IMPACT OF MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE SCHEME (MGNREGS) ON AGRICULTURAL LABOUR MARKET

By

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THESIS

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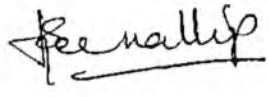
DECLARATION

I hereby declare that this thesis entitled **"Impact of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) on agricultural labour market"** is a bonafide record of research work done by me during the course of research and that it has not been previously formed the basis for the award to me of any degree, diploma, fellowship or other similar title, of any other University or Society.



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Dedicated to

my dear daughters

Jaza and Ridha

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INTRODUCTION

I. INTRODUCTION

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is the largest employment guarantee scheme implemented in India and in the world itself. The scheme was first introduced in 2nd February, 2006 in 200 backward districts of the country, and was extended to all over rural India by 1st April, 2008. The scheme has the distinction of being backed by the National Rural Employment Guarantee Act (NREGA) 2005, which entitles 100 days of wage employment for every rural household who is willing to do unskilled manual works. On 2nd October 2009 the Act was re-christened as MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act). MGNREGS has the distinction of being a demand driven employment guarantee programme, deviating from the previously implemented supply driven employment programmes in the country.

The objective of the scheme is to enhance livelihood security of rural people by providing assured wage employment for a minimum 100 days in a financial year for the household whose adult member is willing to do unskilled manual works. The creation of durable assets from these manual works would help in soil and water conservation and other natural resource conservation. The long term benefits of environmental enhancement would help in increasing agricultural production. This will also create more and more employment opportunities in rural economy, resulting in sustainability and self sufficiency of rural households.

Social security programmes including poverty alleviation programmes and employment generation programmes have gained prime importance among the government schemes since the independence of the country. TRYSEM (Training of Rural Youth for Self Employment, 1979), NREP (National Rural Employment Programme, 1980), RLEGP (Rural Landless Employment Guarantee Programme, 1985), JRY (Jawahar Rozgar Yojana, 1989) and EAS (Employment Assurance Programme, 1993) were a few to cite. But these programmes could achieve only

partial fulfillment of their stated objectives. All of them were supply driven employment programmes. MGNREGS on the contrary is demand driven and has no restriction of budgetary outlay of funds as it is backed by the law for minimum days of wage employment.

MGNREGS is a massive poverty alleviation programme with a total budgetary out lay of ₹ 2,35,600 crore since its introduction in 2005-06. The multiple effects of such a huge scheme may be enormous. The programme could achieve its primary objective of poverty alleviation to a greater extent. Mass employment programmes are found to increase the purchasing power of low income population. As per the Keynesian principle, consumption propensity is higher for low income group, and income re-distribution can pave the path for development of national economy (Dreze and Sen, 1991). Over and above its contribution to enhancing rural income, the multiple environmental services provided by MGNREGS by way of soil and water conservation are substantial. But there are apprehensions of this public works programme turning out as a competitor to agricultural works. The convergence of MGNREGS with agricultural works by taking up of water conservation, soil conservation, land development, drought proofing and flood relief works in public land and individual land to some extent would prove beneficial to agricultural sector also.

As per the guidelines of the scheme, 60 per cent of total expenditure should be used for wage purpose and remaining 40 per cent can be used for purchase of materials. Participation of weaker and marginalized strata of the society is ensured by stipulating one third women beneficiaries and prioritizing SC/ST and Backward classes under the scheme. Minimum wage under the scheme should not be less than statutory minimum wage for agricultural works prevailing in the respective states. There should be same wage rate for men and women, ensuring gender equality. The Act makes provision for basic facilities like drinking water, shade, first aid box and crèche at the worksite. *Panchayati Raj* institutions have a principle role in planning

and implementation. The employment should be provided with in fifteen days of demand, otherwise unemployment allowance should be paid by the state government. The entire cost of wages of unskilled manual workers and 75 per cent of the cost of material, skilled and semi-skilled workers is funded by the Central government. The remaining (25%) material cost, skilled and semi skilled worker wages is paid by the state government. During the year 2011-12, 216.34 crores of work days was generated throught out the Country, supporting 504 crore households with an expenditure of ₹ 38034.70 crores. Among the beneficiaries 48 per cent was women and 40 per cent was from weaker section including SC, ST and OBC classes.

Though Kerala is one among the states in India, with highest rate of unemployment with high proportion of educated unemployed, the scope of the scheme is limited in the state (Vijayanand and Jithendran, 2008). The 'Kudumbasree' (the women's neighborhood groupsin Kerala) is entrusted with the responsibility of organizing public works under MGNREGS. In order to evade corruption, a conscious decision has been made in the state to restrict 100 per cent of fund use towards payment of wages. Present wage rate under the scheme in Kerala is ₹180/- (2013-14). Kerala also has the distinction of having the highest rate of women participation (93%) during 2011-12 and 2012-13. Even though public land is limited in Kerala, works supporting ecological restoration on the basis of water shed development plans have been undertaken in a large scale.

Swaminathan (2009) has called NREGA as the world's largest ecological security programme. He suggested raising the self esteem of the participants of the scheme by recognizing with 'Environment Savior Award' for being part of the eco-restoration programme. He also opined that absence of effective guidance and support from agricultural universities and other institutes was a major weakness of the scheme. Being a multifaceted and large scale programme, inherent defects in its implementation and impact could be expected. Reports of delayed payment of wages, low quality of assets created and involvement of corruption and malpractices have

been reported from various states of the country. But from the perspective of agriculture, shortage of labour for agricultural activities, reduction in the quality of labour output and increase in wage rate, leading to increased cost of cultivation are some of the apprehensions. These problems may have adverse effects on agricultural production, productivity and profitability.

Rationale of the study

Being a massive rural development programme implemented by the Government of India, it is essential to look at the effectiveness of the scheme in achievement of its short term and long term objective. As per the scheme, provision of employment is a short term objective. Sustainable rural development by tackling the root causes of poverty viz., natural calamities like draught and flood and deterioration of soil and water resources are the long term objective of the scheme. Long term planning is highly essential for achieving these objectives. Durable asset creation and assurance of food security will pave the path for sustainable rural development. Though there have been a few studies on MGNREGS such as its implementation process, its impact on different dimensions of livelihood enhancement, environment services, migration and women empowerment, its enormous impact on agriculture especially on agricultural labour market has not been assessed. The study was undertaken to assess supply side effects of the scheme on agricultural labour, wages and farm income, so that suggestions for better management of labour could be better utilized for labour in agricultural sector.

Specific objectives of the study

1. To study the supply side effects of MGNREGS on agricultural labour, wages and farm income
2. To provide suggestions for improving labour management in MGNREGS for better utilization in agricultural sector.

Limitation of the study

Due to the limitation of the time and other resources, the present investigation has been restricted to Palakkad district of Kerala with limited samplesize. Hence, the findings have to be viewed in the specific context of the conditions prevailing in the study area and cannot be generalized for wider geographical area. However, careful and rigorous procedures have been adopted in carrying out the research as objectively as possible. In spite of the individual bias made by the respondent farmers in eliciting the necessary information, it is believed that the findings and conclusions drawn in the present study could form the basis for future research study.

Organization of the study

The thesis is presented in five chapters. The first chapter is 'introduction' in which the importance of the study, objectives, scope and limitations of the study are dealt. The second chapter is 'review of literature' which deals with the concepts and related findings of the study. The third chapter is 'methodology' which encompasses the details on selection of the study area, sampling, data collection procedure, empirical measures used, statistical tools used etc. In the fourth chapter the results in relation to objectives with interpretation of the findings and discussion are presented. The fifth chapter summarizes the study highlighting the salient findings.

REVIEW OF LITERATURE

II. REVIEW OF LITERATURE

Review of past research helps in identifying the conceptual and methodological issues relevant to any study. This would enable the researcher to collect information and subject them to sound reasoning and meaningful interpretation. Brief review of the earlier research works and published reports related to the current study is presented in this chapter. To complement the objectives of the study, the reviews are classified into the following subheadings,

1. Socio-Economic Impact of Employment Guarantee Schemes
2. Impact of Employment Guarantee Scheme on Labour Market
3. Constraints in Implementation of Employment Guarantee Scheme

2.1. SOCIO-ECONOMIC IMPACT OF EMPLOYMENT GUARANTEE SCHEMES

Reddy (1990) studied the impact of TRYSEM programme in Kurnool samiti of Andhra Pradesh and reported that the TRYSEM programme became a source of additional nonfarm employment and it could generate additional income for the beneficiaries in the study area.

The impact of MGNREGS on household income in Andhra Pradesh was studied by Reddy *et al.* (2010) and recorded that the proportion of NREGS income has increased from 9.6 per cent in 2008-09 to 47.5 per cent in 2009-10.

Subbarao (1997) in his discussion paper submitted for world bank organized by ASSA (Allied Social Science Association) annual meeting has reported that net income gain from Jawahar Rozgar Yojana (JRY) and Maharashtra Employment Guarantee Scheme (MEGS) works were high as a percentage of gross income earned.

An impact and implication analysis of MGNREGS on labour supply and income generation in central dry zone of Karnataka made by Harish *et al.*, (2011) reported that there is 9.04 per cent increase in the income of beneficiaries after implementation of MGNREGS in Chikmanglur District of Karnataka. The study also reported 16 per cent increase in savings and 3.11 per cent increase in expenditure among the beneficiaries. This study also analysed the effect of factors like age, family size, gender, education, land holding size etc. on number of days of employment under MGNREGS and reported that age and family size have no significant influence where as the other factors viz. gender ,education and size of land holding has significant negative influence on number of labour days employed.

Agricultural wages contributed to the major source of income of the MGNREGS beneficiaries in Andhra Pradesh. Additional income derived (12-18%) from NREGS wages was utilized mainly for ensuring food security of beneficiary households followed by education and health care of dependents (Kareemulla *et al.*, 2010).

Babu (2010) reported that 42 per cent beneficiaries in Palakkad district got 50-75 days of additional employment on account of MGNREGS. The additional income derived from the scheme was seen steadily increasing over the years leading to two fold increase in the average income of the household (₹. 2995/- in 2006-07 to ₹. 8789/- in 2008-09).

Prabhu (2011) studied the performance effectiveness of MGNREGP in Palakkad district of Kerala and observed that MGNREGP is a demand based employment scheme. An increasing trend in demand for getting employment under the scheme over the years from 2006-07 to 2009-10 was reported. This study also inferred that there was an increasing trend in days of employment provided over the years indicating lack of employment opportunity in other sectors like agriculture.

Jonna (2012) studied the achievement of livelihood enhancement through MGNREGS in Andhra Pradesh and reported that the mean annual income of beneficiaries at constant price has been increased by 6.67 per cent after the implementation of the scheme.

Migration during distress seasons was one among the major concerns in drought prone areas of the country local employment opportunities under MGNREGS has drastically brought down the level of migration among the beneficiaries ranging from 55 per cent to 13 per cent in Anantpur district of Andhra Pradesh, 30 per cent to 12 per cent in Bellary district of Karnataka and 47 per cent to 15 per cent in Udaipur district of Rajasthan (Kareemulla *et al.*, 2010).

Jacob (2008) studied the impact of MGNREGA on rural-urban migration in Villupuram district of Tamil Nadu. After the implementation of the scheme, the income of a worker had increased from ₹9000 to ₹12000-13000 per year. The income of the families became more predictable and stable compared to their irregular and low level income previously, which had compelled them to migrate to find work to buy in food and to borrow money from the contractors. Implementation of MGNREGA has guaranteed regular inflows of income as long as the families were ready to work as unskilled labour jobs for 100 days in a year.

Kumar and Prasanna (2008) in their study on the role of MGNREGA in providing additional employment for tribes and in curtailing migration in Muli village of Bastar district observed that before implementation of MGNREGA a farmer had produced 1.5 quintals of yield with an income of ₹1200. After MGNREGA, through land development and irrigation, the yield had increased to seven quintals and they earned additional income of ₹5600. Apart from this, beneficiaries worked for 44 days under MGNREGA and had earned an income of ₹2860 at the rate of ₹65 per day. Thus, MGNREGA had led to an increase of annual income to the tune of ₹7260, which was used for meeting the expenses for education and health care of family members.

Reddy *et al.* (2010) studied the impact of MGNREGS on migration in Rajasthan, Andhra Pradesh and Bihar and reported that provision of steady and regular stream of employment at assured minimum wages in the village itself had decreased labour migration in Rajasthan and Andhra Pradesh. Labour migration has remained at the same level in Bihar where demand for job migration for longer duration was not influenced by the scheme.

Devi *et al.* (2011) conducted an economic analysis of MGNREGS in Tamil Nadu and reported that migration of people from rural to urban areas was reduced after the implementation of the scheme. Small and marginal farmers found to rely on the scheme to supplement their income during off-seasons. The study also reported a positive relation between education level and MGNREGS participation among beneficiaries with the elasticity of 0.70.

Ahuja *et al.* (2011) studied the impact of MGNREGS on rural employment and migration in Haryana and concluded that farmers having large size of land holdings and more number of livestock were not actively participating in the scheme. Thus the scheme could not check migration in agriculturally developed areas. Farmers who have small land holdings and live stock were more inclined to MGNREGS and their participation was also found to be more.

A study conducted by Khera and Nayak (2009) in six North Indian states including Bihar, Madhya Pradesh, Rajasthan , Jharkhand, Chhattisgarh and Uttar Pradesh inferred that only 30 percent of women beneficiaries were earning cash income during three months before their enrollment in MGNREGS. The study pointed to the factors like low wage rate, social restriction from wage works and women's role as care takers of children, sick and elderly as the reason for low level of women participation in wage employment.

Tata Institute of Social Sciences (TISS, 2011) has conducted an evaluation of MGNREGS in four districts of Kerala and stated that the implementation of the

programme had a positive impact on the empowerment of women by accomplishing benefits such as additional income, individual bank account for wage payment, increased presence of women in public work execution and supervision and involvement in collective work. Kerala is one of the states where women participation is more under the scheme (90.39%).

Thadathil and Mohandas (2012) analyzed the impact of MGNREGS on labour supply to agricultural sector in Wayanad district of Kerala and had mentioned high level female participation (95%) paving the way for empowerment of rural women. Male labourers prefer casual labour works fetching higher wages compared to MGNREGS.

Majority of the projects completed under the scheme in Andhra Pradesh during 2006-2009, included water conservation (56%), land development (29%), irrigation facilities (4%) and renovation of water bodies (3%). These works were helpful for enhancing natural resource management (Kareemulla *et al.*, 2009).

The environmental services activities under MGNREGS increased water availability for irrigation, increased soil fertility, and reduced vulnerability of ecosystem and agriculture to climate change in Chitradurga district, Karnataka (Tiwari *et al.*, 2011).

2.2. IMPACT OF EMPLOYMENT GUARANTEE SCHEMES ON LABOUR MARKET

Labour is one of the prime factors for production in all sectors of the economy. Land and capital are considered as passive factors of production where as labour is considered as active factor of production. Labour efficiency is a complex affair not easy to measure and compare especially in agriculture with different conditions of soil, climate, animal power, implements and the direction and incentives to work. Paddy is considered as a labour intensive crop. Being a seasonal crop with peak and slack seasons of labour utilization, there is disguised

unemployment and migration during slack seasons. High level of literacy and unionization have elevated the social status of farm labourers in Kerala and farmers do not have a say on the labourers employed by them (Shanthy, 2009).

Rice farming is highly labour intensive and the average labour use was estimated at 61.86 mandays/ha for autumn, 67.67 mandays/ha for winter and 73.09 mandays/ha for summer seasons. Thus paddy farming alone could create 203.63 mandays of employment per hectare per year in Kerala (Devi, 2011).

Introduction of MGNREGS has artificially enhanced the demand for unskilled labourers keeping the supply same as before, leading to labour shortage in agriculture (Sontaki and Ahire, 2011). Farmers with large land holdings who had been depending on agricultural labourers for cultivation activities were affected with labour shortage. The increased cost of labour was not affordable for farmers in a situation where price of farm products have not increased accordingly. Labour shortage as a result of MGNREGS has been reported in tea estates of North east states like Tripura and in paddy fields of Tamil Nadu and Kerala. Ubiquitous labourers from Bihar and U.P. were reported opting for NREGS works in home villages leading to their unavailability to work in the paddy fields of Punjab and Haryana.

Prabhakar et al. (2011) have noted that the proportion of agricultural workers to the total workers has been declining over the years since 2001, while the corresponding ratio in the secondary and tertiary sectors is on the rise. The possible impacts of labour shortage in agriculture sector were reduced production and productivity, less intensification of agriculture and shifting to less labour intensive crops. The probability of retaining paddy in Cuddalore district of Tamil Nadu was 37 per cent where as the probability of retaining cashew and coconut were 75 per cent and 67 per cent respectively. The transition trend of shifting from labour intensive paddy and sugarcane to tree crops like cashew and coconut was observed. The study revealed yield reduction in almost all the crops in labour scarcity affected farms, more in cotton (14.5 %) and paddy (11.8%).

Devi *et al.* (2011) calculated the elasticity of labour supply in Tamil Nadu with respect to wage rate and found that it was more than one in the case of MGNREGS beneficiaries and non-beneficiaries indicating wage rate as a significant determinant in labour supply.

Harish *et al.* (2011) reported that there was 30 per cent labour scarcity for agricultural operations like weeding and sowing and 57 per cent absolute labour scarcity due to MGNREGS. Labourers preferred MGNREGS to agricultural operations because of low wages, in Chikmanglur district of Karnataka.

Maheshwari and Gangwar (2011) studied the impact of MGNREGS on availability of agricultural labourers among dairy farmers in Tanjur district of Tamil Nadu and inferred that availability of employment vide MGNREGS has checked migration among villagers to cities and industrial townships which has led to availability of labourers for agricultural works. The study reported that 74 per cent of adult members holding job cards were landless dairy farmer respondents in Tanjur district of Tamil Nadu. The farmers having large land holdings and herd size have not taken job cards and they had to delay paddy planting due to acute shortage of farm labourers.

Thadathil and Mohandas (2012) reported that MGNREGS had a major impact on agricultural wages in Wayanad district during its introduction in 2006. The agricultural wage rate was ₹100 per day for male worker and ₹70 per day for female workers. Because of high wage rate of the Scheme (₹125/- per day) there was a massive flow of agricultural labourers towards MGNREGS. Later on when the market wage rate was increased, men population shifted back to the agricultural sector. Now the wage rate under MGNREGS act as the standard minimum wage rate and it is responsible for wage hike in agricultural labour market.

Sharma *et al.* (2011) studied the impact of MGNREGS in Rubber Block Plantation Scheme (RBS) in Tripura and reported that there was a widening

difference between wages under RPS and MGNREGS since the introduction of the scheme. The difference was maximum (52.29%) during 2007. This has resulted in decreased availability of family labour (from 25 per cent excess labour availability during pre-NREGS to 9.78 per cent deficit during post-NREGS) in RBS.

Channaveer *et al.* (2011) was studied the difference in farm input use pattern between MGNREGS partially and fully implemented villages in Gulberga District of Karnataka and inferred that human labour use for weeding in red gram was decreased in fully implemented village owing to high cost of labour induced by the NREGS wage. Chemical weedicide application was the alternative adopted by the farmers in MGNREGA fully implemented village.

2.3. CONSTRAINTS IN IMPLEMENTATION OF EMPLOYMENT GUARANTEE SCHEMES

The stated objective of MGNREGS is enhancement of livelihood security of rural poor by creating durable assets in the rural areas emphasizing on development of natural resources available in situ. This will form a foundation for rural transformation with sustainable development of the area by undertaking works like water and soil coil conservation, drought and flood proofing, land development and minor irrigation. But the quality works under the scheme are uniformly poor all over the country (Ambasta *et al., 2008).*

While analyzing the implementation of the scheme in three grama panchayaths of Kasargod district of Kerala, Nair *et al.* (2009) reported that though there was a restriction of maximum of 10 per cent of total allocation towards rural connectivity it was given prime importance (100 out of 623 projects) during 2006-2008 in Madikkai grama panchayath.

