

# MAN & DEVELOPMENT

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## **TRENDS IN EMPLOYMENT AND WAGES OF SOCIAL GROUPS IN INDIA**

Aibanskhem Nongspung<sup>1</sup> and Veronica Pala<sup>2</sup>

**Abstract:** The objective of this paper is to analyse and compare the differences in average wages among the major social groups of India, namely, Scheduled Tribes (STs), Scheduled Castes (SCs), Other Backward Castes (OBCs), and General category. An attempt is made to highlight the wage differentials in three major aspects – by employment status (regular wage earners and casual workers), major occupation groups, and educational levels. We use the unit record data on employment and unemployment collected by the National Sample Survey Office in 1983, 1993-94, 2004-05 and 2011-12 as well as the Periodic Labour Force Survey of 2022-23. Relatively higher proportion of STs and SCs are employed in unskilled, low paying and precarious jobs. Controlling for employment status, occupation group and education level, socially disadvantaged groups earn less than the General category on an average. There has been an increase in the real daily wages over the years but the wage gap among social groups remains.

**Keywords:** Employment status, occupational distribution, educational attainment, social groups, wage differentials.

### **Introduction**

Developing economies such as India are characterised by high levels of segmentation in the labour market. In India, the labour market dualism has been documented widely in terms of formal-informal, employment status of workers, occupation types, sectors of employment and gender (Pala & Nongspung, 2022). Moreover, there is a group-based dualism that can be found in the Indian labour market. This is due to the existence of labour market discrimination as labour market outcomes differ among social groups. The differences in access to and quality of education among social groups are forms of pre-market discrimination

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market outcomes differ among social groups. The differences in access to and quality of education among social groups are forms of pre-market discrimination but labour market discrimination would lead them towards different kinds of jobs or different wages for similar jobs. India is no exception to the nearly universal tendency for labour markets to discriminate on the basis of group identity (Deshpande, 2006). Some disadvantaged groups, like scheduled castes (SCs) and scheduled tribes (STs) have been historically marginalized with regard to unequal access to education, employment opportunities and opportunities to develop skills in certain sectors, thereby widening income inequality.

The analysis of wage trends is important for understanding changes in employment structure and functioning of labour markets (Himanshu, 2017). Further, the distinguishing feature of labour market duality in India can be located in the wage structure of the workers (Karan & Selvaraj 2008; ILO, 2018). Though there are many studies on wages and earnings in India, there are very few studies that present a comprehensive picture of the trends of wage levels across social groups, i.e., the scheduled castes, scheduled tribes and other backward classes. Analysing the trends and patterns of changes in employment and wages of different social groups will also give an insight into the relative position of each group in the labour market and also the extent of discrimination thereof. This paper is a modest attempt in this direction.

The rest of the paper is structured as follows. In the next section, we discuss the sources of data and methodology. This is followed by a discussion on the distribution of workers by social groups. Then we look at the general trend of real wages of social groups by employment, occupation and education followed by the concluding section of the paper.

### **Data and Methodology**

For the purpose of this paper, we have used the unit record data from the Employment-Unemployment Surveys (EUS) and Periodic Labour Force Survey (PLFS) of the National Sample Survey Office (NSSO). These surveys contain numerous information such as household size and composition, socio-economic and demographic information such as religion, age, gender, marital status, education, etc., along with detailed information on job related characteristics such as type of industry, occupation, wages earned etc. The EUS of the 68<sup>th</sup> round (2011-12) is the last EUS undertaken by the NSSO and it has been replaced with the PLFS since 2017-18. The EUS and PLFS are comparable in coverage and scope with a notable exception that data for earnings of self-employed persons are available in PLFS but not in EUS. Another major difference is that in PLFS, sampled households in urban areas are surveyed four times using a rotational panel design. However, in this study we use the data from the first visit only and this is comparable to the EUS.

Trends in employment and wages are analysed for five time points. These are the EUS of 38th round (January to December 1983), 50th round (July 1993 to June 1994), 61st round (July 2004 to June 2005), 68th round (July 2011 to June 2012) and the PLFS for July 2022 to June 2023. The main objective of selecting these rounds is to have an analysis of the employment and wages of social groups for each year of a particular decade starting from the 1980s. Wages available in the data are wages at current prices received or receivable during the reference week. We convert the weekly wages to daily wages by dividing the total wages received or receivable by each worker by the number of days that worker has worked during the week. For a comparative analysis of wages, daily wages are deflated to constant prices (2011-12 = 100) using state-specific deflators. The deflators are based on the Consumer Price Indices for Agricultural Labourers (CPIAL) for the rural areas and Consumer Price Indices for Industrial Workers (CPIIW) for the urban areas. These deflators are not available for some of the small states. In such cases, available information for larger states either adjacent to them or from which they had been split are used accordingly (Jacoby & Dasgupta, 2018; Pala & Nongspung, 2022). In computing the average wages, we take into consideration only those workers who reported wages. In the PLFS, the total weekly wage is not available for regular wage/salary earners and for self-employed persons. PLFS only reports total earnings during the preceding calendar month for regular wage/salary earners and gross earnings during the last 30 days for self-employment activity. Daily wages for these two groups are obtained by dividing monthly total earnings by 30 and then deflated to constant prices.

In this paper we have used the classification of social groups as given in the data. Identification of individual castes and tribes is not possible in the datasets although each caste or tribe has its own distinct socio-cultural structure, language, ethnicity and identity. The only unifying feature of the data is that it considers all the castes or tribes classified in the Indian Constitution as Scheduled Castes and Scheduled Tribes, irrespective of their geographical location. The data on marginalized groups, especially castes are not consistent across different rounds of NSSO. The Scheduled Castes (SC) and Scheduled Tribes (ST) categories have stayed on since the earliest surveys. But an additional classification was that of Neo-Buddhists which remained till 1987-88. Thereafter with the amalgamation of Buddhists as a social group with the scheduled castes in 1990, this category lost relevance and it was dropped. So the SC categorization prior to the 50th round does not include neo-Buddhists, while since the 50th round Neo-Buddhists are largely accounted within SC category (Abraham, 2012). In this paper, for the year 1983 we have included Neo-Buddhists within the SC category. Similarly, the Other Backward Classes (OBCs) were included in General category for 1983 and 1993-94 but were later on identified as a separate social group. Thus, in this paper we have presented the results and discussion for

the four social groups, namely, the STs, SCs, OBCs and the General category which is the non-SC-ST-OBC residual: an approximation for upper castes (Deshpande, 2006).

### Distribution of Workers by Social Groups

**Table-1**  
**Percentage Distribution of Workers by Social Groups**

| <b>Social Group</b> | <b>Employment Status</b> | <b>1983</b> | <b>1993-94</b> | <b>2004-05</b> | <b>2011-12</b> | <b>2022-23</b> |
|---------------------|--------------------------|-------------|----------------|----------------|----------------|----------------|
| ST                  | RWSE                     | 8.79        | 5.64           | 5.18           | 7.34           | 12.34          |
|                     | Casual                   | 38.49       | 43.45          | 42.03          | 39.36          | 26.87          |
|                     | Self-emp                 | 52.72       | 50.91          | 52.80          | 53.30          | 60.79          |
| SC                  | RWSE                     | 13.02       | 8.22           | 9.23           | 12.64          | 20.27          |
|                     | Casual                   | 53.05       | 57.23          | 51.66          | 50.62          | 35.34          |
|                     | Self-emp                 | 33.93       | 34.55          | 39.11          | 36.74          | 44.39          |
| OBC                 | RWSE                     | --          | --             | 9.40           | 13.68          | 19.79          |
|                     | Casual                   | --          | --             | 30.23          | 31.61          | 19.13          |
|                     | Self-emp                 | --          | --             | 60.37          | 54.71          | 61.08          |
| General             | RWSE                     | 17.99       | 14.26          | 17.53          | 23.09          | 26.79          |
|                     | Casual                   | 24.03       | 26.84          | 18.74          | 18.09          | 14.14          |
|                     | Self-emp                 | 57.99       | 58.90          | 63.73          | 58.81          | 59.06          |
| Total               | RWSE                     | 16.10       | 12.15          | 11.13          | 15.28          | 20.86          |
|                     | Casual                   | 31.00       | 34.64          | 32.83          | 32.69          | 21.82          |
|                     | Self-emp                 | 52.90       | 53.22          | 56.04          | 52.03          | 57.32          |

**Source:** All tables in this paper are based on the computation by the authors using unit-level data from the Employment-Unemployment Surveys and PLFS of the NSSO.

**Note:** RWSE - regular wage/ salary earners, Casual - casual labourers, Self-emp – self employed workers.

Broadly, the Indian working population is divided into two main components - wage labour and non-wage labour. Wage labour consists of regular wage/salary earners and casual labourers. Non-wage labour on the other hand, consists of self-employed persons comprising own-account workers, employers and unpaid family workers (Karan & Selvaraj, 2008). Regular wage employment has long been associated with jobs in the formal or organized sector of the economy, whereas the casual wage employment is largely associated with work in the informal or unorganized sector. Regular wage employment has strong and strict entry barriers based on various pre-qualifications of the labour force and the workers are entitled to employment security and social security benefits. On the other hand, casual workers have lower human and physical capital compared to regular wage workers and this gets reflected in their lower earnings (Dutta, 2006). Casual workers have low wages, unstable employment contract and with negligible or nil social security benefit. Developing countries like India are also characterised by a sizeable workforce engaged in self-employment (Pala & Nongspung 2022). Moreover, in developing economies, the better jobs are

usually in wage employment and not in self-employment. To get a picture about the employment position of social groups and how it has changed over the years, we have calculated the share of regular wage/salary earners, casual workers and the self-employed within each social group. This is shown in Table 1.

The structure of employment is markedly different for the socially disadvantaged groups compared to the general category. For instance, in 2022-23, 12.34 per cent of STs, 20.27 per cent of SCs and 19.79 per cent of OBCs were categorised as regular wage/ salary earners compared to 26.79 per cent of General category. 26.87 per cent of STs, 35.34 per cent of SCs and 19.13 per cent of OBC workers were casual labourers compared to only 14.14 per cent of general category workers. Thus, relatively higher proportions of ST, SC and OBC workers are engaged as casual labourers compared to the upper caste workers. This is also seen for the years 1983, 1993-94, 2004-05 and 2011-12. The Indian labour market is clearly segmented along caste lines.

As seen in Table-1, self-employment has the largest share across all social groups (except for SCs from 1983 to 2011-12). Around 60 per cent of STs, OBCs and General workers were engaged in self-employment activities in 2022-23. 44.39 per cent of individuals belonging to SCs were also self-employed during the same period. The share of regular wage/salary earners among the social groups does show considerable variation with ST showing the lowest share. The share of casual workers is the highest for SC category followed by ST. We see that there is an inverse relationship between self-employment and casual employment where a rise in the share of one definitely reduces the share of the other. This is seen across various social groups. The increase in self-employment during 2004-05, alongside a decline in casual work, has been a matter of much interest and discussion at the general level. This inverse relationship is also noticeable between 2011-12 and 2022-23. This shift from casual to self-employment reflects lack of opportunities for wage employment forcing many to turn to self-employment as a livelihood option. But such shifts to self-employment are likely to be more of a short term phenomenon and compulsion, than a permanent feature or arising out of choice (Neetha, 2013). Regular employment on the other hand shows a stable trend during the period under review. Regular job markets, particularly in the organized sector, have strong and strict entry barriers based on various pre-qualifications of the labour force. In contrast, a large proportion of the self-employed and casual workforce keeps oscillating between the two, depending on the job availability in these two markets (Karan & Selvaraj, 2008). In case of regular employment, there is a higher share of General category workers followed by OBC and SC workers. While higher SC share could be on account of reservation policies in public jobs, in the case of upper castes it is reflective of their access to such regular employment because of their social and economic situation (Neetha, 2013). Between 1983 and 2022-23, the share of ST workers in regular wage employment

taken place in regular/salaried employment should be read in light of the increase in contractual nature of work in such employment, i.e., short-term or fixed-term contracts (ILO, 2018).

### Average Daily Wages of Social Groups

An analysis of the daily wages will help provide an insight into the wage differences that might exist among the social groups and also help understand their relative position in the labour market during the period under review. In this paper, we analyse wages of social groups by looking at their employment status, occupation and educational levels. Hence, this section is accordingly further divided into three sub-sections.

**Wage Differentials Among Social Groups by Employment Status (Regular and Casual):** We first look at wage trends and wage gaps between workers classified as STs, SCs, OBCs, and General. As shown in Table-2, regular wages are the highest for General category workers, followed by ST workers (except for the year 1983). The higher ranking of STs above that of SCs in terms of regular wages needs to be seen in the context of a small share of regular ST workers arising largely out of affirmative action. For SCs this has to be seen as a combination of affirmative action as well as low wage regular jobs (Papola & Kannan, 2017).

**Table-2**  
**Average Daily Wages of Regular and Casual Workers by Social Groups**

| Social group                       | Average Daily Wages<br>(Rupees at 2011-12 Prices) |         |         |         |         | Average Annual Growth Rates (in %) |                          |                          |                          |
|------------------------------------|---------------------------------------------------|---------|---------|---------|---------|------------------------------------|--------------------------|--------------------------|--------------------------|
|                                    | 1983                                              | 1993-94 | 2004-05 | 2011-12 | 2022-23 | 1983 to<br>1993-94                 | 1993-94<br>to<br>2004-05 | 2004-05<br>to<br>2011-12 | 2011-12<br>to<br>2022-23 |
| <b>Regular Wage/Salary Earners</b> |                                                   |         |         |         |         |                                    |                          |                          |                          |
| ST                                 | 153.40                                            | 205.19  | 274.36  | 373.17  | 303.99  | 3.38                               | 3.06                     | 5.14                     | -1.69                    |
| SC                                 | 183.03                                            | 192.39  | 231.96  | 310.88  | 278.72  | 0.51                               | 1.87                     | 4.86                     | -0.94                    |
| OBC                                | ---                                               | ---     | 254.59  | 342.51  | 329.70  | ---                                | ---                      | 4.93                     | -0.34                    |
| Gen                                | 278.97                                            | 273.01  | 395.93  | 514.85  | 423.92  | -0.21                              | 4.09                     | 4.29                     | -1.61                    |
| Total                              | 257.74                                            | 258.8   | 311.98  | 407.85  | 349.68  | 0.04                               | 1.87                     | 4.39                     | -1.30                    |
| <b>Casual Workers</b>              |                                                   |         |         |         |         |                                    |                          |                          |                          |
| ST                                 | 50.95                                             | 61.97   | 80.31   | 117.15  | 162.89  | 2.16                               | 2.69                     | 6.55                     | 3.55                     |
| SC                                 | 56.50                                             | 72.04   | 93.63   | 145.84  | 203.42  | 2.75                               | 2.72                     | 7.97                     | 3.59                     |
| OBC                                | ---                                               | ---     | 97.55   | 150.62  | 206.77  | ---                                | ---                      | 7.77                     | 3.39                     |
| Gen                                | 60.68                                             | 75.35   | 102.47  | 146.88  | 239.52  | 2.42                               | 3.27                     | 6.19                     | 5.73                     |
| Total                              | 58.11                                             | 72.51   | 94.77   | 144.44  | 205.45  | 2.48                               | 2.79                     | 7.49                     | 3.84                     |

**Source:** Computation by the authors using unit-level data from the Employment-Unemployment Surveys and PLFS of the NSSO.

**Note:** RWSE refers to Regular Wage/Salary Earners, Casual refers to Casual Labourers, Self-Emp refers to Self Employed Workers.

Wages for casual workers are the lowest for ST workers. Regular wages continue to be higher than casual wages for all social groups during the period under review. But the wage gap has greatly narrowed down after 2004-05. For example, wages of ST casual workers were about 30 per cent of the wages of regular workers in 2004-05 but increased to round 54 per cent in 2022-23. Wages of SC casual workers were almost 73 per cent of their regular counterparts in 2022-23. The wage gap between casual and regular workers has been the highest for General category workers during the period 1983 to 2011-12. For example, the average wages of casual workers were only 22 per cent and 29 per cent of regular workers in 1983 and 2011-12 respectively. However, the gap was reduced to 57 per cent in 2022-23.

Growth in wages was the highest during the period from 2004-05 to 2011-12. But there was a deceleration in the growth rates of wages for both categories of workers from 2011-12 to 2022-23. While casual workers experienced low but positive growth rates between 2011-12 and 2022-23, regular wage workers experienced negative growth rates. This negative growth rate in regular wages is seen across all social groups.

In order to analyse and compare the wages across social groups and by type of work, we have computed wage ratios (daily wages of workers as ratio to that of General category workers) as shown in Table-3. A wage ratio less than 1 signifies workers get lower wages than their general category counterparts. A ratio closer to 1 denotes very less differential in wage payments. In case of casual workers, wage differential is very low. This is because of the unskilled manual nature of work (Papola & Kannan, 2017).

**Table-3**  
**Wage Ratios**

|                                    | 1983 | 1993-94 | 2004-05 | 2011-12 | 2022-23 |
|------------------------------------|------|---------|---------|---------|---------|
| <b>Regular Wage/Salary Earners</b> |      |         |         |         |         |
| ST/Gen                             | 0.55 | 0.75    | 0.69    | 0.72    | 0.72    |
| SC/Gen                             | 0.66 | 0.70    | 0.59    | 0.60    | 0.66    |
| OBC/Gen                            | ---  | ---     | 0.64    | 0.67    | 0.78    |
| <b>Casual Workers</b>              |      |         |         |         |         |
| ST/Gen                             | 0.84 | 0.82    | 0.78    | 0.80    | 0.68    |
| SC/Gen                             | 0.93 | 0.96    | 0.91    | 0.99    | 0.85    |
| OBC/Gen                            | ---  | ---     | 0.95    | 1.03    | 0.86    |

**Source:** Computation by the authors using unit-level data from the Employment-Unemployment Surveys and PLFS of the NSSO.

The wage differentials across social groups are more pronounced for regular wage/salary earners than for casual workers. The reason being that the majority of the casual workers come from lower social groups viz. SCs and STs and hence the average daily wages across social groups shows little difference

(Singhari & Madheswaran, 2017). In 2011-12, wages of OBC casual workers were higher than General workers and hence we get a ratio of 1.03. In case of regular workers, wage differentials have declined during the period under review as observed in increasing wage ratios. In 2022-23, regular wage differentials are the lowest for OBC workers and highest for SC workers. On the other hand, we do find an increase in wage differential for ST, SC and OBC casual workers in 2022-23 when compared to previous years.

***Wage Differentials Among Social Groups by Occupation:*** To better understand the changes in occupational distribution and wages of social groups, we have categorised the various occupations into broad occupation groups. These groups have been taken using the National Classification of Occupations (NCO). However, the classification has changed. From the 68<sup>th</sup> round onwards, that is 2011-12, the NSSO followed the NCO 2004; while up to 2004-05 it followed the NCO 1968. We have classified the working population into 5 categories and have tried to make the categories as comparable as possible. The five categories are as follows:

I - Legislators, senior officials, managers, professionals and technicians: These are Divisions 1, 2, 3 of NCO 2004 and Divisions 1, 2 of NCO 1968.

II - Clerks, service workers & sales persons: These are Divisions 4, 5 of NCO 2004 and Divisions 3, 4, 5 of NCO 1968.

III - Skilled Agricultural & fishery workers: These are Division 6 of NCO 2004 as well as NCO 1968, excluding certain groups that are included in category V as specified below.

IV - Craftsmen, plant & machine operators: Divisions 7, 8 of NCO 2004 and Divisions 7, 8, 9 of NCO 1968 excluding certain groups.

V – Elementary Occupational workers and labourers: These are Division 9 of NCO 2004 and for the NCO 1968 we have included the following groups and families – Groups 53, 54, 55, 63, 64, 66, 67, 95, 97, 99; Families 431, 574, 988.

In Table 4, we report the average daily wages of different social groups by categories of occupation from 1983 to 2022-23. The distribution of the social groups by the different categories of occupation is shown in Table-5. From Table 4, we see that from 1983 to 2022-23, the first category has the highest wage followed by the second and fourth categories, irrespective of the type of social group. This is only natural and expected. Wages are relatively lower in the third and fifth categories. But what is to be noted is that the occupational distribution is highly skewed with very few workers from STs and SCs present in the high paying categories of work (Table-5). The General category workers have the highest share in the first occupational category. This continues to be the case even in recent years. Between 1983 and 2022-23, we find that majority of the ST

workers continue to work in the third and fifth categories which includes occupations like street vendors, mining and construction labourers, domestic helpers, cleaners, transport labourers, etc. On the other hand, SC workers are mostly found in the fourth and fifth occupational categories. Share of OBC workers is greater in the third and fourth categories.

**Table-4**  
**Average Daily Wages of Social Groups by Occupational Groups (at 2011-12 Prices)**

| Occupational group | ST     | SC     | OBC    | Gen    |
|--------------------|--------|--------|--------|--------|
| <b>1983</b>        |        |        |        |        |
| I                  | 256.12 | 272.10 | ---    | 432.70 |
| II                 | 208.99 | 233.08 | ---    | 297.76 |
| III                | 173.07 | 71.54  | ---    | 147.66 |
| IV                 | 197.01 | 176.31 | ---    | 209.60 |
| V                  | 63.31  | 70.76  | ---    | 87.05  |
| <b>Total</b>       | 113.13 | 101.47 | ---    | 209.45 |
| <b>1993-94</b>     |        |        |        |        |
| I                  | 292.30 | 306.29 | ---    | 419.90 |
| II                 | 223.36 | 221.32 | ---    | 262.50 |
| III                | 65.69  | 75.65  | ---    | 85.55  |
| IV                 | 166.88 | 144.28 | ---    | 172.98 |
| V                  | 63.83  | 75.90  | ---    | 80.00  |
| <b>Total</b>       | 83.55  | 92.59  | ---    | 156.78 |
| <b>2004-05</b>     |        |        |        |        |
| I                  | 440.23 | 399.13 | 430.93 | 637.35 |
| II                 | 268.18 | 266.18 | 260.37 | 352.18 |
| III                | 80.42  | 91.41  | 100.81 | 104.70 |
| IV                 | 194.70 | 167.55 | 178.80 | 225.38 |
| V                  | 81.73  | 97.66  | 95.64  | 107.28 |
| <b>Total</b>       | 111.58 | 125.91 | 150.94 | 276.39 |
| <b>2011-12</b>     |        |        |        |        |
| I                  | 556.67 | 517.17 | 548.60 | 822.28 |
| II                 | 369.61 | 294.57 | 289.47 | 387.56 |
| III                | 121.27 | 138.53 | 146.06 | 164.98 |
| IV                 | 184.30 | 213.38 | 234.53 | 257.47 |
| V                  | 118.50 | 145.29 | 141.39 | 153.27 |
| <b>Total</b>       | 170.16 | 189.32 | 223.16 | 380.74 |
| <b>2022-23</b>     |        |        |        |        |
| I                  | 452.77 | 414.03 | 481.74 | 589.98 |
| II                 | 269.94 | 234.91 | 255.74 | 312.48 |
| III                | 147.61 | 154.29 | 183.61 | 281.65 |
| IV                 | 222.21 | 233.59 | 242.84 | 247.73 |
| V                  | 162.64 | 195.39 | 192.77 | 230.99 |
| <b>Total</b>       | 191.26 | 216.63 | 246.16 | 338.31 |

**Note:** Occupational Group I – Legislators, senior officials, managers, professionals and Technicians  
Occupational Group II – Clerks, service workers & sales persons  
Occupational Group III – Skilled Agricultural & fishery workers  
Occupational Group IV – Craftsmen, plant & machine operators  
Occupational Group V – Elementary occupation workers & labourers

| <b>Table-5</b>                                                        |           |           |            |            |
|-----------------------------------------------------------------------|-----------|-----------|------------|------------|
| <b>Percentage Share of Social Groups in Broad Occupational Groups</b> |           |           |            |            |
| <b>Occupational group</b>                                             | <b>ST</b> | <b>SC</b> | <b>OBC</b> | <b>Gen</b> |
| <b>1983</b>                                                           |           |           |            |            |
| <b>I</b>                                                              | 3.91      | 8.21      | ---        | 87.88      |
| <b>II</b>                                                             | 3.24      | 8.93      | ---        | 87.83      |
| <b>III</b>                                                            | 12.26     | 11.69     | ---        | 76.04      |
| <b>IV</b>                                                             | 4.58      | 16.44     | ---        | 78.98      |
| <b>V</b>                                                              | 13.27     | 33.09     | ---        | 53.65      |
| <b>Total</b>                                                          | 10.55     | 18.66     | ---        | 70.79      |
| <b>1993-94</b>                                                        |           |           |            |            |
| <b>I</b>                                                              | 3.73      | 7.49      | ---        | 88.78      |
| <b>II</b>                                                             | 3.75      | 10.05     | ---        | 86.20      |
| <b>III</b>                                                            | 12.29     | 12.51     | ---        | 75.20      |
| <b>IV</b>                                                             | 4.39      | 15.62     | ---        | 79.99      |
| <b>V</b>                                                              | 13.68     | 33.16     | ---        | 53.16      |
| <b>Total</b>                                                          | 10.50     | 19.31     | ---        | 70.18      |
| <b>2004-05</b>                                                        |           |           |            |            |
| <b>I</b>                                                              | 3.65      | 10.26     | 31.26      | 54.83      |
| <b>II</b>                                                             | 3.70      | 11.69     | 39.36      | 45.26      |
| <b>III</b>                                                            | 12.71     | 13.71     | 45.74      | 27.85      |
| <b>IV</b>                                                             | 3.80      | 19.12     | 45.88      | 31.20      |
| <b>V</b>                                                              | 13.24     | 33.44     | 37.33      | 15.99      |
| <b>Total</b>                                                          | 10.07     | 20.11     | 41.42      | 28.40      |
| <b>2011-12</b>                                                        |           |           |            |            |
| <b>I</b>                                                              | 4.45      | 10.53     | 38.32      | 46.70      |
| <b>II</b>                                                             | 4.84      | 13.16     | 42.21      | 39.79      |
| <b>III</b>                                                            | 14.59     | 13.15     | 47.03      | 25.23      |
| <b>IV</b>                                                             | 4.81      | 20.83     | 46.56      | 27.80      |
| <b>V</b>                                                              | 13.02     | 31.47     | 40.53      | 14.98      |
| <b>Total</b>                                                          | 10.17     | 19.25     | 43.52      | 27.06      |
| <b>2022-23</b>                                                        |           |           |            |            |
| <b>I</b>                                                              | 4.41      | 11.88     | 39.86      | 43.85      |
| <b>II</b>                                                             | 5.09      | 16.84     | 45.99      | 32.09      |
| <b>III</b>                                                            | 15.58     | 14.40     | 46.32      | 23.70      |
| <b>IV</b>                                                             | 6.24      | 20.76     | 49.22      | 23.78      |
| <b>V</b>                                                              | 13.62     | 30.88     | 37.70      | 17.80      |
| <b>Total</b>                                                          | 11.02     | 19.23     | 44.06      | 25.70      |

**Note:** Occupational Group I – Legislators, senior officials, managers, professionals and Technicians  
Occupational Group II – Clerks, service workers & sales persons  
Occupational Group III – Skilled Agricultural & fishery workers  
Occupational Group IV – Craftsmen, plant & machine operators  
Occupational Group V – Elementary occupation workers & labourers

What the data manifest is that even for the same occupation groups, workers belonging to the upper castes earn much more on an average than the workers belonging to other social groups. As an indicator towards reduction in earnings differentials, the ratio of daily wages of each social category to the wages of General category is calculated. This is shown in Table-6.

**Table-6**  
**Ratios of Wages of STs, SCs and OBCs to Wages of General Category**

| Year    | Social Group | Occupational Group |      |      |      |      | Total |
|---------|--------------|--------------------|------|------|------|------|-------|
|         |              | I                  | II   | III  | IV   | V    |       |
| 1983    | ST           | 0.59               | 0.70 | 1.17 | 0.94 | 0.73 | 0.54  |
|         | SC           | 0.63               | 0.78 | 0.48 | 0.84 | 0.81 | 0.48  |
| 1993-94 | ST           | 0.70               | 0.85 | 0.77 | 0.96 | 0.80 | 0.53  |
|         | SC           | 0.73               | 0.84 | 0.88 | 0.83 | 0.95 | 0.59  |
| 2004-05 | ST           | 0.69               | 0.76 | 0.77 | 0.86 | 0.76 | 0.40  |
|         | SC           | 0.63               | 0.76 | 0.87 | 0.74 | 0.91 | 0.46  |
|         | OBC          | 0.68               | 0.74 | 0.96 | 0.79 | 0.89 | 0.55  |
| 2011-12 | ST           | 0.68               | 0.95 | 0.74 | 0.72 | 0.77 | 0.45  |
|         | SC           | 0.63               | 0.76 | 0.84 | 0.83 | 0.95 | 0.50  |
|         | OBC          | 0.67               | 0.75 | 0.89 | 0.91 | 0.92 | 0.59  |
| 2022-23 | ST           | 0.77               | 0.86 | 0.52 | 0.90 | 0.70 | 0.57  |
|         | SC           | 0.70               | 0.75 | 0.55 | 0.94 | 0.85 | 0.64  |
|         | OBC          | 0.82               | 0.82 | 0.65 | 0.98 | 0.83 | 0.73  |

**Note:** Occupational Group I – Legislators, senior officials, managers, professionals and Technicians  
Occupational Group II – Clerks, service workers & sales persons  
Occupational Group III – Skilled Agricultural & fishery workers  
Occupational Group IV – Craftsmen, plant & machine operators  
Occupational Group V – Elementary occupation workers & labourers

During 2004-05 to 2022-23, SC to general caste wage differentials has remained the same at 0.75 or 75 per cent (implying wages are 30% higher in the General category) for occupations falling in the second category (Clerks, Service workers & Sales persons). For the third category (Skilled Agricultural, Forestry & Fishery workers), the wage differential has decreased from 0.88 or 88 per cent (12% higher wages for General category) in 1993-94 to 0.55 in 2022-23. This implies that wages are 45 per cent higher for workers in the General category in 2022-23. The SC to general caste wage differential for the first category (Legislators, Senior officials, Managers, Professionals and Technicians) was only 63 per cent of wages of General castes in 1983 but the wage ratio has increased to

70 per cent in 2022-23. The ST to general caste wage differentials also increased in occupations falling in the third category between 1983 and 2022-23. Moreover, we find a decrease in the wage ratio (signifying an increase in the wage gap) from 95 per cent in 2011-12 to 86 per cent for the second category. Between 1983 and 2011-12, wage differential was the highest for the first category in case of STs. But this has been reduced in recent years (ST wages was 59% that of General wages in 1983 and in 2022-23, the gap was reduced to 77%). Like the other social groups, the wage differential for the first category has decreased during the period under review for OBC. However, wage differential has increased in occupations falling in the third category for the year 2022-23 when compared to previous years. We also find a reduction in OBC to general caste wage differentials for the second category (OBC wages was 74% that of General wages in 2004-05 and in 2022-23 the wage differential stands at 82%). As seen above, the occupational distribution is highly skewed with very few from STs and SCs workers present in the high paying categories of work but OBC workers are relatively more dispersed across all occupations. The upward mobility to better-wage occupational categories has been slower for the marginalised workers in comparison to other workers, rendering widened earning differentials. The lack of mobility is attributed mainly to the preponderance of these workers in low wage occupations, rather than wage differences in the same occupations (Neetha, 2013). Overall, we find that during the period under review, the wage differentials for all occupations continue to be the highest for STs, followed by SCs and OBCs.

***Wage Differentials Among Social Groups by Education Level:*** To understand the extent of wage gaps in educational attainment across different social groups, we look at the educational levels and the corresponding daily wages. This is shown in Table-7. As expected, we find that wages increase with levels of education irrespective of social groups. However, what is to be noted is that even for the same education level, the average wages for the general category are the highest compared to all the other social groups. This has remained so throughout the period under review.

In view of space constraint, wage ratios are not reported here, but they can easily be calculated from Table 7. For higher levels of education (secondary to graduate and above), the SC to general wage differential is the highest and the ST to general wage differential is the lowest and has remained so during the period under review. This implies the wage gaps between STs and Generals with higher levels of education are relatively lower. For primary and middle levels of education, OBC to general wage differential is the lowest. But in case of lower levels of education (illiterate to middle levels) the wage differential is more for STs and less for SCs and OBCs. This is more noticeable for the year 2022-23. From 1983 to 2022-23, across all levels of education wage gaps are the highest for STs followed by SCs and OBCs.

**Table-7**  
**Average Daily Wages of Social Groups by Educational Levels**  
*(Rupees at 2011-12 Prices)*

| <b>General Education</b>     | <b>ST</b> | <b>SC</b> | <b>OBC</b> | <b>Gen</b> |
|------------------------------|-----------|-----------|------------|------------|
| <b>1983</b>                  |           |           |            |            |
| Illiterate                   | 60.43     | 67.60     | ---        | 69.43      |
| Literate up to below primary | 80.19     | 87.74     | ---        | 114.10     |
| Primary                      | 143.79    | 115.05    | ---        | 146.20     |
| Middle                       | 151.23    | 154.94    | ---        | 193.46     |
| Secondary & Higher Secondary | 225.06    | 251.81    | ---        | 344.98     |
| Graduate and above           | 389.84    | 329.45    | ---        | 466.18     |
| Total                        | 80.35     | 90.49     | ---        | 177.52     |
| <b>1993-94</b>               |           |           |            |            |
| Illiterate                   | 61.63     | 72.36     | ---        | 73.81      |
| Literate up to below primary | 85.09     | 94.55     | ---        | 103.31     |
| Primary                      | 98.94     | 105.12    | ---        | 119.71     |
| Middle                       | 133.84    | 125.99    | ---        | 155.42     |
| Secondary & Higher Secondary | 224.71    | 203.69    | ---        | 268.63     |
| Graduate and above           | 375.74    | 372.32    | ---        | 456.78     |
| Total                        | 83.64     | 92.84     | ---        | 156.64     |
| <b>2004-05</b>               |           |           |            |            |
| Illiterate                   | 78.41     | 89.57     | 86.25      | 99.15      |
| Literate up to below primary | 98.34     | 112.23    | 112.76     | 123.11     |
| Primary                      | 98.64     | 121.47    | 124.94     | 141.57     |
| Middle                       | 122.04    | 137.6     | 149.54     | 174.63     |
| Secondary & Higher Secondary | 295.49    | 233.85    | 253.97     | 333.73     |
| Graduate and above           | 523.82    | 446.39    | 460.83     | 649.16     |
| Total                        | 111.54    | 125.85    | 150.83     | 275.93     |
| <b>2011-12</b>               |           |           |            |            |
| Illiterate                   | 113.43    | 138.89    | 136.69     | 139.45     |
| Literate up to below primary | 127.00    | 149.56    | 161.32     | 153.52     |
| Primary                      | 133.21    | 161.74    | 167.71     | 172.11     |
| Middle                       | 155.18    | 182.17    | 197.62     | 211.99     |
| Secondary & Higher Secondary | 310.69    | 261.85    | 271.75     | 363.23     |
| Graduate and above           | 588.55    | 546.7     | 570.63     | 823.08     |
| Total                        | 170.26    | 188.95    | 223.13     | 379.95     |
| <b>2022-23</b>               |           |           |            |            |
| Illiterate                   | 145.13    | 163.02    | 169.79     | 294.65     |
| Literate up to below primary | 159.18    | 187.85    | 193.11     | 258.48     |
| Primary                      | 164.80    | 196.38    | 202.73     | 214.02     |
| Middle                       | 184.21    | 215.33    | 224.24     | 245.45     |
| Secondary & Higher Secondary | 237.71    | 234.75    | 261.76     | 306.01     |
| Graduate and above           | 466.33    | 400.94    | 459.54     | 582.96     |
| Total                        | 191.25    | 216.59    | 246.11     | 338.28     |

**Source:** Computation by the authors using unit-level data from the Employment-Unemployment Surveys and PLFS of the NSSO.

**Table-8**  
**Percentage Distribution of Social Groups by Educational Levels**

| <b>General Education</b>     | <b>ST</b> | <b>SC</b> | <b>OBC</b> | <b>Gen</b> |
|------------------------------|-----------|-----------|------------|------------|
| <b>1983</b>                  |           |           |            |            |
| Illiterate                   | 11.29     | 21.69     | ---        | 67.02      |
| Literate up to below primary | 7.21      | 14.69     | ---        | 78.10      |
| Primary                      | 4.67      | 12.54     | ---        | 82.78      |
| Middle                       | 3.94      | 10.49     | ---        | 85.57      |
| Secondary                    | 2.50      | 7.02      | ---        | 90.48      |
| Graduate and above           | 1.65      | 3.55      | ---        | 94.80      |
| Total                        | 8.35      | 17.06     | ---        | 74.60      |
| <b>1993-94</b>               |           |           |            |            |
| Illiterate                   | 11.71     | 23.79     | ---        | 64.51      |
| Literate up to below primary | 7.19      | 16.35     | ---        | 76.46      |
| Primary                      | 6.00      | 14.50     | ---        | 79.50      |
| Middle                       | 4.77      | 12.47     | ---        | 82.77      |
| Secondary & Higher Secondary | 3.39      | 8.78      | ---        | 87.83      |
| Graduate and above           | 1.97      | 4.69      | ---        | 93.34      |
| Total                        | 8.21      | 17.76     | ---        | 74.03      |
| <b>2004-05</b>               |           |           |            |            |
| Illiterate                   | 11.72     | 24.71     | 42.98      | 20.59      |
| Literate up to below primary | 9.05      | 19.45     | 41.79      | 29.71      |
| Primary                      | 7.10      | 18.79     | 41.63      | 32.48      |
| Middle                       | 5.92      | 16.73     | 42.07      | 35.27      |
| Secondary & Higher Secondary | 3.83      | 12.23     | 36.83      | 47.11      |
| Graduate and above           | 2.65      | 7.59      | 25.91      | 63.86      |
| Total                        | 8.06      | 19.02     | 40.51      | 32.41      |
| <b>2011-12</b>               |           |           |            |            |
| Illiterate                   | 11.77     | 23.70     | 45.77      | 18.76      |
| Literate up to below primary | 10.37     | 19.45     | 44.63      | 25.56      |
| Primary                      | 8.91      | 20.72     | 42.61      | 27.75      |
| Middle                       | 7.81      | 18.21     | 44.44      | 29.55      |
| Secondary & Higher Secondary | 4.95      | 13.44     | 43.07      | 38.54      |
| Graduate and above           | 3.21      | 8.55      | 32.99      | 55.25      |
| Total                        | 8.31      | 18.34     | 43.38      | 29.96      |
| <b>2022-23</b>               |           |           |            |            |
| Illiterate                   | 11.83     | 22.55     | 44.28      | 21.34      |
| Literate up to below primary | 10.74     | 15.35     | 34.80      | 39.11      |
| Primary                      | 10.21     | 20.57     | 45.22      | 24.01      |
| Middle                       | 9.78      | 20.25     | 45.48      | 24.49      |
| Secondary & Higher Secondary | 6.42      | 17.09     | 46.14      | 30.36      |
| Graduate and above           | 3.77      | 12.25     | 41.16      | 42.82      |
| Total                        | 8.75      | 18.74     | 44.21      | 28.31      |

**Source:** Computation by the authors using unit-level data from the Employment-Unemployment Surveys and PLFS of the NSSO.

**Note:** The figures are for the population aged 15 years and above.

In Table 8 we report the distribution of the social groups by educational levels attained. A look at this table shows us that the distribution is highly skewed with very less proportion of STs and SCs having attained educational levels associated with higher wages. For the years 2011-12 and 2022-23, the situation has relatively improved as there has been a shift in the distribution towards higher educational levels. But the disparities in educational attainment still persist even in recent years. STs have the lowest share in higher levels of education. For instance, around 4 per cent of STs have attained graduate and above level of education in 2022-23 compared to 42.82 per cent of the upper castes. The figures are 12.25 per cent and 41.16 per cent for SCs and OBCs respectively. Thus, the hierarchy is clearly manifested with STs at the bottom of educational achievement followed by SCs.

## **Conclusion**

In this paper, we have looked at the relative position of the major social groups in India – STs, SCs, OBCs and General – as far as wages are concerned. We have analysed the average daily wages by employment status, namely, for regular wage earners and casual workers. Further, we have analysed the wage differentials by major occupation groups and education levels. The main objective in this analysis is to compare the daily earnings of the workers belonging to socially disadvantaged groups with the General category workers. Wages reflect the standard of living of a person. Thereby higher wages imply higher standard of living and vice versa. Our analysis indicates that STs and SCs persistently get low earnings over the years.

We find that a relatively higher proportion of STs and SCs continue to be employed in unskilled, low paying and precarious jobs. This paper brings out the social discrimination that still prevails in the country since, the socially disadvantaged groups earn less on an average than the upper castes. There are differences in average wages that cannot be accounted for by education differences alone. Thus, a part of the wage gap can be attributed to labour market discrimination (Deshpande, 2006). Although the Government of India has adopted the policy of affirmative action or protective discrimination by providing reservation in Government jobs and higher education, the majority of the people belonging to the disadvantaged groups cannot get the benefits of reservation simply because they do not attain the threshold educational level needed to get access to higher education levels or jobs. Considering the change from the early eighties to the present time there has been unquestionably an increase in the real daily wages but this has not reduced the disparity among social groups. Equalising educational opportunities and attainment is an urgent need given the huge disparities in this aspect. However, it will not be enough to eliminate the wage gap which is due to labour market discrimination.

