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Article *in* SSRN Electronic Journal · January 2016

DOI: 10.2139/ssrn.2730460

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RURAL EMPLOYMENT AND LABOUR LIVELIHOOD IN BIHAR: VILLAGE LEVEL ANALYSIS

R K P Singh, Abhay Kumar and K M Singh

1.0 Introduction

In recent years,several studies on the functioning of rural labour markets have appeared. An important observation in the literature is the prevalence of rural unemployment and under-employment, mainly due to increasing population pressures, an ever declining land-man ratio, small and fragmented holdings, highly iniquitous land distribution structures and lack of non- farm employment in rural area.. The nexus of landlessness, increasing labour force and poverty has assumed significance in improving livelihood of labour households, particularly in Bihar. In the most densely populated labour ï surplus economy of Bihar, the rural labour can play a significant role in generating rural income but this role is basically constrained from the limitation of sluggish growth in the agricultural sector. The growth potential of many rural based non ï farm activities facilitate the process of generation rural income which helps improving the livelihoods of rural labours. This study focuses on wage employment as a key element of improving household wellbeing, in rural Bihar. The rural labour force is growing but agriculture has limited capacity to absorb the increasing labour force in rural areas. Of course, one alternative option for rural labour in is to migrate to cities where there may be greater potential for steady employment. There is evidence that the members of poor households have indeed been migrating to urban centres at a rate faster than the rest of the population,although the number of poor in rural areas remains substantially higher than in urban areas(Ravallion, Chen &Sangraula, 2007). Another alternative to wage employment is the rural non-agricultural labour market. The data show that the rural non-agricultural economy has increased in importance in terms of its share of rural household income it provides and continues to grow (2001; Davis et al., 2007). What is less clear is the role that rural non-agricultural wage activities can play in providing a clear exit the agricultural labour force limiting the ability of the agricultural sector to absorb rural labour(World Bank, 2008). If this is correct, it raises questions about the potential for labour as a pathway to get out of poverty and whether it is truly so distinguishable from agriculturalwage activities. There remains a question of whether the rural non-agricultural economy can provide such employment opportunities. Both the nature of the work practised on farms and the seasonality of the demand for workers determine how rural labour is

organized. Rural labour markets are also likely to be limited by the absence of infrastructure to more densely populated areas.

A livelihood is any set of economic activities through which a household meets its basic needs and earns some cash income. When carried out on a repetitive basis, these tend to become a ñway of lifeò. The vast majority of people make a living through self ï employment or wage-employment in the informal sector. Livelihood comprises people, their capabilities and their means of living, including food, income and assets. Tangible assets are resources and stores, and intangible assets are claims and access. A livelihood is environmentally sustainable when it maintains or enhances the local and global assets on which livelihoods depend, and has net beneficial effects on other livelihoods. A livelihood is socially sustainable which can cope with and recover from stress and shocks, and provide for future generations (Chambersand Conway, 1992).

In Bihar the livelihoods of the poor can be characterized as follow**:**

Agriculture and allied sectors

* Cultivators, particularly small and marginal farmers

* Landless labourers

* Livestock-farmers and fishermen

Rural non-farm sector

* Artisans, e.g. Potter, Carpenter, Black smith, Barber

*Micro-enterprises, e.g. WoodWorkshop, Metal Workshop; Brick kilns, Construction material; Cycle/ MotorcycleRepair,Spare parts; Video Rental, Repair, TV Servicing; Small Tea Stall, Hotels, Cold Drink Shop; Grocers and General Merchants.

Using panel data, the article analyses employment generation, income of different categories of labour and the extent of indebtedness and earning level of rural labourers in rural Bihar. With a view to understanding their livelihood patterns, an attempt has also been made to analyse rural employment in villages of Bihar to examine the role of non-farm labour participation in the well- being of the rural population.

2.0 Data and Methodology

This study is based on the high frequency primary data collected fromlabour households by resident investigators over several years under the ICAR-ICRISAT collaborative project on ñTracking Changes in Rural Poverty in Household and Village Economies in South Asiaò. The data used in this paper pertains to four villages of Bihar; Arap and Baghakole villages of centrally located district of Patna and Susari and Inai villages located in north-eastern region ofDarbhanga district in Bihar. The five steps sampling procedure was followed for drawing a representative samples for detailed investigation. All 38 districts of Bihar were grouped in more developed and less developed categories on the basis of development indicators namely; agricultural development, socio- economic status and infrastructure parameters.A sample of two districts were selected randomly ï Patna district from more developed category and Darbhanga district from less developed district.A sample of one block from each district and two villages from each sample blocks were again randomly selected. The census was conducted in each sample village and information on demographic characteristics, land,dwelling houses, facilities available in dwelling house,livestock,agricultural and domestic assets, financial information were obtained from all the households in the village.All the households in a village were grouped in four categories. The first group was made with household having <0.5 acre of land. These household were termed as labour households. In the second step, the remaining households were equally distributed among tertile groups with the bottom, middle and top groups being referred to as ósmallô, ómediumô and ólargeô households, respectively.Thus four groups were created in each village. We selected 10 households from each group randomly, which makes up 40 sample households per village and 160 household for all the four sample villages of Bihar.

In the present paper, the analysis is focused on wage earning households only.At first income of household was worked out by their income through farm, farm labour,non-farm labour,salaried job,business,caste occupation,remittances,pension,subsidy and benefit from government programmes. Out of160,63 households earned more than 50 % of their income through working as labour in farm and non- farm activities in 2010.These households form the sample households for detailed investigation. Household level panel data of four years(2010 to 2013) are used for making relevant conclusions. Labour households are categorized in two groups namely; landless labour households and land owning households to understand the role of land base on their employment and livelihood pattern.

3.0 Study Area

3.1 Agro- economic Status: Bihar is the third largest state in India with respect to population and seventh largest in area. It supports 8.8 per cent of countryôs population with only 2.8 per cent of land mass. Agriculture is an important sector since it generates 16 per cent of State GDP but provides employment to 70 per cent of rural working force. About 69 per cent of total geographical area is used for cultivation but almost oneï third area is under problematic with respect to soil or ecological situation which includes Water logged area (0.40 million ha.), Diara area (0.93 million ha.), Alkaline soil (0.32 million ha), and Tal area (0.10 million ha.). Agricultural production showed increasing trend during last five years andproductivities

of most of cropsare comparable tocorresponding national averages. During 1983-94, there was almost no growth in agriculture sector in Bihar. Net State Agriculture Domestic Product stagnated at Rs.36 billion during 1983-94 but Net State Domestic Product increased from $ 1.64 billion to $ 2.14 billion (at 1980-81 prices). Per capita income increased by less than one US Dollar; from $ 22.29 to $ 22.98 during the period but poverty declined by 7.5 percent. Performance of agriculture was also much poor in ninth five year plan (-1.4%) and tenth five year plan (0.96%), as given in Table 1.2.

Table 1.2:Five Year Plan wise Growth in SGDP and SAgGDP in Bihar during last 17 years

Particulars	9th Five Year Plan	10th Five Year Plan	11th Five Year Plan	2011-2014
SGDP*	2.9	4.0	10.93	10.4
SAgGDP	(-) 1.14	0.96	2.6	3.7

*SGDP denotes State Gross Domestic Product and SAgGDP denotes State Agriculture Gross Domestic Product

Despite the poor performance of agriculture in eighth and ninth five year plans, incidence of poverty declined by more than 10% during the period. Under adverse situation of two flood years (2007 & 2008) and two drought years (2009 & 2010) during the period of Eleventh Five Year Plan, the state achieved 2.6% growth in agriculture and 10.93% growth in State GDP. Agriculture performed much better in Eleventh Five Year Plan and recorded SAgGDP growth of 31.06% in 2006-07 and 11.32 % in 2008-09.There was an improvement in agricultural performance during 2011 -14, mainly due to implementation of various mega projects sponsored by Government of India. Milk production also increased from 3.0 million tonnes in 2004-05 to 7.2 million tonnes in 2013-14. Fish production also increased from 0.27 million tonnes in 2004-05 to 0.43 million tonnes in 2013-14.

Agriculture is still an important sector in Bihar since it contributes about 16 per cent to State Gross Domestic Product and provides employment to about 70 per cent of working force in rural area. The state is characterized by small land holders in the country. More than 91 per cent of farm households belong to marginal farm category (less than 1 ha land) but own about 44 per cent of cultivated land in Bihar(Table 1.3).

Table1.3 Category wise distribution of landholdings in Bihar and India (%)

Farm size/Year	Bihar					India				
	2010-11	2003	1992	1982	1971	210-11	2003	1992	1982	1971
Marginal < 1 ha.	91.06	89.40	80.56	76.55	71.71	67.04	42.07	28.58	23.96	18.20
Small (1-2 ha.)	5.88	07.10	11.10	12.42	15.11	17.93	25.29	23.84	22.91	23.43
Semi-medium (2-4 ha.)	2.55	02.70	06.00	07.79	09.15	10.05	18.53	24.45	27.02	28.07

Medium (4-10 ha.)	0.50	00.70	02.14	02.82	03.66	4.25	09.56	18.68	20.22	23.63
Large > 10 ha.	.02	00.10	00.20	00.31	00.37	0.73	04.63	04.44	23.63	06.67
All farms	100	100	100	100	100	100	100	100	100	100

Agriculture sector experienced a drastic change with respect to public investment, use of inputs, extension activities and crop-milk-fish production. State government assigned priority to the sector through providing fund to this sector by increasing annual average budget allocation from less than Rupeestwo thousandmillion during 2001-06 to more than Rupees 10 thousand million during 2006-11. In Bihar, the State Agricultural GDP was almost stagnant at Rs 32.5 billion during 1981-94 and its growth was negative in Ninth Five Year Plan (-1.4%) which turned positive in Tenth Five Year Plan (0.91%). During 2004-11, State AgGDP grew at the annual growth rate of 2.7 per cent. However, State Gross Domestic Product recorded growth of 10.9 per cent during the period which was higher than corresponding growth achieved at national level. State agriculture sector also achieved spectacular growth of 31 per cent in the year 2006-07. But the state failed to maintain higher agriculture growth due to flood in 2007 and 2008, and drought in 2009 and 2010. Despite severe drought in 2010, the state recorded the food grain production of 125 lakh tonnes and milk production of 63 lakh tonnes, indicating sustainability in agricultural production in Bihar.

Per hectare Net State Agril. Domestic Product (NSAgDP) increased from Rs 29750 in 2001-06 to Rs 36,193 in 2006-11, which worked out to be an annual increase of 4.3 per cent during the period, indicating increase in productivity of crops and animal in the state. However, an increase in area under high value crops and increase in high yielding dairy animals have also been observed during the period. Average per capita Net State Agricultural Domestic Product also increased from Rs 1904 to Rs 2209 during the period but annual increase was lower than the increase in per hectare NSAgDP, mainly due to increase in population by 25 per cent during the period 2001-11, which was higher than annual agricultural growth in the state. Bihar ranks sixth among major states of India with respect to per hectare State Net Agricultural domestic Product but at the lowest ladder with respect to per capita SNAgGDP. State Government prepared the first road map in Eleventh Five year Plan and the second in Twelve Five Year Plan for development of agriculture and allied sectors and tried to implement several projects/programmes for faster development of these sectors in the state. It is a coincidence that the Union Government has also launched several Mega projects namely; National Horticulture Mission, Rastriya Krishi Vikas Yojna and National Food Security Mission for agricultural development which helped agricultural development in Bihar.

Climate of Bihar is favourable for production of various field crops but agriculture of the state is still dependent on behaviour of monsoon and distribution of rainfall. During the last 10 years, food grain production was the highest (122 lakh tonnes) in 2007-08 when state

received the normal annual rainfall (1196 mm) in 56 rainy days but produced the lowest food grain (79 lakh tonnes) in 2004-05 when annual rainfall was below normal (1003 mm) with the least number of rainy days (26). The state has achieved almost sustainability in agricultural production because the record food grain (125 lakh tonnes) was produced in 2010-11 with only annual rainfall of 866 mm with only 34 rainy days. Food grain production in drought year was even higher than food grain production of the normal annual rainfall year 2007-08. In Bihar, there was severe drought in 1966 when only 866 mm of monsoon rainfall was received and food grain production was declined by 50 percent of then normal production level. An increase in food grain production in the state in drought year 2010-11 was made possible due to increase in number of private tube wells installed by farmers. However, the State Government also made some cosmetic efforts for maintaining agricultural production.