TISS (2011) has estimated that works under the heads of flood control (31.62%) and land development (23.77%) accounted for the major share in Kerala. Renovation of traditional water bodies (14.78%); micro irrigation (9.11%) and water,

conservation and water harvesting (9.56%) were also done under the scheme in the state. The study has mentioned the phenomenon of focusing on a similar type of activities like pond de-silting in Palakkad district and digging of wells and basins of areca nut and coconut in Kasargod district. Lack of planning for undertaking wider projects was noted in these cases.

Jha and Gaiha (2012) made an analysis based on the secondary data available in the MGNREGS website and concluded that the performance of the Scheme was deteriorating over the years. For the country as a whole the average person days of employment fell from 46.83 in 2009-10 to 32 in 2011-12. Over the years 2006-07 to 2011-12 only 42.83 per cent of the planned works had been completed across the country spending around 79.75 per cent of total fund allocated for the scheme.

Mahato (2009) studied the performance appraisal of MGNREGA in Midnapur District of West Bengal and revealed that there was lack of planning at the Panchayath level. The *panchayath pradhans* do not have the expertise to identify works, prioritize them and submits the projects on time. They don't have logistical support and guidance from the administration. He also reveals that West Bengal performance under the MGNREGA was far below the national average.

Dhawan (2009) expressed that current design of MGNREG has left out some needy women out of its preview. The provision of 100 days of labour per household made single women and widowed women who were living with their relatives out of the purview of the eligible group. Incidentally in as many as 10 states including Uttar Pradesh, Bihar, West Bengal and Jammu and Kashmir, women beneficiaries worked for less than 30 per cent of the mandated 100 day scheme, much below the national average of 40.60 per cent working days for women. Jammu and Kashmir was in the bottom with women working for barley 4.5 per cent of working days in the reporting period.

Pattanaik (2009) has analysed the utility and efficiency issues of implementation of MGNREGA in Hosiapur district of Punjab. In the study area only 5.56 per cent of the household had received 100 days of employment. Paucity of funds, inability to identify the works and lack of awareness among the panchayats were the main responsible factors reported for the lapse.

Singh and Modi (2010) studied the effectiveness and ownership of assets created under the Scheme in Rajasthan and found that a large number of MGNREGS assets were rendered in effective due to insufficient technical input in design and site selection. Inadequate staff for supervision of works was mentioned as the major reason for poor quality and ineffectiveness in creation of assets.

In a field study undertaken in 2009-10 in Jharkand it was found that 50 per cent of the projects were incomplete. Most of them were started during 2006-07 and 2007-08. Apart from not serving the purpose they envisaged, they cause serious concern of siltation of loose soil into other water bodies (MORD, 2012a).

Delay in payments, irregular flow of funds, defects in carrying out of Schedule of Rates (SoRs), lack of technical support to communities for planning and execution of works, poor planning and execution of works, poor maintenance of public assets by the community and errors in MIS reporting are some of the constraints in implementation of the scheme (MORD, 2012a).

Jonna (2012) reported that institutional factors like identification of beneficiaries, issue of job cards and identification of works were perceived among the implementing officials as the important factors influencing the efficiency of the programme during the planning stage.

Review of the literatures on the implementation and impact of MGNREGS revealed that there were inadequacies, low quality of works and draw backs in its implementation and labour shortage and wage hike in agriculture in various states of the country. The implementation and impact of the scheme in socio-economic

perspective in the study area has been reviewed. However a systematic study on the impact of the scheme considering the specific cropping pattern of the region, women participation in the scheme and agriculture and low market wages for women in agricultural sector was not seen attempted.

RESEARCH METHODOLOGY

III. METHODOLOGY

This chapter deals with the characteristics of the area selected for the study, methods adopted in the selection of the samples, nature and sources of data and various statistical tools and techniques employed in analyzing the data. The methodology is presented under the following headings:

3.1 Description of the study area

3.2 Sampling procedure

3.3 Nature and source of data

3.4 Definition of terms and concepts

3.5 Analytical tools employed

3.1 Description of the study area

3.1.1 Palakkad district

Palakkad district of Kerala is selected for studying the impact of MGNREGS on agricultural labour market. This is one among the districts of the country where the Scheme has been introduced in the first phase, in February, 2006 itself.

Palakkad is known as the 'Rice Bowl of Kerala' which contributes to a major share of paddy production of the state. In the year 2011-12, the district produced 2.24 lakh tonnes of paddy from 83998 hectares accounting for 39.44 per cent of the state's total paddy production of 5.69 lakh tonnes (GOK, 2013a).

The total geographical area of the district is 4475 sq kms, representing 11.53 per cent of the state's total geographic area. The district is located in the northern latitude between 10^0 46' and 10^0 59' and in the eastern longitude 76^0 28' and 76^0 39'. The district is divided into two Revenue Divisions of Ottappalam and Palakkad. There are five taluks viz. Alathur, Chittur, Palakkad, Ottappalam and

Mannarkkad. The district has 13 block panchayats and 91 grama panchayats. Malappuram, Thrissur and Coimbatore district of Tamil Nadu are the neighboring districts of Palakkad.

The district is blessed with the river Bharathapuzha (*Nila*) and its tributaries flowing westward to the Arabian Sea. The rivers Bhavani and Siruvani are the two tributaries of the river Cauvery flowing eastward through the district. The district has some important irrigation projects and dams at Malampuzha, Walayar, Mangalam, Gayatri, Chittur, Pothundy and Kanhirapuzha. In addition to these there are so many minor irrigation schemes, lift irrigation projects, wells and ponds in the district. Total irrigated area in the district was 89635 hectares during 2009-10 (GOK, 2013b).

3.1.1.1 Geographical features

Guarded with the mountainous Western Ghats all around, the district opens up at Palakkad Gap, the connecting corridor between Kerala and Tamil Nadu. The important peaks are Anginda peak, Karimala peak and Nellikotta peak. Based on the physical features, the district is divided into two regions viz. mid land and high land. The mid land region occupies valleys and plains, leading up to the high land, which consists of high mountain peaks, long spurs, extensive ravines and dense forests.

3.1.1.2 Climate and soil

There are two types of climatic regions in the district. Palakkad and Chittur areas of the district show a comparatively dry climate similar to that of Tamil Nadu. Rest of the district including Ottappalam, Alathur and Mannarkkad taluks experience a humid climate with very hot seasons extending from March to June, similar to that of the other districts of Kerala.

Average rain fall of the district is 1831.3 mm per annum. About 75 per cent of the annual rain is received during the southwest monsoon period. During the period of December to May, practically no rain is received. The temperature of the district ranges from 20^0 C to 45^0 C.

There are three types of soil seen in the district viz., laterite soil, virgin forest soil and black soil. Laterite soil is seen in Ottappalam, Alathur, Chittur and Palakkad taluks. Virgin forest soil is seen in Mannarkkad taluk and black soil is seen in Chittur and Attappady areas.

3.1.1.3 Land utilization pattern

Out of the total geographical area of 4.47 lakh hectares, nearly 44 per cent is under cultivation spread over 1.98 lakh hectares. Area sown more than once is 23.30 per cent. The district occupies second largest area under social forestry (378 ha) in Kerala. The land utilization pattern of Palakkad district is given in Table 3.1.

Table 3.1. Land utilization pattern of Palakkad district 2011-12

(Area in hectares)

Sl. No.	Item	Area (ha)
1	Total geographic area	447584 (100)
2	Forest	136257 (30.44)
3	Land put to non-agricultural use	43383 (9.69)
4	Barren and uncultivable land	2458 (0.05)
5	Land under miscellaneous tree crops	790 (0.17)
6	Cultivable land	22861 (5.11)
7	Fallow other than current fallow	14452 (4.78)
8	Current fallow	13940 (3.11)
9	Still water	15022 (3.36)
10	Social forestry	378 (0.08)
11	Net area sown	198043 (44.25)
12	Area sown more than once	104305
13	Total cropped area	302348 (67.55)

(Figures in parentheses shows percentages to total geographical area)

(Source: GOK, 2013a).

Fig. 1. Map of Kerala showing Palakkad district

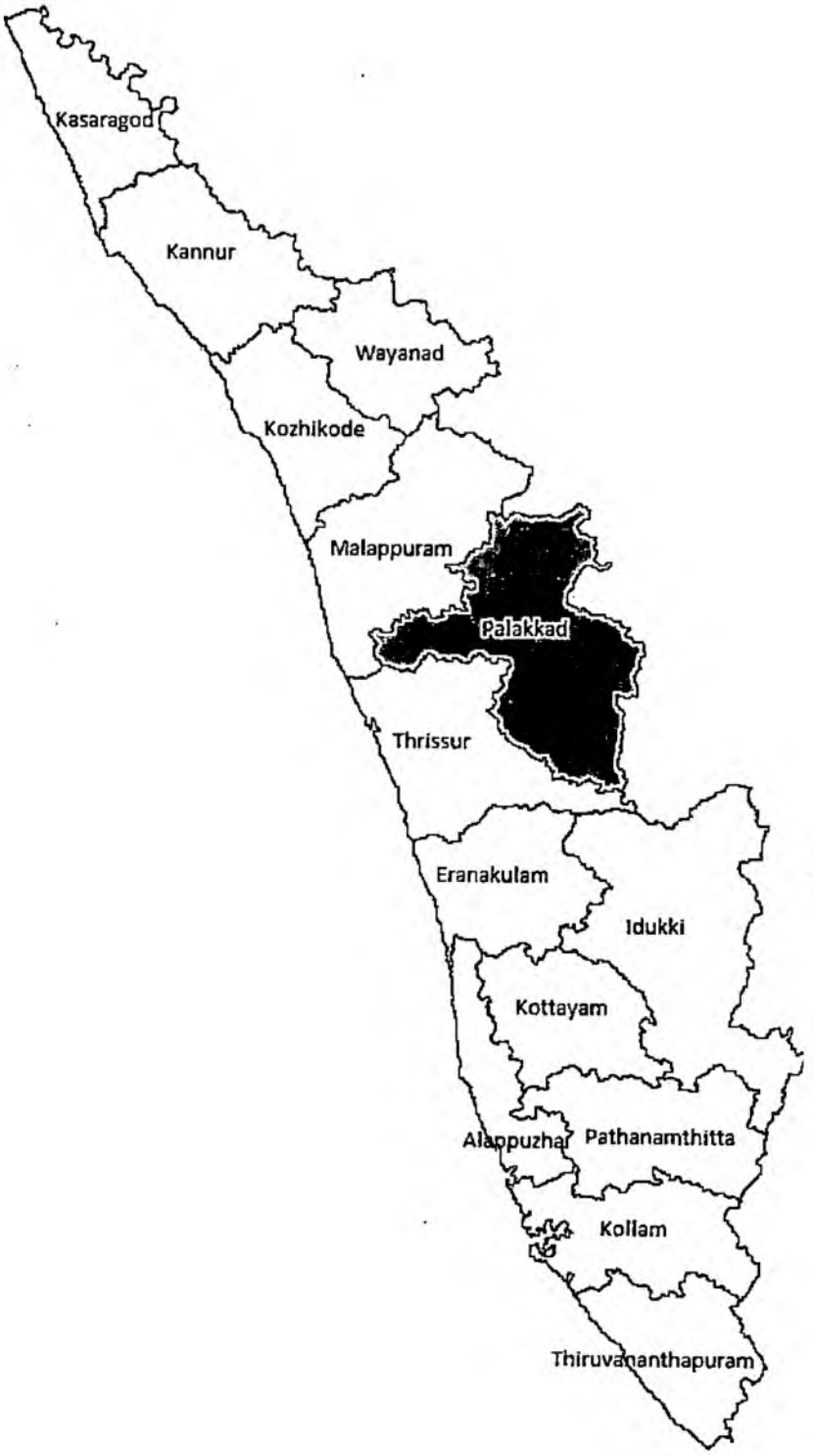
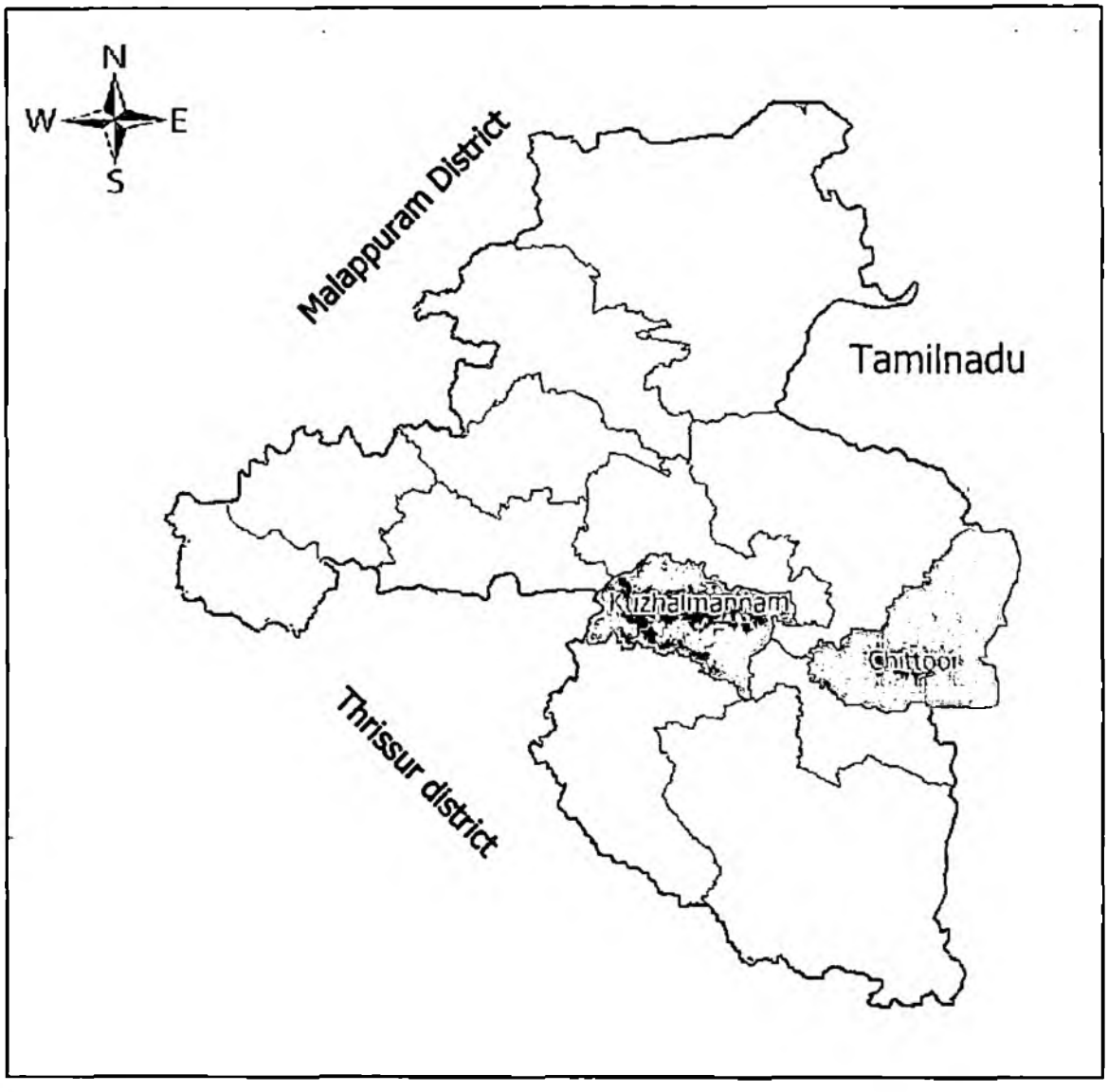


Fig.2. Map of Palakkad showing the study areas



3.1.1.4 Cropping Pattern

The cropping pattern of the district is shown in Table 3.2. Area under paddy accounts to 83998 hectares which is nearly 40 per cent of the total area under paddy cultivation in the state. Apart from paddy the other major crops of the district are coconut, fruits, rubber and spices and condiments. Banana (16458 ha) contributes to major share of fruit crops.

Table 3.2. Cropping pattern of Palakkad district 2011-12 (Area in hectares)

Crop	Area (ha)
Paddy	83998 (27.78)
Coconut	60529 (20.02)
Fruits	46515 (15.38)
Rubber	37010 (12.24)
Spices and condiments	23047 (7.62)
Areca nut	9589 (3.17)
Vegetables	7408 (2.45)
Others	34252 (11.34)
Total	302348 (100)

(Figures in parentheses shows percentages to total)

(Source: GOK, 2013a)

3.1.1.5 Demographic features

The district is sixth largest populated in Kerala, with total population of 28,10,892 which is 8.42 per cent of the state's total population (GOI, 2011). Scheduled caste and scheduled tribe communities contribute 14.37 per cent and 1.74 per cent of total population respectively. Rural population comprises nearly 75.91 per cent of the total population. Population density of the district is 627 per sq km, much less than the state average of 859 per sq km. Sex ratio of the district is 1067 females for 1000 males. This is in consonance with the unique pattern of the state, which is contrary to the all India figure of 933 females for 1000 males. Average literacy rate of

the district in 2011 was 88.49 per cent with female literacy rate of 84.99 per cent and male literacy rate of 92.27 per cent (GOI, 2011). The district has a total work force of 10,42,340 persons accounting approximately 37.09 per cent of total population. Rural work force accounts for 77.41 per cent of total working people. The work force is dominated by male population (71.58 per cent). Cultivators are only 6.5 per cent of the total population where as agricultural labourers constitute 23.98 per cent of total work force. As per the Census-2011, marginal workers and other workers constitute majority of the work force population (73.66 per cent).

3.1.2 Chittur Block Panchayat

This block panchayat stood first in providing maximum number of labour days under MGNREGS in Palakkad district during 2010-11, providing 613689 of wage labour (MORD, 2013).

Extending to a geographical area of 261.24 sq kms, this block panchayat is surrounded by Coimbatore district of Tamil Nadu in the east, Kollengode in the south, Malampuzha block in the north and west. The block has a population of 181549 and it shows climate and culture similar to Tamil Nadu. Paddy is the main crop of this block followed by coconut, banana, sugar cane, ground nut, cotton and tapioca. Pattanchery grama panchayat was under the administration of this block panchayat until the panchayat reconstitution in the year 2011. As a consequence of this re-distribution the study area, Pattanchery grama panchayat came under Kollengode block panchayat. This panchayat has a total geographic area of 1366 hectares and paddy is the major crop cultivated covering an area of 1366 hectares. The grama panchayat has 24 *Pada Sekhara Samities* and 2700 farmers.