## References

- Abraham, V. (2012). Wages and earnings of marginalized social and religious groups in India: Data sources, scope, limitations and suggestions. *Munich Personal RePEc Archive*, 37799. Retrieved from <http://mpira.ub.uni-muenchen.de/37799/>
- Deshpande, A. (2006). The eternal debate, *Economic and Political Weekly*, 41(24), 2444-2446.
- Dutta, P. V. (2006). Returns to education: New evidence for India, 1983-1999. *Education Economics*, 14(4), 431–451. <https://doi.org/10.1080/09645290600854128>
- Himanshu (2017). Growth, structural change and wages in India: recent trends. *Indian Journal of Labour Economics*, 60(3), 309–331. Retrieved from <https://doi.org/10.1007/s41027-018-0114-7>
- ILO (2018). *India Wage Report*. Retrieved from [https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new\\_delhi/documents/publication/wcms\\_638305.pdf](https://www.ilo.org/wcmsp5/groups/public/---asia/---ro-bangkok/---sro-new_delhi/documents/publication/wcms_638305.pdf)
- Jacoby, H. G. & Dasgupta, B. (2018). Changing wage structure in india in the post-reform era: 1993–2011. *IZA Journal of Development and Migration*, 8(8), 1-26. Retrieved from <https://doi.org/10.1186/s40176-017-0115-1>
- Karan, A. K. & Selvaraj, S. (2008). Trends in wages and earnings in India: Increasing wage differentials in a segmented labour market. *ILO Asia-Pacific Working Paper Series*. New Delhi.
- Neetha, N. (2013). Inequalities reinforced? Social groups, gender and employment. *Centre For Women's Development Studies, Occasional Paper No. 59*. Retrieved from <http://www.cwds.ac.in/OCPaper/OccasionalPaper59.pdf>
- Pala, V., & Nongspung, A. (2022). Trends in wages of regular wage employees and casual workers in Indian states. *Indian Journal of Labour Economics*, 65(3), 667–687. <https://doi.org/10.1007/s41027-022-00386-6>
- Papola, T. S. & Kannan, K. P. (2017). Towards an India Wage Report. *ILO Asia-Pacific Working Paper Series*. 178. Retrieved from [www.ilo.org/asia](http://www.ilo.org/asia)
- Singhari, S. & Madheswaran, S. (2017). Wage structure and wage differentials in formal and informal sectors in India: Evidence from NSS data. *Indian Journal of Labour Economics*, 60(3), 389–414. Retrieved from <https://doi.org/10.1007/s41027-018-0110-y>

## **POPULATION PROJECTIONS FOR TOWNS OF PUNJAB: 2011-2051**

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**Abstract:** Population projections for policy development planning and public service delivery in different geographic areas are becoming increasingly important. This paper projects the future population of Punjab's class I and II towns until 2051, taking the Census of India 2011 as the base year. The lack of availability of all necessary data at town level limited the choice of adopting the techniques to ratio, growth differential, compound annual growth rate and extrapolation. Class II towns are estimated to experience a higher rate of population growth in 2051 than class I cities in Punjab. In terms of population growth rate, it will be 1.2 per cent per annum in class I cities, compared with 1.3 per cent in class II towns. At the disaggregated level, the population of the town of Kharar is projected to grow at the fastest rate of 4.25 per cent per annum from 2011 to 2051. At the other end is the town of Pathankot, which is estimated to have the highest negative population growth of 1.31 per cent per annum. The number of metropolitan cities will increase to four by 2051. Besides already two metropolitan cities of Ludhiana and Amritsar in 2011, Jalandhar and Patiala will become metropolitan cities by 2051. Furthermore, 14 of the 23 class II towns in 2011 are expected to graduate to class I cities in 2051. This increase in population will exert massive pressure, particularly in the areas of public health, education, housing and employment scenario. This will have an impact on the per capita needs for public health, education, housing, and transportation infrastructure going forward. Successive future plans for these towns could take into account the estimated population size for the successive years through 2051.

**Keywords:** Population projection, Class I and II towns, ratio, growth differentials, compound annual growth rate and extrapolation.

### **Introduction**

Population projections for policy development planning and delivering public services in different geographical areas are becoming increasingly important. These are mainly used for central and local financial allocations, housing and

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land use planning, for modeling, projecting health care indicators and benchmarking of other projections. These future estimates are also used to verify projections of population of smaller areas, and national and international comparisons. Thus, it is not surprising that a plethora of organization and individuals are involved in the projection of future population dynamics.

On a global and national scale, organizations such as the World Bank and the United Nations Population Division (UNDP) regularly project the future population estimates for different geographic regions. Moreover, at the national level, the projection of population of India by country and state has been a continuous exercise ever since the 1950s. The Census Commissioner, India has constituted panels from time to time to prepare such projections for different states and union territories on a regular basis. Population projections are provided separately for rural and urban regions.

According to estimates made by the United Nations, the urban population is likely to increase at a rapid pace at the global level. The world's urban population is estimated to house 68 per cent of people globally by 2050 from 30 per cent in 1950 and 55 per cent in 2018. Almost 90 per cent of this urban growth is estimated to take place in Asia and Africa. In fact, three countries, including India, China and Nigeria, together are expected to account for 35 per cent of the growth in the world's population between 2018 and 2050. India alone is projected to add 416 million urban dwellers. The proportion of the emerging urban population is likely to vary in different class sized towns due to different growth rates of population. Close to half of the world's urban dwellers reside in settlements with fewer than 500,000 inhabitants, while around one in eight live in 33 megacities with more than 10 million inhabitants. By 2030, the world is projected to have 706 cities with one million plus population. Also, the world is projected to have 43 megacities, most of them in developing regions during this period. Cities with one million inhabitants mostly located in Asia and Africa are likely to grow fastest (United Nations, 2018).

At the national level, the proportion of urban population has increased at a much faster pace than the projected figures by the Office of the Registrar General and Census Commissioner of India in 2006. It was projected that urban population for the year 2011 will reach to 358 million. These were based on the estimations that urban population growth rate would decline from 2.75 per cent per annum observed during 1991-2001 to 2.23 during 2001-2011. However, according to Census of India, 2011 actual figures, the urban population grew to 377 million showing a growth rate of 2.76 per cent per annum during 2001-2011. Census of India, 2011 figures show that the actual urban population was 19 million more than the figures projected by the RGI and Census Commissioner in 2006. However, the accuracy of projections differed at the state level. The projections of urban population for the state of Punjab were fairly closer to the

estimated population. The state was projected to reach 10,681 thousand persons in 2011. This is relatively closer to the actual urban population of 10,399 thousand persons as recorded by the Census of India, 2011 figures.

The Report of the Technical Group on Population Projections in 2019 by the National Commission on Population and Ministry of Health and Family Welfare, Government of India estimates that the urban population will in the country will increase from 377,106 thousand to 600,899 thousand, an addition of 223,792 thousand persons. The level of urbanization in the country is projected to increase from 31.15 per cent in 2011 to 39.69 per cent in 2036, an increase of 8.54 per cent points during next 25 years. The Report also projects that the urban population of Punjab will increase from 10,399 thousand persons in 2011 to 15,227 thousand persons in 2036, an addition of 4,848 thousand persons during this duration. The level of urbanization in Punjab is estimated to increase from 37.48 per cent in 2011 to 46.84 per cent in 2036; an increase of 9.6 per cent points during next 25 years thereby indicating that pace of urbanization in the state will be faster than as compared to the All-India average during this duration.

It is evident from these reports that the estimations have usually been made at the level of states and union territories as projecting the population at a level lower than the state is a relatively more-riskier affair. Estimating trends in birth rate and death rate may not pose much of a problem at this level. The real difficulty lies in working out the role of migration in shaping the future population growth scenario. This factor may be insignificant at the national and state level, but assumes criticality at the city or town level. A close look at different exercises of population projections suggest that these have not been attempted for class I cities at a disaggregated level.

It is worth mentioning here that the size of towns is a major determinant of urban population growth. It is expected that small and medium-sized towns will develop slowly compared to large cities in the early stages of urbanization. In the latter phase, medium-sized towns are expected to grow due to congestion and crowding in the large cities (Bhagat, 2004). A review of urban growth by size class of towns would provide a snapshot of the stages of urban development. This paper strives to project the population of class I towns (with a population of one lakh and above) in Punjab until 2051. Population projections of class II towns have also been undertaken as these have a relatively greater potential to be upgraded to class I cities through 2051.

In India, Goa was one of the most urbanized states in 2011, accounting for 63.2 per cent of the urban population. There has been a substantial increase since 2001, when Goa's urban population was 49.8 per cent. Another significant tendency to rapid urbanization is that of Kerala. It had a population of 47.7 per cent in 2011 compared to just 25.9 per cent a decade ago. Himachal Pradesh continues to have the lowest proportion of the urban population at 10.0 per cent,

followed by Bihar at 11.3 per cent, Assam 14.1 per cent and Orissa 16.7 per cent. Punjab, where 37.5 per cent of urban population resides in 217 towns, is one of India's five most urbanized states.

**Table-1**  
**Proportion of Population of Class I and II Towns in Punjab, 1951-2011**

| Year | Urban Population | Percentage of urban population in total population of Punjab | Number of towns |          | Percentage population of class I and II towns in total urban population | Percentage population of class I and II towns in total population |
|------|------------------|--------------------------------------------------------------|-----------------|----------|-------------------------------------------------------------------------|-------------------------------------------------------------------|
|      |                  |                                                              | Class I         | Class II |                                                                         |                                                                   |
| 1951 | 1,989,267        | 21.72                                                        | 3               | 2        | 40.32                                                                   | 8.76                                                              |
| 1961 | 2,567,306        | 23.06                                                        | 4               | 4        | 45.89                                                                   | 10.58                                                             |
| 1967 | 3,216,179        | 23.73                                                        | 4               | 8        | 56.20                                                                   | 13.34                                                             |
| 1981 | 4,647,757        | 27.68                                                        | 7               | 10       | 60.77                                                                   | 16.82                                                             |
| 1991 | 5,993,225        | 29.55                                                        | 10              | 18       | 74.07                                                                   | 21.89                                                             |
| 2001 | 8,262,511        | 33.92                                                        | 14              | 18       | 74.23                                                                   | 25.18                                                             |
| 2011 | 10,399,146       | 37.48                                                        | 16              | 24       | 74.24                                                                   | 27.83                                                             |

**Source:** Different Volumes, *Census of India*, Registrar General of India, New Delhi.

There are 16 class I and 24 class II towns in Punjab with a population of above 50,000 persons according to Census of India, 2011. These 40 towns accounted for about 27.83 per cent of Punjab's total population (Table-1). In fact, there has been a steady increase in the number of class I and class II towns in the state during 1951-2011. The number of class I towns have increased from 3 in 1951 to 16 in 2011 and that of class II towns from 2 to 24 during the same period. In 1951, these towns accounted for 40.8 per cent of the urban population and 8.76 per cent of the state's total population. This share grew to 74.24 per cent and 27.83 per cent respectively in 2011.

### Assumptions

Future population estimates are based on a number of assumptions. These, in turn, stem from an understanding of the short and long-term historical trends, government policies, and relevant information that influences the population change in any region. First of all, it is envisaged that the prevailing trends in the fertility, mortality and migration will remain the same not only in these towns, but also in Punjab. Second, non-demographic factors, such as natural disasters, would not come into play. The current set of projections could be argued to be more exploratory than prescriptive.

To counteract the debilitating effect of assumptions on the projected population, and make these more dependable, it is proposed to put several techniques into operation. In this exercise, four different techniques, with varying conceptualizations, have been used. Subsequently, those that provided population

projection, close to one another, were averaged to establish more reliable projection numbers.

### **Techniques**

Various techniques, both mechanical as well as analytical, are used to estimate future populations based on data availability. Mechanical techniques treat the aggregated population, while the analytical techniques distinguish between the relative contributions of the three vital processes - fertility, mortality and migration in population growth. The populations of 40 class I and class II towns, based on the data from the 2011 Census of India, were projected using a combination of mechanical techniques. Given the reliability of the techniques and the availability of the data four techniques, namely ratio, growth differential, compound annual growth rate and extrapolation have been used to project population of these towns. Each technique is critically reviewed based on the assumptions, data needs, properties and limitations.

The lack of sufficient data on migration and age structure, as well as fertility and mortality over time, has hampered the pursuit of more sophisticated techniques. While projecting the population by using any of the four techniques, all the steps taken and calculations made were presented in an effort to make it available for simulation by any other researcher. The population projection of the holy city of Amritsar has been worked out in terms of its simulation. The same procedure was applied in the remaining 38 towns. Naya Gaon's population projection, which emerged as a new town in 2011, could not be done because there was not enough data available for that purpose.

### **Ratio Method**

The method presupposes that the share of population of any town in the state of origin in which it is located will remain virtually the same in the short run. Any change in the degree (quantum) and direction (positive or negative) of this share will be sustained over a long period of time. The current behaviour of a part is regarded as related to that of whole. The availability of the necessary data and the ease of understanding and convenience of computation make this a popular technique (Krishan, 1994, p. 13).

For the operationalisation of this technique, two datasets are required. The first concerns the requirement of the total population of Amritsar and Punjab over a number of previous years. The second requirement is the projected population of Punjab for the years for which population projections are needed. Data to address the first requirement were gathered from 2011 Census of India. To address the second requirement, the projected populations for Punjab over the years were extracted from the Report of the Population Foundation of India and the Population Reference Bureau, August 2007. The following sequential steps were followed for operationalizing the technique.

**Table-2**  
**Proportion of the Population of Amritsar City in the Population of Punjab:**  
**1991-2051**

| Year  | Population of Punjab    | Population of Amritsar | Percentage Share of the Amritsar's Population in Population of Punjab |
|-------|-------------------------|------------------------|-----------------------------------------------------------------------|
| 1991* | 20,281,969              | 708,835                | 3.494902                                                              |
| 2001* | 24,358,999              | 1,003,917              | 4.121339                                                              |
| 2011* | 27,743,338              | 1,159,227              | 4.178398                                                              |
| 2021  | 30,777,542 <sup>#</sup> | 1,303,569              | 4.235458                                                              |
| 2031  | 33,234,472 <sup>#</sup> | 1,426,595              | 4.292545                                                              |
| 2041  | 35,183,037 <sup>#</sup> | 1,530,312              | 4.349573                                                              |
| 2051  | 36,404,510 <sup>#</sup> | 1,604,213              | 4.406633                                                              |

**Source:** \* *Census of India, 2011*, Office of the Registrar General and Census Commissioner, India, New Delhi.

# *The Future Population of India, A Long-Range Demographic View*, Population Foundation of India and Population Reference Bureau, Delhi, August, 2007.

## Steps

### Projections for 2021

- (i) Calculated the percentage share of Amritsar town's population in population of Punjab in 1991, 2011 and 2011 (Table-2);
- (ii) For projecting the population of Amritsar for the year 2021, calculated the difference between the population share of Amritsar to population of Punjab in 2001 and 2011, as follows.

Share of Amritsar's population in the population of Punjab in 2001

$$(S_{2001}) = 4.121339$$

Share of Amritsar's population in the population of Punjab in 2011

$$(S_{2011}) = 4.178398$$

$$\begin{aligned} \text{Difference (D)} &= S_{2001} - S_{2011} \\ &= 4.121339 - 4.178398 = -0.05706 \end{aligned}$$

This tendency, in degree and direction, was forward to project the population in 2021. The steps followed were as follows:

$$\begin{aligned} S_{2021} &= [S_{2011} - D] \\ &= [4.178398 - (-0.05706)] \\ &= [4.178398 + 0.05706] = 4.235458 \end{aligned}$$

In other words, the city of Amritsar would have 4.235458 per cent of the population of Punjab in 2021.

- (iii) The combined population of Punjab in 2021 was noted as 30,777,542.

Hence projected population of Amritsar city in 2021 can be worked out as

$$(30,777,542 \times 4.23548) / 100 = 1,303,569$$

Technically, this could be expressed as follows:

$$\begin{aligned} \text{Amritsar}_{2021} &= (T_{2021} \times S_{2021}) / 100 \\ &= (30,777,542 \times 4.23548) / 100 \\ &= 1,303,569 \end{aligned}$$

- (iii) Following the same procedure, the population of Amritsar was projected at 1,426,595 in 2031.

$$\begin{aligned} \text{Amritsar}_{2031} &= (T_{2031} \times S_{2031}) / 100 \\ &= (33,234,472 \times 4.292518) / 100 \\ &= 1,426,595 \end{aligned}$$

- (iv) Following the same procedure, the population of Amritsar was projected at 1,530,312 in 2041.

$$\begin{aligned} \text{Amritsar}_{2041} &= (T_{2041} \times S_{2041}) / 100 \\ &= (35,183,037 \times 4.349572) / 100 \\ &= 1,530,312 \end{aligned}$$

- (iv) Following the same procedure, the population of Amritsar was projected at 1,692,235 in 2051.

$$\begin{aligned} \text{Amritsar}_{2051} &= (T_{2051} \times S_{2051}) / 100 \\ &= (36,404,510 \times 4.406633) / 100 \\ &= 1,604,213 \end{aligned}$$

The population of the Amritsar city is projected at 1,303,569 in 2021, an addition of 144,342 persons to the recorded population of 1,159,227 in 2001. By following this process, the population of Amritsar is projected at 1,604,213 for the year 2051. A similar exercise was done to obtain the population of all the other towns for the year 2051 using this technique. The results obtained are presented in Table-3.

In the case of the towns of Pathankot (class I town) Phagwara and Firozpur Cantt. (class II towns), there would be an absolute constant decline in their population over each of the successive decades from 2011 to 2051. In addition to that, the population of the city of Batala is projected to decline slightly from 158,621 persons in 2011 to 156,725 persons in 2051.

It is interesting to note that, Pathankot will lose its class I to class II status in 2036 when its population is expected to decrease to 98,796 persons. In contrast, the city of Jalandhar is likely to emerge as a metropolitan city by 2020 when its population reaches 1,008,816 persons. During 2011-2051, the population of Ludhiana and Amritsar cities is likely to multiply by 1.4 times and that of Jalandhar by 1.6 times.

Furthermore, the towns of Kapurthala, Kotkapura, Gobindgarh and Kharar are expected to graduate from class II towns to class I town in 2021. By 2051, it is anticipated that a total of 12 class II towns will achieve class I status. In addition to the four aforementioned towns, the other such towns are Rajpura, Sangrur, Faridkot, Mansa, Malout, Gurdaspur, Sunam Udham Singh Wala and Tarn Taran.

**Table-3**  
**Projected Population of Class I and II Towns in Punjab by Ratio Technique:**  
**2011-2051**

| <b>Name of the Towns</b> | <b>2011<sup>*</sup></b> | <b>2021<sup>#</sup></b> | <b>2031<sup>#</sup></b> | <b>2041<sup>#</sup></b> | <b>2051<sup>#</sup></b> |
|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Ludhiana                 | 1,618,879               | 1,824,902               | 2,001,865               | 2,152,353               | 2,261,346               |
| Amritsar                 | 1,159,227               | 1,303,569               | 1,426,595               | 1,530,312               | 1,604,213               |
| Jalandhar                | 868,929                 | 1,025,687               | 1,174,221               | 1,313,628               | 1,432,246               |
| Patiala                  | 446,246                 | 580,874                 | 719,920                 | 860,238                 | 991,618                 |
| Bathinda                 | 285,788                 | 359,585                 | 434,228                 | 508,317                 | 576,284                 |
| Zirakpur                 | 95,553                  | 172,980                 | 259,112                 | 350,867                 | 442,270                 |
| S.A.S. Nagar (Mohali)    | 166,864                 | 214,205                 | 262,719                 | 311,378                 | 356,599                 |
| Muktsar                  | 116,747                 | 153,333                 | 191,292                 | 229,734                 | 265,881                 |
| Moga                     | 163,397                 | 191,610                 | 218,074                 | 242,683                 | 263,341                 |
| Malerkotla               | 135,424                 | 165,264                 | 194,686                 | 223,281                 | 248,810                 |
| Kharar                   | 74,460                  | 111,775                 | 152,198                 | 194,468                 | 235,725                 |
| Khanna                   | 128,137                 | 154,037                 | 179,167                 | 203,259                 | 224,374                 |
| Hoshiarpur               | 168,653                 | 185,091                 | 197,699                 | 206,996                 | 211,808                 |
| Abohar                   | 145,302                 | 165,284                 | 182,897                 | 198,297                 | 210,020                 |
| Barnala                  | 116,449                 | 136,285                 | 154,832                 | 172,027                 | 186,398                 |
| Gobindgarh               | 82,266                  | 105,861                 | 130,075                 | 154,389                 | 177,016                 |
| Batala                   | 158,621                 | 165,102                 | 166,547                 | 163,889                 | 156,725                 |
| Firozpur                 | 110,313                 | 124,123                 | 135,916                 | 145,880                 | 153,008                 |
| Kapurthala               | 98,916                  | 111,204                 | 121,669                 | 130,483                 | 136,752                 |
| Kotkapura                | 91,979                  | 102,005                 | 110,112                 | 116,530                 | 120,537                 |
| Sunam Udham Singh Wala   | 69,069                  | 82,173                  | 94,725                  | 106,623                 | 116,890                 |
| Sangrur                  | 88,043                  | 96,805                  | 103,597                 | 108,680                 | 111,427                 |
| Malout                   | 81,406                  | 91,207                  | 99,457                  | 106,315                 | 111,067                 |
| Mansa                    | 82,956                  | 92,293                  | 99,947                  | 106,109                 | 110,106                 |
| Rajpura                  | 92,301                  | 99,977                  | 105,345                 | 108,757                 | 109,671                 |
| Tarn Taran               | 66,847                  | 77,829                  | 88,006                  | 97,363                  | 105,085                 |

contd.

| Name of the Towns | 2011 <sup>*</sup> | 2021 <sup>#</sup> | 2031 <sup>#</sup> | 2041 <sup>#</sup> | 2051 <sup>#</sup> |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Gurdaspur         | 77,928            | 86,426            | 93,299            | 98,742            | 102,141           |
| Faridkot          | 87,695            | 94,350            | 98,711            | 101,143           | 101,181           |
| Fazilka           | 76,492            | 84,522            | 90,906            | 95,851            | 98,781            |
| Sirhind           | 58,097            | 65,948            | 72,829            | 78,811            | 83,318            |
| Samana            | 54,072            | 61,102            | 67,186            | 72,402            | 76,237            |
| Nabha             | 67,972            | 72,475            | 75,096            | 76,148            | 75,325            |
| Rupnagar          | 56,038            | 62,221            | 67,247            | 71,252            | 73,790            |
| Jagraon           | 65,240            | 68,839            | 70,516            | 70,609            | 68,878            |
| Rampura Phul      | 51,023            | 56,772            | 61,487            | 65,285            | 67,752            |
| Dhuri             | 55,225            | 60,105            | 63,651            | 66,058            | 66,979            |
| Pathankot         | 156,306           | 140,223           | 115,591           | 84,442            | 48,131            |
| Phagwara          | 97,864            | 87,938            | 72,682            | 53,361            | 30,812            |
| Firozpur Cantt.   | 53,199            | 45,158            | 33,798            | 19,937            | 4,237             |
| Naya Gaon         | 50,869            | DNA               | DNA               | DNA               | DNA               |

**Source:** \* - Towns and Urban Agglomerations Classified by Population Class in 2011 with Variations since 1901, A-4, Census of India, 2011, RGI.

**Note:** # - Author's calculations.

DNA - Data not available for the purpose of making population projections.

Towns are ranked in descending order according to their projected population in 2051.

No metropolitan city will be added before 2051, apart from the three such cities of Ludhiana, Amritsar and Jalandhar in 2021. An aberration in the population projection for the town of Firozpur Cantt is observed by means of this technique. Firozpur's population is imperfectly projected to decrease at an incredible rate during 2011-2051. The population of Firozpur cantt declined from 57,678 in 2001 to 53,199 in 2011. This trend, when carried forward, understated the population growth rate for 2011-2051. This highlights the necessity of choosing the right technique for projecting the population. In this case, one must ignore the projection of the population of the town of Firozpur Cantt using this technique.

### Urban-Rural Growth Differentials

The United Nations Population Division has developed the Urban-Rural Growth Differential (URGD) technique for planning and estimating urban populations. The technique here is a variation of the URGD technique, which possesses a high degree of respectability for projecting the population of a sub-system.

The method assumes that the growth behaviour of the sub-system, that is Amritsar city, and that of the whole of which it forms a part, that is the state of Punjab, complement each other, "If the former records a faster growth rate through net in-migration, this is construed as happening at the cost of the rest of the system, which is seen as losing in the process of migration. An opposite picture will prevail if the sub-national area/state is making a population growth rate lower than its rate of natural increase. Essentially, the method takes into

account the difference in growth rates of the sub-national area/state and the rest of the system, and projects population for the former". The technique invokes a greater role for migration (Krishan, 1994, p. 14).

The growth differential requires population figures for the city of Amritsar for two census periods and the projected population of Punjab for the years for which projections are to be made. The projections for Punjab were extracted from the Report of the Population Foundation of India and Population Reference Bureau, August 2007. In addition, the decennial census data were interpolated to obtain the figures at five-year intervals, which is the requirement of this method. The following is a detailed description of the technique.

## Steps

- i)
 

|                                                   |   |            |
|---------------------------------------------------|---|------------|
| Amritsar's 2010 population (Amr <sub>2010</sub> ) | = | 1,142,672  |
| Amritsar's 2005 population (Amr <sub>2005</sub> ) | = | 1,063,374  |
| Punjab's 2010 population (Pun <sub>2010</sub> )   | = | 27,384,750 |
| Punjab's 2005 population (Pun <sub>2005</sub> )   | = | 25,660,147 |
  
- ii) Amritsar's compound annual growth rate (CAGR) during 2005-2010 in unit fraction was worked out as follows:
 

|            |   |                                                   |
|------------|---|---------------------------------------------------|
| CAGR (Amr) | = | $(\text{Amr}_{2010}/\text{Amr}_{2005})^{1/5} - 1$ |
|            | = | $(1,142,672/1,063,374)^{1/5} - 1$                 |
|            | = | $(1.07457155)^{1/5} - 1$                          |
|            | = | 1.014488 - 1                                      |
|            | = | 0.014488                                          |
  
- iii) The CAGR of non-Amr has been worked out.
 

|                |   |                                                                                             |
|----------------|---|---------------------------------------------------------------------------------------------|
| CAGR (Non-Amr) | = | $[(\text{Pun}_{2010}-\text{Amr}_{2010}) / (\text{Pun}_{2005}-\text{Amr}_{2005})]^{1/5} - 1$ |
|                | = | $[(27,384,750- 1,142,672) / (25,660,147-1,063,374)]^{1/5} - 1$                              |
|                | = | $(26,242,078 / 24,596,773)^{1/5} - 1$                                                       |
|                | = | $(1.0668910)^{1/5} - 1$                                                                     |
|                | = | 1.013034 - 1                                                                                |
|                | = | 0.013034                                                                                    |
  
- iv) The difference between the two growth rates (D) that is of Amritsar and Non-Amritsar was found as follows:
 

|   |   |                       |
|---|---|-----------------------|
| D | = | 0.014488 - (0.013034) |
|   | = | 0.001454              |
  
- v) Amritsar's population was projected by solving two equations A and B.
 

|   |   |                                                                       |
|---|---|-----------------------------------------------------------------------|
| A | = | $(\text{Amr}_{2010} / \text{Non-Amr}_{2010}) \times e^{(5 \times D)}$ |
|   | = | $(1,142,672 / 26,242,078) \times e^{(5 \times 0.001454)}$             |
|   | = | $(0.0435435) \times 1.0072983$                                        |
|   | = | 0.0438613 ..... equation 1                                            |

- $$\begin{aligned}
 B &= [A / (1+A)] \dots\dots\dots \text{equation 2} \\
 &= [0.0438613 / 1.0438613] \\
 &= 0.0420183 \\
 \text{Amr}_{2015} &= B \times \text{Non-Amr}_{2015} \\
 &= 0.0420183 \quad \times \quad 28,919,368 \\
 &= 1,215,143
 \end{aligned}$$
- vi) The population projection procedure for subsequent years of 2020, 2025, 2030, 2035, 2040, 2045, 2050 and 2055 was adopted.
- vii) Figures for individual years were obtained through interpolation. Using the interpolation technique, the population of Amritsar is projected as 1,301,408 for the year 2021, 1,426,398 for 2031, 1,531,788 for 2041 and 1,609,294 for 2051. A similar exercise was done to obtain the population of the remaining towns up to the year 2051 using this technique. Table-4 depicts the results obtained by this technique.

The population of the city of Amritsar is expected to be 1,301,408 in 2021, representing an additional 142,181 persons to the recorded population of 1,159,227 in 2011. Within about four decades, the population of the city of Amritsar is expected to grow 1.39 folds. This technique estimates the population of the city of Amritsar at 1,609,294 in 2051. During 2011-2051, the population of the city of Ludhiana is likely to expand by 1.4 times, that of Jalandhar by 1.7 times and that of Patiala by 1.3 times.

This technique also anticipates that in three towns of Pathankot (class I), Phagwara and Firozpur cantt (class II) there would be a constant absolute decline in their population over each of the successive decades during 2011 and 2051. The population projection of these three towns is consistent with the ratio technique. However, this technique predicts that the population of the town of Batala will increase slightly during 2011 and 2051 in contrast to the ratio technique in which it declined during the same period.

None of the 16 class I towns are expected to lose their status as class I towns over the 2011-2051 period. Of course, Pathankot will be the only city that is likely to undergo a population decline from 156,306 in 2011 to 101,269 in 2051, a decrease of 55,037 persons. On the other hand, 12 class II towns are likely to become class I towns within the same period. The class II town of Kapurthala is expected to attain class I status in 2012, when its population rises to 100,064. Likewise, Kharar will become a class I city in 2017, Gobindgarh in 2018 and Kotkapura in 2020.

Jalandhar is expected to grow as a metropolitan city by 2020 when its population will increase to 1,012,158 persons. This addition of Jalandhar as a metropolitan city is similar to what is projected by the ratio technique. However,

the projections made by the URGD technique have diverged in the sense that the city of Patiala is likely to acquire the status of a metropolitan city in 2040. By this year, the population of the city Patiala should increase to 1,013,653. This means that the number of metropolitan cities in Punjab will double over the course of 2011-2041 and they will remain so until 2051.

**Table-4**  
**Projected Population of Class I and II Towns in Punjab by Urban-Rural**  
**Growth Differential Technique: 2011 to 2051**

| <b>Name of the Towns</b>  | <b>2011<sup>*</sup></b> | <b>2021<sup>#</sup></b> | <b>2031<sup>#</sup></b> | <b>2041<sup>#</sup></b> | <b>2051<sup>#</sup></b> |
|---------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Ludhiana                  | 1,618,879               | 1,822,110               | 2,002,333               | 2,155,979               | 2,271,132               |
| Amritsar                  | 1,159,227               | 1,301,408               | 1,426,398               | 1,531,788               | 1,609,294               |
| Jalandhar                 | 868,929                 | 1,029,464               | 1,192,239               | 1,354,301               | 1,506,313               |
| Patiala                   | 446,246                 | 601,769                 | 797,286                 | 1,041,059               | 1,336,547               |
| Kharar                    | 74,460                  | 130,945                 | 231,386                 | 413,011                 | 743,228                 |
| Bathinda                  | 285,788                 | 367,184                 | 462,587                 | 573,321                 | 697,623                 |
| S.A.S. Nagar (Mohali)     | 166,864                 | 220,549                 | 286,260                 | 366,077                 | 460,307                 |
| Muktsar                   | 116,747                 | 159,660                 | 214,833                 | 285,388                 | 373,505                 |
| Malerkotla                | 135,424                 | 167,128                 | 201,931                 | 239,673                 | 278,929                 |
| Moga                      | 163,397                 | 192,128                 | 220,814                 | 248,912                 | 274,737                 |
| Khanna                    | 128,137                 | 155,190                 | 183,891                 | 213,909                 | 243,837                 |
| Gobindgarh                | 82,266                  | 109,126                 | 142,195                 | 182,625                 | 230,719                 |
| Abohar                    | 145,302                 | 165,138                 | 183,284                 | 199,359                 | 212,184                 |
| Hoshiarpur                | 168,653                 | 184,671                 | 197,328                 | 206,514                 | 211,385                 |
| Barnala                   | 116,449                 | 136,613                 | 156,643                 | 176,152                 | 193,954                 |
| Batala                    | 158,621                 | 165,208                 | 167,816                 | 166,893                 | 162,307                 |
| Firozpur                  | 110,313                 | 123,922                 | 135,913                 | 146,054                 | 153,551                 |
| Kapurthala                | 98,916                  | 111,019                 | 121,650                 | 130,605                 | 137,180                 |
| Sunam Udham Singh<br>Wala | 69,069                  | 82,608                  | 96,624                  | 110,906                 | 124,703                 |
| Kotkapura                 | 91,979                  | 101,785                 | 109,936                 | 116,313                 | 120,372                 |
| Malout                    | 81,406                  | 91,040                  | 99,394                  | 106,315                 | 111,247                 |
| Sangrur                   | 88,043                  | 96,586                  | 103,402                 | 108,424                 | 111,197                 |
| Mansa                     | 82,956                  | 92,101                  | 99,809                  | 105,957                 | 110,031                 |
| Rajpura                   | 92,301                  | 99,770                  | 105,219                 | 108,666                 | 109,755                 |
| Tarn Taran                | 66,847                  | 77,958                  | 88,844                  | 99,287                  | 108,626                 |
| Gurdaspur                 | 77,928                  | 86,240                  | 93,150                  | 98,558                  | 102,003                 |
| Faridkot                  | 87,695                  | 94,178                  | 98,670                  | 101,229                 | 101,562                 |
| Pathankot                 | 156,306                 | 145,057                 | 131,340                 | 116,540                 | 101,269                 |
| Fazilka                   | 76,492                  | 84,333                  | 90,744                  | 95,641                  | 98,597                  |
| Sirhind                   | 58,097                  | 65,879                  | 72,949                  | 79,161                  | 84,052                  |
| Samana                    | 54,072                  | 61,019                  | 67,235                  | 72,594                  | 76,686                  |
| Nabha                     | 67,972                  | 72,376                  | 75,177                  | 76,458                  | 76,044                  |
| Rupnagar                  | 56,038                  | 62,088                  | 67,144                  | 71,130                  | 73,706                  |
| Jagraon                   | 65,240                  | 68,797                  | 70,761                  | 71,262                  | 70,179                  |

contd.

| Name of the Towns | 2011 <sup>*</sup> | 2021 <sup>#</sup> | 2031 <sup>#</sup> | 2041 <sup>#</sup> | 2051 <sup>#</sup> |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Rampura Phul      | 51,023            | 56,654            | 61,403            | 65,193            | 67,708            |
| Dhuri             | 55,225            | 59,974            | 63,551            | 65,949            | 66,932            |
| Phagwara          | 97,864            | 90,927            | 82,427            | 73,229            | 63,713            |
| Firozpur Cantt.   | 53,199            | 47,657            | 41,684            | 35,763            | 30,078            |
| Zirakpur          | 95,553            | 323,045           | 1,217,855         | 4,961,491         | 16,748,726        |
| Naya Gaon         | 50,869            | DNA               | DNA               | DNA               | DNA               |

**Source:** \* - *Towns and Urban Agglomerations Classified by Population Class in 2011 with Variations since 1901, A-4*, Census of India, 2011, RGI.

**Note:** # - Author's calculations.

DNA - Data Not Available for the purpose of making population projections.

Towns are ranked in descending order according to their projected population in 2051.

An aberration in the population projection for the town of Zirakpur is observed by means of this technique. Zirakpur's population is wrongly projected to grow at an incredible rate during 2011-2051. It will grow 175 folds during 2011-2051. New construction activities increased the population by three times between 2001-2011 periods. This trend, when carried forward, overstated the population growth rate for 2051. This is contrary to overall assumptions that there will not be any run away of population in the short-term. This highlights the necessity of choosing the right technique for projecting the population. In this case, one must ignore the projection of the population of the town of Zirakpur.

### Compound Annual Growth Rate

This method is based on the assumption that in a given set up, the population growth behaviour is likely to extend both in the direction (increase/decrease) and extent (quantum) in future also, at least in the short run. The underlying conviction is that the basic determinants of population growth, namely fertility, mortality and migration, do not change suddenly in their level and direction. This has proven to be the case for large population systems. This technique is not very reliable when applied to smaller population systems (Krishan, 1994, p. 18).

Data requirements for this technique include population figures for the sub-national area, in this case Amritsar, for the most recent and most numerous previous census years. In this technique, the population projections for the sub-national area are independent of what is going on in the broader system.

The steps followed for projecting the population of the Amritsar city are listed below:

#### Steps

- i) The compound annual growth rate (CAGR) was referred to the following formula:

$$\text{CAGR} = [(p_1 / p_0)^{1/t} - 1] \times 100$$

- (ii) An exceptional event, such as a short-term construction project is likely to affect population growth behaviour over a given decade. To mitigate the impact of this situation, compound annual growth rates were calculated for the preceding three decades (1981-2011), two decades (1991-2011) and one decade (2001-2011). The results were applied to the base population and an average of the three results was achieved thereafter.

$$\begin{aligned}
 \text{CAGR of 1981 – 2011} &= [ (p_{2011} / p_{1981})^{1/t} - 1 ] \times 100 \\
 &= [ (1,159,227 / 594,844)^{1/30} - 1 ] \times 100 \\
 &= 2.25 \text{ per cent ..... (a)} \\
 \text{CAGR of 1991 – 2011} &= [ (p_{2011} / p_{1991})^{1/t} - 1 ] \times 100 \\
 &= [ (1,159,227 / 708,835)^{1/20} - 1 ] \times 100 \\
 &= 2.49 \text{ per cent ..... (b)} \\
 \text{CAGR of 2001 – 2011} &= [ (p_{2011} / p_{2001})^{1/t} - 1 ] \times 100 \\
 &= [ (1,159,227 / 1,003,917)^{1/10} - 1 ] \times 100 \\
 &= 1.45 \text{ per cent ..... (c)}
 \end{aligned}$$

Hence :

- a. With CAGR of 1981-2011 at 2.25 per cent

$$\begin{aligned}
 P_{2021} &= P_{2011} \times [(100 + \text{CAGR}) / 100]^{10} \\
 &= 1,159,227 \times [100+2.25/100]^{10} \\
 &= 8,495,492 \times [102.25/100]^{10} \\
 &= 8,495,492 \times 1.2490749 \\
 &= 1,447,961 \text{ ..... (a)}
 \end{aligned}$$

- b. With CAGR of 1991 – 2011 at 2.49 per cent

$$\begin{aligned}
 P_{2021} &= 1,159,227 \times [100+2.49/100]^{10} \\
 &= 1,159,227 \times [102.49/100]^{10} \\
 &= 1,159,227 \times 1.2788266 \\
 &= 1,482,450 \text{ ..... (b)}
 \end{aligned}$$

- c. With CAGR of 2001 – 2011 at 1.45 per cent

$$\begin{aligned}
 P_{2021} &= 1,159,227 \times [100+1.45/100]^{10} \\
 &= 1,159,227 \times [101.45/100]^{10} \\
 &= 1,159,227 \times 1.1547040 \\
 &= 1,338,564 \text{ ..... (c)}
 \end{aligned}$$

The average of a, b and c (1,447,961, 1,482,450 and 1,338,564) works out to be 1,422,992. This is the projected population of the city of Amritsar for 2021.

A similar procedure was adopted for projecting the population of Amritsar city for the years 2031, 2041 and 2051. In order to predict the populations for intermediate years on an annual basis, the interpolation could be used. With this technique, the population of the city of Amritsar is projected to reach 2,598,826 persons by 2051. A similar exercise was carried out to obtain the population of other towns for the year 2051 by means of this technique. Table-5 provides the results obtained.

According to the CAGR technique, the population of the town of Firozpur Cantt will decrease from 53,199 in 2011 to 50,079 in 2051. None of the 16 class I cities are estimated to experience a population decline during the same period. On the contrary, 20 class II towns out of a total of 22 towns of this class in 2011 will be upgraded to class I towns with the exception of Rampura Phul and Firozpur cant. It is expected that Kapurthala will move from class II to class I town by 2012. Among the other class II towns, Kotkapura is expected to become a class I town in 2016, Kharar in 2017, Sangrur, Rajpura and Phagwara in 2018 and Faridkot in 2019.

Patiala will be a metropolitan city in 2039 when its population reaches to 1,006,620. Altogether, the number of metropolitan cities is expected to double from two in 2011 to four in 2051. Among these four metropolitan cities, the population of Patiala is expected to increase by 3.2 times, Jalandhar by 2.6 times, Ludhiana by 2.4 times and Amritsar by 2.2 times.

This technique seems to have an inflating tendency probably because of the increasing base of population year by year. This is evident from the fact that Kharar's population is expected to increase from 74,460 in 2011 to 580,891 in 2051; a 7.8 fold increase. That does not seem to be reality.