3.2 Agricultural Production Scenario:

Analysis of food grain production during last 10 years revealed that average area under food grain declined from about 68 lakh hectares during 2001-06 to 67 lakh hectares during 2006-11, but their share in gross cropped area remained constant at 88 per cent during the period. Despite decline in area under food grain and unfavourable weather (flood in 2007 & 2008 and drought in 2009 & 2010) food grain production increased by about 18 per cent during last five years over preceding five years (2001-06). There was spectacular increase in food grain productivity from 1176 kgs per hectare during 2001-06 to 1971Kgs per hectare during 2013-14. Productivity of rice, the main food grain crop which is grown in about two- thirds area of net sown area in kharif season, also showed increasing trend during last five years. Production of rice crossed 75 lakh tonnes whereas production of about 55 lakh tonnes of rice was achieved in 2003-04. It was made possible due to various centre sponsored mega projects launched for increasing food grain production.in Bihar. Despite more than 61 per cent rice area under irrigation, rainfall still plays an important role in rice production. In Bihar, rice cannot be grown successfully in scanty rainfall due to unreliable and costly irrigation sources. The majority of farmers provide survival irrigation to rice crop because diesel operated tube well is the main source of irrigation which is costly, particularly for marginal farmers who purchase water at the rate of Rs 80-100 per hour.

Wheat production was stagnant at 40 lakh tonnes during 1995-2006 but its average annual production increased to 59 lakh tonnes in 2010-11. Average per hectare wheat productivity showed increasing trend from about 20 quintals during 2001-06 to more than 23 quintals during last five years (2009-14). Maize productivity also increased from 23 quintals to 40 quintals per hectare in 2013-14. However, winter maize productivity of 80 quintals per hectare is common in Begusarai and Khagaria districts of Bihar. The high yield of winter maize is mainly due to favourable ecology for production of maize in winter season along with farmersô efforts in production of this crop in Bihar. State government made a little effort to boost winter maize production because farmers depend on non government sector for not only hybrid maize seeds but also for marketing, fertilizer and pesticide. Hence, there is an ample scope for increasing production of winter maize in Bihar. Increase in production and

productivity of principal crops has been mainly contributed by adoption of modern production technology of these crops by farmers.

While comparing the productivities of principal crops with target set for respective crops at the terminal year of Eleventh Five Year Plan, the targets set for rice, wheat and maize productivities have already be achieved in the terminal year of the plan..There has been significant increase in per hectare productivity of principal crops during last five years but the state is still placed at tenth position in rice, ninth position in wheat and second position in maize productivity in the country.

Irrigation: Irrigation is one of the critical inputs for increasing agricultural production. In Bihar, about 60 percent area is irrigated which is much higher than the corresponding national average (42%) but among major states our irrigation efficiency is the lowest (134). Average gross irrigated area increased from 47 lakh hectares in 2001-06 to 47.98 lakh hectares in 2006-11 but it is mainly through private tube wells. Tube well irrigated area constitutes 62 percent of total irrigated area, mainly through private tube wells because more than 90 per cent of Govt. Tube wells are abandoned and do not provide irrigation to even 50 thousand hectares of land. State Government has installed few tube wells and handed over their management to individual (officially to committee) but these tube wells are not functioning well in the interest of farming community. State government provided assistance to install 21,036 pump sets in 2009-10 but it had almost insignificant impact on increasing tube well irrigated area which increased by only four thousand hectares from 27.22 lakh hectares in 2008-09 to 27.26 lakh hectares in 2009-10. Hence, almost identical number of tube wells might have turned non- functional during the year.

Canal irrigation is considered to be a farmersô friendly and reliable source of irrigation. But it is most unreliable source of irrigation in Bihar. Canal system was an inefficient source of irrigation in Bihar which failed to provide irrigation facility to less than 50 per cent of its command area during the year 2009-10. Canal irrigated area declined from 16.66 lakh hectares in 2008-09 to 12.02 lakh hectares in 2009-10, indicating unreliability of canal irrigation system in Bihar. State Government has been making huge expenditure under plan and non plan heads on development and maintenance of irrigation infrastructure. During last five years annual plan expenditure of about Rs 2500 per hectare of irrigated area was incurred in Bihar but these investment has neither resulted in visible increase in irrigated area nor satisfactory maintenance of irrigation infrastructure in Bihar. However, eleven medium and major irrigation projects for increasing irrigated area are under progress in Eleventh Five Year Plan. About 55 percent of ground water is still to be exploited for irrigation purposes. Hence, there is vast potential for increasing irrigated area in Bihar which will help increasing agricultural production for not only consumption but for raw materials for agro-industry.

Fertilizer: Fertilizer is known as an essential input for increasing crop production. A spectacular increase in fertilizer consumption has been observed during green revolution period in the country in general and Bihar in particular. In Bihar per hectare fertilizer (NPK) consumption was only 4 kilograms in early sixties which increased to 19 kilograms in 1975-76 and further increased to about 180 kilograms in 2010-11. Per hectare fertilizer

consumption in crop production increased by more than two fold during last 10 years from about 80 kilograms in 2000-01 to 180 kilograms in 2010-11 but declined to 150 kgs in 2013-14. The higher and imbalance use of chemical fertilizers threatened the soil health but soil of the state is still reach in organic carbon (0.5-1.0). However, increasing use of chemical fertilizers accompanied with declining use of manure would likely to have adverse effect on soil health. Deficiency of micronutrients (zinc, boron and sulphur) has been reported from different parts of state but there is no facility where farmers could get their soil tested to know the extent of micro-nutrient deficiency. Government of Bihar made unsuccessful efforts to provide soil test (NPK) facility to farmers but a few farmers could get the report of soil test. Recently, Department of Agriculture started a campaign for popularizing organic farming in the state. In this context it is worth pointing out that the rice production in water logged area of north Bihar was totally chemical free up to mid-nineties. The majority of farmers growing fruits and vegetables for their domestic use do not use fertilizers and chemicals. We should educate these farmers, on priority basis, for organic cultivation of these crops before making efforts for organic farming of food grain crops, which may threaten our food security in short period. It is also a difficult task for farmers to arrange organic/bio-fertilizers for huge area under food grains. Organic certification is another difficult and costly activity, particularly for small and marginal farmers, who constitute more than 90 per cent of farm households and own about 50 per cent of cultivated area in Bihar.

Seeds: Seed is known for increasing agricultural production, good quality seeds alone can increase 30 per cent of agricultural production. In Bihar, high yielding varieties cover 65 per cent area under rice, 95 per cent area under wheat and 88 per cent area under maize but farmers are using poor quality seeds because most of these seeds are home grown. State Government has been making sincere efforts to popularise and make available quality seeds to farmers since 2009. Under Chief Minister BeejVistaryojana, rice and wheat foundation seeds were provided to farmers for production of quality seeds but only 25 per cent of produced rice and 31 per cent of produced wheat seeds could be utilised as seed in the next season. It may be considered a good effort in right direction but proper monitoring of this scheme could have made this effort more useful. In 2011 also, a large quantum of Daincha seeds for green manure, and hybrid rice seeds have been distributed among farmers but desired result may not be obtained due to poor monitoring of the scheme. Seed replacement rates of rice and wheat increased from less than 10 per cent in 2001-05 to 31% and 29%, respectively in 2010-11. Seed replacement rate of maize was high (45%) in 2001-05 but it also increased to 65 per cent in 2010-11. But availability of quality seeds of vegetables is still much lower in Bihar, adversely affecting vegetable production in the state.

3.3 Performance of Allied Sector:

Livestock sector contributes about 40 per cent to the State Gross Agricultural Domestic Product of Bihar and supports the livelihoods and food security of about two-third of rural

households. This is one of the fastest growing sub-sectors of the agricultural economy in the state and recorded about 6% growth during the first four years of the Eleventh Five Year Plan. If developed appropriately, livestock sector has the potential to significantly enhance the rural economy. Despite the higher growth and substantial contribution to State GDP, Bihar is still not self-sufficient in milk, meat, eggs and fish production. These sectors have the capacity to provide opportunities for livelihood to people in their present location and situation. Bihar has abundant water resources such as ponds and tanks covering approximately 65000 hectares and major flowing rivers (around 2700 kms in length) which are fertile breeding grounds for pisci-culture. North Bihar also has capture fisheries resources like, chours and ox-bow lakes. Converting these capture fisheries to culture fisheries could make them important sources of income and employment for fishermen communities, apart from being an excellent source of cheap protein for people. Total fish production in the State is about 2.66 lakh tonnes, however, annual consumption of fish within the State is about 5.0 lakh tonnes. The underutilization of aquaculture resources, unscientific management of water bodies and lack of entrepreneurship are some of the most obvious reasons for the gap between demand and supply of fish in Bihar.

Eleventh Plan envisions promotion of livestock sector to enable Bihar to become self sufficient in related products. As major inputs for agro processing, dairy and fisheries produce can become an important source for value addition within the state itself, which in turn opens up income and employment opportunities. An effort has been made to examine the progress made in various component of livestock sector in the state.

The milk production target set for terminal year of Eleventh Five Year Plan is achieved in Bihar (72 lakh tonne) but there has not been any visible sincere efforts made by state government, except Immunization programme which could not reach to remote villages. The programme of establishing Fodder Block Unit is still in planning stage .However, the state faced an embracing situation in supply of fodder to flood affected farmers in last flood. State Govt failed to revive their old Artificial Insemination Centres and a large number of villages are not provided with artificial insemination facilities. COMFED (Co-operative Milk Producers Federation Limited) is doing good work in milk marketing in Bihar but milk processing capacity has not increased for the last four years. COMFED could cover only livestock rich districts and farmers of backward districts are still deprived of benefits of marketing network of COMFED.

Fish production recorded an annual growth of about 6% during first four years of Eleventh Plan but the state govt. programme of establishing govt. sponsored hatchery and supporting farmers for construction of new ponds could not make much headway in the state. In Bihar, the major problem in development of agriculture and allied sector is poor implementation and monitoring of programmes.

In the Eleventh Plan, an Agriculture Road Map with an outlay of Rs. 3757.12 crore has been approved by the state government to boost the agriculture sector. Besides, several new initiatives have been implemented for the development of agriculture and allied sector in the state. Despite renewed emphasis on agriculture the average annual growth Rate of GSDP

in Agriculture and Allied Sectors in the four years of the Eleventh Plan was only 1.9 per cent against the target of 7 per cent during the Eleventh Plan, mainly due to the drought and flood during first four years of Eleventh Five Year Plan.

3.4 Poverty in Bihar : Bihar is the second poorest state in India which is cursed with high incidence of rural poverty. Overall, the incidence of rural poverty was 62.3 per cent in 1993-94, much above the all India level of 37.3 per cent. However, the incidence of rural poverty kept on declining from 62.3 per cent in 1993-94 to 55.7 per cent in 2004-05, which further declined to 55.3 per cent in 2009-10 (Table II) as against national level poverty of 37.3 per cent, 28.3 per cent and 33.8 per cent, respectively. The rural poverty gap in Bihar vis-a-vis all India level, increased from 25 per cent in 1993 to 27.3 per cent in 2004-05 but declined to 21.5 per cent in 2009-10. Although, incidence of poverty in Bihar has continuously declined during last 20 years but in absolute term, number of rural poor has increased from 31 million in 1993-94 to 45 million in 2004-05 and further to 51 million in 2009-10.

Table II: Population Below Poverty Line in Rural Bihar (%)

Year	Incidence of Rural Poverty
1993-94	62.3
2004-05	55.7
2009-10	55.3
2011-12	34.1
Decline In Rural Poverty	
1993-94 to 2004-05	6.6
2004-05 to 2009-10	0.4
2009-10 to 2011-12	21.2
1993-94 to 2011-12	28.2
Annual Rate Of Decline In Rural Poverty (% Per Annum)	
1993-94 to 2004-05	0.7
2004-05 to 2009-10	0.1
2009-10 to 2011 to2011-12	10.6
1993-94 to 2011-12	14.1

A comparative analysis of rural poverty among farm and agricultural labour households revealed that during last two decades, poverty in agricultural labour households has been much higher than incidence of poverty in farm households (Table III). However, it emanates that the decline in poverty was more in farm households (30.4%) than corresponding decline in case of agricultural labour households (27.6%) during 1993-94 to 2009-10. It was mainly due to considerable increase in productivity of food grains (1505 to

1778 kg/ha) along with increase in the prices of principal crops. For instance, paddy price increased from Rs. 320/qt to Rs. 965/qt during the period whereas the wages of agricultural labours could not increase in same proportion (Rs. 41 to Rs. 66/person/day). During 2004-05 to 2009-10, decline in poverty among agricultural labour was much higher (10.9%) than poverty decline among farm households (1.2%). This could happen, mainly due to availability of alternative employment opportunities to the agricultural labours and poor performance of agriculture due to two drought years and one flood year during the period. The launching of MNREGA and large scale employment opportunities in construction works started by the Government helped increasing agricultural wages (from Rs. 66 in 2004-05 to Rs. 104/person/day in 2009-10). These induced comparatively high decline in poverty among agricultural labours in the state.

