subsequent costs of power consumption

9. Absence of canal irrigation in some villages and access to free power for cultivation encourages farmers to use bore well water for crops throughout the day leading to excess power consumption and water wastage in many areas in the region.

6.2.3 Agriculture sector

1. Use of fertilizers, chemicals, and pesticides has greatly increased. Some villages also witnessed problem of water logging

2. Usage of traditional agricultural tools has gone down and relying on tractors and other modern machinery has augmented the cost of cultivation.

3. Increased access of water for cultivation leads to paddy cultivation exponentially across the districts and other crops are neglected. Modern and commercial crops also increased.

4. Most of the traditional crops particularly cereals and pulses vanished from the rural areas. Traditional agricultural practices and methods in agriculture have become

extinct in rural areas.

5. Livestock has come down and milk and dairy products from traditional household sector has fallen.

6.2.4. Wellbeing

1. The mechanization of agricultural activities reduced employment opportunities for the working class in the villages.

2. Wage discrimination according to season and gender has widened in the recent years with access to irrigation

3. Modern social and cultural practices reduced the goods consumed from traditional crops thus rural lifestyle is moving towards a modern way of rural life.

4. Local labour market allows abled-bodied youth to take up migration and elders to stay back and take care of agriculture activities.

5. Practicing traditional occupations is on the decline except for a few communities, continuing them for certain socio, cultural and ritual reasons. Traditional and caste-based occupations are on decline.

Lift irrigation has benefited many stakeholders and improved income, and employment, and led to development through the agriculture sector that is energized by the lift irrigation projects. The benefits of lift irrigation projects will increase further if the drawbacks in implementation of lift irrigation projects including management, O&M, judicious utilisation of water, cropping patterns etc are also addressed effectively in a participatory manner.

References

Bidita Dhar & R. B. Bhagat (2020), Return Migration in India: Internal and International Dimensions, Migration and Development, DOI: 10.1080/21632324.2020.1809263.

Chacko, E. (2007), From Brain Drain to Brain Gain: Reverse Migration to Bangalore and Hyderabad, India's Globalizing High Tech Cities. Geo Journal, 131 – 140.

Deshpande Sridhar (2020), Progress of Irrigation in Telangana: Five years Journey Towards Irrigating A crore Acres, Prof B Janardhan Rao XVIII Annual Memorial Lecture, Kakatiya University, Warangal.

Khadria, B. (2004), "Skilled Labour Migration from India", in Oda, H., International Labour Migration from South Asia, Institute of Developing Economies.

Jonkers, K. (2008), A Comparative Study on Return Migration Policies Targeting: The Highly Skilled in Four Major Sending Countries MIREM-AR 2008/05. Available at: http://www.mirem.eu/recherche/rapports [accessed 28 February 2009].

Korra, Vijay (2016), "Seasonal Migration and Rural Markets: Empirical Evidence from Telangana, India", *Social Science Asia*, Volume 2 Number 1, p: 60–76. http://e-journal.nrct.go.th/file_upload/digital_file/43_c1754.pdf.

Korra, Vijay (2015), "Dynamics of Seasonal Labour Migration from Mahabubnagar District of Telangana State", *Madhya Pradesh Journal of Social Sciences,* Vol. 20, No. 2, December 2015, pp. 131-152. ISSN: 0973-855X.

Korra, Vijay (2011), "The Role of Seasonal Labour Migration in Household Resources: A Case Study of Mahabubnagar District, Andhra Pradesh", *Artha Vijnana,* Vol. LIII, No. 1, March, pp. 65-81.

Korra, Vijay (2011), "Labour Migration in Mahabubnagar: Nature and Characteristics", *Economic and Political Weekly* (EPW), January 8-14, Vol. XLVI No. 2, pp. 67-70.

Reddy, D. Narasimha (2003), 'Economic Reforms and Travails of Circulating Labor of Dry Regions: A Case Study of Palamur Labor in Andhra Pradesh', Labour & Development, Vol. No.2, December.

Zachariah, K.C. and Gopinathan Nair, P.R. / 1rudaya Rajan, S. (2006), Return Emigrants in Kerala. Welfare Rehabilitation and Development.

Appendix Tables

Appendix 1: Main source of income of the farm households under various lift irrigation projects

Source of income	Famer households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own cultivation	54	24	53	175	306
%	(94.7)	(92.3)	(96.4)	(94.6)	(94.7)
Casual agriculture labour	2	0	0	5	7
%	(3.5)	(0)	(0)	(2.7)	(2.2)
Casual labour in non-agriculture	1	0	0	2	3
%	(1.8)	(0)	(0)	(1.1)	(0.9)
Tenants	0	0	1	0	1
%	(0)	(0)	(1.8)	(0)	(0.3)
Government employee	0	0	0	1	1
%	(0)	(0)	(0)	(0.5)	(0.3)
Private employee	0	1	1	0	2
%	(0)	(3.8)	(1.8)	(0)	(0.6)
Petty trade	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)
Pensioners	0	0	0	1	1
%	(0)	(0)	(0)	(0.5)	(0.3)
Self-employment in non-agriculture	0	1	0	0	1
%	(0)	(0)	(0)	(0.5)	(0.3)
Attached farm servant	0	0	0	1	1
%	(0)	(0)	(0)	(0.5)	(0.3)
Livestock	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)

Appendix 2: Sources of income for labour households under different lift irrigation projects

Source of income	Labour households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own cultivation	9	0	0	17	26
%	(8.9)	(0)	(0)	(8.8)	(6.4)
Casual agriculture labour	37	25	64	102	228
%	(36.6)	(78.1)	(79)	(52.6)	(55.9)
Casual labour in non-agriculture	54	5	15	61	135
%	(53.5)	(15.6)	(18.5)	(31.4)	(33.1)
Tenants	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)
Government employee	0	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)
Private employee	1	1	0	4	6
%	(1)	(3.1)	(0)	(2.1)	(1.5)
Petty trade	0	0	0	1	1
%	(0)	(0)	(0)	(0.5)	(0.2)
Pensioners	0	0	0	3	3
%	(0)	(0)	(0)	(1.5)	(0.7)
Self-employment in non-agriculture	0	0	1	1	2
%	(0)	(0)	(0)	(1.5)	(0.7)
Attached farm servant	0	0	1	3	4
%	(0)	(0)	(1.2)	(1.5)	(1)
Livestock	0	1	0	2	3
%	(0)	(3.1)	(0)	(1)	(0.7)