3.1.3 Kuzhalmannam Block Panchayat

The block panchayat carries the distinction of having maximum area under paddy cultivation during 2010-11 with 16544.95 hectares of gross cropped area under paddy. Total geographic area of the block is 192.12 sq kms. The block has a

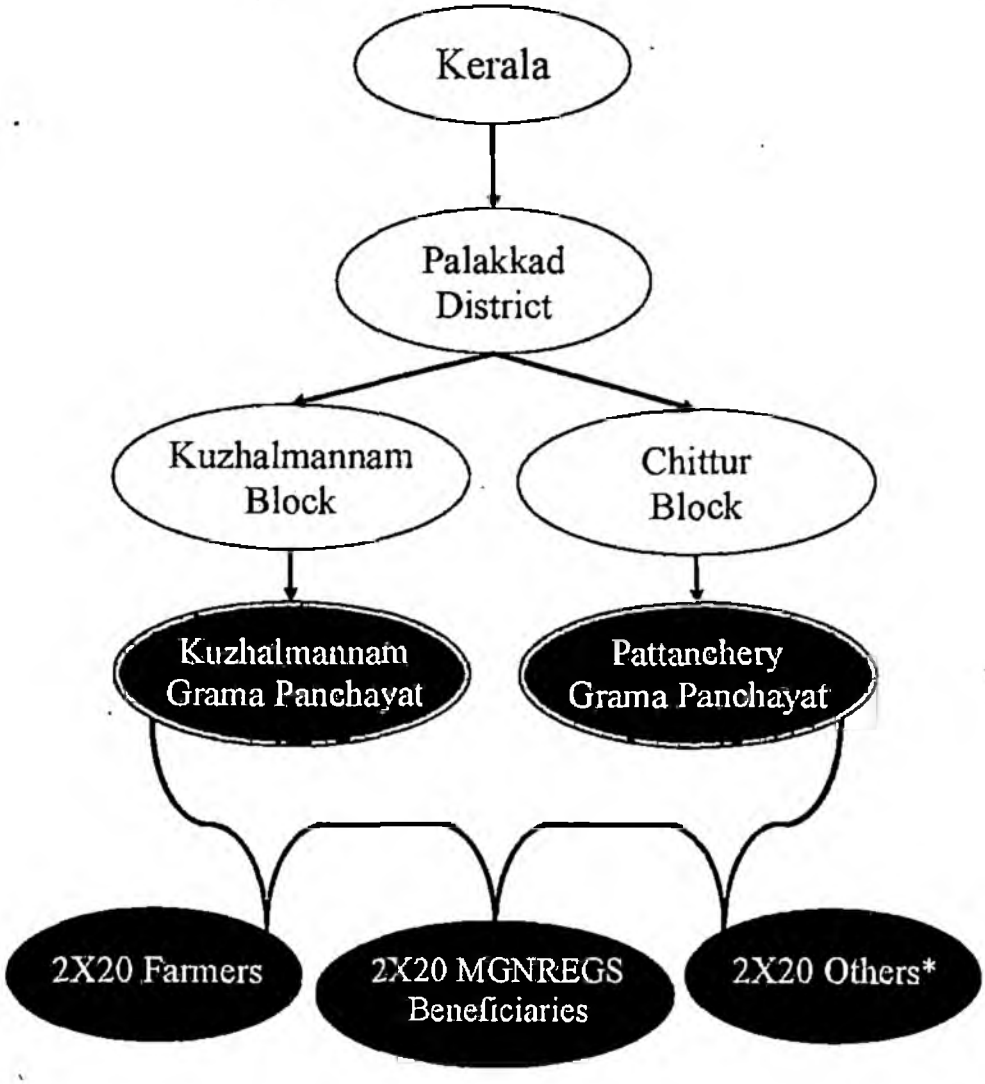
population of 156657 (GOI, 2001). Yakkara River flows through the northern border of the block, Tarur and Thiruvilluamala panchayats are in the western side, Erimayur panchayat in the southern and Kodumbu and Koduvayur panchayats in the eastern side. Apart from paddy the block accounts for the cultivation of coconut, banana, tapioca, sweet potato and vegetables, as major crops.

Kuzhalmannam grama panchayat has a total geographic area of 3062 hectares and the net area under paddy cultivation is 1338.73 hectares. The grama panchayat has 46 Pada Sekhara Samities and 3000 farmers. 61.25 per cent of total geographical area of the panchayat is under non-farm use. Other crops cultivated are coconut, banana, ginger, turmeric and vegetables.

3.2 Sampling procedure

A multistage sampling procedure was adopted for the selection of sample respondents. In the first stage Palakkad district was selected. The district has the highest area under paddy cultivation (87511 ha) in Kerala during 2010-11 (GOK, 2012). The district has utilized ₹7309.16 lakh under MGNREGS during 2010-11 providing 45.93 lakh labour days. In the second stage, two block panchayats were identified, one which has created maximum labour days under the Scheme and the second block as the one which has the maximum area under paddy cultivation during 2010-11. Chittur block panchayat was selected as per the first criterion and Kuzhalmannam block panchayat was selected as per the second criterion. In the third stage, one grama panchayat each was finalized based on the same criteria. Pattanchery and Kuzhalmannam were the two grama panchayats thus identified in the third stage. Random sample of 20 MGNREGS beneficiaries and 20 paddy farmers each were selected from these two grama panchayats constituting a total sample of 40. MGNREGS beneficiaries and 40 farmers. The list of farmers collected from the krishi bhavan were served as the population for random selection of sample farmers. Though the farmers were selected randomly, those farmers who were not able to

Fig. 3.3. Sampling frame for conducting interview



*Others: MGNREGS implementing officials, Work Supervisors and people's representatives

provide data were eliminated at the final stage. MGNREGS beneficiary respondents were randomly selected from the list of beneficiaries available in the grama panchayats. Apart from this, MGNRGS implementing officials, work supervisors and elected representatives (20 each from the two panchayats) were also identified for conducting interview and group discussion. Thus making the total sample size of 120 respondents.

3.3 Nature and source of data

For evaluating the specific objectives designed for the study, required primary data were collected from the sample farmers and MGNREGS beneficiaries. The data for the years 2005-06, being the previous year of implementation of the Scheme and the year 2011-12 as current year of implementation were collected. The data pertaining to socio-economic features of the MGNREGS beneficiaries and farmers, cropping pattern, change in area under cultivation, level of inputs used, cost of cultivation, yield and returns obtained in the farms were collected by personal interview method with the help of pre-tested interview schedule. The data pertaining to labour availability; wage rate and labour use pattern were also collected from farmers. Data related to various schemes implemented under MGNREGS, year wise and scheme wise budget allocation under MGNREGS and management aspects of labour in MGNREGS were collected from official records and personal interviews. Separate interview schedules were used for farmers, MGNREGS beneficiaries and implementing officials and work supervisors. Focussed group discussions including various stake holders like farmers, beneficiaries, implementing officials, work supervisors and people's representatives were conducted for ascertaining the constraints and for deriving the suggestions for improvement of the Scheme.

Secondary data required for the study were collected from the respective official records, published and unpublished documents and records of government agencies, implementing agencies and other sources.

3.4 Definitions of terms and concepts

3.4.1 General terms and concepts

Agricultural labourer

Agricultural labourer is defined as any person who worked on another person's land only as labourer, without exercising any supervision in cultivation, for wage in cash or share such as share of produce (GoI, 2001). Such persons have no risk in cultivation but merely worked in another person's land for wages.

Farm labour

It is classified into unpaid labour and paid labour. Unpaid labour consist farmer's own labour and family labour. There are two types of paid farm labour, permanent hired labour or attached labour and casual hired labour.

For calculation purpose different types of workers are equalized with a conversion method of 2 men = 3 women = 4 children (Raju and Rao, 1990).

Casual labour

It is hired from time-to-time according to its demand. There is always a gap between supply and demand for agricultural labour because of the seasonality of farm operations. Peak work load period cannot meet the demand where as slack seasons show deficit of employment.

Unskilled labour

It is the ordinary labour employed for manual work, which does not need any training of specialized nature.

Wages

Wages are the reward paid to labourers for sparing their productive services. Wage may be defined as a sum of money paid under contract by an employer to a worker for services rendered.

Cost of labour

The cost of hired labour is the wages paid by the sample farmers per day for male and female labourers and the rates per hour for machine labour in the study area during the study period. The same wage rates were imputed for family labour.

Labour efficiency

In the present study labour efficiency is measured by marginal productivity analysis. It is the output produced by an additional unit of labour input.

Marginal farmer - is a farmer owning less than 2.5 acres of dry land or 1.25 acres of wet land (Reddy *et al.*, 2004).

Small farmer - is a farmer owning land holding ranging from 2.5 acres to 5.00 acres of dry land or 1.25 acres to 2.5 acres of wet land.

Large farmer - is a farmer owning a land area of more than 5.00 acres of dry land or 2.5 acres of wet land.

Cost concepts

The cost concepts given by Govt. of Kerala, 2013 are used in this study. They are as follows (GOK, 2013a):

1. Cost A_1 include all actual expenses in cash and kind incurred in production by the owner operator. The following are considered while calculating cost A_1

    a) Value of hired human labour and machine labour
    b) Value of material inputs
    c) Interest on working capital
    d) Land Cess
    e) Depreciation on farm implements/machinery.
2. Cost A_2 is equal to Cost A_1 plus rent paid for leased in land
3. Cost B_1 equals cost A_1 plus interest on own fixed capital.

4. Cost B_2 is sum of cost B_1 and rental value of own land plus rent paid for leased in land.

5. Cost C_1 is Cost B_1 plus imputed value of family labour.

6. Cost C_2 equals Cost B_2 plus imputed value of family labour

7. Cost C_3 is equal to Cost C2 plus 10 per cent of Cost C2 to account for the value of management input of the farmer

Variable costs

The variable costs included cost on seeds, organic manures, fertilizers, growth hormones, chemical pesticides and wages of human labour, bullock labour and machine labour.

Gross income

It covers all the income from main product as well as by-product.

Farm business income

Is the gross income minus cost A_1

Interest on working capital

The working capital consisted of the expenditure on labour, seeds, organic manures, fertilizers, growth hormones and chemical pesticides. The interest on working capital was calculated at the rate of 7.0 per cent per annum for the year 2005-06 and at the rate of 4 per cent per annum during 2011-12 (the rate of interest of crop loan charged by the nationalized banks during respective years).

Fixed costs

The fixed costs included interest on fixed capital, land revenue and rental value of land.

Interest on fixed capital

Interest on fixed capital was calculated at 11.5 per cent per annum, which is the prevailing rate of interest on investment credit.

Land revenue

Land revenue was taken at the rates levied by the government

Consumption expenditure

Comprises all expenditure incurred by the house hold exclusively on domestic account including consumption of home grown produce, gifts, loans, wage in kind and expense incurred by the family as a unit for food and non food items like cloth, medicine, education, travel and so on.

Cropping intensity

It is the ratio of a total cropped area in a year to the total cultivable area expressed in percentage.

3.4.2 Terms and concepts vide MGNREGA

Household

The member of a family related to each other by blood, marriage or adoption and normally residing together and sharing meals or holding a common ration card.

Minimum Wage

Means the minimum wage fixed by the state Government under section 3 of the Minimum Wages Act, 1948 for agricultural labourers as applicable in that area.

Nodal Department

Panchayati Raj Department at State level shall be the nodal Department for implementation of the MGNREGA. They are Zilla Panchayat at District level, Block Panchayat at Block level and Grama Panchayat at Village level.

Programme Officer

The Programme coordinator at Block level means Block Development Officer cum Executive Officer of Block Panchayat or as may be prescribed. Programme Officer is an officer appointed under sub-section (1) of section 15 for implementing the Scheme.

Registered Household

The members of the rural household who have been entered in the "Application Registration Register" as may be prescribed.

Rural Area

Any area in a state other than those areas covered by an urban local body.

Schedule of Rates

Measurement of work in standard units like m, m^3 and kms for making payments

Unskilled manual work

Any physical work which any adult person is capable of doing without any skill or special training.

Wage Rate

Minimum wage rate fixed by Government of a state /competent authority for agricultural labour under Minimum Wage Act 1948 unless the wages have been notified by Central Government U/S 6(1) of the Act.

Small and marginal farmers

Those farmers whose land holding is less than two hectares.

3.5 Analytical tools employed

The following statistical tools are used for the analysis of the data collected.

1. Tabular analysis
2. Fisher't' test

3. Functional analysis

4. Henry Garret ranking technique

3.5.1 Tabular analysis

The data collected were presented in tabular form to facilitate easy comparison. The socio-economic characteristics of sample farmers and sample beneficiaries, physical and financial analysis of implementation of the Scheme and social participation in the Scheme were analysed and compared using averages and percentages and were presented in tabular form.

3.5.2 Fisher't' test

To study the impact of MGNREGS on income of the beneficiary respondents, farm income, labour use pattern and labour availability before and after the implementation of MGNREGA, paired t-test was used. Employment of sample workers before the implementation of the programme was accounted by adding the number of person days of work employed on their own farm and also outside the farm and this was compared with their level of employment after the implementation of MGNREGA (employment on own farm + employment outside the farm + number of days employed under MGNREGA) by adopting paired t-test.

Before comparing the income of the MGNREGS beneficiaries, farm income and expenditure of both type of respondents, the values of both years (2005-06 and 2011-12) are deflated by multiplying with the deflation factor, the ratio of Consumer Price Indices (CPI) of base year (2004-05) and the respective years. The CPIs of the month during which field survey was conducted (January) was used for the purpose.

$$\text{Deflation factor for a year} = \frac{\text{CPI for base year}}{\text{CPI for the reporting year}}$$

The income of the sample respondents before and after the Program was deflated accordingly and the impact of MGNREGA on savings and expenditure of beneficiaries was compared using the paired t-test given by Equation (1):

$$t = \frac{\Sigma d}{\sqrt{\frac{n\left(\Sigma d^2\right)-\left(\Sigma d\right)^2}{n-1}}}$$

Where,

d = Difference between the observations, and

n = Number of paired observations

3.5.3 Functional analysis

3.5.3.1 Cobb-Douglas Production Function

The Cobb Douglas production function was fitted to study the change in the farm income due to an increase in the use of hired labour. This model is well known for its computational simplicity that justifies its wide application on production relations (Handerson and Quandt, 1958). It is being a homogeneous function provides a scale factor enabling one to measure returns to scale. The estimated regression coefficients represent the production elasticities.

The form of Cobb Douglas production function was used for both the years 2005-06 and 2011-12 separately and the form used is as follows.

$$Y = a\, X_1^{b1}\, X_2^{b2}\, X_3^{b3}\, X_4^{b4}\, X_5^{b5}\, X_6^{b6}.u$$

Where,

Y = Farm income in rupees

X_1 = Value of seeds and seed treatment in rupees

X_2 = Value of manures and fertilizers in rupees

X_3 = Value of hired human labour charges in rupees

X_4 = Value of plant protection chemical in rupees

X_5 = Value of machine labour in rupees

X_6 = Value of family labour in rupees

u = Random error term

b_i's = Regression coefficients of i^{th} input

The Cobb-Douglas production function was converted into log linear form and the parameters (coefficients) were estimated by employing Ordinary Least Square (OLS) technique.

$$\ln Y = \ln a + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + b_5 \ln X_5 + b_6 \ln X_6 + u \ln e$$

The regression coefficients were tested for their significance using t- test at chosen level of significance while the function as a whole is tested by using F- tests.

$$t = \frac{X_i}{SE(X_i)}$$

where,

X_i = Regression coefficient of i^{th} input

SE (X_i) = Standard error of i^{th} input

$$F = \frac{(R^2/P)}{(1 - R^2)/(n - 1 - P)}$$

Where,

R^2 = Coefficient of multiple determination (unadjusted)

P = Number of parameters in the sample

n = Number of observations in the sample

To test the goodness of fit of the estimated function, the adjusted coefficient of multiple determination (R^2) was calculated using the formula,

$$R^2 = \frac{\text{Regression sum of square}}{\text{Total sum of square}}$$

3.5.4 Henry Garret ranking technique

To assess the farmer's perception regarding impact of MGNREGS on agricultural labour market Henry Garret ranking technique (Garrett, 1924) was used. In this technique, the respondents were asked to rank the given attribute according to the magnitude of the problem. The orders of merit given by the respondents were converted into ranks by using the following formula.

$$\text{Percentage position} = \frac{100\ Rij - 0.5\ Nj}{Nj}$$

Where,

Rij = Rank given for i^{th} item j^{th} individual

Nj = Number of items ranked by j^{th} individual

The percentage position of each rank obtained was converted into scores by referring to the table given by Henry Garrett. Then for each factor the scores of individual respondents were added together and divided by the total number of respondents for whom the scores were added. The mean scores for all the factors were arranged in the order of their ranks and inferences were drawn.

IV. RESULTS AND DISCUSSION

The findings of the study are presented in this chapter under various headings as follows

4.1 MGNREGS implementation in the study area

4.2 Socio-economic profile of farmers and MGNREGS beneficiaries

4.3 Employment, wage and income of MGNREGS beneficiaries

4.4 Crops and cropping pattern of the study area

4.5 Input use pattern in paddy cultivation

4.6 Labour use pattern and labour requirement in paddy

4.7 Economics of paddy cultivation

4.8 Constraints faced by farmers and beneficiaries in the study area

4.9 Labour management under MGNREGS and suggestions for better utilization in agriculture

4.1 MGNREGS implementation in the study area

Palakkad district has been included in MGNREGS scheme during its first phase itself, on 2nd February 2006.Till the end of the financial year 2011-12 the district has utilized ₹ 337.43 crore under the Scheme. Total labour days provided during 2011-12 was 53.10 lakhs, ensuring livelihood security of 1,23,008 households. The district could generate 110 per cent of the targeted employment in the labour budget (MORD, 2013). Among the block panchayats, Chittur block panchayat provided 7,37,143 work days which was maximum in the district and Kuzhalmannam provided 3,13,470 days of work in 2011-12. The study area, Pattanchery gramapanchayat and Kuzhalmanna gramapanchayat provided 1,40,642 and 48,684 labour days respectively (MORD, 2013). Table 4.1 provides the details of physical achievements including number of work days generated, number of

RESULTS AND DISCUSSION

households benefitted and participation of weaker and marginalized section of the society in the study area. Women participation in the district is 95.60 per cent agreeing with the state level trend of high women participation (MORD, 2013).

Table 4.1. Physical achievement under MGNREGS during 2011-12

Administrative unit	No. of households provided employment	Person days of employment provided				Women participation (% work days)	Average person days per year
		SC	ST	Others	Total		
Palakkad district	123008	1551000 (29.20)	231000 (4.35)	3528000 (66.45)	5310000 (100)	95.60	43.17
Chittur Block Panchayat	17031	123179 (16.71)	17671 (2.40)	596293 (80.89)	737143 (100)	94.40	43.28
Kuzhalmannam Block Panchayat	11407	103508 (33.02)	0 (0.00)	209962 (66.98)	313470 (100)	97.75	27.48
Pattanchery Grama Panchayat	2531	39186 (27.86)	2343 (1.67)	99113 (70.47)	140642 (100)	97.10	55.57
Kuzhalmannam Grama Panchayat	1478	14403 (29.58)	0 (0.00)	34281 (70.42)	48684 (100)	98.12	32.94

(Figures in parenthesis indicates percentage) (Source: MORD, 2013)

Fund utilization pattern of the study area

During the financial year 2011-12 the district secured fourth position in fund utilization among the districts of Kerala with total fund utilization of ₹85.53 crore (MORD, 2013). This was 105 per cent of expected expenditure of ₹ 81.48 crores. Table 4.2 gives project wise fund utilization statistics at different administrative levels. Flood control was the major activity undertaken in the district accounting for 30.28 per cent of the total expenditure. In the grama panchayat level, Pattanchery grama panchayat executed more projects under repair and renovation of traditional water bodies (71.30%). Micro irrigation projects (43.175) were given prominence by Kuzhalmannam grama panchayat (MORD, 2013).

Table 4.2. Fund utilization for works under MGNREGS during 2011-12

(Amount ₹ lakhs)										
Place	Rural Connectivity	Flood Control	Water Conservation & Harvesting	Renovation of Traditional Water Bodies	Drought Proofing	Irrigation Canals	Irrigation Facilities To SC/ST/IAY/LR	Land development	Other works	Total
Palakkad district	374.23 (4.38)	2589.62 (30.28)	411.59 (4.81)	1945.58 (22.75)	115.38 (1.35)	1488.47 (17.40)	178 (2.08)	1398.21 (16.35)	51.92 (0.61)	8553 (100.00)
Kuzhalmannam block	6.45 (1.29)	118.92 (23.83)	11.83 (2.37)	46.33 (9.29)	0.16 (0.03)	237.73 (47.65)	0.00 (0.00)	77.51 (15.53)	0.00 (0.00)	498.94 (100.00)
Chitoor block	67.90 (6.13)	23.00 (2.08)	110.72 (9.99)	632.60 (57.09)	18.16 (1.64)	180.55 (16.29)	0 (0.00)	74.76 (6.75)	0.00 (0.00)	1107.69 (100.00)
Kuzhalmannam GP	2.31 (3.04)	0.58 (0.76)	10.20 (13.44)	1.69 (0.00)	0.00 (0.00)	32.77 (43.17)	0.00 (0.00)	28.22 (37.19)	0.00 (0.00)	75.89 (100.00)
Pattanchery GP	21.45 (9.99)	3.47 (1.62)	0.00 (0.00)	153.09 (71.30)	0.84 (0.39)	27.45 (12.78)	0.00 (0.00)	8.40 (3.92)	0.00 (0.00)	214.70 (100.00)

(Figures in parenthesis indicates percentage) (Source: Compiled from panchayat records and MORD, 2013)

Almost all projects of the scheme are having a boosting effect on agriculture through enhancement of natural resources. Such projects include water conservation and water harvesting, repair and maintenance of irrigation canals including micro and minor irrigation, provision of irrigation facility and land development works in land owned by SC/ST, Indira Avaas Yojana beneficiaries, families beloe poverty line and small and marginal farmers, rennovation of traditional water bodies, land development and flood control works. More than 92 per cent of the total fund was utilized for these types of activities in all cases except Pattanchery grama panchayat. In Pattanchery grama panchayat, 89.62 per cent of the total fund was used for soil and water conservation, irrigation and land development activities. The rest of the fund was used for rural connectivity and drought proofing. Table 4.3 provides the proportion of fund used for these works by each panchayats.