**Table-5**  
**Projected Population of Class I and II Towns in Punjab by Compound Annual Growth Rate Technique: 2011 to 2051**

| Name of the Towns     | 2011 <sup>*</sup> | 2021 <sup>#</sup> | 2031 <sup>#</sup> | 2041 <sup>#</sup> | 2051 <sup>#</sup> |
|-----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Ludhiana              | 1,618,879         | 2,045,376         | 2,539,415         | 3,143,787         | 3,903,929         |
| Amritsar              | 1,159,227         | 1,422,992         | 1,745,344         | 2,126,991         | 2,598,826         |
| Jalandhar             | 868,929           | 1,103,297         | 1,399,888         | 1,768,360         | 2,237,848         |
| Patiala               | 446,246           | 594,609           | 795,929           | 1,067,489         | 1,429,891         |
| Bathinda              | 285,788           | 377,728           | 500,425           | 662,021           | 876,061           |
| S.A.S. Nagar (Mohali) | 166,864           | 252,379           | 371,695           | 546,283           | 805,913           |
| Kharar                | 74,460            | 122,991           | 206,359           | 346,596           | 580,891           |

contd.

| Name of the Towns         | 2011 <sup>*</sup> | 2021 <sup>#</sup> | 2031 <sup>#</sup> | 2041 <sup>#</sup> | 2051 <sup>#</sup> |
|---------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Muktsar                   | 116,747           | 157,226           | 212,288           | 287,485           | 388,759           |
| Moga                      | 163,397           | 200,908           | 245,580           | 300,279           | 367,358           |
| Khanna                    | 128,137           | 167,124           | 217,347           | 281,474           | 365,237           |
| Malerkotla                | 135,424           | 170,370           | 213,721           | 268,580           | 337,394           |
| Hoshiarpur                | 168,653           | 199,720           | 234,052           | 273,891           | 321,064           |
| Gobindgarh                | 82,266            | 115,462           | 160,999           | 224,204           | 312,607           |
| Barnala                   | 116,449           | 148,832           | 187,204           | 235,400           | 296,566           |
| Batala                    | 158,621           | 183,480           | 212,923           | 244,740           | 282,258           |
| Abohar                    | 145,302           | 170,610           | 199,797           | 234,094           | 274,306           |
| Firozpur                  | 110,313           | 130,769           | 154,308           | 181,891           | 214,603           |
| Kapurthala                | 98,916            | 120,183           | 145,397           | 175,202           | 211,544           |
| Pathankot                 | 156,306           | 165,956           | 174,790           | 182,551           | 191,454           |
| Kotkapura                 | 91,979            | 110,324           | 131,546           | 156,308           | 186,104           |
| Sangrur                   | 88,043            | 106,439           | 128,181           | 153,433           | 184,172           |
| Faridkot                  | 87,695            | 105,307           | 125,268           | 148,203           | 175,893           |
| Mansa                     | 82,956            | 99,864            | 119,695           | 142,875           | 170,901           |
| Malout                    | 81,406            | 97,918            | 116,774           | 139,038           | 165,808           |
| Sunam Udham Singh<br>Wala | 69,069            | 85,705            | 106,416           | 131,944           | 163,676           |
| Gurdaspur                 | 77,928            | 93,143            | 110,397           | 130,572           | 154,705           |
| Rajpura                   | 92,301            | 105,106           | 119,264           | 135,169           | 153,325           |
| Sirhind                   | 58,097            | 73,208            | 92,889            | 116,546           | 146,756           |
| Tarn Taran                | 66,847            | 80,288            | 96,123            | 115,194           | 138,046           |
| Fazilka                   | 76,492            | 88,963            | 102,746           | 118,659           | 137,146           |
| Rupnagar                  | 56,038            | 68,370            | 82,402            | 99,041            | 119,330           |
| Dhuri                     | 55,225            | 66,275            | 78,824            | 93,342            | 110,832           |
| Jagraon                   | 65,240            | 74,801            | 85,444            | 97,157            | 110,717           |
| Samana                    | 54,072            | 64,470            | 76,864            | 91,370            | 108,739           |
| Phagwara                  | 97,864            | 101,057           | 103,505           | 105,462           | 107,772           |
| Nabha                     | 67,972            | 75,983            | 84,659            | 94,243            | 104,987           |
| Rampura Phul              | 51,023            | 59,702            | 69,953            | 81,703            | 95,530            |
| Firozpur Cantt.           | 53,199            | 52,902            | 52,036            | 50,977            | 50,079            |
| Naya Gaon                 | 50,869            | DNA               | DNA               | DNA               | DNA               |
| Zirakpur                  | 95,553            | DNA               | DNA               | DNA               | DNA               |

**Source:** \* - Towns and Urban Agglomerations Classified by Population Class in 2011 with Variations since 1901, A-4, Census of India, 2011, RGI.

**Note:** # - Author's calculations.

DNA - Data Not Available for the purpose of making population projections.

Towns are ranked in descending order according to their projected population in 2051.

## Extrapolation

This technique is based on the same reasoning principle as the compound annual growth rate method. However, there is a significant difference in the way it operates. Here population growth or reduction is computed in absolute terms rather than in terms of rate. A rationale underlying this technique is that any numerical rise in the contribution made by a natural increase, associated with a successively bigger base over the year, will be counter-balanced by a decrease in the net in-migration.

The working of the technique can be demonstrated in the case of the holy city of Amritsar as follows:

$$\begin{aligned}
 P_{2021} &= (2 \times P_{2011}) - P_{2001} \\
 &= (2 \times 1,159,227) - 1,003,917 \\
 &= 2,318,454 - 1,003,917 \\
 &= 1,314,537
 \end{aligned}$$

**Table-6**  
**Projected Population of Class I and II Towns in Punjab by Extrapolation**  
**Technique: 2011 to 2051**

| Name of Towns         | 2011 <sup>*</sup> | 2021 <sup>#</sup> | 2031 <sup>#</sup> | 2041 <sup>#</sup> | 2051 <sup>#</sup> |
|-----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Ludhiana              | 1,618,879         | 1,839,291         | 2,059,703         | 2,280,115         | 2,500,527         |
| Amritsar              | 1,159,227         | 1,314,537         | 1,469,847         | 1,625,157         | 1,780,467         |
| Jalandhar             | 868,929           | 1,023,781         | 1,178,633         | 1,333,485         | 1,488,337         |
| Patiala               | 446,246           | 568,608           | 690,970           | 813,332           | 935,694           |
| Bathinda              | 285,788           | 354,320           | 422,852           | 491,384           | 559,916           |
| Zirakpur              | 95,553            | 160,218           | 224,883           | 289,548           | 354,213           |
| S.A.S. Nagar (Mohali) | 166,864           | 210,244           | 253,624           | 297,004           | 340,384           |
| Moga                  | 163,397           | 191,515           | 219,633           | 247,751           | 275,869           |
| Muktsar               | 116,747           | 149,839           | 182,931           | 216,023           | 249,115           |
| Malerkotla            | 135,424           | 163,839           | 192,254           | 220,669           | 249,084           |
| Hoshiarpur            | 168,653           | 187,638           | 206,623           | 225,608           | 244,593           |
| Abohar                | 145,302           | 166,265           | 187,228           | 208,191           | 229,154           |
| Khanna                | 128,137           | 153,175           | 178,213           | 203,251           | 228,289           |
| Kharar                | 74,460            | 106,631           | 138,802           | 170,973           | 203,144           |
| Batala                | 158,621           | 169,370           | 180,119           | 190,868           | 201,617           |
| Barnala               | 116,449           | 136,274           | 156,099           | 175,924           | 195,749           |
| Firozpur              | 110,313           | 125,151           | 139,989           | 154,827           | 169,665           |

contd.

| Name of Towns          | 2011 *  | 2021 <sup>#</sup> | 2031 <sup>#</sup> | 2041 <sup>#</sup> | 2051 <sup>#</sup> |
|------------------------|---------|-------------------|-------------------|-------------------|-------------------|
| Gobindgarh             | 82,266  | 103,855           | 125,444           | 147,033           | 168,622           |
| Kapurthala             | 98,916  | 112,146           | 125,376           | 138,606           | 151,836           |
| Kotkapura              | 91,979  | 103,173           | 114,367           | 125,561           | 136,755           |
| Rajpura                | 92,301  | 101,646           | 110,991           | 120,336           | 129,681           |
| Sangrur                | 88,043  | 98,097            | 108,151           | 118,205           | 128,259           |
| Pathankot              | 156,306 | 149,115           | 141,924           | 134,733           | 127,542           |
| Mansa                  | 82,956  | 93,285            | 103,614           | 113,943           | 124,272           |
| Malout                 | 81,406  | 92,047            | 102,688           | 113,329           | 123,970           |
| Faridkot               | 87,695  | 96,069            | 104,443           | 112,817           | 121,191           |
| Sunam Udham Singh Wala | 69,069  | 81,887            | 94,705            | 107,523           | 120,341           |
| Gurdaspur              | 77,928  | 87,415            | 96,902            | 106,389           | 115,876           |
| Fazilka                | 76,492  | 85,557            | 94,622            | 103,687           | 112,752           |
| Tarn Taran             | 66,847  | 77,907            | 88,967            | 100,027           | 111,087           |
| Nabha                  | 67,972  | 73,944            | 79,916            | 85,888            | 91,860            |
| Sirhind                | 58,097  | 66,369            | 74,641            | 82,913            | 91,185            |
| Jagraon                | 65,240  | 70,400            | 75,560            | 80,720            | 85,880            |
| Samana                 | 54,072  | 61,552            | 69,032            | 76,512            | 83,992            |
| Rupnagar               | 56,038  | 62,917            | 69,796            | 76,675            | 83,554            |
| Phagwara               | 97,864  | 93,475            | 89,086            | 84,697            | 80,308            |
| Dhuri                  | 55,225  | 61,044            | 66,863            | 72,682            | 78,501            |
| Rampura Phul           | 51,023  | 57,381            | 63,739            | 70,097            | 76,455            |
| Firozpur Cantt.        | 53,199  | 48,720            | 44,241            | 39,762            | 35,283            |
| Naya Gaon              | 50,869  | DNA               | DNA               | DNA               | DNA               |

**Source:** \* - *Towns and Urban Agglomerations Classified by Population Class in 2011 with Variations since 1901, A-4, Census of India, 2011, RGI.*

**Note:** # - Author's calculations.

DNA - Data Not Available for the purpose of making population projections.

Towns are ranked in descending order according to their projected population in 2051.

$$\begin{aligned}
 P_{2031} &= (2 \times P_{2021}) - P_{2011} \\
 &= (2 \times 1,314,537) - 1,159,227 \\
 &= 2,629,074 - 1,159,227 \\
 &= 1,469,847
 \end{aligned}$$

$$\begin{aligned}
P_{2041} &= (2 \times P_{2031}) - P_{2021} \\
&= (2 \times 1,469,847) - 1,314,537 \\
&= 2,939,694 - 1,314,537 \\
&= 1,625,157 \\
P_{2051} &= (2 \times P_{2041}) - P_{2031} \\
&= (2 \times 1,625,157) - 1,469,847 \\
&= 3,250,314 - 1,469,847 \\
&= 1,780,467
\end{aligned}$$

Hence, the estimated population for the city of Amritsar for the year 2051 is 1,780,467. Similar procedure has been followed to project the population of remaining towns. Table-6 represents the results obtained in detail.

The extrapolation technique also predicts an absolute decline in the population of three towns of Pathankot (class I) and Phagwara and Firozpur Cantt. (class II) over each of the successive decades from 2011-2051. These estimates are consistent with population projections made by ratio technique for these towns. Similarly, the city of Jalandhar will emerge as a metropolitan city in 2020 when its population is expected to reach 1,007,128. The number of metropolitan cities will continue to be three until 2051. However, contrary to the ratio technique, this technique predicts that no city will lose its class I status until 2051.

This technique predicts that the class II town of Kapurthala will attain class I status in 2012, Kotkapura in 2019, and Rajpura and Kharar in 2020. By 2051, it is projected that a total of 13 class II towns in 2011 will achieve class I status. Evidently, the projected figures seem to be depressed due to a perceived net in-migration constraint.

### **Population Projections: A Comparative View**

A point has been reached where results from different techniques can be compared. Table-7 provides the final estimates for class I and class II towns in Punjab over the years 2011-2051 on a decadal basis. The population figures for the city of Amritsar as projected by the ratio, the growth differential, and the extrapolation techniques are quite similar to each other. Population projections for class I and class II towns using these three techniques were calculated to obtain reliable projection figures.

Based on the final projections obtained by computing the population average using three techniques, the population of Amritsar is projected to grow from 1,159,227 in 2011 to 1,664,658 in 2051. In four decades, the population of the city of Amritsar and Ludhiana will grow by 1.4 times, Jalandhar by 1.7 times

and Patiala by 2.4 times. Jalandhar is anticipated to expand as a metropolitan city by 2020 when its population grows to 1,009,368. Furthermore, Patiala is predicted to acquire as a metropolitan city in 2047 when the population will grow to 1,010,652 persons. Consequently, the metropolitan cities in Punjab are expected to double in 2011-2051.

The population figures of three towns of Pathankot (class I), Phagwara and Firozpur Cantt. (class II) are projected to decline steadily during 2011-2051. It is interesting to note that the class I town of Pathankot in 2011 is expected to lose its status in 2047 as its population will decline to 99,701. It is also expected that 13 of the 22 class II towns in 2011 will attain class I status by 2051. Kapurthala, a class II town in 2011, is anticipated to be upgraded from class II to class I town by 2012, Kharar by 2018, Kapurthala and Gobindgarh by 2019 and Rajpura by 2021.

**Table-7**  
**Projected Population of Class I and II Towns in Punjab by Different**  
**Techniques: Average of Ratio, Growth Differential and Extrapolation**  
**Techniques, 2011-2051**

| Name of towns         | 2011*     | 2021 <sup>#</sup> | 2031 <sup>#</sup> | 2041 <sup>#</sup> | 2051 <sup>#</sup> | Rank in 2011 | Rank in 2051 | Change in Ranking During 2011 and 2051 |
|-----------------------|-----------|-------------------|-------------------|-------------------|-------------------|--------------|--------------|----------------------------------------|
| Ludhiana              | 1,618,879 | 1,828,768         | 2,021,300         | 2,196,149         | 2,344,335         | 1            | 1            | 0                                      |
| Amritsar              | 1,159,227 | 1,306,505         | 1,440,947         | 1,562,419         | 1,664,658         | 2            | 2            | 0                                      |
| Jalandhar             | 868,929   | 1,026,311         | 1,181,698         | 1,333,805         | 1,475,632         | 3            | 3            | 0                                      |
| Patiala               | 446,246   | 583,750           | 736,059           | 904,876           | 1,087,953         | 4            | 4            | 0                                      |
| Bathinda              | 285,788   | 360,363           | 439,889           | 524,341           | 611,274           | 5            | 5            | 0                                      |
| Zirakpur <sup>s</sup> | 95,553    | 166,599           | 241,997           | 320,207           | 398,241           | 19           | 6            | 13                                     |
| Kharar                | 74,460    | 116,450           | 174,129           | 259,484           | 394,032           | 29           | 7            | 22                                     |
| S.A.S. Nagar (Mohali) | 166,864   | 214,999           | 267,534           | 324,820           | 385,763           | 7            | 8            | -1                                     |
| Muktsar               | 116,747   | 154,277           | 196,352           | 243,715           | 296,167           | 14           | 9            | 5                                      |
| Moga                  | 163,397   | 191,751           | 219,507           | 246,449           | 271,316           | 8            | 10           | -2                                     |
| Malerkotla            | 135,424   | 165,410           | 196,290           | 227,874           | 258,941           | 12           | 11           | 1                                      |
| Khanna                | 128,137   | 154,134           | 180,424           | 206,806           | 232,167           | 13           | 12           | 1                                      |
| Hoshiarpur            | 168,653   | 185,800           | 200,550           | 213,039           | 222,595           | 6            | 13           | -7                                     |
| Abohar                | 145,302   | 165,562           | 184,470           | 201,949           | 217,119           | 11           | 14           | -3                                     |
| Gobindgarh            | 82,266    | 106,281           | 132,571           | 161,349           | 192,119           | 25           | 15           | 10                                     |

contd.

| Name of towns                | 2011 <sup>*</sup> | 2021 <sup>#</sup> | 2031 <sup>#</sup> | 2041 <sup>#</sup> | 2051 <sup>#</sup> | Rank in 2011 | Rank in 2051 | Change in Ranking During 2011 and 2051 |
|------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------|--------------|----------------------------------------|
| Barnala                      | 116,449           | 136,391           | 155,858           | 174,701           | 192,034           | 15           | 16           | -1                                     |
| Batala                       | 158,621           | 166,560           | 171,494           | 173,883           | 173,550           | 9            | 17           | -8                                     |
| Firozpur                     | 110,313           | 124,399           | 137,273           | 148,920           | 158,741           | 16           | 18           | -2                                     |
| Kapurthala                   | 98,916            | 111,456           | 122,898           | 133,231           | 141,923           | 17           | 19           | -2                                     |
| Kotkapura                    | 91,979            | 102,321           | 111,472           | 119,468           | 125,888           | 21           | 20           | 1                                      |
| Sunam Udham Singh Wala       | 69,069            | 82,223            | 95,351            | 108,351           | 120,645           | 30           | 21           | 9                                      |
| Sangrur                      | 88,043            | 97,163            | 105,050           | 111,770           | 116,961           | 22           | 22           | 0                                      |
| Rajpura                      | 92,301            | 100,464           | 107,185           | 112,586           | 116,369           | 20           | 23           | -3                                     |
| Malout                       | 81,406            | 91,431            | 100,513           | 108,653           | 115,428           | 26           | 24           | 2                                      |
| Mansa                        | 82,956            | 92,560            | 101,123           | 108,670           | 114,803           | 24           | 25           | -1                                     |
| Tarn Taran                   | 66,847            | 77,898            | 88,606            | 98,892            | 108,266           | 32           | 26           | 6                                      |
| Faridkot                     | 87,695            | 94,866            | 100,608           | 105,063           | 107,978           | 23           | 27           | -4                                     |
| Gurdaspur                    | 77,928            | 86,694            | 94,450            | 101,230           | 106,673           | 27           | 28           | -1                                     |
| Fazilka                      | 76,492            | 84,804            | 92,091            | 98,393            | 103,377           | 28           | 29           | -1                                     |
| Pathankot                    | 156,306           | 144,798           | 129,618           | 111,905           | 92,314            | 10           | 30           | -20                                    |
| Sirhind                      | 58,097            | 66,065            | 73,473            | 80,295            | 86,185            | 34           | 31           | 3                                      |
| Nabha                        | 67,972            | 72,932            | 76,730            | 79,498            | 81,076            | 31           | 32           | -1                                     |
| Samana                       | 54,072            | 61,224            | 67,818            | 73,836            | 78,972            | 37           | 33           | 4                                      |
| Rupnagar                     | 56,038            | 62,409            | 68,062            | 73,019            | 77,017            | 35           | 34           | 1                                      |
| Jagraon                      | 65,240            | 69,345            | 72,279            | 74,197            | 74,979            | 33           | 35           | -2                                     |
| Dhuri                        | 55,225            | 60,374            | 64,688            | 68,230            | 70,804            | 36           | 36           | 0                                      |
| Rampura Phul                 | 51,023            | 56,936            | 62,210            | 66,858            | 70,638            | 39           | 37           | 2                                      |
| Phagwara                     | 97,864            | 90,780            | 81,398            | 70,429            | 58,278            | 18           | 38           | -20                                    |
| Firozpur Cantt. <sup>@</sup> | 53,199            | 48,189            | 42,963            | 37,763            | 32,680            | 38           | 39           | -1                                     |
| Naya Gaon                    | 50,869            | DNA               | DNA               | DNA               | DNA               |              |              |                                        |

**Source:** \* - Towns and Urban Agglomerations Classified by Population Class in 2011 with Variations since 1901, A-4, Census of India, 2011, RGI.

# - Author's calculations.

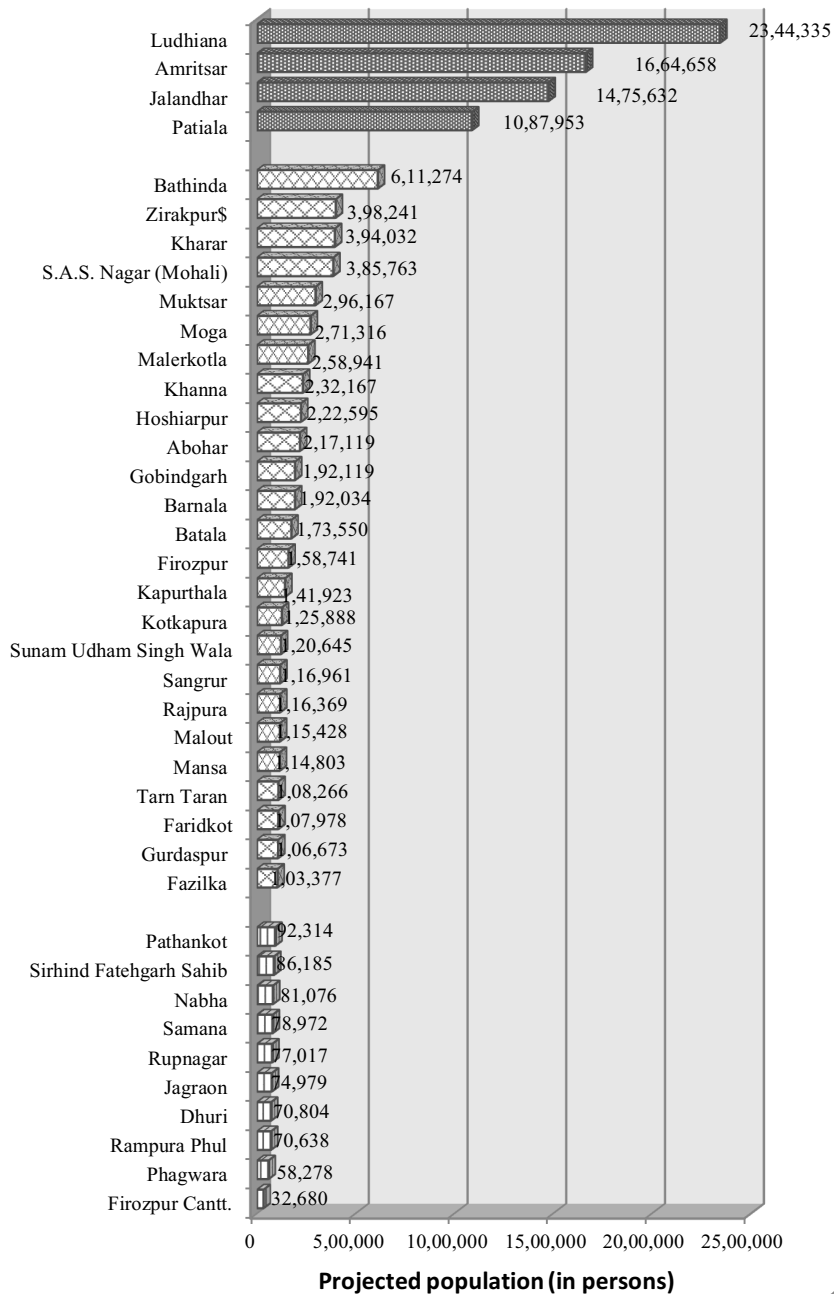
**Note:** \$ - Average of ratio and extrapolation techniques

@ - Average of URGD and extrapolation techniques

DNA - Data Not Available for the purpose of making population projections.

Towns are ranked in descending order according to their projected population in 2051.

### Projected Population of Class I and II Towns in Punjab : 2011-2051



In terms of ranking, the five top cities of Ludhiana, Amritsar, Jalandhar, Patiala and Bathinda in terms of population in 2011 will continue unaltered in 2051. The ranking of bottom class II towns will also not change significantly in 2011-2051 with the exception of the Phagwara town. Due to the decline in the absolute population of Phagwara over this period, its ranking is anticipated to decrease from 18<sup>th</sup> position in 2001 to 38<sup>th</sup> position in 2051. On the other hand, the ranking of the town of Kharar is expected to increase significantly from 29<sup>th</sup> position in 2011 to 7<sup>th</sup> position in 2051. Gobindgarh, Zirakpur and Pathankot will be three other towns with major deviations in their rankings. While the ranking of the town of Gobindgarh will increase from 24<sup>th</sup> position to 14<sup>th</sup> position, that of Zirakpur from 19<sup>th</sup> to 6<sup>th</sup> position but in the case of Pathankot town, it is likely that it will decrease from 10<sup>th</sup> position to 29<sup>th</sup> position.

### **Concluding Remarks**

It is estimated that class II towns will experience a higher rate of population growth in 2051 than class I towns in Punjab. The aggregate population of class I towns will increase from 5,945,282 in 2011 to 9,684,559 in 2051, while the corresponding numbers for class II towns will be 1,724,641 and 2,893,332. Evidently, the population of class I towns will increase by a multiple of 1.63, whereas that of class II towns will increase by 1.68 times over the same period. In terms of rate of population growth, it will be 1.2 per cent per annum in class I towns, compared with 1.3 per cent in class II towns.

At the disaggregated level, the population of the town of Kharar is expected to grow at the fastest rate of 4.25 per cent per annum from 2011 to 2051. In addition to Kharar, the population of four other towns, namely Muktsar (2.35), Patiala (2.25), Gobindgarh (2.14) and SAS Nagar (2.12), is expected to increase at the rate of more than two per cent per annum. The population of the two metropolitan cities of Ludhiana and Amritsar is expected to grow at a rate of 0.9 per cent per annum. At the other end is the town of Pathankot, which would experience highest negative population growth of 1.31 per cent per annum. Phagwara population will decrease by 1.29 per cent per annum and by 1.2 per cent per year in Firozpur Cantt.

Consequently, there would be a movement of town in each of the two size classes by 2051. Among the class I towns, Jalandhar will emerge new metropolitan city in 2021 and Patiala in 2051. The number of metropolitan cities will increase to four by 2051, in addition to already two metropolitan cities of Ludhiana and Amritsar in 2011. On the other hand, 14 of the 23 class II towns in 2011 are expected to graduate to class I towns in 2051. Of the 16 class I towns, only the city of Pathankot is likely to experience a negative population growth in 2011-2051. At the same time, two class II towns, Kapurthala and Firozpur, are also expected to grow negatively.

Demographic growth in class I and class II towns will exert massive pressure on the town's services, economics and infrastructure, particularly in the areas of public health, education, housing and employment scenario. This increase in population will have an impact on per capita requirements for public health, education, housing, and transportation infrastructure in the future. The civic administrations of these towns will therefore have to develop consistent and complementary policies that strategically address the growing demand for public services and infrastructure. In the absence of such policies, the higher population densities, poor housing and living conditions could negatively impact the health of these urban dwellers in these towns. In this respect, there is a need not only to meet the needs of future population, but also to enhance the quality of life. Successive future plans for these towns may take into consideration the estimated population size for the successive years until 2051.

## References

Bhagat, R.B. (2004). Dynamics of Urban Population Growth by Size Class of Towns and Cities in India, *Demography India*, 33(1), 47-60.

Krishan, Gopal (1994). *Chandigarh 2020: Projections of Population and Class Structure*. New Delhi: Swan Publishers.

Population Foundation of India and Population Reference Bureau (2007). *The Future Population of India, A Long-Range Demographic View*, August, 2007.

Registrar General of India and Census Commissioner (2011). *Census of India, 2011*, Office of the RGI and Census Commissioner, India, New Delhi.

Registrar General of India and Census Commissioner (2011). *Towns and Urban Agglomerations Classified by Population Class in 2011 with Variations since 1901, A-4*, Census of India, 2011, Office of the RGI and Census Commissioner, India, New Delhi.

Sharma, P.K. (2013). Population of Union Territory of Chandigarh: Projection from 2011 to 2025, *Man & Development*, Vol. 35 (1), 61-74.

United Nations (2019). *World Urbanization Prospects, 2018*, Department of Economic and Social Affairs, United Nations, New York, 2019.



## **DYNAMICS OF LABOUR SUPPLY AND THE AGRICULTURE LABOUR MARKET OF ‘KUTTANAD’ IN KERALA**

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**Abstract:** Labour market of Kerala has some unique features like a high rate of rural unemployment, a comparatively high rate of participation of women in the labour force, and a high wage rate for agricultural labour. There exists a paradoxical situation of rural unemployment and labour shortage in the agricultural labour market. The agriculture labour market of Kerala passed through various stages of evolution viz agrestic slavery, attached labour system, casual labour system and multiple labour system. The expansion of non-agricultural activities in the state has induced the cultivators and agricultural labourers to move out of agriculture. Thus, the structure of rural employment in Kerala has shifted from agricultural activities to non-agricultural activities. The increase in wage seems to have failed to attract the unemployed labour force on account of their job preferences. The study attempts to analyse the shift in the supply of labour to non-agriculture sector from the traditional labour households on account of their upward economic mobility and availability of non-agriculture employment. The study reveals that the structural transformation taking place in Kerala has resulted in the shifting of labourers from agriculture activities to non-agriculture, leading to a situation of labour market tightening in regions like Kuttanad

**Keywords:** Agricultural labour market; Labour supply; Labour shortage; Labour market paradox; Rural unemployment, Labour households etc.

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## Introduction

### Evolution of Agricultural Labour Market in Kerala

Nineteenth-century Kerala agricultural labourers were *agrestic (rural) slaves*. They could be bought and sold (Franke, 1993: 152). Although slavery was abolished in Kerala in 1855, agricultural labourers effectively remained as slaves up to the 20<sup>th</sup> century. In the short run, agrestic slavery changed into an *attached labour system*. The attached labour system continued in several parts of Kerala up to the middle of the 20<sup>th</sup> century. This was the labour arrangement of the caste-based ‘janmi’ system. Agricultural labourers were made to work for a greater part of the day for a pittance (Thomas and Thomas, 1999: 214). The slavery and attached labour system ensured an adequate supply of labour to take care of their seasonal requirements. There were devices to prevent the upward mobility of agricultural labourers. The attached labour system gave way to the *casual labour system*, which was the product of institutional reforms. The policy of conferring ‘Kudikidappu’ rights, which led to the emergence of a new rural class called the ‘landed agricultural labour’. Trade union movements and security of tenure and title to hutment dwellings made them free to sell their labour-power. With the passage of time, the casual labour system underwent changes and the casual labour status gave way to *multiple labour status*. Various factors were responsible for this transformation – right to hutment dwellings, the emergence of a new class of peasantry with substantial improvement in their social and labour status, improvement in the educational level of population, growth of the non-agricultural sector and the resultant shift of labourers towards non-farm activities, increase in non-farm employment etc. With this, full-time labourers in agriculture have substantially declined and which have affected the availability of labour especially during peak seasons in agriculture.

### Pattern of rural employment in Kerala

**Table-1**  
**Sectoral Share of Employment in Kerala (%)**

| NSSO Rounds | Primary | Secondary | Tertiary |
|-------------|---------|-----------|----------|
| 1987-88     | 44.2    | 22.7      | 33.00    |
| 1993-94     | 43.5    | 23.8      | 32.70    |
| 1999-00     | 33.1    | 28.3      | 38.60    |
| 2004-05     | 31.6    | 28.0      | 40.40    |
| 2011-12     | 25.5    | 31.8      | 42.60    |
| 2017-18     | 18.0    | 30.6      | 51.4     |
| 2018-19     | 19.3    | 31.1      | 49.5     |
| 2019-20     | 20.7    | 28.0      | 51.3     |

**Source:** NSSO (Various Rounds; and Periodic Labour Force Survey (PLFS), annual Reports (according to Current Weekly Status)

Table-1 shows the sectoral share of employment in Kerala based on various NSSO rounds and the annual report of the National statistical Office (NSO). The share of employment in the primary sector of Kerala has been continuously declining. The share of employment in the primary sector of Kerala was around 44.2 per cent in 1987-88 and it became a mere 20.11 per cent by 2017-18. On the other hand, Kerala witnessed a steady increase in the share of secondary and tertiary sectors. The tertiary sector employment in Kerala was increasing at a faster rate from 33 per cent to 48.82 per cent.

**Table-2**  
**Distribution of Usually Employed Persons by Status of Employment in Kerala (in %)**

| NSSO Rounds | Self employed |       | Regular employment |       | Casual labourers |       |
|-------------|---------------|-------|--------------------|-------|------------------|-------|
|             | Rural         | Urban | Rural              | Urban | Rural            | Urban |
| 1987-88     | 51.1          | 46.3  | 10.8               | 31.8  | 38.0             | 22.0  |
| 1993-94     | 45.4          | 39.8  | 11.5               | 26.8  | 43.1             | 33.4  |
| 1999-00     | 45.6          | 21.8  | 14.0               | 16.3  | 41.1             | 40.5  |
| 2004-05     | 43.7          | 26.4  | 15.8               | 25.4  | 41.6             | 38.6  |
| 2009-10     | 39.8          | 34.1  | 19.4               | 34.2  | 40.7             | 31.8  |
| 2011-12     | 38.2          | 36.4  | 17.8               | 35.8  | 44.0             | 27.8  |
| 2017-18     | 38.0          | 37.6  | 29.2               | 37.8  | 32.9             | 24.6  |
| 2018-19     | 38.8          | 35.5  | 25.0               | 38.3  | 36.1             | 26.2  |
| 2019-20     | 40.9          | 35.5  | 26.3               | 38.6  | 32.9             | 25.9  |

**Source:** NSSO (Various Rounds; and Periodic Labour Force Survey (PLFS), annual Reports

Table-2 shows the distribution of usually employed persons by the status of employment in Kerala. In Kerala, the percentages of self-employed persons in rural and urban areas have declined. The regularly employed persons witnessed an increasing trend in both rural and urban Kerala. The percentage of casual labours in rural Kerala declined and in urban Kerala, it registered a marginal increase during 1987-88 to 2017-18. Most of the casual labourers are finding jobs in rural non-agricultural activities rather than in agricultural activities.

**Table-3**  
**Percentage Distribution of Main Workers in Kerala**

| Items                      | 1981  | 1991  | 2001  | 2011  |
|----------------------------|-------|-------|-------|-------|
| Cultivators                | 13.07 | 12.24 | 7.20  | 5.84  |
| Agricultural labourers     | 28.23 | 25.55 | 16.07 | 9.85  |
| Household industry workers | 3.69  | 2.58  | 3.54  | 2.13  |
| Other workers              | 55.01 | 59.63 | 73.19 | 82.18 |

**Source:** Various census data (Cultivators, Agricultural labourers, Household industry workers, other workers as percentage of main workers)

According to census reports, the percentage of cultivators in Kerala declined from 13.07 per cent in 1981 to 5.84 per cent in 2011. Similarly, the

percentage of agricultural labourers in Kerala declined from 28.23 per cent in 1981 to 9.85 per cent in 2011. At the same time, the percentage of non-agricultural workers in Kerala remarkably increased after 1981. It is shown in Table-3. The expansion of trade, transport, banking and a host of other non-agricultural activities in the formal and informal sectors in the state enabled the cultivators and agricultural labourers to move out of agriculture.

In Kerala, it is seen that the average number of days of employment has drastically declined in agriculture. Within the agricultural sector, there is a sizeable reduction in employment in crop production as it appears more like a subsidiary activity for males. On the other hand, there has been a sharp growth in rural non-agricultural employment in Kerala since 1981, making a change in the industrial distribution of the workforce. Because of these changes, the structure of rural employment in Kerala has shifted from agricultural activities to non-agricultural activities. The unsustainability of agricultural employment also induces shifting to non-agriculture. The overwhelming growth is in the construction and the service sector.

### **Trend in Wage Rate in Kerala**

The male and female wage rates in Kerala are the highest in India. Money wage and the real wage have been steadily increasing in Kerala. The higher increase in real wages of the unskilled workers has narrowed the difference between the wages of skilled and unskilled workers to some extent. The rate of growth in product wages was higher than the rate of growth in labour productivity since the mid-70s in agriculture in the state (Kannan and Pushpangadan, 1990: 1992). Labour cost (wage cost) constitutes about 60 per cent of the total cost of paddy cultivation (Kannan, 1998: 63). “Costs on material inputs and human labour account for more than 80 per cent of the total paid-out costs involved in the cultivation of all major crops in the state” (Thomas, 2004: 156). Table-4 clearly shows that substantial difference exists with respect to average daily wage rates in rural India and Kerala.

**Table-4**  
**Average Daily Wage Rates in Rural India and Kerala (Men – General Agricultural Labourers)**

| <b>Year</b> | <b>Kerala</b> | <b>India</b> |
|-------------|---------------|--------------|
| 2014-15     | 575.1         | 224.6        |
| 2015-16     | 608.8         | 236.9        |
| 2016-17     | 644.0         | 252.6        |
| 2017-18     | 659.8         | 267.1        |
| 2018-19     | 682.4         | 277.4        |
| 2019-20     | 700.7         | 286.6        |

**Source:** Kerala Economic Review, Kerala State Planning Board, various years

The degree of unionization has been cited by many studies as one of the important reasons for the unreasonable hike in rural wages. The Kerala phenomenon is also explained in terms of the inter-related labour market and wage relativities or spread effect (Krishnan, 1991: A-89) and (Sasikumar and Raju, 2000: 40-42). Accordingly, a rise in the wage rate of any category of labour within a structure of inter-related labour markets is transmitted to other labour markets to establish wage parties. The wage increases have been aided by the periodic revision of minimum wages. Since the eighties, the shortage of labour to cultivate paddy has become a major problem in spite of the increase in wages. That is, the increase in wage seems to have failed to attract the unemployed labour force. The area under paddy cultivation started declining continuously from 1977 and consequently, the available days on employment declined. The decline in employment does not appear to have affected adversely the income of the labour households. The decline in the number of days of employment has been compensated by the rise in wage rates.

### Unemployment Rate in Kerala

The NSS reports and Census reports clearly give information regarding the incidence of unemployment in Kerala over the years. Generally, the number of unemployed persons per 1000 is very high in Kerala compared to that in India. The incidence of the unemployment rate is also very high in Kerala.

**Table-5**  
**Unemployment Rate: Usual Status (Adjusted) (Rural) (Per 1000)**

| Year    | Kerala     |              |              | India      |              |              |
|---------|------------|--------------|--------------|------------|--------------|--------------|
|         | Rural Male | Rural Female | Rural Person | Rural Male | Rural Female | Rural Person |
| 1993-94 | 55         | 97           | 69           | 14         | 8            | 12           |
| 1999-00 | 57         | 130          | 82           | 17         | 10           | 15           |
| 2004-05 | 51         | 201          | 107          | 16         | 18           | 17           |
| 2009-10 | 32         | 161          | 75           | 16         | 16           | 16           |
| 2011-12 | 31         | 142          | 68           | 17         | 17           | 17           |
| 2017-18 | 59         | 196          | 100          | 57         | 38           | 53           |
| 2018-19 | 47         | 156          | 84           | 55         | 35           | 50           |
| 2019-20 | 73         | 138          | 97           | 45         | 26           | 39           |

**Source:** NSSO (Various Rounds; and Periodic Labour Force Survey (PLFS), annual Reports

There has been a gradual increase in the percentage of educated unemployed in Kerala. It is commonly alleged that job preferences of the educated in Kerala are such that there is a premium on white-collar jobs as the educated are averse to do manual work and blue-collar jobs. Despite mounting unemployment, educated work-seekers indefinitely wait for white-collar jobs and on the other hand, in spite of the potential higher earnings, work-seekers avoid manual work and blue-collar jobs.

Demographic, social and economic factors, availability of alternative employment opportunities etc. have contributed to a reduction in the supply of labour to agriculture. Further, there is a high incidence of voluntary unemployment in the farming sector. Younger members of agricultural labour households have also got facilities to do higher education and technical education. Consequently, they prefer to work in non-agricultural areas and wait until they secure such employment. The relative preference for stable employment discourages them to take up seasonal agricultural works despite the high wage rates. In Kerala, it seems that the mobility of workers from one village to another has come down significantly in recent years.

Widespread implementation of various poverty alleviation programmes rendering substantial employment opportunities to the rural poor outside the farm sector, sprouting of many small-scale and auxiliary industrial units in rural areas of the state, hectic construction work going on in and around rural areas, the fast growth of the tertiary sector, the large scale migration of rural youth to foreign countries and to other states etc. have reduced the availability of labour for agricultural operations. When it is claimed that rural unemployment is rising in Kerala, there are also reports to the effect that there is a shortage of rural labour, especially in the agricultural sector in the sense that employers are willing and are actually seeking to hire additional workers at the going wage rate but find no more labourers available at that rate.

Casual labourers in Kerala have a relative preference for non-agricultural works and therefore they have a tendency to shift from agriculture to non-agricultural works. This has had a direct bearing on agricultural performances and practices. Moreover, a close look at the sector-wise distribution of employment in Kerala since 1987-88 shows that Kerala economy has been witnessing a structural shift in employment in favour of the tertiary sector (Table-1). Opening up of wide avenues of non-agricultural employment and the upward economic mobility of traditional labour households has resulted in a steep reduction in the supply of labour to the agriculture sector. The problem of labour shortage exists despite the fact that Kerala is one of the states in India where the highest wage rate for agricultural labour exists (Table-4) and Kerala has the highest rate of rural unemployment in India (Table-5).

In the light of these developments, rapid changes have been taking place in paddy-cultivating areas of Kerala, especially in Kuttanad, the rice bowl of Kerala which is located in the Alappuzha, Kottayam and Pathanamthitta Districts. The distinguishing feature of the Kuttanad region lies in the fact that it is the only region in the world where cultivation is done almost up to two meters below the sea level. In paddy cultivation, three districts that cover the Kuttanad region viz., Alappuzha, Kottayam and Pathanamthitta have made remarkable improvements. For instance, in 2018-19, the three districts where the Kuttanad region spreads

across witnessed the highest level of area under paddy cultivation. (Alappuzha-38623.02 ha, Kottayam-22172.05 ha, and Pathanamthitta-3168.77 ha). In this background, the present paper is an attempt to study the labour supply structure in agriculture and non-agriculture activities and correlate the socio-economic parameters with the preference for work in agriculture and non-agriculture activity in the Kuttanad region.

### **Objective of the Study**

The objective of the study is to analyze the shift in the supply of labour to the non-agriculture sector of Kerala and identify the major factors influencing this trend based on an empirical survey of labour households in the Kuttanad region that comes under Alappuzha, Kottayam and Pathanamthitta districts of Kerala state.

### **Review of Literature**

The issues relating to the agricultural labour market have attracted a great deal of attention of researches and policy makers. Kannan (1999) discussed three major development dilemmas that were closely related to the dynamics of agricultural labour market. The first one was identified as wage gain, but job loss. While the organized power of labour enabled real increases in wage rates as well as securing better conditions of work, farmers resorted to crop substitution in favour of low labour – absorbing crops. The second dilemma, which unfolded by the second half of the 1980s, was the existence of a vast reservoir of reasonably educated, young, socially conscious unemployed labour in a technologically stagnant economy reporting labour shortages for unskilled manual labour on a casual basis. The third dilemma was the inability of the state to resolve the contradiction between rising wage costs and stagnant technology through a technological breakthrough in existing agricultural and rural industrial activities. Joseph A. Thomas and T.A. Thomas (Thomas and Thomas, 1999) explained the transformation in the agrarian relations and practices in Kuttanad. Tenancy, which was abolished with the historic land reforms adopted in Kerala seemed to be re-emerging. The authors also explained the transformation that had been taking place in the status of labour in Kuttanad which had implication for agrarian relations and practices. Over the past few decades, the status of labour had undergone a change from that of attached (agrestic slaves) labour to casual labour and finally to labour with multiple status.

According to M.K. Sukumaran Nair (Nair, 1999) the reasons for the mismatch between supply and demand for labour were found to be market imperfections, information asymmetries, adverse selection in the labour market, operation of the backward sloping supply curve, market fragmentation, increasing transaction and supervision costs, social and economic upliftment of the labour households, leisure preference of workers, cultivators' preference for skilled

workers, fragmentation and multiplication of existing jobs in agriculture, negative asset effect of labour supply because of ownership of a few cents of land by the labourers, decline in the size of the labour households etc. Sasikumar and Raju (2000) explored the schisms in the labour market of Kerala. They pointed out that the co-existence of high wage and shortage of labour supply under the condition of chronic unemployment was not a short-term phenomenon, or a transitory one, rather a persistent phenomenon for at least a few decades. They pointed out that unemployment in Kerala was to do more with the subjectivity of the people than the economic processes. That was why wages fail to clear the labour market in Kerala. Therefore, they concluded that more than economic interventions, it was social alternation in the attitude to work and labour has to be welcomed. K. Krishnakumar (2001) explained the most recent development in agricultural labour market as the emergence of 'labour bank' in Kunnathukal village in Kerala. The thozhilsena (labour army) started here culminated in the launching of the Kunnathukal Labour Bank in April 2000 as a society registered under Charitable Societies Act. The bank ensured timely availability of workers to the farmers, assured a minimum number of days of work and a certain level of economic security and social status to the workers, besides reducing cost of production and making work less difficult by implementing partial mechanization. All these have created a sea-change in labour-farmer relationship in the village.

