



Social and Economic Consequences of Agriculture Crises: A Study of Farm Labour in Punjab, India

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Author's contribution

The sole author designed, analyzed, interpreted and prepared the manuscript.

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ABSTRACT

This study aims to comprehensively analyze the multifaceted socioeconomic challenges faced by agricultural laborers in Punjab, India, stemming from the capitalist agrarian practices introduced during the era of the Green Revolution. It delves into employment patterns, debt burdens, and household conditions to uncover the complex realities these laborers endure. Additionally, the study seeks to fill a significant research gap, as most economists emphasize the problems faced by land-owning farmers, often overlooking the substantial issues confronting agricultural laborers who constitute a large share of the total working population. Utilizing a mixed-method approach, this research combines primary data from a comprehensive multidimensional survey with a critical review of secondary literature. The findings from this approach reveal the profound socioeconomic vulnerabilities faced by these laborers. The majority is ensnared in severe debt, grapple with unemployment, and endure substandard living conditions, with many lacking access to basic necessities such as decent housing and sanitation facilities. Due to their limited access to institutional credit facilities, agricultural laborers are forced to seek credit from non-institutional

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sources at exorbitant interest rates. Shifting cropping patterns in favor of wheat-paddy crop rotation, seasonality of labor, and labor-saving techniques such as extensive mechanization of agriculture and the use of herbicides have resulted in shrinking employment opportunities, further aggravating their economic plight. In response, the study proposes policy recommendations including radical land reforms, strengthening the public distribution system, providing affordable loans, ensuring employment opportunities, and enhancing social welfare measures. Implementing these recommendations is crucial to addressing systemic issues and improving the socioeconomic conditions of agricultural laborers in Punjab.

Keywords: Agriculture labour; indebtedness; green revolution; unemployment; socioeconomic conditions.

1. INTRODUCTION

The Punjab, encompassing an area of about 50,362 Sq. Km. or 1.5 percent of India's total geographical area, is one in the smallest states of the country. There are 22 districts in the state which are further subdivided into three zones namely: Majha, Malwa and Doaba. As per census 2011 its population is 27,743,338, which forms 2.29 percent of the total population of India [1]. Punjab achieved a place of pride among the Indian states for its outstanding achievements in agricultural development. The state witnessed a tremendous increase in growing agricultural produce during the Green Revolution period, mainly due to institutional and technological factors. Punjab's contribution of 13-14 percent towards the total grain production of the country earned it the title of Granary of India. It is noteworthy that Punjab contributed an average of 35-40 percent of wheat and 25-30 percent of rice to the Central Pool during the last one decade [2].

The Green Revolution was sustained until the 1980s but afterwards agricultural production in the state started showing signs of stagnation. The State's Gross Domestic Product from agriculture grew on an average rate of 5 percent from 1970s to 1990s, which was even higher than double than that of all India's growth rate of about 2 percent. However thereafter the state's agricultural growth rate slowed down and rested at around 3 percent from 1990 to 2000 and further declined to less than 2 percent during 2001 to 2010. In the last decade from 2011 to 2020 the agricultural growth rate of Punjab remained below 1 percent. Similar downward tendencies were observed regarding Punjab's contribution in the Central Pool. The share of 45.3 percent of rice and 73.0 percent of wheat which Punjab contributed in 1981 came down to 29 percent and 38 percent respectively in 2016-2017. The annual trend growth rate of per

hectare return on wheat, rice and cotton over the variable costs was -0.35 percent, -2.83 percent and -14.24 percent respectively during the decade of the 1990s [3].

The Punjab farmers faced a two-pronged squeeze on their income. First, the cost of inputs increased both on account of higher quantity and enhanced prices and secondly, the returns did not keep pace with the rising costs. The agriculture in the state reached a plateau making it very hard to make further progress under the available techno-natural resource base and policy framework. The impact of this serious agrarian crisis exhibited disastrous social and economic dimensions on the state's peasants and farm labourers. Dwindling returns and resultant inescapable unbearable debt traps led them towards committing suicides. As per a study conducted by the Punjab Agriculture University, Ludhiana, 9,291 farmers committed suicides between 2000 and 2018 in six districts of Punjab. Out of these 9,291 farmers, 88 percent committed suicide on account of a heavy debt burden [4]. It has also been revealed in this study that out of the total farmers who committed suicide, more than 77 percent were marginal and small farmers. A similar type of study, got conducted by the Punjab Government through eminent economists of Punjab Agriculture University (Sukhpal Singh, Manjeet Kaur and HS Kingra) under the title of 'Agrarian Crisis and Agricultural Labourer Suicides in Punjab' revealed that over 7,300 farm labourers in Punjab died by suicide between 2000 and 2018 and as many as 5,765 of these (79 percent) were because of high indebtedness and their inability to repay the loans [5].