Appendix 3: Source of income of the casted based occupational households

Source of income	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Own cultivation	2	1	0	2	5
%	(9.1)	(3.1)	(0)	(2.8)	(3)
Casual agriculture labour	1	2	0	1	4
%	(4.5)	(6.3)	(0)	(1.4)	(2.4)
Casual labour in non-agriculture	0	4	10	7	21
	(0)	(12.5)	(22.7)	(9.9)	(12.4)
Tenants	0	0	0	1	1
%	(0)	(0)	(0)	(1.4)	(0.6)
Government employee	2	3	2	3	10
%	(9.1)	(9.4)	(4.5)	(4.2)	(5.9)
Private employee	3	3	8	13	27
	(13.6)	(9.4)	(18.2)	(18.3)	(16)
Petty trade	1	4	2	6	13
%	(4.5)	(12.5)	(4.5)	(8.5)	(7.7)
Pensioners	0	0	0	1	1
%	(0)	(0)	(0)	(1.4)	(0.6)
Self-employment in non-agriculture	12	13	19	31	75
%	(0)	(0)	(0)	(1.4)	(0.6)
Attached farm servant	0	0	0	1	1
%	(0)	(0)	(0)	(1.4)	(0.6)
Livestock	0	2	3	5	10
%	(0)	(6.3)	(6.8)	(7)	(5.9)

Appendix 3.1: Average landholdings by caste-based occupational households during the Rabi in the year 2016-17

Average landholdings	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Rabi					
Own Land	2.1	1.9	1.4	2.8	2.1
Wet Land	1.8	1.9	1.1	2.1	1.7
Dry Land	1.0	1.8	1.8	3.9	2.6
Leased-in Land	0.0	0.5	.	.	0.5
Leased-out Land	0.0	1.5	0.9	4.5	2.8

Appendix 3.2: Method of irrigation by the caste-based occupational households during the Kharif season in the year 2016-17

Method of irrigation	Caste-based occupational households				
	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	2	14	19	20	55
%	(33.3)	(100)	(95)	(83.3)	(85.9)
Drip Irrigation	4	0	0	2	6
%	(66.7)	(0)	(0)	(8.3)	(9.4)
Sprinkler Irrigation	0	0	1	2	3
%	(0)	(0)	(5)	(8.3)	(4.7)
Total	6	14	20	24	64
%	(100)	(100)	(100)	(100)	(100)

Appendix 3.3: Method of irrigation by the caste-based occupational households during the Rabi season in the year 2016-17

	TC				
Method of irrigation	Nettempadu	Koilsagar	Rajiv Bheema	Kalwakurthy	All
Flooding	1	9	15	10	35
%	(25)	(100)	(100)	(76.9)	(85.4)
Drip Irrigation	3	0	0	1	4
%	(75)	(0)	(0)	(7.7)	(9.8)
Sprinkler Irrigation	0	0	0	2	2
%	(0)	(0)	(0)	(15.4)	(4.9)
Total	4	9	15	13	41
%	(100)	(100)	(100)	(100)	(100)

Table 4.1: Female migrant's wage rates at the destinations

	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
Female wages	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
250-600	0	0	1	1	0	0	0	0	3	0	0	3	1	2	4	7	4	2	5	11

Table 4.2: Facilities provided by the employer at the destination place to the migrants

Facilities provided by the employer	Nettempadu			Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Accommodation	0	0	0	0	2	3	5	7	1	3	11	7	4	3	14	14	7	9	30
	(0)	(0)	(0)	(0)	(28.6)	(33.3)	(31.3)	(43.8)	(33.3)	(27.3)	(36.7)	(38.9)	(22.2)	(15.8)	(25.5)	(37.8)	(25)	(20.5)	(27.5)
Food	1	1	2	0	3	3	6	4	1	3	8	5	6	2	13	10	10	9	29
	(33.3)	(20)	(25)	(0)	(42.9)	(33.3)	(37.5)	(25)	(33.3)	(27.3)	(26.7)	(27.8)	(33.3)	(10.5)	(23.6)	(27)	(35.7)	(20.5)	(26.6)
Transport	0	2	2	0	1	2	3	1	0	2	3	3	3	6	12	4	4	12	20
	(0)	(40)	(25)	(0)	(14.3)	(22.2)	(18.8)	(6.3)	(0)	(18.2)	(10)	(16.7)	(16.7)	(31.6)	(21.8)	(10.8)	(14.3)	(27.3)	(18.3)
Medical	0	0	0	0	1	1	2	2	1	3	6	0	1	4	5	2	3	8	13
	(0)	(0)	(0)	(0)	(14.3)	(11.1)	(12.5)	(12.5)	(33.3)	(27.3)	(20)	(0)	(5.6)	(21.1)	(9.1)	(5.4)	(10.7)	(18.2)	(11.9)
Advance	1	0	1	0	0	0	0	2	0	0	2	2	4	1	7	5	4	1	10
	(33.3)	(0)	(12.5)	(0)	(0)	(0)	(0)	(12.5)	(0)	(0)	(6.7)	(11.1)	(22.2)	(5.3)	(12.7)	(13.5)	(14.3)	(2.3)	(9.2)
Paid holidays / leaves	1	2	3	0	0	0	0	0	0	0	0	1	0	3	4	2	0	5	7
	(33.3)	(40)	(37.5)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(5.6)	(0)	(15.8)	(7.3)	(5.4)	(0)	(11.4)	(6.4)
Total	3	5	8	0	7	9	16	16	3	11	30	18	18	19	55	37	28	44	109
	(100)	(100)	(100)	(0)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Table 4.3: Advance amount taken by migrants before migration