### **Research Gap**

Having reviewed relevant, recent and well-studied works relating to agriculture labour market mainly in Kerala, it has been found that rarely studies have focused on issues pertaining to labour supply particularly in the region of Kuttanad in Kerala. As we know, Kuttanad being the rice bowl of the state, it has been confronted with the issue of shortfall in the supply of agriculture labour in recent times. In this backdrop, the present study appears important.

### **Methodology of the Study**

The study has employed both primary data and secondary data. The secondary data were collected from various publications of the Government such as Census Report, various rounds of quinquennial surveys of NSS reports on Employment and Unemployment in India, Periodic Labour force Survey, 2017-18, various issues of Kerala Economic Review etc.

The methodology for collecting primary data was broadly classified into two, (a) selection of the study area (after discussions with experts, analysis of secondary data related to the area and visits to the study regions) and (b) survey. Since paddy cultivation is a labour-intensive activity and Kuttanad region is the main paddy cultivation area in Kerala, Kuttanad has been chosen for conducting this study. The primary survey was conducted in four panchayaths belonging to

four segments of Kuttanad in 2020. They were Edathua (Upper Kuttanad), Champakulam (Lower Kuttanad), Kainakary (Kayal lands) and Thakazhy (Kari lands). The panchayaths were randomly selected from a list of panchayaths belonging to the four segments of Kuttanad. The selected panchayaths were the most important paddy growing areas in Kuttanad. Besides, the urbanization process was taking place in these regions especially after they had been linked to nearby urban centres like Alappuzha, Changanachery, Thiruvalla etc by means of roads. One ward from each selected panchayath was randomly selected. Ward-household details, household details, house number and name of households were collected from the panchayat office which is maintaining the BTR (Building Tax Register). Firstly, we assessed the number of households in each selected ward with the help of BTR and then the households were cumulated and listed out 60 per cent of households in each selected ward. The list was then classified into 3 categories – farmer households, agricultural labour households and other households. The farmer households and the other households were then eliminated.

The researchers selected a sample of 200 households of labourers from the four selected panchayaths. In the selection of households, equal weightage was accorded to four panchayaths. A simple random sampling method was followed for selecting the sample of labour households and a well-structured schedule was used for collecting information. The information collected through the primary survey included those related to living, wages and income, expenditure pattern, land possession and utilization, indebtedness, basic amenities, level of organization, employment, educational attainment, work attitudes, etc.

The household was taken as the basic unit of analysis because it constituted not only a composite unit of consumption but a composite unit of employment and income as well. Due to size variations of different households, per capita estimates were derived to ensure comparability across categories of households. '*Activity criterion*' was employed for identifying households of labourers. It needs to be mentioned here that no clear-cut classification of labour households into agriculture labour households and non-agriculture households is possible in the case of Kuttanad as every labour household supplies labour to agriculture and non-agriculture. In the case of PALH (predominantly agricultural labour households) main source of income comes from agriculture and for PNALH (Predominantly non-agriculture labour households) main source of income comes from non-agriculture. It is true that the former case witnesses more supply of labour to agriculture whereas the latter case experiences more supply of labour to non-agriculture. On account of this reason, researchers used the criteria whether the head of the household or at least 50 per cent of earners of households reported having agricultural labour as their main occupation or not.

For dissecting the relationship between income of households and labour supply, the labour households were classified into two categories. *Income criterion* was used for classifying labour households into Predominantly Agricultural Labour Households (PALH group) and Predominantly Non-agricultural Labour Households (PNALH group). Thus, the labour households, identified based on *activity criterion*, were categorized based on *income criterion*. The households deriving a major part of their total annual income (50% and more) from agricultural wage employment were designated as PALH group and the households deriving a major part of their total annual income (50% and more) from non-agriculture were designated as PNALH group. This was done to find out the main source of supply of labour to agriculture.

The factors determining labour supply to agriculture were identified. Such factors cover the size of family, availability of alternative jobs, job preference of young generation, implementation of self-employment programmes by the government etc. The supply of labour days to agriculture and non-agriculture was estimated on the basis of a survey of labour households. The annual income of labour households was estimated in order to analyse the relationship between the income of the labour family and the supply of labour to agriculture. The monthly expenditure of the labour households on durable and non-durable goods was estimated to understand the standard of living and consumption level of households.

## **Results and Discussion**

For analyzing the pattern in the supply of labour to agriculture, a primary survey was conducted on 200 households of labourers in four representative panchayaths of Kuttanad – Edathua, Champakulam, Kainakary and Thakazhy. Since the unit of study was household, the researchers approached randomly chosen households with well-structured interview schedule for face-to-face interactions to elicit information on various aspects of the study. But it must be borne in mind that in households there were more labourers engaged in labour market activities. Some households had more than one active member offering their labour power for varied activities. Therefore, the total number of casual labourers in all 200 households taken together came to be 329. The study incorporated many parameters pertaining to the analysis viz., the community of the households, family size, distribution of casual labourers, annual income and education attainment of households. Besides these, the extent of unionization among the labourers in Kuttanad region based on the surveyed households was also analyzed in the study.

### **Community-wise classification of labour households**

Community-wise classification of farmers and labourers are given in Table-5. Scheduled Caste community constituted 54 per cent labour households. Nearly 70 per cent of women SC workers were agricultural labourers.

**Table-6**  
**Community-Wise Classification of Labour Households**

| <b>Community</b>          | <b>Number of Households</b> | <b>Percentage</b> |
|---------------------------|-----------------------------|-------------------|
| Forward community         | 41                          | 20.5              |
| Backward community        | 51                          | 25.5              |
| Scheduled Caste community | 108                         | 54.0              |
| Total                     | 200                         | 100.0             |

**Source:** Sample survey, 2020

### **Family size**

Household size has a decisive influence on the supply of labour. The wide acceptance of small family norms has a bearing on the supply of labour. In the past labour supply was adequate or surplus because the family size was big and the majority of family members engaged in agricultural works. Within the agricultural labour household, if the aged and children were excluded, those who remained in the labour force would be even fewer. Even among those who were in the labour force a good percentage of persons were attracted to non-agriculture works which further constrained the supply. The family size of labour households surveyed is shown in the Table below.

**Table-7**  
**Family size**

| <b>Size of family</b> | <b>No. of households</b> | <b>Percent</b> | <b>Cumulative Percent</b> |
|-----------------------|--------------------------|----------------|---------------------------|
| 1.                    | 9                        | 4.5            | 4.5                       |
| 2.                    | 20                       | 10.0           | 14.5                      |
| 3.                    | 40                       | 20.0           | 34.5                      |
| 4.                    | 67                       | 33.5           | 68.0                      |
| 5.                    | 43                       | 21.5           | 89.5                      |
| 6.                    | 15                       | 7.5            | 97.0                      |
| 7.                    | 6                        | 3.0            | 100.0                     |
| Total                 | 200                      | 100.0          |                           |

**Source:** Sample survey, 2020

Around 90 per cent of labour households had a family size of five or less than five. The small size of labour households had a direct bearing on the labour supply to agriculture. Big size of labour family provided a guaranteed supply of labour to agriculture in the past.

### **Age structure**

**Table-8**  
**Age Structure**

| <b>Age Group</b>  | <b>0-20</b> | <b>20-30</b> | <b>30-40</b> | <b>40-50</b> | <b>50-60</b> | <b>60-70</b> | <b>70-80</b> | <b>80 and above</b> | <b>Total</b> |
|-------------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------------|--------------|
| Number of persons | 132         | 133          | 57           | 85           | 175          | 131          | 31           | 38                  | 782          |
| %                 | 16.9        | 17.0         | 7.3          | 10.9         | 22.4         | 16.8         | 3.9          | 4.9                 | 100          |

**Source:** Sample survey, 2020

Age structure of members of 200 labour households is given in Table-8. The size of the labour force depends on the size of 'age-eligible population and the aggregate labour force participation rate i.e., the percentage of the age-eligible population that chooses to be in the labour force. The children and students ranging 0-20 years were 16.9 per cent of the total population. On the other extreme side, the aged having 60 years and above was 25.6 per cent of the total population. The people in the age group 20-60 (57.5%) included students of another age group, casual labourers, unemployed, self-employed, regular wage/salaried employees etc. 79 per cent of casual labourers in the sample area were belonging to the age group of 50-70 years. It showed the reluctance of the young generation of labour households to take up agriculture works as their livelihood. At the same time, it is found that 78.41 per cent of the total unemployed persons were belonging to the age group of 20-40 years. Thus, the incidence of unemployment in the region was high among the young and the educated. The younger age persons in the labour households had a preference for self-employment, regular wage and salaried jobs or to remain unemployed rather than working as agriculture labour.

### **Occupational Distribution in Labour Households**

It was found that 46 per cent of households had only one casual labour, 44.50 per cent of households had two casual labourers. Only 9.5 per cent of households had more than two casual labourers. 48 per cent of households had regular wage/salaried persons ranging from one to two; 19.5 per cent of households had self-employed persons; 38 per cent households had unemployed persons; 56.5 per cent households had students and 25.5 per cent of households had others including aged, disabled etc.

The occupational distribution of labour households includes casual labourers; regular wage/salaried persons in government, private and informal sectors; self-employed; unemployed; and others. Occupational distribution in labour households is shown in Table-9.

**Table-9**  
**Occupational Distribution in Labour Households**

| <b>Sr. No.</b> | <b>Items</b>          | <b>Number of persons</b> | <b>Percentage</b> |
|----------------|-----------------------|--------------------------|-------------------|
| 1              | Casual labour         | 329                      | 42.07             |
| 2              | Regular wage/salaried | 101                      | 12.92             |
| 3              | Self- employed        | 51                       | 6.52              |
| 4              | Unemployed            | 88                       | 11.25             |
| 5              | Others                | 213                      | 27.24             |
|                | Total                 | 782                      | 100               |

**Source:** Sample survey, 2020

The percentage of casual labourers was the highest and which was 42.07 per cent. The share of regular wage/salaried persons was 12.92 per cent, the share of self-employed was 6.52 per cent, the share of unemployed was 11.25 per cent and others 27.24 per cent. Others include students and the aged people. Members of labour households were largely engaged in manufacturing, construction, transport, hotel and restaurant and other services. There was an occupational diversification in the employment patterns of local labour.

### **Distribution of Casual Labourers**

Supply of casual labour means the amount of labour willing to work at a particular real wage rate. Generally, supply of labour is measured in terms of 'labour availability', 'labour hours', 'labour days' or 'number of worker's'. Casual labourers were categorized into three: casual labourers working in agriculture only, casual labourers working in non-agriculture only and casual labourers working in both agriculture and non-agriculture. The distribution of casual workers is shown in Table-10.

**Table-10**  
**Distribution of Casual Labourers**

| Casual labourers                     | Male   |       | Female |       | Total  |        |
|--------------------------------------|--------|-------|--------|-------|--------|--------|
|                                      | Number | %     | Number | %     | Number | %      |
| Agriculture only                     | 21     | 6.38  | 94     | 28.57 | 115    | 34.95  |
| Non-agriculture only                 | 108    | 32.83 | 24     | 7.29  | 132    | 40.12  |
| Both agriculture and non-agriculture | 52     | 15.8  | 30     | 9.12  | 82     | 24.92  |
| Total                                | 181    | 55.01 | 148    | 44.98 | 329    | 100.00 |

**Source:** Sample survey, 2020

The majority of casual labourers (40.12%) were casual labourers who work in non-agriculture only. While full-time casual labourers in agriculture were 34.95 per cent of total casual labourers, casual labourers working in both agriculture and non-agriculture were 24.92 per cent. So far as the labourers working in both agriculture and non-agriculture were concerned, their supply of labour to agriculture was intermittent and unguaranteed. It was found that employment diversification was remarkably higher for male labourers.

### **Supply of Labour Days and Annual Income of Labour Households**

Crop production became a subsidiary activity for casual labourers in Kuttanad. On the other hand, there was a sharp growth in rural non-agriculture employment. Because of these changes, the structure of rural employment in the area shifted from agricultural activities to non-agricultural activities. The unsustainability of agricultural employment also induced shifting to non-agriculture. The trend towards the non-farm sector was more evident in regard to casual employment.

The structure of total yearly employment and earnings of the rural labour households underwent sizeable changes owing to their connection with the urban centres. The strong rural-urban linkage was increasingly facilitated by a growing network of village link roads and with them changed the employment pattern and the corresponding levels of income and consumption of the rural population. Some new activities emerged and expanded fast as important sources of employment and earnings for the rural labour households. The prime-mover for the shifting of labour was the sheer availability of highly lucrative non-farm employment. In modern society, entry into any occupation is free subject to the requirement that he has undergone the necessary training. In this context, agricultural labourers moved out of agriculture to non-agriculture employment like construction, trade transport and other services. The supply of labour days by casual labourers in the sample labour households is shown in Table-11.

**Table-11**  
**Annual Income and Annual Supply of Labour Days of Households**  
**(N= 200)**

| <b>Income Category<br/>(in Rs/annum)</b> | <b>Mean Annual Supply of<br/>Labour days to Agriculture</b> | <b>Mean Annual Supply of Labour<br/>Days to Non-Agriculture</b> |
|------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------|
| Below 20,000                             | 113.40                                                      | 60.00                                                           |
| 20,000-40,000                            | 120.98                                                      | 51.52                                                           |
| 40,000-60,000                            | 92.13                                                       | 112.58                                                          |
| 60,000-80,000                            | 89.42                                                       | 179.25                                                          |
| 80,000 and above                         | 74.80                                                       | 191.35                                                          |
| Total                                    | 98.15                                                       | 118.94                                                          |

**Source:** Sample survey, 2020, estimated values.

The relationship between the supply of labour days and the annual income of labour households could be understood from the table. The average supply of labour days to agriculture was high for low-income families and it was very low for high-income households. For instance, the average supply of labour per household to agriculture was 113.40 and 120.98 for families having annual income below Rs. 20,000 and Rs. 20,000 – 40,000. For households having annual income above Rs. 40,000, the average annual supply of labour days to agriculture was about 85 days.

The income of labour households and the supply of labour days to non-agriculture were found to be directly related. For instance, the average supply of labour days per household to non-agriculture by the high-income category (Rs. 80,000 and above) was the highest (191 days). It was 179.25 for the income category Rs. 60,000 – 80,000 and 112.58 for the category Rs. 40,000 – 60,000 and it ranged between 50 and 60 only for low-income categories. Thus, level of income and supply of labour to agriculture were inversely related and they were directly related in the case of non-agriculture.

## Supply of Labour by PALH and PNALH Groups

For dissecting the relationship between income of households and labour supply, the labour households were classified into two categories on the basis of income criterion-Predominantly Agriculture Labour Households (PALH) and Predominantly Non-Agriculture Labour Households (PNALH). According to the income criterion, the households deriving a major part of their total annual income (greater than 50%) from agriculture wage employment were designated as PALH and others as PNALH group.

**Table-12**  
**Annual Average Supply of Labour Days and Category of Households**

| Supply of Labour Days | PALH   | PNALH  | Total  |
|-----------------------|--------|--------|--------|
| Agriculture           | 123.29 | 73.00  | 98.15  |
| Non-agriculture       | 58.18  | 179.19 | 118.68 |
| Total                 | 90.74  | 126.10 | 108.42 |

**Source:** Sample survey, 2020, estimated values

The supply of labour days to agriculture was higher for the PALH group (low-income group) and the supply of labour days to non-agriculture was substantially higher for the PNALH group (high-income group). The average supplies of labour days by PALH and PNALH to agriculture were 123.29 and 73.00 respectively. The remarkable difference between PALH and PNALH with respect to the average supply of labour days to non-agriculture was evident. It was only 58.18 for PALH and 179.19 for PNALH.

## Non-Agriculture Activities of Casual Labourers

The magnitude of opportunities for employment outside agriculture alters the overall position of the supply curve of agricultural wage labour. Non-agricultural employment increases at a faster rate than agricultural employment leading to a rise in the proportion of rural non-agricultural workers. Much of the growth has occurred in sectors like construction, trade, transport, and other services.

Both distress and development factors seem to have played a role in the type of occupational diversification that has taken place in the area. Diversification of the workforce into the non-farm sector is the major factor behind poverty reduction and real wage increase in rural areas. The real wages of agricultural labourers have begun a systematic upward climb because of workforce diversification rather than growing labour productivity. Construction, painting, polishing, plumbing and electrical works, carpentry, woodworks, fish sales, hotel, restaurant and domestic services and other activities were the major non-agriculture activities in the sample area. Other activities include sand mining, clay mining, collection of shells etc. Female labourers had limited options like fish sales, domestic services and others, while male labourers had wide options including skilled works. 71 per cent of households (N=200)

informed that casual labourers of the households frequently went for non-agricultural jobs outside the locality, especially for construction, manufacturing and other service activities. Workers made occupational choices in terms of comparative total net advantages, and not in terms of comparative wages. Everyone had an interest that prompted him to seek advantageously and to shun the disadvantageous employment. If one sector's advantages exceeded the advantages of other sectors, labourers would crowd into the former and desert the latter.

Regarding shifting of labourers from agriculture to non-agriculture, 25.5 per cent of households responded that advantages and prospects of non-agriculture jobs were the responsible factors. For 22.5 per cent of households, the unsustainability of the agriculture sector was the responsible factor; and for the remaining 52 per cent of households, both advantages of non-agriculture jobs and disadvantages of agricultural jobs were the responsible factors. Thus, both pull factors and push factors operated behind the shifting of labourers from agriculture to non-agriculture. 49 per cent of labour households had self-employment and supplementary employment activities. The major self-employment activities of labour households were auto-rickshaw driving, telephone booth and petty shops. The major supplementary sources of income were cattle rearing, vegetable cultivation, tuition, tailoring, chips production etc. The option for non-wage income resulted in a decrease in the labour supply to agriculture. Non-wage income of labour households increased faster than wage income and the agricultural work became a subsidiary occupation for the labour households.

### Education-Employment Status

As the level of education changes, workers' preferences for work also changes. A negative attitude towards manual labour develops when a person rises in social status. Because of education as well as other influences of modernization, the family members of labour households especially the younger ones feel shy of working in the field. The education-employment status of the population is shown in Table-13.

**Table-13**  
**Education-Employment Status**

|                                         | Primary        | Secondary     | Higher<br>Secondary | Degree       | Post-<br>Graduation | Technical<br>Education | Total        |
|-----------------------------------------|----------------|---------------|---------------------|--------------|---------------------|------------------------|--------------|
| Casual labour                           | 216<br>(65.65) | 108<br>(32.8) | 3<br>(0.9)          | 0<br>(0)     | 0<br>(0)            | 2<br>(0.6)             | 329<br>(100) |
| Self-employed,<br>regular wage/salaried | 4<br>(2.6)     | 83<br>(54.6)  | 23<br>(15.1)        | 11<br>(7.2)  | 3<br>(2)            | 28<br>(18.2)           | 152<br>(100) |
| Unemployed                              | 6<br>(6.8)     | 26<br>(29.6)  | 17<br>(19.3)        | 23<br>(26.1) | 9<br>(10.2)         | 7<br>(7.9)             | 88<br>(100)  |

**Source:** Sample survey, 2020

It is found that 66 per cent of casual labourers had only mean education i.e., up to primary level. Since they were not skilled and educated, most of them were confined to agricultural works. The remaining 34 per cent of casual labourers had education up to secondary and above. This group of casual labourers, because of their higher education, found employment in the non-agriculture sector. No casual labour had education above the higher secondary level in the sample. In the case of self-employed, regular wage/salaried persons, education level was found to be very high. Unemployed persons were also having a fair level of education. For instance, 29.55 per cent of unemployed persons had secondary level of education, 19.32 per cent had higher secondary education, 26.14 per cent had degree education, 10.23 per cent had post-graduate education and 7.95 per cent had technical and vocational education. Younger members of agricultural labour households got facilities to do higher education and technical education. Consequently, they preferred to work in non-agricultural employment or wait until they secured such employment. Thus, a person was unemployed, but he was not available for manual work. Younger women having average school education preferred to work as shop assistants or caretakers. The relative preference for stable employment discouraged them to take up seasonal agricultural works despite the high wage rates. With respect to conditions of work, continuity of employment, job status, job security, and job prospects, non-agriculture was the preferred sector of the majority of labour households. Members of labour households were shifting to the non-agriculture sector not merely being attracted by the wage rate there, but by some other factors like status, security, conditions of work etc.

### Income and Expenditure of Labour Households

Labour households in Kuttanad had varied sources of income. The sources of the annual income of labour households (PALH group and PNALH group) are shown in Table-14.

**Table-14**  
**Average Annual Income of a PALH and a PNALH Household**

| Category of Households | Wage Income         |                     |                     | Non-Wage Income     | Total             |
|------------------------|---------------------|---------------------|---------------------|---------------------|-------------------|
|                        | Agriculture         | Non-Agriculture     | Total               |                     |                   |
| PALH                   | 22989.08<br>(61.49) | 4907.69<br>(13.13)  | 27896.76<br>(74.62) | 9486.16<br>(25.38)  | 37382.92<br>(100) |
| PNALH                  | 5563.93<br>(9.29)   | 31773.56<br>(53.03) | 37337.49<br>(62.32) | 22577.73<br>(37.68) | 59915.22<br>(100) |
| Average                | 28553.01<br>(29.34) | 36681.25<br>(37.70) | 65234.25<br>(67.04) | 32063.89<br>(32.95) | 97298.14<br>(100) |

**Source:** Sample survey, 2020

**Note:** Percentage are given in brackets

Labour households have mainly two sources of income, wage income and non-wage income. Wage income is divided into wage income from agriculture and wage income from non-agriculture. Non-wage income includes income from salary income, cultivation, self-employment, remittances, livestock, poultry, pension, subsidy etc. For the PALH group, the main source of income was wage income from agriculture. Their 61 per cent of annual income came from wage income from agriculture, 13 per cent of income from the non-agriculture sector and 25 per cent from non-wage income. For the PNALH group, the main source of income was wage income from the non-agriculture sector. Their 9 per cent of annual income came from wage income from agriculture. 53 per cent of income from wage income from non-agriculture, and 37 per cent income from non-wage income.

The combined figures of average income of PALH and PNALH groups were also given in Table-14. For labour households as a whole wage income from agriculture was only 29 per cent of total annual income. 37 per cent of their income was coming from wage income from the non-agriculture sector; 33 per cent of income from non-wage income. Thus, non-agriculture sector was the main source of wage income and total income. Most of the labour households had a fair level of monthly expenditure. The monthly expenses of labour households are shown in Table-15. The pattern of monthly expenditure of labour households is shown in Table-15.

**Table-15**  
**Average Monthly Expenditure of a PAL and a PNAL Household in Rupees**

| Category of Household | Consumption Expenditure - Food Toiletry and Sundry | Education | Health | Consumer Durables | Travel Entertainment | Clothing and Others | Total   |
|-----------------------|----------------------------------------------------|-----------|--------|-------------------|----------------------|---------------------|---------|
| PALH                  | 1799.15                                            | 242.15    | 184.85 | 82.69             | 119.38               | 234.54              | 2662.76 |
| PNALH                 | 2727.74                                            | 261.44    | 198.04 | 97.96             | 203.96               | 288.63              | 3777.77 |
| Average               | 2263.44                                            | 251.80    | 191.44 | 90.32             | 161.67               | 261.58              | 3220.26 |

**Source:** Sample survey, 2020

The average monthly expenditure of labour households was Rs. 3220. Consumption expenditure on food, toiletry and sundry was the single largest expenditure item. The average monthly consumption expenditure of households on it was Rs. 2,263. Average monthly expenditure of households on education, health, consumer durables, travel and entertainment, clothing and others were also given. Average monthly expenditure and the pattern of expenditure showed that labour households had a fair level of standard of living. 62 per cent labour households had assets like pucca house, T.V, telephone, mobile phone, radio etc. 45 per cent households sent their children to

unaided schools. Children of about 16 per cent of households were staying in hostels for studying professional courses.

### **Union activities**

Labour movement and unionization of workers were extremely strong in Kuttanad. In fact, Kuttanad witnessed organized trade union movement in Kerala. In early 1940s, trade union movement came to the region as way to resist the exploitative methods of farmers and landlords. Since then, the region has been a center point of organized trade union activities, often threatening the very continuance of economic activities in the region. The present study attempted to measure the extent of trade union presence among the casual labourers in Kuttanad. The study found that among the 329 casual labourers from 200 surveyed households, 240 had membership in trade unions. Union density is calculated using a formula,

$$\begin{aligned}\text{Union density} &= \frac{\text{actual union membership}}{\text{total number of employees}} \times 100 \\ &= \frac{240}{329} \times 100 = 72.948\end{aligned}$$

It means that union density was very high in the area.

### **Conclusion**

There has been a sharp growth in rural non-agricultural employment in Kerala since 1981 making a change in the industrial distribution of the workforce. Because of these changes, the structure of rural employment in Kerala has shifted from agricultural activities to non-agricultural activities. The recent pattern of development based on urbanization opened wide avenues for non-agriculture employment even in rural areas of Kerala. The structural transformation taking place in Kerala has resulted in the shifting of labourers and youngsters in labour households from agriculture to non-agriculture. This created a situation of labour market tightening in the agriculture sector of regions like Kuttanad.

From the analysis of supply aspects of the agriculture labour market, it is found that the supply of labour to agriculture was considerably low. The small size of the family in the case of labour households remarkably reduced the supply of labour to agriculture. Only 9.5 per cent of households had more than two casual labourers per household. There was an occupational diversification in the employment patterns of members of households. The majority of casual labourers in the area were casual labourers working in non-agriculture only. Full-time casual labourers in agriculture were only 34.95 per cent of total casual labourers. The genderwise distribution of casual labourers showed that male labourers had the highest shifting to non-agriculture. Annual days of employment of casual labourers in non-agriculture was greater than that in agriculture.

Tertiary sector activities were the major employment activities of non-casual labourers in labour households. Most of them were engaged in regular and salaried employment in government, private and informal sector and self-employment activities. Construction activities were the major non-agriculture activities of casual labourers here. The trend towards the non-farm sector was more evident in regard to casual employment. Workers made occupational choices in terms of comparative total net advantages and not in terms of comparative wages alone. The observed shift to non-agricultural employment was on account of both push factors and pull factors.

The income of labour households and supply of labour were inversely related to agriculture and directly related to non-agriculture. The supply of labour to agriculture was higher for low-income category households (PALH) and the supply of labour to non-agriculture was higher for high-income category households (PNALH). The supply of female labour days was higher for the PALH group and the supply of male labour days was higher for the PNALH group. Young and educated members of labour households did not like to work in agriculture. About 79 per cent of casual labourers were belonging to the age group of 50-70 years. Similarly, about 65 per cent of casual labourers had only a primary level of education. The educated unemployed persons had a preference for white-collar jobs. Non-agriculture was the preferred sector of the majority of labour households with respect to conditions of work, job status, job prospects etc.

Labour households had varied sources of income. About 67 per cent of labour households were high-income households (PNALH). Agriculture was not the main source of income of the majority of labour households. In addition to that, most of the labour households have non-wage and supplementary income and it created a negative impact on labour supply to agriculture. The expenditure level of labour households was found to be better. They had a fair level of spending on food and other items, education, health, consumer durables, travel, entertainment etc. The average monthly expenditure of the PNALH group was much higher than that of the PALH group.

The primary survey results revealed that micro-level factors operating at the household level and macro-level factors operating at the societal level were responsible for the reduction in the supply of labour to agriculture. The shortage of labour created a negative impact on paddy cultivation and a threat to the food security of Kerala. Selective mechanization and harmonization in the use of machines and labour would increase the intensity of cultivation and sustainability of agriculture as a dependable source of employment and income for households. This change would, of course, attract the new generation to agriculture and it would be a solution to the food insecurity of Kerala.

## References

- Franke, R. W. (1993). *Life Is a Little Better – Redistribution as a Development Strategy in Nadur Village, Kerala*. Sanfrancisco, Oxford: West View Press.
- Thomas, J. A. and Thomas T. A. (1999). ‘Agrarian Relations in Kuttanad.’ In: B.A. Prakash (eds). *Kerala’s Economic Development – Issues and Problems* (200-19). New Delhi: Sage Publications.
- Kannan, K. P. and Pushpangadhan, K. (1990). “Dissecting Agricultural Stagnation: An Analysis Across Seasons, Crops and Regions.” *Economic and Political Weekly* 25 (35-36): 1991-04.
- Kannan, K. P. (1998). ‘State and Union Intervention in Rural Labour: A Study of Kerala.’ In: R. Radhakrishna, and A. N. Sharma (eds). *Empowering Rural Labour in India – Market, State and Mobilisation* (340-70). New Delhi: Institute for Human Development.
- Thomas, P. M. (2004). ‘Agricultural Performance in Kerala.’ In: B.A. Prakash (eds). *Kerala’s Economic Development, Performance and Problems in the Post Liberalisation Period* (141- 64). New Delhi: Sage Publications.
- Krishnan, T. N. (1991). “Wages, Employment and Output in Inter-related Labour Markets in an Agrarian Economy: A Study of Kerala.” *Economic and Political Weekly* 26 (26): A 82–A 96.
- Krishnakumar, R (2001). “A Path-breaking Experiment”, *Frontline*, Vol. 18, No. 6, March, 17-30.
- Mohanakumar, S. and Sharma R. K. (2000). “Minimum Wage Legislation and its Impact on Rural Wage Formation: A Study of Agricultural Labourers in Kerala.” *The Indian Journal of Labour Economics* 43 (2): 247-60.
- Sasikumar, S.k; and S. Raju (2000). ‘Dynamics of Labour Market in Kerala’, NLI Research Studies, No. 002/2000, V.V. Giri National Labour Institute, NOIDA, March.
- Sukumaran Nair, M. K. (1999). ‘Emerging Trends in Labour Shortage in Agriculture.’ In: B.A. Prakash (eds). *Kerala’s Economic Development – Issues and Problems* (220-41) . New Delhi: Sage Publications.
- Alexander, K. C. 1980. “Emergence of Peasant Organizations in South India.” *Economic and Political Weekly* 15 (26): A 72-A 84.
- Jose, A.V. (1984). “Agrarian Reforms in Kerala: The Role of Peasant Organization.” *Journal of Contemporary Asia* 14 (1): 48-61.
- Abraham. M. P. (2010). “Agricultural Labour Market of Kerala- Evolution, Characteristics and Dynamics”. *Loyola Journal of Social Sciences*. 43-68.
- Kannan, K. P. (1999). ‘Rural Labour Relations and Development Dilemmas in Kerala: Reflections on the Dilemmas of a Socially Transforming Labour Force in a Slowly Growing Economy.’ In: T. J. Byres, K. Kapadia, and J. Lerche (eds). *Rural Labour Relations in India* (142-60). London, Portland: Frank Cass.

Tharamangalam, J. (1981). *Agrarian Class Conflict: The Political Mobilization of Agricultural Labourers in Kuttanad, South India*. Vancouver: University of British Columbia Press.

Kannan, K. P. (1988). *Of Rural Proletarians: Mobilization and Organization of Rural Workers in South – West India*. Delhi: Oxford University Press.

George, T. M. (2001). *Rural Labour Market*. Delhi: B.R. Publishing Corporation.

NSO (2019). Annual Report – Periodic Labour Force Survey (PLFS), July 2017-June 2018, Ministry of Statistics and Programme Implementation, Government of India.



# CLIMATE CHANGE AND ADAPTIVE STRATEGIES OF PARTICULARLY VULNERABLE TRIBAL GROUPS OF CHHATTISGARH: A CASE STUDY OF THE BAIGA OF AMARKANTAK REGION

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**Abstract:** Conservation of the environment is catalytic for the sustainable development of human society. But the depletion of natural resources throughout the world led to enhanced emission of greenhouse gases and climate change. The resource exploitation not only affects the environment, but also adversely impacting the livelihoods of the dependent people. The Baiga is one of the Particularly Vulnerable Tribe Group (PVTGs) from Chhattisgarh and Madhya Pradesh is classic example of the victims of ongoing resource exploitation in the form of mining and other developmental projects. The present paper highlights the bauxite mining in Achanakmar Amarkantak Bio-Sphere Reserve (AABR) and analysed its impact on the forests as well as resource management. Due to climate change, the Baiga is facing problems of grazing the cattle, collection of forest produce, water scarcity in natural springs and borewells, soil erosion, etc. Under these circumstances, the present paper highlights the transition of traditional livelihoods of Baiga and their adaptive strategies for survival.

**Keywords:** Climate, natural resources, management, livelihoods, agriculture

## Introduction

Natural resources like *Jal* (water), *jungle* (forest), and *Jameen* (land) are catalytic for the sustenance of tribal and rural communities as their livelihoods are largely dependent on their optimum utilization. Due to its significance, the tribal communities developed knowledge about the utilization of natural resources during exigencies and climatic risks. This traditional knowledge is enshrined in socio-cultural practices of the dependent population and transmitted from one generation to the other orally. The ongoing climatic change has altered the

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ecosystems and led to a paradigm shift in the utilization of natural resources. India has 80.9 million hectares of forest coverage which accounts for 24.62 per cent of the total geographical area against the ideal forest coverage of 33 per cent (ISFR, 2021). Unsustainable use of resources is impacting the livelihoods of millions of rural and tribal poor. Mining was such an unsustainable strategy which led to the degradation of forest resources and the displacement of people. The unsustainable resource use pattern enforces Particularly Vulnerable Tribal Groups (PVTGs) to face livelihood insecurity and traps them in a vicious cycle of poverty.

The tribes of central India especially the PVTGs such as Baiga practicing the shifting and settled cultivation in the Achanakmar-Amarkantak Bio-Sphere Reserve (AABR) are testimony to the above fact. This Biosphere was in *Mekal* range of Satpuras that extends from Chhattisgarh to Madhya Pradesh covering an area of 383.551 hectares. Of which 68.1 per cent reserve lied in Bilaspur district in Chhattisgarh; 16.20 per cent in Anuppur District; 15.70 per cent in Dindori district of Madhya Pradesh. The topography of Amarkantak plateau is bauxite rocks. The pious Narmada, Son, and Johilla originated from this place and hence considered as watershed to central India. The indigenous Baiga, Gond, Kol, Panika, and Dhulia communities are residing along with some peasant groups. The topography of lowlands facilitating the growth of paddy, wheat, and oilseeds besides the traditional crops such as *Kodo*, *Kutki*, *Madai*, and *Makka*, etc. Contact with neighboring peasant castes, the vulnerable tribes such as Baiga are practicing settled type of cultivation. Though they are practicing the cultivation of paddy and wheat, the age-old traditional knowledge and technology of resource utilization is not given up. Still the reminiscences of traditional methods of cultivation, manuring, and use of indigenous seeds, etc. During the lean agricultural season, they depend on the harvest of forest resources by using their traditional knowledge for survival. Thus, the Baiga has developed an adaptation strategy of using different methods of resource utilization during the non-agriculture season.

Besides agriculture, Baiga engages themselves in cultivating vegetables in their backyard. The sale of backyard vegetables also fetches little income to Baiga. Further, the fiber extracted from the bark of wild grasses popular as *Mohalayeen* is highly valued in the weekly market and provides them an alternative source of livelihood. Certain pockets of their habitat are covered with common property resources in the form of naturally grown mango *Seethapalam* (custard apple), and *Jamun* (blackberries) groves. Such fruit-bearing trees are also plenty in *Banjar* and forest lands of the respective villages of Baiga of Danauli *Gram Panchayat* of Bilaspur district in Chhattisgarh.

However, the ongoing bauxite mining in AABR region affected the forests as well as its resources in a massive way. Due to intensive mining, a major

chunk of forest coverage has come down drastically and the Baiga facing problems with cattle grazing, collection of seasonal forest produce, depletion of water level in natural springs and bore wells, soil erosion, etc. Now they must walk down long way to harvest forest resources, and drinking water and facing many problems in obtaining forest livelihoods. Due to climate change, the amount of rainfall is dwindling gradually and recorded very low in previous years. As a result, crops are not yielding the expected harvest since their agriculture is still in primitive form and rainfed. Migration and wage labor have become an adaptive strategy to counter the resource depletion in their forests. Thus, they are forced to change their traditional resource management methods and adopted new ones for their survival. In the present paper, an attempt is made to analyze the traditional resource management methods and their changing pattern due to climate change.

### **Overview of Literature**

In post-independent India, many scholars attempted the impact of climate change on the subsistence system of hunter-gatherers, pastoralists, pre-industrial cultivators, and even peasants. According to United Nations report, Carbon dioxide emissions have been increased by 50 per cent since 1990. Mining in green forests is one of the major reasons for increasing the global warming which eventually led to climate change. In India, till 2010-11, altogether 2,626 mines were operational and majority of them are in eleven states including Madhya Pradesh and Chhattisgarh (Centre for Science and Environment, 2011). Besides these recognized ones, illegal mining causing environmental damage to the Mekal hills. This unchecked mining was not only affecting the sustainable livelihoods of its dependent communities but also led to their displacement. The studies by Porter (1965), Goldschmidt (1965), Netting (1968), Bernard Nietschmann (1973) Gross (1975), have contributed to studying tribal communities in understanding cultural adaptation in varied ways. Prakash Reddy's (1982) 'Scarcity and Survival' is an important work on the Chowra community in the Nicobar Archipelago that examines how a high-density population utilizes limited resources. The management of common property resources was attempted by Bromley (1991), Moran (1982), Runge (1984), Ostrom (1987), and so on prove that communal management is largely an adaptation to the environment in times of exigencies of external conditions. Pandian (1987) traces the consequences of external intervention (State) in the traditional resource use patterns. He argued that the destruction of pre-existing physical balance between croplands and non-croplands is a result of such intervention. Guha (1989), points out that peasant movement in the Himalayan region arose to protect their traditional rights over the forests, as commercial forestry disrupted their resource utilization pattern. Guha and Gadgil (1992) emphasize the conditions under which humans exercise prudence in their use of natural resources and it is analogous to that of decadence of the same in

that habitat. Jodha (1992) stressed on the importance of traditional coping strategies of village farmers over modern drought management techniques. Jishnu Das (2000) based on his study in the *Garhwal* region, argued that the management of common resources has been concerned with the village-level institutions rather than individual incentives towards its conservation. Further recent works have been undertaken on different issues of resource management in rural and tribal scenario. However, studies on the ill effects of climate change on Particularly Vulnerable Tribal Groups are very scarce. The present work is an addition to the existing body of literature in the field of climate change and resource management and its changing patterns in tribal areas.

### **Objective**

The present study aims to highlight the environmental challenges posed by climate change in the Mekal hills of the Amarkantak region which is closely attached to the Achanakmar-Amarkantak Bio-Sphere Reserve (AABR). It is a homeland for numerous tribal communities like Gond, Panika, Kol, and Agaria along with the Baiga, a Particularly Vulnerable Tribal Group. The ongoing mining and stone quarrying posing challenges to the livelihoods of Baiga of Danauli *Gram Panchayat* of Bilaspur in Chhattisgarh. Further, this paper also made an attempt to document the traditional as well as changing pattern of natural resources management and livelihood patterns in the Baiga areas of the bordering villages of AABR.

### **Study Area**

For the present study, the *Baiga* hamlets of Danauli *Gram Panchayat* of Bilaspur District in Chhattisgarh are selected and studied intensively from an anthropological perspective. The study villages covered for the present study are mainly Pakri Katchar, Khari Debra, Chuila Paani, Media Katchar, Patra Tola, Karangara, and Baidkudra. These Baiga hamlets are situated on the hillocks and inside the forest of the *Mekal* range of the Amarkantak region. The study area is also affected by illegal bauxite mining as well as the establishment of stone crushing units that are operated by non-tribes. The ongoing mining and stone quarrying activity in the region led to the depletion of forest coverage. The agricultural tribes like Gond, Panika, and Kol and non-tribes like *Yadav*, *Gujjar*, *Choudhury*, and *Brahmin* reside very close to their settlements and cleared forest land for cultivation. The study villages are in a radius of three kilometers whereas the *Baiga* hamlets are interiorly located from the main village. The study area comes under the purview of the Fifth Schedule of the Indian constitution. The households are scattered inside the forest and can be reached on footpaths only. Gaurella is the nearby *Tehsil* seven to ten kilometers distance whereas Bilaspur is the nearest District headquarters having more than a hundred kilometers having road and rail connectivity.

## Methodology

The present study is a qualitative anthropological study aimed at understanding the environmental challenges due to climate change and the resultant resource management strategies among the *Baiga* as the socio-cultural, educational, economic, and religious life of the Baiga are highly influenced by climatic and surrounding geographical conditions. The primary data was collected through intensive fieldwork conducted during 2017 among the Baiga settlements of Danauli *Gram Panchayat* of Bilaspur district in Chhattisgarh. To fulfill the objectives of the study, qualitative anthropological techniques were conceived as important for the study. These are mainly participant observation, key informant interviews, and formal and informal interviews using a detailed schedule. Separate focus group interviews were conducted with the stakeholders such as headman, native cultivators, medicine-men, etc. to understand the changing pattern of resource management. Further quantitative data was also collected by visiting door to door using household census schedules (2017) as a part of primary data collection for the major research project of Indian Council of Social Science Research (ICSSR). Basically, the study was qualitative in nature, primary data was collected from six Baiga villages. All the households in a village were considered as a single unit and made observations along with interview with key informants. Secondary sources like books, journals, and census reports are collected from various libraries and archives to understand the conceptual framework through a review of literature.