The in-depth study of the overall causes and consequences of Agrarian Crisis in Punjab is a very wide subject matter and it is not possible to cover it in a single paper. As such the scope of the present study has been kept limited to the

social & economic consequences of agriculture crises upon the farm labour of Punjab.

2. LITERATURE REVIEW

The dialectical relationship between the fading successes of the Green Revolution and the worsening crises of Punjab's agrarian economy has long been the subject of academic inquiry. However, most studies have predominantly focused on the perspective of the landed peasantry. This focus is likely because the majority of this peasantry belongs to the Jatt Sikh community, an upper-caste group in Punjab that wields considerable social and political power. Any shifts in the socio-economic conditions of this class quickly garner the attention of the intelligentsia. In contrast, agricultural laborers, who are mainly from the Scheduled Castes, have historically faced systemic discrimination and deprivation. Their humble social status and lack of access to sources of production (in this case agriculture land and implements) have rendered them victims of enduring injustice. A lack of scholarly attention towards this downtrodden section of society for a long period is really an irony of the situation. It was only in the 2000s that socially concerned scholars began to conduct serious research on the unbearable socio-economic conditions faced by Punjab's agricultural laborers amidst the severe agricultural crises. This shift in focus has started to shed light on the profound challenges and systemic inequities experienced by this marginalized group.

Literature review has been done while keeping three main objectives in mind. First to have a comprehensive overview of current state of knowledge regarding dynamic relations of agricultural crisis with deplorable socio-economic conditions of agricultural laborers of Punjab, Secondly to identify the important gaps in previous studies and finally to evolve a suitable methodology and theoretical framework so as to make an effort to fill the identified gaps.

Singh and Singh [6] conducted empirical studies on the deplorable socio-economic conditions and employment patterns of agricultural laborers in rural Punjab. Their analysis of employment, income, and consumption patterns reveals that the earnings of agricultural laborers fall significantly below their basic living requirements, leading to over three-quarters of their households being trapped in debt. They are of the opinion that introduction of labor-saving techniques such

as extensive mechanization of agricultural processes, increased use of herbicides, and a shift in cropping patterns towards cash crops have negatively impacted the employment opportunities for agricultural laborers.

Gill [7] in his paper on economic distress and farmer suicides in rural Punjab, discussed the unprecedented phenomenon of suicides among cultivators and farm laborers. His analysis concluded that a multidimensional crisis in the rural economy, encompassing economic factors such as economic hardships of pauperized peasant households, crop failure, unemployment, and indebtedness, is primarily responsible for this distressing trend.

Singh et al. [14] conducted an in-depth examination of indebtedness among farmers and agricultural laborers in rural Punjab in their paper. They specifically analyzed its causes, extent, sources, and purposes. The paper also compared and contrasted variations in the interest rates paid by different categories of farmers and agricultural laborers to institutional and non-institutional sources.

Afridi et al. [8] analyzed the gender-specific impact of agricultural mechanization on employment. Their study concluded that technological changes in production processes, which involve a gendered division of labor across tasks, such as agriculture, can have differential effects on women's and men's labor. Based on their research estimates, they found that mechanization of agricultural operations requiring precision, such as tilling, resulted in more than 22 percent decline in women's labor requirement between 1999 and 2011.

Singh and Singh [9] analyzed the interrelation of the Green Revolution and the economic challenges faced by agricultural labor in Punjab. They observed that while factors such as increased cultivated area, enhanced cropping intensity, and higher input use initially increased labor demand, however the interplay of mechanization and herbicide use ultimately led to a net decline in human labor requirement. The seasonality of labor demand, exacerbated by the specialization in wheat-paddy crop rotation, coupled with influx of migrant labor from other states, further aggravated the plight of local agricultural labor.

Mann [10] conducted detailed studies regarding shifting cropping patterns in Punjab from 1966-67 to 2014-15, focusing on the dominance of the

wheat-paddy crop rotation. He examined the causes and consequences particularly the decline in soil fertility and depletion of groundwater resources. He concluded that this shift in cropping patterns holds significant implications for the current state and future prospects of Punjab's economy.