If yes, how much	Nettempadu		Rajiv Bheema				Kalwakurthy				All			
	Seasonal	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Rs. 10000	0	0	0	0	0	0	1		0	1	1	0	0	1
%	(0)	(0)	(0)	(0)	(0)	(0)	(33.3)	(0)	(0)	(12.5)	(16.7)	(0)	(0)	(10)
Rs. 30000	0	0	0	0	0	0	0	1	0	1	0	1	0	1
%	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(12.5)	(0)	(25)	(0)	(10)
Rs. 50000	0	0	0	0	0	0	1	2	0	3	1	2	0	3
%	(0)	(0)	(0)	(0)	(0)	(0)	(33.3)	(40)	(0)	(37.5)	(16.7)	(50)	(0)	(30)
Rs. 100000	0	0	2	0	0	2	1	1	0	2	3	1	0	4
%	(0)	(0)	(100)	(0)	(0)	(100)	(33.3)	(20)	(0)	(25)	(50)	(25)	(0)	(40)
1Rs. 70000	1	1	0	0	0	0	0		0	0	1	0	0	1
%	(100)	(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(16.7)	(0)	(0)	(10)
Rs. 175000	0	0	0	0	0	0	0	1	0	1	0	0	0	0
%	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(12.5)	(0)	(0)	(0)	(0)
Total	1	1	2	0	0	2	3	5	0	8	6	4	0	11
%	(100)	(100)	(100)	(0)	(0)	(100)	(100)	(100)	(0)	(100)	(100)	(100)	(0)	(100)

Appendix 5.1: female wage per day at the destination

Female wage per day	Nettempadu		Koilsagar				Rajiv Bheema		Kalwakurthy				All			
	Seasonal	All	Seasonal	Short-term	Long-term	All	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Rs.150-Rs. 250	0	0	0	0	1	1	1	1	2	2	1	5	2	2	3	7
	(0)	(0)	(0)	(0)	(50)	(20)	(33.3)	(33.3)	(40)	(40)	(20)	(33.3)	(25)	(33.3)	(30)	(29.2)
Rs.250-500	0	0	1	1	1	3	2	2	3	3	4	10	4	4	7	15
	(0)	(0)	(50)	(100)	(50)	(60)	(66.7)	(66.7)	(60)	(60)	(80)	(66.7)	(50)	(66.7)	(70)	(62.5)
Rs. 00-1000	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	(100)	(100)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(12.5)	(0)	(0)	(4.2)
Above Rs.1000	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1
	(0)	(0)	(50)	(0)	(0)	(20)	(0)	(0)	(0)	(0)	(0)	(0)	(12.5)	(0)	(0)	(4.2)
Total	1	1	2	1	2	5	3	3	5	5	5	15	8	6	10	24
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Appendix 5.2: Monthly salary of migrant workers at the destinations

Monthly male salary	Nettempadu		Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Rs.1400-5000	0	0	0	1	0	1	0	1	2	3	0	2	1	3	0	4	3	7
	(0)	(0)	(0)	(33.3)	(0)	(16.7)	(0)	(16.7)	(33.3)	(20)	(0)	(28.6)	(14.3)	(20)	(0)	(25)	(17.6)	(18.4)
Rs.5000-10000	0	0	0	2	1	3	3	3	2	8	1	1	5	7	4	6	8	18
	(0)	(0)	(0)	(66.7)	(50)	(50)	(100)	(50)	(33.3)	(53.3)	(100)	(14.3)	(71.4)	(46.7)	(80)	(37.5)	(47.1)	(47.4)
Rs.10000-15000	1	1	0	0	1	1	0	2	2	4	0	4	1	5	0	6	5	11
	(50)	(50)	(0)	(0)	(50)	(16.7)	(0)	(33.3)	(33.3)	(26.7)	(0)	(57.1)	(14.3)	(33.3)	(0)	(37.5)	(29.4)	(28.9)
Rs.15000-20000	1	1	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	2
	(50)	(50)	(100)	(0)	(0)	(16.7)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(20)	(0)	(5.9)	(5.3)
Total	2	2	1	3	2	6	3	6	6	15	1	7	7	15	5	16	17	38
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Appendix 5.3: Facilities provided to migrants at the destination

Facilities at the destination	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Yes	23	0	0	23	2	3	6	11	4	12	10	26	8	11	6	25	37	26	22	85
	(82.1)	(0)	(0)	(74.2)	(50)	(42.9)	(54.5)	(50)	(40)	(66.7)	(52.6)	(55.3)	(32)	(45.8)	(20)	(31.6)	(55.2)	(52)	(35.5)	(47.5)
No	5	1	2	8	2	4	5	11	6	6	9	21	17	13	24	54	30	24	40	94
	(17.9)	(100)	(100)	(25.8)	(50)	(57.1)	(45.5)	(50)	(60)	(33.3)	(47.4)	(44.7)	(68)	(54.2)	(80)	(68.4)	(44.8)	(48)	(64.5)	(52.5)
Total	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Appendix 5.4: Social security provided to the migrants at the destination places

Social Security	Nettempadu				Koilsagar				Rajiv Bheema				Kalwakurthy				All			
	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All	Seasonal	Short-term	Long-term	All
Yes	0	0	0	0	0	2	4	6	2	11	4	17	4	8	7	19	6	21	15	42
	(0)	(0)	(0)	(0)	(0)	(28.6)	(36.4)	(27.3)	(20)	(61.1)	(21.1)	(36.2)	(16)	(33.3)	(23.3)	(24.1)	(9)	(42)	(24.2)	(23.5)
No	28	1	2	31	4	5	7	16	8	7	15	30	21	16	23	60	61	29	47	137
	(100)	(100)	(100)	(100)	(100)	(71.4)	(63.6)	(72.7)	(80)	(38.9)	(78.9)	(63.8)	(84)	(66.7)	(76.7)	(75.9)	(91)	(58)	(75.8)	(76.5)
Total	28	1	2	31	4	7	11	22	10	18	19	47	25	24	30	79	67	50	62	179
	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)

Schedule No.	