## Brief Ethnographic Account of Baiga

*Baiga* is one of the Particularly Vulnerable Tribal Groups (PVTG) in Madhya Pradesh and Chhattisgarh. They are classified into seven sub-categories known as the *Binjhawars*, the *Bharotiyas*, the *Narotias*, the *Raibhainas*, the *Kathbhainas*, the *Kondwans*, and *Gondwainas* (Elwin, 1932). They speak their dialect known as *Baigini* which is intermixed with Chhattisgarhi. Their social organization is divided into several endogamous *Jat* (groups), which are themselves subdivided into exogamous *Garh* and *Goti*. Social relationships between the different *Jat* are governed by a series of detailed and rather complicated regulations. Marriage by mutual love and elopement, marriage by service, and marriage by negotiation are the existing and socially approved forms of marriage. The practice of monogamy is widely observed in the study village. Divorce and remarriages are common. The custom of bride price is prevalent in the study area and it is paid either in cash or kind (Russel and Hiralal, 1916).

As per the 2017 household census, the total population of the Baiga hamlets comes to 1334 consisting of 656 males and 678 females. Interestingly the female population of Baiga is outnumbering the male population.

**Table-1**  
**Demographic Details of Baiga Settlements in Danauli 2017-18**

| <b>Name of the Village</b> | <b>Male</b> | <b>Female</b> | <b>Total</b> |
|----------------------------|-------------|---------------|--------------|
| Karangara                  | 140         | 159           | 299          |
| Baidkudra                  | 32          | 43            | 75           |
| Media Katchar              | 154         | 151           | 305          |
| Chuila Paani               | 151         | 143           | 294          |
| Pakhri Katchar             | 97          | 101           | 198          |
| Khari Debra                | 82          | 81            | 163          |
| Total:                     | 656         | 678           | 1334         |

**Source:** Fieldwork Data 2017-18

At present, they practice primitive forms of agriculture by using simple technology in the study area. They cultivate traditional varieties of *Kodo*, *Kutki*, *Ramtila*, *Ulsi*, *Teera*, *Masurdal Channa*, *Paddy*, *Wheat*, and *Maize*. *Pej* (porridge) is a kind of semi-liquid staple food prepared daily for consumption. They hunt small animals like *Chitar* (Deer), *Barha* (pig), *Khargosh* (rabbit), and fish in nearby water bodies. Further, they depend on forests for both timber and non-timber forest produce for their sustenance.

Traditional Baiga jurisprudence governs tribal life to a greater extent than regulations established by the state. This jurisprudence is concerned chiefly with the maintenance of tribal integrity and prestige. Control is maintained by tribal excommunication, fines, and beating. These matters are decided by both informal procedures (i.e., by non-structural consultation of various community members) and formal procedures (i.e., by the village ward member).

*Gao Gossain* is the main sacred place of the *Baiga* which is located adjacent to the *Sarai* and *Kamar* trees. All the community-related festivals and agriculture-related ones are celebrated communally at this place. Wherein *Maskasi Narayan Deo* and *Thakur Deo* are believed to stay. Further, they also worship *Bura Deo*, *Dharti Mata*, *Agni Deo*, *Ghamsaan Deo*, and *Dulha Deo* like nearby Gond. *BuraDeo* is also worshipped once in three years. On that auspicious occasion, they sacrifice a goat or hen, pig, or newly made *Mahuwa* liquor. Besides some of them do offer worship the deities of Hindu Religion along with pious saints.

With the contact of non-tribal and agricultural tribes and the impact of mining, their traditional livelihoods relating to hunting and gathering, fishing, and seasonal collection of forest resources have come down. Now they rely on government doles, wage labour, and Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) works as an adaptation.

## Resource Management Strategies

Natural resources play a very important role in the subsistence of Baiga and hence they sustainably manage the resources. They have traditional knowledge about the forest resources which is not only used for livelihoods but also useful in coping with any shocks and risks during exigencies. This knowledge is well shrined in rituals for the conservation of resources. The Baiga, in the study area, continue to depend on their traditional methods of resource utilization and management for livelihood despite outside interventions. The sustainability of their traditional livelihoods is linked to their knowledge, institutional mechanisms, value system, and cooperation among their clan and lineage members. This is reflected in observance of their elaborate ceremonial rituals. Baiga has institutionalized rules and regulations to restrain individuals from over-exploiting the resources. They believe that the trees belong to *Peepaljihaad*, *Bheejajhaad* is considered as *Thakur Deo*. *Chula* (fire hearth) is considered the abode of the deities since it provides food to them. The religious veneration of natural resources is a mechanism for restraining individuals or groups from over-exploitation of their natural environment.

The management of natural resources like collection of minor forest produce, maintenance of kitchen garden, raising poultry, rearing cattle, pigs and goats, etc., are the major concerns of every family. This management can be observed starting from the land allocation to agriculture, fishing and hunting, observance of ceremonies, and feasting. They are undertaken by family with the assistance of line age members, as these tasks require collective effort rather than individual effort. Prior to understanding the impact of climatic change on the resource management of the Baiga, it is pertinent to study the traditional methods of resource utilization pattern at first instance.

## Land Management

Land is the main source for the subsistence of Baiga and its significance is evident from the elaborate rituals associated with it and agriculture. Most of the available land is for different purposes like *Doliya* (wet cultivation), *Parthu* (dryland cultivation), *Bhadi* (kitchen garden), *Donger* (forest), *Banjar* (cattle grazing), hilly uplands, etc. It is ancestral property that is inherited from their lineage and close kins. It is stated by the Baiga of Baidkudra that earlier they used to stay in the villages of Umarguhan and Jaleswar. Due to the increase in their population, they came to the present village and cleared the forest for *Dhaba* (shifting cultivation). In due course of time, they settled and practicing settled agriculture. The wet and dry land including the kitchen garden are treated as personnel property whereas the *Talab* or *Bandh* (ponds), burial ground, forest, *Banjar*, and hilly uplands are common property for the Baiga and utilized by all the villagers. For example, *Mahuwa* trees in the forest are common property and they are subjected to use for that village.

Earlier, they had been practicing *Dhaba* (slash-and-burn cultivation) for generations in the *Mekal* hills of the Amarkantak region. However, the Baiga of the study area who are residing in the study area are not practicing this cultivation. But few patches of *Dhaba* terraces are found inside the forest area where they are practicing *Dhaba* clan destinely. In case it is known to others, the forest officials destroy the crop. Hence, the majority of them are now practicing settled cultivation with the impact of *Kisan* (Gond) and non-tribal peasants.

The cultivation of land is based on a joint family basis. In the event of separation of the family on the account of marriage or dispute, individual farming is undertaken. Wherein lineage or family cooperation is mandatory to execute major works like *Rupai* (seedling), *Nidai* (weeding), and *Katai* (harvesting) in the fields. Mixed cropping is a characteristic feature of the Baiga agriculture where millets, cereals, pulses, and oilseeds are grown in one plot. It is coupled with the cultivation of vegetable leaves and tubers.

### Cropping Pattern

The traditional crops like *Kodo*(small millet), *Kutki*(small millet), *Jowar*(great millet), *Makka* (maize), *Madiya*, *Kang*, *Sawa*, *Balihari*, *Ulsi* (oilseed), *Ramtila* (oilseed), *Tiwda* are cultivated by the Baiga since generations along with *Gehu* (wheat), *Dhaan* (paddy), *Muttor* (pea), *Masur* (dal), *Rai* (mustard), *Rahar* (tore dal), etc. During the monsoon period, all the ponds and pools are filled with water and it is used for irrigation purposes.

Generally, before the rainy season (Southwest monsoon), all the Baiga families start preparations for agriculture in April by engaging themselves in removing the leftover crop of the last year. The ploughing is undertaken thrice i.e., after the first shower, leveling, and lines for sowing. After two months of the sowing, they undertook weeding and started harvesting the crops one another after four months.

**Table-2**  
**Cropping Pattern in the Study Area**

| Season                | Type of Crop                                                                                                                                                                                                                                |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kharif (June-October) | <i>Kodu</i> , <i>Makka</i> , <i>Dhan</i> (paddy variety 110, 22 number, <i>Niwari</i> , <i>Dudhraj</i> , <i>Lohandi</i> , <i>Chephti</i> , <i>Bharra</i> , <i>Tara</i> )<br><i>Kutki</i> , <i>Rahar</i> , <i>Urad</i> , <i>Hirma</i> , etc. |
| Rabi (November-May)   | <i>Rai</i> and <i>Masur</i> , <i>Channa</i> , <i>Butterie</i> , <i>Gehu</i> (wheat), etc.                                                                                                                                                   |

Source: Fieldwork Data 2017-18

### Parthu or Kheth (Dryland Cultivation)

The lands surrounding the Baiga houses and the plane lands on the hill slopes are used for dry cultivation. These cultivating fields contain matured trees. Baiga does not remove *Mahuwa* and *Sarai* trees in their fields and continues the crops

under the shade of these trees. Since these lands are rainfed, crops like *Soya Bean, Kodo, Kutki, Ulsi, Rahar, Urad, and Chana* are grown in them. Compared to wetlands, the yields are low in dry fields. The process of cultivation involves ploughing, which is done twice, and seeds of different varieties of millets and cereals are broadcast in the same plot as mixed crops. The dry land cultivation is known as *Bharra* among non-tribes.

### **Doliya or Bandiya (Wetland Cultivation)**

The wetland cultivation is known as *Doliya* in the Baiga dialect where paddy is grown in *Kharif* (June-October) every year. Unlike non-tribes, they do not venture for *Rupai* (seedling). Rather they broadcast the paddy seeds at once. After the harvest of paddy, the other crops like *Masur, Tiwda, Gehu*, etc., are sown as the second crop. The non-tribal call it *Bandiya* where intensive rice cultivation is practiced.

The flat agricultural fields in the catchment of ponds (low-lying areas at big dams where rainwater gets stored) are used for the cultivation of paddy. The trees like *Mahuwa* and *Sarai* in the *Doliya* lands are not cleared by the Baiga. These water-logging places facilitate irrigation for the cultivation of paddy. Besides these natural water bodies in other low-lying areas, the Baiga built earthen bunds to prevent the flow of rainwater in slopes. Soon after rains, the Baiga plough *Doliya* lands with the help of their cattle once or twice.

The cultivable land is cleared during summer and removes previous plant wastage and grass. At first instance, they plough with the help of *Nangaar* (plough). After a shower of rain, the land is once again till the land with *Bukkad* (leveling plough) and broadcast the paddy seeds. After two months, *Nidai* (weeding) is undertaken to remove *Khat Phatward* (grass) in the month of *Sawan* (July) and *Bhado* (August). Thereafter harvest is made during *Karthic* (October) or *Pus* (December). In case, the harvest is in small quantity, they carry it on head loads to their house where *Kanyal* (thrashing platform) is present or else they prepare *Kanyal* near to their field and thrash after drying in the field. In case of failure of rains, all their efforts become waste as it involves more labour.

### **Bhadi (Kitchen Garden)**

Production of vegetables in their *Bhadi* (backyard) is also one of the subsistence activities practiced by the Baiga. During the onset of the monsoon, they cultivate *Jowar, Makka, Rahar, Kheera, Kakadi, Pihti* or *Bhadel*, etc. Besides this, they also cultivate different vegetables like *Semi* (beans), *Papita* (papaya), *Khela* (banana), *Aam* (mango), *Bihi* or *Amrut* (guava), *Bhata* (brinjal), *Pathali* (small tamato), *Dhodka* (a variety of plain gourd), *Lauki* (bottle gourd), *Turai* (ridge gourd), *Karela* (bitter guard), *Kumda* (pumpkin), *Kalindra* (*kaddu*), *Mircha* (chilli), *Pyaaaj* (onion), *Aalu* (potato) and different varieties of leafy vegetables like *Purpuribaaaji, Kotnibaaaji, Meitibaaaji, Palakbaaji, Lalbaaji, Raibaaaji*,

*Batuvabaaji* along with Muttur (peas), *Muli* (raddish), *Phool Gobi* (cauliflower), *Patta Gobi* (cabbage), etc. These are produced for their consumption. They do not make use of chemical fertilizers and other artificial inputs to increase their productivity.

Preparations for the kitchen garden are taken up before the onset of rain. All the families of Baiga clear their backyard by removing grass and dried plant vines with the help of agricultural tools known as *Gaiti*, *Phavda*, *Kudra*, *Kudiri*, *Hasiya*. It is a household activity wherein both men and women participate. Women spend most of their time clearing the backyard while men often are engaged in plantation work. Women spend at least a couple of hours every day attending to the works like removing the weeds at the base of the plants, providing support to the creepers, replacing dried plants, constructing fencing, etc. Children also help their parents with gardening work. The cultivated vegetables are also sold in the weekly market depending on supply.

### **Animal Husbandry**

Cow, ox, goat, pig, and poultry birds constitute the major stock of the Baiga and have socio-economic significance. It is one of the chief sources of livelihood and is used for sale as and when required money. Even they use livestock as bride price in terms of marriage and it is obligatory to slaughter this stock on almost all ritual occasions. As such, it ensures the continuous supply of protein in the form of sacrificial meat. Livestock is used in exchange to procure certain goods like bamboo baskets and mats, *Mahuwa* flowers, and consumable goods from non-tribal traders in the weekly market. Baiga treats livestock as an asset and these constitute part of payments of fines imposed by *Kula Panchayat* as part of dispute resolution. The livestock are not only economically useful but have a social value too. It is customary to offer a bride price in the form of cattle during marriage. It is obligatory to slaughter pigs, goats, and chickens during festive occasions, and during both the annual and life cycle rituals. If someone becomes ill, *Gunia* (magico-religious practitioner) offers a particular identified fowl or pig to the deity or spirit. Thus, the livestock plays a pivotal role in the socio-religious life of Baiga. Barter exchange of cattle is practiced with the non-tribes. For example, the *Gai* (Cow) is exchanged for *Bail* (buffalo). Sometimes they purchase the cattle ranging from Rs. 3,000/- to 10,000/- based on the age and performance of the cattle.

### **Dongar (Forest) and its Management**

Forest plays a pivotal role in the socio-economic and religious life of the *Baiga*. In the forest, they collect non-timber forest Produce (*Mahuwa*, *Tendu* leaves, gum, and resin) wild vegetable leaves, roots and tubers, wild berries, and fruits. *Baiga* often ventures to hunt wild game and birds in the forest during ceremonial occasions. In case of failure of rains and agriculture, they depended on forests for

survival. Due to its significance, the Baiga have developed a symbiotic relationship with the forest and started worshipping many deities. Thus, conservation of forests is enshrined in their socio-cultural mechanisms since their immediate survival is dependent on it. Prior to understanding forest resource management, it is pertinent to understand the available edible and non-edible forest resources in the study area. They are mainly

### Kanda (Roots and Tubers)

**Table-3**  
**Seasonal Availability of Roots and Tubers in the Study Area**

| S. No. | Type of Kanda      | Season                          | Description                                                                  |
|--------|--------------------|---------------------------------|------------------------------------------------------------------------------|
| 1      | <i>Gate</i>        | <i>Bado to Pus</i>              | Available in deep forests and small roots cover the entire body of the tuber |
| 2      | <i>Kirchi</i>      | <i>Sawan</i> starting           | In forests and fields                                                        |
| 3      | <i>Suran</i>       | <i>Jait</i>                     | Kitchen garden ( <i>baadi</i> )                                              |
| 4      | <i>Rathalu</i>     | <i>Kuwar</i> to <i>Karthick</i> | Kitchen garden ( <i>baadi</i> )                                              |
| 5      | <i>Semar</i>       | <i>Sawan</i> starting           | Forest and hill                                                              |
| 6      | <i>Badai</i>       | <i>Karthik</i>                  | Forest and hill                                                              |
| 7      | <i>Kochai</i>      | <i>Jait</i>                     | Kitchen garden ( <i>baadi</i> )                                              |
| 8      | <i>Ravi</i>        | <i>Kuwar</i>                    | Deep forest and hill                                                         |
| 9      | <i>Donchi</i>      | <i>Magh</i>                     | Forest                                                                       |
| 10     | <i>Thikur</i>      | <i>Karthik</i> to <i>Agghan</i> | Forest and on the bank of rivers and <i>nallah</i>                           |
| 11     | <i>Daang</i>       | <i>Kuwar</i> to <i>Karthick</i> | Kitchen garden ( <i>baadi</i> )                                              |
| 12     | <i>Churka</i>      | <i>Sawan</i> to <i>Kuwar</i>    | Deep forest and hills                                                        |
| 13     | <i>Deduri</i>      | <i>Kuwar</i> to <i>magh</i>     | Deep forest and hills                                                        |
| 14     | <i>Baichandi</i>   | <i>Kuwar</i> to <i>Karthick</i> | Deep forest and hills                                                        |
| 15     | <i>Lodgikaanda</i> | <i>Jait</i>                     | Deep forest                                                                  |
| 16     | <i>Semar</i>       | Throughout year                 | <i>Donger</i>                                                                |
| 17     | <i>Badain</i>      | <i>Pus</i> to <i>Jait</i>       | Deep forest                                                                  |
| 18     | <i>Jigi</i>        | <i>Sawan</i> to <i>Jait</i>     | <i>Baadi</i>                                                                 |
| 19     | <i>Saklakaanda</i> | <i>Kuwar</i>                    | Cultivated in <i>Baadi</i> and forest                                        |
| 20     | <i>Churka</i>      | <i>Sawan</i> to <i>Kuwar</i>    | Deep forest and                                                              |
| 21     | <i>Sethu</i>       | <i>Sawan</i> to <i>Magh</i>     | Deep forest                                                                  |
| 22     | <i>Kanyakaanda</i> | <i>Magh</i> and <i>Phaghun</i>  | Deep forest                                                                  |
| 23     | <i>Baraad</i>      | <i>Kuwar</i>                    | Deep forest                                                                  |

**Source:** Fieldwork Data 2017-18

During the lean period, the Baiga men and women collect roots and tubers from the forest with simple hoe and digging stick. They use it as a substitute for their regular food. Further some varieties of roots and tubers are praised by non-tribes and hence it is sold during the weekly market. Due to its commercial value, some varieties are cultivated in kitchen gardens. Baiga identifies different varieties of

roots and tubers based on previous cite markings, based on the thickness of *Bela* (tuber vein), based on softness and thorns, color, hair, size of the leaves, nature of soil around the tuber, etc. Whenever they collect *Kanda*, some portion is left for its rejuvenation. In *Baisakh* and *Jait* (hot summer), no roots and tubers are available due to the burning of forests. During *Aashad*, the onset of the first monsoon the veins of the previous one start sprouting.

The dug-out roots and tubers are processed through two methods i.e., boiling and roasting in fire before consumption. *Kirchi Kanda* is consumed in raw form or roasted on fire. *Kanya Kanda* is available in deep dugouts and used exclusively for vegetable purposes. It is extracted in huge quantities and stored in the soil. It is preserved for two to three weeks. *Suran (jimi)*, *Kochai*, and *Guiya Kanda* are other varieties that are consumed after boiling and roasting. The leaves and tender trunk of these tubers are also consumed in the form of vegetables. For income generation, the Baiga nowadays cultivate certain varieties of tubers like *Sakla Kanda* in *Bhadi* and sold in the weekly market for income generation.

### Pihiri (Mushrooms)

The season lasts for about two months July-August and the big size variety is available up to even September. Depending upon the climatic condition, soil, and location, many varieties of mushrooms are available in the forest and are consumed as alternative food resources by the *Baiga*. The excess collection is brought to weekly markets for sale and procures essential commodities for their daily use.

**Table-4**  
**Seasonal Availability of Mushrooms in the Study Area**

| S. No. | Name of the tuber    | Seasonal availability  | Place                                             |
|--------|----------------------|------------------------|---------------------------------------------------|
| 1      | <i>Sarah pihiri</i>  | <i>Sawan</i>           | Deep forest                                       |
| 2      | <i>Lal pihiri</i>    | <i>Sawan</i>           | Forest                                            |
| 3      | <i>Bichadipihiri</i> | <i>Sawan to Kuwar</i>  | Deep forest                                       |
| 4      | <i>Luma pihiri</i>   | <i>Aashad to Sawan</i> | Forest and hills                                  |
| 5      | <i>Puntipihiri</i>   | <i>Aashad</i>          | Hills                                             |
| 6      | <i>Raj Bhodo</i>     | <i>Bado and Kuwar</i>  | Under the trees of agricultural fields and forest |
| 7      | <i>Suvvapihiri</i>   | <i>Aashad</i>          | Deep forest and hills                             |
| 8      | <i>Bodu pihiri</i>   | <i>Sawan to Bado</i>   | On heaps of soil                                  |
| 9      | <i>Bhatpihiri</i>    | <i>Aashad</i>          | On heaps of soil                                  |
| 10     | <i>Chirkopihiri</i>  | <i>Aashad to Sawan</i> | Agricultural field and forest                     |
| 11     | <i>Titipihiri</i>    | <i>Aashad</i>          | <i>Barra</i> fields                               |
| 12     | <i>Putt pihiri</i>   | <i>Jait</i>            | Forest                                            |
| 13     | <i>Patibhari</i>     | <i>Sawan</i>           | Agricultural field and forest                     |
| 14     | <i>Khuta</i>         | <i>Magh</i>            | On rotten wood                                    |

contd.

| S. No. | Name of the tuber    | Seasonal availability  | Place                                                           |
|--------|----------------------|------------------------|-----------------------------------------------------------------|
| 15     | <i>Baas</i>          | <i>Sawan to Kuwar</i>  | The bamboo grove in forest                                      |
| 16     | <i>Kauvva</i>        | <i>Aashad</i>          | Deep forest hills                                               |
| 17     | <i>Tokri</i>         | <i>Aashad to Sawan</i> | Forest plains                                                   |
| 18     | <i>Khukri</i>        | <i>Aashad to Sawan</i> | Agricultural field and forest                                   |
| 19     | <i>Gobar</i>         | <i>Jait to Aashad</i>  | In forest hill                                                  |
| 20     | Kharhagodi           | <i>Aashad</i>          | <i>Baadi</i> (kitchen garden)                                   |
| 21     | <i>BharaidKhukri</i> | <i>Bado</i>            | Agricultural field and forest                                   |
| 22     | <i>Thela</i>         | <i>Sawan</i>           | Deep forest                                                     |
| 23     | <i>Sendri</i>        | <i>Sawan- Bado</i>     | Forest and hills                                                |
| 24     | <i>Bansupihiri</i>   | <i>Sawan to Kuwar</i>  | Around the bamboo groove in the forest, <i>Baadi</i> , and hill |

**Source:** Fieldwork Data 2017-18

**Puttu:** It is available during June and the season lasts for about two to three weeks. At the outset of monsoon with great thunders, the *Puttu* are found at the surface of the soil which is covered with leaves or soil. The collected *Puttu* is consumed as a vegetable and sold in the weekly markets to earn income since it is very costly.

**Baaji (Wild Vegetable Leaves):** Many varieties of wild vegetable leaves are collected by the *Baiga* from the nearby forest. They are mainly *Boilam*, *Katchar*, *Taini*, *Gojari*, *Kavaiah*, *Barai*, *Koilar*, *Amti*, *Kitchnar*, *Munga*, *Dhan Dahera*, *Birhul*, *Pakri*, *Chun Chuniya*, *Teen Patti*, *Kutuwa*, *Kusum*, *Katwal*, *Pakh*, *Kanta*, *Charota*, *Purpuri*, *Jillo*, *Cheai Baaji*, *Girul Baaji*, *Dhope Baaji*, *Kevlar Baaji*, *Karil Baaji*, *Peepar Baaji*, *Amla Baaji*, *Kereya Baaji*, *Lamer Baaji*, *Tinsa Baaji*, *Chiroti Baaji*, *Pakadi Baaji*, *Maasi Baaji*, *Gumi Baaji*, *Kuraiah Baaji*, *Kachad Baaji*, *Baram Rakash Baaji*, *Channa Baaji*, *Rai Baaji*, *Munaga Baaji*, *Koilari Baaji*, *Mahur Baaji*, and so on. They use these leaves as additives by mixing them with other vegetables, meat, and fish. The excess collection is sold in the weekly market. Some of the vegetable leaves are also consumed for medicinal purposes by the *Baiga*. The tender leaves of matured trees like *Chakoura*, *Batuwa*, *Tiwara*, *Kutni* that are available in the forest and agricultural fields are also consumed by the *Baiga* during the season.

**Shikaru (Hunting):** Hunting is a part of the *Baiga* socio-cultural life and game like *Chitar* (Deer), *Barha* (wild pig), *Khargosh* (rabbit), *Junglyuvvar* (wild pig), monitor lizard, etc., are hunted by using the traditional traps and implements. Nowadays they are hunting small game like rabbit, deer, wild pig, monitor lizard, etc. Besides such small game, some of the birds like wild fowl (*Jungly Murgi*), *Ghotri*, *Sambar*, *Mor*, *Lakadbakka*, *Cheetah*, *Khargosh*, *Pondki*, *Telha*, *Chechan*, *Bach*, *Kabotar*, etc. For hunting, they use bow and arrow, gun, traps. In the forest, small and big wild fowls like *Podki*, *Teha*, *Chechan*, *Baajor Cheel*, *Kabutar*, etc., which are crawling not flying are hunted along with hunting implements.

Baiga use traditional traps like *Sura Phanda*, *Gopi Panda*, *Chulagi Panda*, *Basuri Jhala*, *Barhi*, *Hagiya*, *Chirchira* wood, *Baaskadabkarpanda* (bamboo bird trap), *Saang*, bow and arrow, *Bagur*, *Gola*, *Badadhopi*, *Suuri Panda*, *Kamani Sarkajund Panda*, *Dalga Panda*, *Yog Panda*, *Cheera* net, *Bagdhanurhapanda*. The implements used in hunting are made of bamboo and a little bit of scrapped iron. The arrowhead and other iron implements are procured from nearby weekly markets. Unlike the tedious method of hunting, they rely on traditional trapping techniques to catch wild animals.

**Fishing:** Baiga catch small fish in the surrounding *Nallahs* (rivulets), ponds, dam, and river. It is practiced by both groups and individuals. They do not use any modern fishing nets instead they use simple tools and technology. The fishing tools are completely made with bamboo splits with a coiled technique. Generally, they remove water from the small ponds and use bare hands and sticks to catch the fish. Whereas fishing in big tanks, they use bamboo traps and mosquito nets. *Katla*, *Mirgal*, *Rehu*, B-grade, etc., are the local varieties of fish that are available in ponds. It is a leisure activity for the Baiga and practiced in a group rather than a single person or else it is familial activity in the majority of the cases since it requires collective effort.

Baiga's religious beliefs and values are fashioned in such a way that they help in the acquisition of raw materials in a sustainable manner. The Baiga deities are believed to live in the forest, mountains, and rivers and control the ecological, environmental, and climatic conditions. Some of the places are earmarked as sacred groves and certain taboos and prohibitions are attached to it. With the ongoing mining, stone quarrying, and acculturation process, the symbiotic relationship of Baiga with their surrounding natural resource and their management is affected. The changing climate due to mining has had an impact on agriculture and the collection of the above-mentioned seasonal forest produce. As a result of this, there is a change in their livelihood patterns which has affected their subsistence needs.

### **Climatic Change and Environmental Challenges**

Since 2001 onwards, bauxite mining and stone quarrying have been undertaken in the AABR region which affected their forest land and resources massively. Due to intensive mining, a major chunk of forest coverage has come down drastically and the Baiga facing difficulties in grazing their cattle, collection of non-timber forest produce, depletion, and pollution of ground in their *Todis* (traditional water springs), soil erosion, etc. Now they have to walk down long way to harvest forest resources which has had an impact on their traditional utilization of forest resources.

In 2015, very low rainfall was recorded in the entire Chhattisgarh state and the study area was also impacted by the climate change of drought. Since the

Baiga agriculture is rainfed, the paddy fields are dried and the majority of them leave their cattle in the fields for grazing. Due to mining, the utilization of forest resources also comes down and the underground water in traditional *todi* is getting polluted. During this time, they depended on wage labour and the relief provided by the state government in the form of the public distribution system of rice, wheat, and other essential commodities.

**Utilization of Forests:** At present, the Baiga of the study area fetches fuel wood on head load from the nearby Karangara forest on barefoot walking at an average distance of four to five kilometers. Further, the daily requirement of hardwood for carpentry works, for making new houses, doors, and windows, etc., is also procured from the faraway forest. The stone quarrying from the residential as well as in the Baiga agricultural fields is continuous for earning their livelihoods. Thus, extracted wood is either sold to the contractors who are non-tribes.

**Changing Livelihoods:** Due to mining and stone quarrying, deforestation is taking place in the study area. Traditional management of land and forests like shifting cultivation and collection of forest resources has come down drastically. Even hunting is practiced symbolically during festive occasions as the game is not available. The availability of wide variety of roots, tubers, wild vegetable leaves, mushrooms, tender bamboo shoots, etc., has come down and Baiga seldom visits the forest for its collection. Baiga has to walk miles away to fetch these resources. Hence, they avoid the tedious effort in the collection and management of these resources for livelihood. Rather the Baiga now resorted to alternative livelihoods for their survival.

**Climatic Stressors Affecting the Farming Livelihoods:** During 2015-16, poor rainfall is recorded in the entire state including the study area. The paddy fields of both Baiga and Non-Baiga were not yielded properly and the fields are open for grazing the cattle. To tide over the crisis, the government has launched *Sukhrati Yojana* (drought scheme) which provide monetary relief to the affected families. Now the Baiga of the study area are encouraged to revert to their traditional crop varieties like *kodo* and *kutki* since with little rain they harvest the crop.

**Non-climatic Stressors Affecting the Farming Livelihoods:** The newly constructed Grand Trunk Road that connects Gaurella to Amarkantak passes through Danauli via newly established Tribal University located at Pondki. The Baiga engaged themselves in the completion of this task. Further, the wage labour under forest department, house construction, digging of wells, vegetable cultivation, and more importantly the work at Indira Gandhi National Tribal University also contributing to their economy. Thus, earned money is spent on the purchase of essential commodities, mobile phones, televisions, bicycles, motorcycles, and non-consumable goods like fridges, almirah, tables and chairs.

**Wage Labour in Fringe Areas:** Baiga of the study area now migrating to nearby towns for wage labour in a massive way. The places Baiga often visits for work are *Gaurela*, Jhagarakhand, and Gorakhpur as labourers for house construction, and growing of commercial crops like onion, vegetable, litchis, etc. They have been going for work in groups ranging from 10 to 20 members, and the concerned owner provides transport for going and coming from their respective hamlet or village. Whenever the non-tribes of the nearby village or from *Gaurela* need labour, they approach the Baiga hamlets and inform the roadside households or the individuals who can communicate with the rest of the villagers. Sometimes, after seeing the vehicle on the road, it is presumed that somebody needs wage labour, and those who are interested or need money board the vehicle. But whatever the work, Baiga were given payment every week to meet their requirements at weekly markets. As such the following table reveals the existing diversity of livelihoods available to the Baiga in the study area.

**Table-5**  
**Details of Alternative Livelihoods Among the Baiga**

| Type of work                 | Wages in rupees           | No. of days available   |
|------------------------------|---------------------------|-------------------------|
| Rupai (non-tribe fields)     | 120/-                     | One to two months       |
| Harvest                      | 120/-                     | One month               |
| Road laying work             | 150/-                     | One or two weeks        |
| Wage labour in Crusher       | 120/- to 180/-            | Non-agricultural season |
| MGNREGA                      | 159/-                     | Non-agricultural season |
| Construction work (building) | 150/-                     | One week for a month    |
| Agriculture labour           | 60/- to 70/- (Baiga only) | June to December        |
| Agriculture labour           | 100/- (non-tribe)         | June to December        |
| Forest labour                | 200/-                     | Summer                  |
| IGNTU labour                 | 223/-                     | Very often              |

**Source:** Fieldwork Data 2017-18

From the above Table, it is clear that except for government work, private work wages are very low. The Baigas were being paid low wages for both males and females when compared to State and Central government wage rates. Besides the wage labour, they also undertake the stone quarrying in their fields during their leisure time. It is not based on daily wage but on contract base. One family wholly engaged in the extraction of stone and they were being paid Rs.1300/- per tractor trolley. Sometimes owner of the field extracts stone or allows the outsider to do so. In such cases, no monetary benefit was given to the land owner as they believed that it was useful for them to make the plot for agricultural use by removing stones from it. Thus, collected stones are sent to the crusher and in turn they sell one trolley full of stone chips at the rate of 3200/-. This business is being done by the non-tribes in the study area.

Altogether six stone crushing plants are working in the study area i.e., four crushers in Danauli and two are in Karangara. The majority of the Baiga

including males and female are working in these crushers and the wages are vary from one crusher to another. The nature of work in the crushers is very hard as they have to carry the stones in head loads. Hence, the Baiga cannot venture to crusher work regularly. They avoid it during farming and the collection of *Mahuwa* and *Beedi* leaves time.

### **Mining Induced Livelihoods**

The Baiga of Karangara and Baidkudra are engaged as labour in mining-related works like loading bauxite in trucks. It is based on a contract of Rs. 150/- to fill one truck irrespective of a total number of labourers engaged and time consumed. Nearly 6 to 8 individuals continuously work to fill one truck and it will take more than one hour. Afterward, they take some rest and again load another truck. Likewise, altogether Baiga loads at least 6 to 7 trucks per day. On sharing, the contractual amount, each individual used to get Rs.60/- to Rs.80/-.

### **Conclusion**

The primeval ecosystem of Mekal hills in the Amarkantak region facilitates the growth of the tiger population and hence it is declared as the Achanakmar-Amarkantak Biosphere Reserve (AABR). The area was inhabited by many indigenous groups including a Particularly Vulnerable Tribal Group i.e., Baiga. They were living in symbolism with natural forests and their ingenious traditional management techniques are immensely contributing to the sustainable utilization of natural forests for livelihoods. Further, its conservation was well enshrined in the rites and rituals of the Baiga that allow the protection, conservation, and preservation of resources. They depend on forests for different varieties of roots and tubers, mushrooms, wild vegetable leaves, hunting and gathering, and fishing. However, the ongoing mining and stone quarrying led to experiencing the wrath of climate change causing many difficulties in procuring livelihoods from the forest.

The increasing temperatures pose many environmental challenges not only to the Baiga but also to the Achanakmar Amarkantak Bio-sphere Reserve. The frequent drought conditions pose many problems such as cattle grazing, collection of forest produce, depletion and pollution of traditional water springs, soil erosion, etc. As a result of dwindling of forest resources, they are now adopting new livelihoods such as wage labour in road laying, house construction, working in stone crushing units, mining, etc. Despite this, still, Baiga of the study area still depended on the forest during exigency and failure of crops. Given its significance, it is the need of the hour to address the issues of mining and climate change in the *Mekal* range through massive afforestation as well as awareness.

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## References

- Bromley, Daniel W. (1991). *Environment and Economy: Property Rights and Public Policy*. Oxford: Basil Blackwell, Inc.
- Centre for Science and Environment, 2011. Sharing the Wealth of the Minerals. [www.cseindia.org](http://www.cseindia.org)
- Elwin, Verrier (1932). The Baiga. Oxford University Press. (Reprint by Gyan Publication in 1986).
- Goldschmidt, W. (1965). Theory and Strategy in the study of Cultural Adaptability. *American Anthropologist*, Vol.No.67, 402-407.
- Gross, D.R. (1975). Protein Capture and Cultural Development in the Amazon Basin. *American Anthropologist*, Vol.No.77, 526-549.
- Guha R. and Gadgil M (1992). *This Fissure Land: An Ecological History of India*, Oxford University Press. Melbourne.
- Indian State of Forest Resource Report. 2021 Forest Survey of India, Ministry of Environment, Forests and Climate Change.
- Jishnu, Das (2000). Institutions and Incentives in a Garhwal Village-I: Common Property Regimes in Traditional Societies. *Economic and Political Weekly*, Vol. XXXV No 49. Pp. 4337-4344.
- Jodha, N.S. (1992). Drought Management: Farmers Strategies and their Policy Implications. *Economic and Political Weekly*. September 28. Vol XXVII. No 7.
- Moran, Emilio F. (1982). *Human Adaptability: An Introduction to Ecological Anthropology*, Colorado: Westview Press, Boulder.
- Netting, Robert (1968). *Hill Farmers of Nigeria: Cultural Ecology of the Kofyar of the Jos Plateau*. Seattle: University of Washington Press.
- Nietschmann, Bernard. (1973). *Between Land and Water. The subsistence Ecology of the Miskito Indians, Eastern Nicaragua*, New York: Seminar Press.
- Ostram, Elinor (1987). An Agenda for the Study of Institutions. Presidential Address, Public Choice Society Meetings, Phonix. Ariz, March 29-31.
- Pandian, M.S.S. (1987). Peasants, Natural Resource Use and State Intervention in Nanchilnadu 1850-1940. *Economic Political Weekly*, Vol. XXII: No 26. Pp. 1032-1040.
- Porter, P.W. (1965). Environmental Potentials and Economic Opportunities. *American Anthropologist*, 67:409-420.
- Reddy, G.P. (1982). *Scarcity and Survival: A Study in Cultural Ecology of Chowra Island of Nicobar Archipelago*. Delhi: D.K. Publishers.
- Russell, R.V. and Hira Lal (1916). *Tribes and Castes of the Central Provinces of India*. Vol. 1. London: Macmillan. (First reprint 1993).



## **AN ANALYSIS ON THE NATURE OF ECONOMIC ACTIVITIES AMONG THE TRIBAL CHILD LABOURERS – A CASE STUDY AMONG TRIBES IN WAYANAD DISTRICT, KERALA**

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**Abstract:** The issue of child labour has been rising in an alarming rate during these decades, most of which remain unnoticed. The government, academicians and the researchers lag behind in procuring information on child labour in a consolidated manner. As far as the issue of child labour among the tribals are concerned, it remains undocumented in the governmental reports. Many of the tribal children are involved in worst forms of labour that cause irremediable psychological as well as physical damage. The situation of tribal children symbolizes unendurable abuse of child rights which perpetuates poverty. It hinders the economic growth and equitable development of the community resulting in social exclusion. While we are aware of the fact that many tribal children work, little is known about the conditions and types of work that they indulge in. Moreover, as many tribal children are victims of increasing discrimination, it is challenging to retrieve appropriate information. With the historic practice of condemning the tribals as backwards, admitting the presence of child labour is indeed a complicated one. The case of tribals require abrupt attention as the issue has become much widespread than earlier.

**Keywords:** Child labour, economic activities, hour's threshold, ILO, Kerala model, UNICEF

### **Introduction**

The Indian state of Kerala is known for its unique model of development, often known as the Kerala Model of Development which has been characterised by

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high level of social sector development and human development with low per capita income. Whether this course of development in contemporary Kerala could incorporate the erstwhile outliers (fisher-folks, tribal groups and the scheduled castes) to its mainstream was debated in the latter half of the nineteenth century. The development experience of Kerala was based on certain averages and thus there were some outliers to the model. There was higher deprivation and low educational attainments among the tribals in Kerala as compared to the general population. The structural transformation experienced by the state has not been applicable to the tribal community (Shyjan and Sunitha, 2008). Thus, the tribals constitute those who remain excluded from the developmental activities of the state. As such there is a need to address the socio-economic issues of the marginalised communities. Low enrolment rates and high drop outs has been noticed among the tribal communities in Kerala (Government of Kerala, 2013). These are indirect indicators of child labour existing among the tribal children. 'Though legally banned, child labour is still in practice in Wayanad, both overtly and covertly, directly and indirectly' (Madhu and Gafoor, 2017, pp 27).

There is no universally accepted definition of Child labour (Edmonds, 2009). The formulation of a single definition that reflects all facets of child labour is a complex phenomenon. Even the key institutions working on child development and the issues of child labour differ in their definitions and concepts relating to it. Child labour among the tribals cannot be attributed to a single factor, most commonly said, poverty or events like an income shock. Rather, they are related to a set of elements ranging from the subsistence structure of the economy, social norms, occupational pattern, educational attainment etc.

Economic activities for the estimation of child labour include all those productive activities as specified in the SNA (System of National Accounts) production boundary. The Indian Socio-Economic Survey, NSSO examine the country's economic activities in line with this concept. The System of National Accounts is a set of accounts the national governments systematize routinely to track their economy's activities. The study has used the System of National Accounts to get a precise definition of economic activities; whether or not an activity is considered as an economic work. While, ILO includes some kind of domestic work as economic activity, it excludes household works from it. (ILO, 2017, P.17). However, it agrees that household chores can fall into the category of child labour if it is performed under hazardous conditions. Hazardous household chores are defined in the general production boundary as works a) for longer hours b) in unhealthy settings c) or in dangerous spots. (ILO, (2018a), the 18<sup>th</sup> ICLS resolution paragraphs 15 (c), 36 and 37. However, ILO has not provided any explicit method for the estimation of household chores (ILO 2016, p. 55–57). Household chores include caring for household members; cleaning and minor household repairs; cooking and serving meals; washing and ironing

clothes; and transporting or accompanying family members to and from work and school. In more technical terms, these tasks constitute a 'non-economic' form of production and are excluded from consideration in the UN System of National Accounts (UNSNA), the internationally agreed standard set of guidelines for measuring national economic activity, as well from the 2016 Global Estimates. A work that is not regular and carried out under reasonable conditions in one's own household, can be considered as an essential part of growing up and often leads to the social development of a child. However, the regular involvement in household chores jeopardizes schooling. Irregularities in schooling, affect grade attainments and increase absenteeism among the children, which is tantamount to child labour. Children who work regularly won't be able to get a normal education and are destined to become illiterates with no possibilities of getting a professional life. There is an over representation of children, specially female children in non-economic activities that often leads to double burden of inside and outside works, with little or almost no time left for schooling. The combined effect of inside and outside work creates a group of 'nowhere children' who work less in economic activities than in non-economic activities and are less likely to attend school. This makes inevitable, the inclusion of the above criteria in measuring child labour. A statistical distinction has been made between economic and non-economic work in terms of the composition, magnitude and impact of work, in accordance with C138 which has been taken in the present study to measure child labour. Even though the involvement of the child in economic activities is less common than their involvement in non-economic activities, the intensity of the work in economic activities calls for the inclusion of them under C138 rules of minimum age for measurement purpose. While, the child's involvement in non-economic activities is more common, but less intense they are excluded from C138 minimum age rules. But if we apply the stipulations under CRC, children in non-economic activities will come under child labour if it interferes with their education.