Newman [11] in his report titled "A Bitter Harvest: Farmers Suicides and the Unforeseen Social, Environmental, and Economic Impacts of the Green Revolution in Punjab," delves into the adverse aspects of the Green Revolution. According to his findings, the links between the Green Revolution and the epidemic of farmer suicides in Punjab are intertwined with a complex web of interconnected crises that have plagued rural Punjab for decades. This report challenges the notion that Punjab's Green Revolution can be unequivocally labeled a "Success."

Singh et al. [12] in their study on the levels, patterns, and distribution of consumption expenditures among farmers and agricultural laborers in rural Punjab, concluded that the Green Revolution did not uniformly benefit all segments of society as initially suggested. They found that the new agricultural technology primarily favored farmers with large land holdings over those with smaller ones. Despite the high growth rates in agricultural production resulting from the Green Revolution, there was no significant improvement in the standard of living for marginal and small farmers and particularly the agricultural laborers. The majority of households in these categories were compelled to borrow money to meet their basic needs.

Ghuman et al. [3] while addressing the decline of the Green Revolution since the 1980s, analyzed the occupational, income, wage, and asset patterns of local rural agricultural labor. Their study also scrutinized family size and educational levels in relation to landholding patterns. Their analysis concluded that mechanization of agriculture, extensive use of herbicides, and changes in cropping patterns due to the Green Revolution have led to the casualization of agricultural labor.

Singh et al. [13] have conducted significant research in this field, particularly in analyzing the dynamics of agricultural crises, its dimensions, causes, and consequences. They have also investigated the casualization of agricultural labor resulting from the Green Revolution and the shift of agriculture labor towards non-farming occupations. Their studies delve into the causes,

consequences, and impacts on the earnings and consumption patterns of agricultural workers.

Grover et al. [1] provide comprehensive information on operational land holdings, ownership patterns, the composition and structure of the labor force in Punjab agriculture, shifting cropping patterns, and changing labor requirements in agriculture. They also offer data on the extent and patterns of mechanization in agriculture, as well as the use of fertilizers, pesticides, and herbicides.

3. METHODOLOGY

A mixed-method approach, combining primary data from a comprehensive multidimensional survey with a critical review of literature from secondary sources, has been applied for the purpose of this study.

- **Primary Source:** Primary data for this paper was collected during a survey got conducted by the Punjab Farm Labour Union in 2017. The survey, titled "Indebtedness of Agricultural Workers: Causes & Conditions of Indebtedness, Suggestions and Solutions," aimed to explore the socioeconomic challenges faced by agricultural workers. The author of this study was a member of the survey team responsible for collecting, analyzing, synthesizing, and interpreting the data. A certificate from Sh. Lachhman Singh Sewewala, General Secretary of the Punjab Farm Labour Union, attesting the same is appended to this paper. Clustered Sampling Technique of Probability Sampling Method has been applied for the purpose of collecting Primary Data for this study. The survey data was collected from 1,618 households across ten villages in five districts of the Malwa region (Bathinda, Sri Muktsar Sahib, Faridkot, Moga, and Sangrur) and two villages in the Nakodar Tehsil of the Doaba region's Jalandhar district. When selecting villages, preference was given to those near cities and those farther away, alongside considering the organizational base and influence of the Punjab Farm Labour Union in those particular villages. The survey was conducted comprehensively by visiting every farm laborer household rather than selecting a few households. On an average total surveyed households form 30 percent of the total households in the selected villages. A detailed schedule was

prepared for collecting data from sampled households through personal interviews. To enrich the quality of data, agricultural workers from the respective villages were also joined in the survey process. This involvement fostered mutual confidence between survey team members and the families surveyed. To ensure the accuracy of the data, a re-survey was conducted to address any doubts arising from the initial data collection. Given the nature and objects of study, simple arithmetic operations have been applied to analyze the data collected during the course of survey and the results enumerating from the analyzed data has been represented through simple tabular form. It is pertinent to mention that this survey was not conducted by professional statisticians, and for most of the team members, it was their first experience with such an in-depth survey. Therefore, strict adherence to statistical rules and procedures may not have been maintained. Nonetheless, every effort was made to ensure the correctness, fairness, and authenticity of the collected data.