STUDY ON IMPACT OF IRRIGATION ON RURAL HOUSEHOLDS (FARMERS, LABOURERS, AND TRADITIONAL OCCUPATIONS): A STUDY OF UNDIVIDED MAHABUBNAGAR DISTRICT

HOUSEHOLD QUESTIONNAIRE

(A Research Project Sponsored by the Department of Irrigation, Government of Telangana, Hyderabad)

Type of Household: [ ] **(***Farmer=1; Wage Labour=2; Traditional Occupation=3)*

Block 1: Personal Identification

Sl. No.	Particulars	Codes	
1.1	**Name of the State**	**Telangana**	
1.2	Name of the District *(Jogulamba Gadwal -1, Nagarkurnool -2, Mahbubnagar -3, Narayanpet -4, Wanaparthy -5.)*		
1.3	Name of the Mandal / Block		
1.4	Name of the Village		
1.5	Name of the Hamlet		
1.6	House No.		
1.7	Name of the Respondent		
1.8	Name of the Head of the Household		
1.9	Aadhar Card? *(Yes - 1, No – 2)*		
1.10	Bank Account? *(Yes - 1, No - 2)*		
1.11	Social group *(SC - 1, ST - 2, OBC - 3, General - 4, Others - 5)*		
1.12	Sub-caste / Sub-tribe		
1.13	Religion (*Hindu - 1, Islam - 2, Christianity - 3, Others - 4 (specify)*		
1.14	Type of Ration Card (*Pink - 1, White - 2, Antyodaya - 3, Annapurna – 4, No Card - 5)*		
1.15	MGNREGA Card? *(Yes - 1, No - 2)*		
1.16	Main source of Income to the household *Own cultivation/work in their own farm - 1, Casual agriculture labour - 2, Casual labour in non-agriculture - 3, Tenants - 4, Government employee - 5, Private employee - 6, Petty trade - 7, Pensioners - 8, Unpaid family work - 9, Unemployed - 10, Student - 11, Dependent - 12, Self-Employment (Non-Agriculture)-13; Attached farm servant – 14; Livestock – 15; Others (specify) - 16)*		
1.17	Date of Interview:	Duration of interview:	
1.18	Respondents Signature:	Contact No:	

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July 2022

Block 2: Demographic Particulars

Sl. No	Name of the Member *(Begin with the Head of the household)*	Relation with Head *(Code -1)*	Sex *(Male -1, Female -2)*	Age *(Completed Years)*	Marital Status *(Code -2)*	Educational Status *(Code -3)*	Current Migrant (*Yes -1, No -2, Return migrant 3)*	Main Occupation *(Code -4)*	Secondary Occupation (*Code –4)*	Annual Income *(Code -5)*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*
1										
2										
3										
4										
5										
6										
7										
8										

Code - 1: *Self - 1, Spouse of the head - 2, Married child - 3, Spouse of the married child - 4, Unmarried child - 5, Grandchild - 6, Nephews/Niece - 7, Father/mother/father-in-law/mother-in-law - 8, Brother/sister/brother-in-law/sister-in-law - 9, Other relatives - 10, Servants/employees/non-relatives - 11.*

Code - 2: *Married -1, Un-married -2, Never married -3, Widow/widower - 4, Divorced/separated - 5, Live in relationship - 6, Not Applicable (children below 6 years) - 99.*

Code - 3: *Illiterate - 1, Below primary - 2, Primary (5^{th} complete) - 3, Upper primary (class 6-7^{th}) - 4, Secondary (class 8, 9 & 10^{th}) - 5, Higher secondary (class 11-12^{th}) - 6, ITI/Diploma – 7, Vocational/Professional – 8, Graduation - 9, Post graduation & above - 10, Not applicable (children below 6 years) - 99.*

Code – 4 *(Own cultivation/work in their own farm - 1, Casual agriculture labour - 2, Casual labour in non-agriculture - 3, Tenants - 4, Government employee - 5, Private employee - 6, Petty trade - 7, Pensioners - 8, Unpaid family work - 9, Unemployed - 10, Student - 11, Dependent - 12, Self-Employment (Non Agriculture)-13; Attached farm servant – 14; Livestock – 15; Others (specify) - 16); Not applicable - 99.*

Code - 5: *Less than 50000 - 1, Rs. 50001-100000 - 2, Rs. 100001-200000 - 3, Rs. 200001-300000 - 4, Rs.300001-400000 - 5, Rs.400001-500000 - 6, Rs. 500001 & above-7, Not applicable- 99*

Block 3A: Land Particulars of the Households for the Year 2021-22 *(Area in acres and cents)*

PLOT. No:	Own land	Wet-land	Dry-land	Current fallow land	Leased-in land	Leased-out land	Source of irrigation *(Code-1)*	Method of Irrigation *Code- 2*	Cost of Irrigation *(Rs)*	Irrigation *(From year)*	Reason for fallow *(Code-3)*	Reason for leased-in land *(Code-4)*	Reason for leased-out land *(Code-5)*	Pattadar passbook *(Yes -1, No - 2, NA – 99)*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Kharif														
Rabi														

Code - 1: *Project Canal -1, Lift irrigation by pipes -2, Tank -3, Tube well -4, Open well -5, Check dam-6, Rainfed -7; Others (Specify)-8*

Code- 2: *Flooding-1, Drip Irrigation-2, sprinkler Irrigation- 3, Others (Specify)-4*

Code - 3: *Not cultivable -1, Weed problem -2; Land in litigation-3, Lack of investment -4, Lack of irrigation-5, Unable to cultivate due to ill health-6, Lack of manpower-7, Unable to cultivate due to old age-8, Any other reasons-9, Not applicable-99.*

Code - 4: *Want to increase acreage -1, No land but wanted to cultivate-2, Accessing irrigation-3, have more manpower-4, Stopped migration-5 Others (specify)-6*

Code - 5: *Not cultivable -1, Land in litigation-2, Lack of investment -3, Lack of irrigation-4, Unable to cultivate due to ill health-5, Lack of manpower-6, Unable to cultivate due to old age-7, Any other reasons-8, Not applicable-99.*

Block 3B: Land Particulars of the Households in 2016-17 *(Area in acres and cents)*

