

SOCIAL ACTION

A Quarterly Review of Social Trends

Agriculture Reforms and Farmer Movements

- ❑ Agriculture Reforms and Farmer Movements (Editorial)
Archana Sinha
- ❑ Migration, Land Leasing and Crop Diversification: A Case Study of Darbhanga District of Bihar, India
Ugra Mohan Jha & Nisha Varghese
- ❑ Present Labour Problems in Floriculture and its Relation to Mahatma Gandhi National Rural Employment Guarantee Act
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- ❑ Slavery Extended: Assam Tea Plantations
Bimal Lakra & Lukose P. Jacob

A UGC-CARE APPROVED JOURNAL

SOCIAL ACTION

APRIL – JUNE 2022

VOLUME 72

No.02

SOCIAL ACTION is published on the 15th of January, April, July and October. Those who do not receive copies in time should write to the Business Manager within three months of the date of publication. After that free replacement copies may not be available.

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Articles in **SOCIAL ACTION** are indexed in ICSSR Research Abstracts, Sociology of Education Abstracts, Book Review Index, and Review of Publication Reviews. **SOCIAL ACTION** has been published continuously from 1951. A micro-film edition is available from University Microfilms International, Ann Arbor, Michigan 48106, USA.

Note: Social Action is listed in the UGC-CARE list of approved Social Science Journals.

Subscription Rates

Institutional/Personal	One Year	Two Years	Three Years
Ordinary Post	580.00	1160.00	1750.00
Registered Post	650.00	1295.00	1950.00
Foreign (Air Mail)	US\$ 100	US\$ 180	US\$ 250

Payments of Indian Subscriptions by DD/Postal Order/M.O. in favour **INTEGRATED SOCIAL INITIATIVES**, payable at Delhi only.

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July-September 2022**

(Last date to receive articles : 15 May 2022)

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(Last date to receive articles : 15 August 2022)

Articles of 4,500-5,000 words are printed on the above themes. To facilitate the processing, please send them by post and soft copy or email to avoid undue delay. Articles should reach the Editor at least two months before the month of publication at the address below. SOCIAL ACTION is published on the 15th of January, April, July and October.

Editor

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Agriculture Reforms and Farmer Movements

Today, in the midst of Covid-19 pandemic, the world is challenged to meet its emerging demands along with United Nations' Sustainable Development Goals' Agenda 2030. In the present state of affairs, an effective system is considered necessary to transform agriculture systems to achieve the goal of 'leaving no one behind'. Agriculture plays a vital role in India's economy. Given the importance of the agriculture sector, there is a need for its reform in a sustainable manner. In the post-green revolution period, agricultural system progressively moved from crop based to farming system-based agriculture to achieve sustainable food and nutrition security and to capitalize on farm income; besides escalating the area and production by bringing in better production technologies and genetically modified varieties to ensure competent marketing and better price for the farmers. We have seen enormous progress been attained worldwide in improving human welfare and societies have been changing radically due to dramatic advancement in technology, rapid urbanization, and innovations in production systems. Yet, the state of affairs today is far from a world free of fear and want as envisaged at the foundation of the United Nations.

Farmers and the farm sector in India do need reforms that are appropriate to India and its pragmatic development path. Reforms must support direct marketing between farmers and end-consumers. Farmers displaced from agriculture are not getting absorbed into other sectors due to a lack of opportunities there as a result of jobless growth or even a decline in growth in some sectors. The size of landholdings is shrinking with time and a majority of persons counted as workers in our economy are still in agriculture, shifting from being cultivators to agricultural labourers. Reforms agenda that incorporates sustainable livelihoods perspective that hold diversity as a key feature of Indian farming, both in production systems and in markets, is the need of hour.

This thematic issue of Social Action is a reflection on agriculture reforms and farmer movements in India. The first paper "Migration, Land Leasing and Crop Diversification: A Case Study of Darbhanga District of Bihar" by Ugra Mohan Jha and Nisha Varghese assesses the changes in agriculture systems and crop diversifications due to migration, and states that agriculture and migration are very closely related. The study revealed that