Table III: Trends in Incidence of Poverty among Farming and Agricultural Labour households (%)

Year	Farming Household	Agricultural Labour
1993-94	54.7	84.2
2004-05	25.5	67.5
2009-10	24.3	56.6
Decline In Rural Poverty		
1993-94 to 2004-05	29.2	16.7
2004-05 to 2009-10	1.2	10.9
1993-94 to 2009-10	30.4	27.6
Annual Rate Of Decline In Rural Poverty (% Per Annum)		
1993-94 to 2004-05	2.7	1.5
2004-05 to 2009-10	0.2	2.2
1993-94 to 2009-10	1.9	1.7

There is a dearth of studies on poverty based on primary data in context of Bihar. The present study has been undertaken to examine and understand nature, extent and severity of rural poverty across villages among different categories of households. It also attempts to identify the determinants of rural poverty in villages under study. The paper is based on data

collected under the project entitled *"Tracking change in rural poverty in household and village economies in Eastern India"*. Data were collected from sample households through panel interview method in four sample villages namely; Arap, Baghakole, Inai and Susari. First two villages are located in comparatively developed district (Patna) with respect to ecological situation, agricultural development and infrastructure facility whereas last two villages are located in comparatively less developed district (Darbhanga). A sample of 40 households, 10 from each category of households viz. labour, small, medium and large were selected randomly in each of the four villages, making a sample size of 160 households. The study utilized the household level data which relate to 2010-11 and assumes a household poor, if its per capita/per day income is less than USD 1.25, considering PPP between US Dollar ($) and Indian Rupee (Rs.) i.e; $1 = Rs.14.67.

Patna District

General Features of the District:

Patna district is situated in the south Bihar alluvial plains (Zone III B) of four agro-climatic zones of divided Bihar. The district is bounded in north by river Ganga, in south by Jahanabad and Nalanda districts, in the east by Lakhisarai district and in the west by Bhojpur district. The district is situated between 25 º 13 ó North and 25º 45 ó North latitude and 84º43ô East and 25 º 44ô East longitude with a height of 67 meters from M.S.L.

The geographical area of the district is 3.172 lakh ha. with 4.13 % land not suitable for cultivation. Patna, besides being the state capital, is also the biggest urban centre of the state. As per 2011 census, population of the district is 57.73 lakh, with population density of 1803 and fifteenth populous district in the country. It has highest literacy rate (73.%) as well as awareness level among the districts of Bihar.Patna district is most urbanized district of Bihar since urban population constitute 44 per cent of total population of the district. It has a ready market for almost all products of farm and non-farm sectors and is well connected by rail, with almost all the district headquarters of the state and by air to the major cities of the country. Administratively the district is divided into six subdivisions, twenty-three blocks, 344 Panchayats and 1433 villages (1294 inhabited). Three tiers Panchayat system is working in Patna since 2001.

Patna district is surrounded by two river systems namely Ganga in the north and Sone in the west, which falls into Ganga at its north-western boundary. The river Punpun traverses to a significant stretch from south-west to north-east. .

Agro-ecologically South Bihar Alluvial Plains Zone III B is spread south of river Ganga. Physiographically it is almost plain alluvium, but south of the natural levee of Ganga, there is a parallel stretch of Diara land receiving flash floods. At the eastern end of the district, there are stretches of Tal lands where backwaters of Ganga river stagnates in low lands during Kharif season floods between September-December every year. Tal lands extend from Fatuha to Mokameh blocks in the district, here most natural drainage systems i.e. rivers from south simply vanish.

The district has mainly four types of soils ranging from moderately well drained to poorly drain, acidic to slightly alkaline and medium to heavy textured. The climate is of moderate type characterised by quite hot in summers to mild cold in winters. Rainfall is moderate and erratic during Kharif season. The net area sown in the district is 65.16 per cent of the total geographical area.The remaining area (34.85 percent) in the district is divided between non-agricultural uses (21.45%), current fallow land (8.55%), barren and uncultivable land (0.11%), permanent pastures and other grazing land (0.04%), plantations (0.15%). Gross cropped area is 2.57 lakh ha. and net area sown is 2.01 lakh ha. indicating cropping intensity of 127.64 in the district, which is a bit low as both Tal and Diara areas are mostly mono cropped.

Total irrigated area in the district is 60,545 ha. Out of which canal irrigation accounts for the highest being as high as 60% but a large area does not receive sufficient canal water for crop production, particularly at the tail end. Sone canal system does not provide irrigation in half of area for the last 10 years .

Ground water sources of irrigation depend on ground water recharging and alluvial deposit are best reservoir of ground water. In the district alluvial thickness ranges to a maximum of 700 m. Shallow tube-wells tap shallow aquifers whereas deep tube wells, the deep aquifers .As per recommendation of the ñOver Exploitation Committeeò the ground water potential has been worked out through hydrographs which is 81.15 (inô000 Ha. m) for ground water recharge (net) and 29.70 (1000Ham) for ground water draft for the district The farming situations in the district are mainly dependent as soil, topography and irrigation

systems prevalent in the area. Climatogically the district by and large is homogenous; the rainfall and temperature variations are not large.

Darbhanga district

Darbhanga district is spread over a total geographical area of 2279 sq. km. and its population is about 39.22 lakh, of which 91 percent live in rural areas. Scheduled caste population constitute 13 percent of total, however, less than one thousand population belongs to schedules tribes. The overall literacy in the district is 58.26 percent, with male literacy at 68.56 percent and female literacy at 46.88 percent. The population density is as high as 1721 persons per squire km and the sex ratio is 910 and about 2.90 lakh households were below poverty line which is 66.28 percent of the total population of the district.

The district of Darbhanga can be divided into four natural divisions. The eastern portion consisting of Ghanshyampur, Biraul and Kusheshwarsthan blocks contain fresh silt deposits from Kosi River. This region was under the influence of Kosi floods till the construction of Kosi embankment during the 2nd FYP. It contains large tracts of sandy land covered with wild marsh. The second division comprises of the anchals lying south of river BurhiGandak and is the most fertile area in the district. It is also on higher level than the other parts of the district and contains very few marshes. It is well suited for rabi cultivation. The third natural region is the doabs between the BurhiGandak and Baghmati rivers and consists of the low-lying areas over the chaur and marshes. It gets inundated every year due to floods. The fourth division covers the Sadar subdivision of the district. The tract is flooded by numerous streams and contains some upland.

The district has a vast alluvial plain devoid of any hills, has gentle slopes from north to south, with a depression in the centre. Numerous rivers originating from Himalayas flood this district time and again. Among the rivers flowing through the district, Kamla, Baghmati, Kosi are the most important ones.

The district has moist but healthy climate. There are three well marked seasons, i.e., rainy, winter and summer seasons. The cold weather begins in November and continues up to February, though March is also mild cold. Westerly winds begin from second half of March and temperature rises considerably thereafter. May is the hottest month when temperature goes up to 42 Degree Celsius. Rains set in towards the middle of June and continue till the

mid October. Average rainfall in the district is 1142 mm; however 92 percent rainfall is received during the monsoon season. Normally, there are 51 rainy days in a year.

There are 10 blocks, 329 panchayats and 1269 villages in the district. It is one of the under banked districts in Bihar, as per branch population is worked out to be 26 thousand.

Socio-economic Status of Arap Village

The Arap village is located in the Bikram block of Patna district in Bihar. It is about 30 km from Patna. Literacy level is 70.73 per cent which is much higher than corresponding literacy of Bihar. The village area is about 1020 acres, constituting 30 acres orchard, 90 acres put to non- agricultural use. There is about 50 acres of land under pynes. ahar and bunds There is neither forest nor waste land in the village The village has multi-caste population, dominated by Other Backward Castes (OBCs), followed by Forward caste and Scheduled caste. Non-farm sector is the major economic activity of the village while about 33 per cent of households are engaged mainly in agricultural enterprises.

Arap village has all basic amenities like roads, provisions for potable drinking water, a health centre, schools, power, and a heritage of culturally rich harmonious society. The village administration, which follows the principles of Panchayati Raj system, is in place. Agriculture, private and government jobs, and other non-farm occupations are providing a sustainable livelihood support to a number of villagers. Modern means of communication and transportation have a deep reach in the village and people are taking full advantages of these facilities. Insufficient sanitation measures, dowry system, and indiscriminate exploitation of water are the major constraints that need to be addressed by creating awareness and providing essential infrastructure support.

Finger millet was the traditional crop of Arap in kharif season, but finger millet area has been shifted to paddy cultivation during the past 25 years. During postï green revolution period, wheat has been introduced in rabi-season . About 98 per cent area is irrigated and tube-well is the main source of irrigation. However, canal was the main source of irrigation up to 2000 AD. Farmers provide survival irrigation only to crops due to high cost of tube-well irrigation. About 26 per cent of operated area is under tenant cultivation, but the tenancy is more prevalent among landless households. Work participation is comparatively low in the

village, but the majority of large households are engaged in agriculture and non-farm activities.

The village is rich in livestock, but buffalo is more common among large households. However, investment on cattle is higher on all the categories of households, indicating possession of improved breed of cattle in the village. Goats are kept by the landless households. However the villagers confirmed the increasing problem of lack of fodder for livestock. There is milk co-operative society, Sudha for milk marketing in the village. Bullock ploughing is still prevalent; however bullocks are being replaced by tractor but the pace of replacement is very slow.

There is a hospital named Rajkiya Aushdhalaya (Primary Health Centre) which supplements healthcare in the village but it lacks good doctors and infrastructure facilities. For healthcare of livestock, there is a veterinary hospital in the village. There is lack of woman participation in the decision making but are aware of their situation and keen to improve it. There is no community hall and facility for recreation in the village. Caste discrimination is still prevalent in the village.

Out-migration is common in the village. The majority of out-migrants are engaged in salaried jobs in cities within and outside the state. Migration for a salaried job is high due to good level of education in the village.

The village has poor access to organized marketing system. There is visible sign of improvement in agricultural and other infrastructure with respect to education, transport, communication and health.. The village has access to stae agriculture department and ICAR Complex, Patna that provide extension support to farmers through a variety of channels. But it needs more institutional interventions for a faster development of the village.

Among centrally sponsored schemes, Mahatama Gandhi National Rural Employment Guarantee Act (MNAREGA) that guarantees a 100 days employment in the rural area, is worth noting. It is implemented in the village since 2005-06. Besides, the village panchayat facilitates other development activities, like brick-soling of the village roads/ streets, construction and maintenance of rural drainage systems, etcetera. However, some of the villagers also reported discrepancies with reference to registration and provision of job cards to the workers under MNAREGA.

Socio-economic Status of Baghakole Village

The village Baghakole was founded in the early thirteenth century when BakhtiyarKhilji was the ruler of Bihar. It is located in the Bikram block of Patna district at a distance of about 55 km from Patna city. This village had poor connectivity but now has a fairly good road connectivity with the construction of a puccaBihta-Patna-Mahabalipurroad.The area of village is about 800 acres, constituting 75 per cent cultivated area,15 per cent put under non-agricultural use, 8 per cent under trees and groves and 2 per cent waste land. Total population of Baghakole is around 3000, comprising around 500 households. This village is rich in educational infrastructure with one high school, one middle school, two primary schools and one Urdu school. About 25 girls of this village are pursuing higher education in a college at Bikram. The literacy level (64%) of this village is higher than the state literacy level.

In Baghakole, a majority of households (94%) belong to the Hindu community with only seven per cent Muslim households. But, there is complete communal harmony in this village, so much so that a temple and a mosque are located side-by-side in the village. Across social groups, Other Backward Castes (OBCs) constitute around 50 per cent of households with 30 per cent households of Scheduled Castes and 20 per cent of Forward Castes. The majority of Forward Caste households belong to Bhumihars, whereas Kahars dominate among the OBC category and Chamars and Dusadhs are in majority in the Scheduled Caste Category. The dowry system and village feast system (shradh) are prevalent in the village, though these adversely affect the economic situation of most of the households. An interesting feature about out-migration from Baghakole is that it is high for salaried jobs and education, showing a higher level of general awareness and education.

The average size of landholding of 1.18 acres in Baghakole is higher than most of the villages and average land holding of Bihar. Soil of the village is sandy loam. In the southern part of the village, abundant sand is available and it provided substantial income and employment to the village labourers but sand mining has been discontinued due to some unavoidable reason. Most of the land is irrigated and private tube-well is the main source of irrigation for the last five years .However, canal was the main source of irrigation till 2005.

The agriculture in Baghakole up to 1970s was highly diversified with the cultivation of several varieties of rice, millets, maize, sugarcane, pigeonpea and other pulses. But subsequently, rice became the main crop in kharif and wheat became the major crop in rabi. Recently, lemon grass, mentha and some off-season vegetables including green pea have

been introduced. Another significant development is the change in package of practices for crop cultivation. The farmers of this village have started producing and using vermi-compost for production of their crops. All these reveal higher level of awareness about improved package of crop cultivation practices among farming community of the village.

In Baghakole, livestock-rearing is second important economic activity after crop production and it is not limited to cattle and buffaloes only; goat and poultry farming are also practised. But despite a large number of animals in this village, the livestock healthcare facilities are limited. One artificial insemination unit was established in this village only in the year 2000 prior to which villagers had to go to Bikram or opt for natural insemination. The Dairy Cooperative, organized in 1985 in the village, is in sables and needs improvement in management for benefit to farmers of this village.