### **Need for the Study**

ILO (2006) estimates that in Asia, 60 per cent children are economically active and majority constitutes the tribals who are involved in the worst form of child labour. ILO (2006) reports indicate that child labour is a rising phenomenon among the tribal people who increasingly trust economically on their child's labour. A sizeable part of tribals live in the rural areas mainly dominated by subsistence-based economies which are highly reliant on natural resources. It is in the rural areas that a massive group of child labourers are supposed to be found. Even now, the problem of tribal children in labour which takes many forms as their participation in harvest or even in its extreme forms like prostitution has not been well documented. For many reasons, government, organisations and the researchers have inconveniences in understanding the complexities and issues

related to the tribal children. Language barriers and inaccessibility of tribal hamlets has increased the complexity of the issues and made it logistically difficult to include them in major surveys. Collection of accurate data regarding exploitative and non-exploitative forms of child labour has its own limitations as the issue of child labour covers much wider forms as also the obstacles created by child labour in education. In spite of these difficulties, even if the tribals are included in surveys, the use of disaggregated data is very rare which reflects their exact conditions.

### **Literature Review**

The most prominent work on child labour is found in the work of Basu and Van (1998) in *The Economics of Child Labour* in the *American Economic Review*. In their work, they defined child labour precisely as an activity that children engage in, only when their parents allow them to indulge in, when they cannot meet their subsistence needs. The work has not defined any theory that suggest the type of activity that makes a work fall in to the category of child labour. According to them it is an assumption that there exist some kind of activity. Another major work was done by Jean Marie Baland and Jim Robinson (2000) 'Is Child Labour Efficient?' in the *Journal of Political Economy*. Earlier all the works related to child labour avoided using phrases economic and non-economic work. As an alternative to this, the terms market work and domestic work were used (ILO, 2015). The use of these lexicons created confusions in its usage. The early sixties have stressed the importance of non-economic activities together with economic activities while estimating child labour. The 18th International conference of Labour Statisticians passed a resolution to involve unpaid household services and hazardous household works for the purpose of statistically measuring child labour. If the performance of household chores negatively affects child's welfare, it falls within the legal framework measuring child labour used in international legal standards and UN CRC (UN Convention on the Rights of the Child) (ILO, 2013). The ILO has made a double command to fight child labour and to endorse the recognition of tribal peoples' rights, grounded on ILO Convention Numbers 107, 138, 169 and 182. The impact of child labour on human capital formation of the country is discussed in the study done by Ravallion and Wodon (2000). The authors discuss the impact of child labour on mental, physical and psychological development of the child thereby deteriorating a country's human capital formation by changing the focus of the child from education. Bhalotra (2003) points out that child labour prevents the optimum attainment of positive externalities accompanying human capital formation and affect the swiftness of economic growth of the country. The underestimation in the magnitude of child labourers in India has been cited with evidence in a work authored by Bupinder (2002). Study by Sharma (2001) in Nepal showed that 72.5 per cent of the total child labourers belonged to the tribals. Budaeng et.al. (2001) in their study on

tribal migrants reported that majority of children working in the streets are from tribal areas, most of whom earn their living by begging or offering sex services. Studies also indicate that the tribal children are more likely to end up in child labour than their peers (Larsen, 2003). Another studies by Cartwright and Patrinos, 1999 points that the Latin American children are twice likely to work if indigenous. Many studies thus conclude that children from indigenous groups serve as primary candidates for targeting any efforts to reduce child labour and increase enrolment rate at schools. Salazar (1998) observed, 9 out of 10 indigenous children work as compared to 1 out of 3 non – indigenous children. A report by UNICEF (2011) says the magnitude of child labour among the *adivasis* in India is higher than any other social groups.

## **Objective**

The main objective of the study is to analyse the nature of economic activities of the child labourers among the three communities; Adiyas, Paniyas and Kattunaickans. A statistical analysis is directed towards inter community disparities in the nature of economic activities engaged in by the children among selected tribes.

## **Methodology**

The study uses primary data to arrive at the results. The study conducted in Wayanad district was confined to three selected communities, the Paniyas, Adiyas and Kattunaickans during a period of 6 months from 3<sup>rd</sup> October 2018 to 3<sup>rd</sup> April 2019. Proportionate stratified sampling is used to collect data appropriate for the study. A sample of 400 households were selected from the communities such that the sample strata is proportional to the size of the population strata. Paniyas, Adiyas and Kattunaickans dominate the two taluks viz., Sulthan Bathery and Vythiri, of Wayanad district. Samples are collected from Sulthan Bathery (in Sulthan Bathery Taluk), Kalpetta (Vythiri Taluk) and Panamaram (shared between Sulthan Bathery and Vythiri taluks) Block Panchayats. From the three Block panchayats, Ambalavayal and Meenangady gram panchayats (from Bathery), Kaniyambetta, and Mullankolly gram panchayats (from Panamaram), Meppadi, Kottathara and Muppainad gram panchayats (from Vythiri) were selected. A total of 272 households from the Paniya community, 70 from the Kattunaickan community and 58 from the Adiya community were randomly selected from villages in the gram panchayats. Out of 890 tribal children from 400 households, a total of 579 child labourers were identified using the ILO and UNICEF frameworks on child labour. Data analysis has been conducted using statistical software SPSS Version 22. Pearsons Chi square test (to test the association between attributes) and Kruskal Wallis test (to compare the mean between groups) have been used for data analysis in the study.

## Data and Discussion

### Demographic Profile of Child Respondents

The 5-11 years age group consist of 152 child labourers from the Paniyas, 39 children from the Adiyas and 47 children from the Kattunaickans. These 12-14 year category consists of 160 children from the Paniyas, 56 children from the Adiyas and 58 children from the Kattunaickans. The highest age group consists of 36 children from the Paniyas, 10 children from the Adiyas and 21 children from the Kattunaickans. The gender profile shows 46.30 per cent male children and 53.70 per cent female children from the Paniyas, 50.50 per cent male children and 49.50 per cent children from the Adiyas and 54.80 per cent male children and 45.20 per cent female children from the Kattunaickans.(Table-1)

**Table-1**  
**Demographic Profile of Child Labourers in Wayanad District**

| Community     | Age         | No of Respondents | Percent |
|---------------|-------------|-------------------|---------|
| Paniyas       | 5-11 years  | 152               | 43.70   |
|               | 12-14 years | 160               | 46.00   |
|               | 15-17years  | 36                | 10.30   |
| Adiyas        | 5-11 years  | 39                | 37.10   |
|               | 12-14 years | 56                | 53.30   |
|               | 15-17years  | 10                | 9.50    |
| Kattunaickans | 5-11 years  | 47                | 37.30   |
|               | 12-14 years | 58                | 46.00   |
|               | 15-17years  | 21                | 16.70   |
| Community     | Gender      | No of Respondents | Percent |
| Paniyas       | Male        | 161               | 46.30   |
|               | Female      | 187               | 53.70   |
| Adiyas        | Male        | 53                | 50.50   |
|               | Female      | 52                | 49.50   |
| Kattunaickans | Male        | 69                | 54.80   |
|               | Female      | 57                | 45.20   |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

Out of a total of 579 child labourers, 344 children were involved in some kind of economically productive activities. The rest of the children were included under the category of child labour due to their involvement in non-economic activities interrupting regular schooling. (Table-2)

**Table-2****Demographic Profile of Child Labourers Involved in Economic Activities**

| <b>Community</b> | <b>Age Group</b> | <b>No. of Respondents</b> | <b>Percent</b> |
|------------------|------------------|---------------------------|----------------|
| Paniyas          | 5-11 years       | 64                        | 27.7           |
|                  | 12-14 years      | 114                       | 49.4           |
|                  | 15-17years       | 53                        | 22.9           |
| Adiyas           | 5-11 years       | 9                         | 18             |
|                  | 12-14 years      | 21                        | 42             |
|                  | 15-17years       | 20                        | 40             |
| Kattunaickans    | 5-11 years       | 23                        | 36.5           |
|                  | 12-14 years      | 19                        | 30.2           |
|                  | 15-17years       | 21                        | 33.3           |
| <b>Community</b> | <b>Gender</b>    | <b>No. of Respondents</b> | <b>Percent</b> |
| Paniyas          | Male             | 133                       | 57.6           |
|                  | Female           | 98                        | 42.4           |
| Adiyas           | Male             | 34                        | 68             |
|                  | Female           | 16                        | 32             |
| Kattunaickans    | Male             | 37                        | 58.7           |
|                  | Female           | 26                        | 41.3           |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

**Inter-Community Disparities in the Nature of Economic Activities of Child Labourers**

Among the child labourers, 344 children were found to be engaged in economically productive activities. Economically active children were found using ILO's SIMPOC (Statistical Information and Monitoring Program on Child Labour) criteria.

- A child under 12 who is economically active for 1 or more hours per week,
- A child 14 and under who is economically active for at least 14 hours per week,
- A child 17 and under who is economically active for at least 43 hours per week,
- A child 17 and under who participates in activities that are 'hazardous by nature or circumstance' for 1 or more hours per week,
- A child 17 and under who participates in an 'unconditional worst form of child labour such as trafficked children, children in bondage or forced labour, armed conflict, prostitution, pornography, illicit activities. (Edmonds, 2009, p. 19)

The current economic activities of children are described and analyzed using a set of variables related to their work in the reference period of the survey.

The reference period to measure economic activities is taken as 1 week prior to the survey. The variables that are considered includes work reason, legal procedure of hiring, form of payment, occupation of the child, schedule of work, work status, payment interval, payment receiver, use of earnings of the child, number of days worked, number of hours worked and monthly income earned by the child.

Among the Paniyas, about 42 per cent of the children engaged in economic activities to supplement their family income. On the other hand, the Kattunaickan children were affected by two main factors as the inability to afford schooling and shortage of income. Adiya children were more involved in activities as part of learning a new skill. Only 3 per cent of the Kattunaickan children and 16 per cent of the Paniya children worked to learn something new. About 37 per cent of Kattunaickan children reported that they couldn't afford schooling cost and thus were forced in to labour. 20 per cent of the Paniya and Kattunaickan children had to work with their parents due to burden of debt. While a small minority of the Adiya children responded the irrelevance of education, the Paniya children were more reluctant to the formal education system. Chi square test result shows a statistically significant association between community of the child labourer and reason to work ( $\chi^2 (8) = 61.996, p < 0.05$ ) (Table-3).

**Table-3**  
**Association Between Community of the Child and Reason to Work**

| Community                                          | Work Reason              |                 |                      |                                 |                              | Total |
|----------------------------------------------------|--------------------------|-----------------|----------------------|---------------------------------|------------------------------|-------|
|                                                    | Supplement Family Income | Pay Family Debt | To Learn a New Skill | Schooling Considered Irrelevant | Cannot Afford Schooling Cost |       |
| Paniya                                             | 97<br>42.00%             | 48<br>20.80%    | 38<br>16.50%         | 20<br>8.70%                     | 28<br>12.10%                 | 231   |
| Adiya                                              | 11<br>22.00%             | 6<br>12.00%     | 25<br>50.00%         | 2<br>4.00%                      | 6<br>12.00%                  | 50    |
| Kattunaickans                                      | 23<br>36.50%             | 13<br>20.60%    | 2<br>3.20%           | 2<br>3.20%                      | 23<br>36.50%                 | 63    |
| Total                                              | 131                      | 67              | 65                   | 24                              | 57                           | 344   |
| Chi square value: 61.996    df: 8    p Value: 0.00 |                          |                 |                      |                                 |                              |       |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

Though the legal procedure of hiring a child is based on the minimum age to be followed, most of the employers who hire the children for work do not ensure that the child has attained the minimum age to work. The legal procedure for hiring a child for work can be a written agreement, a verbal agreement or even without an agreement. The three communities exhibited the same pattern in terms of this variable. While majority children from the three categories were hired

without any agreement, differences were noted among the communities in terms of written agreement which existed more in the case of Kattunaickan children. 72 per cent of Adiya children, 58 per cent of Paniya children and 63 per cent of Kattunaickan children fall in to the category of labour hired without any special rules or basic pay. About 37.20 per cent of Paniya children, 26 per cent of Adiya children and 32 per cent of Kattunaickan children reported to have worked with a verbal agreement. Chi square test result shows there exist no statistically significant association between community of the child labourer and method of hiring the child for work ( $\chi^2 (4) = 0.462$ ,  $p > 0.05$ ). (Table-4).

**Table-4**  
**Association Between Community of the Child and Method of Hiring**

| Community               | Legal Procedure of Hiring the Child for Work |                   |                       | Total |
|-------------------------|----------------------------------------------|-------------------|-----------------------|-------|
|                         | Verbal Agreement                             | Written Agreement | Without Any Agreement |       |
| Paniya                  | 86<br>37.20%                                 | 10<br>4.30%       | 135<br>58.40%         | 231   |
| Adiya                   | 13<br>26.00%                                 | 1<br>2.00%        | 36<br>72.00%          | 50    |
| Kattunaickans           | 20<br>31.70%                                 | 3<br>4.80%        | 40<br>63.50%          | 63    |
| Total                   | 119                                          | 24                | 201                   | 344   |
| Chi square value: 0.462 |                                              | df 4              | p value 3.608         |       |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

About 44.60 per cent of Paniya children, 46 per cent of Adiya children and 44.40 per cent of Kattunaickan children got their payments in cash. There were also children in the three communities who gets no payment for the works done by them. Chi square test result shows that there is no statistically significant association between Community of the child labourer and forms of payment ( $\chi^2 (4) = 0.989$ ,  $p > 0.05$ ) (Table-5).

**Table-5**  
**Association Between Community of the Child and Form of Wage Payment**

| Community                | Form of Wage Payment |              |                 | Total |
|--------------------------|----------------------|--------------|-----------------|-------|
|                          | Cash                 | Kind         | Not Paid        |       |
| Paniya                   | 103<br>44.60%        | 41<br>17.70% | 87<br>37.70%    | 231   |
| Adiya                    | 23<br>46.00%         | 10<br>20.00% | 17<br>34.00%    | 50    |
| Kattunaickans            | 28<br>44.40%         | 11<br>17.50% | 24<br>38.10%    | 63    |
| Total                    | 154                  | 62           | 128             | 344   |
| Chi Square value : 0.989 |                      | df = 4       | p value : 0.314 |       |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

About half of the Paniya children, 32 per cent of Adiya children and 19 per cent of Kattunaickan children interviewed were engaged in milling and food processing activities. 38.10 per cent of the Kattunaickan children and 20.30 per cent of Paniya children engaged in forestry activities like collection of firewood and other forest labour. Adiya children were more to be seen in agricultural activities (44%) as against 6.10 per cent Paniya children in the same occupation. Works in the construction sector were more carried out by the Kattunaickan children (24%) and Paniya children (20%). Chi square test result shows a statistically significant association between community of the child labourer and occupation ( $\chi^2(8) = 113.635$ ,  $p < 0.05$ ) (Table-6).

**Table-6**  
**Association Between Community of the Child and Occupation**

| Community                                                   | Occupation of the Child |                             |              |                     |              | Total      |
|-------------------------------------------------------------|-------------------------|-----------------------------|--------------|---------------------|--------------|------------|
|                                                             | Agriculture Activities  | Milling and Food Processing | Handicrafts  | Collecting Firewood | Construction |            |
| Paniya                                                      | 14<br>6.10%             | 115<br>49.80%               | 9<br>3.90%   | 47<br>20.30%        | 46<br>19.90% | 231        |
| Adiya                                                       | 22<br>44.00%            | 16<br>32.00%                | 5<br>10.00%  | 0<br>0.00%          | 7<br>14.00%  | 50         |
| Kattunaickans                                               | 0<br>0.00%              | 12<br>19.00%                | 12<br>19.00% | 24<br>38.10%        | 15<br>23.80% | 63         |
| <b>Total</b>                                                | <b>36</b>               | <b>143</b>                  | <b>26</b>    | <b>71</b>           | <b>68</b>    | <b>344</b> |
| Chi Square value : 113.635      df = 8      p value : 0.000 |                         |                             |              |                     |              |            |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

**Table-7**  
**Association Between Community of the Child and Schedule of Work**

| Community                                                | Schedule of Work |               |                               | Total      |
|----------------------------------------------------------|------------------|---------------|-------------------------------|------------|
|                                                          | Only Holidays    | School Days   | Both School Days and Holidays |            |
| Paniya                                                   | 14<br>6.10%      | 148<br>64.10% | 69<br>29.90%                  | 231        |
| Adiya                                                    | 27<br>54.00%     | 14<br>28.00%  | 9<br>18.00%                   | 50         |
| Kattunaickans                                            | 17<br>27.00%     | 19<br>30.20%  | 27<br>42.90%                  | 63         |
| <b>Total</b>                                             | <b>58</b>        | <b>181</b>    | <b>105</b>                    | <b>344</b> |
| Chi Square Value: 84.011      df= 4      p Value : 0.000 |                  |               |                               |            |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

It was known from the survey that while, majority of the Paniya children worked during their school days, the Kattunaickan children worked both during school days and holidays. Among the Paniyas, 64 per cent of the children worked on school days and 30 per cent worked both on school days and working days. 54

per cent of the Adiya children worked only on holidays, while 28 per cent of them worked during school days and the rest both on school and working days. 30 per cent of the Kattunaickan children worked on school days while 27 per cent worked only on holidays. Chi square test result shows a statistically significant association between community of the child labourer and schedule of work ( $\chi^2(4) = 84.011$ ,  $p < 0.05$ ) (Table-7).

The work status of the Paniya children shows that there were 37 per cent temporary workers, 39 per cent regular workers, 15 per cent paid domestic workers and 8 per cent unpaid family workers among them. Among the Adiya children 54 per cent were temporary workers, 20 per cent were regular workers and 14 per cent were unpaid family workers. The work status of the Kattunaickan children shows that there were 37 per cent regular workers, 22 per cent temporary workers, 25.40 per cent paid domestic workers and 26 per cent unpaid family workers. Chi square test result shows a statistically significant association between community of the child labourer and work status ( $\chi^2(6) = 18.826$ ,  $p < 0.05$ ) (Table-8).

**Table-8**  
**Association Between Community of the Child and Work Status**

| Community                                         | Work Status          |                      |                  |                | Total          |
|---------------------------------------------------|----------------------|----------------------|------------------|----------------|----------------|
|                                                   | Unpaid Family Worker | Paid Domestic Worker | Temporary Worker | Regular Worker |                |
| Paniya                                            | 20<br>8.70%          | 35<br>15.20%         | 85<br>36.80%     | 91<br>39.40%   | 231<br>100.00% |
| Adiya                                             | 7<br>14.00%          | 6<br>12.00%          | 27<br>54.00%     | 10<br>20.00%   | 50<br>100.00%  |
| Kattunaickans                                     | 10<br>15.90%         | 16<br>25.40%         | 14<br>22.20%     | 23<br>36.50%   | 63<br>100.00%  |
| Total                                             | 27                   | 57                   | 128              | 132            | 344            |
| Chi Square : 18.826      df 6      p value: 0.004 |                      |                      |                  |                |                |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

**Table-9**  
**Association Between Community of the Child and Interval of Wage Payment**

| Community                                               | Wage Payment Interval |              |              |              | Total |
|---------------------------------------------------------|-----------------------|--------------|--------------|--------------|-------|
|                                                         | Hourly                | Monthly      | Daily        | Piece Rate   |       |
| Paniya                                                  | 3<br>1.30%            | 74<br>32.00% | 67<br>29.00% | 87<br>37.70% | 231   |
| Adiya                                                   | 10<br>20.00%          | 6<br>12.00%  | 22<br>44.00% | 12<br>24.00% | 50    |
| Kattunaickans                                           | 0<br>0.00%            | 12<br>19.00% | 35<br>55.60% | 16<br>25.40% | 63    |
| Total                                                   | 13                    | 92           | 124          | 115          | 344   |
| Chi Square value: 63.323      df: 6      p value: 0.000 |                       |              |              |              |       |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

Among the Paniya children, about 37 per cent of the children received their payments in piece rate. For the Kattunaickan children and the Adiya children this, is 25 per cent and 24 per cent respectively. Among the Kattunaickan children, about 55 per cent received daily wages. This is 29 per cent for the Paniyas and 44 per cent for the Adiyas. While, 32 per cent of the Paniya children received monthly payments only 19 per cent of the Kattunaickan children received monthly payments. Chi square test result shows a statistically significant association between community of the child labourer and interval of payment ( $\chi^2 (6) = 63.323, p < 0.05$ ) (Table-9).

Majority of the adiya children reported to have collected their payments by themselves. On the other-hand majority of Paniya children and Kattunaickan children held that it is their parents and relatives who collect their wages on their behalf. Among the Paniya tribes, about 64 per cent of the child labourers responded that their payments are collected by their parents, while this rate is 28 per cent for the Adiyas and 52 per cent for the Kattunaickans. Chi square test result shows a statistically significant association between community of the child labourer and Payment receiver ( $\chi^2 (4) = 73.576, p < 0.05$ ) (Table-10).

**Table-10**  
**Association Between Community of the Child and Payment Receiver**

| Community         | Payment Receiver |               |               |       |
|-------------------|------------------|---------------|---------------|-------|
|                   | Self             | Parents       | Relatives     | Total |
| Paniya            | 14<br>6.10%      | 148<br>64.10% | 69<br>29.90%  | 231   |
| Adiya             | 27<br>54.00%     | 14<br>28.00%  | 9<br>18.00%   | 50    |
| Kattunaickans     | 17<br>27.00%     | 33<br>52.7%   | 13<br>20.6%   | 63    |
| Total             | 58               | 181           | 105           | 344   |
| Chi Square value: | 73.576           | df 4          | p value 0.000 |       |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

Among the Paniyas, about 65 per cent of children responded that their earnings were used for household expenses, 28 per cent children's earnings for self-expenditure and only 6 per cent children used them as school expense. Among the Adiyas, about 52 per cent children reported that their earnings were used for covering school expenses, while 38 per cent children used them for carrying out household expenses, only 10 per cent children used their earnings for themselves. About 77 per cent of the Kattunaickan children used their earnings for themselves, 50 per cent children used their earnings for household

expenditure and only 15 per cent children directed their wages towards school expenses. Chi square test result shows a statistically significant association between community of the child labourer and use of earnings ( $\chi^2(4) = 142.895$ ,  $p < 0.05$ ) (Table-11).

**Table-11**  
**Association Between Community of the Child Worker and Use of Earnings**

| Community                                               | Use of Earnings by Child |                       |                  | Total     |
|---------------------------------------------------------|--------------------------|-----------------------|------------------|-----------|
|                                                         | School Expenditure       | Household Expenditure | Self-Expenditure |           |
| Paniya                                                  | 14<br>6.10%              | 151<br>65.40%         | 66<br>28.60%     | 231       |
| Adiya                                                   | 26<br>52.00%             | 19<br>38.00%          | 5<br>10.00%      | 50<br>--- |
| Kattunaickans                                           | 12<br>19.00%             | 2<br>3.20%            | 49<br>77.80%     | 63        |
| Total                                                   | 52                       | 172                   | 120              | 344       |
| Chi square value: 142.895      df= 4      p value 0.000 |                          |                       |                  |           |

**Source:** Primary survey data collected from Wayanad district, Kerala 2018-19

A Kruskal Wallis one-way Anova indicated that there was a statistically significant difference in the mean rank of number of days worked by children between twopairs of groups among the three communities,  $\chi^2(2, N=344) = 24.722$ ,  $p = 0.000$  with a mean rank of 183.41 for Paniyas, 109.61 for Adiyas and 182.42 for Kattunaickans. A pairwise comparison between the groups indicated that there was very strong evidence ( $p < 0.05$ , adjusted using the Bonferroni correction) of a difference between Adiyas and Kattunaickans, and between Adiyas and Paniyas. There was no evidence of a difference between the other pair (Paniyas and Kattunaickans) (Table-12).

**Table-12**  
**Pairwise P Values for Kruskal Wallis Test (Number of Days Worked per Week by the Child)**

| Groups               | p Value |
|----------------------|---------|
| Adiya : Kattunaickan | 0*      |
| Adiya : Paniya       | 0*      |
| Paniya: Kattunaickan | 0.943   |

Statistically significant difference detected between groups ( $p < 0.05$ )\*

**Source:** Computed from primary survey data collected from Wayanad district, Kerala 2018-19

A Kruskal Wallis one-way Anova conducted indicated that there was a statistically significant difference in the mean rank of number of hours worked by children of two pairs of groups among the three communities,  $\chi^2$  (2, N=344) 30.685,  $p = 0.000$  with a mean rank of 179.42 for Paniyas, 104.17 for Adiyas and 201.34 for Kattunaickans. A pairwise comparison between the groups indicated that there was very strong evidence ( $p < 0.05$ , adjusted using the Bonferroni correction) of a difference between Adiyas and Kattunaickans, and between Adiyas and Paniyas. There was no evidence of a difference between the other pair (Paniyas and Kattunaickans). (Table-13).

**Table-13**  
**Pairwise p Values for Kruskal Wallis Test (Number of Hours Worked per Week)**

| <b>Groups</b>        | <b>p Value</b> |
|----------------------|----------------|
| Adiya : Kattunaickan | 0*             |
| Adiya : Paniya       | 0*             |
| Paniya: Kattunaickan | 0.117          |

Statistically significant difference detected between groups ( $p < 0.05$ )\*

**Source:** Computed from primary survey data collected from Wayanad district, Kerala 2018-19

A Kruskal Wallis one way Anova indicated that there was a statistically significant difference among the mean ranks of the three communities in terms of monthly income earned by the child,  $\chi^2$  (2, N=344) 22.332,  $P = 0.000$  with a mean rank of 176.93 for Paniyas, 114.21 for Adiyas and 202.52 for Kattunaickans. A pairwise comparison between the groups indicated that there was very strong evidence ( $p < 0.05$ , adjusted using the Bonferroni correction) of a difference between Adiyas and Kattunaickans, and between Adiyas and Paniyas. There was no evidence of a difference between the other pair (Paniyas and Kattunaickans) (Table-14).

**Table-14**  
**Pairwise p Values for Kruskal Wallis Test (Monthly Income)**

| <b>Groups</b>        | <b>p Value</b> |
|----------------------|----------------|
| Adiya: Kattunaickan  | 0*             |
| Adiya: Paniya        | 0*             |
| Paniya: Kattunaickan | 0.069          |

Statistically significant difference detected between groups ( $p < 0.05$ )\*

**Source:** Computed from primary survey data collected from Wayanad district, Kerala 2018-19

## Findings and Conclusion

The result of the study leads to the conclusion that the variables associated with child labour differs with community. The Adiyas, when compared to the Paniyas and Kattunaickans are in a better position. This is mainly because of the difference in the socio-economic conditions that they experience as different from the other two communities. The condition of Adiyas were quite different from that of the other two communities as most of the Adiya hamlets were exposed settlements which enables them to live along with the general population. As such, they had better infrastructural connectivity.

More number of Paniya and Kattunaickan households were affected by poverty because of the higher dependency ratio found among them as compared to the Adiyas (Government of Kerala, 2013.) The interviewed tribal children reported that they needed the money as they were poor, had to eat or had to help parents so that they could afford to send them to school. A report by ILO (2006) in Guatemala showed that the tribal children are forced to work in exploitative environments that included commercial agriculture, handicrafts and fireworks manufacturing due to abject poverty. Majority of the Adiya children were driven to labour to learn a new skill. For many indigenous people, education typically includes acquiring traditional occupations (ILO, 2013). For them learning traditional occupations are more educative than the formal education system which they consider as disruptive - in economic, social and emotional terms. But the government has formulated several policies to be acknowledged in designing formal education system, curriculum improvements and teacher training.

More than half of the children from the three communities fall in to the category of 'children who works with no agreements' because of the employers and the parents/guardians fear against the numerous laws enacted in the country that prohibits child labour. India's laws on child labour includes the enactment of the 'Child Labour (Prohibition and Regulation) Amendment Act, 2016', 'Child and Adolescent Labour (Prohibition and Regulation) Act, 1986' and its compliance with the 'Right to education Act, 2009' to ensure compulsory education to the children. India is also a signatory to UNCRC ('United Nations Convention on the Rights of the Child'), the international protector of child interests and rights. The country has also ratified ILO Convention no 138 and 182 for protection of child rights. An employer who employs children in any work or process in contravention to the laws will be imprisoned for a period of 6 months - 2 years or given a fine of Rs.20, 000 to 50,000 or both. The same is applicable for employing adolescents by an employer in hazardous works. A second or subsequent offence extends the penalty from 1 to 3 years imprisonment. In case of first offence by a parent, there will not be any punishment. But in case of a subsequent offence a maximum penalty of Rs.10,000 is prescribed by law. Most of the children from this category were those who accompanied their parents in

work mostly in plantations or farm activities where the children did small helps for their parents and earned meagre income. Only a small percent of children worked with written agreements. This was mostly for children who stayed away from their homes and worked for employers. The children mainly worked in big plantations or farms. This was reported by the parents of some children who were taken by the employer to other states. The case of migrant child labour was estimated to be high among the tribal children in the study by Munohierro (1996). For the variable, form of payment, no much differences were noted among the three communities as most of the children were paid in cash and only a negligible part got their payments in kind. Prior studies by ILO (1996) in the field shows that at-least 16 per cent of children who works in any form of economic activity were not paid in cash or in kind. Unpaid labour among children occurs when the employer does not want a child to work for him, but the children accompany their parents to share the work. The children who are reluctant to go to school either leave for work with their parents or remain idle at home.

While, majority of Paniya children were engaged in milling and food processing activities, Kattunaickan children were more found in activities like collecting firewood closely associated to their dwellings – the forests. The Adiya children were more seen in agricultural activities. No children among the tribes were found in mining and quarrying. The occupation in which a child engages in is related more or less to the parental occupation or traditional occupation practiced by the Community. The Adiyas were traditionally agricultural labourers and so does their children. The occupation of the child is also influenced by their dwelling features. The Kattunaickan children living in the forest interiors, usually do not engage more in agricultural activities as most of them do not cultivate due to the attack of wild animals. Wild elephants and pigs destroy their crops compelling them to stop cultivation. The children usually engage in collection of minor forest produces, collection of honey and forest labour. Children living in the forest interiors are more available in these kinds of work. A small percent of children are also found spending their time on making handicrafts made out of wood or tree barks. These are sold in the nearby markets by the children themselves or are sold in distant markets by their parents. ‘Country reports on Human Rights Practices, India’ (2003) reported that among the tribal children, most of them are in agricultural and informal sectors; however, many children were also found to be engaged in domestic work and labouring in factories. Studies on child labour among tribal communities in South and Southeast Asia, reported that different forms of child labour among the tribals included prostitution, bonded labour, domestic work, agriculture farms, participation in armed conflicts, and migrant urban labour. In a study by Munohierro (1996), it was estimated that about 32 per cent of the labour force in Mexico are tribal child labourers. Salazar (1998) observes the hill tribes of Thailand including the refugees from Burma are more vulnerable to commercial sexual exploitation.

Even the most extreme form of child labour, prostitution has been reported among tribal children in Kerala with increasing cases of unwed mothers (Jose, D, 2000).

The schooling of Paniya and Kattunaickan children are more affected by the work schedule as compared to the Adiya children who work mainly on holidays as temporary workers. This is mainly influenced by the child and parental attitude towards education. Student feedback on attendance indicated that work-linked absence from school is a common episode among working children. The relation between length of the school day and child labour has been discussed in the work of Orazem (1986).

A comparison of the work status of child labourers among the three communities shows that majority of Kattunaickan children and Paniya children were regular workers as different from the Adiya children. Some Adiya children who were interviewed responded that they work as domestic maids in houses and selling agricultural produce in markets mostly on holidays. The permanent nature of work is more identified with the Paniya and Kattunaickan children engaged in construction activities and also permanent workers in plantations. The interval of payments received by the children shows that, majority of the Kattunaickan children were paid daily for their work, whereas Paniya children were given a piece rate. For example, in aricanut plantations the children are given an amount equal to the quantity of aricanuts processed. With regards to the use of earnings by the children, primary data reveal that the Adiya children used their earnings to meet their school expenditure while the Paniya children reported to have used their earnings to meet household expenditure. The Kattunaickan children used their earnings to satisfy their personal needs. The children from the three communities had no habit of saving anything out of their income.

Among the three communities, the average hours in work and average days worked per week by the Adiya children were found to be less than the other two communities. This is mainly because of the peculiarity in the work schedule of the Adiya children. The work schedule of the Adiya children are mainly confined to holidays as reported by 54 per cent of the children. A comparison between the average incomes earned by the children in the three community's shows that Adiya children earn the lowest income which reflects their temporary work nature mostly during holidays.

The case of tribal children gives an example of the necessity to address the peculiarities of child labour. The tribal children involved in any kind of economic activities spend most of their formative and tender age on activities that act as real hurdles in qualitative education. A significant number of tribal children spend their childhood in hostile environments without adequate time to play and rest. They live under discomforting, dissimilar and extremely different

environment settings from the general child population. Extreme poverty and indifferent attitude of parents as well as children to education make them active in labour markets. Children accompany and assist parents in works that they do, sometimes from dawn to dusk, for money and livelihood. More discomfoting is the fact that children are made to work under hazardous, harsh and exploitative conditions. Works under most undesirable conditions like smoking, drug addictions, crimes and immoral traffic are not uncommon among the tribal children. Unfortunately, all these activities remain unnoticed and negatively impacts their attitude and development. While, the study conducted by Edmond and Pavcnik (2005) shows small percent of children in worst forms of labour among the general population, the study conducted by Larsen (2003) shows high indications of worst forms of child labour among tribal people in South Asia.

The ongoing debates on the definition of child labour, the inclusion of household chores in measuring child labour and the unclear distinction between ‘child labour’ and ‘child work’ has to be resolved. To some extent, it is to be acknowledged that the tribal children work as an intrinsic part of learning in their social setting, but it is not justifiable to provide blind cultural explanations for child labour presented by parents, employers or the government. When tradition and customs are repeatedly quoted as explanatory causes of child labour, it is contradicted by the governmental records showing profound changes achieved by the tribals. The common belief that child labour is a boon to the tribals need to be changed.

## Reference

- Basu, K., & Van, P. (1998). The Economics of Child Labour. *The American Economic Review*, 88(3), 412-427. Retrieved from <https://www.jstor.org/stable/116842>
- Bhalotra, Sonia. (2003). Child Labour in Africa. (OECD Social Employment and Migration, Working Papers No. 4). Retrieved from <http://www.oecd.org/els/emp/2955692.pdf>
- Cartwright, Kimberly. (1999). Child Labour in Colombia. In Grootaert, Christian and Harry Anthony Patrinos (eds.). *The Policy Analysis of Child Labour: A Comparative Study*. New York: St. Martin Press.
- Edmonds, E. V. (2009). Defining child labour: A review of the definitions of child labour in policy research. International Labour Office, International Programme on the Elimination of Child Labour (IPEC), Geneva. Retrieved from [https://www.researchgate.net/publication/265274396\\_Defining\\_Child\\_Labour\\_A\\_Review\\_of\\_the\\_Definitions\\_of\\_Child\\_Labour\\_in\\_Policy\\_Research](https://www.researchgate.net/publication/265274396_Defining_Child_Labour_A_Review_of_the_Definitions_of_Child_Labour_in_Policy_Research)
- Government of Kerala. (2013). Report on The Socio-Economic Status. Retrieved from [https://www.stdd.kerala.gov.in/sites/default/files/inline-files/surveyd\\_2008.pdf](https://www.stdd.kerala.gov.in/sites/default/files/inline-files/surveyd_2008.pdf)

- Guarcello, L., Lyon, S., & Rosati, F.C. (2004). Impact of Working Time on Children's Health. ILO, International Programme on the elimination of Child Labour. Retrieved from [http://www.ilo.org/public/libdoc/ilo/2005/105B09\\_66\\_engl.pdf](http://www.ilo.org/public/libdoc/ilo/2005/105B09_66_engl.pdf)
- Hazarika, G., & Bedi, A. S. (2003). Schooling Costs and Child Work in Rural Pakistan. *Journal of Development Studies*, 39 (5), 29-64. doi: 10.1080/00220380412331333139
- ILO. (1996). Child Labour Surveys: Results of Methodological Experiments in Four Countries 1992-93, Geneva.
- ILO. (2006). Guidelines for Combating Child Labour among indigenous and tribal peoples, Geneva, ILO. Retrieved from [https://www.ilo.org/wcmsp5/groups/public/---ed\\_norm/--normes/documents/publication/wcms\\_091360.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_norm/--normes/documents/publication/wcms_091360.pdf)
- ILO. (2008). Child Labour Statistics, 18<sup>th</sup> International Conference of Labour Statisticians, ILO. Retrieved from <https://ilostat.ilo.org/about/standards/icls/icls-documents/#icls18>
- ILO. (2009). Give girls a chance: Tackling child labour, a key to the future. Geneva: International Labour Organisation, International Programme on the Elimination of Child Labour (IPEC) – Geneva.
- Jose, D. (2000, July 9). Kerala's tribal hostels converted to prostitution dens. (Rediff.com). Retrieved from <https://www.rediff.com/news/2000/jul/10jose.htm>
- K, Abdul, Gafoor, , & A, Madhu. (2008). Perception of tribes regarding the educational problems in Wayanad district *Journal of Studies in Teacher Education*, 1(1), 22-31. Retrieved from <https://www.researchgate.net/publication/262923978>
- Khan, Rana. (2003). Children in Different Activities: Child Schooling and Child Labour. *The Pakistan Development Review*, 42(2), 137-160. Retrieved from <http://www.jstor.org/stable/41260532>
- Kraus, Alexander. (2016). Understanding child labour beyond the standard economic assumption of monetary poverty. *Cambridge Journal of Economics*, 41(2) 1-30. <https://doi.org/10.1093/cje/bew019>
- Larsen, Bille, Peter (2003). Indigenous and tribal children: assessing child labour and education challenges, ILO. Retrieved [http://www.ilo.org/public/libdoc/ilo/2003/103B09\\_132\\_engl.pdf](http://www.ilo.org/public/libdoc/ilo/2003/103B09_132_engl.pdf)
- Mukherjee, Dipa. (2010). Child workers in India: an overview of macro dimensions, Prankrishna Pal, Alok Bhaumik and Kausik Gupta (Eds.), *Emerging Issues in the Indian Economy*, Regal Publications. New Delhi.
- Orazem, Peter F., & Gunnarsson, Victoria. (2003). Child labour, school attendance and performance: A review. ILO, IPEC Working paper. Retrieved from [http://www.ilo.org/public/libdoc/ilo/2003/103B09\\_460\\_engl.pdf](http://www.ilo.org/public/libdoc/ilo/2003/103B09_460_engl.pdf)

Ravallion, M., & Wodon, Q. (2000). Does Child Labour Displace Schooling? Evidence on Behavioural Responses to an Enrolment Subsidy. *The Economic Journal*, 110(462), C158-C175. Retrieved from <http://www.jstor.org/stable/2565729>

Salazar, María, Cristina. & Glasinovich, Walter, Alarcon. (Eds). (1998). *Child work and Education: five case studies from Latin America*, Routledge Revivals.

Shyjan, D., & Sunitha, A.S. (2008). Changing phases of Kerala's development experience: examining the excluded with special reference to ST's. *Artha Vijnana: Journal of the Gokhale Institute of Politics and Economics*. 52 (4) 340-359. doi:10.21648/arthavij%2F2009%2Fv51%2Fi4%2F115375



## CHARACTERISTICS OF POSITIVE AND NEGATIVE MORTALITY OUTLIER STATES IN INDIA

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**Abstract:** This study aims to identify India's exceptionally low mortality-achieving states, explain their experiences, and draw parallels between them. What are the possible explanations for the low-income states to outperform the richer states in mortality reduction? Assuming that economic determinism dictates mortality, we calculated the relative positions of the states' rankings in two standardised measures of mortality: life expectancy at birth and infant mortality rate over income. We have identified a diverse array of superior and poor achiever states based on differences in ranking above a certain threshold. Our study acknowledges the significance of high per capita expenditure and increased public investment in sectors such as health, progressive social institutions that facilitate women's mobility and encourage their participation in economic activities beyond their homes, and literacy and education, which are inclusive of both genders. Most of the states with superior performance are smaller in terms of geographical area. Other positive traits that connect the superior mortality-achieving states in India include a lower percentage of women whose Body Mass Index is below normal, higher mean age at marriage among females, and higher workforce participation among females.

**Keywords:** positive outlier, negative outlier, superior achievers, poor achievers, mortality

### Introduction

In the year 1986, the *Population and Development Review* published a widely cited article titled "Routes to low mortality in poor countries," written by John Caldwell. His article was intriguing from many standpoints. He reinvigorated the health paradigm by providing examples of three middle-income countries, namely China, Costa Rica, and Sri Lanka, as well as the Indian state of Kerala, that have achieved exceptional feats in reducing infant mortality and lengthening

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years of life compared to many high-income countries. Caldwell presented numerous hypotheses for future testing. Historical data on mortality decline and life expectancy suggests that from 1650 to 1850, when the world population doubled, the class differences widened (Caldwell, 1986). Many influential articles examined the close relationship between mortality and social class. Aaron Antonovsky published an article in *The Milbank Memorial Fund Quarterly* in 1967 that examined the relationship between life expectancy, overall mortality, and social class. The introduction to the article by Antonovsky narrates experiences from the sinking Titanic, where only four first-class passengers died compared to many more travelling in second and third classes. The article (Antonovsky, 1967) proposed a relationship between one's social class and the time of death, using the Titanic as an example. Similarly, there were other articles by Samuel Preston (Preston, 1975) that emphasized economic variations rather than non-income factors.

The publication of Caldwell's article coincided with a slowdown in mortality decline in most parts of the world, with a few exceptions. He provided one such example from India, where the mortality declined in the 1970s did not slow down or stagnate. His article was interesting as it provided an explanation, using historical and political narratives, for the breakthrough period of mortality decline, and also explained the routes that led to low mortality. He illustrated the significance of female literacy in reducing child mortality, the availability of medical and health facilities, such as physicians, and the prevalence of family planning among females. He acknowledged the success of socialist countries like Cuba in reducing mortality, but did not include Cuba in his list of superior health achievers due to data constraints. He explained Kerala, an Indian state rather than a country, alongside experiences of nations such as China, Costa Rica, and Sri Lanka. Many subsequent articles explained Kerala's historical outlier status in most demographic and health indicators in great detail.