migrant households mostly adopt crop diversification from the traditional cereal based rice-wheat cropping, thus growing and cultivating at least two to three crops in Kharif and Rabi seasons; while non-migrant households mostly go for up to two crops per season. With regard to landholdings of migrants, it is revealed that migrant families are more likely to give their land for lease through share-cropping and the proportion of land put to farming through share-cropping system increased to 63.8 per cent in a decade. The second paper, "Present Labour Problems in Floriculture and its Relation to Mahatma Gandhi National Rural Employment Guarantee Act" by Sujit Maji, Soumik Halder, and Sayani Mukhopadhyay is based on an empirical study that deals with the labour-related problems and challenges in floriculture as one of the sectors of Indian agriculture where labour requirement is quite high. The paper reveals that MGNREGA played a significant role in labour shortages and suggests that an alteration of labour pattern in floriculture can be predicted in near future. It suggests that more emphasis on region-wise, season-wise and priority-based labour planning at the required time of cultivation for beneficiaries under MGNREGA works would help maintain a balance between the growth of number of labourers and flower farms, will help to reduce the intensity of labour challenges in future. The third paper "Jal, Jangal, Jameen and Agricultural Reforms in the context of Jharkhand-Chota Nagpur" by Xavier Binay Kandulna and Sanjiv Lakra is based on an evaluation study of land system of the past and agriculture reforms of present governments, using secondary sources of data and literature. The paper shows that there is a considerable effort in sustainable management and use of natural resources of water, forest, and land in the state. However, there has been repeated conflicts and confrontation between rulers and adivasis over the same in Chota Nagpur ever since the creation of new state Jharkhand. The new dispensation is trying to improve the lives of adivasis through various agriculture reforms and policy measures. However, the objectives of sustainable agriculture and achieving efficient management of natural resources are yet to be achieved by the state. The fourth paper "Genetically Modified Crops to Genetically Modified Foods: State Hegemony and Farmers' Resistance in India" by Prakash Bhue, Reetu Pradhan and Bikash Bhue based on literature survey aims to highlight the issues associated with the transgenic foods as well as GM crops cultivation. The paper deals with issues of GM crops, like, economic impact, health risk, environmental impact, monopoly of private enterprises, threat to indigenous farming and farmers' suicide. It also highlights the ongoing farmers' resistance over GM technology and the debate arising out of new regulations. The Paper states that a number

of private researches on genetically engineered organisms are increasing drastically in developing as well as developed countries to reveal more facts and suggests that India needs to fund public sector research on transgenic crops and their impact on environment, human and animal health. The fifth paper, "Social Entrepreneurship in Agriculture: A Solution to Global Food Crises" by Madan Lal and Ramesh Kumar states that the danger of food insecurity in India is due to the dependence of a large population on the agriculture sector. The authors point out that since 1951 this sector has been steadily losing its dominance in terms of Gross Domestic Product, export and employment. In this scenario this paper addresses these crises in new and innovative ways. The paper comprehends how social innovations are transforming traditional agriculture into technology supported agriculture and bringing desired positive change in the lives of farmers. The authors argue that social entrepreneurs have the potential to deal with socially concerned practices as well as commercial activities that may reform the agriculture sector, and it could be a solution to feed the world. The sixth paper, "Farmers' movement in the context to Land in Assam" by Juri Baruah emphasises the farmers' struggle in Assam and how it relates to issues such as land rights and land access. With a special reference to the farmers' movement in Assam for land rights, the paper deals with the significance of the land issue in the Brahmaputra valley in the context of citizenship concerns and immigration. The paper reveals the insecurity of farmer communities in relation to land accessibility due to which they had to shift from agriculture to daily wage earner. The author is critical of the silence of farmers in Assam during the anti-farm bills agitation. The author argues that from the farmer movements to the Citizenship Amendment Act (CAA), land remains a medium of endorsement of the Assamese domain regarding its ideology, propaganda and political discourse. Lastly, the seventh paper, "Slavery Extended: Assam Tea Plantations" by Bimal Lakra and Lukose P. Jacob deals with the history of rigorous and strenuous work culture and labour exploitation in context of 'Assam Tea Plantations'. The cruel subordination under slavery was replaced by a less severe indentured labour system in 1833 which has been crucial to British plantations from then on. Assam Gardens were no exception, where this system was established. Often this system shared a blurred line with slavery as methods employed in these gardens were similar to the ones practised under slavery. The paper highlights the labourers' lives under the appalling tea planters that was dismal and that bound the labourers to the plantations. These could only be described as a continuation of slavery.

India's roadmap is designed to build inclusive food systems to wipe off the Indian dilemma of being food surplus and also home to about one-fourth of the world's hungry and poor, majority being smallholder and marginal farmers. This inclusive growth system should promote small and medium enterprises and participation of smallholder farmers all along the value chain. States would have to play a major role in agriculture reforms, particularly in the area of marketing of agricultural produce, to address the agrarian crisis. While the government maintains that agricultural reforms are the cure for a longstanding agrarian crisis, offering farmers more choice in what they grow and who they sell to, and helping attract much-needed private investment into the sector, these do not seem to address the environmental challenges of agriculture. There are many aspects of agriculture today that need substantive reforms. The interventions needed would include expanded procurement, smarter market interventions by government agencies, a re-designed warehouse scheme, price deficit payments especially for perishables, investment in farmer-controlled farmer produce organisations that are considered as sellers and not traders in the market, the widespread adoption of agroecology to reduce the cost of cultivation, and so on. Much remains to be done, and it's time to think of innovative ways to address unsustainable agricultural practices that are ingrained in India. □