The agriculture is moving from manual to mechanised cultivation in Baghakole. Tractors, diesel engines and threshers are seen in good numbers. Bore-well is another common farm infrastructure owned by about one-fifth of the households. All the houses are pucca or at least semi-pucca in the village. All this indicates that economic status of people in Baghakole is comparatively high.

Non-farm employment has emerged as an important source of household income in Baghakole. It has surpassed even the agricultural sector. Due to higher level of awareness and education, income from salaried jobs is also quite significant. Thus, occupational pattern in Baghakole reflects a considerable diversification in sources of income.

The healthcare facilities are practically non-existent in the Baghakole village. To avail a medical facility, the villagers have to go to either Bikram or Bihta, where also these services have become functional only from 2005 with the intervention of state government. Polio vaccination is being done in the village but facilities for other vaccinations are lacking. The emergence of diseases like gastritis, stomach cancer, high blood pressure, asthama, etc. due to changing life-styles, diversifying food baskets, increasing use of agricultural chemicals, etc. have made the life still difficult in this village.

The residents of Baghakole village do not have easy access to any organized agricultural market or procurement centre. There is no input dealer in this village and people

have to go to Bikram, Bihta or even Patna to get a better quality and wider choice of products.

The mobile phone revolution in the country has provided communication power to the residents of otherwise poorly-connected Baghakole village also. The electric supply continues to be erratic, affecting both living and working conditions in the village.

In Baghakole, several welfare schemes/programmes of both central and state governments are in operation and effect of some of these programmes has become visible also but a wider impact has yet to emerge.

Thus, the village Baghakole is still not much developed although it has better educational facilities as compared to several villages of Bihar. The economic status of the most residents of this village is low, but is showing improvement with diversification in occupational pattern. The village has some strong points also like better awareness, higher productivity of wheat and rice than the state average, diversification in cultivation towards medicinal plants and summer vegetables, etc. These strong points need institutional intervention for a faster development of the village. It has opportunities in milk marketing for which support of an effective and functional dairy cooperative is needed. Setting up of a food processing unit and a procurement centre in/around the village will go a long way in generating income and employment facilities in this village.

Socio-economic Status of Inai Village

Inai is one of the oldest villages of Darbhanga district of Bihar. It is located in the Baheri block at a distance of about 30 kilometres from Darbhanga. Area of the village is about 320 acres, 80 per cent under cultivation, constituting 8 per cent area put to non-agricultural use,11 per cent under ponds and orchard,and 1 per cent waste land. This village has all weather road connectivity now with the construction of a pucca road to the block headquarters (Baheri) however village streets are still very dirty and unhygeinic. Total population of Inai is about 3600, comprising around 600 households. The educational level is awfully low in the village with average schooling of 3 years only and literacy rate is 55.61 per cent but literacy rate is 82 per cent on large households and 48 per cent on landless labour households. The educational infrastructure is poor. Primary school was established in 1936, continues to be a primary school even today. The traditional joint-family system has almost

vanished in this village and nuclear-family system has become largely prevalent however family size is still more than six, higher than corresponding state average. The purdah system is still observed in this village and the social structure is male-dominated. It is a multi-caste village, dominated by the ôkurmiô households. A majority of the households in Inai belong to the Hindu community but Muslim households constitute about 17 per cent of total households. Across social caste groups, there are only two social groups, viz. Scheduled Castes (SCs) and Other Backward Castes (OBCs). The influence of ôMaithiliô culture can be clearly seen in the village. The dowry system and village feast system (Shradh and religious) are still social norms in the village.

The average landholding is very small(0.64 acre) in Inai village 88 per cent households own less thn 1.2 acre of land. Because of uneconomic size of operational holdings, leasing-in and leasing-out of land are common in the village. The soil is largely clayey with some sandy loam and coarse sandy soils near the river Kamla which flows through this village. The main source of irrigation is the bore-well. Over the years, the use of fertilizers has increased due to increase in awareness about modern crop production technology among farmers in the area ,in general and this village ,in particular. However, subsistence farmers cannot afford to buy enough quantity of balanced fertilizers for their crop production.

In Inai village, paddy, finger millets, horse bean, maize and sorghum were the main crops in the kharif season and urd, lethyrus, potato and vegetables were the main crops in the rabi season up to mid-1970s. Wheat which was not an important crop, is presently grown on more than 40 per cent area in rabi season. Area under horse gram, jowar, kharif-maize and lethyrus has declined, whereas area under wheat, lentil, peas and green vegetables has increased.

In Inai village, livestock-rearing is an important activity and it is not limited to cattle and buffaloes only; goat rearing and poultry farming are also practised .The cattle is common livestock in the village since number of cattle is much higher (281) than population of buffalo(89). But, despite a large number of animals, livestock healthcare facilities do not exist in the village. Farmers do not have easy access to Artificial Insemination Centre and other veterinary services. Also, there is no institutional arrangement for milk marketing in the village.

The village agriculture is moving from manual to mechanised operations, but bullock ploughing is still prevalent in Inai. Due to weak economic base of majority of farmers, farm machinery is largely possessed by large farmers. The use of sprinkler and drip irrigation system has not been introduced in the village.

Out-migration is common in Inai village and, on an average, one person has migrated from each family in this village. The majority of out-migrants (75%) are employed as daily wage earners at destination place and it is prevalent among all categories of households. The migration for higher education or salaried job is low due to low level of education in the village.

Non-farm employment has emerged as an important source of livelihood in Inai. It has even out-paced the agricultural income. Due to low economic base and low educational level, not much diversification is visible in the occupational pattern in this village.

The healthcare facilities do not exist in the village Inai. The Primary Health Centre, established recently, has yet to become operational is true sense. The residents of this village have to go to Baheri or Darbhanga for availing a medicinal facility. Due to increasing intervention of chemicals in agriculture, changing lifestyles and diversifying food habits, several new diseases like gastritis, stomach cancer, mouth cancer, cardiological problems, etc. have emerged. These have made the life still difficult in this village.

The residents of Inai village do not have easy access to any organized agricultural market or any procurement centre for their agricultural commodities. There is no input dealer in the village and farmers go to Baheri or Darbhanga for purchasing fertilizers and other inputs.

Hence, it may be concluded that the village Inai is still not much developed in terms of agriculture and educational infrastructure. The economic status of the most villagers is also low. However, there are signs of improvement which need institutional intervention for a faster development of this village. There are opportunities in cultivation of off-season vegetables and medicinal plants, setting-up of small-scale food processing units and milk marketing.

Socio-economic Status of Susari Village

The Susari village is located in the Baheri block of Darbhanga district in Bihar. It is about 45 km from Darbhanga .Area of the village is about 690 acres ,constituting 51 per cent cultivated area,30 per cent put to non- agricultural use, 14 per cent unde trees and groves and 6 per cent waste land including water logged area. Literacy level is low (51.07%) and there is a complete dearth of higher education in the village. The village has multi-caste population, dominated by Other Backward Castes (OBCs). Agriculture is the main economic activity of the village but about 50 per cent workforce get employment in the non-farm sector. Despite fertile soil, agriculture of the village is still under-developed, mainly due to small size of landholdings, frequent floods and poor infrastructural facilities, including collapsed agricultural extension system. The farmers are not aware about the modern technologies and their skills also need up-gradation. Poor access to improved quality seed varieties worsens the situation still more.

Paddy and finger millet have been the traditional major crops of Susari in kharif season, but finger millet area has been shifted to paddy cultivation during the past 20 years. During postï green revolution period, wheat has been introduced as rabi-season crop. About 85 per cent area is irrigated and tube-well is the main source of irrigation. Farmers provide survival irrigation only to crops due to high cost of tube-well irrigation. About 12 per cent of operated area is under tenant cultivation, but the tenancy is more prevalent among landless households. Work participation is comparatively low(28.36%) in the village, but the majority of large households(66.23%) are engaged in agriculture and landless households(53.47%) in non farm activities.

The village is rich in livestock, but buffalo is more common livestock in the village, particularly among large households. However, investment on livestock is higher on large category of households, indicating possession of improved breed of livestock on these households in the village. Farmers do not have access to organized system of milk marketing in the village. Bullock ploughing is still prevalent; however bullocks are being replaced by tractor but the pace of replacement is very slow.

There is lack of healthcare facilities in the village, for both human beings and livestock. The only Primary Health Centre of the village is non-functional and facilities for even artificial insemination (AI) of cattle do not exist.

On the social front, there is high addiction to alcohol and smoking, particularly among elderly menfolk, lack of women participation in decision making, and discrimination between boys and girls in sending to schools. There is no facility for recreation in the village. Purda system is prevalent even today and young women particularly brides, are not allowed to move alone in the village.

Out-migration is common in the village. The majority of out-migrants are engaged as daily wage earners in cities within and outside the state. Migration for a salaried job is low due to low level of education in the village.

The village does not have easy access to any organized marketing system. Primary Agricultural Co-Operative Credit Society (PACS) is almost non-functional and there is no arrangement of providing quality agricultural inputs to the farmers in the village.

The village is still underdeveloped with respect to agriculture, education and economic status. However, there are signs of improvement which need institutional intervention for a faster development of the village.

Composition of Labour Force

Rural labours can be classified in two broad categories that is; Farm labour and Non ï farm labour. Farm labours are those who are engaged in activities such as growing crops, livestock production, forestry, fishing and service activities related to these. Non-farm sector is everything that is not considered in the above definition. In this monogrsph analysis is based on labours who were engaged in wage employment and their employment on their own farm and domestic chores are not considered for analysis purposes.

In the present section an attempt has been made to examine the changes in labour households andlabour force(wage earners only) in villages under study.Labour households constituted 39.4 per centin 2010 which declined to 32.1 per cent of total households under study in2013. Landless labour households constituted 81 to 90 per cent of total landless households whereas proportion of land owning labour households to total land owning households varied from 20 to 28 per cent of total land owning households in villages under study and showed declining trend during the period (Table 1).Despite decline in proportion of labour households in both categories of landless and land owning households, the proportion of labour households among landless categories of households was much higher. Out of 10 landless households, eight households earned their livelihoods mainly through working as labour.However decline in proportion of labour households in total households

was mainly due to increase in number of share croppers, petty business activities and migration from villages.

Work Participation for wage earning among labour households was 47.1 % in 2010 which declined to 46.3 % in 2013 however it was much higher on landless labour households but declined from 66.7 to 57 % during the period. About one ï third labours of land owning households were engaged in wage employment but there were no much year to year variation. However, there was declining trend in work participation on landless households, mainly due to their increasing rate of migration during the period. But the work participation on land owning households was almost identical in first two years of study but increased in 2013. Male work participation rate was more than three times to femaleôs work participation during the period under study.

TABLE 1: Category wise proportion of labour households

in study villages ofBihar (%)

Year	Landless households	Land owning households	All households
2010-11	84.4	28.1	39.4
2011-12	87.5	19.5	33.1
2012-13	90.6	21.9	35.6
2013-14	81.3	20.3	32.1

The transition of labour force from farm to non -farm sector has been fast during last four years. Some of the self-employed households in the agricultural sector moved towards the labour force, indicating a rise in the number of small and marginal farmers working as labour in non ï farm sector. In Bihar per capita land has been declining fast and it is worked out at only 0.05 ha and situation is more alarming on sub ï marginal and marginal households. Land holdings of these categories of households are economically non viable and they have to depend on either wage earning or migration. Hence, it may be surmised that the wage earning is main source of livelihood for the majority of landless households and about one- fifth of land owning labour households in Bihar.

Table 2: Work participation rate (WPR) for wage earning
On Labour households in Villages of Bihar (%)

Year	Landless households	Land owning households	All Labour households
2010-11	66.7	36.8	47.1
2011-12	64.3	36.8	49.5
2012-13	63.6	35.4	48.5
2013-14	57.1	37.1	46.3

Demographic Characteristics of Labour Households

Bihar experienced dramatic population growth during the last 50 years, with the number of inhabitants increased three fold from 34.8 to103.80 million between 1961 and 2011. The effects of demographic change on labour employment are the main focus of this section. Analysis of demographic information of labour households revealed an increase in average age of family members of labour households, indicating increase in number of aged persons and decline in number of children in households under study (Table 3.1). Family size observed declining trend during period under study whereas sex ratio (females / 1000 males) turned to be more unfavourable from 913 in 2010 to870 in 2013. Despite decline in per household number of child, dependency ratio showed increasing trend from 29.5 % in 2010 to 30.6% in 2013. It clearly indicates non participation of youths in work force.

Table 3.1: Demographic features of Labour households

Particulars	2010	2011	2012	2013
Av. Age (years)	48	46	49	49
Family Size (number)	7.0	6.5	6.7	6.7
Sex ratio	913	905	826	870
Children(no.)	2.6	2.5	2.5	2.3
Dependency Ratio	29.5	30.8	31.2	30.6

Education is one of the key components of demographic characteristics which helps improving human capital and determines householdôs ability to access employment opportunity of higher return to escape poverty. Among rural labour households, male literacy level was worked out at 80 per cent in 2010 which increased to 81.4 per cent in2013 and female literacy also increased from 58 per cent to 62 per cent during the period. Level of education was also examined by categorizing persons in five groups, i.e. Illiterate, primary, middle, secondary and intermediate & above(Table3.2).