- Secondary Source:** This study draws upon a diverse array of sources to enrich its analysis. The secondary sources include the Statistical Abstracts of Punjab, the Economic Survey of Punjab, scholarly research papers and articles, authoritative books, news reports, and a previous report published by the Punjab Farm Labour Union. The majority of these sources were accessed via digital platforms, ensuring a comprehensive and up-to-date review of existing literature and data relevant to the

socioeconomic issues faced by agricultural laborers in Punjab.

4. SYNTHESIS OF PRIMARY AND SECONDARY DATA

4.1 Consequences of Agriculture Crises over the Living Conditions of Agriculture Labour

The agricultural crisis in Punjab has profoundly affected the living conditions of agricultural laborers. As shown in Table 1, out of total 1618 surveyed families, 48 percent reside in homes smaller than 120 Sq Yards, with only 6 percent living in homes larger than 300 Sq Yards.

Further more data given in Table 2 indicate that Majority of Agricultural Laborers are not only living in congested houses rather 24 percent of them are still residing in Kachha(mud) houses, while 39 percent live in Kachha-Pakka(semi-cemented) houses. In contrast, only 37 percent of surveyed households have cemented houses.

Private space and privacy are unattainable luxuries for farm laborers in Punjab, with 39 percent residing in single-room houses.

Table 3 illustrates the pathetic working conditions of women in farm laborer families by the fact that out of a total sample of 1618 households a vast majority of 1198 (74 percent) lack a dedicated kitchen. As a result, cooking is often conducted in open courtyards or in living rooms-cum-bedrooms.

Similar conditions are observed regarding bathrooms in the houses of farm laborers. As per Table 4 out of the total 1618 households surveyed, 33 percent lacks a bathroom altogether, while 31 percent have only temporary bathroom facilities.

Table 1. Distribution of houses in accordance with Size categories

Area	Upto 120 Sq Yard	121 to 150 Sq Yards	151 to 300 Sq Yard	More Than 300 Sq Yard
Number of houses	775	291	459	93
Percentage	48	18	28	6

Sq. Yard = Square Yard

Table 2. Distribution of houses in accordance with type of construction

Type of Construction	Number of Houses	Percentage
Kachha (Mud)	386	24
Pakka (Cemented)	593	37
Kachha-Pakka (Semi-cemented)	639	39
Total	1618	100%

Table 3. Distribution of houses presence of kitchen

Total Number of Sample Houses	1618	
Number of Houses Having Kitchens	337	21 percent
Number of Houses Having Temporary Kitchens	83	05 percent
Number of Houses Without Kitchens	1198	74 percent

Table 4. Distribution of houses presence of bathroom

Total Number of Sample Houses	1618	
Number of Houses Having Bathroom	569	35 percent
Number of Houses Having Temporary Bathroom	494	31 percent
Number of Houses Having Common Bathrooms (Sharing between two or more houses)	17	01 percent
Number of Houses Without Bathroom	538	33 percent

Table 5. Distribution of houses by Number of family members

Family Size (Number of Family Members)	4 or less	5 to 6	More than 6
Number of families	796	626	196
Percentage	49	39	12

One of the most significant findings of this survey pertains to family size. Contrary to the much touted narrative that large family sizes of agricultural laborers are responsible for their economic hardships, the survey reveals that out of the total sample of 1618 families, 49 percent have 4 or less members, while only 12 percent have more than 6 members. These figures are mentioned in Table 5.

It is also important to note that among the surveyed households, 139 residences accommodate joint families.

4.2 Shrinking Employment Opportunities for Agriculture Labour

Based on secondary sources of data and commentary, the decline in employment

opportunities for agricultural labor can be attributed to the following factors:

Over the time agriculture sector in Punjab has experienced escalating pressure to sustain employment. The share of total agricultural labor in Punjab as a proportion of the total workforce engaged in agriculture was 17.27 percent (334,610 out of 1,937,276) in 1961, which rose to 45.08 percent (1,588,000 out of 3,522,966) by 2011. Similarly, the share of agricultural labor out of the total workforce, which was 9.65 percent (334,610 out of 3,466,269) in 1961, increased to 16.04 percent (1,588,000 out of 9,897,362) in 2011. These figures, duly mentioned in Table 6, underscore the inadequate absorption of surplus agricultural labor into other sectors of economy, thereby intensifying the employment pressure on the agriculture sector.