Archana Sinha

Migration, Land Leasing and Crop Diversification: A Case Study of Darbhanga District of Bihar, India

Ugra Mohan Jha *
& Nisha Varghese**

Abstract

Agriculture and migration are very closely related. This study was initiated to assess the changes in agriculture systems and crop diversifications due to migration. Retrospective case control study design was applied where cases were 'migrant' and controls were 'non-migrant' households with 100 sampled households of migrants and 100 of non migrants from the district. The study revealed that mostly migrant households go for crop diversification, growing and cultivating at least 2-3 crops in each of the Kharif and Rabi seasons. However, non-migrant households mostly go for single or two crops per season. Among migrants, out of the landholdings being put to various uses, the percentage of land put to farming through Bataidari system increased from 13.8 per cent to 63.8 per cent in 10 years. Logistic regression analysis shows that migrant families are more likely to give their land for lease under Bataidari system.

Keywords: Migration, Bataidari, Crop diversification

1. Introduction

There is a very close relation between migration and agriculture. While male outmigration results in shortage of family labour, the remittances play an important role in farm investments and increased production. According to Census of India, 2011, around 60 per cent of the total migrants in India come from rural areas. This reveals that there is still a strong tendency to migrate from rural to urban areas. The loss of household labour in agriculture due to out-migration is compensated by increased access to capital, leading to overall improvements in both agricultural and total incomes (McCarthy et al., 2006).

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Agricultural production is critical for achieving food security, since close to 99 per cent of food consumed is supplied by agriculture. Agriculture, on the other hand, is already under stress from environmental degradation, climate change, and an increasing conversion of land for non-agricultural activities (Khadka, 2017). Therefore, crop diversification and enhancement in agriculture production and productivity is a way forward. The concept of diversification at the macro level is a move away from agriculture to secondary and tertiary sectors (industry and service sectors) which may change consumer's expenditure due to sustained economic growth and rise in per capita incomes. Diversification of agriculture can be classified into the following three categories: (i) Shift of resources from farm to non-farm activities; (ii) Shift of resources within agriculture from less profitable crop or enterprise to more profitable crop or enterprise; and (iii) Use of resources in diverse but complimentary activities (Delgado and Siamwalla 1999).

Migration is known to have varied impacts on migrants and their households, and on the social and political life in the source and destination areas. These impacts are complex and run in different directions. For example, rural-urban migration is a primary source of growth and development in the economy and in the destination regions. Remittances are a primary channel through which migrant workers are able to stabilize or improve their conditions of living. Remittances play an important role in the improvement of intra-household and inter-household growth and development in the source areas.

Migration is an important factor to overcome financial resources' problem of rural households in undertaking decisions on agricultural production, investment and labour allocation (Rozelle et al., 1999; Taylor et al., 2003). Remittances have a negative effect on farm productivity, due to loss of the youngest and most productive household members (Lipton, 1980). Among various farm activities, hiring of labour, seed selection, irrigation and insecticide spraying contributed maximum to the increased drudgery of the female members of migrant households (Singh et al., 2011). While women have always played a pivotal role in agricultural production, their importance has been growing. The increase in cropping intensity, higher yields in the case of male out-migration has increased the demand for female labour (Rodgers and Rodgers, 2011).

1.1 Migration in Bihar

Over the years, Bihar has been recognized as one of the highest out-migrating States in India. In the 1990s and 2000s, after opening up of the

economy and post-liberalization, a significant number of migrants have started going to several other areas to work, which includes Delhi, Gujarat, Maharashtra, and Assam (Sharma, 2005). Erstwhile planning commission selected 100 most backward districts of India, which included 27 districts out of 38 districts of Bihar as backward districts of India.

At the national level in India, as per Economic Survey 2020-21, agriculture sector employs 54.6 per cent of the total workforce in India and contributes around 17.8 per cent to the country's Gross Value Added for the year 2019-20 (at current prices). At the State level in Bihar, agriculture is the backbone of Bihar's economy. The percentage of population employed in agriculture production system in Bihar is estimated to 77 per cent. Nearly 24.84 per cent of GDP of the state (2011-12) has been from agriculture sector (including forestry and fishing) (Department of Agriculture, Government of Bihar.). Considering this, development in agriculture is an essential condition for the development of the national, state and district economy.

Darbhanga is one of the 38 districts of Bihar. The main occupation of the people in Darbhanga is agriculture, fisheries and daily wage labour. A major source of income of the district is agriculture. Darbhanga faces the bane of floods every year. Recurring floods have an adverse effect on the district's agricultural productivity every year. The population of Darbhanga is 39,37,385 with a majority (over 90 per cent) of the district's population living in rural areas (Census, 2011). The region has good rainfall but also receives floods during monsoon. Unless proper attention is given to proper soil conservation, drainage and water management programmes, water logging and soil erosion problems may take a serious turn in the future and it would be difficult to maintain soil fertility. Rice-Wheat cropping system is most predominant in this region.