Table3.2: Gender wise Level of education of rural labours during 2010-13

Education level	Year							
	2010		2011		2012		2013	
	Male	Female	Male	Female	male	Female	Male	Female
Illiterate	20.3	41.8	20.1	41.1	19.6	42.0	18.6	38.1
Primary	18.4	18.0	17.9	17.8	17.6	17.9	16.8	15.4
Middle	13.1	13.3	12.0	14.8	12.8	14.5	13.1	16.9
Secondary	26.8	18.0	27.6	16.4	26.4	14.7	24.4	17.5
Intermediate &above	21.5	9.0	22.4	10.0	23.6	10.7	27.1	12.1

Male education of post - secondary level showed continuous increase during 2010-13. About 38 per cent of male labours were educated up to Secondary and intermediate & above in 2010 which increased to 52 per cent in 2013 but there was a small increase in proportion of post ï secondary educated female labours(2.6%) during the period Despite several incentives like; provision of bicycle, dress and scholarship to girls students in high school in Bihar they are still not pursuing higher education in rural areas.. About one-third of family adult members were Graduate on large households whereas only 4 percent family members of labour households could pursue education up to graduate level. None of the family members of landless households had post-graduate qualification in the study villages, whereas 6 percent family members of large households had post-graduate degree. Male-female literacy gap was much higher on labour households which could not be bridged during last four years in Bihar. . It may be said that female education and high level of education are stillthe domain of resource rich households in rural areas.

Labour households under study are classified in three major social groupsô i.e.; Forward, Other Backward Castes (OBC) and Scheduled Caste(SC). Other Backward Castes are the largest social group, constituting 44.4 per cent of total labour households followed by Forward caste (30.2 %) and SC (13.1%) in 2010 (Table 3.1).Proportion of labour households belonging to OBC and Forward Castes declined during last four years because some households of these categories moved from labour category to non-labour category due to increase in their income through non- wage sources. Proportion of labour households belonging to scheduled caste category increased from 25.4 per cent to 30.2 per cent of total labour during the period. The proportion of labour households among Scheduled caste

Table 3.3: Distribution of labour households in different caste categories (%)

Year	Forward Caste	OBC	Scheduled Caste
2010	30.2	44.4	25.4
2011	32.1	35.8	32.1
2012	28.1	40.4	31.6
2013	28.3	41.5	30.2

Households increased because they might have failed to diversify their income sources. The findings relating to caste of labour households clearly indicates that labour households are not from only socially backward community but forward castes also work as labour in rural Bihar.

Asset possession

Access to assets is of critical importance for the economic viability of rural households. Understanding the extent of this access and how it links to the ability of rural households to employ different pathways to alleviate poverty is thus vital for designing rural development policies. The level of possession of asset is an economic and social factor that is more persistent than any other variables for determining poverty and status of livelihood in rural area. Asset poverty can be defined as a householdôs inability to access wealth resources that are sufficient enough to provide the basic needs for a short period. There are trends in the development of asset sources over times and several factors that cause certain groups to fall into asset poverty more easily than others. Changes in these factors and structure have

occurred over the years but asset poverty is continually higher than other forms of poverty such as income poverty. It provides a more accurate description of a householdôs true financial strength.

Assets in this framework include: human capital (the education, skills and health of household members); physical capital (e.g. farm equipment, domestic appliances, furniture etc.); social capital (the social networks and associations to which people belong); financial capital and its substitutes (savings, credit, cattle, etc.); and natural capital (the natural resource base). In pursuing livelihood strategies composed of a range of activities, both the access to assets and the use to which they can be put are mediated by social factors (social relations, institutions, organisations) and by exogenous trends (e.g. economic trends) and shocks (drought, disease, floods, pests). Human capital assets (level of education) has already explained in earlier section and institutional and financial assets are discussed in separate sub- sections.

Table 4.1: Distribution of labour households among landless and different categories of land holdings (in acres)(%)

Year	Landless	0-0.5	0.5-1	1-2	2-4	4 &above
2010	42.8	9.5	17.5	15.9	14.3	0.0
2011	52.8	9.4	9.4	15.1	9.4	3.8
2012	50.9	7.0	10.5	17.5	8.8	5.3
2013	49.1	13.2	11.3	18.9	1.9	5.7

In Biharð where more about 89 per cent of the population is rural and labour households constitute40 per cent rural households in villages under study however about 50 per cent of them are landless(Table 4.1). Land owning households constitute about 50 per cent of total labour force in villages under study who earn their major income through wage earnings. During last four years, the participation of land owning households to labour force showed marginal increasing trend, indicating that their incomes through farming were meagre and inadequate for meeting family expenses. Their annual income could meet only 65 per cent of the annual family consumption of agricultural households in Bihar (NSSO, 2013). About 42 per cent of labour households own land less than 2 acres but 14.0 per cent own land between 2 to 4 acres in 2010 but number of this category of labour households declined to 1.9

per cent in 2013 but number of labour households owning land 4 acres & more showed increased participation from zero per cent in2010 to 5.7 per cent in 2013.This findings is in contrast to common perception that the landless households are rural labours .In Bihar , 50 Per cent rural labours belong to land owning households.

Beside possession of land, Ownerships of livestock, cattle shed, residential house, residential house, other residential plots, farm equipment, motor cycle and bicycle have also been examined for labour households under study. Among main assets owned by rural labours, residential house is the most important asset because it is necessary for living of family members of all categories of households. All the labour households had their own residential house and invested, on an average, Rs 1.86 lakh, accounting formore than three-fourths of investment on total assets owned by them.Per person area of residential house was 155 square feet on labour households which declined to 142 square feet in 2013, due to growth in population. However per person residential area was about half on landless labour households than land owning labour households (Appendix I).

Type of residential house of labours has also been examined. Residential houses are categorized in three groups namely; Strong wall and RCC roof, Strong wall with tiles roof and Mud wall with tiles roof and Mud wall with thatched roof. About one ï third of labour households had residential house of strong wall and RCC roof but the proportion declined to 26.9 per cent in 2013. It was mainly due to movement of some households from labour category to non ï labour category during last four years.

Table4.2: Type of Residential house on Labour households during Study Period (%)

Year	Strong wall &RCC roof	Strong wall& tiles roof	Mud wall & tiles roof	Mud wall & thatched roof
2010	32.3	27.4	12.9	27.4
2011	32.1	37.2	3.8	27.0
2012	28.1	42.1	3.5	26.3
2013	26.9	40.4	3.8	28.8

Proportion of labour households with strong wall and tiles roof increased from 27.4 per cent in 2010 to 40.4 per cent in 2013 whereas proportion of houses with mud wall and tiles roof declined to 3.8 per cent, indicating improvement in living condition of labour

households in villages of Bihar (Table 4.2). There was almost no change in proportion of households with residential house of mud wall and thatched roof. Some of labour households had high severity of poverty and they were living in un- hygienic condition who need institutional intervention for improving their livelihoods.

About 25 per cent of labour households had other residential plot in the village in 2010 but proportion of labour households owning residential plots declined to 17 per cent in 2013 because some of them constructed house after split of family (Table4.3). Farm equipment was also an important asset, possessed by 71 per cent of labour households in 2010 but proportion of labour households owning farm equipment increased to 91 per cent in 2013.Per landless labour household investment on farm equipment did not increase during period under study but the investment on this particular item increased by two fold on land owning labour households because they need them for cultivation on ownfarm(Appendix-I).

Livestock was owned by 67 per cent of labour households in 2010 but incidence of livestock possession declined continuously and only 51 per cent of households had livestock in 2013 however per household investment on livestock remained same during period under study. Decline in incidence of livestock possession on labour households was mainly due to increase in fodder price, division of family, un-remunerative price of milk, introduction of tractor for ploughing. Despite decline in incidence livestock possession, proportion of labour households owning cattle shed increased from 30 per cent in 2010 to 34 per cent in 2013.It may be due to increased awareness for keeping cattle in hygienic and protected place due to increase price of cattle during last few years.

Table 4.3: Ownership of different types of asset on labour households (% hh)

Particulars	2010	2011	2012	2013
Livestock	67	60	51	51
Cattle shed	30	32	32	34
Residential plot	25	19	19	17
Farm equipment	71	92	91	91
Motor cycle	13	19	12	9
Bicycle	65	53	58	58

Bicycle is most popular mode for movement in rural area, particularly on labour households. Majority of households keep bicycle for reaching to work place for non- farm employment. Proportion of labour households owning bicycle was 65 per cent in 2010 but declined to 58 per cent in 2013, mainly due to increase in private transport system in during last few years in Bihar. About 13 per cent labour households had motor cycle in 2010 but declined to only 9 per cent in 2013.It may be noted that motor cycle was generally owned by land owning households and they got as dowry in son`s marriage but few of them sold because they did not afford to maintain.

Access to Facilities

Access to facilities is an important foundation for improving livelihood of weaker section in rural area which generates strong linkages to other economic sectors. Rural livelihoods are enhanced through providing facilities like; hygienic living, toilet, safe drinking water, safe cooking facility and access to mass communication. There wasa marked improvement in availability of facilities on even labour households in rural area. An attempt has been made in this section to examine the improvement in availability of facilities on labour households in villages under study. The lack of access to clean water and sanitation facilities ensures rural communities remain more prone to waterborne diseases and as a result demoralized and unable to defeat the cycle of poverty. As such, sanitation and hygiene are intrinsically linked to broader questions of community empowerment, livelihood, gender equity and social justice.

Access to toilet increased among labour households from 14.3 per cent households in 2010 to 17.0 per cent 2013.The comparatively larger proportion of labour households had toilet in 2011 which declined in 2012,manl;y due to poor quality of toilets constructed by some NGOs which became non-serviceable in only one year. Number of electrified labour households also continuously increased from 27 per cent in 2010 to 45.3 per cent in 20123, mainly due to launch of Rajiv Gandhi Rural Electrification programme in the state. There is no tap water facility available to labour households

Table 5: Access to Facilities on Labour households during 2010-13

(% of households)

Particulars	2010	2011	2012	2013
Toilet	14.3	18.9	15.8	17.0
Electricity	27.0	35.8	38.6	45.3
Safe drinking water	49.2	51.5	51.5	56.2
Cooking gas	--	1.9	2.2	2.4
Cable connection	--	0.9	--	--

In villages under study, the community tap water facility was available in one of villages under study which also became non ï operative. Hand pipe water is considered as safe drinking water and about 50 per cent of households have their own hand pipe in their dwelling house., There are sufficient number of public hand pipe available in villages and all households had access to the hand pipe for drinking purposes however some labour households were found using ponds/pyne(small channel) for bathing purposes. Only 2 per cent labour households own cooking gas because the majority of them do not afford and depend for cooking on crop residue, collected wood and dung cake. During four years of study period, 4 labour households installed cable connection in their households but they unsubscribed after few months due to their low flow of income.

Hence, it may be said that access to facilities increased to labour households during last four years but still the majority of them are deprived of various facilities for improved livelihood. It can only be accomplished by public intervention by providing subsidy to needy households.

Migration on Labour households

In Bihar, migration for gainful employment is one of the important strategies for maintaining livelihood. Earlier, rural to rural migration for short term period was more common which turned to rural-urban migration for long period (). An attempt has been made to analyse incidence of migration, destination of migration and occupation of migrants at destination places on labour households in villages under study.

Incidence of migration is worked out at 17.6 percent on labour households in 2010 which increased to 20.0 per cent in 2013. The incidence of migration was comparatively high on land owning labour households than landless labour households (Table 6). Incidence of migration increased on both categories of households however increase was higher on land owning labour households.

Table 6: Incidence of Migration on Labour Households (%)

Year	Landless labour Households	Land owning labour Households	All
2010	10.3	22.2	17.6
2011	11.2	23.6	17.2
2012	12.6	28.9	20.8
2013	12.4	27.1	20.0

The migration is not the domain of only landless and backward castes, particularly in villages under study. Now there is no any boundary for migration from Bihar (Singh, Paris and Luice, 2004). More than 90 per cent of persons migrated out- side state and the flow of migration from Bihar to other states is likely to increase further due to scarcity of opportunity of employment within the state.