Table 4.3. Proportion of fund used for works supporting agricultural production (Amount in ₹ Lakhs)

Area	Fund used for works supporting agricultural production	Fund used for other works	Total
Palakkad District	8011 (93.67)	167 (6.33)	8553 (100.00)
Kuzhalmannam BP	492.32 (98.67)	6.62 (1.33)	498.94 (100.00)
Chittur BP	1021.63 (92.23)	18.16 (7.77)	1107.69 (100.00)
Kuzhalmannam GP	73.46 (96.80)	0.12 (3.20)	75.89 (100.00)
Pattanchery GP	192.41 (89.61)	22.29 (10.39)	214.7 (100.00)

(Figures in parenthesis indicates percentage)

(Source: Compiled from panchayat records and MORD, 2013)

Increased water availability in nearby fields of repaired and renovated ponds and other water bodies was quite visible in Pattanchery grama panchayat. This is in accordance with the results of the study on the reduction of vulnerability by

PLATE 1. Works under MGNREGS in the study area

PLATE 2. Field survey in the study area

ecosystem services of the scheme in Chitradurga district of Karnataka. Irrigated area under cultivation was reported to have increased from 400 ha to 800 ha in Kovarahatti village as a consequence of desilting of ponds under MGNREGS (Tiwari *et al.*, 2011).

Analysis of projects implemented under MGNREGS in the study area during 2009-10, 2010-11 and 2011-12 showed that renovation of traditional water bodies was given priority among the shelves of projects. The year wise and scheme wise fund utilization pattern in the study area is provided in Table 4.4.

Table 4.4. Year wise and scheme wise fund use pattern under MGNREGS in the study area (₹. in lakhs)

Year	Flood Control	Water Conservation & Harvesting	Renovation of Traditional Water Bodies	Drought Proofing	Irrigation Canals	Land development	Rural Connectivity	Total
2009-10	3 (1.47)	4.31 (2.11)	116.8 (57.27)	0 (0.00)	49 (24.03)	0 (0.00)	30.84 (15.12)	203.9 (100.00
2010-11	15.3 (5.46)	49.93 (17.82)	121.48 43.37)	2.07 (0.74)	60.48 (21.59)	6.45 (2.30)	24.41 (8.71)	280.1 (100.00
2011-12	4.05 (1.39)	10.2 (3.51)	154.78 (53.29)	0.84 (0.29)	60.22 (20.73)	36.62 (12.61)	23.76 (8.18)	290.4 (100.00

(Figures in parenthesis indicates percentage)

(Source: Compiled from panchayat records)

The amendment of the Act to undertake projects in the land owned by small and marginal farmers came into effect on 12th May 2012. Hence, during 2011-12 no project under the scheme was executed in the land owned by small and marginal farmers.

As a result of the amendment of schedule I and II of the Act, now works like land development, bund preparation, pond renovation and other related works could

be under taken in the land owned by small and marginal farmers also. This would enable the utilization of work force under the scheme for development of such lands.

There is ambiguity in classification of projects because of their multiple dimensions. Similar works are classified under different categories by different panchayats during 2011-12. Misleading nomenclature of projects in Kerala was reported by Tata Institute of Social Sciences (TISS, 2011). Hence a new guideline has been issued in 2013 to be followed while classifying the projects (MORD, 2012b).

4.2 Socio-economic characteristics of farmers and MGNREGS beneficiaries

4.2.1 Socio-economic characteristics of farmers

Any study based on a sample population has to be provided with the general description of the respondents including age, sex, income, caste and other related details. This will enable the readers to understand the research findings in a better way. The socio-economic profile of the sample farmers are presented in the following paragraphs.

From the Table 4.5, it is clear that none of the sample farmers were below 30 years of age. Most of the farmers (55 %) fell under the age group of 50-60 years. Similar observation was made in a study about paddy growers of Kuttanad region (Susha, 2011). Kannan (2011) correlated the decline of younger generation in agricultural sector in Kerala with low profitability of that sector compared to non-agricultural sectors. Only one out of the forty sample farmers is female. This is in consonance with the demographic data of the district with male cultivators constituting 77.88 per cent of the total cultivators (GOK, 2013b). It is observed that majority (90%) of the farmers were belonging to other backward caste (OBC). There was no scheduled caste or scheduled tribe farmer respondent.

All the farmers are literate in consensus with high literacy rate of the State. Majority (47.50%) of the farmers have completed secondary schooling. Based on the

number of family members farmer households are classified into three categories viz. small family, medium family and large family. Small family consists of four or less members where as a medium sized family comprised of four to eight family members. Large family contains more than eight members. From the Table 4.5 it could be inferred that majority (62.5%) of the households are coming under small family group. The predominance of nuclear family system is noticed in Kuttanad region also (Susha, 2011). There was only one large family among the farmers.

Classification of farmers based on size of land holdings (Reddy *et al.,* 2004) was followed. Farmers' land holding comprised of both wet land and garden land. Area of garden land was very small among farmers. Wet land contributed towards major portion of the total land holdings of farmers. So, farmers are classified into marginal (having <0.5 ha of wet land), small (having 0.5 ha to 1 ha of wet land) and large farmers (having >1 ha of wet land). Accordingly, 57.5% of sample farmers fell under large farmer category with more than one hectare of land holding. Kumaran (2008) also had recorded that 58 per cent of farmers were holding land area of more than one hectare in Palakkad.

According to MGNREGS, the farmers possessing land area of less than two hectare are classified into small and marginal farmers category and those farmers possessing more than two hectares of land are categorized as 'Other farmers'. As per this classification, 45 per cent of the sample farmers fell in the Small and Marginal farmers' category. Average land holding size of the farmers was 1.86 hectares.

Table 4.5. Socio-economic characteristics of sample farmers

Sl No.	Particulars	Number	Percentage
1.	Age profile		
1	<30 Yrs	0	0.00
2	30-40 Yrs	3	7.50
3	40-50 Yrs	9	22.50
4	50-60 Yrs	22	55.00
5	>60	6	15.00
2.	Gender wise classification		
1	Male	39	97.50
2	Female	1	2.50
3.	Caste wise classification		
1	SC/ST	0	0.00
2	OBC	36	90.00
3	General	4	10.00
4.	Education status of farmers		
1	Up to 4^{th}	1	2.50
2	Up to 7^{th}	2	5.00
3	Up to 9^{th}	18	45.00
4	SSLC and above	19	47.50
5.	Household classification based on Family size		
1	Small (≤4 members)	25	62.50
2	Medium (4-8 members)	14	35.00
3	Large (>8 members)	1	2.50
6.	Household classification based on size of Land holdings		
1	Marginal (< 0.5 ha)	3	7.50
2	Small (0.5-1 ha)	14	35.00
3	Large (>1 ha)	23	57.50
	TOTAL	40	100.00

Table 4.6. Classification of sample farmers based on major source of income (n=40).

Income source	Number	Percentage	Average annual income (₹)
Farm Income	29	72.50	91856
Govt. Sector	8	20.00	3,41,875
Private Sector	0	0.00	0
Self Employed	3	7.50	147288

Source of income of the farmers included farm income, salary/pension from government or private job, rental income from property and profit from entrepreneurship. Based on the proportionate share of income from these sources, farmers were classified into four categories as listed in Table 4.6. Majority (72.50%) of the sample farmers had farm income as the main source of income. 20 per cent of farmers were having government job and salary as the major source of income. This class had the maximum income among the farmers with average annual income of ₹ 3,41,875. A close observation of Table 4.6 indicates the wide difference between average income (₹ 91,856/-) of those farmers whose major source of income was farm income and that of those farmers whose major source of income was salary/pension (₹ 3,41,875/-).

Based on the annual income, farmers are classified into four classes. From the Table 4.7, it could be seen that maximum number of farmers fell under the group having annual income ranging from, ₹1,00,000/- to ₹2,00,000/-. The group with annual income more than ₹200000/- were having government job as major source of income. For better comparison of annual income or expenditure of different years, the respective values are converted into constant prices. The average annual income of sample farmers was ₹95205/- at constant price.

Table 4.7. Classification of sample farmers based on their annual income during 2011-12

Annual Income (₹.)	Number	Average annual income at current price (₹)	Average annual income at constant price (₹)
<50000	4 (10.00)		
50000- 100000	8 (20.00)		
100000-200000	15 (37.50)	160997	95205
>200000	13 32.50)		
Total sample size = 40			

(Figures in parenthesis indicates percentage)

A comparison of the annual income of farmers during 2005-06 and 2011-12 is given in Table 4.8. Constant price values of the average annual income in two years varied significantly, with mean annual income of 2005-06 and 2011-12 being ₹76,921/ and ₹ 1,32,616/- respectively.

Table 4.8. Annual income and expenditure of farmers during 2005-06 and 2011-12 (at constant prices)

	Annual income		**Annual expenditure**	
Year	**Mean (₹ per year)**	**'t' value**	**Mean (₹ per year)**	**'t' value**
2005-06	76921	**2.50***	63120	**2.59***
2011-12	132616		83260	
** Significant at 0.01 level of probability				

The annual expenditure of farmer households ranges from ₹ 48,000/- to ₹3,69,250/- at current prices and ₹45767/- to 2,18,355/- at constant prices. The average annual income of farmer households during 2005-06 and 2011-12 were ₹63,120/- and ₹83,260/- respectively.

4.2.2 MGNREGS participation of sample farmers

Out of the forty respondents only two farmers had been working under the scheme. Half of the population (20 farmers) has not even applied for job card under the Scheme. Eighteen farmers have applied for the job card with the intension of once they become MGNREGS beneficiaries, they will get labourers under the Scheme. Large farmers have not applied for job card as they are not eligible to get labourers under the scheme.

4.2.3 Socio-economic characteristics of MGNREGS beneficiaries

Most of the sample beneficiaries fall in the age group between 30-50 years of age. Nearly 18 per cent of the sample beneficiaries had more than 60 years of age. Table 4.9 provides age distribution of MGNREGS beneficiaries. Nearly 18 per cent of the sample beneficiaries had more than 60 years of age, indicating capability of the scheme in supporting livelihood of aged people. Prabhu (2011) also reported that 24 per cent of sample beneficiaries were beyond 55 years of age. A gender wise analysis showed that all the respondents are females, in agreement with the district and state gender wise participation pattern of beneficiaries. Women participation was 93 per cent in the state in the year 2011-12 where as it was 95.60 per cent in Palakkad district.

One fourth of the beneficiary respondents were illiterate. Nearly half (47.5 per cent) of the beneficiaries were either illiterate or have studied only up to fourth standard. The majority (82.5%) of the respondents belonged to the Other Backward Class. SC/ST constituted only 17.5 per cent in the sample.

Table 4.9. Socio-economic characteristics of MGNREGS beneficiaries

Sl No.	Particulars	Number	Percentage
1.	Age profile		
1	<30 Yrs	1	2.50
2	30-40 Yrs	11	27.50
3	40-50 Yrs	11	27.50
4	50-60 Yrs	10	25.00
5	>60	7	17.50
2.	Gender		
1	Male	0	0.00
2	Female	40	100.00
3.	Caste		
1	SC/ST	7	17.50
2	OBC	33	82.50
3	General	0	0.00
4.	Education status		
1	Illiterate	10	25.00
2	Up to 4^{th}	9	17.50
3	Up to 7^{th}	4	10.00
4	Up to 9^{th}	12	15.00
5	SSLC and above	5	12.50
5.	Family size		
1	Small	32	80.00
2	Medium	8	20.00
3	Large	0	0.00
	TOTAL	40	100.00

Beneficiary households are classified into three types based on the number of family members. Most of the households belong to small family category (80%). Prevalence of nuclear family system was reported among farm labour households in Kuttanad area also (Anusha, 2012). Among the beneficiaries 28 households (70%) had two earning members. The remaining 30 per cent was equally divided with households with one earning member and household with more than two earning members. In 37.5 per cent of the cases beneficiary herself was the household head.

Majority of beneficiaries were having limited land holding just to accommodate small houses. Average land holding of beneficiaries was 15 cents. The resource poor condition of MGNREGS beneficiaries was also reported by Maheswari and Gangwar (2011) in Tanjore district of Tamilnadu.

4.2.4 Household income and expenditure pattern of MGNREGS beneficiaries

The household income of the MGNREGS beneficiaries varied from ₹10,350/- to ₹1,17,000/- per year. Households were classified into four classes according to their annual income. The variation of income among the beneficiaries was less than that among the farmers. The average annual income of MGNREGS beneficiaries was less than that of farmers. The average annual income of the MGNREGS beneficiary household at current price was ₹51145, which at constant price was ₹30244 only.

Table 4.10. Classification of beneficiary households based on annual income (2011-12)

Annual Income (₹)	Number	Average annual income at current price (₹)	Average annual income at constant price (₹)
<50000	18 (45.00)		
50000-100000	20 (50.00)		
100000-200000	2 (5.00)	51145	30244
>200000	Nil		
Total sample size = 40			

(Figures in parenthesis indicates percentage)

Expenditure pattern of beneficiary households was found proportional to their household income. Average annual expenditure of the beneficiary households was ₹40,392/- at current prices and ₹23886/- at constant price. It was noticed that the additional income derived out of MGNREGS participation was utilized for household consumption at the subsistence level itself. Major portion of the additional income

was used for meeting food and other basic requirements. Prabhu (2011) also reported that additional income derived from MGNREGS was mainly used for purchasing food and cloths.

4.3 Employment, wage and income of MGNREGS beneficiaries

4.3.1 Average work days of beneficiaries before and after implementation of MGNREGS

The average labour days during 2005-06 was 67 and that during 2011-12 was 85. In astudy about unemployment by Pradeep (1998) reported the existence of underemployment in Palakkad district. In his study a person who isemployed for less than 300days during the reference period has been classified as under employed. He had reported that underemployment was highest among female cultivators (212.27 days) during 1994-95. Accordingly, the average labour days being 67 and 85 during 2005-06 and 2011-12 indicated the existence of underemployment among the beneficiaries.

The introduction of MGNREGS had increased the work participation of beneficiaries. Average work days of beneficiaries had increased by 26.87 per cent after the implementation of MGNREGS. Significant difference could be observed in the average labour days before and after implementation of MGNREGS (Table 4.11).

Table 4.11. Average work days of beneficiaries before and after MGNREGS

Year	Mean work days	't' value
2005-06	67	**3.51****
2011-12	85	
** Significant at 0.01 level of probability		

4.3.2 Annual income of MGNREGS beneficiaries before and after implementation of the Scheme

The income earned by MGNREGS beneficiaries before and after implementation of the scheme was analysed. During 2005-06 most of the beneficiaries have been depending mostly on agricultural sector for employment.

Though the land holdings of beneficiaries were very less (average size 15 cents) they were actively involved in agriculture as farm labourers. Among the sample beneficiaries, 90 per cent have been engaged in agricultural works before the implementation of the Scheme. The average annual income of beneficiaries during 2005-06 was ₹3,218/- (₹3069/- at constant price). The average annual income of beneficiaries during 2011-12 was ₹12,799/- (₹7,568/- at constant price). Thus there was 147 per cent increase in the average annual income. From the Table 4.12. it could be seen that the income of the beneficiaries during the two periods varied significantly. During 2011-12 beneficiaries had earned an additional annual income of ₹4,499/- at constant prices. Babu (2010) also reported that MGNREGS could increase the annual income of beneficiaries in Palakkad district by 193 per cent from ₹2,995/- during 2006-07 to ₹8789/- during 2008-09 at current prices.

Table 4.12. Comparison of annual income of beneficiaries

Year	Mean (₹ per year)	't' value
2005-06	3069	9.43**
2011-12	7568	
** Significant at 0.01 level of probability		

Agriculture was the only source of income for 77.5 per cent of the sample beneficiaries during 2005-06. The labour days per employee in agricultural activities during 2005-06 were 64.6 fetching an average income of ₹3218/- at current prices. Only a few persons were participating in works other than agriculture during 2005-06. Other works included domestic works in households and small scale industries, which provided limited employment opportunities.

Table 4.13. shows the deviation in MGNREGS beneficiary respondents' participation in agricultural works during 2005-06 and 2011-12. It could be inferred that there was significant difference between these two years in MGNREGS workers' participation in agricultural works. MGNREGS induced labour shortage was

reported by Nair *et al.* (2009) in Kasargod district of Kerala also. The MGNREGS workers participation in agriculture has decreased by about 22 per cent in 2011-12 over 2005-06.

Table 4.13. MGNREGS beneficiary participation in agricultural works

Year	Mean (days/year)	't' value
2005-06	64.6	9.44**
2011-12	20.4	
** Significant at 0.01 level of probability		

The difference in income from agricultural works during 2005-06 and 2011-12 has been analysed by employing paired 't' test. The constant price income of the two years were used for the comparison. During 2011-12, MGNREGS wages was the major source of income of beneficiaries. The average annual income during this period was ₹12,799/- at current price and ₹7,568/- at constant price. MGNREGS provided 62 days of work days per beneficiary with a wage rate of ₹150/- per day during 2011-12. During this period beneficiaries worked in farmer's fields for only 20 days per person per year. The average annual income earned at current prices from agricultural works during 2005-06 and 2011-12 were ₹3,268 and ₹3,061/- respectively. Table 4.14.shows the results of the statistical analysis of the difference in agricultural income. The constant price values of the two years differ significantly. The income at constant price from agricultural works shows 41.91 per cent decrease from ₹3,116 to ₹1,810.

Table 4.14. Comparison of beneficiary income from agricultural works

Year	Average income (₹ per year)		't' value
	At current price	At constant price	
2005-06	3268	3116	4.95**
2011-12	3061	1810	
** Significant at 0.01 level of probability			

4.3.3 Factors influencing participation of beneficiaries in agricultural labour works

There was no difference in the number of beneficiaries who were participating in agricultural works before and after the implementation of the scheme. But the number of days of farm works per year has decreased for almost all the respondents (97%). There was 68.42 per cent reduction in average agricultural labour days per year.

A linear regression analysis was attempted to know the influence of the variables like household income, MGNREGS labour days, education status, age and the number of dependents on agricultural work participation of the beneficiar4ies. It was found that the first three variables have significant influence on the number of agricultural labour days of the beneficiaries during 2011-12. There is inverse relationship between MGNREGS labour days and agricultural labour days and the relationship between education status and agricultural work participation was also found to be negative. A positive relationship was observed between household income during 2011-12 and agricultural work participation of the beneficiaries. The relationship is given below:-

$$Y= 0.036-0.193X_1+0.02X_2-5.297X_3+0.171X_4$$

Where,

Y= Agricultural labour days during 2011-12

X_1= MGNREGS labour days during 2011-12

X_2= Beneficiary income during 2011-12

X_3= Education status of beneficiary

X_4 = Age of the beneficiaries in years

The statistical significance of the variables are given in Table 4.15.

An inverse relationship between agricultural labour days and MGNREGS work days.was evident from the analysis. MGNREGS was found to accelerate the existing labour shortage problem in the district. The survey indicated that there was labour shortage even before the implementation of the scheme. Low wages, drudgery and hard nature of the work caused inhibition of youngsters to come for agricultural works. With the booming up of real estate sector, construction works became highly remunerative leading to diversion of existing agricultural labour force towards that sector.