1.2 Sharecropping and its Relation to Migration

Traditionally, tenant farming refers to farming done by someone (tenant), who carries out agricultural operations in a land owned by another (landlord). In order to encourage owner-cultivation and to give security of tenure to sharecropper and tenants, ban on leasing was imposed after independence in India (Kumar et. al., 2017). While the laws allowed tenants to acquire ownership or owner like rights, the same laws led to eviction of a large number of tenants (Appu, 1975). Tenancy based agriculture is very popular among farmers in Bihar. The reason may be large number of marginal and small landholding distributed among farmers. In a rapidly changing development based economy, some people involved in agriculture

switch on to non-farm activities or migrate to urban areas for jobs. They themselves are unable to cultivate their land and therefore are willing to lease out their land to tenants. Leasing out of land to cultivators by land owners is a common agricultural practice in India. Conferring the right of using a piece of land to others, either on rent or free of cost, by the owner without transferring the title is termed as lease of land. Such agreements, even when made orally, are considered as lease contracts (Kumar et. al., 2020). As agriculture is a state subject, the laws related to tenancy farming vary across states. Many of the states do not recognize this type of farming systems and the farmers hence resort to informal tenancy, which is insecure and inefficient due to lack of legal sanctity.

The lease contracts may be in the form of fixed money, fixed produce or share of produce. In case of fixed money lease, the landowner receives a fixed amount of cash per unit of land from the tenant and this fixed amount of money is pre-determined and does not depend on the crop yields or the price of the produce. However, in case of sharecropping, a fixed quantity of the output or a proportionate share of the produce is claimed by the landlord and the tenant for the land and labour provided by them. In Bihar, claiming the share of produce is the most prevalent (84 per cent) terms of lease. In Darbhanga district most of the migrant families go for *Bataidari* system of share cropping in which the land owner may or may not share the cost of inputs with tenants but the tenant has to share 50 per cent of the total produce.

With an increase in male out-migration from Bihar, it will be of interest to know how migration has impacted agriculture in terms of the tenancy systems and the cropping systems. A number of empirical studies have been carried out which focus on the impact of migration on agriculture and the potential income effect of remittances but there is virtually no study assessing the changes in agriculture systems and crop diversifications due to migration. This study was initiated to :

- Assess the changes in crop diversifications due to migration.
- Assess the changes in land leasing due to migration

2. Research Methodology

Retrospective case control study design was applied in this study. The cases were 'migrant' and controls were 'non-migrant' households. The data from migrant and non-migrant households with various factors related to migration were collected through primary survey. Darbhanga was selected

as one of the high out-migrating district of Bihar. In the 1st stage, two blocks were selected from the list of all blocks from the Darbhanga district and in the 2nd stage villages were selected from selected blocks based on the local knowledge regarding availability of migrant families for the study. In all, 200 household data were collected from Darbhanga district, which include 100 migrants and 100 non-migrants households. Statistical techniques such as Rate, Proportion, Chi-Square, and Logistic Regression were used for analyzing the data.

3. Results and Discussion

The change in agriculture due to out-migration depends on many factors like agro-ecological changes, economic and institutional changes at the sources of migration. Agriculture is one of the main occupations of migrant households in the study districts. Therefore, migration is bound to have an impact on the agricultural activities in the migrant households. The level of women employment and work load of women has increased in the migrant households. Now the role of women of migrant households changed from unpaid female labour to managers of the household (Singh et al., 2012). This study has tried to examine in detail the various changes in agriculture due to migration, which include changes in agricultural systems and cropping pattern.

3.1 Profile of Migrants and Non-Migrants

On an average, 59 per cent of the migrants belonged to the age group of 21 to 45 years. This clearly indicates that young men in their productive age were more prone to migration. Similar results were reported by (Rajan, 2011 and Karan, 2003). Generally, migrants, especially labour migrants, come from the socially excluded groups with low educational status. Similar observations were recorded by Srivastava (2012) and Rajan (2013). Around 27 per cent of the migrants of Darbhanga were illiterate. Mostly the migrants are either unskilled or semi-skilled and pick up menial jobs and tasks that require a lot of energy. Around 45 per cent of the total migrants belonged to Schedule Castes (SC) and 49 per cent belonged to Other Backward Class (OBC). Less than 5 per cent migrants belonged to the General Category indicating that SC and OBC migrants are not just socially excluded but also economically less empowered. Similar results were observed by (Tsujita and Oda, 2012) in their study on migrant populations of Bihar. The detailed profile of the respondents of the study is given in Table 1.