Employment Pattern

Wage employment is clearly an important component of the strategies employed by rural households and individuals to maintain and improve their well-being. Rural employment is an important factor which influences the livelihood status of rural households. Wage employment is clearly an important component of the strategies employed by rural households and individuals to maintain and improve their well-being. Participation rates in rural labour markets, however, vary substantially across villages and are complicated by the fact that rural labourers often work in casual or seasonal employment rather than in permanent employment. While the poor and unskilled are disproportionately involved in casual and seasonal agricultural activities, a significant number of better-off individuals are employed in agriculture and significant number of non-agricultural labourers are poor. This suggests that agricultural wage employment is not solely an activity of the poor and non-agricultural wage employment is the activity of the comparatively rich. The distinction in

labour markets between the agricultural and non-agricultural sectors is to a degree a false dichotomy. An individual labour is working as agricultural ad non-agricultural labours simultaneously. Both can play similar roles for the household in terms of a pathway out of poverty, as a refuge sector for those with few options or as a mechanism to provide liquidity and hedge against risk (Paul Winters, 2009)

Whether a household is diversified or specialized the role of agricultural and non-agricultural. It is widely witnessed that as economy grows, the labour force shifts from farm to non-farm sector and this migration is determined by the total factor productivity of both the sectors. Similarly, experience in the developed countries has shown that during structural transformation, the contribution of agricultural sector to total GDP falls down, and the secondary sector (industry sector) leads for some period and finally the tertiary sector (service sector) constitutes the largest part of GDP (Eswaran et al., 2009). Employment pattern in the developing countries has revealed that development of alternative employment opportunities in the rural non-farm sector is a necessity for productive farm employment of labour force under the rapid growth of population (Chaudhary and Chaudhary, 19 Ana Paula de la O 92). The lack of sufficient employment opportunities and stagnant wages may cause economy wide problems like high incidence of poverty in the rural areas.

In Bihar, rural labours are generally employed either as casual basis or as contract workers and they are free to seek employment anywhere. There is now no system of attached farm labour in rural Bihar. In Bihar, rural labours are generally employed either as casual basis or as contract workers and they are free to seek employment anywhere. There is now no system of attached farm labour in rural Bihar

While analysing employment pattern of rural labour on villages under study it has been observed that the rural labours, on an average, an adult male earner is employed on wages for 207 days and female labour for 74 days in 2010. During last four years male employment increased to 233 days in 2013 but annual employment for females declined to 62 days in 2013 (Table 7).

Table 7: Employment Pattern of Male and women Labour during Study period (man days/per year)

Year	Farm sector			Non-farm sector			All		
	Male	Female	All	Male	Female	All	Male	Female	All
2010	89	69	75	220	101	214	207	74	177
2011	104	76	85	230	131	226	214	82	185
2012	127	52	74	256	83	249	244	57	204
2013	106	41	61	245	127	237	233	62	197

Non ï farm sector provided more employment opportunities to male and female labours during period under study. There was increase in employment for male in both farm and non- farm sector but increase was higher in non- farm sector than farm sector. Women employment in farm sector declined from 69 days in 2010 to 41 days in 2013 whereas there was an increase their employment in non- farm sector.There was increase in per capita income in Bihar during last four years and women in wealthier households tend to have lower participation rate in India, particularly from agricultural activities (ILO 2013).

The transition of labour force from farm to nonfarm sector has been fast during last four years. The role non ï farm sector in providing rural employment has increased and it may be one of potential pathways for generating employment opportunities and alleviating poverty (Kumar, A. 2005). Some of the labour employed in farm sector and self-employed households in the agricultural sector moved towards the non - farm sector for employment. The trend in real wagerateshowed that non- farm wage has grown faster than the farm wage. We observed that wage employment in general is superior to self-employment on very small size of farms in rural areas.

Hence, it may be said that the agricultural growth may not to be the source of increasing direct employment and earning per head. Considering the negligible employment elasticity to agricultural growth, creation of non-agricultural opportunities, diversification of rural economy and expansion of Rural Non-Farm Employment are adjunct to the strategies of managing vulnerabilities associated to the rural labour livelihood and bringing meaningful

structural change in the rural socio-economic conditions. As development occurs the expectation is that agricultural employment will diminish, but agricultural is still likely to be a key driver of growth even in the non-agricultural economy through linkages.

Wages of Rural Labours

Wage employment is clearly an important component of the strategies employed by rural households and individuals to maintain and improve their well-being. The study on rural wage trend is important and useful because it is the major source of income to labour households and main determinant of their livelihood security. Agricultural wageshave been used as proxy for analysing poverty and livelihoods in rural areas. (Deaton and Dreze, 2002).Analysis of employment in villages under study indicates emergence of non- farm employment opportunity as the key sector for determining the livelihood status of rural households. The growth in non-farm farm sector seems to be in position to decide the development of all other sectors in rural Bihar. An attempt has been made to examine the trend in wages of the farm and non-farm sectors during last four years.

During last four years average rural wage increased from Rs 127 in 2010 to Rs 208 in 2013 in villages under study. However female labour remained low wage earner than her male counterparts. There was increase of 64 per cent in wages of male labour which was much higher than increase of wages of female labours (13 %) during last four years (Table 8.1).The increase in wages of male labour force was mainly due to increase in wages of construction worker and rural artisans which are domain of male labour in these villages.

Table 8.1: Wage rate of male and women labour during 2010-13 (Rs. /days)

Year	Farm sector			Non-farm sector			All		
	Male	Female	All	Male	Female	All	Male	Female	All
2010	103	98	102	131	89	130	130	97	127
2011	139	114	129	160	142	160	157	116	155
2012	134	126	130	167	106	166	165	120	163
2013	131	105	117	218	138	215	213	110	208

Both farm and non ï farm sectors witnessed increase in wages of labours during last four years but the increase was much higher in non-farm sector (65%) than farm sector

(15%).Male labours were employed on higher wages than women labour in both farm and non- farm sectors in villages under study.

Wage Determinants

Since the early days of development economics it has been widely believed that the normal apparatus of supply and demand cannot be employed to explain the process of wage determination in rural labour markets of poor agrarian economies (Osmani,S. R,1988). It has been observed that the wage rate generally exceeded the opportunity income of labour which was expected to be close to zero in densely populated areas with very little opportunities of non-farm employment. This divergence was presumed to give rise to involuntary unemployment, though much of it was believed to remain hidden in the form of disguised unemployment. However, there is no such thing as involuntary unemployment in the rural Bihar i.e., the labourers actually accept the wage rate until it is equated with opportunity income at the margin.

An attempt has been made to find out determinants of wage rate in villages under study. Linear regression model was used to find out the determinants of wage. Wage rate of individual labour was dependent variable in the analysis whereas Age, Gender, Education level and Body Mass Index (BMI) were considered as independent variables which are expected to exert influence on wage of rural labour. Young educated healthy male labour is expected to get higher wage. Age, education, economic strength and gender are self - explanatory. Body Mass Index (BMI) is a number calculated from a person's weight and height. Person with optimum body mass index (18 ï 25) is considered healthy and he is expected to be more efficient at work place the model adopted for analysis is as follow:

Y = Wage rate of individual labour (in Rs /day)

X_i = Age of labour in years

X_2 =Gender (Male , Female)

X_3 = education of labour (number of years of education)

X_4 =Body Mass Index (Number)

X_5 = Caste (Forward caste -1, otherwise ï ñ0ò

X_6 = Ownership of land (Owning land-1, otherwise- ñ0ò

Table 8.2: Coefficients and corresponding standard error of Variables included in the study

Variables	Coefficient	Standard error	Probability
Age	2.4391	0.1472	0.00
Gender	65.7415	5.2227	0.00
Education	7.6092	0.4988	0.00
BMI	0.5993	0.2026	0.00
Caste	4.7730	6.9599	
Ownership of Land	21.0186	0.4894	0.00
Constant	-54.7512	7.6965	0.00

Observation -225, R- Square-0.7089

The calculated Coefficient of determination (R2) indicates that about 71 per cent variability observed in wage of rural labours can beexplained by variables included in analysis. Hence, there is a fairly convincing relationship between rural labour wage and variables included in the analysis. It is evident from Table 8.2 that the coefficients ofall five variables, except caste of labour, emerged significant. Hence it may said that the healthy, educate and land owning adult male labour is getting higher wage in villages under study. Caste of labour is not a significant factor for payment of wages in rural Bihar.

Seasonal Employment

The effective development of the labour force and employment at high level of efficiency are important dimension of manpower planning. It is necessary that the employment be regular so that the worker may put his head and heart into the work and maximize production (Agarwal,B. L and Varshney, R. G. 1969) . Seasonal and short term employment means hard uncertain lives for the workers and less than full utilization of human abilities and resources. An attempt is made in this section to examine the seasonal fluctuations in employment opportunities in rural Bihar.

Analysis of seasonal employment of labour has been examined for farm and non - farm labour separately. Farm sector does not provide regular employment. There are two pick periods when labour gets higher days of employment. In study villages, July - August and November ï December are pick periods because earlier period was period of paddy

transplantation and later was period of paddy harvesting and sowing of wheat ï the principal crops of the area under investigation. Labour engaged in agricultural activities gets, on an average, about 60 per cent of total annual employment in pick season. October and March is lack season when they get, on an average, less than two days of

Table 9: Monthly working days in agriculture sector of labour household (Days/month)

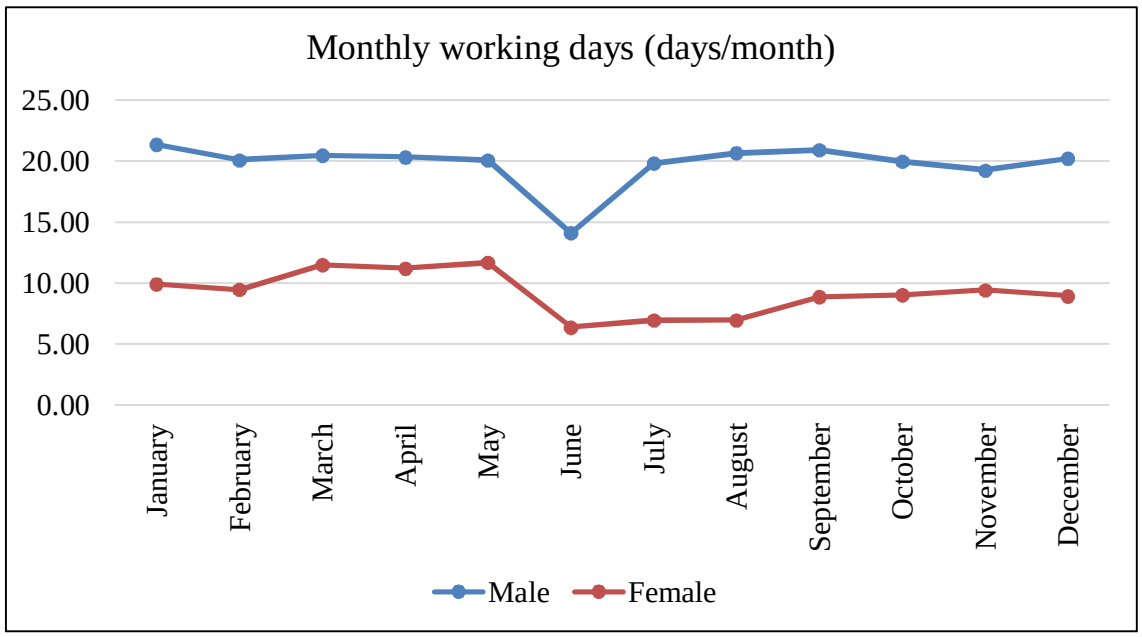
	2010		2011		2012		2013	
	Male	Female	Male	Female	Male	Female	Male	Female
June	0.0	0.0	9.6	4.3	6.0	1.7	7.8	0.6
July	**11.3**	7.0	14.5	12.6	14.4	9.2	**12.6**	8.5
August	11.2	6.0	12.4	9.8	10.2	8.8	**10.9**	8.4
September	7.7	3.2	6.2	4.2	5.6	3.3	6.1	3.4
October	8.1	3.4	6.6	1.2	9.6	0.7	5.7	1.2
November	11.5	8.7	9.6	6.1	8.6	3.5	**11.8**	8.2
December	9.0	6.2	12.9	12.4	15.6	11.2	**14.2**	4.9
January	9.7	4.5	12.7	10.5	12.0	1.6	**10.6**	0.0
February	9.5	6.2	4.2	2.9	10.6	1.9	5.3	0.3
March	4.1	7.6	4.4	6.1	11.7	2.5	5.8	1.9
April	4.1	10.3	5.3	4.7	14.3	7.2	**8.4**	2.4
May	3.2	5.8	5.5	0.9	8.3	0.0	7.1	0.7

employment in these months. Seasonality in womenôs employment in agriculture was almost identical but their pick season was just after harvesting of paddy (December) and wheat (April). October, February and May were slack period for women agricultural labour in Bihar. Male agricultural labour gets employment in May which is lack period for women agricultural labour because male agricultural labour got employment in land preparation and nursery raising of paddy in this month.

Non ï farm employment showed increasing trend and it is more regular than farm employment (Appendix II).Male labour got , on an average, 17 to 20 days of employment in a month during last four years whereas womenôs labour could get per month non- farm employment of less than 11 days however their engagement also increased in 2013(Figure I). June is only slack period for non ï farm employment in case of both male and women

labours,mainly due to scarcity of water in some villages and high temperature which is not congenial for out- door work.