Table 4.15. Factors influencing agricultural labour participation of MGNREGS workers

Variables	**Co-efficient**	**'t' value**
MGNREGS labour days	-0.193*	1.77
Beneficiary income during 2011-12	0.02**	3.89
Education status of beneficiary	-5.297*	3.33
Age of the beneficiary	0.171	0.677
** Significant at 0.01 Level of probability * Significant at 0.1 Levelof probability		

Previously a group of 10-15 labourers used to work in specific farms. But they were being paid much less. A detailed enquiry into the labour use revealed that with the introduction of MGNREGS, majority of them enrolled in the scheme and at the same time worked as agricultural labourers also.

The survey revealed that some MGNREGS beneficiaries were facing inconvenience when agricultural works overlapped with MGNREGS works. Some beneficiaries were found to do agricultural works on holidays to avoid farmers' inconvenience. Hence a conscious effort to schedule the MGNREGS works in such a way that agricultural activities will not get delayed due to lack of labourers is needed. Murthy and Indumathy (2011) reported variation in demand for works under the scheme in Karnataka and Andhra Pradesh. More than 60 per cent of the annual work

demand was during summer seasons in both the states. In Karnataka the lowest demand for work was during *Kharif* season (9%), followed by *Rabi* season (29%).

4.3.4 Change in wage rate before and after the implementation of MGNREGS

There are three different wage rates which are found to influence the agricultural wages. They are, statutory minimum wage rate for agricultural labourers notified by the state government, MGNREGS wage rate notified under MGNREGA and the prevailing wage rate in the locality paid by the farmers (local wage rate). Statutory minimum wage was last changed in 30/12/2008. The wage rate was fixed as ₹200 for 8 hours of works of hard nature and ₹150 for 8 hours of works which are light in nature. Until then the minimum wage rate effective in 2003 was in force. The wage rate fixed during 2003 was ₹125 for 8 hours of works like ploughing, digging and bund construction which are hard in nature and ₹72 for 8 hours of works like weeding, transplanting and harvesting which are light in nature. There is no change in statutory minimum wage rate during the period 2008 to 2011-12.

MGNREGS wage rate during its phase I roll out was ₹125 per day and it was linked with statutory minimum wage rate applicable to the state. There is stipulation in MGNREGS that the wage rate under the scheme should not be less than minimum wage rate of the state. MGNREGS wage rate has changed four times after its implementation and the wage rate during 2011-12 was ₹150 per day. During 2012-13 the applicable wage rate under the scheme was ₹164 per day. The percentage increase of MGNREGS wage rate from 2008 to 2011-12 was 20 per cent. The current wage rate under MGNREGS is ₹180 per day.

The local wage rate in the agricultural labour market is the wage paid per day by the farmers for hired labour works. It is paid for one day's work. The time schedule of work is eight hours during 2005-06. During 2011-12, the time schedule has changed and a reduction in the working time has been noticed. Lack of sufficient labour force in agricultural sector has led to a paradigm shift from 'farmer stipulated'

to 'labourer decided' working terms and conditions. The time schedule and wage rate is decided by the labourers now. The present tendency of comparison of wage rate for agriculture works with wage rates of construction works and other highly paid works makes agricultural labour input expensive in agriculture. The wage rate prevalent during 2005-06 was ₹150/day for male workers and ₹50/day for female workers. Over the years local wages have increased and in 2011-12 it was ₹300/day for male workers and ₹150/day for female workers. The wage rate prevalent during 2012-13 was ₹350/day and ₹160/day for male and female workers respectively. The percentage increase in wage rate for agricultural labourers over the years from 2005 to 2012 was 200 per cent and 100 per cent for female and male labourers respectively.

Until the introduction of MGNREGS, local wage rate and statutory minimum wage rate were moving in parallel direction. After the implementation of MGNREGS, local wage rate has been showing a tendency to equalize with MGNREGS wage rate. This tendency may be due to the increased bargaining power of the beneficiaries in agricultural labour market. Though MGNREGS is regarded as an additional employment provider, the labourers were able to rise the wage rate in agricultural market by choosing between agricultural works and MGNREGS works.

There is reduction in disparity between male and female wage rates after the implementation of MGNREGS. During 2005-06 male wage rate was thrice the female wage rate and it was twice the female wage rate during 2011-12. The wage rate under MGNREGS is equal for male and female workers. The increase in female wage rate is more than the increase in male wage rate in the agricultural sector. The increase in female wage rate is bound to improve the household well being as the female earnings would be spent mainly for meeting household expenses.

Fig. 4.1. Change in wage rate for female workers (2003-2013).

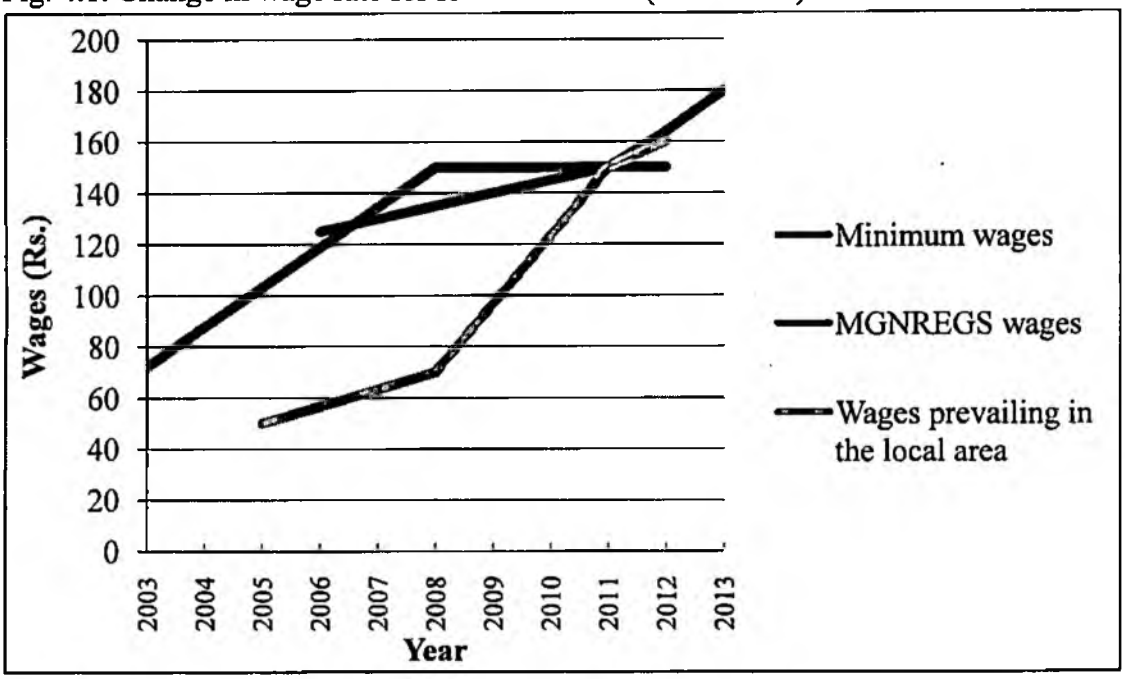


Fig. 4.2. Change in wage rate for male workers (2003-2013).

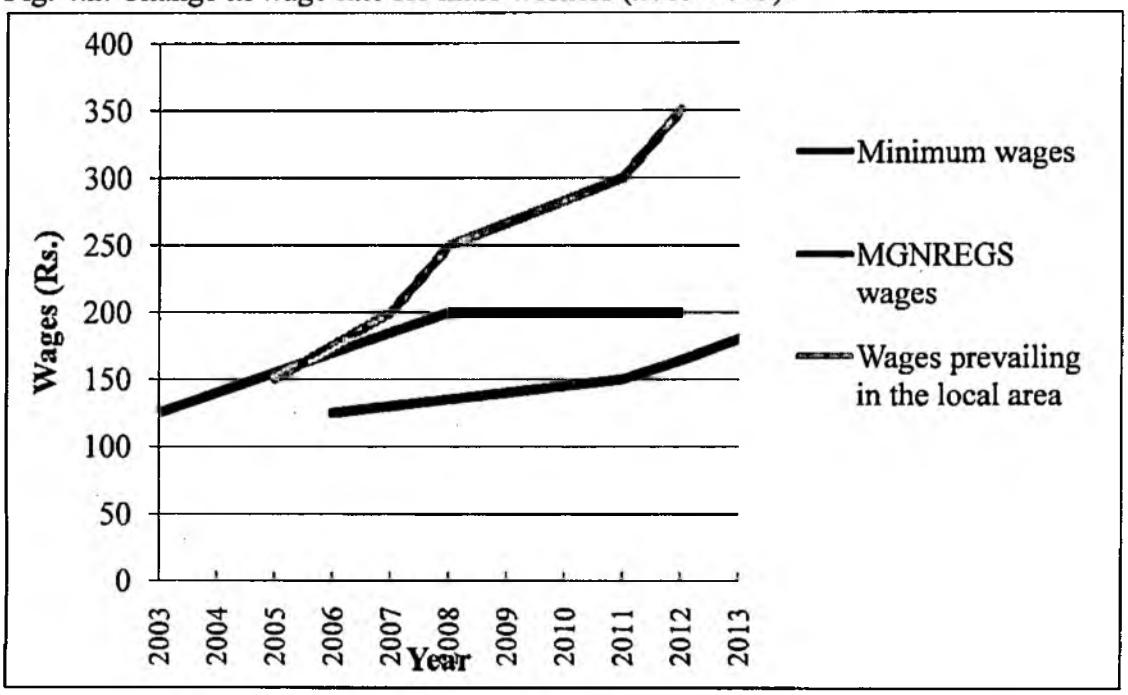


Fig. 4.1. Change in wage rate for female workers (2003-2013).

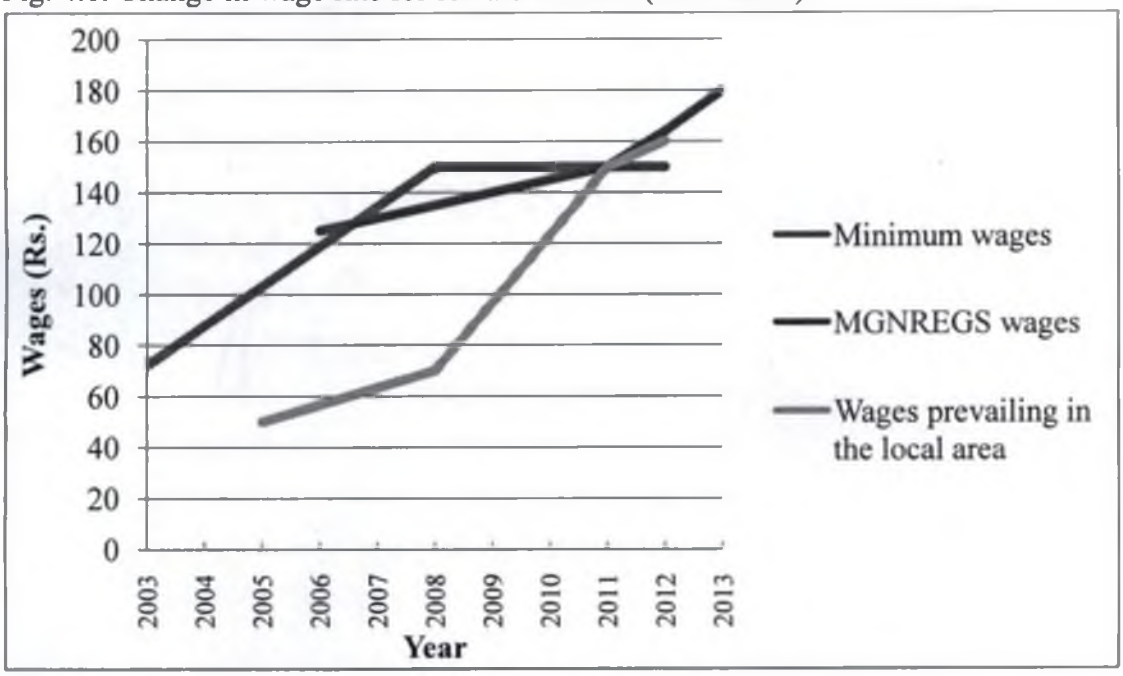
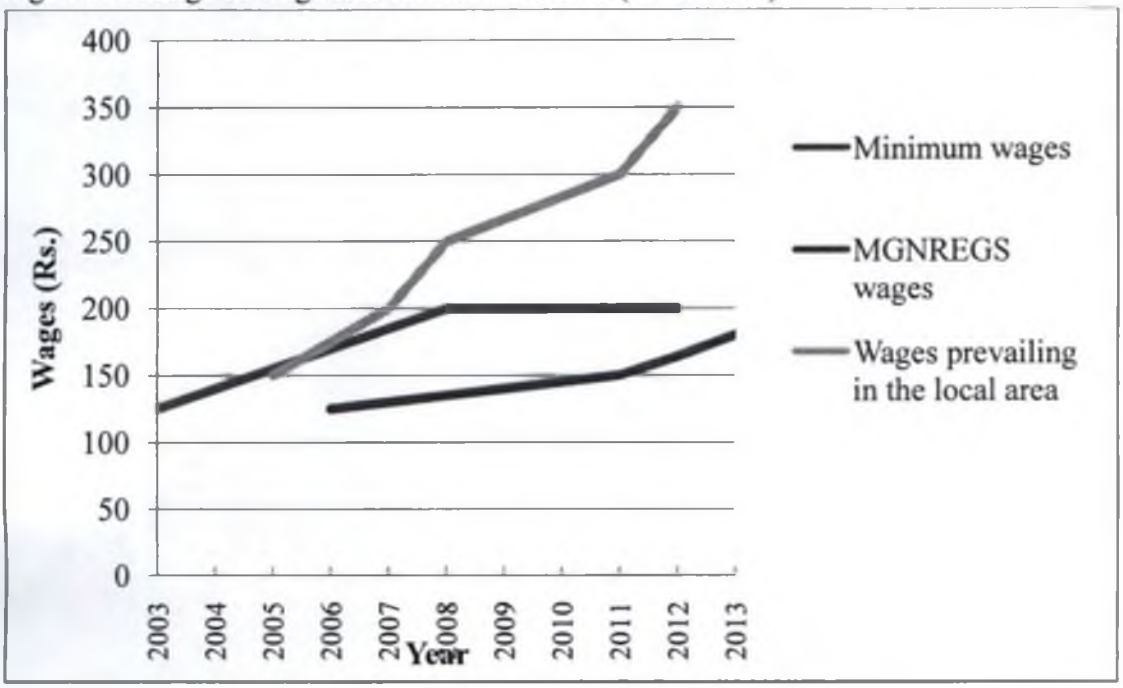


Fig. 4.2. Change in wage rate for male workers (2003-2013).



The Consumer Price Index (CPI) of agricultural labourers was increased by 61 per cent during 2005-06 to 2011-12. During this period, the rate of change in the prevailing wage rate for agricultural labourers was more than the rate of change in CPI (100 per cent for male and 200 per cent for female labourers).

Kannan (2011) observed that in Kerala, high labour cost and increase in wages were set exogenously due to trade union bargaining power and labour shortage. The wage increase was much faster than increase in labour productivity, causing stagnation in agricultural sector.

The result is in agreement with that of the study conducted by Sontaki and Ahire (2011) where in they reported that MGNREGS had led to labour shortage and wage increase in Southern states like Andhra Pradesh. The problem was severe in the case of large farmers because their farms were not included under the public works programme.

The study by Thadathil and Mohandas (2012) also reported that MGNREGS was responsible for wage hike in agricultural labour markets of Wayand district of Kerala. Tradeoff between MGNREGS works and agricultural works was observed. MGNREGS wage acted as a standard minimum wage for agricultural labour market and because as the market wage went below MGNREGS wages the labourers shifted to MGNREGS.

Nath (2002), in her study about the role of labour force (*Thozhilsena*) in agricultural developments in Thiruvaanthapuram district of Kerala reported the existence of positively significant relationship between income and economic motivation and participation of agricultural labourers in *Thozhilsena*.

4.4 Crops and cropping pattern of the study area

Paddy is the major crop cultivated both in Pattanchery and Kuzhalmannam grama panchayats. Vast stretches of paddy fields situated away from the homesteads is the common phenomenon in the study area. Out of the total area of 74.5 hectares,

wet land accounts for 57.5 hectares (77.18 %). On an average, 1.86 hectares of wet land is owned by each farmer. Paddy is the main crop grown in wet lands. Gross area under paddy cultivation is 115 hectares.

Average size of garden land holding is 0.43 hectares per farmer household. Mixed cropping is commonly practiced in homesteads. The cropping intensity of the area is 177.29. There is no significant change in paddy cultivated areas between 2005-06 and 2011-12. No wet land owned by the sample farmers was left uncultivated during the year 2011-12. Wet lands were acquired as ancestral properties and their transactions are very much restricted among the farmers. Cropping pattern and cropping intensity are similar in both the grama panchayats. Table 4.16 represents status of wet land and garden land holdings of sample farmers.

Table 4.16. Average area owned by farmers in the study area

Type of land	**Average area (ha)**	
	2005-06	**2011-12**
Wet land	1.39 (76.80)	1.44 (77.42)
Garden land	0.42 (23.20)	0.42 (22.58)
Total land	1.81	1.86

(Figures in parenthesis indicate percentage)

Coconut is the major crop grown in homesteads, inter cropped with vegetables, fruit crops like mango, jack fruit and banana and other tree crops like tamarind. Coconut is also grown on the main bunds of paddy fields.

Table 4.17 depicts the area under different crops in the study area. Paddy is the major crop grown in both the panchayats. Coconut is the second major crop followed by ginger and banana.

Table 4.17. Area under different crops in the study area (in ha)

Sl No.	Particulars	Area	Percentage
1.	Total Geographic area	6111.5	100.00
2.	Land not used for cultivation	1375.5	22.51
3.	Total cultivated area	4736	77.49
4.	Paddy	3204	52.44
5.	Coconut	592	9.69
6.	Ginger	214	3.51
7.	Banana	42	0.65
8.	Vegetables	37.2	0.61
9.	Other crops	646.8	10.59

4.5 Input use pattern in Paddy cultivation

In the study area, paddy is grown during two seasons viz. *Virippu* and *Mundakan*. Operation wise and input wise cultivation practices followed in paddy before and after implementation of MGNREGS were compared and the input use pattern and the labour use pattern were analysed.

Most of the farmers had cultivated Matta Triveni, VK-1(Kunju Kunju Varna) and Jyothi were the major varieties cultivated during 2005-06. During 2011-12, the common varieties cultivated by farmers were Uma, Ponmani and Jyothi.

Table 4.18. Paddy varieties cultivated by farmers, n=40

2005-06		2011-12	
Variety	Number of farmers	Variety	Number of farmers
Matta Triveni	21 (52.50)	Uma	23 (57.50)
Kunju Kunju Vama	9 (22.5)	Ponmani	10 (25.00)
Jyothi	6 (15.00	Jyothi	4 (10.00)
Others	4 (10.00)	Others	3 (7.50)
Total (40.00)			

(Figures in parenthesis indicate percentage)

The seed rate followed by the farmers were 107kg/ha and 111kg/ha respectively, showing no significant difference in the seed rates between the two years. But was more than the recommended seed rate of 80-100 kg/ha (KAU, 2011).

Farm yard manure and green leaf manure were used in very small quantity during both the periods. Scarcity of organic manures was the main reason for the limited use. Susha (2011) also reported that the limited use of organic manures like green leaf manure and farm yard manure was due to their low availability and high cost. There was wide variation among farmers in the use of chemical fertilizers. Though urea, potash and factomfos are the commonly used fertilizers, their quantity and combination are not uniform during both the periods. The quantity of inorganic fertilizers applied was increasing over the years, the difference being significant in the case of urea. The average quantity of urea applied during 2005-06 and 2011-12 was 132 kg/ha and 143 kg/ha respectively.

Quantity of potash applied has also increased significantly during 2011-12 compared to 2005-06. Average quantity applied during 2005-06 and 2011-12 was 168 kg/ha and 181 kg/ha respectively. Table 4.19 shows the deviation in the use potash before and after implementation of MGNREGS. There is no significant difference in the quantity of Factomfos applied during 2005-06 and 2011-12. The average quantity of Factomfos applied during 2005-06 and 2011-12 was 240 kg/ha and 258 kg/ha respectively.