Table 1: Profile of Migrants and Non-Migrants in Darbhanga

Particulars	(in per cent)		
	Migrant (n=100)	Non-Migrant (n=100)	Total (n=200)
Age Profile			
Up to 20 Years	1	0	0.5
21-45 years	73	45	59
46 to 60 Years	25	52	38.5
Above 60 Years	1	3	2
Literacy Status			
Illiterate	27	21	24
Literate upto primary	49	34	41.5
Secondary/ Higher Secondary	17	33	25
Higher Education	7	12	9.5
Marital Status			
Single	3	3	3
Married	97	96	96.5
Separated	0	1	0.5
Caste composition			
Scheduled Caste	26	12	19
Other Backward Class (OBC)	66	56	61
General Castes and others	8	32	20

It was observed that 51 per cent of migrants from Darbhanga were either landless or having very less average landholdings of up to 10 *Katha* (Table 2). They were forced to migrate for livelihood. Studies have shown that landlessness and poor rural economy are major push factors for migration in the rural areas. (Mahapatra, 1998), in his study of 60 households in Bhadrak district of Odisha, found that 90 per cent of the landless households in the study sample used to migrate for three to five months to Kolkata or destinations within the state for livelihood.

Table 2: Land Holding Details in Sample Households of Darbhanga

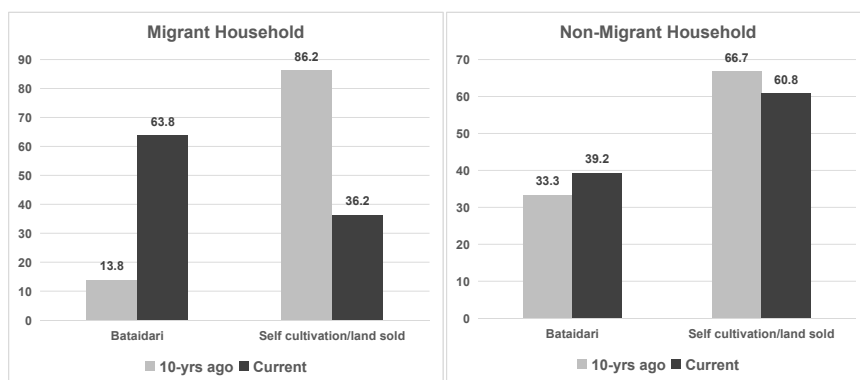
Particulars	Migrant	Non-Migrant	Total (%)
Landless	35	12	23.5
Up to 10 Katha	26	16	21
10.1- 50 Katha	29	46	37.5
More than 50 Katha	10	26	18
Total	100	100	100

Note: 20 Katha= 1 Bigha, 2.5 Bigha= 1 Acre, 2.5 acre = 1 Hectare

3.2 Agricultural Systems and Migration

*Bataidari*¹ system of sharecropping is prevalent in the Darbhanga district of Bihar. Share cropping is prevalent in Bihar since pre-independence era. It was estimated that nearly 35 per cent of cultivable land was under this system in Bihar (Singh, 2005). Another study from Bihar shows that nearly 60 per cent of the respondents have no land for cultivation, but their means of livelihood was either labour or *Bataidari* (Mishra, 1998). *Bataidari* system provided a more stable source of employment to the landless than mere casual wage labour (Prasad, 1998). The details of the changes in the operational holding status of migrant and non-migrant households of Darbhanga during the past 10 years are shown in the Figure 1.

Figure 1: Changes in the Operational Holding Status of Migrant and Non-Migrant Households of Darbhanga in ten years period



Among migrants, out of the landholdings being put to various uses, the percentage of land put to farming through *Bataidari* system increased from 13.8 per cent to 63.8 in 10 years period (2007-2017). Whereas in case of non-migrants the land put to farming through *Bataidari* system showed a marginal increase from 33.3 per cent in 2007 to 39.2 per cent in 2017. This shows that due to migration of male members of families, migrant households are putting a majority of landholdings under *Bataidari*. Whereas in the non-migrant families the male members take care of farming due to which very less landholding are put under *Bataidari*. This is also statistically significant at $p < 0.05$ level of significance (Chi-Square test).