Caldwell used a very simple method to identify the positive and negative outlier states. Assuming an economic deterministic model, he calculated the relative positions of the rankings of the countries on the two standardized measures of mortality, i.e., life expectancy at birth (LEB) and infant mortality rates, as well as the income levels measured by per capita gross national product (GNP). The list of countries with rankings separated by at least 25 places from the income levels on both sides comprises the positive and negative outlier states. A quarter century later, in 2010, *Population and Development Review* published another article by Randall Kuhn titled "Routes to low mortality in poor countries revisited," in which he used similar methodology to identify superior and poor health achievers (Kuhn, 2010). Over the course of 25 years, significant changes occurred; the original health achievers narrowed their income gap, while the poor achievers narrowed their mortality gap. In his article, Kuhn identified both

positive and negative outlier states. In his article, he provided explanations for the contemporary pathways to low mortality for a new group of exceptional mortality achievers.

This article intends to identify positive and negative outlier states among Indian states using the methodology that Caldwell adopted in his article and to draw parallels among the outlier states. According to life tables, the Sample Registration System (SRS) provides reliable data on life expectancy at birth for all major states in India. We used life expectancy data from abridged life tables for the latest period of 2014-2018. Only larger states with populations exceeding one crore have a life table (Pratichi Institute, 2018, p. 201), leaving the northeastern states, with the exception of Assam, without them. It's not a good idea to use life expectancy data from human development reports for the northeastern states because some of them are older than the latest abridged life tables from the sample registration system. Also, the data is estimated indirectly by using United Nations model life tables or regressing data from infant mortality rates (Pratichi Institute, 2018), which makes comparisons unfair. The Human Development Index (Pratichi Institute, 2018) uses the infant mortality rate and overall death rate as a proxy for life expectancy at birth due to the unavailability of data on this topic. Considering these constraints, the analysis includes 22 major states with available life expectancy at birth figures for the years 2014-2018, with 2016 serving as the midyear. The reorganisation of Jammu and Kashmir State into two union territories — Ladakh and Jammu and Kashmir — completed in 2019. The data pertaining to Jammu and Kashmir is for present Ladakh and Jammu and Kashmir union territories of the Union of India. We collect data on infant mortality rates from a sample registration system for 30 states, available for the year 2016. The life expectancy at a specific age indicates the number of additional years one can expect to live. Calculated from age-specific mortality rates, it is an average measure of mortality. Infant mortality rate (IMR) is the number of deaths from birth till first birthday per 1000 live births. The per capita net state domestic product values (NSDP) for the years 2018-2019 at the base year of 2011-2012 are collected from the Directorate of Economic and Statistics of various states.

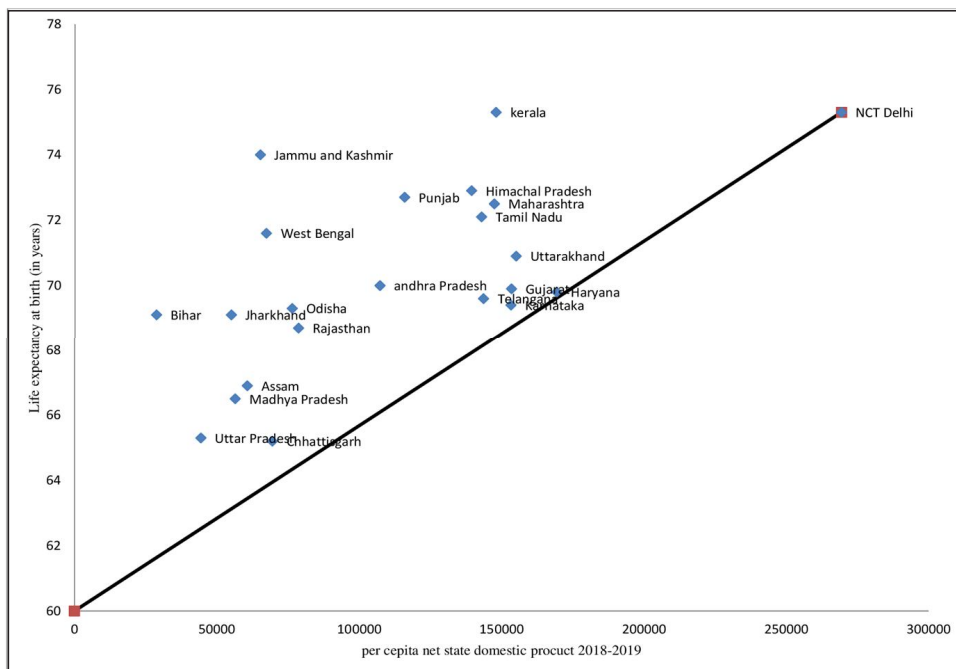
## **Superior Mortality Achievers**

### **Life Expectancy at Birth**

All 22 major states in India show a highly correlated relationship ( $r=-0.84$ ) between infant mortality rates and life expectancy at birth. We accept mortality rankings at least ten places above the state's per capita net state domestic product rankings as a threshold for inclusion in the list of superior achievers. We could not include states from the North Eastern Region in the analysis for this particular indicator due to a lack of data on life expectancy at birth, but we did include them for the IMR analysis.

In Kerala — the original outlier — due to a substantial rise in income, the gap between the two rankings has fallen. It still tops the list of life expectancy at birth among all major states, and the only other state in India to outperform Kerala in IMR is Goa. Jammu and Kashmir is the only state that stands out as a superior achiever, ranking ten places above the income level (see Fig-1). Among all the larger states and union territories of India, Jammu and Kashmir ranks third, trailing only Kerala and National Capital Territory Delhi. In 1970-1975, life expectancy at birth in Jammu and Kashmir was 56.1 years; the male population with 56.9 years of longevity enjoyed a slight advantage over females with 55.2 years of life expectancy at birth. In the last three and a half decades, Jammu and Kashmir surpassed Punjab, Haryana, and West Bengal to be the second among all the bigger states in India in longevity of life. Haryana is on the other end of the spectrum, with a relative ranking below 10 positions from its income ranking. They are the superior health achiever states (SHAS) and poor health achiever states (PHAS), respectively (see Table-1).

**Figure-1**  
**Infant Mortality Rate, 2016 and Per Capita Net State Domestic Product, 2018–2019**  
**for 30 States in India (Author, 2021)**



**Table-1**  
**Mortality Indicators Relative to Income Levels, Superior and Poor Achiever States of India**

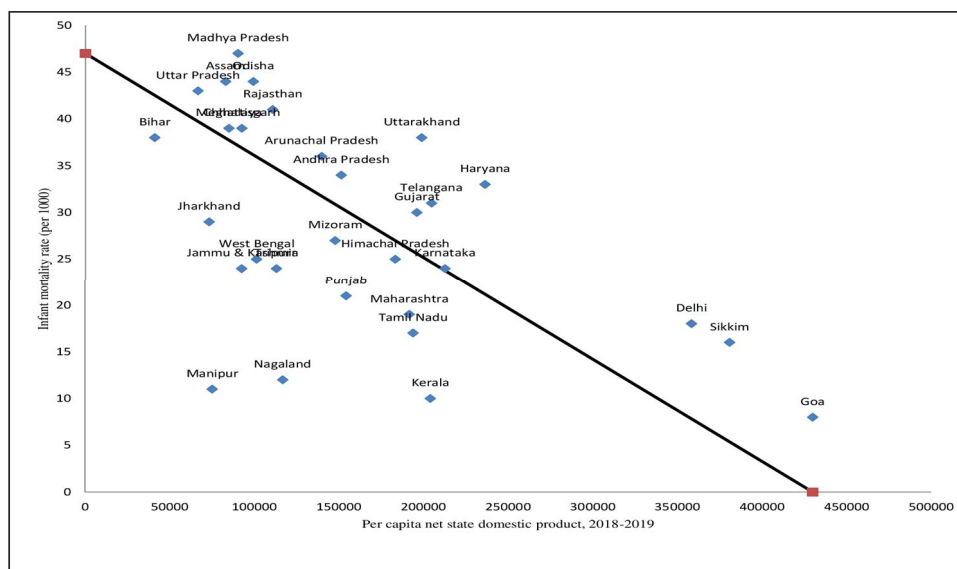
| States            | Infant<br>Mortality Rate,<br>2016 | Rankings of<br>IMR relative to<br>Income | States            | Life<br>Expectancy<br>at Birth<br>(years), 2014-<br>2018 | Rankings of<br>Life<br>Expectancy<br>at Birth<br>Relative to<br>Income |
|-------------------|-----------------------------------|------------------------------------------|-------------------|----------------------------------------------------------|------------------------------------------------------------------------|
| Manipur           | 11                                | 25                                       | Jammu and Kashmir | 74                                                       | 14                                                                     |
| Nagaland          | 12                                | 16                                       | West Bengal       | 71.6                                                     | 8                                                                      |
| Jammu & Kashmir   | 24                                | 13                                       | Himachal Pradesh  | 72.9                                                     | 6                                                                      |
| Jharkhand         | 29                                | 11                                       | Punjab            | 72.7                                                     | 6                                                                      |
| West Bengal       | 25                                | 8                                        | Bihar             | 69.1                                                     | 6                                                                      |
| Bihar             | 38                                | 8                                        | Kerala            | 75.3                                                     | 5                                                                      |
| Kerala            | 10                                | 6                                        | Jharkhand         | 69.1                                                     | 3                                                                      |
| Tamil Nadu        | 17                                | 5                                        | Tamil Nadu        | 72.1                                                     | 2                                                                      |
| Tripura           | 24                                | 5                                        | Andhra Pradesh    | 70                                                       | 2                                                                      |
| Punjab            | 21                                | 4                                        | Maharashtra       | 72.5                                                     | 1                                                                      |
| Uttar Pradesh     | 43                                | 2                                        | Uttar Pradesh     | 65.3                                                     | 0                                                                      |
| Maharashtra       | 19                                | 1                                        | NCT Delhi         | 75.3                                                     | -1                                                                     |
| Goa               | 8                                 | 0                                        | Odisha            | 69.3                                                     | -1                                                                     |
| Himachal Pradesh  | 25                                | -1                                       | Assam             | 66.9                                                     | -1                                                                     |
| Mizoram           | 27                                | -1                                       | Madhya Pradesh    | 66.5                                                     | -1                                                                     |
| Meghalaya         | 39                                | -1                                       | Telangana         | 69.6                                                     | -5                                                                     |
| Sikkim            | 16                                | -2                                       | Rajasthan         | 68.7                                                     | -5                                                                     |
| Chhattisgarh      | 39                                | -3                                       | Uttarakhand       | 70.9                                                     | -6                                                                     |
| Assam             | 44                                | -3                                       | Gujarat           | 69.9                                                     | -7                                                                     |
| Karnataka         | 24                                | -4                                       | Chhattisgarh      | 65.2                                                     | -7                                                                     |
| Madhya Pradesh    | 47                                | -4                                       | Karnataka         | 69.4                                                     | -9                                                                     |
| Delhi             | 18                                | -5                                       | Haryana           | 69.8                                                     | -10                                                                    |
| Andhra Pradesh    | 34                                | -5                                       |                   |                                                          |                                                                        |
| Arunachal Pradesh | 36                                | -5                                       |                   |                                                          |                                                                        |
| Telangana         | 31                                | -8                                       |                   |                                                          |                                                                        |
| Rajasthan         | 41                                | -8                                       |                   |                                                          |                                                                        |
| Odisha            | 44                                | -10                                      |                   |                                                          |                                                                        |
| Gujarat           | 30                                | -11                                      |                   |                                                          |                                                                        |
| Haryana           | 33                                | -15                                      |                   |                                                          |                                                                        |
| Uttarakhand       | 38                                | -18                                      |                   |                                                          |                                                                        |

**Source:** Office of the Registrar General and Census Commissioner (2017). *Sample Registration System, Bulletin*, September 2017 (51:1) Ministry of Home Affairs, Government of India ; Office of the Registrar General and Census Commissioner (2020). *Sample Registration System, Abridge Life Table 2014- 2018* , Ministry of Home Affairs, Government of India.

## Infant Mortality Rate

In terms of infant mortality rates, the list of superior achievers is equally diverse. Taking ten points above and below income rankings as a threshold, four among 30 states achieved that level: Manipur and Nagaland from the northeast, Jammu and Kashmir from the north, and Jharkhand from the east, with an average relative ranking of +16.25 (see Fig-2). Manipur recorded 22 infant deaths in 2000, and Nagaland recorded 18 infant deaths per thousand live births in 2005. The northeastern states have performed exceptionally well in reducing IMR compared to the rest of India. Manipur, Nagaland, and Tripura record 11, 12, and 24 infant deaths per 1000 live births, which are well below the national average. Despite the intriguing trend in the region, Arunachal Pradesh and Mizoram deserve special mention due to their unique circumstances. Both of these states saw an increase in IMR between 2000 and 2016. These are the only two states in India that record an increase rather than a decline between 2000 and 2016. In Arunachal Pradesh, IMR increased from 16 to 36 per thousand live births, and in Mizoram, it increased from 18 to 27 per thousand live births. Odisha, Gujarat, Haryana, and Uttarakhand rank 10 points lower in their income rankings, making them the poorest performing states in India.

**Figure-2**  
**Life Expectancy at Birth, 2014–2018 and per Capita Net State Domestic Product, 2018–2019 for 22 States in India (Author, 2021)**



## Determinants of Superior and Poor Mortality Achievers

Indeed, economic factors are the powerful determinants of health and mortality. Public investments in the health sector should increase as the state's income improves. In order to fully understand the non-economic determinants, Caldwell had to first "strip out" the effects of income (Kuhn, 2010). He emphasized on education, especially among females. In the later decade, we saw a burgeoning literature to examine the various mechanisms through which the relationship operates. Education influences health-seeking behavior. Empirical research has proven that parental education, particularly among mothers, significantly reduces infant and child mortality. One of the direct impacts of maternal employment is the increased resource available for child welfare. Women's wages have the higher probability of being used in household and especially child welfare (Basu and Basu, 1991).

**Table-2**  
**Correlation Between Mortality and Various other Measures,**  
**India State-Wise Data**

| Indicator                                                                   | Infant Mortality Rate, 2016 | Life Expectancy at Birth, 2014-2018 |
|-----------------------------------------------------------------------------|-----------------------------|-------------------------------------|
| Female literacy, 2011                                                       | 0.67*                       | 0.63*                               |
| Male literacy, 2011                                                         | 0.46*                       | 0.57*                               |
| Gross enrollment ratio in higher education (18-23 years), male 2016- 2017   | -0.36                       | 0.45*                               |
| Gross enrollment ratio in higher education (18- 23 years), female 2016–2017 | -0.54*                      | 0.63*                               |
| Mean age at effective marriage of females, 2017                             | 0.33**                      | 0.69*                               |
| Sex ratio, 2011                                                             | 0.12                        | 0.20                                |
| Per capita health expenditure (in Rs), 2015–2016                            | 0.29                        | 0.51*                               |
| Health expenditure as % of Gross State Domestic Product, 2015–2016          | 0.054                       | 0.16                                |

**Source:** Author, 2021

\* significant at 5 per cent; \*\*significant at 10 per cent

Gross enrolment ratios and literacy rates have increased enormously over time for all states, losing importance in determining the superior achievers, but they are still relevant (see Table-2). Positive outlier states reveal an interesting finding: both genders in SHAS have lower average literacy, but the gender gap in

literacy is also smaller than in PHAS. Female autonomy, which is defined as the extent to which she can influence household decisions, is achieved through female education. In Manipur, Nagaland, the superior health achiever states except for Jammu and Kashmir and Jharkhand are characterised by a low gender gap in literacy and higher female workforce participation (see Appendix Tables 1 and 2). Northeastern societies deeply root the superiority of women in their cultures and traditions. Many tribes in Meghalaya continue to practice matrilineal social formation, where the youngest daughter inherits family property. For those who follow the patriarchal system, the demand for dowry is not there. Many tribal societies in the northeast 'purchase' the bride by offering animals such as *Mithuns* and traditional ornaments (Srivastava and Community, 2010). Although the tribal and non-tribal dichotomy still exists in India, the current social reality of the tribal communities in North East India differs significantly from popular belief. Mostly due to the work of Christian missionaries and socialist movements, the tribal majority states are performing better in literacy than Assam or Tripura, where the tribal population constitutes a minority of the total population.

Even though income is important, a quick glance at the health achievers from India suggests that it's equally important to evaluate the primary source of their income. We anticipate that the structural shift in the economy will lead to a social transformation. Agriculture's contribution to Haryana's gross state domestic product (GSDP) — a poor achiever — has declined over the years to 21 percent in 2006-2007, but agriculture provides livelihood directly and indirectly to a large share of its population (Department of Economic and Statistical Analysis, 2021). The state that stood second highest in terms of income has one of the lowest sex ratios in India; female feticide is rampant, the gender gap in literacy is more than 20 points, and it has low workforce participation among females (see Appendix Tables 1 and 2). Land is the most important resource in an agrarian economy. In recent times, the origin of *khap panchayats* as an extra-constitutional body has taken on a quasi-judicial character, attempting to control intimate and private choices such as marriage, while the underlying motive is to control female sexuality, ensuring that land rights remain within the patriarchal caste system. Northeastern states such as Manipur and Nagaland stand out in this regard. Despite the agricultural sector's larger contribution to livelihood, these states, unlike Haryana, have a higher sex ratio, higher female workforce participation, and a lower gender gap in literacy (see Appendices Table-1 and 2). Any market in Manipur or Nagaland has more women shopkeepers than men. In most parts of North East India, women participate in economic activities, such as farming, just like men do. This allows them to earn similar rights to the land and its resources. They earn every right to question about every penny their families get from land. The tradition of women taking active participation in the workforce has a long history. The iconic Ima Keithal, a 500-year-old market located in Imphal city, Manipur, is an all-women market. Not only do women assume greater economic

responsibilities and enjoy freedom for mobility outside of their homes, but they also receive education and better nourishment at home. These three superior achiever states, Manipur, Nagaland, and Jammu and Kashmir, have very few percent of women whose body mass index is below normal (see Appendix Table 4). More important is the tradition of collective action that Manipuri women have. *Nupi Lan* is a term that translates to 'women's war'. The women of Manipur organised an agitation against the British in 1939, leading to the name *Nupi Lan*. Later during the 1970s, the women of Manipur rose again to fight collectively against the problem of alcoholism among men. Likewise in Kerala, the women-oriented, anti-poverty programme 'Kudumbashree' is operational since 1998. The 'Kerala model' teaches about the use of 'public action' involving both the public and government (Kurien, 1995).

One other point is equally important. The median age at marriage among females is the highest in Jammu and Kashmir; higher in two states from North East India, compared to the list of poor-achieving states. Researchers have spent years attempting to determine whether the correlation between marriage and mortality stems from a causal relationship known as marriage protection or selection bias. Drefahl's (2010) paper demonstrates that marriage enhances the life expectancy of both men and women compared to single individuals. Marriage is associated with a longer life span. Furthermore, there are indirect consequences to marrying late. People who pursue higher education typically delay marriage, as schooling has a positive correlation with life expectancy and reduces IMR. When education causes a delay in marriage, the search for a suitable partner prolongs the delay, increasing the likelihood of a person becoming selective as they age and gain more education. The gap between both spouses is most likely to decrease with late marriage, reducing the likelihood and duration of widowhood. This indirectly has a positive impact on adults' expectations of life.

Decomposition analysis of temporal increases in expectations of life among major states, irrespective of their level of life expectancy, shows that much of the improvement has come from reductions in mortality in the first few years of life. In India, males below age one contributed about half of the total gain in life expectancy at birth between 1970-'75 and 2006-'10 (Saikia, 2018). There seem to be a number of low-hanging fruits available for mortality reduction, especially among children. Duflo and Banerjee's (2011) book *Poor Economics* discusses some of the highly effective health investments based on evidence collected, some of which are from India. Access to clean drinking water and sanitation, using bed nets, bleach, and oral rehydration solutions (ORS), are some of the cheaper ways to avert diarrhoea and malaria, the two diseases responsible for taking the vast majority of lives at a younger age. Particularly in the early stages of mortality transition, societies can reap the greatest benefits from these cost-effective measures.

Compared to many developing countries, India's health expenditure as a percentage of GDP is low. High out-of-pocket expenditure and lack of access have remained the major problems in India's health system. According to the World Bank, health expenditure in India was 3.53 per cent of GDP in 2017. State and central governments incur public health expenditures, whereas individuals bear out-of-pocket expenses. According to the National Health Profile 2019 data, public health expenditure is 1.28 per cent of GDP in India (Central Bureau of Health Intelligence, 2019). State governments bear the major brunt of total public health expenditure in India. In 2018, state governments accounted for 63 per cent of the total, compared to 37 per cent of central government. According to the same source, the North Eastern States and Jammu and Kashmir had the highest public health expenditure as a percentage of Gross State Domestic Product (GSDP). Per capita health expenditure rankings are more than 15 places above the ranking of per capita NSDP in Jammu and Kashmir and Manipur (see Appendix Table 3). This difference in expenditure is reflected in the availability of healthcare infrastructure, including per capita hospital beds and doctors. Research (Jadhav, Malti, Yakundi & Patil, 2019; Chaudhury and Mohanty, 2020) has highlighted the positive association between the availability of the health care workforce and health outcomes. The Economic Survey 2021 records an inadequate health workforce across states in India, and distribution is lopsided; Kerala, Jammu and Kashmir have a high density of doctors, and states like Punjab and Himachal Pradesh have a larger number of midwives and nurses compared to other states of India (Ministry of Finance, 2021). In a strife-ridden state like Jammu and Kashmir, providing better healthcare facilities is important for human resource development in the state, as well as establishing trust among people in government institutions (Mir Hamid and Bhat, 2018). Located in border areas and in the lap of the Himalayas, Jammu and Kashmir and North East states have large areas under hilly terrain. These states lack the necessary population density and size to make private healthcare facilities profitable. This is one of the reasons we don't see a proliferation of private hospitals in these states. People are dependent on government facilities.

Does size matter? The smaller size of the states coupled with less population density is another common characteristic of superior achiever states. Is it because the smaller states were somehow more efficient in delivering public goods and preventing any leaks? Can they better assess the quality of their institutions? Manipur, Nagaland, and Jharkhand were all parts of a bigger state during independence. The North East Region of India has undergone boundary changes like no other parts of India. This region is home to more than 200 tribal groups, and tribal populations are the majority in 4 out of 7 states (Dikshit and Dikshit, 2014). Similarly, the Adivasis, or tribal population, are primarily responsible for the call for separation of Jharkhand from Bihar state. The new

states carved out of the original bigger states were smaller in size and more culturally homogenous.

## Conclusion

Evidence from positive outlier states provides optimism for other poor states to reach the goals of mortality reduction and improving health at a low level of income. The routes identified by Caldwell's article, which led poor countries to achieve low mortality and high birth expectations, remain relevant three decades later. Improvement in female literacy is relevant per se and also important in the broader framework of enlarging female autonomy. Social institutions reflect a society's fundamental belief system about women's mobility, access to resources and infrastructure, and the power dynamics within society and households. Regressive social institutions deprive women of the freedom they need to thrive, as evidenced in states with poor health outcomes. Investment in education and health by the state and not letting the market take over will prevent it from running into health traps. Increased public investments in the health sector have facilitated the provision of healthcare services, as demonstrated by the example of Jammu and Kashmir.

## References

- Antonovsky, A. (1967). Social class, life expectancy and overall mortality. *The Milbank Memorial Fund Quarterly*, 45(2), 31-73.
- Bashir, A. D. (2014). The unending cycle of late marriages in Kashmir, Social Concern, 24 January 2014. Retrieved May 25, 2021 from <https://www.newageislam.com/islam-women-and-feminism/new-age-islam-news-bureau/the-unending-cycle-of-late-marriages-in-kashmir/d/35429>
- Basu, A. M., & Basu, K. (1991). Women's economic roles and child survival: the case of India. *Health Transition Review*, 1(1), 83-103.
- Caldwell, J. C. (1986). Routes to low mortality in poor countries. *Population and Development Review*, 12(2), 171-220.
- Central Bureau of Health Intelligence (2019). *National health profile 2019*. Ministry of Health and Family Welfare, Government of India, New Delhi Retrieved 25 May 2021, from <http://www.cbhidghs.nic.in/showfile.php?lid=1147>
- Choudhury, M., & Mohanty, R.K. (2020). Role of National Health Mission in health spending of states: achievements and issues. Retrieved July 9, 2021, from NIPFP Working Paper 317, August. [https://nipfp.org.in/media/medialibrary/2020/08/WP\\_317\\_2020.pdf](https://nipfp.org.in/media/medialibrary/2020/08/WP_317_2020.pdf)
- Department of Economic and Statistical Analysis (2021). *Economic Survey of Haryana, 2020- 21*, retrieved July 9, 2021, from <http://web1.hry.nic.in/budget/Esurvey.pdf>.

- Dikshit, K. R., & Dikshit, J. K. (2014). *North-east India: Land, People and Economy*. Dordrecht: Springer.
- Drefahl, S. (2010). How does the age gap between partners affect their survival?. *Demography*, 47(2), 313-326. <https://doi.org/10.1353/dem.0.0106>
- Duflo, E., & Banerjee, A. (2011). *Poor economics* (Vol. 619). Public Affairs.
- Jadhav, N., Malti, T., Yakundi, D., & Patil, H. (2019). A report on understanding factors for under- spending of National Health Mission's funds since last 5 years in Maharashtra. DOI:10.13140/RG.2.2.34346.57284
- Kuhn, R. (2010). Routes to low mortality in poor countries revisited. *Population and Development Review*, 36(4), 655-692.
- Kurien, J. (1995). The Kerala model: Its central tendency and the outlier. *Social Scientist*, 70-90.
- Ministry of Finance, Government of India (2021). *Economic Survey 2020-21*. Retrieved 9 July, 2021, from [https://www.indiabudget.gov.in/economicsurvey/ebook\\_es2021/index.html](https://www.indiabudget.gov.in/economicsurvey/ebook_es2021/index.html)
- Mir Hamid, A. B., & Bhat, S. A. (2018). Health Status and Access to Health Care Services in Jammu and Kashmir State, *Asian Review of Social Sciences* 7(3), 52-57
- Pratichi Institute (2018). *Tripura Human Development Report II*, Pratichi (India) Trust 2018, Retrieved 25 May, 2021, from <https://planning.tripura.gov.in/sites/default/files/Draft%20Tripura%20Human%20Development%20Report%20%28THDR%29%20-%20II%2010%20April%202018.compressed.pdf>
- Preston, S. H. (1975). The changing relation between mortality and level of economic development. *Population Studies*, 29(2), 231-248.
- Saikia, N. (2018). Decomposition of Life Expectancy at Birth for India and some of its Selected States. *Human Biology Review* 7(2), 140-154
- Srivastava, RC & Nyishi Community (2010). Traditional knowledge of Nyishi (Daffla) tribe of Arunachal Pradesh. *Indian Journal of Traditional Knowledge*, 9(1), 26-37. Retrieved 25 May, 2021, from [http://nopr.niscair.res.in/bitstream/123456789/7150/1/IJTK%209\(1\)%2026-37.pdf](http://nopr.niscair.res.in/bitstream/123456789/7150/1/IJTK%209(1)%2026-37.pdf)

**Table-A1**  
**School and Literacy Indicators Level Relative to Income Levels, Superior**  
**and Poor Achiever States of India**

| States                   | Female<br>Literacy<br>rate,<br>2011 | Ranking<br>of female<br>literacy,<br>2011 | Male<br>Literacy<br>rate,<br>2011 | Ranking<br>of Male<br>Literacy,<br>2011 | Gross<br>Enrollment<br>Ratio in<br>Higher<br>Education<br>(18-23<br>Years),<br>Male 2016-<br>2017 | Ranking of<br>Gross<br>Enrollment<br>Ratio in<br>Higher<br>Education<br>(18-23<br>Years),<br>Male 2016-<br>2017 | Gross<br>Enrollment<br>Ratio in<br>Higher<br>Education<br>(18-23<br>Years),<br>Female<br>2016- 2017 | Ranking<br>of Gross<br>Enrollmen<br>t Ratio in<br>Higher<br>Education<br>(18-23<br>Years),<br>Female<br>2016- 2017 |
|--------------------------|-------------------------------------|-------------------------------------------|-----------------------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
|                          |                                     | Relative<br>to Per<br>Capita<br>NSDP      |                                   | Relative<br>to Per<br>Capita<br>NSDP    |                                                                                                   | Relative to<br>Per Capita<br>NSDP                                                                               |                                                                                                     | Relative to<br>Per<br>Capita<br>NSDP                                                                               |
| Jammu and<br>Kashmir     | 56.4                                | -3                                        | 76.8                              | -2                                      | 23.6                                                                                              | 5                                                                                                               | 28                                                                                                  | 8                                                                                                                  |
| Manipur                  | 70.3                                | 14                                        | 83.6                              | 14                                      | 35.3                                                                                              | 22                                                                                                              | 35                                                                                                  | 21                                                                                                                 |
| Nagaland                 | 76.1                                | 14                                        | 82.8                              | 3                                       | 16.1                                                                                              | -12                                                                                                             | 17                                                                                                  | -9                                                                                                                 |
| Jharkhand                | 55.4                                | 1                                         | 76.8                              | 4                                       | 18.4                                                                                              | 2                                                                                                               | 17                                                                                                  | 3                                                                                                                  |
| Unweighted<br>Mean       | 64.55                               | +4.5                                      | 80                                | +4.75                                   | 23.35                                                                                             | 4.25                                                                                                            | 24.1                                                                                                | 5.75                                                                                                               |
| Poor health<br>achievers |                                     |                                           |                                   |                                         |                                                                                                   |                                                                                                                 |                                                                                                     |                                                                                                                    |
| Haryana                  | 65.9                                | -15                                       | 84.1                              | -7                                      | 28.5                                                                                              | -7                                                                                                              | 30                                                                                                  | -7                                                                                                                 |
| Gujarat                  | 69.7                                | -10                                       | 85.8                              | -1                                      | 22.9                                                                                              | -12                                                                                                             | 17                                                                                                  | -14                                                                                                                |
| Odisha                   | 64                                  | -1                                        | 81.6                              | 4                                       | 23                                                                                                | 1                                                                                                               | 19                                                                                                  | -1                                                                                                                 |
| Uttarakhand              | 70                                  | -10                                       | 87.4                              | 0                                       | 33.8                                                                                              | 1                                                                                                               | 33                                                                                                  | 0                                                                                                                  |
| Unweighted<br>average    | 67.4                                | -7.75                                     | 84.7                              | -1                                      | 27.05                                                                                             | -4.25                                                                                                           | 24.7                                                                                                | -5.5                                                                                                               |

**Source:** Census 2011 data, India, retrieved July 9, 2021, from <https://www.census2011.co.in/literacy.php>; Department of Higher Education (2017). *All India Survey on Higher Education 2016- 2017*, retrieved 9 July 2021, from Ministry of Education, Government of India website [https://www.education.gov.in/sites/upload\\_files/mhrd/files/statistics-new/AISHE2016-17.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/statistics-new/AISHE2016-17.pdf)

**Table-A2**  
**Sex Ratio, Female Workforce Participation and Mean Age at Effective Marriage of Females and their Rankings Relative to Income Levels, Superior and Poor Health Achiever States in India**

| States                | Sex Ratio, 2011 | Ranking of Sex Ratio, 2011 Relative to Per Capita NSDP | Female Workforce Participation Rates, 2011 | Ranking of Workforce Participation, 2011 Relative to Per Capita NSDP | Women who Worked in the Last 12 Months who were Paid in Cash (%) | Ranking of women who Worked and Paid Relative to Per Capita NSDP | Mean age at Effective Marriage of Females, 2017 | Ranking of Mean Age at Effective Marriage of Females, 2017 Relative to per Capita NSDP |
|-----------------------|-----------------|--------------------------------------------------------|--------------------------------------------|----------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|-------------------------------------------------|----------------------------------------------------------------------------------------|
| Jammu and Kashmir     | 889             | -5                                                     | 19.1                                       | 1                                                                    | 12.4                                                             | -7                                                               | 25.1                                            | 21                                                                                     |
| Manipur               | 985             | 20                                                     | 38.6                                       | 23                                                                   | 40.9                                                             | 25                                                               | 24*                                             | 24                                                                                     |
| Nagaland              | 931             | -2                                                     | 44.7                                       | 18                                                                   | 22.7                                                             | 4                                                                | 20.8*                                           | -8                                                                                     |
| Jharkhand             | 948             | 11                                                     | 29.1                                       | 12                                                                   | 24.8                                                             | 14                                                               | 21.9                                            | 6                                                                                      |
| Unweighted average    | 938.25          | +6                                                     | 32.8                                       | +13.5                                                                | 25.2                                                             | 9                                                                | 23.5                                            | +11                                                                                    |
| Poor health achievers |                 |                                                        |                                            |                                                                      |                                                                  |                                                                  |                                                 |                                                                                        |
| Haryana               | 879             | -24                                                    | 17.8                                       | -22                                                                  | 17.6                                                             | -19                                                              | 22.5                                            | -6                                                                                     |
| Gujarat               | 919             | -14                                                    | 23.4                                       | -13                                                                  | 30.2                                                             | 1                                                                | 22.5                                            | -5                                                                                     |
| Odisha                | 979             | 13                                                     | 27.2                                       | 3                                                                    | 22.5                                                             | 2                                                                | 21.9                                            | 0                                                                                      |
| Uttarakhand           | 963             | -5                                                     | 26.68                                      | -12                                                                  | 15.5                                                             | -23                                                              | 22.3                                            | -10                                                                                    |
| Unweighted average    | 935             | -7.5                                                   | 23.7                                       | -11                                                                  | 21.45                                                            | -10                                                              | 22.3                                            | -5                                                                                     |

**Source:** Census 2011 data, India, retrieved July 9, 2021, from <https://www.census2011.co.in/sexratio.php>; Office of the Registrar General (2011), Census 2011, India; International Institute for Population Sciences (2007). *National Family and Health Survey (NFHS- 4), 2015-2016, State Fact Sheet*. India, Mumbai, India: International Institute for Population Sciences. Retrieved 25 May, 2021, from [http://rchiips.org/nfhs/factsheet\\_nfhs-4.shtml](http://rchiips.org/nfhs/factsheet_nfhs-4.shtml); \*Statista Research Department (2016). *Average age at marriage among men and women across North – East India in 2013-2014, Mean age at marriage among north-east Indian men and women 2014*

**Table-A3**  
**Health Expenditure Indicators Level Relative to Income Levels, Superior and Poor Achiever States of India**

| State                 | Per Capita Health Expenditure (in Rupees), 2015–2016 | Ranking of per Capita health Expenditure (in Rupees), 2015–16 Relative to per Capita NSDP | Health Expenditure as Per cent of GSDP, 2015–2016 | Ranking of Health expenditure as Per cent of GSDP, 2015-16 Relative to per Capita NSDP |
|-----------------------|------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------|----------------------------------------------------------------------------------------|
| Jammu and Kashmir     | 2359                                                 | 16                                                                                        | 2.46                                              | 18                                                                                     |
| Manipur               | 2061                                                 | 18                                                                                        | 2.79                                              | 24                                                                                     |
| Nagaland              | 2450                                                 | 14                                                                                        | 2.97                                              | 17                                                                                     |
| Jharkhand             | 866                                                  | 1                                                                                         | 1.25                                              | 11                                                                                     |
| Unweighted average    | 1934                                                 | +12                                                                                       | 2.37                                              | +17.5                                                                                  |
| Poor health achievers |                                                      |                                                                                           |                                                   |                                                                                        |
| Haryana               | 1119                                                 | -18                                                                                       | 0.63                                              | -24                                                                                    |
| Gujarat               | 1189                                                 | -13                                                                                       | 0.72                                              | -20                                                                                    |
| Odisha                | 927                                                  | -6                                                                                        | 1.19                                              | 2                                                                                      |
| Uttarakhand           | 1765                                                 | -7                                                                                        | 1.06                                              | -13                                                                                    |
| Unweighted average    | 1250                                                 | -11                                                                                       | .9                                                | -14                                                                                    |

**Source:** Central Bureau of Health Intelligence (2019). *National Health Profile 2019*. Retrieved May 25, 2021, from <http://www.cbhidghs.nic.in/showfile.php?lid=1147>

**Table-A4**  
**Body Mass Index of Women Relative to Income Levels, Superior and Poor Achiever States of India**

| States                | Women Whose Body Mass Index (BMI) Below Normal (BMI < 18.5 kg/m <sup>2</sup> ) (in Per cent) | Ranking Women Whose BMI is Below Normal 2015-16 Relative to per Capita NSDP |
|-----------------------|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| Jammu and Kashmir     | 12.2                                                                                         | 15                                                                          |
| Manipur               | 8.8                                                                                          | 24                                                                          |
| Nagaland              | 12.3                                                                                         | 11                                                                          |
| Jharkhand             | 31.5                                                                                         | -3                                                                          |
| Unweighted average    | 16.2                                                                                         | +12                                                                         |
| Poor health achievers |                                                                                              |                                                                             |
| Haryana               | 15.8                                                                                         | -9                                                                          |
| Gujarat               | 27.2                                                                                         | -21                                                                         |
| Odisha                | 26.5                                                                                         | -5                                                                          |
| Uttarakhand           | 18.4                                                                                         | -11                                                                         |
| Unweighted average    | 21.9                                                                                         | -11.5                                                                       |

**Source:** International Institute for Population Sciences (2007). *National Family and Health Survey (NFHS- 4), 2015-2016 State Fact Sheet*. Mumbai, India. Retrieved May 25, 2021, from [http://rchiips.org/nfhs/factsheet\\_nfhs-4.shtml](http://rchiips.org/nfhs/factsheet_nfhs-4.shtml)

## **CHILD LABOUR AND ITS SOCIO – EDUCATIONAL STATUS AMONG THE SOCIO-ECONOMICALLY DISADVANTAGEOUS GROUPS (SEDGs) IN RAMPUR DISTRICT OF UTTAR PRADESH**

Debanjana Nag<sup>1</sup>

**Abstract:** Child labour remains a persistent social issue in India, characterized by its detrimental impact on children's physical, mental, and educational development. The prevalence of child labour continues to pose serious risks, including physical injury, psychological trauma, and compromised health outcomes. In the district of Rampur, located in Western Uttar Pradesh, this study explores the extent and dynamics of child labour. Utilizing primary data collected through community surveys and secondary data from previous studies, the research identifies clusters and demographic profiles of child labourers aged 9-14 years. Over the past few years, there has been a modest reduction in overall child labour numbers. Key factors contributing to child labour in Rampur include poverty, inadequate enforcement of child labour laws, and socio-economic vulnerabilities. The study examines the educational and employment structures influencing child labour patterns, highlighting disparities in access to education and the prevalence of non-farm work among child labourers.

**Keywords:** Children, Early Age Labour, Economic Activities, Educational Deprivation.

### **The Concept**

The term “child labour” is often defined as work that deprives children of their childhood, their potential and their dignity, and that is harmful to physical and mental development. It refers to work that: “is mentally, physically, socially or morally dangerous and harmful to children; and interferes with their schooling by: depriving them of the opportunity to attend school; obliging them to leave school prematurely; or requiring them to attempt to combine school attendance with excessively long and heavy work<sup>1</sup>.”

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The worst forms of child labour involve children being enslaved, separated from their families, exposed to serious hazards and illnesses and/or left to fend for themselves on the streets of large cities – often at a very early age. Children's or adolescents' participation in work that does not affect their health and personal development or interfere with their schooling is generally regarded as being something positive. But it is difficult to give a precise dictionary definition of the term "child labour" applicable to all situations and all countries.

### **Forms of Child Labour**

Whilst child labour takes many different forms, a priority is to eliminate without delay the worst forms of child labour as defined by Article 3 of ILO Convention No. 182<sup>ii</sup>. Based on it, the types of child labour can be mainly divided into two types: Non-Hazardous Child Labour and Hazardous Child Labour.

#### **Non - Hazardous Child Labour**

Activities like helping at home, assisting in family businesses, or earning pocket money outside school hours contribute to children's development, providing skills and preparing them for adult responsibilities come under it.

#### **Hazardous Child Labour**

Hazardous child labour is defined by Article 3(d) of ILO Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour, 1999 (No. 182). Guidance for governments on some hazardous work activities which should be prohibited is given by Article 3 of ILO Recommendation No. 190<sup>iii</sup> includes: *work which exposes children to physical, psychological or sexual abuse; work underground, under water, at dangerous heights or in confined spaces; work with dangerous machinery, equipment and tools, or which involves the manual handling or transport of heavy loads; work in an unhealthy environment which may, for example, expose children to hazardous substances, agents or processes, or to temperatures, noise levels, or vibrations damaging to their health; work under particularly difficult conditions such as work for long hours or during the night or work where the child is unreasonably confined to the premises of the employer.*

Hazardous child labour is the largest category of the worst forms of child labour with an estimated 73 million children, aged 5-17, working in dangerous conditions in a wide range of sectors, including agriculture, mining, construction, manufacturing, as well as in hotels, bars, restaurants, markets, and domestic service<sup>iv</sup>. Worldwide, the ILO estimates that some 22,000 children are killed at work every year. The numbers of those injured or made ill because of their work are not known.

## **Prevalence of Child Labour in India**

In India, child labour is not a new phenomenon. With the advent of industrialisation and urbanization in the early 19th century, the factory and industry began taking the place of handicrafts. They required cheap and plentiful labour. Children started being employed both on farms and in factories because they provided a cheap and uncomplaining labour force as against adults who could be more demanding and hence more difficult to handle. Children are preferred as they are not unionized, can be easily controlled, tortured, and exploited without any fear of backlash<sup>v</sup>.

According to the 2011 Census released by the Government of India, the number of children working in the 5-14 years age group stood at 1.01 Crores. While this is an improvement from the 2001 census figure of 1.26 Crores the structural problems that act as an impetus to child labour such as poverty and poor enforcement and regulation, remain<sup>vi</sup>. They were mostly other workers (35.8%) followed by agricultural laborers (32.9%)<sup>vii</sup>. Together Uttar Pradesh, Bihar, Rajasthan, Maharashtra, and Madhya Pradesh constitute nearly 55 per cent of total working children in India.

While children are employed everywhere across India, some states have significantly higher child employment rates and the nature of employment is changing drastically. Across India in 2011, 3.9per cent of children under the age of 14 were engaged in child labour. The proportion was, however, much higher in some states such as Nagaland (13.2%), Himachal Pradesh (10.3%) and Sikkim (8.5%)<sup>viii</sup>.