Table 4.19. Quantity of inorganic fertilizers used by farmers in paddy cultivation

Fertilizer	**Average quantity (kg/ha)**		**'t' value**
	2005-06	**2011-12**	
Urea	132	143	1.74*
Potash	168	181	2.53*
Factomfos	240	258	1.32
* Significant at 0.1 level of probability			

Over the years, there is an increasing trend in the use of weedicides and pesticides among the farmers. Some weedicides are being used for consecutive cropping seasons. Farmers also observed that though they were using chemical weedicides, weed growth could not be controlled effectively. Chance of developing weedicide resistance in paddy due to continuous use need further investigation.

4.6 Labour use pattern and labour requirement in paddy

4.6.1 Labour use pattern in paddy cultivation

Operation wise comparison gives an understanding about the changes in the labour availability and labour use pattern during the two periods. There was no change in land preparation method during both the periods.

It was observed that the area under transplanting has been showing a decreasing trend and area under broadcasting has increased during 2011-12. Hired human labour was used for harvesting and hay processing by majority of farmers during 2005-06. By 2011-12, manual harvesting has been transformed to machine harvesting and hay bailing.

Average labourer use per farm per day was compared for both the periods. Average labour used per day per farm for various operations during 2005-06 and 2011-12 is given in Table 4.20. There is an increase in the number of broad casted farms during 2011-12 compared to 2005-06. During the latter period only 14 farms had adopted broad casting in an area of 18.12 hectares. It was increased to 19 farms comprising 31.12 hectares. The shortage of women labourers for transplanting led to delayed and staggered planting which in turn affected the crop yield. Hence the farmers have been switching over to broad casting method in order to avoid yield loss. The shift in planting method adopted during the two years was depicted in Fig.4.3.

During 2005-06 weeding was done usually within 20 days of planting. But, due to scarcity of labour, first weeding was delayed in most of the fields, even up to

40 days of sowing in some cases. Shifting to chemical weedicide application is the common trend in both the study areas. Weedicide application was done only once. Since weeding or weedicide application is done based on the weed growth there was difficulty in recollecting data related to weed control in cultivation during 2005-06. Fertilizer application was done three times in the first crop and three to four times in second crop, during both the reference periods. The three stages of fertilizer applications are basal dose, at tillering stage and at panicle initiation stage. Plant protection chemicals were applied based on the causal agent, crop stage and field conditions.

Harvesting was done mainly by employing human labour during 2005-06 and it has been shifted to machine harvesting during 2011-12. A comparison of the labour used for harvesting of paddy is presented in Table 4.21 and in Fig. 4.4.

Table 4.20. Labour types used for harvesting during 2005-06 and 2011-12 (Area in ha)

Labour type		**2005-06**	**2011-12**
Human labour	No.	29	12
	Area (%)	39.9 (71.89)	10.7 (18.61)
Machine labour	No.	11	28
	Area (%)	15.6 (28.11)	46.8 (81.39)
Total		55.5 (100)	57.5 (100)

(Figures in parenthesis show percentage)

Fig. 4.3. Shift in Planting methods during the reporting period

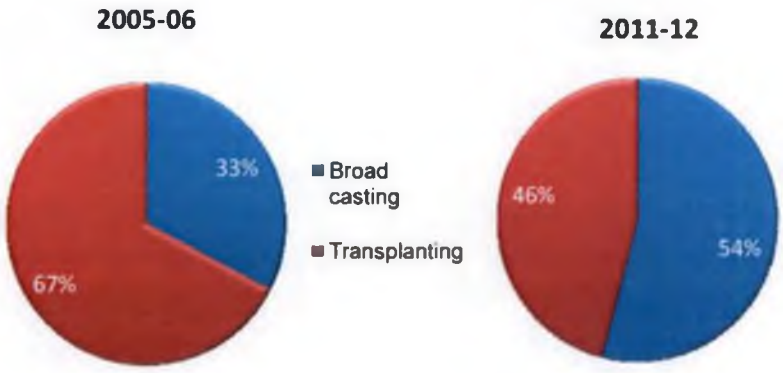
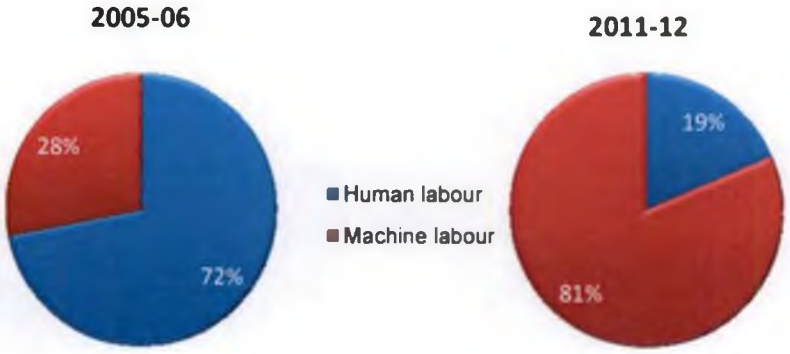


Fig. 4.4. Labour types used for harvesting



Post harvest operations during 2011-12 showed a remarkable shift from that of 2005-05. Human labour involvement had been reduced during 2011-12. Most of the farmers (85%) were either burning the hay after harvesting or bundling it using machine. During 2005-06 only four farmers were found burning hay and five farmers were found employing machine for bundling the hay.

4.6.2 Human labour use in paddy cultivation

Operation wise average human labour used per hectare during 2005-06 and 2011-12 is presented in Table 4.21. From the table, it could be seen that the total labour requirement per hectare was decreased from 82 persons to 71 persons per hectare.

During the two periods land preparation works were done adopting similar methods. The field was ploughed using tractors before sowing. Human labour had been employed for repair of bunds and for construction of new bunds. Though these works were done in both the seasons more labour was being employed prior to first crop season since the farmers got enough time, after the harvest of second crop for the cultivation practices. Usually third crop is not taken due to water shortage. On an average for preparing operations 8 mandays/ha was used during 2005-06, which was increased to 10 mandays/ha during 2011-12. Devi (2011) reported that there is a reduction in hired human labour use in paddy cultivation in Kuttanadu region of Kerala. The reduction was 1.84 per cent during 1980-81 to 2007-08.

For calculation of labour requirement for sowing and seed treatment, broadcasting and transplanting areas are clubbed together. The area under broadcasting has been increased over the years and thus reducing the average labour requirement from 13 to 12 mandays/ha. This is due to increased area under broad casting from 18.12 ha to 31.12 ha. For transplanting as a separate operation, average labour requirement is 33 man days per ha during 2011-12. It was only 30 mandays/ha

during 2005-06. Thus indicating 10 per cent increase in the labour requirement for transplanting over the years.

Table 4.21. Operation wise labour requirement in paddy during 2005-06 and 2011-12

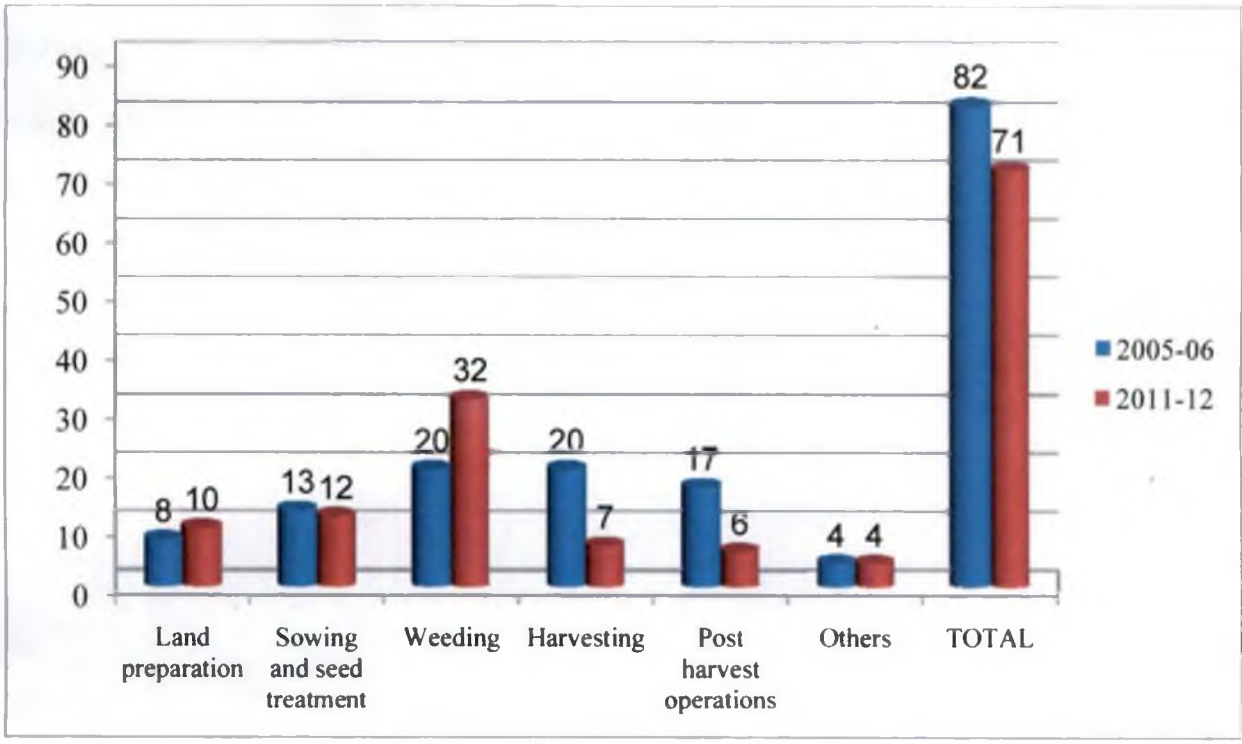
Cultural operation	Labour used in 2005-06 (labourdays/ha)					Labour used in 2011-12 (labourdays/ha)				
	Hired		Family		Total	Hired		Family		Total
	Male	Female	Male	Female		Male	Female	Male	Female	
Land preparation	7	1	0	0	8	9	1	0	0	10
Sowing and seed treatment	0	1	12	0	13	0	1	11	0	12
Weeding	0	0	20	0	20	0	0	32	0	32
Harvesting	0	1	19	0	20	0	1	6	0	7
Post harvest operations	0	1	16	0	17	0	1	5	0	6
Other operations	2	2	67	0	78	2	2	0	0	4
TOTAL	9	6	67	0	82	11	6	54	0	71

The labour used for weeding has increased from 20 labour days/ha during 2005-06 to 32 labour days/ha during 2011-12 indicating 60 per cent increase. This may be due to delayed weeding on account of reduced labourer availability. Table 4.22 and Fig 4.5 gives a comparison of average labour used per farm per day during 2005-06 and 2011-12. There is a decrease in the labour use for harvesting from 20 to 7 labour days per ha. Farmers have used bailer cum harvesting machine where ever available or farmers also resorted to burning hay in the field itself due to high cost of processing of the hay. Farmers owning cattle who needed hay for feeding them, had to limit the quantity of hay collected in order to minimize the lobour cost. Availability of sufficient number of bailer cum harvesting machines can enormously reduce the gross expenditure. During 2011-12, 38 per cent farmers burnt the hay in the field and 48 per cent farmers bundled the hay using bundling machine. The remaining 14 per cent farmers used hired human labour for processing the hay.

Table 4.22. Comparison of average labour use (per farm/day) during 2005-06 and 2011-12

Sl. No.	Cultural Operation	2005-06 Labour use	2011-12 Labour use	Percentage change	't' Value
1.	Land preparation (Male labour)	4	2	50.00	6.72**
2.	Sowing and seed treatment (female labour)	20	8	60.00	5.47**
3.	Weeding (female labour)	18	7	61.00	5.24**
**Significant at 0.01 level of probability					

Fig. 4.5. Operation wise labour requirement (mandays/ha) in paddy cultivation during 2005-06 and 2011-12.



High cost of hired human labour and unavailability of labourers on time may be the reasons for reduced use of hired human labour. Farmers have ranked

unavailability of labourers on time as the most important constraint faced by them after the introduction of MGNREGS. Kannan (2011) had reported that labour shortage in paddy cultivation in Kerala was being experienced since the year 2000. The study showed that the problem has been intensified after the implementation of MGNREGS. The seasonal nature of agricultural works and the adoption of mechanization often forces laborours to opt for other employment avenues, outside farming. This also has led to their non-availability on time for farming operations.

4.7 Economics of paddy cultivation before and after implementation of the Scheme

The use of material inputs like labour, seed, fertilizer and plant protection chemicals during 2005-06 and 2011-12 were analysed. Input costs at current price and constant prices were estimated and the comparison was done at constant prices. The input wise cost of cultivation of paddy per hectare during 2005-06 and 2011-12 is presented in Table 4.23.

Total cost of cultivation during 2005-06 was ₹28302 at current price (₹26985 at constant price). This is comparable with the reported cost of cultivation of paddy (₹ 31536/ha) in Kuttanadu tract of Kerala (Saijyothi, 2005). Hired human labour cost accounted for maximum share of total cost of cultivation (49%). High proportion of labour cost (33.77%) in the cost of cultivation of paddy was reported in Kuttanad region of Kerala (Saijyothi, 2005). Hired, machine and family labour costs together accounts for nearly 65 per cent of total cost of cultivation. Supervision of crop stand and decision making activities done by the farmer is accounted by management cost in the cost of cultivation.

The cost of cultivation of paddy during 2011-12 was ₹46300/ha at current price and ₹ 27379/ha at constant prices. Hired human labour cost accounts for 40.50 per cent of the total cost of cultivation in 2011-12. Susha (2011) reported that hired human labour component accounted for maximum share (52.5%) of cost of

cultivation of paddy in Kole lands of Kerala. Machine labour occupied second position, next to hired human labour among the major contributors of cost of cultivation. Labour costs accounted to 62.49 per cent of the total cost of cultivation. A comparison of constant price costs of various inputs is presented in Fig. 4.6 and Fig. 4.7.

There is no significant difference in the cost of cultivation of paddy before and after implementation of the scheme. Though there is a reduction in the share of total labour cost in total cost of cultivation during 2011-12 (62.49%) compared to 2005-06 (65%), the difference is not much significant. Reduction in the share of total labour cost in the cost of cultivation during 2011-12 may also be due to the increased use of machine labour.

Table 4.23. Input wise cost of cultivation of paddy during 2005-06 and 2011-12 (₹/ha).

Sl. No	Input component	2005-06			2011-12		
		Cost at current price	Cost at constant price	Percentage of total cost (at constant price)	Cost at current price	Cost at constant price	Percentage of total cost (at constant price)
1	Hired human labour	13960	13311	49.33	18753	11090	40.50
2	Family labour	1266	1207	4.47	1586	938	3.43
3	Machine labour	3090	2947	10.92	8593	5082	18.56
4	Seed/ seedling	1320	1258	4.66	2131	1260	4.60
5	Manures and fertilizers	4798	4574	16.95	8004	4733	17.29
6	Plant protection	352	335	1.24	1946	1151	4.20
7	Land and irrigation cess	73	70	0.26	238	141	0.51
8	Interest on working capital	870	830	3.07	839	496	1.81
9	Management cost	2573	2453	9.09	4209	2489	9.09
	Total	**28302**	**26985**	**100.00**	**46300**	**27379**	**100.00**

Fig. 4.6. Input wise cost of cultivation of paddy during 2005-06 (at constant prices).

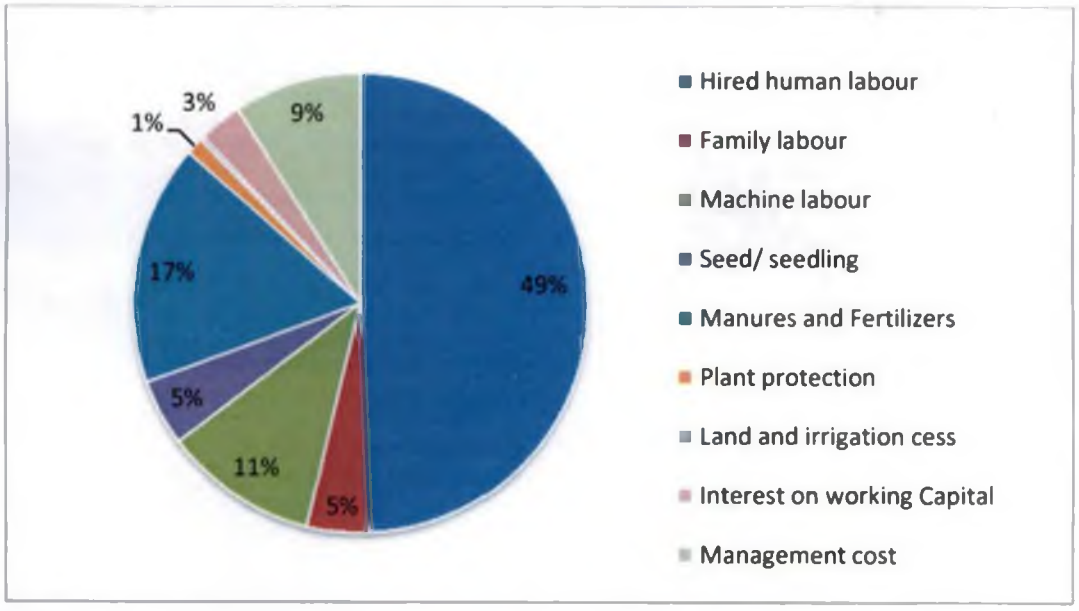
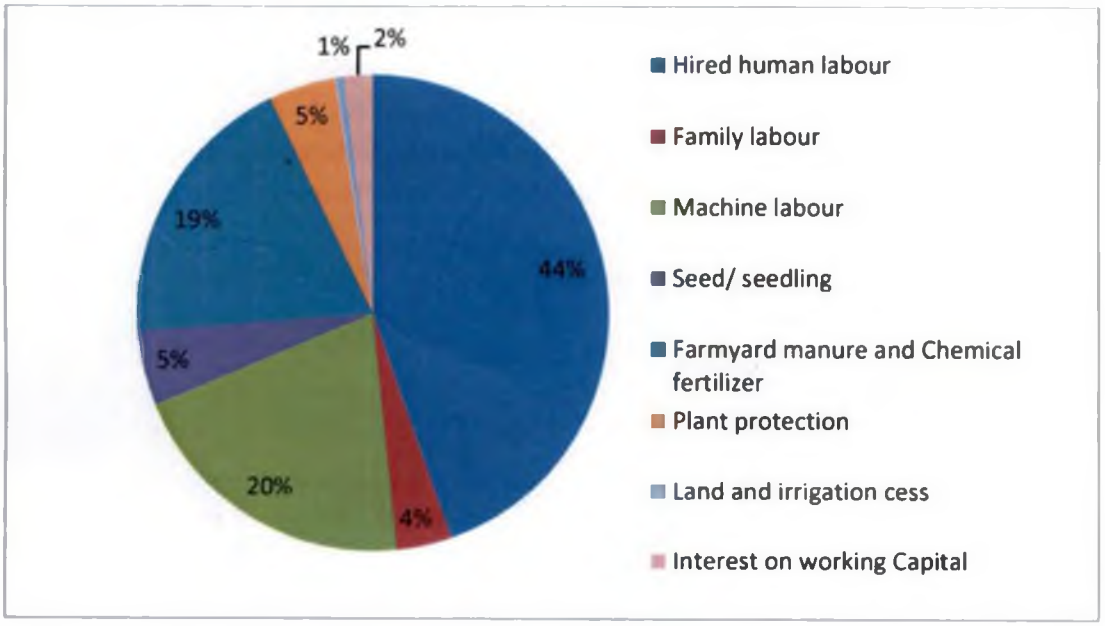


Fig. 4.7. Input wise cost of cultivation of paddy during 2011-12 (at constant prices).