Table 6. Increase in agriculture employment

Particulars	1961	1971	1981	1991	2001	2011
1 Total Cultivators	1602666	1665153	1767286	1917210	2065067	1935000
2 Total Agri. Labour	334610	786705	1092225	142828	1489861	1588000
3 Total Agri. Work Force	1937276	2451858	2859511	33700038	3554928	3522966
4 Share of Agri. Labour out 4 of total Agri. Work force(%age of 2 out of 3)	17.27	32.09	38.20	43.11	41.61	45.08
5 Total Work Force	3466269	3912592	4927759	6098374	9127474	9897362
Share of Agri. Labour out 6 of total work force (%age of 2 out of 5)	9.65	2011	22.16	23.82	16.32	16.04

Source: Grover, D. K., Singh, J. M., Kaur, A., & Kumar, S. [14] State Agricultural Profile-Punjab

Data mentioned in Table 7 indicates that the human labor requirement per hectare for major crops in Punjab has seen a significant decline. In 1974-75, the production of rice and wheat required 961 and 559 man-hours of labor per hectare, respectively. By the year 2013-14, these figures decreased to 353.46 and 136.48 man-hours per hectare. Meanwhile, the labor requirement for cotton production remained relatively stable, with 666 man-hours per hectare in 1974-75 and 682.78 man-hours per hectare in 2013-14.

The decrease in man-hour labor requirement per hectare for rice and wheat production has exacerbated over the period from 1966-67 to 2014-15, especially with the shifting cropping patterns favoring wheat-rice rotation. Table 8 provides a clear picture about shifting cropping pattern in Punjab.

Other Crops: Tur, Gram, Bajra, Jowar, Ragi, Maize, Small millets, Groundnut, Sesamum, Sunflower, Linseed, Rapeseed, Mustard & Sugarcane.

Cumulative impact of decrease in Human Labour Requirement (Per Hectare) for the production of major crops & major shift in cropping pattern is clear from the continuous downfall in total human labour requirement in Punjab Agriculture:

From 1960-61 to 2004-05, the total man-day requirement in Punjab's agriculture declined significantly from 651 million man-days to 481 million man-days by 2004-05 (Table 9). Concurrently, the per-hectare labor use also saw a sharp decline, plummeting from 1,376 man-days to 606 man-days over the same period. Consequently, the availability of annual man-day employment dropped from 336 days to 134 days.

Table 7. Labour use (per hectare) for major crops in Punjab

Year	Rice	Wheat	Cotton
1974-75	961	559	666
1981-82	858	384	779
1990-91	610	367	783
2000-01	445	271	704
2007-08	402.54	188.01	803.30
2010-11	390.95	160.83	703.12
2013-14	353.46	136.48	682.78

Source: Grover, D. K., Singh, J. M., Kaur, A., & Kumar, S. [14] State agricultural profile–Punjab and Singh, G., & Singh, J. [9], Green revolution and economic plight of agricultural labour in Punjab.

Table 8. Percentage share of area under major crops out of total cultivated area in Punjab

Year	Wheat	Rice	Wheat-Rice	Cotton	Other Crops
1966-67	38.64	6.82	45.46	10.34	44.20
1975-76	46.13	10.72	56.85	10.98	32.17
1985-86	50.53	27.83	78.36	9.09	12.55
1995-96	47.63	31.93	79.56	11.08	9.36
2000-01	49.26	37.74	86.99	6.85	6.16
2005-06	49.41	37.64	87.04	7.94	5.02
2010-11	49.10	39.60	88.70	7.41	3.89
2014-15	49.37	40.76	90.13	5.92	3.95

Source: Mann, R. S. [10], Cropping pattern in Punjab (1966-67 to 2014-15)

Table 9. Estimated total human labour requirement in Punjab Agriculture

Year	Million days required	Man-days required per hectare	Man days employment available per worker
1960-61	651	1376	336
1970-71	638	1124	260
1980-81	592	875	180
1990-91	606	808	207
2000-01	576	725	162
2004-05	481	606	134

Source: Singh, G., & Singh, J. [9]. Green revolution and economic plight of agricultural labour in Punjab

Moreover, there has been an observable increase in seasonality in agricultural labor demand, attributed to the dominance of monoculture cropping patterns. The seasonal index for labor use, as represented in Table 10, has shown heightened peaks over decades, rising from 186 in October 1960-61 to 196 by 2004-05, and from 167 in April 1960-61 to 216 in 2004-05. This trend indicates the intensified demand for labor during peak months such as May-July and October, driven by expanded cultivation of paddy crop, necessitating labor for transplanting, harvesting, and marketing.