PLOT. No:	Own land	Wet-land	Dry-land	Current fallow land	Leased-in land	Leased-out land	Source of irrigation *(Code-1)*	Method of Irrigation *Code- 2*	Cost of Irrigation *(Rs)*	Irrigation *(from year)*	Reason for fallow *(Code-3)*
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*
Kharif											
Rabi											

Code - 1: *Project Canal -1, Lift irrigation by pipes -2, Tank -3, Tube well -4, Open well -5, Check dam-6, Rainfed -7; Others (Specify)-8.*

Code- 2: *Flooding-1, Drip Irrigation-2, sprinkler Irrigation- 3, Others (Specify)-4*

Code - 3: : *Not cultivable -1, Land in litigation-2, Lack of investment -3, Lack of irrigation-4, Unable to cultivate due to ill health-5, Lack of manpower-6, Unable to cultivate due to old age-7, Any other reasons-8, Not applicable-99.*

Block 4: Cropping Pattern and Production for the Year 2021-22 and 2016 -17

Sl. No	Crops Grown	2021-22								2016-17			
		Area in acres and cents		Kharif			Rabi			Area in acres and cents		Yields in quintals (per acre)	
		Kharif	Rabi	Yield in Quintals *(per acre)*	Value of paid out cost *(Rs.)*	Value of production *(Rs.)*	Yield in Quintals *(per acre)*	Value of paid out cost (Rs.)	Value of production *(Rs.)*	Kharif	Rabi	Kharif	Rabi
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*
1	Paddy												
2	Cotton												
3	Chilli												
4	Maize												
5	Groundnut												
6	Jowar												
7	Castor												
8	Redgram												
9	Millets												
10	Pulses												
11	Vegetables												
12	Horticulture												
13	Others Specify												

Block 5: Particulars of Farm Labour, Agricultural-allied and Other Economic Activities for 2021-22 and 2016-17

Member ID	Activity Code	Allied activities during 2021-22		Activity Code	Allied activities 2016-17	
		Number of workdays	Wage/ income per day / Month		Number of workdays	Wage / Income per day/ Month
1	*2*	*3*	*4*	*5*	*6*	*7*

Activity Codes: *Agriculture labour -1; Auto/Car Driver– 2; Tractor/ Heavy machinery Driver-3; Motors/ Farm Machinery Repairs-4, Diary -5; Non-farm labour-6, Shepherd -**7,** Fishing-8, Toddy-tapping-9, Weaving-10, Tailoring-11, Barber-12, Potter-13, Carpenter-14, Fruit Vendor – 15, MGNREGA -16, Business -17, Traders- 18 Others, Specify – 19.*

Block 6: Current Migration (if more than one current migrant takes the eldest)

Sl.No	Particulars	Code
1	*2*	*3*
6.1	Does your family have a current migrant? *(Yes -1, No -2)*	
6.2	Name of the current migrant ***(Enter serial no. from Block 2)***	
6.3	Type of migration? *(Seasonal -1, Short-term -2, Long-term -3)*	
6.4	Pattern of migration: Start Month, ... End Month, ...	
6.5	If yes, when did he/she migrate? Month: Year:	
6.6	Where did he/she migrate? (Place of destination)	
6.7	Why did he/she migrate? (Multiple answers) (Order of priority) *No water facility in the village – 1; No work -2; Less wages – 3; To earn money – 4; inadequate work-5; No Demand for skills-6; Due to Debt-7; Others specify – 8;*	
6.8	What work is he/she doing now at the destination? *(Construction work-1, Clay work-2, Digging trench-3, Loading-unloading work-4, Brick-kiln work-5, Attached labour-6, Security at work site-7, Watchman-8; Poultry worker-9, Auto-driver-10, Shop-keeper-11, Sanitation worker-12, Car Drivers– 13; Heavy machinery - 14; Others-15 (specify):*	
6.9	How much they are paid? Wage per day Male _____ Female _____	

Sl.No	Particulars	Code
6.10	How much they are paid? Salary per month Male _____ Female _____	
6.11	How much did they send home last year? (Rs)	
6.12	Working hours per day?	
6.13	Since how long has he/she been doing the current work? ***(Codes)*** *(0 to 6 months – 1; 6 months – 1 year -2; 1 to 2 years – 3; 2 to 3 – 4; 4 to 5 years – 5; Above 5 years - 6)*	
6.14	Since how long has he/she been staying at the current destination? *(0 to 6 months – 1; 6 months – 1 year -2; 1 to 2 years – 3; 2 to 3 – 4; 4 to 5 years – 5; Above 5 years - 6)*	
6.15	Working conditions at the destination? (Multiple answers) (Order of priority) *Sound pollution -1; Air pollution -2; Poor hygienic conditions – 3; Insufficient lighting – 4; Fumes, gases and dust – 5; Extra work without pay – 6; Working at heights -7; Hazardous work -8; Others specify -9*	
6.16	Facilities provided by the employer at the destination? (Multiple answers) (Order of priority) *Accommodation -1; Food -2; Transport – 3; Medical -4; Advance– 5; Paid holidays / leaves – 6; Others specify -7*	
6.17	How did he/she migrate? (Multiple codes) *(Contract -1, Group -2, Individually -3, Husband only -4, Wife only- 5, Wife and Husband only-6, With Family (Along with children)-7 With friends -8, With co-villagers -9, Others (specify)- 10……..*	
6.18	If migrated through a contract, what are the terms and conditions? (Open Ended) 1. 2. 3.	
6.19	Did he/she take any advance? *(Yes -1, No -2)*	
6.20	**If yes,** how much? *(Rs)*.....	
6.21	How much Advance is still Outstanding? *(Rs)*.....	
6.22	Is he/she providing social security? *(Yes -1, No -2)*	
6.23	**If yes,** what are those? (Multiple codes) *Medical -1; Health insurance-2; ESI -3; PF –4; Others specify -5*	
6.24	Is he/she planning to return to your village? *(Yes -1, No -2)*	
6.25	**If yes,** when are he/she planning to return?	
6.26	**If yes,** the reason for return? (Multiple answers) (Order of priority) *Own cultivation -1, Work available in the village -2, Wish to stay in the village -3, Lease farming -4, Contract over -5, Difficult work-6, Exploitation at the destination -7, Tough working conditions -8, Health issues -9, Ageing -10, Work not available -11, Got canal*	