4.7.1 Profitability of paddy cultivation before and after implementation of MGNREGS

Cost of production per kg of paddy during the two years was calculated and compared. Cost of producing one kilogram of paddy at current price during 2005-06 was ₹8.34/- which increased to ₹12.98 during 2011-12. But a comparison of cost of production at constant price indicated that there is no significant difference between the prices at the two periods. The average cost of production of paddy at constant price during 2005-06 was ₹7.95 per kg and ₹7.68 per kg during 2011-12. Yield of paddy during first crop season of 2005-06 was 2899 kg/ha and that during the first crop season of 2011-12 was 3469 kg/ha. At the same time, the gross expenditure has increased from ₹11,763/- to ₹18,862/- per hectare during the reporting periods. The reduction in cost of production during 2011-12 may be due to the increased productivity during 2011-12. Farmers have reported that the yield has significantly increased when they changed the crop variety. Initially they were using varieties like VK-1, Matta Triveni and Jyothi. When farmers replaced Jyothi variety with varieties like Uma and Ponmani, the yield has increased. The average productivity and cost of production of paddy during the two periods is presented in Table 4.24. The Benefit-Cost ratio for 2005-06 was 1.44 which increased to 1.69 in 2011-12.

Table 4.24. Economics of paddy production during 2005-06 and 2011-12

Particulars	2005-06		2011-12	
Average Yield (kg/ha)	2899		3469	
	Current price	Constant price	Current price	Constant price
Gross Income (₹/ha)	40638	38748	78197	46241
Gross Expenditure (₹/ha)	28302	26985	46300	27379
Net Income	12336	11763	31897	18862
Cost of production (₹/kg)	8.34	7.95	12.98	7.68
B:C ratio	1.44	1.44	1.69	1.69

4.7.2 Resource use efficiency in paddy production during 2005-06 and 2011-12

Total farm income includes returns from paddy and returns from the by product, straw. The relationship between yield and use of different inputs like seed, fertilizers and manures, hired human labour, machine labour, family labour and plant protection chemicals was studied. Cobb-Douglas production function has been derived to express the relationship between cost of inputs at current price and yield of paddy in kilograms. The log form of the equation are given as follows.

For the year 2005-06 the relationship derived was

$$\ln Y = 1.965 + 0.236 \ln X_1 + 0.358 \ln X_2 + 0.150 \ln X_3$$

For the year 2011-12 the relationship derived was

$$\ln Y = 2.177 + 0.325 \ln X_1 + 0.286 \ln X_2 + 0.109 \ln X_3$$

Where,

Y = Paddy yield

X_1 = Cost of seed

X_2 = Cost of Fertilizers and manures

X_3 = Cost of hired human labour

The results of the regression analysis is presented in Table 4.25.

The above equations show that the relationship between yield and cost of the inputs are almost similar during both the periods. The regression co-efficient of hired human labour for the year 2011-12 is 0.109, which is less than the value for the year 2005-06 (0.150), indicating that the influence of this input in the farm income has come down. Farmers are rationally restricting the use of hired human labour due to its high cost and unavailability at the required time. Use of more hired human labour at a delayed time may not produce more yield than its use in required quantity and at required time.

Table 4.25. Statistical significance of relationship between yield and level of input used

Sl. No.	Variable	2005-06		2011-12	
		Co-efficient	't' value	Co-efficient	't' value
1	Seed	0.236*	2.427	0.325**	3.753
2	Fertilizers and manures	0.358*	3.246	0.286*	3.404
3	Hired human labour	0.150*	2.375	0.109*	2.604
4	Constant	1.965**	3.612	0.946**	4.468
		R^2=0.83 Adj. R^2=0.81		R^2=0.896 Adj. R^2=0.886	

**Significant at 0.01 level of probability
*Significant at 0.1 level of probability

The elasticity of production, which is the percentage change in the output due to one per cent change in one input keeping the other inputs constant, is calculated and given in Table 4.26. The elasticity of hired human labour has registered a decrease from 1.16 to 1.12.

Table 4.26 Elasticity of production of inputs in paddy cultivation

Input	Elasticity of production	
	2005-06	2011-12
Hired human labour	1.16	1.12
Seed	1.27	1.38
Fertilizers and manures	1.43	1.33

4.7.3 Allocative efficiency of inputs in paddy cultivation

To know the allocative efficiency of various resources, the ratios of marginal value product (MVP) of various resources to their respective marginal factor costs (MFC) were computed and are presented in table 4.27. In all the cases the allocative efficiencies are less than one indicating under use of resources. Also it could be seen that for hired human labour and fertilizers and manures, the allocative efficiency has

fallen in 2011-12. But the higher value for seed indicates the better performance of the paddy varieties.

Table 4.27 Allocative efficiency of inputs in paddy cultivation

Input	Allocative efficiency	
	2005-06	2011-12
Hired human labour	0.003	0.002
Seed	0.41	0.49
Manure	0.35	0.29

4.8 Constraints faced by farmers and beneficiaries in the study area

4.8.1 Constraints faced by farmers

Garret ranking technique was employed to rank the problems faced by farmers due to change in labour market scenario after the implementation of MGNREGS. This ranking technique is most suited when respondents are not ranking all the constraints. The omitted parameters are nullified by taking percentage score. The constraints perceived by farmers with their respective scores are provided in Table 4.28. Non availability of labourers was the problem ranked first with aggregate score of 61.79. This indicated the importance of availability of labourers for completing the work on time. The sowing has to be completed in one or two weeks to observe uniformity in crop stand and to mitigate water scarcity. The unavailability of labourers on time may be the reason for shifting from transplanting to broadcasting.

Deterioration in quality of works was the second most important problem faced by farmers in managing farm labourers. This constraint got a total score of 58.47. This observation was in agreement with the lower value obtained for elasticity of hired human labour in paddy production (Table 4.27). The deterioration in quality of unskilled labourers has been attributed to the relaxed supervision under MGNREGS, which in the long run has resulted in reduced labour productivity in agricultural sector.

Wage rate increase was the third most important problem with a score of 50.24 according to the farmers' perception. The local wage rate of hired women labourers was increased by 200 per cent during the study period. Loss of sincerity of labourers was also a cause of major concern among the farmers with a score of 49.08. The loss of sincerity and deterioration in quality of works may also lead to reduced labour productivity.

Table 4.28. Ranking of problems in agricultural labour market after the implementation of MGNREGS as perceived by farmers

Sl No.	Problem	Garret Score	Rank
1	Labourers are not available in time	61.79	1
2	Quality of work deteriorated	58.47	2
3	Wage increase	50.24	3
4	Labourers became less sincere	49.08	4
5	Not finishing work in time	48.53	5

The other problems perceived as important by the farmers included dilution in the ownership of farm works by farm labourers. During 2005-06 labourers were considering farm works as their sole source of income, and they used to keenly monitor the crop stand and stages. After the introduction of MGNREGS, it became the major source of income and provider of livelihood security to labourers. The emotional attachment of agricultural labourers to farming faded away. The sincerity and ownership of farm works was seen lost. The farmers had opined that they could feel a gradual drain in the organic relation that existed between them and the labourers.

4.8.2 Constraints faced by MGNREGS beneficiaries

Among the beneficiaries, most important problem perceived was delay in getting payment. 73 per cent of beneficiary respondents were expressed inconvenience due to delayed payment of MGNREGS wages. Beneficiaries used to work outside the scheme for at least a day in a week so that their day to day expenses are met. The average delay in payment reported under the scheme was about two weeks. A further delay of more than one week for realization of the cheques issued to beneficiaries was also observed.

Over lapping of MGNREGS works and agricultural works cause concern among the beneficiaries. 53 per cent of the beneficiaries had pointed out this inconvenience. Beneficiaries have to forego one of them when they overlap. The mates under MGNREGS who are elected from among the executive body members of the Kudumbasree ADS (Area Development Society) usually are not agricultural labourers. Hence their concern about the need for timely availability of workers for farm operations is limited. Mates have not been provided sufficient orientation about the guidelines regarding the scheduling of MGNREGS works according to the seasonality of agricultural operations and preparation of calendar of operations. Employment opportunities other than MGNREGS and agricultural works are limited in the study area. This necessitates the utilization of both the opportunities for sufficiency of annual income of the beneficiaries.

Even though 18 small and marginal farmers had applied for the job card, only two had received the job card in time. A delay of more than six months was reported in the remaining cases. Thus they were deprived of their legitimate right to fall in the purview of the eligible group of beneficiaries who could take up projects under MGNREGS in their individual lands.

Acute staff shortage and lack of accountability on the part of supervisors are the problems perceived by the implementing officers. There were only three staff in

the block level, one Block Programme Officer as the implementing officer and two temporary staff for office assistance. In the grama panchayat level the Panchayat Secretary is designated as the MGNREGS implementing officer in addition to the duties performed by him as secretary to the grama panchayat. All the other staff were temporarily appointed on contract basis. There were two temporary staff in Kuzhalmannam grama panchayat, one Employment Guarantee Assiatant (EGA) and one Technical Assistant (TA) and four temporary staff (two EGA and two TA) in Pattanchery grama panchayat. The accountability of temporary staff is limited to the duration for which they are being engaged in the scheme. The measurement of works in most of the work sites could not be completed in time before the deadline of wage payment. Hence, in many instances it was not possible to ensure strict follow-up of Schedule of Rates (SoRs). The SoRs were prepared according to the guidelines issued for previous central government schemes where machines had also been employed. The wage rate declared under MGNREGS is incidentally much less than that of those schemes.

4.9 Labour management and suggestions for better utilization in agricultural sector

MGNREGS is implemented under *Panchayati Raj* system with support and supervision from the block, district and state level rural development bodies. Panchayat secretary, Block Programme Officer, District Programme Coordinator, State Employment Guarantee Council (SEGC) and Central Employment Guarantee Council (CEGC) are the responsible authorities for implementing the programme at the respective levels. Panchayat is the grass root level agency for planning and implementation of the scheme. Kudumbasree system of community organization is also involved in implementation of the scheme. MGNREGA 'Mate' who is responsible for organising, coordinating, executing and supervising the work force and works is selected from among the executive body members of Kudumbasree ADS. The mate is responsible for organizing the labour force, convening pre-project

meetings, organizing worksite facilities and maintaining muster rolls. They conduct the pre-execution measurements as well as participatory identification of projects. Muster rolls and site diary are also maintained by the mates. Mates have the responsibility of ensuring that there is no free rider in their group. For every group of 40 workers there will be one mate. Demand for work on behalf of the beneficiaries is made by the mates.

Annual estimate of demand for labour (labour budget) and action plan has to be prepared by each grama panchayat. Neighbourhood Group (NHG) meetings and discussions will be conducted for preparation of labour budget and action plan. After ADS level consolidation of suggestions received from NHG meetings, worker's grama sabha and general grama sabha will be convened for preparation of the labour budget and action plan. This is further scrutinised and improved in the panchayat level by the panchayat level working group on poverty reduction. Village panchayat committee meeting will finalise the action plan. The panchayat level labour budgets will be consolidated at the block level for preparation of block level labour budget. This is further consolidated in district, state and central levels. The guideline also stipulates preparation of calendar of operations in the grama panchayat level.

In the study area also, all the procedures had been followed in preparing the labour budget and action plan. But the calendar of operations was not seen prepared, which could have led to the overlapping and clashes between agricultural operation and MGNREGS works.

MGNREGS visualizes creation of employment opportunities in rural areas and the resultant cessation in rural migration. Prominence of soil and water conservation works supporting agriculture and allied activities in the scheme indicates its importance in overall rural development. Unemployment during slack season is a major concern of rural workers and MGNREGS has the inbuilt capacity to address this problem. Assurance of timely availability of sufficient farm labourers for

the agricultural activities has to be ensured in the MGNREGS labour budget so that the twin objectives of livelihood security and food security could be accomplished.

As we have seen earlier, unavailability of labourers in time is the prime impact of implementation of MGNREGS as perceived by the farmers. Kerala has been facing labour shortage in farming sector even before the introduction of MGNREGS (Kannan, 2011). The study shows that MGNREGS has further intensified the labour shortage due to sharing of available labour between MGNREGS and farming. Almost all labourers ranked MGNREGS as their best opted job among all the employment opportunities available. This will lead to unavailability of labourers for farming in the long run, which in turn would destabilize the overall rural economy and sustainability. Based on the survey, personal interview with various stake holders, discussions and field visits, the following suggestions are put forth to improve the labour management.

1. Creation of a secondary data base of MGNREGS workers, segregating between regular agricultural workers and others. A co-ordination group comprising of *Padasekhara Samiti* secretary/president, representatives from the MGNREGS beneficiaries-cum-agricultural workers, people's representatives and officials from agricultural depertment and MGNREGS has to be formed.
2. The *krishi bhavans* may prepare the calendar of operations of agricultural activities and this calendar of operations can be used by the MGNREGS implementing office for scheduling of MGNREGS works. The stakeholder group can provide suggestions about scheduling of MGNREGS activities so that during peak agricultural seasons workers are available for farming operations. Those who are in critical need for MGNREGS work during peak agricultural seasons may only be provided employment under the scheme, thus ensuring availability of labour force for agricultural operations.

3. As majority of the farmers are constrained by capital (nearly 50% are small and marginal farmers), they could not invest in the land development. In order to reduce the cost of cultivation, use of machine could be resorted to. Use of machine labour is economic if leveling and re-sizing of small pieces of plots is done. But the initial cost involved in the conversion of small plots into larger plots is high. More labour is also required. So, bund construction/dismantling works of paddy fields could be included as a onetime land development work under MGNREGS. This would act as a long term solution for combating labour shortage as well as reducing cost of cultivation.
4. As noticed earlier, job cards are not being issued in time for those farmers who had applied for MGNREGS registration. The delay is more than one year in some cases. Farmers are not taking follow up measures, because they are not sure about taking land development works in their wet lands. They are small and marginal farmers, owning very less garden land and comparatively more wet land. Considering the special condition of the study area, MGNREGS works could be done in wet land also. Job cards should be issued to all applicants irrespective of their landholding size, with in a fortnight.
5. Supervision is essential for improving the quality of work. Average labourers employed per day in the study area was 361.But the number of overseers to supervise them spread over various sites was only one or two. In addition to field work they have to maintain the job records also. This heavy work often leads to lapses in supervision. The overseers being appointed on temporary basis, they could not be held responsible for the lapses. Hence efficient and accountable supervisory system is to be ensured to overcome this lacuna.
6. Sufficient trainings and goal orientation sessions should be provided for various stake holders like supervising officials, implementing staff, people's representatives and scheme beneficiaries including mates. Chathukulam and

Gireesan (2007) had also emphasized need for the capacity building at various levels. The tenure of supervising and implementing staff should be increased for long term benefits.

7. Present Schedule of Rates (SoRs) are based on the rates fixed by Public Works Department. The beneficiaries under the scheme being unskilled manual workers, including disabled, aged and the weak and hence the SoRs are incomparable. Moreover, the wage rate under the scheme is less than that of PWD works. The wages paid are often based on inflated measures. Mehrotra (2008) also opined the unscientific method of fixing SoRs without considering the condition of workers, climatic condition and regional specifications. Hence creation of location specific and age specific Schedule of Rates under the scheme would help to overcome the discrepancies and ensure objective supervision.
8. The ultimate solution for the labour scarcity and high labour cost now available is mechanization. Light weight and user friendly machines are becoming popular in paddy fields of Kerala. A step towards mechanization is through formation of labour army or *Thozhil Sena*. *Thozhil Sena* has been already formed in some parts of the study area with the help of watershed development projects.
9. The major constraint in agriculture is labour shortage. The labour available under MGNREGS need to be utilized for agriculture. This requires high level of integration and co-ordination with the department of agriculture. Convergence of the schemes under MGNREGS and agricultural sector will result in the overall rural development. Mahila Krishi Sashaktikaran Pariyojana (MKSP) is the central government scheme for empowerment of rural women through enhancing their productive participation in agriculture and enhancing their sustainable livelihood. This scheme is a sub component of Natioal Livelihood Mission (NLM). The MKSP is being implemented in

Palakkad district on a pilot basis. MGNREGS beneficiaries can be trained for operating light weight agricultural equipments. This will also increase the employment opportunity of the beneficiaries.

10. Palakkad is the only district of Kerala covered under National Food Security Mission (NFSM). There is ample scope to improve labour use efficiency in paddy cultivation in the district under NFSM. Supply of light weight machines like conoweeder, rotavator, seed tiller, power tiller and seed drill are targeted under the scheme. Annual budget outlay for Palakkad district under NFSM for the year 2011-12 was ₹3.04 crores. Integration of MKSP, NFSM and other agriculture related schemes with MGNREGS should be done.
11. In the case of horticultural crops, there is ample scope for land development activities under MGNREGS. Though the works will be for one time, with long term planning and project approval the works could be spread over three or more years. The perennial nature of horticultural crops and tree crops necessitate formulation of multi- year projects for implementation.

SUMMARY

V. SUMMARY

The Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is the ever largest rural development scheme implemented by the Government of India. The objective of the scheme is to enhance livelihood security of the rural poor by providing 100 days of assured wage employment for every rural household who are willing to do unskilled manual works. The scheme was first introduced in February, 2006 in 200 backward districts of the country and later on it was extended to all over the country by April, 2008. The distinct feature of the scheme is its legal obligation to provide the minimum stipulated days of employment wide the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 2005. On an average more than ₹30,000 crore has been allocated under the scheme during the last three years.

The scheme ensures livelihood security of the rural poor through creation of durable assets, improved water storage, soil conservation and land productivity. The multiple environmental services provided by MGNREGS include increased ground water recharge, increased soil fertility, reclamation of degraded lands and carbon sequestration. The assets created under the scheme have capacity to increase capital formation in agriculture. Being a rural development programme, the target people also include farmers and agricultural labourers. The employment opportunities under this public works programme may cause shortage of labourers in agricultural sector. This may result into hike in wage rate of agricultural labourers.

So, the study analysed the effects of MGNREGS on agricultural labour, its influence on agricultural wages and farm income. The study also provided suggestions for labour management under the scheme for better utilization in agricultural sector.

The study was conducted in Palakkad district of Kerala state which was one among the districts where the scheme implemented in first phase in 2006. For

comparison of impacts of MGNREGS on various parameters, the data pertaining to the financial years 2005-06 and 2011-12 were used. Based on the maximum lead in implementation of the scheme and maximum area under paddy cultivation two grama panchayats from the two block panchayats were selected purposively for the study. Farmers and MGNREGS beneficiaries (20 each) from each grama panchayat were randomly selected for collecting primary data. Implementing officials, work supervisors and people's representatives were also interviewed for eliciting information required for the study. Thus the total sample size was 120. Based on the objectives, review of literature, discussions with experts and observations made by the researchers, variables such as socio-economic characteristics of the respondents, crops and cultivation practices, input and labour use pattern, yield and profitability in paddy cultivation and various types of works under the scheme implemented in the stud area are selected for the study. The interview schedule was pre-tested in a non-sample area and validated in the pilot study. The final interview schedule was prepared by necessary modifications, additions and deletions based on pre-tested results. Statistical tools like tabular presentation, paired 't' test, functional analysis and Garrett's ranking technique are used for analysis of the data.

More than 90 per cent of the beneficiaries under the scheme were women. Among the shelves of projects under the scheme, flood control, repair and renovation of traditional water bodies and micro irrigation projects were the major activities undertaken by Palakkad district, Pattanchery and Kuzhalmannan grama panchayats respectively. More than 90 per cent of the fund was utilized for the works that are having boosting effect on agriculture. As there was no provision for implementing works in individual lands owned by small and marginal farmers during 2011-12, there was no works undertaken in such lands. There was increase in the water availability in surrounding fields where the water conservation works were carried out. There is huge scope for carrying out soil and water conservation works in the study area.

Majority (55%) of the farmers fell under large farmer category and there was no provision for implementation of MGNREGS projects in their individual lands. They have not applied for job card under the scheme. Most of the small and marginal farmers have applied for job card with the expectation that their individual lands will be covered under the scheme. But they were not received job card with in the stipulated time. Majority of beneficiaries were having small dwellings and they are landless labourers.

Average annual income of farmer households was ₹1,60,997/- during 2011-12 where as it was ₹51,145/- among beneficiary households. The average work days of beneficiaries was increased from 67 during 2005-06 to 85 during 2011-12. The average annual income of MGNREGS beneficiaries was increased from ₹3069/- during 2005-06 to ₹7568/- during 2011-12. The additional income derived out of MGNREGS participation was used for meeting household consumption expenditure at subsistence level. Average labour days of the beneficiaries in agricultural works had decreased from 64.6 during 2005-06 to 20.4 during 2011-12. The average annual income of the MGNREGS beneficiaries from agricultural works was decreased from ₹3116/-during 2005-06 to ₹1810/- during 2011-12. Agriculture was the major source of employment for beneficiaries before MGNREGS and MGNREGS was the major source of employment after its implementation.