On the other hand agricultural mechanization coupled with extensive use of herbicides, while replacing manual labor for the tasks like hoeing and weeding in rabi crops, especially wheat, has contributed to a decline in labor demand during the months from December to March. This increasing seasonality in employment has adversely affected both employers as well as employees, leading to a rapid disappearance of permanent hired labor that was once common in Punjab's agriculture during the 1960s. Resultantly, over the period phenomenon of casualization of Agricultural Labour increased at a fast pace.

4.3 Economic Consequences of Agriculture Crises

Data collected during the course of survey indicates that the size of the Debt over Agricultural Workers is enormous. 1618 households covered under the survey were found to be under the total debt of Rs. 12,47,20,979-00. As such per family debt comes out to be Rs. 77083-00. It was also found that 254 households have no debt over their heads, and as such out of 1618 households covered, actually 1364 were having debt over their heads. Therefore, the average debt per indebted household comes out to be Rs. 91437-00. It is important to note that data for present study was collected in the year 2017. Worsening impacts of Covid-19 upon the lives of agricultural laborers of Punjab are clear from a study conducted in 2021, according to which average indebtedness was pegged at Rs.1,01,837-00 per household [13].

The loans procured by the 1,618 households covered under survey originated from various sources such as landed peasantry, commission agents-cum-moneylenders, shopkeepers,

goldsmiths, friends & relatives and institutional sources like microfinance companies, banks and co-operative societies. Banks and societies contributed Rs. 2,02,19,969-00, accounting for 16.21% of the total debt. Notably, a significant portion of this amount came from private banks, with the public sector banks contributing a smaller share. The interest rates charged by the private sector banks closely resemble to those of non-institutional sources. Microfinance companies have emerged as a strong trend in the field of providing loans to agricultural workers. These companies have disbursed a total of Rs. 2,88,97,035-00 to the surveyed households, constituting 23.16% of the total debt. The standard interest rate for these loans is 26% per annum, but in cases of default, the interest rate can escalate as high as 50%. Competing with microfinance companies, commission agents-cum-moneylenders have also, extended loans totaling Rs. 2,88,76,650-00, which similarly accounts for 23.16% of the total debt. Rs. 1,92,69,900-00 which constitutes 15.46% of the total debt over the surveyed households, is extended by landed peasants owning more than 4 Hectares of agricultural land. Peasants owning less than 2 Hectares have also extended loans totaling Rs. 85,84,400-00 representing 6.88% of the total debt. Interestingly, these lenders derive their income not only from agriculture, but also from other non-farming occupations or from their retirement benefits. A minor portion of the loans (6.24% of total debt) is obtained from relatives, often interest-free, particularly from the families related through the daughter-in-law's side of the family. This practice underscores still prevalent feudal relations in society where a boy's family has a dominating social status over the girl's family. The following Table 11 provides a detailed breakdown of the various sources of debt:

It is important to note that the rate of interest charged from the agricultural workers is pretty high which ranges generally from 18% to 60% per annum.

As shown in Table 12, the loans taken by agricultural workers serve diverse purposes, typically arising out of urgent and essential needs. These include medical treatment, basic housing construction or repair, day-to-day household requirements, obligatory social expenses such as marriages, acquiring additional means of livelihood through rented land or purchasing a used two-wheeler, among others.

Table 10. Seasonal index of labour use in punjab

Month	1960-61	1980-81	2000-01	2004-05
Jan	104.9	75.3	65.0	60.3
Feb	66.2	59.5	49.4	48.2
March	85.8	60.7	45.8	44.3
April	167.1	214.5	204.9	215.6
May	22.3	35.3	46.2	48.7
June	46.5	71.5	86.5	91.2
July	67.4	93.9	113.6	117.0
Aug	107.6	107.4	94.4	93.9
Sep	89.9	78.2	86.5	82.1
Oct	186.1	187.6	198.8	196.1
Nov	139.8	130.5	133.9	129.7
Dec	117.1	85.6	74.9	72.9
Total	1200	1200	1200	1200

Source: Singh, G., & Singh, J. [9]. Green revolution and economic plight of agricultural labour in Punjab.