Sl.No	Particulars	Code
	irrigation -12, Due to Covid-19 – 13, Taking care of other family members- 14Others (Specify) -15.	
6.27	Did he/she come to the village during corona? *Yes- 1, No-2*	
6.28	If yes, how long duration of stay? *(in months)*	

Block 7: Particulars of Return Migration (Consider main return migrant from the household preferably recent migrant Since 2016-17)

Sl. No	Particulars	Codes
1	*2*	*3*
7.1	Does your family have any return migrant (*Yes-1; No-2)*	
7.2	Name of the return migrant (***Enter serial no. from Block 2)***	
7.3	Type of migration? *(Seasonal -1, Short-term -2, Long-term -3)*	
7.4	Pattern of migration: Start Month, ... End Month, ...	
7.5	Time of last return from the destination (specify)? Month: __ __ Year: __ __ __ __	
7.6	Where did he/she return from? ***(specify name)***	
7.7	Type of the destination? *(Rural -1, Urban - 2)*	
7.8	When did he/she migrate first? Month: __ __ Year: __ __ __ __	
7.9	Age at the time of first migration? *(Completed Years)*	
7.10	What was migrant doing before migration? *Own cultivation -1, Labour -2, Self-employment -3, Business –4, Petty Trade -5, Construction work -6, Lease farming -7, Livestock -8, Traditional occupation -9, Others -10 (specify)……*	
7.11	How many times migrated? (From Beginning to End)	
7.12	How did he/she migrate the first time? (Codes) *Contract -1, Group -2, Individually -3, Husband only -4, Wife only- 5, Wife and Husband only-6, With Family (Along with children)-7 With friends -8, With co-villagers -9, Others (specify)-10……..*	
7.13	How did he/she migrate last time? (Codes) *Contract -1, Group -2, Individually -3, Husband only -4, Wife only- 5, Wife and Husband only-6, With Family (Along with children)-7 With friends -8, With co-villagers -9, Others (specify)-10……..*	
7.14	Type of work/job done at the destination (**last time**)? *Construction work-1, Clay work-2, Digging trench-3, Loading-unloading work-4, Brick-kiln work-5, Attached labour-6, Security at work site-7, Watchman-8; Poultry worker-9, Auto-driver-10, Shop-keeper-11, Sanitation worker-12, Transportation – 13; Heavy machinery - 14; Others-15 (specify):*	
7.15	How long migrant stayed at the destination (**last time**)? Years: ____ Months: _____	

Sl. No	Particulars	Codes
1	*2*	*3*
7.16	How much they are paid? Wage per day Male ---------- Female ----------	
7.17	How much they are paid? Salary per month Male ---------- Female ----------	
7.18	Working hours per day?	
7.19	Working conditions at the destinations? (Multiple codes) *Sound pollution -1; Air pollution -2; Poor hygienic conditions – 3; Insufficient lighting – 4; Fumes, gases and dust – 5; Extra work without pay – 6; Working at heights -7; Hazardous work -8; Others specify -9*	
7.20	Were you provided any facilities at the destination? (Yes -1, No -2)	
7.21	If yes, what were those? (Multiple Codes) *Accommodation -1; Food -2; Transport – 3; Medical -4; Advance– 5; Paid holidays / leaves – 6; Others specify -7*	
7.22	Did you acquire new skills while working in the destination? (Yes -1, No -2)	
7.23	If yes, what were those? (Multiple codes) Accounts, banking, finance -1; Agriculture related -2; Readymade garments / home furnishing, etc-3; Driving / Automobiles related-4; Basic computer skills – 5; Coding, programming etc., - 6; Beautician – 7; Construction related – 8; Home servicing – electrician, plumber, painter etc., - 9; Food / Catering – 10; Health related – 11;Marketing -12; Media-13; Heavy machinery -14; Bore well/motor repairs -15; Handloom related -16; Others specify-17	
7.24	Is he/she providing social security? (Yes -1, No -2)	
7.25	**If yes,** what are those? (Multiple codes) *Medical -1; Health insurance-2; ESI -3; PF –4; Others specify -5*	
7.26	Why did migrant return *Own cultivation -1, Work available in the village -2, Wish to stay in the village -3, Lease farming -4, Contract over -5, Difficult work-6, Exploitation at the destination -7, Tough working conditions -8, Health issues -9, Ageing -10, Work not available -11, Got canal irrigation -12, Due to Covid-19 – 13, Taking Care of Other Family Members- 14 Others (Specify)-15.*	
7.27	What are you doing after your return? (*Own cultivation -1, Labour -2, Self-employment -3, Business –4, Petty Trade -5, Construction work -6, Lease farming -7, Livestock -8, Traditional occupation -9, Others -10 (specify)……*	
7.28	If cultivated, since how long you have been cultivating your land? (in years)	
7.29	Do you get enough work in the village? Yes -1, No -2)	
7.30	If yes, how many days / Months do you work in a year?	
7.31	Wage per day / per Month? In Rs.	
7.32	Are you planning to go again? Yes -1, No -2)	

Sl. No	Particulars	Codes
1	*2*	*3*
7.33	If yes, why?	

Block 8: Assets Acquired Before 2016-17 and After 2016-17

Sl. No.	Particulars	Quantity / area		Value (Rs)		Source of income (Code)					
		2021	2016	2021	2016	2021			2016		
8.1	Land										
8.2	Plots										
8.3	Construction of house										
8.4	House repairs/renovation										
Agriculture Implements											
8.5	Tractor										
8.6	Sprayer/Dusters										
8.7	Power Harvester										
8.8	Thresher										
8.9	Bullock Plough										
8.10	Small equipment (Sickle, axe)										
8.11	Artisan Implements										
8.12	JCB										
8.13	Others specify _____										
Irrigation Assets											
8.14	Oil Engine										
8.15	Electric Motor										
8.16	Bore wells										
8.17	Irrigation assets (including pipes/ transformers etc)										
8.18	Drip irrigation pipes										
8.19	sprinklers										
8.20	Others specify _____										

Code: *Agriculture -1; Savings -2; Formal borrowing – 3; Informal borrowing – 4; Sell assets -5; Sell livestock – 6; Mortgage assets – 7; Friends / relatives -8; SHG – 9; Inheritance -10; Gifted -11; Others specify – 12*

Block 9: Livestock Acquired Before 2016-17 and After 2016-17.