Figure 1: Monthly working days in non-farm sector (days/month)



Income diversification

The diversity of production and economic activities of the labour households results into income flows from employment in diverse activities. Such diversification is triggered by employment from available alternative choices. Empirical evidence from a variety of different locations suggests that rural labour households do indeed engage in multiple employment opportunities and rely on diversified income portfolios.

The scope of increasing real income of labour households and bringing sustained improvement in their wellbeing, solely through employment in farming sector, is seriously constrained. There is concern on the incidence of deep rooting of poverty amongst the labour households depending on single income from farm employment.

The rural economies in developed countries are relatively more diversified and majority of their rural households have larger share of non-farm income accrual. The empirical evidences of change in rural economic and activity composition of developing economies are being documented. A large number of rural labour families are earning from

non-farm work, the process is slow in several regions due to limited skills and opportunities. The earnings from agriculture continue to be a fundamental source of livelihood of rural households, particularly the poor of undeveloped area.

The diversity of production and economic activities of the labour households results into income flows from employment in diverse activities. Such diversification is triggered by employment from available alternative choices. .Empirical evidence from a variety of different locations suggests that rural labour households do indeed engage in multiple employment opportunities and rely on diversified income portfolios.

Income of labour households has been examined of four villages in Bihar and it was observed that, on average, roughly 90 per cent of rural labour household income was from non-farm sources; however, the income varies between landless labour households and those with access to land for farming(Table 10.1). Per capita per month income on labour households is worked out at Rs 682 but it was higher on land owning households (Rs 732.00) than landless households (Rs 618.00). Income of the both type of labour households increased continuously during last four years but the higher increase in income was observed in case of landless labour households (83.95%) than land owning labour households (69.13%). It was mainly due to higher proportion of labour on former than later household (Table10.1).

Table 10.1: Percapita per month income of Labour households during last four years (2010-13)

Year	Income in Rupees		
	Landless	Land owning	All
2010	618	712	687
2011	910	1062	983
2012	1032	1156	1094
2013	1192	1238	1215

Sources of income of labour households are grouped in nine categories namely; farm, farm labour, non-farm labour, salaried job, business, caste occupation, remittances, benefits from govt. development programmes including pension, and subsidy. Income through daily wages from non-farm sector emerged as the most important source, accounting for 56 to 62

per cent of total income on labour households during last four years. It also showed increasing trend during period under study. Income through farming constituted about 8 to 12 per cent of total income on labour households but it fluctuates from year to year because farming is still dependent on extent of rainfall. Income from farming was lower in 2010 and 2013 because there was deficient rainfall in these years. Income through wages from farm wage was much lower. Wage for farm work is lower

Table 10.2: Income through different sources on labour households in villages under study (%)

Sources of income	2010	2011	2012	2013
Farm	8.3	12.7	11.8	8.4
Farm labour	7.3	8.3	7.7	4.5
Non- farm labour	62.3	56.0	56.7	62.4
Salaried job	3.3	2.4	2.8	2.9
Business	-	1.0	0.4	2.1
Caste occupation	5.8	6.2	6.7	6.0
Remittances	10.4	10.1	10.7	11.3
Benefits - dev.Programmes*	0.9	2.0	1.9	1.2
Subsidy	1.7	1.3	1.3	1.2

- Development programmes namely, PDS, Aganwadi, School dress and cycle to children etc.

and opportunity for farm employment is also declining due to farm mechanization during period under study. Tillage operation is done by tractors in almost all villages under study and combined harvester for harvesting and threshing of rice and wheat has already been introduced in two villages. However income through farm wages followed the similar pattern of income through farming that is; higher income in favourable monsoon year and lower income in unfavourable monsoon year (Table 10.2). As discussed earlier that about one ï fifth of adult male labour have migrated from villages under study hence remittances was the second most important source of income on labour households. It constituted about 10 per cent of total income on these households. The quantum of remittances observed an increasing trend due to decline in opportunity of wage employment in villages. Business was not an

important source of income rural Bihar. It contribution to total income varied from 0.4 t0 2.1 per cent on labour households. Caste occupations contributed 6 t0 8 per cent to total income and still an important source of income in villages, particularly on weaker section of society. However, potter, shoe maker and barber are not getting much employment in rural area due availability of alternative products and services in nearby urban centres. Government benefits through government development programmes and subsidy contributed 2 to 3 per cent to total income of labour households because most of them had no easy access to government programmes.

Poverty and Income of labour households

Bihar is the second poorest state in India which is cursed with high incidence of rural poverty. Overall, the incidence of rural poverty was 62.3 per cent in 1993-94, much above the all India level of 37.3 per cent. However, the incidence of rural poverty kept on declining from 62.3 per cent in 1993-94 to 55.7 per cent in 2004-05, which further declined to 55.3 per cent in 2009. A comparative analysis of rural poverty among farm and agricultural labour households revealed that during last two decades, poverty in agricultural labour households has been much higher than incidence of poverty in farm households. However, the decline in poverty was more in farm households (30.4%) than corresponding decline in case of agricultural labour households (27.6%) during 1993-94 to 2009-10. It was mainly due to considerable increase in productivity of food grains (1505 to 1778 kg/ha) along with increase in the prices of principal crops. For instance, paddy price increased from Rs. 320/qt to Rs. 965/qt during the period whereas the wages of agricultural labours could not increase in same proportion (Rs. 41 to Rs. 66/person/day). But decline in poverty among agricultural labour was much higher (10.9%) than poverty decline among farm households (1.2%) during 2004-05 to 2009-10(SinghK M et.al, 2012). This could happen, mainly due to availability of alternative employment opportunities to the agricultural labours and poor performance of agriculture due to two drought years and one flood year during the period. The launching of MNREGA and large scale employment opportunities in construction works started by the Government helped increasing agricultural wages (from Rs. 66 in 2004-05 to Rs. 104/person/day in 2009-10). These induced comparatively high decline in poverty among agricultural labours in the state. In the present section, an attempt has been made to examine the sources of income of poor labour households and non- poor households. Labour households are grouped in two categories that is; poor and non ï poor on the basis of poverty line recommended by the Planning Commission. The poverty line fixed the Planning

Commission for rural area was Rs 778.0 /per person/month in 2010-11. The adjusted poverty line is given as under:

Table 10.3: Year wise labour price Index and adjusted poverty line for Rural Bihar

Year	Rural labour Price Index	Poverty in Rs/person/ month	Poor labour households (No.)	Non-poor labour households(No.)
2010-11	532	778	45	63
2011-12	535	782	25	53
2012-13	620	906	30	57
2013-14	654	956	19	53

Number labour households varied from year to year because labour households were those who earned more than 50 per cent their total family income through wage earning. Number of poor labour households also varied due to level of earnings and change in poverty line due to change labour index. Per capita per month income of labour households through different sources were computed for poor and non- poor labour households which are presented in Table 10.4.

Table 10.4: Source wise income on poor and non- poor labour households in villages under study (%)

Sources of Income	Poor labour households				Non- poor labour households			
	Year				Year			
	2010	2011	2012	2013	2010	2011	2012	2013
Farm	6.4	6.9	8.4	6.6	10.3	15.0	13.4	6.4
Farm Labour	7.3	8.0	7.7	4.8	6.9	9.6	4.8	3.2
Non-farm worker	63.2	54.7	58.3	52.9	61.4	56.5	59.0	64.9

Salaried Job	0.0	0.0	2.2	2.8	6.9	3.0	5.0	4.9
Business/petty contract	0.0	1.1	1.3	1.2	00	1.0	1.1	4.0
Caste Occupation	8.0	10.1	10.4	19.2	3.3	3.9	3.8	3.7
Remittances	11.5	13.6	7.3	8.6	9.9	8.8	9.9	10.6
Benefits - dev. Programmes*	1.5	4.1	3.0	1.7	0.2	1.1	1.8	1.2
Subsidy	2.0	1.5	1.3	1.3	1.3	1.2	1.2	1.2
Monthly per capita income(Rs)	455	486	624	709	1401	1547	1644	1470

ÅDevelopment programmes namely, PDS, Aganwadi, School dress and cycle to children etc.

Per capita income on poor labour households was about half of corresponding income earned on non-poor labour households during period under study. Wages from non-farm, caste occupation and remittances constituted more than 80 per cent of total income on poor and non-poor labour households in study villages however wages from non- farm sector was more than 50 per cent of respective total income on both categories of labour households. Income through wages of non ï farm sector showed declining trend on poor labour households but it observed increasing trend on non- poor labour households, indicating positive effect of non- farm employment in increasing income and alleviating poverty on labour households. Income through farm wages was less than 10 per cent on poor labour households and comparatively on non-poor labour households. Income through farm was also comparatively low on poor labour household than non-poor households during period under study. The employment opportunity and income generation through farm sector were also associated to extent of rainfall hence farm wages earned and income generated through farm in 2011were higher than other years of study because it was only normal year during study period in Bihar. Remittances was an important source of income in both categories of labour households but it observed increasing trend on non-poor households but declining trend on poor labour households during period under study.

During last four years, number of income sources and income diversification index showed declining trend (Table 10.5). The majority of labour households left caste occupation and found avoiding working in farm sector mainly due to low wages and earning from these two activities in rural area.

Table 10.5 Average number of Income Sources and Income diversification Index on Labour Households under study

Year	Number of income sources	Income diversification Index
2010	4.4	0.45
2011	4.5	0.49
2012	4.3	0.42
2013	4.2	0.35

Hence, it may be surmised that farm income, non-farm wages and remittances have played main role in increasing income and alleviating poverty in labour households in Bihar. Employment in agriculture sector is declining but agricultural is still likely to be a key driver of growth even in the non-agricultural economy through linkage. Policies to extend systematic skill and training opportunities will help better opportunities of employment for migrants and non- farm workers which will help reducing poverty and improving livelihood of labour households in rural Bihar.

Borrowing and Saving

The experience of poverty is often felt in the presence or absence of cash in the lives of a household. Some basic needs can be met by direct production, fishing or gathering usable products (fruit, fodder, fuel wood, dung etc.) but many needs require cash to facilitate the payments and transactions involved. Thus all rural labour households have the problem of managing variable cash flows - matching income and expenditure requirements by saving and borrowing.It is well known that many mechanisms have evolved within communities to facilitate this. The private informal lender includes money lender, shopkeepers, landlords, friends and relatives.

Formal regulated systems to facilitate money management have also evolved in villages under study. These include: commercial banks, Regional Rural Banks and Cooperative (PACS). But these formal financial service providers are rarely used by poor people who often find their inability to fulfil the conditions to use the products on offer. Other reasons are that people simply find the institutions following complicated and cumbersome process for borrowing. An attempt has been made to examine the availability of credit to rural labour households in villages under study. In Bihar, rural households have poor access to institutional credit sources. Less than 0ne per cent of rural households with asset of less than 60 thousand assets had access to institutional credit institution. (KisanAyog, 2009).

While analysing information about credit availed by rural labour households It has been observed that about half of labour households availed credit in villages under study but about three- fourths of them availed credit through non ï institutional sources (Table 11). The majority of labour households were landless and do not have any collateral for providing security to institutional credit agencies for getting loan. They are not even illegible for issue of Kisan Credit Card. However, labour households need credit mostly for consumption purposes, mainly for medical treatment, social ceremonies etc. which is still not available through institutional credit agencies in Bihar.

Table 11: Number of borrowers among labour households, per household credit and Savings on labour households in villages under study

Year	No. of labour household	Number of borrowers ðhouseholds			Per household borrowed amount (Rs)			Per Household saving (Rs)
		Institutional	Non-institutional	Total	*Institutional*	Non-institutional	Total	
2010	63	9 (25)	27 (75)	36 (100)	5937 (40)	9016 (60)	14953 (100)	4276
2011	53	8 (24)	25 (76)	33 (100)	4368 (33)	8809 (67)	13177 (100)	2397

2012	56	6 (24)	19 (76)	25 (100)	3035 (26)	8537 (74)	11572 (100)	7114
2013	51	8 (29)	20 (71)	28 (100)	4876 (20)	20125 (80)	25001 (100)	5525

Institutional loanees among labour households varied from 24 to 29 per cent but quantum of per household loan declined and proportion of institutional loan to non-institutional loan declined continuously during period under study (Table 11). In 2013, Per household loan increased to Rs 25001, constituting 80 per cent from non-institutional source. There is a complete paradox in rural credit system because land owning households get institutional credit on interest of less than 7 per cent whereas the majority of weaker section (labour households) avail non-institutional credit on much higher interest rate of more than 36 per cent per year. The majority of labour households faced financial hardship in maintaining their livelihoods due to payment of high interest rate to moneylenders. In this situation, there is a need to improve the access of labour households to institutional credit agencies for minimizing their hardship from higher rate of interest of non- institutional source of credit. The banking system must be encouraged to reach out to labour households through innovative means.