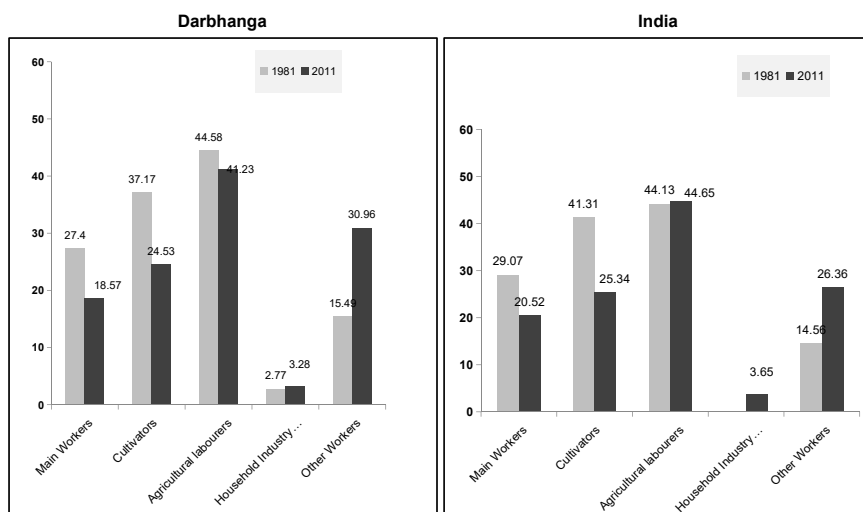
The cultivators are migrating to cities or towns and lease their land to labourers, or start a non-farm activity on their land or even sell their land. According to Vijay (2012), the decline in cultivators in the workforce has led to a new group of non-cultivating peasants who own land but do not cultivate. These new intermediaries support tenancy either by leasing their uncultivated land in a fragmented fashion or leave it fallow and move to the non-farm sector. Most of the tenant farming is done without any written agreement. Land owner rented his agricultural land to the tenant with the oral agreement in both cash or produce based tenancy.

3.3 Distribution of Main Workers to Other Workers

The distribution of main workers² to total population percentages of cultivators³, agriculture labourers⁴, household industry workers⁵ and other workers⁶ during 1981 and 2011 was reviewed. It is evident from the Figure 2 that proportion of main worker and cultivators to total population has been declining in the study district, as well as country as a whole. Over the years, growth of workforce in non-agricultural sector is higher than that of agricultural sector (Venkatanarayana and Naik, 2013).

The findings from this study show that over the years, population proportion of agricultural labourers increased in India as shown in the Figure 2. However, it has declined considerably in Darbhanga, which is a high out-migrating district. High male out-migration from Darbhanga has resulted in a decline in agricultural labourers in this district. Due to subsistence, low wage and lack of rain in their native area, agricultural labourers migrate to urban areas to work as construction workers.

Figure 2: Comparative Distribution of Total Workers in Darbhanga and India in 1981 and 2011



Source: Census of India 1981 and 2011

There are structural changes in the workforce happening, especially agriculture labourers and cultivators, as is evident from Figure 2. The proportion of cultivators has been declining across India. Proportion of agricultural labour has declined where out-migration is more. These structural changes indicate the shift of workforce from the primary sectors⁷ to secondary sectors⁸ and tertiary sectors⁹. Studies by Thomas (2012) and Himanshu et al. (2011) show that increasingly higher proportions of cultivators are now engaged in non-farm sectors. Therefore, its own percentage is shrinking in overall workforce. This movement of farm to non-farm sectors is due to anticipation of attractive wages.

3.4 Cropping Pattern

The aggregate agricultural income as per the Central Statistics Organisation annual series consists of income from crop outputs (field and plantation crops), livestock, fisheries and forestry. It is evident from Table 3 that in India, agricultural output share has declined from 63.2 per cent in 2011-12 to 57.3 in per cent in 2019-20, showing structural changes in agriculture. At the same time, the output value from livestock has increased by almost 4 per cent during 2011-12 (25.1 per cent) to 2019-20 (29.9 per cent).

Table 3: Agriculture and Allied Sector Gross Output Proportion Showing Structural Changes in Agriculture in India

Particulars	%		
	2011-12	2015-16	2019-20
Crop output value	63.2	58.2	57.3
Livestock output value	25.1	28.8	29.9
Forestry & Logging	7.6	7.6	6.7
Fishing & Aquaculture	4.1	5.4	6.2
Total	100	100	100

Source: Proportion was calculated using figure National Accounts Statistics 2021, Government of India, Reports/Publications, MOSPI Statement 7.1 - Output, value added, CE, OS/MI, by industry.

A look at the cropping pattern of migrant and non-migrant households as presented in Table 4 shows that during *Kharif* season, crop diversification was more in case of migrants as compared to non-migrants. The remittances sent by the migrants are used by the migrant households for investing in agriculture. In Darbhanga, 97 per cent of non-migrants grew either Rice or combination of Rice and Pulse during *Kharif* seasons as compared to 80 per cent of migrants. A combination of rice, pulse, corn and *Bajra* was grown by 13.1 per cent of migrants and vegetables were grown by 6.5 per cent of migrants. This kind of crop diversification was practiced by only 3 per cent of non-migrants in Darbhanga. In their study done in Bihar, Singh et al. (2011) observed that during *Kharif* season, around 87 per cent of the migrants and 81 per cent of non-migrants opted for rice cultivation. Findings from a study from Vietnam showed that if remittance happened, migrant households in rural areas of origin shift from rice production to other crops, and increase their land productivity (Nguyen and Grote 2015).