Sl. No	Particulars	Quantity		Value (Rs)		Source of income *(Code)*					
		2021	2016	2021	2016	2021			2016		
	Milch Animals										
9.1	Cow (modern variety)										
9.2	Cow (Trad. Variety)										
9.3	Buffalo (modern variety)										
9.4	Buffalo (Trad. Variety)										
9.5	Calves										
	Draught Animals										
9.6	Bullock										
9.7	He-bullock										
	Small Ruminants										
9.8	Sheep										
9.9	Goat										
9.10	Pigs										
9.11	Poultry Birds										
9.12	Others specify										

Code: *Agriculture -1; Savings -2; Formal borrowing – 3; Informal borrowing – 4; Sell assets -5; Sell livestock – 6; Mortgage assets – 7; Friends / relatives -8; SHG – 9; Inheritance -10; Gifted -11; Others specify – 12*

Block 10: Consumer Durables Acquired Before 2016-17 and After 2016-17.

Sl. No.	Particulars	Quantity		Value (Rs)		Source of income *(Code)*					
		2021	2016	2021	2016	2021			2016		
10.1	Fan										
10.2	Television										
10.3	Almirah										
10.4	Bike/Scooter										
10.5	Cycle										
10.6	Car										
10.7	Refrigerator										
10.8	Mobile / Smart Phone										
10.9	Wrist Watch/Clock										
10.10	Furniture										
10.11	Sewing machine										
10.12	Auto rickshaw										
10.13	Gold/Silver ornaments										
10.14	Other Specify _____										

Code: *Agriculture -1; Savings -2; Formal borrowing – 3; Informal borrowing – 4; Sell assets -5; Sell livestock – 6; Mortgage assets – 7; Friends / relatives -8; SHG – 9; Inheritance -10; Gifted -11; Others specify – 12*

Investigator's Observations:

Investigator Name : **Signature :**

Supervisor Name : **Signature :**

STUDY ON IMPACT OF IRRIGATION ON RURAL HOUSEHOLDS (FARMERS, LABOURERS AND TRADITIONAL OCCUPATIONS): A STUDY OF UNDIVIDED MAHABUBNAGAR DISTRICT

VILLAGE SCHEDULE

0. Identification particulars

1. District: _____ *Code:* _____
2. Mandal: _____ *Code:* _____
3. Village _____ Code*:* _____
4. Date of Interview: _____
5. Interviewer's Name: _____ *Code*: _____
6. Supervisor's Name: _____ *Code*: _____
7. Data entry Person's name: _____ *Code*: _____

1. Respondent(s) particulars

Sl. No	Name	Position *Code-1*	Age	Sex *(1=M, 2=F)*	Caste *Code 2*	Educational qualification
1	*2*	*3*	*4*	*5*	*6*	*7*
1						
2						
3						
4						
5						
6						
7						

Code 1: *1=Sarpanch, 2= Vice sarpanch, 3= Ward members, 4= VO leader, 5= VO member, 6= SHG leader, 7=SHG members,*
8=MS leader, 9= Agriculture Extension Officer, 10=Irrigation Engineer 11=Village Secretary, 12=Community leader, 13= Caste leader, 14= Ration shop Dealer, 15= Anganwadi Teacher, 16= others (specify:)

Code 2: *1=SC, 2=ST, 3=BC, 4=OC.*

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July 2022

2. Demographic Particulars

Sl. No	Particulars	No. of households	Total Population		No. of households possessing land
			Male	Female	
1	*2*	3	4	5	*6*
1	SC				
2	ST				
3	BC				
4	OC				
5	Minority (Muslim)				

3. Particulars of Irrigated Area in the Village as on Date of Survey

Sl.No.	Particulars	Area 2021-22 (acres and cents)	Area 2016-17 (acres and cents)
1	*2*	*3*	*3*
1	Irrigated area under canal		
2	Irrigated area under tanks		
3	Irrigated area under lift irrigation		
4	Irrigated area under wells/bore-wells		
5	Irrigated area under river/streams etc		
6	Total Irrigated Area		
7	Rain-fed area		
8	Net area cultivated		
9	Area Cultivated Twice		
10	Total Geographical Area		

4. All Crops Grown in the Village during the Agricultural Year 2021-22 and 2016-17

Sl.No.	**Crops** (Start with major crops)	Crop code	Area 2021-22 (acres and cents)	Area 2016-17 (acres and cents)
1	*2*	*3*	*4*	*5*
1				
2				
3				
4				
5				
6				
7	**Current fallow in the last one year**			

***Crop* Codes** 01=Paddy, 02=Maize, 03=Groundnut, 04=Cotton, 05=Tomato, 06=Chillies, 07=Black gram, 08=Green gram, 09=Bengal gram, 10=Cashew, 11=Mango, 12=Palm oil, 13=Banana, 14=Citrus; 15=Jowar, 16=Bajra, 17=Ragi, 18=Other cereals,
19=Redgram, 20=Other pulses, 21= Sunflower, 22= Coconuts, 23= Seasum 24= Other oil seeds, 25= Sugarcane, 26= Onion, 27=Other vegetables, 28= Other Fruits

5. Institutions in the Village

Sl. No	**particulars**	**As on date** *(1= Yes, 2=No, 3=NA)*	Year in Which Started
1	*2*	3	*4*
1	Primary School available in this village?		
2	Upper primary school available in this village?		
3	High school available in this village?		
4	Sub-centre available in this village?		
5	Primary Health Centre available in this village (PHC)?		
6	Anganwadi centre available in this village?		
7	Commercial/Rural bank available in this village		
8	Primary agricultural credit society available in this village?		
9	Fishermen cooperative society available in this village?		
*1*0	Weavers' cooperative society available in this village?		
12	Milk cooperative society available in this village		
13	Regulated Market available in this village?		
14	Animal shandy is available in this village		
15	Shandy (Santha) is available in the village?		
15	Milk collection Center available in this village		
16	Farmer producer organizations (FPO) available in the village?		
17	Women Self Help Groups available in the village?		
18	Caste Based Organisations		
19	Other Specify,		