Table 11. Distribution of debt in accordance with the source

Sr. No.	Source	Contribution in Rupees	Percentage share of total debt	Interest Range (per annum)	Rate
1	Peasants owning more than 4 Hectares of agriculture Land	1,92,69,900/-	15.46	24% - 60%	
2	Peasants owning 2 to 4 Hectares of agriculture land	93,28,500/-	7.48	18% - 60%	
3	Peasants owning less than 2 Hectares of agriculture land	85,84,400/-	6.88	18% - 60%	
4	Commission Agents-cum-Moneylenders	2,88,76,650/-	23.16	24% - 60%	
5	Microfinance companies	2,88,97,035/-	23.16	26% - 60%	
6	Goldsmiths	17,04,725/-	1.36	24% - 60%	
7	Shopkeepers	57,500/-	0.05	24% - 60%	
8	Relatives/friends	77,82,300/-	6.24	00% - 00%	
9	Private or Public Sector Banks, Cooperative Societies	2,02,19,969/-	16.21	7% - 24%	

Note: Due to common source, similar data is mentioned in Punjab Farm Labour Union's Survey Report published in rupeindia.wordpress.com

Table 12. Distribution of debt in accordance with the purpose

Purpose	Amount in Rupees	Percentage Share in Total Debt
Health Care Expenses	2,39,33,500/-	19.8
House Construction & repair	3,04,36,900/-	24.4
Agriculture land on lease	75,14,000/-	6.2
Day-to-day household requirements	1,76,96,110/-	14.18
Purchasing motor-vehicle	66,08,269/-	5.2
Marriage ceremonies	1,79,16,475/-	14.3
Other needs	2,06,15,725/-	16.5
Total	12,47,20,979/-	100

Note: Due to common source, similar data is mentioned in Punjab Farm Labour Union's Survey Report published in rupeindia.wordpress.com

As per study, even a bare minimum housing is a major issue for the agriculture laborers. Despite there being deplorable housing conditions of agricultural laborers, it remains to be a major cause of indebtedness for them. An amount of Rs. 3,04,36,900-00 which comes out to be 24.4

% of total debt over the surveyed families has been found to be borrowed for the purpose of house construction & repair. Healthcare expenditure is another major reason for indebtedness over the agricultural labor households. Rs. 2,39,33,500-00 i.e. 19.18% of the total debt was found to be utilized for this purpose.

Present study is at variance with much touted narrative of huge expenses on marriages and other social ceremonies by the agricultural laborers being mainly responsible for their indebtedness. Only a 14.3% share of the total debt over the surveyed households is found to be because of this reason. Agricultural laborers are forced to borrow even for managing their day-to-day household requirements. An amount of Rs. 1,76,96,110-00, which is 14.18% of the total debt over the surveyed households, was borrowed for this purpose. Purchasing motor-vehicles (mostly used motorcycles, scooters etc.) is another minor cause of indebtedness over agriculture laborers. Rs. 66,08,269-00 i.e. 5.2% of the total debt over surveyed households were found to be taken as loans for this purpose. Leasing-in agricultural land by the agriculture laborers accounts for 6.02% of the total debt over the surveyed households. A substantial amount of Rs. 2,06,15,725-00 which forms 16.5% of the total debt over surveyed households is found to be borrowed for the purposes covered under 'other needs'. These other needs include making an effort to chalk out alternative sources of employment in the form of used tractor-trolley or other carriage vehicle, rearing sheep or goats, stone grinding machine etc. Performing last rites ceremonies of deceased family members or sending a family member abroad for earning livelihood are also covered under this head [15].

5. FINDINGS

Several findings emerged from the data. Firstly, it is found that majority of agricultural laborers in Punjab are doomed to live in pathetic conditions. Even basic amenities like proper and decent living space, dedicated kitchens, bathrooms etc are not available to them. Poor sanitary conditions are taking a toll over their lives. Study also contradicts the common belief that large family size is mainly responsible for the economic hardships of agricultural laborers. On the contrary study reveals that most of the families of agricultural laborers are either small or of medium size.

Secondly, declining human labor requirement for the major crops in Punjab due to labor saving techniques like mechanization of agricultural operations and extensive use of pesticides & herbicides has generated abundant surplus labor from agriculture sector. Non absorption of surplus agricultural labor in other sectors of economy has escalated pressure on agriculture for employment. Enhanced seasonality of labor requirement due to shift in cropping pattern over time in favour of Wheat-Paddy rotation, coupled with in-migration of labor from other States has further aggravated unemployment crises for local agricultural labor.