MGNREGS labour days and education status of the beneficiaries were found to have a negative influence on their extent of participation in agricultural works. The scheme has aggravated the already existing labour shortage in agriculture sector.

A comparison of statutory minimum wages of agricultural labourers, prevailing wage rate in the agriculture sector in the study area and MGNREGS wages showed that minimum wage rate was less than agricultural wage rate and local labour rate. There was a tendency to increase local labour rate in accordance with the increase in MGNREGS wage rate. There was 200 per cent increase in the local wage rate for women labourers between 2005-06 and 2011-12, which is more than the rate

of increase of the CPI (Consumer Price Index). MGNREGS wages was increasing year by year, there was 20 per cent increase between 2006-07 to 2011-12. The high wage rate, relaxed supervision and social acceptance of public works in MGNREGS made it a preferred job for the beneficiaries.

Paddy is the major crop in the study area and it is a labour intensive crop. So the operation wise and cost wise analysis of paddy cultivation was done to assess the impact of the scheme on agricultural labour market. The labour intensive operations were replaced with less labour intensive practices. For instance, transplanting was replaced by broadcasting method, manual weeding with use of chemical weedicides and manual harvesting with machine harvesting. Straw was left in the field itself by most of the farmers so as to reduce labour cost. Human labour use in paddy cultivation was decreased from 82 to 71 labour days/hectare (15.5%).Where as the labour use for weeding was increased by 60 per cent from 20 to 32 labour days/ha.

Analysis of cost of cultivation of paddy showed that, among the various inputs, hired human labour component accounts for a major share of 49 per and total labour cost was 65 per cent of the total cost during 2005-06. During 2011-12 the hired human labour cost is 44 per cent of total cost. Cost of cultivation at constant prices during 2005-06 and 2011-12 was ₹26,985/- and ₹27379/- respectively. Labor components together accounted for 62.49 per cent of the total cost of cultivation. The reduction of share of labour component during 2011-12 is due to adoption of machine operations and less labour intensive practices. During the reference period average yield of paddy was increased from 2899 kg/ha to 3469 kg/ha. Cost of production of paddy was decreased from 7.95 to 7.68 ₹/kg at constant prices.

A Cobb-Douglas model of production function was derived for analyzing the resource use efficiency in paddy cultivation. There is slight decrease in the elasticity of production due to hired human labour use from1.16 during 2005-06 to 1.12 during 2011-12. Allocative efficiency of hired human labour was also decreased from 0.003 to 0.002.

Ranking of the constraints faced by farmers due to the implementation of MGNREGS was done. It shows that unavailability of labour is the problem perceived as the most important by farmers. The other problems are deterioration in quality of work, wage increase and less sincerity of farmers in their decreasing order of priority. Delay in payment of wages and overlapping of MGNREGS works and agricultural works are the most important problems faced by the beneficiaries. The small and marginal farmers are facing delay in getting job cards in time.

Formation of stakeholder group consisting of representatives of farmer's representatives, beneficiaries who are willing to work in the agricultural sector, people's representatives and work supervisors is required for effective scheduling of MGNREGS works. The schedule should be such that there is no MGNREGS works during peak agricultural operations time. Bunding and re-sizing of paddy lands in the study area could be done as one time land development project under MGNREGS. Formulation of worker specific, and region specific and wage linked Schedule of Rates (SoRs) is required. There should be sufficient supervising staff and their tenure and experience should be sufficiently enough for meeting the long term objectives of the scheme. The role of the lead department at the grass root level for agricultural development, the department of agriculture has to be redefined in ensuring integration and co-ordination of agricultural schemes with MGNREGS to sustain overall rural development.

Future Line of Work

Extending the study to the whole of the district/state including more crops and variables and assessment of impact of the MGNREGS on natural resource conservation and management also may be attempted in future.

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APPENDICES

Appendix 1

Questionnaire For Farmers

KERALA AGRICULTURAL UNIVERSITY (KAU)
COLLEGE OF HORTICULTURE
KAU PO.Thrissur 680656
Department of Agricultural Economics

IMPACT OF MGNREGS ON AGRICULTURAL LABOUR MARKET

The information furnished will be used only for the research purpose and the data will be kept strictly confidential

1) i. Name :
ii. Address :

Ration Card No.

iii. Contact Number :

iv. Religion: GEN/OBC/SC/ST/OTHERS

2) Family Particulars:

Sl No	Name	Gender	Relationship	Age	Occupation		Education

3) i. Applied for job card: Yes/No

ii. Purpose of application for job card

Employment Labourers in farm Insurance/Pension Other

iii. Job card holder (Yes /No):

iv. No of days of work done:

v. Participate in all works (Yes/No):

4) Previous occupation:

Sl no.	Name	Annual Income before MGNREGS(2005)			Annual income after MGNREGS (2011)		
		Agriculture	*Others*	*Total*	*Agriculture*	*Others*	*Total*

4) Area under cultivation:

Slno	Particulars	Wetland		Garden land		Dry lands	
		Crop	Area	Crop	Area	Crop	Area
1	Area owned						
2	Area leased in						
3	Area leased out						
4	Net sown area						
5	Area sown more than once						

ii. Change in area under cultivation before and after MGNREGS

Sl No.	Crop	Area before MGNREGS	Area after MGNREGS	Reason
1				
2				
3				
4				
5				
6				

6) Expense Pattern

Sl No.	Particulars	2011-12	2005-06
1.	Food		
2.	Fuel/Gas		
3.	Health		
4.	Education		
5.	Travel		
6.	Entertainment		
7.	Communication		
8.	Others		
9.	Total		

7) Loan particulars

Bank Year Type of loan Amount Outstanding Interest rate Purpose

i. 2005-06

ii. 2011-12

8) Livestock owned by the farmer

Sl No.	2005-06			2011-12		
	Type	Breed	No.	Type	Breed	No.

9) i. Labour Use pattern (2005-06)

Sl no	Particulars	Labour type			Requirement)		Prevailing wage rate			Contract payment (₹/ acre)	Value of kind payment
		Labour Type	Men	Women	Days	Hours	Unit	Men	Women		
1.	Land Preparation										
2.	Seed treatment & Sowing/planting/ Gap filling										
3.	Weeding										
4.	Inter-cultivation& Plant protection										
5.	Harvesting										
6.	Post harvest operation										

1. Hired labour 2.Family labour 3.Machine labour 4.Bullock labour

ii. Labour use pattern 2011-12

Sl no	Particulars	Labour type			Requirement)		Prevailing wage rate			Contract payment (₹/ acre)	Value of kind payment
		Labour Type	Men	Women	Days	Hours	Unit	Men	Women		
1.	Land Preparation										
2.	Seed treatment & Sowing/planting/Gap filling										
3.	Weeding										
4.	Inter-cultivation& Plant protection										
5.	Harvesting										
6.	Post harvest operation										

Sl no	Particulars	Season/ Month & Year	Men				Women			
			Required	Available	Delay	Regular	Required	Available	Delay	Regular
	Land Preparation	2005 1st								
		2005 2nd								
		2011 1st								
		2011 2nd								
	Seed treatment & Sowing/planting/Gap filling	2005 1st								
		2005 2nd								
		2011 1st								
		2011 2nd								
	Weeding	2005 1st								
		2005 2nd								
		2011 1st								
		2011 2nd								
	Inter- cultivation& Plant protection	2005 1st								
		2005 2nd								
		2011 1st								
		2011 2nd								
	Harvesting	2005 1st								
		2005 2nd								
		2011 1st								
		2011 2nd								
	Post harvest operations	2005 1st								
		2005 2nd								
		2011 1st								
		2011 2nd								

11) i. Do you have permanent set of labourers working with you?
ii. If yes, For how many years?
iii. If not, What was their previous job?
iv. If labourers are from non-agricultural sectors any problem due to lack of experience?

v. Please rank reason for opting methods other than manual labourers for cultivation operations (1.To reduce cost, 2. To reduce delay, 3. To overcome labourers shortage, 4. To reduce dredgery, 5. others)

12) Wages change (for agriculture labour) before and after MGNREGS

Type of work	Before MGNREGS	After MGNREGS
Men		
Skilled		
Un-skilled		
Women		
Skilled		
Unskilled		
Non-farm works		

Type of work		Before MGNREGS	After MGNREGS
1. House hold works	Men		
	Women		
2. Other works	Men		
	Women		

13) Cost of cultivation

i. 2005 data, crop:Rice (₹/ Acre)

Input used	Time of application (DAS)	Source of purchase	Quantity applied		Rate	Transpo rtation cost	Other expenses	Subsidies if any	
			Unit	Quantity				Rate/Unit	Total
Seed									
Fertilizer									
Urea									
SSP									
MOP									
Complex									
Lime									
Weedicide									
Insecticide/ Fungicide									
land Cess									
Water Cess									
Others									

ii. 2011 data, crop: (₹/ Acre)

Input used	Time of application (DAS)	Source of purchase	Quantity applied		Rate	Transpo rtation cost	Other expenses	Subsidies if any	
			Unit	Quantity				Rate/Unit	Total
Seed									
Fertilizer									
Urea									
SSP									
MOP									
Complex									
Lime									
Weedicide									
Insecticide/ Fungicide									
land Cess									
Water Cess									
Others									

14) Yield and Returns

Year	Crop 1			Crop 2			Crop 3			Total ₹.
	Quantity	Rate	Revenue	Yield	Rate	Revenue	Yield	Rate	Revenue	
2005-06										
2011-12										

15) i. Ranking of Impact of MGNREGS on Agricultural Labour

1. Labourers are not available
2. Wage increase
3. Quality of work deteriorated
4. Time norms changed (less work time, more rest time)
5. Not finishing work in time
6. Preferring MGNREGS work to agricultural works
7. Not getting enough time for cultivation of own land
8. Less sincere
9. Traditional farm labourers are not available
10. No impact
11. Delay in availability

ii. Comparison in quality of work before and after MGNREGS

Sl No.	Statement	Score				
1	labourers are more sincere					
2	Labourers are not strictly following time norms					
3	Labourers are showing good group synergy					
4	Labourers are not keeping their promise/ not coming on dates as they promised					
5	Labourers are having good knowledge about cultivation practices					
6	MGNREGS works are not scheduled during important cultivation activity times					
7	There is involvement of people from all sectors in farming after MGNREGS					
8	Labourers take initiative in crop protection and other after cultivation activities					
9	Farmers cultivation activities should be supported with MGNREGS					
10	Framers can share 50 % wages if MGNREGS workers are used (50% Govt.)					
11	There should be a benchmark for wages fixed by panchayat for agricultural activities					
12	All should not be given equal wages					
13	Old aged people and women should get consideration					
14	Wages hike of farm labourers should be compensated with remuneration while MGNREGS wages are revised					
15	Machine operations are more remunerative					
16	There is good scope for mechanization of fields					
17	Farming is easier with machines than manual practices					
18	There is no relationship between agricultural wages and MGNREGS wages					
19	Labourers prefer MGNREGS to farming as MGNREGS has more reputation					
20	I am getting enough time to take care of my farm after participating in MGNREGS					
21	I opt working under MGNREGS than farming/ cultivation					

(Score 1-very high, 2-High, 3-Medium, 4-low, 5-Very low).

16) Suggestion for improvement

1. By scheduling works without Coinciding cultivation season
2. By converging
3. By govt. support on private farming
4. Any other suggestion

Appendix II

Questionnaire For MGNREGS Beneficiaries

KERALA AGRICULTURAL UNIVERSITY (KAU)

COLLEGE OF HORTICULTURE

KAU P.O

Vellanikkara

Thrissur 680656

Department of Agricultural Economics

IMPACT OF MGNREGS ON AGRICULTURAL LABOUR MARKET

The information furnished will be only used for the research purpose and the data will be kept strictly confidential

1) Name:
2) Address:

Contact Number

3) Ration Card No.

4) Religion: GEN/OBC/SC/ST/OTHERS:
5) Family Particulars:

Sl No	Name	Relationship	Age	Occupation		Education

6) Job card holder :(Yes /No)

Purpose of application for job card

Employment *Insurance/Pension* *Other*

7) No of days of work done:

8) Participate in all works (Yes/No):

9) Previous occupation:

10) Occupation other than MGNREGS

11) Annual Income before and after MGNREGS

Sl no.	Name	Annual Income before MGNREGS (2005-06)		Annual income after MGNREGS 2011-12		
		Job days	Wages	MGNREGS	Others	Total

12) No. of person days of employment available before and after MGNREGS

Sl no.	Name	Before MGNREGS			After MGNREGS		
		Main	Others	Total	MGNREGS	Others	Total

13) Wages change before and after MGNREGS

Type of work	2005-06	2011-12
Ploughing		
Bund preparation		
Sowing		
Weeding		
Fertilizer Application		
Insecticide/weedicide application		
Harvesting		
Post harvest operations		
Non-Farm works 1.House hold works		
2. Other works		

14) Assets Created

Sl No.	Particulars	2005	2006	2007	2008	2009	2010	2011	2012
1	Fridge/TV/Motor pump etc.								
2	House								
3	Gas/stove								
4	Vehicle								
5	Loan repayment								
6	Cattle								
7.	Land								
8	Gold								
7	Others								

15) Expense Pattern

Sl No.	Particulars	2005-06	2011-12
1.	Food		
2.	Fuel/Gas		
3.	Health		
4.	Education		
5.	Travel		
6.	Entertainment		
7.	Communication		
8.	Others		
9.	Total		

16) Impact assessment

EMPOWEMENT

Sl No.	Statement	5	4	3	2	1
1.	Family income has increased					
2.	My contribution to family income has increased					
3.	Household indebtedness reduced					
4.	Could repay outstanding loans					
5.	Could buy modern consumer durables like fridge/mobile phone					
6.	Have self reliance with respect to personal expenditure					
7.	I have ability bank account/post office account					
8.	I could buy/renovate/improve existing house structure					
8.	My knowledge about govt. development activities has increased					
9.	My opinion is valued in family decision making					
10.	My recognition in family is increased					
11.	I could afford better education facility for my children					
12.	My investment in agriculture or allied activities has increased					

17) Impact on agricultural sector

1.	My own area of cultivation has decreased after participation in MGNREGS					
2.	I am attending agricultural works only when MGNREGS works are not available					
3.	In MGNREGS drudgery is lesser than agriculture					
4.	Work conditions are improved in MGNREGS					
5.	I may not get govt. benefits if I am not participating in MGNREGS					
6.	I will get sure employment in MGNREGS					
7.	Working under MGNREGS is more dignified than agricultural works					
8.	I am getting fixed wages for any work under MGNREGS					
9.	Time norms are convenient under MGNREGS					
10.	Do not like strict personal supervision of farmers					
11.	MGNREGS scheme cause labour scarcity in agriculture					

18) Suggestions for improvement

By scheduling works without coinciding cultivation season

By converging

By govt. support on private farming

Any other suggestion

Appendix III

Questionnaire For Implementing Officials

KERALA AGRICULTURAL UNIVERSITY (KAU)

COLLEGE OF HORTICULTURE

KAU

P.O

Vellanikkara

Thrissur 680656

Department of Agricultural Economics

IMPACT OF MGNREGS ON AGRICULTURAL LABOUR MARKET

1. Name :
2. Gender :
3. Education :

4. Post :
4. Experience:
5. Address :

Impact Assessment

Ranking of statements

1. Livelihood improved
2. Labour productivity reduced
3. People's awareness about govt. schemes improved
4. It resulted in non-availability of labourers in other sectors like agriculture
5. It resulted in increasing wages of labourers
6. Banking habit of people improved due to the scheme
7. People's purchasing habit has increased/improved
8. Social status of beneficiaries increased
9. No need to live away for job during lean agrl seasons
10. ANY OTHER IMPACTS

Ranking of factors affecting success of the scheme

Planning	Rank	Implementing	Rank
Selection of projects		Adherence to time schedule	
beneficiary		Work site facilities to beneficiaries	
Impact assessment		Adherence to scientific implementation	
Fund allocation		Adherence to govt. orders	
Labour budgeting		Timely payments	
		Inclusion of all sectors of society	

Supervision	Rank	Awareness Creation	Rank
Timely measurement of work		Trainings/orientation class for beneficiaries	
Monitoring of impact of activities on envt., health, agr. etc.		Social inclusion/Participation of all sectors of society	
Reporting, Corrective measures there and then		Accounting public opinion , expert opinion , farmers opinion etc.	
Proactive govt. orders		Updation of scientific knowledge	
Follow up of implemented projects		Awareness and updation of govt. orders by implementing officials	
		Free and speedy communication between hierarchies	
		Creation of awareness about beneficiary rights	

ASSESSMENT OF IMPACT ON AGRL. LABOUR MARKET

Suggestions

IMPACT OF MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE SCHEME (MGNREGS) ON AGRICULTURAL LABOUR MARKET

By

SEENATH PEEDIKAKANDI
(2011-11-139)

ABSTRACT OF THESIS

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(Agricultural Economics)

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2013

ABSTRACT

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) is the flagship programme implemented by the Government of India, assuring 100 days of work for every rural household who are willing to do unskilled manual work. The scheme was initially implemented in February, 2006 and later on extended to all over rural India. The objective of the scheme is to enhance livelihood security of rural households by creation of durable assets. Budget allocation under the scheme during 2011-12 was ₹40,000 crores. This study analyzes the supply side effects of the scheme on agricultural labour, wages and farm income and provides suggestions for betterment of agriculture.

The study was carried out in Palakkad district of Kerala. Multistage purposive sampling procedure was adopted to select the sampling units. The criteria of maximum lead in implementing MGNREGS and maximum area under paddy cultivation formed the basis for selection of block panchayats and grama panchayats. Random selection of 20 beneficiaries and 20 farmers from each grama panchayat was done for eliciting information. In addition, MGNREGS officials, work supervisors and people's representatives were also chosen, thus making a total sample of 120. Personal interviews and focused group discussions were used to gather data. The data pertaining to the financial year 2005-06 and 2011-12 was compared for deriving the inferences.

More than 90 per cent of the total fund was used for works like water conservation and water harvesting, micro irrigation, renovation of traditional water bodies and land development. There is no supply of labour under the scheme in individual land owned by small and marginal farmers during the study period. Regular cultivation practices and individual lands of large farmers are not included under the scheme.

The average annual work days of the beneficiaries have increased from 67 to 85 (26.87%) after the implementation of the scheme and their annual income has increased from ₹ 3,069/- during 2005-06 to ₹7,568/- (147%) during 2011-12. Mean annual work days of the beneficiaries in agricultural sector had decreased from 65 to 20 and the income of beneficiaries from agricultural works also had decreased from ₹3116/- to ₹1810/-. Regression analysis showed that MGNREGS participation and agricultural works participation are inversely related, with a co-efficient of 0.19. MGNREGS wage has increased from ₹125/- to ₹150/- per day during the study period (20%). The wage rate for agricultural works is showing an upward trend linked with MGNREGS wage hike. Agricultural wage rate for women workers has registered 200 per cent increase from ₹50/- to ₹150/- per day. Though the MGNREGS wage rate is linked with the statutory minimum wage rate of the state, the latter remained unchanged from 2008 (₹150/- per day).

Total labour requirement for cultivation of paddy has decreased from 82 to 71 man days per hectare (15.5%). Male labour availability has decreased by 50 per cent and women labour availability 60 per cent. Hired human labour component, which accounted for 49.3 per cent of the total cost of cultivation during 2005-06 has fallen to 44 per cent. Functional analysis using the Cobb-Douglas model indicated that the elasticity of production due to labour input has decreased from 1.16 to 1.12.

Delay in getting labourers on time and fall in quality of work are perceived as the major constraints by the farmers. Delay in getting payment and over lapping of agricultural and MGNREGS works are the major problems faced by the beneficiaries. Formation of stakeholder group for work scheduling, implementation of one time land development works like field leveling and re-sizing under MGNREGS and utilization of remaining labour days for agricultural works by providing training for machine operations are suggested.