Table 4: Cropping Pattern of Kharif and Rabi Crops in the Study Area Darbhanga

Particulars	(per cent)		
	Migrant (n=100)	Non-Migrant (n=100)	Total (n=200)
Kharif Crops			
Rice	76.1	76.8	76.5
Rice & Pulse	4.3	20.3	13.9
Rice, Pulse, Corn & Bajra	13.1	1.4	0.9
Vegetables	6.5	0	2.6
Others	0	1.5	6.1

Particulars	Migrant (n=100)	Non-Migrant (n=100)	Total (n=200)
Rabi Crops			
Wheat	77.3	82.6	80.5
Wheat & Moong	4.6	11.6	8.9
Wheat, Moong, Mustard, Sugarcane & Sunflower	6.9	4.2	7.0
Sugarcane	0	1.4	0.9
Vegetables	4.6	0	1.8
Others	6.6	0	0.9

Wheat is a predominant Rabi crop in Bihar. In their study on male outmigration from Bihar, Singh et. al (2011) observed that 63 per cent migrants and 57 per cent non-migrants from Bihar opted for wheat cultivation during Rabi season. A comparative look at the Rabi cropping pattern of migrant and non-migrant households of Darbhanga also showed that migrant households have more diversified cropping than non-migrant households. Wheat or combination of Wheat and *Moong* (Green Gram) are grown by around 82 per cent of migrant households and 94 per cent of non-migrant households in Darbhanga (Table 7). Alternative cropping pattern of Wheat-*Moong*-Mustard-Sugarcane-Sunflower; vegetables and other crops is followed by 18 per cent of the migrant households. Albanian Agricultural study (McCarthy et al., 2006) stated that the loss in household labour in agriculture is compensated by increased access to capital, leading to overall improvements in both agricultural and total incomes. Changes in the cropping systems have been observed transitioning from what was once a dominant rice-wheat-maize system to the current rice-vegetable-maize system (Paudel et al., 2014). Therefore, this study shows that there are number of changes happening in migrant households with respect to cropping pattern. Migrant households do crops diversification, growing and cultivating at least 2-3 crops in each of the *Kharif* and *Rabi* seasons. However, non-migrant households mostly go for single or two crops per season.

Binary logistic regression analysis was done in order to determine the factors that might contribute to the decision of putting the land to sharecropping. The results shows that migrant households are almost 4 times more likely to put land on *Bataiya* (C.I: 1.509-10.861, $p < 0.05$) than the non-migrant households. Similarly, those households having less than or equal to 5 members are almost 1.5 times more likely to put land on

Bataiya (C.I: 0.671-3.750, $p>0.05$) than those households which have more than 5 members. This is due to the fact that larger families have more members who can contribute to family labour and hence they prefer to till their own lands. Further, it was observed that those who go for crop diversification during Rabi season, are almost 5.7 times more likely to put their land on *Bataiya* (C.I: 0.769-42.777, $p>0.05$) than those who do not opt for crop diversification (Table 5). This is mainly because of the additional resource requirements, especially labour, needed for crop diversification.

Table 5: Logistic Regression of Key Independent Variables on Dependent Variable (Bataiya)

Characteristic (Independent variables)	Odds Ratio (EXP(B))	95% Confidence Intervals (C.I)	P-value
Migrant			
Migrant Household	4.048	1.509 - 10.861	0.005
Non-Migrant Household	Referent		
Caste of Household			
Scheduled Caste	0.696	0.135 - 3.590	0.665
OBC	0.34	0.113 - 1.022	0.055
General	Referent		
HH Size			
<=5 members	1.587	.671 - 3.750	.293
>=5 members	Referent		
Crop- Diversification- Rabi crops			
Crop- Diversification- Rabi crops	5.737	0.769 - 42.777	.088
No-Crop- Diversification- Rabi crops	Referent		
Crop- Diversification- Kharif crops			
Crop- Diversification- Kharif crops	.215	0.033 - 1.396	.107
No-Crop- Diversification- Kharifcrops	Referent		

This study revealed that most of the migrants belonged to the age group of 21 to 45 years. Mostly the migrants are either unskilled or semi-skilled and pick up menial jobs and tasks that require a lot of energy. Around 45 per cent of the total migrants belong to Schedule Castes (SC) and 49 per cent belong to Other Backward Class (OBC). A majority of migrants from sampled migrant households are landless or having very less land

holdings. The changes in agriculture pattern reported by the respondents in the study district of Darbhanga stated that *Bataidari* system increased by more than 4.5 times among the migrant households. Whereas, in the case of non-migrants, *Bataidari* system showed a marginal increase of less than 1 per cent. Therefore, due to migration, there are evident changes in the agricultural system in the study district.