Thirdly, study reveals that as a consequence of agricultural crises most of the agricultural laborer families are caught in debt trap. Indebtedness over their heads is huge in comparison to their meager sources of incomes. Apathy of Institutional Sources, mainly public sector banks & co-operatives societies, to provide concessional loans forces agricultural laborers to borrow from Non Institutional Sources (like: landed peasantry, moneylenders, goldsmiths, shopkeepers etc) at exorbitant rate of interests ranging from 18 to 60 percent per annum. Analyzing structure and extent of institutional & non-institutional debt over agricultural laborer, study finds that microfinance companies has emerged as a strong trend in the field of providing loans to the agricultural laborers. However taking benefit of lack of proper regulatory setup, these microfinance companies also charge exorbitant interest rates.

Fourthly, while examining various purposes for which loans are taken by agricultural laborers, study reveals that major chunk of borrowed amount is being spent on basic necessities like: bare minimum housing, healthcare expenses, day-to-day household requirements or for arranging alternative sources of employment. Study also contradicts some earlier findings that hold huge spending on marriages and other social ceremonies as major reason of indebtedness of agricultural laborers.

Finally, study coincides with earlier findings that Green Revolution did not uniformly benefit all segments of society as initially suggested. New agricultural technology primarily favored farmers with large land holdings over those with smaller ones. Despite the high growth rates in agricultural production resulting from the Green Revolution, there was no significant improvement in the standard of living of marginal and small

farmers and particularly of the agricultural laborers. The majority of households in these categories were compelled to borrow money to meet their basic needs. Agreeing with Newman [11], this study also challenges the notion that Punjab's Green Revolution can be unequivocally labeled a "Success", specifically from the perspective of agricultural laborers.

6. POLICY SUGGESTIONS

Radical land reforms should be brought in force and all the surplus land should be redistributed among agricultural laborers and small & marginal peasants. Additionally, concerted efforts should focus on converting arid lands and areas currently reliant on tube-well irrigation to canal-irrigated agriculture.

Concerted efforts should be made to make agriculture profitable. For this purpose agricultural machinery and other inputs such as fertilizers, seeds, insecticides/pesticides etc are required to be provided at affordable subsidized rates. Emphasis should be placed on developing high-yielding seeds adapted to local climatic conditions, preferably requiring minimal fertilizers and pesticides. Implementing a government procurement policy for all agricultural produce is essential to guarantee profitable prices for crops.

Decisive steps should be taken to establish agro-based industries that generate employment opportunities for surplus agricultural labor. This approach will also alleviate the burden of indebtedness faced by agricultural workers and peasants due to unemployment.

A policy ensuring free education up to university level for the children of all working people, particularly agricultural workers, should be instituted. Similarly sufficient health care budgets are required to be allocated to ensure free medical facilities for all the marginalized sections of society.

In order to mitigate devastating effects of rise in prices of basic necessities, a universal Public Distribution System should be implemented. Free plots and adequate housing construction support for agricultural workers should be ensured to meet their basic housing requirements.

The entire debt burden of agricultural workers, landless peasants, and those unable to repay should be immediately waived off, given their current inability to settle these debts. It is

imperative to provide loans to agricultural workers and poor peasants through Public Sector Banks either interest-free or at reduced rates to alleviate their financial strain. Implementing a pro-people debt legislation is essential to curb exploitation by usurers.

7. CONCLUSION

Agricultural laborers, often overlooked and marginalized, find themselves living in deplorable conditions that starkly contrast with the idyllic image often associated with rural life. Struggling to make both ends meet, these individuals endure profound hardship, with inadequate access to even the most basic necessities such as clean water, sanitation facilities, and adequate housing. The absence of essential amenities not only compounds the challenges they face but also exacerbates health risks and diminishes their overall well-being. Furthermore, the demanding nature of agricultural work, coupled with insufficient compensation and job insecurity, perpetuates a cycle of poverty and vulnerability for these laborers. This systemic neglect of their living conditions not only undermines their dignity but also hampers their ability to lead a fulfilling life and contribute meaningfully to society.

Addressing the plight of agricultural laborers requires concerted efforts to improve their living standards, ensuring access to essential services, and enacting policies that prioritize their welfare and dignity. Only through comprehensive and compassionate interventions can we begin to rectify the injustices faced by these worthy members of our agricultural community.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author hereby declares that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

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COMPETING INTERESTS

Author has declared that no competing interests exist.

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