Labour households do not have much saving but few of them (15%) had bank account and could save through their hard work.Per labour household saving was worked out at Rs 4276 in 2010 which increased to Rs 7114 in 2012 but again declined in 2013. Saving habit needs to be inculcated among labour households by motivation and making easy access to bank branches. The recent launched programme of Pradhan Mantry Jan- DhanYojna is likely to increase access of labour households to bank branches.

Access to development Programmes

Various programmes for welfare and development of the weaker section are implemented by different departments of state government. An attempt has been made to achieve a good coverage of basic minimum services. The social security systems in the form of pensions to vulnerable groups and welfare funds for various categories of labourers are reasonably well spread. Universal public distribution system in Bihar helps improving food security. These measures have prevented abject poverty to a great extent.But from the point

of view of capabilities as well as entitlements ,Bihar is still much behind in helping weaker section of rural society in comparison to other states in tackling the problems of the poor. More than 20 development and welfare programmes are being implemented in rural Bihar for the benefit of rural households and the majority of these programmes are targeted to the weaker section including labour households.

In this section, performance of different programmes with respect to benefits realised by labour households has been examined for the last four years. Proportion of labour households and average benefit accrued by them are computed and presented in Table 12.

Analysis of data related to various development and welfare programmes revealed that Public Distribution System was the most popular programme for labour households because almost all labour households had access to this programme. Food grains and kerosene oil are provided through PDS to BPL families and only Kerosene Oil to families Above Poverty Line (APL). Per labour household benefit accrued through PDS is worked out at Rs 1442.0 which continuously increased and reached to Rs 1895.0 in 2013.Social security schemes was the second popular scheme among labour households which includes Old Age Pension, Pension for Physically Handicapped and Widow Pension. About 17.5 per cent labour households had access to these schemes in 2010 whereas 26.4 per cent labour households got benefit from the schemes in 2013. Per labour household quantum of benefit also increased from Rs 397 to Rs 706 during period under study. Hence, it may be said that the coverage of social security schemes observed increasing trend in Bihar during last four years. In Mid- day meal scheme, students (children) are provided mid-day meal in the school which not only help increasing enrolment and attendance in the school but improve health of children by reducing malnutrition among children, particularly from poor households. The coverage of mid ï day scheme was very low in 2010 (3.2%) but it covered about 58.5 per cent of labour households in 2013. Per labour household benefit is worked out at Rs 15.0 in 2010 which increased to Rs 678.0 in 2013. A very few labour households had access to various agricultural development programmes namely; National Food Security Mission, Rastriya Krishi Vikas Yojna, National Horticulture Mission etc. because more than 80 per cent of labour households were landless who were not even eligible for any benefits through agricultural development programmes.

Table 12: Proportion of Labour household participated and average benefit accrued through different programmes

Development Scheme	2010	2011	2012	2013
Public Distribution System (% of hh)	96.8 (1442)	100.0 (1695)	98.29 (1743)	100.0 (1895)
Mid-day Meal	3.2 (15)	45.3 (217)	57.9 (821)	58.5 (678)
Social Security Schemes(Pension)*	17.5 (397)	18.9 (381)	15.8 (404)	26.4 (706)
Agril. Development Project	00	1.9 (38)	14.1 (110)	00
Anganwadi	6.3 (40)	13.2 (68)	12.3 (45)	18.9 (185)
Drought/Flood relief	1.6 (4)	9.4 (62)	00	00
CM Cloth& Bicycle programme	00	7.5 (47)	1.8 (9)	15.1 (126)
MANREGAS	4.8 (17)	7.5 (66)	00	00
Indira AwasYojna	3.2 (778)	3.8 (8490	00	00
KCC& SHG	4.8 (686)	3.8 (325)	00	00
Other Programmes**	8.0 (941)	5.7 (13)	00	00

Figures in parentheses indicate per labour household benefit from respective scheme/project

* Includes Old age Pension,Pension for Physically handicapped and Widow pension. ** Includes Family planning and Provision of construction material for house

Anganwadi project was started by the Indian government in 1975 as part of the Integrated Child Development Services program to combat child hunger and malnutrition. Anganwadi centre also provides basic health care in villages. It is a part of our public health-care system. Basic health-care activities include contraceptive counselling and supply,

nutrition education and supplementation, as well as pre-school activities. The centres is also be used as depots for oral rehydration salts, basic medicines and contraceptives. About 6.3 per cent labour households had access to Anganwadi centres of their village in 2010 and coverage increased to 18.9 per cent of labour households in 2013. Per labour household benefit accrued through this scheme was only Rs 40.0 in 2010 which increased to Rs 185.0 in 2013.

A few labour households got benefit from MNREGA and Indira AwasYojna in 2010 & 2011 but none of labour households got benefit from these two important schemes meant for poor and socially backward community. Really these projects lost their steam during last few years in Bihar, particularly in villages under study. Flood and drought relief programme are not a regular programme because it operates in the year of drought and flood. Bihar faced serious drought in 2010 and devastating flood in some parts of Bihar in 2011 and few labour households got some relief.But it is evident from information available in villages under study that it is only cosmetic programme for labour households.

CM Cloth and Bicycle programme was launched in Bihar for providing school dress and bicycle to girlsô student in school which has been a success ful programme in the state. About 15 per cent labour households got benefit from this project in villages under study. SHG is not a popular programme in Bihar and KCC is meant for farmers hence labour households could not get much benefit from these schemes.

Hence, it may be surmised that labour households have more access to social security schemes and project targeted to poor households(BPL families) than programme launched for benefits of both poor and non- poor households.However, programmes like. MANREGAS, IAY, KCC and SHG have almost seized to operate in villages under study.

Conclusions

The study has examined the changing employment and livelihood pattern of labour households during the last four years using panel data. The labour households are those who earned more than fifty per cent income through wage earning in farm and non- farm sectors. There is decline in proportion of labour households but clear evidence of transition of labour force has been observed from farm to nonfarm sector during last four years. Some of the self-employed households in the agricultural sector moved towards the labour force, indicating a rise in the number of land owning labour households.

Literacy level of labours showed increasing trend but abour one ï third woman labours are still illiterate in Bihar. There is no cast bar in joining the labour force. Asset poverty is very high and the incidence of livestock possession also declined continuously which was due to increase in fodder price, division of family, un-remunerative price of milk, introduction of tractor for ploughing. Labour householdsô access to toilet increased but about three- fourth of them still do not have toilet in the area under study.

There was increase in employment for male in both farm and non- farm sector but increase was higher in non- farm sector than farm sector. Women employment in farm sector declined from 69 days in 2010 to 41 days in 2013 whereas there was an increase their employment in non- farm sector. The transition of labour force from farm to nonfarm sector has been fast during last four years. The role of non ï farm sector in providing rural employment has increased and strategy to increase non- farm empl0yment may be one of potential pathways for alleviating poverty in Bihar. Some of the labour employed in farm sector and self-employed households in the agricultural sector moved towards the non - farm sector for employment. The trend in real wage rate showed that non- farm wage has grown faster than the farm wage. We observed that wage employment in general is superior to self-employment on very small size of farms in rural areas.

Both farm and non ï farm sectors witnessed increase in wages of labours during last four years but the increase was much higher in non-farm sector (65%) than farm sector (15%).Male labours were employed on higher wages than women labour in both farm and non- farm sectors in villages under study. Wages in farm sector in not only low but it does not provide regular employment whereas wages in non ï farm is higher and employment is more regular. Wage determinant analysis revealed that a healthy, educated and land owning adult male labour is likely to get higher wages whereas the caste of labour is not a significant factor for payment of wages in rural Bihar.

Non-farm sector emerged as a major source for providing employment and generating income on labour households. Income through farming constituted about 8 to 12 per cent of total income on labour households but it fluctuates from year to year because farming is still dependent on extent of rainfall. Remittances emerged as the second most important source of income on labour households because migration for gainful employment is one of the important strategies for maintaining in Bihar, particularly on poor households.

Analysis of income of poor and non- poor labour households indicates declining trend in income through wages through non ï farm on poor labour households but it observed increasing trend on non- poor labour households, indicating positive effect of non-farm employment in increasing income and alleviating poverty on labour households. Income through employment in agriculture sector is declining but agricultural is still likely to be a key driver of growth even in the non-agricultural economy through linkages. Policies to extend systematic skill and training opportunities will help better opportunities of employment for migrants and non- farm workers which will help reducing poverty and improving livelihood of labour households in rural Bihar.

Institutional credit flow is lower in Bihar and Agricultural labour households have much less access to institutional sources of credit. They depend on non ï institutional credit sources for meeting their credit need. About one- third of labour households borrowed mainly meeting expenses of consumption credit including for meeting expenses of treatment of their family members

Various programmes for welfare and development of the weaker section are implemented by different departments of government. But labour households have more access to social security schemes and project targeted to poor households (BPL families) than programme launched for benefits of bot poor and non- poor households. However, programmes like. MANREGAS, IAY, KCC and SHG have almost seized to operate in villages under study. Hence, there is need to revive these projects with more focus to the weaker section of society for the benefit of labour households.

References

Chambers, R. and Conway, G.R. (1992), Sustainable Rural Livelihoods: Practical Concepts for the 21st Century, Development Studies,

Ravallion, M., Chen S. &Sangraula P. (2007) New Evidence on the Urbanization of Global Poverty, World Bank Policy Research Working Paper 4199, Washington DC, And The World Bank.

World Bank (2008) World Development Report 2008: Agriculture for Development. (Washington, DC, the World Bank).

Davis, B., Winters, P., Carletto, G., Covarrubias, K., Quiñones, E., Zezza, A., Stamoulis, K,Bonomi, G. &DiGiuseppe, S. (2007) Rural Income Generating Activities: A Cross CountryComparison, RIGA Publications, http://www.fao.org/es/ESA/riga/pubs_en.htm, (Rome)

NSSO(2013) Key Indicators Situation of Agricu;tural Households in India(NSS 70th Round),Ministry of Statistics and Programme Implementation,Government of India,New Delhi

Singh,R. K. P.,Paris,Thelma. R. and Luis,J. S. (2004) Impact of Labour Out- Migration on Rice ï Based Household Economy and Gender Roles in Bihar,India, Report of Collaborative Project, Rajendra Agricultural University,Pusa, Bihar and International Rice ResearchInstitute,Philippines

ILO (2013) India: Why is womenôs labour force participation dropping? Working Paper,LIO,Geneva

Chaudhry, M.G. and Chaudhry, G.M. (1992) Trend of rural employment and wages in Pakistan, The Pakistan Development Review, 31(4): 803-815.

Eswaran, M., Kotwal, A., Ramaswami, B. and Wadhwa, W. (2009) Sectoral labour flows and agricultural wages in India, 1983-2004: Has growth trickled down? Economic and Political Weekly, 44 (2):46-55.

Deaton, A. and Drèze, J.P. (2002) Poverty and inequality in India: A re-examination, Economic and Political Weekly, 37 (36): 3729-3748.

Paul Winters (2009) Rural Wage Employment in Developing Countries, Department of Economics, American University Washington, DCMimieograph)

ZerihunGudetaAlemu (2012) Livelihood Strategies in Rural South Africa: Implications for Poverty Reduction, Presentation at the International Association of Agricultural Economists (IAAE), Triennial Conference, Foz do Iguacu, Brazil.

Osmani,S. R.(1988), Wage Determination in Rural Labour Markets:the Theory of Implicit Co-operation, World Institute for Development Economics Research, Helsinki, Finland.

Kumar, A (2005) Rural Employment Diversification in Eastern India: Trends and Determinants, Working Paper II, NCAP, New Delhi

KisanAyog (2009), Report on Agricultural Credit and Insurance in Bihar, State Farmers Commission,Bihar, Pant Bhawan ,Patna

Appendices

Appendix I :Work Participation of Males and Females in Sample villages of Bihar

Year	Male	Female
2010	70.3	21.8
2011	71.4	25.0
2012	70.5	22.2
2013	68.9	20.6

Appendix II: Monthly working days in non-agriculture sector of labour household (Days/month)

	2010		2011		2012		2013	
	Male	Female	Male	Female	Male	Female	Male	Female
June	0.0	0.0	17.4	8.3	21.7	6.6	19.6	10.6
July	18.8	4.1	16.8	8.5	22.0	6.3	21.6	9.0
August	20.5	4.0	18.0	8.5	22.7	6.6	21.2	9.0
September	19.8	10.4	20.1	8.3	21.8	6.7	22.0	9.4
October	18.5	10.0	18.4	8.5	21.4	6.6	21.8	10.1
November	18.3	11.5	17.7	8.3	20.8	6.9	20.3	10.0
December	19.7	11.5	19.9	8.5	21.0	6.3	20.4	8.8
January	21.8	11.5	20.8	8.5	21.9	10.0	20.8	9.3
February	21.1	10.4	19.4	11.5	20.3	6.7	19.5	9.6
March	21.3	9.9	20.5	17.2	21.0	6.1	18.9	13.6
April	21.6	8.8	20.0	17.0	19.9	6.3	19.7	13.7
May	18.6	9.1	20.8	17.2	21.8	8.0	19.3	13.6