Thus, overall, it can be said that due to migration in the study district of Darbhanga there has been changes in the agriculture practices as well as changes in the cropping pattern among the migrant households. There is a need for government intervention to control the out-migration from the district by providing employment opportunities locally. The changed agriculture system prevalent in the area should be regulated by the Government. Further, as this area has a good potential of growing good quality fruits and vegetables, adoption of scientific methods should be used for enhanced cropping intensity, changes in cropping pattern and, cultivation practices.

4. Conclusions and Recommendations

India has witnessed more than threefold increase in the levels of mobility from 1991 to 2011. Migration brings several socio-economic as well as political ramifications at both places from where out-migration takes place and where in-migration settles. The male out-migration has been an important phenomenon in Bihar, especially since the Green Revolution. Due to out-migration, there is a labour crisis in the district with higher male out-migration. As employment is the most important reason for migration from Bihar, and outmigration of young males has led to low availability of agricultural labourers in Bihar, Government policies and schemes which enhance employment opportunities in the region need to be prioritized. Unskilled labour has very high probability of migration. In line with the Government's National skill Development Mission, the youth should be trained after assessing the skill needs so as to provide gainful employment to the rural youth. Most of the migrant households have this practice of leasing out their land for share cropping or *Bataidari*. Over the years, the land put under *Bataidari* system has increased from 13.8 per cent to 63.8 per cent in 10 years period. As most of the tenant farming is done without any written agreement, the tenant always felt a fear of losing the land next year because of no legal sanctity. Besides, most of the migrants have shown an increasing tendency to diversify their cropping systems from the traditional cereal based rice/wheat cropping. □

Endnotes

1. **Bataidari:** *Bataidari* system is a sharecropping system where a landowner lends his land to another person who spends money and labour and the produce is shared by the owner and the tenant on prefixed output sharing basis.
2. **Main-worker:** Participation in any economically productive activity for more than 183 days in the preceding year.
3. **Cultivators:** A cultivator is someone who prepares the ground and grows crops in it. For purposes of the census a person is classified as cultivator if he or she is engaged in cultivation of land owned or held from Government or held from private persons or institutions for payment in money, kind or share. Cultivation includes effective supervision or direction in cultivation. A person who has given out her/his land to another person or persons or institution(s) for cultivation for money, kind or share of crop and who does not even supervise or direct cultivation of land, is not treated as cultivator. Similarly, a person working on another person's land for wages in cash or kind or a combination of both (agricultural labourer) is not treated as cultivator.
Cultivation involves ploughing, sowing, harvesting and production of cereals and millet crops such as wheat, paddy, jowar, bajra, ragi, etc., and other crops such as sugarcane, tobacco, ground-nuts, tapioca, etc., and pulses, raw jute and kindred fiber crop, cotton, cinchona and other medicinal plants, fruit growing, vegetable growing or keeping orchards or groves, etc. Cultivation does not include the following plantation crops - tea, coffee, rubber, coconut and betel-nut
4. **Agricultural Labourers:** A person who works on another person's land for wages in money or kind or share is regarded as an agricultural labourer. She or he has no risk in the cultivation, but merely works on another person's land for wages. An agricultural labourer has no right of lease or contract on land on which She/he works.
5. **Household Industry Workers:** Household Industry is defined as an industry conducted by one or more members of the household at home or within the village in rural areas and only within the precincts of the house where the household lives in urban areas. The larger proportion of workers in the household industry consists of members of the household. The industry is not run on the scale of a registered factory which would qualify or has to be registered under the Indian Factories Act.
6. **Other Workers:** All workers, i.e., those who have been engaged in some economic activity during the last one year, but are not cultivators or agricultural labourers or in Household Industry, are 'Other Workers (OW)'. The type of workers that come under this category of 'OW' include all government servants, municipal employees, teachers, factory workers, plantation workers, those engaged in trade, commerce, business, transport banking, mining, construction, political or social work, priests, entertainment artists, etc. In effect, all those workers other than cultivators or agricultural labourers or household industry workers, are 'Other Workers'
7. **Primary sectors:** Agriculture & Allied Sector is known as primary sector of the economy. This sector includes forestry and fishing also. At the time of Indian independence this sector had biggest share in the Gross Domestic Product of India. But year by year its contribution goes on declining and currently it contributes only 17 per cent of Indian GDP at current prices. It is worth to mention that agriculture sector provides jobs to around 53 per cent population of India.

8. **Secondary sectors:** Industry Sector is known as Secondary sectors of the economy. This sector includes 'Mining & quarrying', Manufacturing (Registered & Unregistered), Gas, Electricity, Construction and Water supply. Currently it is contributing around 31 per cent of the Indian GDP (at current prices).
9. **Tertiary sectors:** This sector is known as services sector. Services sector includes 'Financial, real estate & professional services, Public Administration, defense and other services, trade, hotels, transport, communication and services related to broadcasting. This sector is also known as tertiary sector of the economy. Currently this sector is the backbone of the Indian economy and contributing around 53 per cent of the Indian GDP.

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