6. Land Lease Practices

S. No	Particulars	*Last one year*	
1	*2*	*3*	
1	No. of households cultivating on **leased-in land** in the village?		
2	No. of households **leased-out their land** in the village?		
3	Which lease practice is dominant? (*1=Fixed rent, 2= Share cropping,3=NA)*		
		Per season	***Per year***
5	If fixed rent, average rent **per acre** of irrigated land? Rs		
6	If fixed rent, average rent **per acre** of unirrigated? Rs.		
7	If share cropping, specify the dominant ratio of share cropping: (*1=25:75, 2=33:66, 3=50:50, 4= Any other (specify:_____) 5= NA*		

7. Labour Market Details

Sl.No	Particu	***2021-22** (Rupees per day)*	
1	*2*	*3*	
		Peak	**Lean period**
1	Adult male casual wage rate		
2	Adult female casual wage rate		
3	Child casual wage rate		
4	Contract Piece Work		
5	Contract Wage Work		

8. Input Market

Sl. No	Pa rti		*Rupees*
1	*2*		*3*
1	Avg. hiring charges for a pair of animals (Do not include men	**Kharif season** Rupees per day	
		Rabi season Rupees per day	
		Summer season Rupees per day	
2	Hiring charges for **animal and cart** for transportation	Rupees per day	
3	Hiring charges of tractor per hour for ploughing	Rupees per hour	
4	Hiring charges of harvester	Rupees per hour	
5	Hiring charges of Thresher	Rupees per hour	
6	Any Other Machinery Specify…	Rupees per hour	
7	Any Other Machinery Specify…	Rupees per hour	

9. Credit market *(Rank the Sources from 1 to 11)* on 2021-22

Sl. N	Description of the Sources			
		Annual interest rate	Linkages (*Code*)	Rank
1	2	***3***	***4***	***5***
1	Commercial bank			
2	Co-operative Society /bank			
3	Rural bank			
4	Money lender			
5	Trader			
6	Farmer			
7	SHG			
8	Friends and relatives			
9	Chits			
1	MFIs			
1	Others (specify)			

Note: Put 99 in Rank column if the source is not availed/available in the village

Code: *1= Yes, credit output linkage, 2= Yes, credit labour linkage, 3= Yes, credit output and labour linkage,*

4= Yes, material inputs – output linkage, 5= No linkage

10. History Of Migration:

11.1. Where there Gumpumastri/ Contractors Present in the village? Yes-1, No-2, (……)

11.2. If yes, when did Gumpumastri/ Contractor's system Start Year? ……..

11.3 When was peak of labour migration in the village? (year)……

11.4. During the peak season how many households used to go migrate? ……

11.5 What type of work they used to do as migrant labour? (……...), (….....), (..…..…)

Construction work-1, Clay work-2, Digging trench-3, Loading-unloading work-4, Brick-kiln work-5, Attached labour-6, Security at work site-7, Watchman-8; Poultry worker-9, Auto-driver-10, Shop-keeper-11, Sanitation worker-12, Transportation – 13; Heavy machinery - 14; Others-15 (specify):

11.6. How many households still migrate for work outside? ……..

11.7. How many labour Gumpumastri/ Contractors are still there? …….

11.8. From when the labour Gumpumastri/ Contractors System reduced drastically? (year) ……

11.9. Why labour Gumpumastri/ Contractor's system declined?

1- mechanization displaced manual labour, 2- Availability of work increased in the village, 3- Agriculture work improved, 4- Irrigation facility improved, 5- Others (Specify)..

11. Others

11.1. Number bore wells in the village? 2016-17, …….. 2021-22, ……..

11.2. Depth of ground water in the village? 2016-17, min…… max……., 2021-22, min…… max……..

11.3. Changes observed after lift irrigation in the village?

1.

2.

3.

11.4. When did lift irrigation start in the village? (year)……

11.5. Are canal works completed in the village? Yes- 1, No- 2, ……

11.6. If yes, When the canal work completed? (year) ……

11.7. If no, how lift irrigation water is supplied to the fields? …….

11.8. What are the changes in cropping pattern after the lift irrigation scheme? …….

11. 9. Changes in livestock-based livelihoods? ……..

11.10. Changes in skills of the villagers? ……..

11.11. Changes in caste-based occupations? ……..

11.12. Changes in use of farm mechanization? ……

11. 13. Changes in family institution? …….

11.14. Changes in division of labour between men and women? ……

11.15. Impact on child labour? ……

11.16. Changes in land value in the village per acre?

2016-17 wet ……. Dry **…….** **2021-22 wet ……. Dry …….**

11.17. Any other (Specify) ……

12.Product Market – for District Major Crops

Sl.no	Crop (code-1)	Season (K-1, R-2)	Cost of production all inputs: (Rs)	Average yield Quintals per acre	Price of crop Rs/ per Quintal	Where do you sell the produce (Code-2)
1	2	3	4	5	6	7

Code-1: 01=Paddy, 02=Maize, 03=Groundnut, 04=Cotton, 05=Tomato, 06=Chillies, 07=Black gram, 08=Green gram, 09=Bengal gram, 10=Cashew, 11=Mango, 12=Palm oil, 13=Banana, 14=Citrus; 15=Jowar, 16=Bajra, 17=Ragi, 18=Other cereals,19=Redgram, 20=Other pulses, 21= Sunflower, 22= Coconuts, 23= Sesamum 24= Other oil seeds, 25= Sugarcane, 26= Onion, 27=Other vegetables, 28= Other Fruits.

Code-2:01=Market yard, 2=Private traders with in the village, 3=Private traders outside the village, 4=Contract,5=Factories,7= Co-Operatives, 8=NA, 9=Others Specify.

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