Nationally, the percentage of working children fell from 5per cent in 2001 to 3.9per cent in 2011 but the bigger change occurred in the nature of employment. Between 2001 and 2011, the share of children engaged in non-farm work doubled to 40per cent.

Unsurprisingly, non-farm child labour is highest in the large cities but also prevalent in agricultural states such as Punjab and Haryana. West Bengal, Kerala and Tamil Nadu are other states where a significant portion of children are employed in non-farm work. Between 2001 and 2011, the greatest increase in non-farm child labour happened in eastern Uttar Pradesh, the region around Delhi, and Jammu and Kashmir.

## **The Study Area**

The study has been conducted in the district Rampur of Western Uttar Pradesh. Rampur comprises of 6 Tehsil, namely, Rampursadar, Shahabad, Bilaspur, Milak Swar and Tanda. It comprises of 8 blocks. District Rampur is spread in an area of 2367 Sq.Km. and comprises of a population of 23,35,819 (as per Census 2011).

As compared to 22.3 per cent urban population of the state, Rampur has an urban population of 25.20 per cent. Male population is 12,23,889 and female population is 11,11,938. On the basis of this, gender ratio in Rampur is 909 women per thousand men which is less than national gender ratio of 912 women per thousand men. The literacy rate of 53.34 per cent makes Rampur stand 58<sup>th</sup> in its position.

### **Objectives of the Study**

- to identify child labour/working children in all tehsils including town areas within Rampur, Milak, Bilaspur, Shahbad, Tanda, Swar, Kemri, Patwai, Chamrauva, Maswasi and in other child labor dominated areas of the district;
- to identify the clusters where child labor/working children are concentrated in the 9-14 years of age group;
- to examine the demographic profile of child labor/working children;
- to analyze the employment and wage structures of child labour/working children;
- to analyze the educational profile of child labor/working children;
- to analyze the changing patterns of child labor/working children in Rampur district.

### **Methodology**

Identification process of child labor and working children is a very crucial exercise to eradicate this social evil. The process of data collection for identification of child labour was done in two levels. First, labeling families and clusters where children have been employed in the form of child labour or there are drop-out children from schools. After initiation with one family in each cluster, the process was continued to other family through respondent referral method. Apart from, an earlier survey conducted in 2016 by GIDS<sup>ix</sup> in the same study area has been taken as a secondary source of data to compare the present condition and find out the changes taking place in these consecutive years.

This study examines the prevalence and dynamics of child labour in Rampur district, focusing on changes from 2016 to 2020. Using a mixed-method approach, quantitative surveys using interview schedules were used to gather data on demographics, socio-economic backgrounds, types of work, and working conditions of child labourers across selected Tehsils. Qualitative interviews with stakeholders—child labourers, families, local authorities, and NGOs—explore reasons for child labour, impacts on education, and community perspectives. This research aims to provide actionable insights for effective policies and interventions to combat child labour in Rampur district with a research population 2,569 child labours.

## Findings and Analysis

### Number of Child Labour in Rampur

Table-1 provides information regarding identified child labours during the primary survey in comparison with an earlier survey conducted in 2016 by GIDS in the same study area. The data shows that a total of 2,569 child labour were identified in 4 Tehsils during the current survey. Out of the total, 86.5 per cent child labour has been identified in Sadar followed by 7.4 per cent in Milak, 4.6 per cent in Bilaspur and 1.5 per cent in Swar. Thus, it was found that the concentration of child labour is significantly high in Sadar Tehsil.

In the research study carried out in 2016 a total of 3076 child labour were identified. Thus, the number of child labor has reduced by 507(16.48%) during past three years. During this period the number of child labour in Sadar reduced by about 13.4 per cent, in case of Bilaspur it remained nearly the same, whereas in Milak it increased nearly by double and in Swar the number increased by about 9.09 percent, in remaining two tehsils, namely Shahabad and Tanda no regularly employed child labor was found, thus these two tehsils have turned to be child labour free tehsils.

**Table-1**  
**Total Number of Child Labour in Rampur**

| Tehsil   | Survey 2020 |       | Survey 2016 |       | Difference During 3 yrs |            |
|----------|-------------|-------|-------------|-------|-------------------------|------------|
|          | No.         | %     | No.         | %     | No.                     | %          |
| Sadar    | 2223        | 86.5  | 2567        | 83.5  | (-) 344                 | (-) 13.40  |
| Bilaspur | 118         | 4.6   | 119         | 3.9   | (-) 1                   | (-) 1.19   |
| Milak    | 190         | 7.4   | 96          | 3.1   | (+) 94                  | (+) 97.91  |
| Swar     | 38          | 1.5   | 33          | 1.1   | (+) 3                   | (+) 9.09   |
| Shahabad | 0           | 0.0   | 149         | 0.0   | (-) 149                 | (-) 100.00 |
| Tanda    | 0           | 0.0   | 112         | 0.0   | (-) 112                 | (-) 100.00 |
| Total    | 2569        | 100.0 | 3076        | 100.0 | (-) 507                 | (-) 16.58  |

**Source:** Field Survey, 2020 and GIDS Report, 2016

### Gender-Wise Distribution of Child Labour

As shown in the Table-2, during the 2020 survey, the proportion between male and female was nearly the same at 49.5 percent and 50.5 percent respectively. In the earlier survey the ratio was biased towards girls. In the current survey, it was found that Bilaspur and Milak have lower number girls as child labour whereas, Sadar and Swar have higher number of girls as child labour. The pattern has changed in Milak and Swar where the proportion of girls has increased during past three years whereas in Sadar and Bilaspur it has reduced marginally.

**Table-2**  
**Tehsil and Gender-wise Distribution of Child Labour**

| Tehsil   | Survey 2020 |      |        |      |       |       | Survey 2016 |      |        |      |       |       |
|----------|-------------|------|--------|------|-------|-------|-------------|------|--------|------|-------|-------|
|          | Male        |      | Female |      | Total |       | Male        |      | Female |      | Total |       |
|          | No.         | %    | No.    | %    | No.   | %     | No.         | %    | No.    | %    | No.   | %     |
| Sadar    | 1089        | 49.0 | 1134   | 51.0 | 2223  | 86.5  | 1128        | 43.9 | 1439   | 56.1 | 2567  | 83.5  |
| Bilaspur | 65          | 55.1 | 53     | 44.9 | 118   | 4.6   | 57          | 47.9 | 62     | 52.1 | 119   | 3.9   |
| Milak    | 101         | 53.2 | 89     | 46.8 | 190   | 7.4   | 63          | 65.6 | 33     | 34.4 | 96    | 3.1   |
| Swar     | 17          | 44.7 | 21     | 55.3 | 38    | 1.5   | 31          | 93.9 | 2      | 6.1  | 33    | 1.1   |
| Shahabad | 0           | 0.0  | 0      | 0.0  | 0     | 0.0   | 51          | 34.2 | 98     | 65.8 | 149   | 0.0   |
| Tanda    | 0           | 0.0  | 0      | 0.0  | 0     | 0.0   | 51          | 45.5 | 61     | 54.5 | 112   | 0.0   |
| Total    | 1272        | 49.5 | 1297   | 50.5 | 2569  | 100.0 | 1381        | 44.9 | 1695   | 55.1 | 3076  | 100.0 |

**Source:** Field Survey, 2020 and GIDS Report, 2016

### Religion-wise Distribution of Child Labour

So far as district Rampur is concerned, the distribution of child labour between Hindu and Muslim religion is heavily biased towards Muslim communities.

Sadar Tehsil, which has a very high concentration of child labour (86.5%), revealed that 9 out of 10 child labour were Muslim. Whereas, in Swar Tehsil all child labours belong to Muslim community, though the total number of child labour itself was very small. In both the surveys 85per cent child labour belong to Muslim communities. Swar Tehsil has the maximum percentage of child labour who are Muslims leading to a total of 100per cent. Bilaspur Tehsil has about three-fourth (73.7%) children from Muslim community. Notably, Milak Tehsil is the only Tehsil where child labour from Hindu community was higher in number at 65.3per cent than Muslims. Hence, all the population taken under the study belong to the Socio- Economically Disadvantageous Groups (SEDGs).

### Caste-wise Distribution of Child Labour

**Table-3**  
**Tehsil and Caste-wise Distribution of Child Labour**

| Tehsil   | Survey 2020 |      |      |      |     |      |       |       | Survey 2016 |      |      |       |     |      |       |       |
|----------|-------------|------|------|------|-----|------|-------|-------|-------------|------|------|-------|-----|------|-------|-------|
|          | General     |      | OBC  |      | SC  |      | Total |       | General     |      | OBC  |       | SC  |      | Total |       |
|          | No.         | %    | No.  | %    | No. | %    | No.   | %     | No.         | %    | No.  | %     | No. | %    | No.   | %     |
| Sadar    | 886         | 39.9 | 1308 | 58.8 | 29  | 1.3  | 2223  | 86.5  | 348         | 13.6 | 2154 | 83.9  | 65  | 2.5  | 2567  | 83.5  |
| Bilaspur | 38          | 32.2 | 65   | 55.1 | 15  | 12.7 | 118   | 4.6   | 8           | 6.7  | 111  | 93.3  | 0   | 0.0  | 119   | 3.9   |
| Milak    | 25          | 13.2 | 97   | 51.1 | 68  | 35.8 | 190   | 7.4   | 5           | 5.2  | 80   | 83.3  | 11  | 11.5 | 96    | 3.1   |
| Swar     | 2           | 5.3  | 36   | 94.7 | 0   | 0.0  | 38    | 1.5   | 1           | 3.0  | 28   | 84.8  | 4   | 12.1 | 33    | 1.1   |
| Shahabad | 0           | 0.0  | 0    | 0.0  | 0   | 0.0  | 0     | 0.0   | 21          | 14.1 | 108  | 72.5  | 20  | 13.4 | 149   | 4.8   |
| Tanda    | 0           | 0.0  | 0    | 0.0  | 0   | 0.0  | 0     | 0.0   | 0           | 0.0  | 112  | 100.0 | 0   | 0.0  | 112   | 3.6   |
| Total    | 951         | 37.0 | 1506 | 58.6 | 112 | 4.4  | 2569  | 100.0 | 383         | 12.5 | 2593 | 84.3  | 100 | 3.3  | 3076  | 100.0 |

**Source:** Field Survey, 2020 and GIDS Report, 2016

Table-3 provides caste wise distribution of child labour. Rampur district saw a significant shift in the caste composition of child labour. In the 2016 survey, highest number of child labour originated from OBC background, standing at 2593 in absolute numbers and 84.3 per cent in proportion. It declined in 2020 to 1506 in numbers and 58.6 per cent in proportion. On the other hand, the number of child labour from general caste category was 383 in absolute numbers and 12.5 per cent in proportion, which increased by 2.5 times in absolute numbers (951) comprising 37 per cent in proportion. The number and proportion of Scheduled Caste child labour remained more or less the same. The reason for reduction in OBC child labour might be that the higher age group children from these communities have migrated or that their family income has increased resulting in withdrawal of children from work and mainstreaming them into the schooling system. Contrarily, the increase in number of general castes in child labour indicates that the economic condition of at risk, general caste families has deteriorated and their children have been forced to work for supporting the livelihood of the family. Notably, the above deductions are in want of further research.

### **Age-Wise Distribution of Child Labour**

Age wise distribution indicates that maximum number of child labour are in the age group of 11 to 12 years with a total of 1,081 children and 42.1 per cent in proportion. On comparison with the 2016 survey it can be seen that the child labour from 13-14 age group has almost halved and that from the 9-10 age group has significantly increased, with the 11-12 bracket witnessing a minor increase. It can therefore be deduced that the working children from 13-14 age group have migrated outside the district or have been mainstreamed. However, the shortfall in supply has been made up by increased entry of younger children of 9-10 years age. These younger children get lower wages and are easily subdued/ exploited. This is also an alarming indication of the fact that the livelihood security of the families these children belong to has declined even more in the last three years, forcing the younger children to also join the child labour workforce to support the family.

### **Distribution of Child Labor by Types of Work**

Table-4 depicts distribution of child labour on the basis of types of work. Karchop/Chipkari/Jari work continues to be the largest employment avenue for child labour in Rampur district (76.1%). Other major economic activities are bidi rolling and kite making. For bidi rolling, in absolute terms, the number has declined from 275 in 2016 to 132 in 2020. Similarly, in kite making the numbers have fallen from 254 to 146. Therefore, the numbers have almost halved in these two sub-sectors. The reason may be the decline in demand of bidi and kites in the market. Three new sub-sectors have attracted entry of child labour, namely,

furniture-making, food processing and E-rickshaw driving. The pattern of other activities remains the same between 2016 and 2020.

**Table-4**  
**Distribution of Child Labour by Types of Work**

| Types of Works             | Survey 2020 |                | Survey 2016 |                |
|----------------------------|-------------|----------------|-------------|----------------|
|                            | Number      | Percentage (%) | Number      | Percentage (%) |
| Karchop/Jari/Chipkari      | 1954        | 76.1           | 2148        | 69.8           |
| Bidi work                  | 132         | 5.1            | 275         | 8.9            |
| Kite making                | 126         | 4.9            | 254         | 8.3            |
| Welding                    | 7           | 0.3            | 26          | 0.9            |
| Furniture-making           | 36          | 1.4            | -           | -              |
| Animal Rearing             | 18          | 0.7            | 44          | 1.4            |
| Garage/ Auto mobile repair | 15          | 0.5            | 53          | 1.7            |
| Agriculture work           | 56          | 2.2            | 58          | 1.9            |
| Unskilled work/Labour      | 60          | 2.4            | 42          | 1.4            |
| Fruit/Vegetable Seller     | 19          | 0.7            | 51          | 1.7            |
| Tailoring                  | 69          | 2.7            | 42          | 1.4            |
| Cycle repairing shop       | 3           | 0.1            | 9           | 0.3            |
| E-Rickshaw                 | 4           | 0.2            | -           | -              |
| Food processing            | 7           | 0.3            | -           | -              |
| Domestic help              | 8           | 0.4            | -           | -              |
| Own shop                   | 28          | 1.1            | -           | -              |
| Others                     | 30          | 1.2            | -           | -              |
| Total                      | 2569        | 100.0          |             |                |

**Source:** Field Survey, 2020 and GIDS Report, 2016

### **Distribution of Child Labour in Hazardous and Non- Hazardous work**

Table-5 depicts child labour by the category of work.

**Table-5**  
**Distribution of Child Labour by Category of Work**

| Tehsil   | Hazardous |      | Non-Hazardous |      | Total |       |
|----------|-----------|------|---------------|------|-------|-------|
|          | No.       | %    | No.           | %    | No.   | %     |
| Sadar    | 212       | 9.7  | 1966          | 90.3 | 2178  | 100.0 |
| Bilaspur | 10        | 8.5  | 108           | 91.5 | 118   | 100.0 |
| Milak    | 28        | 14.9 | 160           | 85.1 | 188   | 100.0 |
| Swar     | 1         | 2.6  | 37            | 97.4 | 38    | 100.0 |
| Total    | 251       | 10.0 | 2271          | 90.0 | 2522  | 100.0 |

**Source:** Field Survey, 2020.

The maximum number of child labour i.e., 90 per cent are involved in non-hazardous work like Jari/Chipkari, kite making, tailoring, agriculture work etc. 10 per cent of child labour work is in hazardous category viz. welding, garage work, bidi making and automobile repairing.

### Distribution of Child Labour by Monthly Income

Maximum number of children are involved in the work that leads to an income of Rs 201 to Rs. 350 (59%). Notably, a little over one-fourth of the working children get less than Rs. 200 per month which shows the abject vulnerability of the family financial situation and absence of opportunities. To look at it from the parents' point of view, they have to choose to withdraw the child from schools and put them in working situations for a meager Rs. 200-350 monthly income from the child's work.

The average monthly income of Rs. 298.37 in 2020 is nearly half of Rs. 629 average income of child labour in 2016. This can be a result of increased inflow of younger children in the children workforce, who are unable to demand a higher wage for the same work.

### Distribution of Child Labour by Working Hour.

The average working time is 4.42 hours per day. 43 per cent of the child workforce spends 4-6 hours a day in the workplace and 47.6 per cent work for less than 4 hours. Together these two categories constitute 90 per cent. Of the rest, 6.3 per cent are working up-to 8 hours whereas 3.2 per cent are working for more than 8 hours. Although, in percentage terms the latter two categories constitute 10 per cent, the absolute numbers are around 250. They are the most exploited children and need greatest and most urgent attention.

### Distribution of Child Labour by Factors Responsible for Becoming Worker

Table-6 shows the distribution of child labour by factors responsible for becoming worker:

| <b>Table-6</b>                                                                 |               |          |                 |          |              |          |             |          |              |          |
|--------------------------------------------------------------------------------|---------------|----------|-----------------|----------|--------------|----------|-------------|----------|--------------|----------|
| <b>Distribution of Child Labour by Factors Responsible for becoming Worker</b> |               |          |                 |          |              |          |             |          |              |          |
| <b>Factors</b>                                                                 | <b>Tehsil</b> |          |                 |          |              |          |             |          | <b>Total</b> |          |
|                                                                                | <b>Sadar</b>  |          | <b>Bilaspur</b> |          | <b>Milak</b> |          | <b>Swar</b> |          |              |          |
|                                                                                | <b>No.</b>    | <b>%</b> | <b>No.</b>      | <b>%</b> | <b>No.</b>   | <b>%</b> | <b>No.</b>  | <b>%</b> | <b>No.</b>   | <b>%</b> |
| Poverty/Financial Problem                                                      | 2218          | 99.8     | 118             | 100.0    | 188          | 98.9     | 38          | 100.0    | 2562         | 99.7     |
| Family Member/ Parents affected by HIV/AIDS/Other sickness/disability          | 168           | 7.6      | 8               | 6.8      | 5            | 2.6      | 0           | 0.0      | 181          | 7.0      |
| Death of Parents                                                               | 99            | 4.5      | 7               | 5.9      | 11           | 5.8      | 2           | 5.3      | 119          | 4.6      |
| Others                                                                         | 2             | 0.1      | 0               | 0.0      | 0            | 0.0      | 0           | 0.0      | 2            | 0.1      |
| Total                                                                          | 2223          | 100.0    | 118             | 100.0    | 190          | 100.0    | 38          | 100.0    | 2569         | 100.0    |
| Poverty/Financial Problem                                                      | 2218          | 99.8     | 118             | 100.0    | 188          | 98.9     | 38          | 100.0    | 2562         | 99.7     |

**Source:** Field Survey, 2020.

Financial problem remains paramount for children being involved in child labour. Notably, about 12 per cent of the children reported the reason to enter child labour as either death of parents or illness in the family.

### **Distribution of Child Labour by Willingness for the Types of Training**

Maximum number of children are willing to be trained in tailoring and/or sewing with a percentage of 64.8 per cent. Since, 50 per cent of child labour is female and nearly all of them are engaged in Jari/Chopkari, they wish to increase their skills in tailoring and enhance their skills in this sub-sector. The proportion of such respondents is 64.8 per cent. The second most favoured skill is computers which are also connected with Chopkari and Jari work in designing and understanding the designs provided by the contractors. The table shows that the children have expressed desire to learn some non-traditional skills like beauty-parlour work, furniture making, mobile repairing and food processing. It will be beneficial to integrate the above in the skill development mission schemes.

### **Child Labour and Migration**

Table-7 depicts percentage of children who have migrated from elsewhere and settled in Rampur and reasons for the same. Only 1.5 per cent of children are migrants. 42.1 per cent children are the ones who were child labour elsewhere and have come to Rampur in search of better employment opportunities and others have migrated because of marriage.

**Table-7**  
**Distribution of Child Labour by Migration**

| Distribution of Child Labour by Migration |        |       |          |       |       |       |      |       |       |       |
|-------------------------------------------|--------|-------|----------|-------|-------|-------|------|-------|-------|-------|
| Migration                                 | Tehsil |       |          |       |       |       |      |       | Total |       |
|                                           | Sadar  |       | Bilaspur |       | Milak |       | Swar |       |       |       |
|                                           | No.    | %     | No.      | %     | No.   | %     | No.  | %     | No.   | %     |
| Migrated                                  | 35     | 1.6   | 2        | 1.7   | 1     | 0.5   | 0    | 0.0   | 38    | 1.5   |
| Not migrated                              | 2188   | 98.4  | 116      | 98.3  | 189   | 99.5  | 38   | 100.0 | 2531  | 98.5  |
| Total                                     | 2223   | 100.0 | 118      | 100.0 | 190   | 100.0 | 38   | 100.0 | 2569  | 100.0 |

Source: Field Survey, 2020.

### **Child Labour and Schooling**

**Table-8**  
**Distribution of Child Labour by Schooling Status**

| Distribution of Child Labour by Schooling Status |        |       |          |       |       |       |      |       |       |       |
|--------------------------------------------------|--------|-------|----------|-------|-------|-------|------|-------|-------|-------|
| Educational Status                               | Tehsil |       |          |       |       |       |      |       | Total |       |
|                                                  | Sadar  |       | Bilaspur |       | Milak |       | Swar |       |       |       |
|                                                  | No.    | %     | No.      | %     | No.   | %     | No.  | %     | No.   | %     |
| Never enrolled                                   | 1523   | 68.5  | 63       | 53.4  | 107   | 56.3  | 28   | 73.7  | 1721  | 67.0  |
| Dropout                                          | 696    | 31.3  | 55       | 46.6  | 83    | 43.7  | 10   | 26.3  | 844   | 32.9  |
| Working &Studying                                | 4      | 0.2   | 0        | 0.0   | 0     | 0.0   | 0    | 0.0   | 4     | 0.2   |
| Total                                            | 2223   | 100.0 | 118      | 100.0 | 190   | 100.0 | 38   | 100.0 | 2569  | 100.0 |

Source: Field Survey, 2020.

Table-8 depicts schooling status of child labour. 67 per cent children have never been enrolled in school and a very low number of children are studying in schools with a percentage of 0.2 only. 32.9 per cent children have dropped-out of school.

Table-9 discusses the reasons affiliated to never being enrolled in schools. Maximum number of children (98.5%) need to work at home which forces them to never enroll in schools. It is the pressure of finishing the work at home which prevents the children from enrolling in schools.

**Table-9**  
**Distribution of Child Labour by Reasons of Never Enrolled**

| Reasons for Never Enrolled | Tehsil |       |          |       |       |       |      |       | Total |       |
|----------------------------|--------|-------|----------|-------|-------|-------|------|-------|-------|-------|
|                            | Sadar  |       | Bilaspur |       | Milak |       | Swar |       |       |       |
|                            | No.    | %     | No.      | %     | No.   | %     | No.  | %     | No.   | %     |
| Physical challenged        | 2      | 0.1   | 0        | 0.0   | 0     | 0.0   | 0    | 0.0   | 2     | 0.1   |
| Mentally challenged        | 1      | 0.1   | 0        | 0.0   | 0     | 0.0   | 0    | 0.0   | 1     | 0.1   |
| Need to work at home       | 1505   | 98.8  | 62       | 98.4  | 101   | 94.4  | 28   | 100.0 | 1696  | 98.5  |
| Need to take care of sick  | 7      | 0.5   | 0        | 0.0   | 0     | 0.0   | 0    | 0.0   | 7     | 0.4   |
| Others                     | 80     | 5.3   | 1        | 1.6   | 6     | 5.6   | 0    | 0.0   | 87    | 5.1   |
| Total                      | 1523   | 100.0 | 63       | 100.0 | 107   | 100.0 | 28   | 100.0 | 1721  | 100.0 |

**Source:** Field Survey, 2020.

Reasons for dropout have been depicted in Table-10.

**Table-10**  
**Distribution of Child Labour by Reasons for Dropping Out of Schools**

| Reasons for Dropout                                    | Tehsil |       |          |       |       |       |      |       | Total |       |
|--------------------------------------------------------|--------|-------|----------|-------|-------|-------|------|-------|-------|-------|
|                                                        | Sadar  |       | Bilaspur |       | Milak |       | Swar |       |       |       |
|                                                        | No.    | %     | No.      | %     | No.   | %     | No.  | %     | No.   | %     |
| Poverty/financial problem                              | 390    | 56.0  | 46       | 83.6  | 81    | 97.6  | 8    | 80.0  | 525   | 62.2  |
| Parents sent for work                                  | 126    | 18.1  | 5        | 9.1   | 5     | 6.0   | 2    | 20.0  | 138   | 16.4  |
| School was far away                                    | 40     | 5.7   | 1        | 1.8   | 3     | 3.6   | 0    | 0.0   | 44    | 5.2   |
| Lack of interest in studies                            | 55     | 7.9   | 2        | 3.6   | 2     | 2.4   | 1    | 10.0  | 60    | 7.1   |
| Poor school environment                                | 22     | 3.2   | 2        | 3.6   | 1     | 1.2   | 0    | 0.0   | 25    | 3.0   |
| Lack of facilities in the school                       | 13     | 1.9   | 0        | 0.0   | 0     | 0.0   | 0    | 0.0   | 13    | 1.5   |
| Discriminatory practices in school                     | 4      | 0.6   | 1        | 1.8   | 0     | 0.0   | 1    | 10.0  | 6     | 0.7   |
| Need to take care to sick                              | 9      | 1.3   | 0        | 0.0   | 0     | 0.0   | 0    | 0.0   | 9     | 1.1   |
| Need to work at home/asked to assist in household work | 5      | 0.7   | 0        | 0.0   | 0     | 0.0   | 0    | 0.0   | 5     | 0.6   |
| Migration due to peer pressure                         | 1      | 0.1   | 0        | 0.0   | 0     | 0.0   | 0    | 0.0   | 1     | 0.1   |
| Migrated with family                                   | 8      | 1.1   | 1        | 1.8   | 0     | 0.0   | 0    | 0.0   | 9     | 1.1   |
| Others                                                 | 33     | 4.7   | 0        | 0.0   | 0     | 0.0   | 1    | 10.0  | 34    | 4.0   |
| Total                                                  | 696    | 100.0 | 55       | 100.0 | 83    | 100.0 | 10   | 100.0 | 844   | 100.0 |

**Source:** Field Survey, 2020.

It highlights poverty and financial problem as the main reason. Poverty and financial reasons are responsible for children becoming involved in child labour. 16.4 per cent children are the ones whose parents send them for work thereby leading to dropping out of schools.

## **Conclusion**

The above tables clearly depict the picture that child labour is still prevails in the country hugely. Though the numbers in hazardous labour have decreased subsequently still it should be made certain that the non-hazardous labours also don't intervene the education /schooling of those children. It is crucial to provide children with a decent childhood to prepare them for decent work during their adult life - i.e., work which is both productive to society and rewarding. The employment of children in conditions that are harmful to their dignity, morality, health and education seriously undermines the economic viability and cohesion of society and compromises its longer-term development prospects.

Children subjected to extreme forms of exploitation, with little or no basic education, are likely to grow into illiterate adults, physically and mentally stunted, who have virtually no prospect of breaking out of the trap of poverty into which they were born or contributing to the development of society.

Likewise, their children's chances of doing so will be small. In today's competitive world, the prosperity of any country depends critically on the quality of its human resources; to tolerate the worst forms of child labour is inconsistent with the massive investment in its people, which every society must make in order to secure its future.

Even if there were any short-term economic advantages to be gained from child labour, these must be weighed against the loss to a nation's longer-term development potential that it entails.

In 1988, Government of India started the National Child Labour Project Scheme to rehabilitate working children in child labour endemic districts of the country. Therefore, identification is the first step of a process that allows child labour victims access to proper and safe assistance and protection measures leading to including these children into the mainstream where education, physical and mental well-being and thus, their safety is ensured. To do so the present paper recommends the following steps for a child labour free India.

## **Suggestions and Recommendations**

### **1. Strengthen Economic Support for Families**

- Introduce Income Support Programs: Provide direct financial assistance to families living below the poverty line to reduce the economic pressure that forces children into labour.

- **Enhance Access to Social Security:** Expand coverage of existing social security schemes to ensure families receive adequate support during crises such as illness or death of the breadwinner.

## **2. Educational Interventions**

- **Increase School Enrollment and Retention:** Implement programs that specifically target school enrollment and retention, including providing scholarships, free uniforms, and mid-day meals.
- **Improve School Infrastructure:** Upgrade school facilities to make them more conducive to learning, ensuring they are accessible and equipped with basic amenities.
- **Introduce Flexible Schooling Options:** Establish evening classes and bridge courses for working children to ensure they can catch up on missed education and transition back into regular schooling.

## **3. Vocational Training and Skill Development**

- **Offer Vocational Training Programs:** Develop skill development centers focusing on trades such as tailoring, computer skills, mobile repairing, and other non-traditional skills preferred by children.
- **Create Apprenticeship Programs:** Partner with local businesses to create apprenticeship opportunities that offer safe and legal work experiences for older children while they continue their education.

## **4. Awareness and Advocacy Campaigns**

- **Conduct Community Awareness Programs:** Educate parents and community members about the importance of education and the long-term benefits of keeping children in school rather than working.
- **Promote Child Rights:** Launch campaigns to inform the public about child rights and the legal implications of child labour, encouraging community vigilance and reporting of violations.

## **5. Strengthen Enforcement of Child Labour Laws**

- **Enhance Monitoring and Inspection:** Increase the frequency and coverage of inspections in industries known to employ child labour, ensuring strict enforcement of child labour laws.
- **Establish Child Protection Units:** Create dedicated units within local law enforcement to address child labour issues, including rescue operations and rehabilitation of affected children.

## **6. Rehabilitation and Reintegration Programs**

- **Establish Rehabilitation Centers:** Set up centers that provide comprehensive support including education, vocational training, psychological counseling, and healthcare to rehabilitate rescued child labourers.
- **Facilitate Reintegration into Mainstream Society:** Work with families and communities to ensure that rescued children are successfully reintegrated into society and mainstream education.

## **7. Promote Community-Based Monitoring**

- **Engage Local Communities:** Form child protection committees at the village and ward levels to monitor child labour and ensure children attend school regularly.
- **Empower Community Leaders:** Train community leaders to identify and report cases of child labour and to advocate for the rights of children.

## **8. Policy and Institutional Reforms**

- **Strengthen Child Labour Laws:** Amend existing laws to close loopholes and ensure comprehensive coverage against all forms of child labour, including non-hazardous work that interferes with education.
- **Improve Coordination Among Agencies:** Enhance collaboration between various government departments, non-governmental organizations, and community groups to create a cohesive response to child labour.

## **9. Support for Orphaned and Vulnerable Children**

- **Provide Special Assistance:** Offer targeted support programs for children who are orphans or have parents suffering from illnesses or disabilities, ensuring their needs are met and they are not forced into labour.
- **Establish Safe Havens:** Create safe spaces and foster care options for children in dire situations to ensure their protection and well-being.

## **10. Long-term Development Initiatives**

- **Focus on Sustainable Livelihoods:** Develop long-term initiatives aimed at improving the economic conditions of families through skill development, employment opportunities, and sustainable livelihood programs.
- **Invest in Rural Development:** Enhance rural infrastructure, healthcare, and educational facilities to reduce migration pressures and improve the overall quality of life for rural populations.

By implementing these recommendations, Rampur district can make significant strides towards eliminating child labour and ensuring that all children have the opportunity to enjoy a safe, healthy, and productive childhood.

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## References

Bajpai. B.K. (2016). Survey of Child Labour in Rampur District of Uttar Pradesh. Giri Institute of Development Studies under the aegis of National Child Labour Project (NCLP), Rampur, Lucknow

Census of India. 2001. *Primary Census Abstract—Total Population: Table A-5: Series-1, India (2004)*, pp. 41–44. New Delhi: Office of the Registrar General and Census Commissioner.

Chautala, D, (2019, May 14). Child Labour in India: A judicial perspective. *Centre for Legislative Research and Advocacy*. [https://www.clraindia.org/view\\_post.php?article=child-labour-in-india-a-judicial-perspective](https://www.clraindia.org/view_post.php?article=child-labour-in-india-a-judicial-perspective)

Devulapalli,S (2019, May 14). Where is child labour most common in India? *LiveMint*. <https://www.livemint.com/politics/news/where-is-child-labour-most-common-in-india-1549906952167.html>

International Labour Organization. (1999). *C182 - Worst Forms of Child Labour Convention, 1999 (No. 182): Convention concerning the prohibition and immediate action for the elimination of the worst forms of child labour*. Geneva. <https://www.ilo.org/ipec/facts/lang--en/index.html>

International Labour Organization. (1999). *R190 - Worst Forms of Child Labour Recommendation, 1999 (No. 190): Recommendation concerning the prohibition and immediate action for the elimination of the worst forms of child labour*. Geneva. <https://www.ilo.org/ipec/facts/lang--en/index.html>

International Labour Organization. (2019, May 14). *Facts and figures*. Geneva. <https://www.ilo.org/ipec/facts/lang--en/index.html>

International Labour Organization. (2019, May 14). *Hazardous child labour*. Geneva. <https://www.ilo.org/ipec/facts/WorstFormsofChildLabour/Hazardouschildlabour/lang--en/index.html>

Khan, Z. A. (2013). Child labour in India: An overview. *Allahabad Law Journal*, 20(2012-13), 97.

## Endnotes

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<sup>i</sup> Sourced from International Labor Organization website at <https://www.ilo.org/ipec/facts/lang--en/index.htm>, accessed on 14.05.2019

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- ii Ibid. C182 - Worst Forms of Child Labour Convention, 1999 (No. 182): Convention concerning the Prohibition and Immediate Action for the Elimination of the Worst Forms of Child Labour (Entry into force: 19 Nov 2000); Adoption: Geneva, 87th International Labour Conference session (17 Jun 1999)
  - iii Ibid. R190 - Worst Forms of Child Labour Recommendation, 1999 (No. 190): Recommendation concerning the prohibition and immediate action for the elimination of the worst forms of child labour; Adoption: Geneva, 87th International Labour Conference session (17 Jun 1999)
  - iv Sourced from the International Labor Organization website at <https://www.ilo.org/ipec/facts/WorstFormsofChildLabour/Hazardouschildlabour/lang-en/index.htm>, accessed on 14.05.2019
  - v Zubair Ahmad Khan, Child Labour in India: An Overview, 20 ALJ (2012-13) 97, Allahabad Law Journal, 2012-13
  - vi Sourced from [https://www.clraindia.org/view\\_post.php?article=child-labour-in-india-a-judicial-perspective](https://www.clraindia.org/view_post.php?article=child-labour-in-india-a-judicial-perspective), accessed on 14.05.2019
  - vii 'Other workers': Workers other than cultivators, agricultural labourers or workers in household industries
  - viii Sourced from <https://www.livemint.com/politics/news/where-is-child-labour-most-common-in-india-1549906952167.html>, accessed on 14.05.2019
  - ix Sourced from Giri Institute of Development Studies Report, 2016

**NOTE**

## **UNMASKING THE CHALLENGES OF ATTAR INDUSTRY IN KANNAUJ, UP: A REPERTOIRE OF SOCIOLOGICAL INSIGHTS**

Satish Kumar Shukla<sup>1</sup> and Anirban Mukherjee<sup>2</sup>

**Abstract:** Kannauj, the perfume capital of India, has been producing perfume since the antiquity. The industry offers a major source of livelihood to residents of the area and prominence of the industry in attar manufacturing is recognized by the Government of India through the GI tag. Attar making in Kannauj is a heritage, equipped with the specific process of attar manufacturing or ‘deg-bhapka’, the industry produces some of the most prominent indigenous perfume varieties, namely the ‘Shamama’ and ‘Mitti’ attar. However, at present the industry is facing survival challenges in the form of increasing cost of raw materials, use of traditional equipment that does not support mass production of perfumes, and status conscious Indians shifting their allegiance to branded deodorants and perfumes (Borgave&Chaudhari, 2010; Sengupta& Sen, 2015; Tabassum, Asif & Naqvi, 2016). This has resulted in many artisans not joining their traditional occupation or have been reduced to ‘simulacra artisans’ i.e., engaged in producing imitation perfumes of renowned brands. Echoing Castells (2000), we contend that the trend reflects a peculiar situation in which the artisan’s inability of adoption of capitalist technology becomes the basis of social exclusion and negligence. This is so because the hedonistic matrix of the capitalist society prioritizes mechanized mass production of synthetic perfume over labor-intensive, creative craft of attar making. The study is secondary in nature with the main source of data being books, articles, reports, and the problems that the industry is facing are critically analyzed through the prism of sociological imagination.

**Keywords:** Attar industry, Kannauj, Social Exclusion, Capitalism.

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## Introduction

As the human civilization progressed from antiquity, personal grooming items gradually became a part of the daily lifestyle practices. The fragrant have not only served the aesthetic needs of mankind but also helped them in physical, emotional, and mental problems (McMahon, 1996: 10). For instance, Kewda attar, known for its stimulant and antispasmodic quality, is used for headaches and rheumatism. Likewise, Khus (vetiver grass) attar is used for carminative purpose and hence useful for treating colic and vomiting tendencies. Also, in Indian confectionery and beverages, Gulab, Kewda, and Khus serve as valuable flavouring agents (Kapoor, 1991:24). These perfumes, essential oils, floral waters, cosmetics have thus been derived from balsamic resins, herbs, sandalwood, exotic flowers, fragrant grasses, etc. The byproducts of attar production are also considered to be useful-aromatic water produced out of hydro-distillation process of attar production (especially in gulab, kewda, and khus production) is extensively used for flavoring sweet dishes and in religious and marriage ceremonies in India (McMahon, 1996: 13).

There exists a diversity of opinion about the emergence of attar. Writers like Groom (1997), Essa & Ali (2010) claim Persia to be the birthplace of attar. Further, Groom (1997) posits that Persia developed the expertise of perfume production during the Rule of Islamic-Calipha in the 9th century. Butler (2000), on the other hand, posits that it was in the 10th century that an Arabian, named 'Avicenna', produced rose water by distillation process and it later became the leading trade item of the country.

The word 'attar' comes from the genesis of Persian word 'atr', which means fragrance (Groom, 1997; Singh & Khan, 2001). The term closely relates to 'otto' or 'the perfume derived from roses' (Llewellyn-Jones, 2014). In the Turkish language, attar is referred to as "aktar" which means 'to smell good' (Cancelik, 2020). Thus, scholars are of the opinion that "itr" is an Arabian term and has roots in the word aktar (Baur, 1868; Padhi & Sadangi, 2020). In terms of composition, the word 'attar' ideally refers to 'the essential oil of rose' but in the present times the word refers to essential oil of flowers extracted by the distillation process (Groom, 1992).

India has a long tradition of perfume and the existence of "Kedwa attar" as a perfumery item has been reported since the ancient times (Skaria et al., 2007). Apart from beautification purpose, perfume has also been extensively used in religious ceremonies and in cremation rites. There has also been reported existence of prominent perfume manufacturing centres in various parts of country-namely, Kannauj, Gazipur, Jaunpur, Vijayawada, Saluru, Mysore and Ganjam in Odisha (Prasad et al., 2008; Rao & Rout, 2003).

Among these centres, Kannauj is famous for ‘attar’ production while Mysore is well-known for sandalwood oil manufacturing and is known as “the Sandalwood City” (Rashkow, 2014). However, attar making of Kannauj is an art, because of the intricacies of production involved in the process, in contrast to relatively uncomplicated process of derivation of sandalwood oil out of sandalwood. Attar in Kannauj is made of the hydro-distillation process and the proportion of flower oil in the attar determines its quality and higher levels of flowery note would mean a higher price (Narielwala & Rakshit, 1946). Attar is thus organic in nature and is free from alcohol content. Manufacturing of attar is a complex process that requires knowledge of organic chemistry, botany, and pharmacy (Conceicao, 2019). It is an art that takes years of apprenticeship and keen understanding of smell. It is no wonder that perfumers pass down their formulas/know-hows as closely guarded secrets within their family. In fact, some families in Kannauj claim to be engaged in the art of perfume-manufacturing for about 30 generations (Kulshreshtra, 2019).

The objectives of this paper are to underline the history of perfume making in Kannauj, narrate the intricacies/peculiarities of perfume making process, highlight the challenges and bottlenecks that the industry is facing and finally introspect those issues from the prism of sociological imagination. The paper is secondary in nature with books, articles, and reports serving as the data source.

### **The History of Perfume Making in Kannauj**

Kannauj, the perfume capital of India, is a town and city headquarters in Uttar Pradesh (Sengupta, 2018). Some trace the history of this old town to the Mahabharata times (Dwivedi & Kar, 2018) and it has variously been referred to as “Kanyakubja”, “Mahodaya”, “Qannauj”, “Kannaujja”, “Kusasthala” (meaning an area having a dense concentration of aromatic Khus grass) and “Kusumapura” (a place having a dense concentration of flowers) in different historical epochs (Smith, 1908; Tripathi, 1937; Marwah, 2012).

While reports claim that attar manufacturing technology was existing in India since the days of Indus Valley Civilization in 2500-3000 BC (McMahon, 1996), attar making in Kannauj could be traced back to Emperor Harshavardhana’s reign in 606-647 BC (Padhy et. al., 2016). In fact, Harsha’s 7<sup>th</sup> century biography ‘Harsha-Charit’ by court poet Banabhatta, reports the production of ‘agar wood oil’ during the era and generous use of perfume in the wedding of Rajyashri, sister of Emperor Harsha (Marwah, 2012; Gangopadhyay, 2021). Thus, the fame of Kannauj as the ‘attar manufacturing centre’ reached its peak during the era of King Harshvardhana and remained at its apex until King Jaichand was defeated by Muhammad Ghori in the 12<sup>th</sup> century (Khare, 1960).

Subsequently, attar production in Kannauj received patronage from the Mughals as well (Pathak, 2020; Ratnagar, 2014). Evidentially speaking, the administrative chronicle of Akbar's court, 'Ain-i-Akbari', talks of the establishment of attar making centre at Kannauj by the great Mughal emperor (Pal, 2016; Sengupta, 2018). The fondness that Emperor Akbar displayed towards 'attar' was aptly captured as Abul Fazal in the following words: *"His Majesty is very fond of perfumes. The Court wall is continually scented with ambergris, aloe, and compositions according to the ancient recipes, or mixtures invented by His Majesty, and incense is daily burnt in gold and silver censers of various shapes, while sweet smelling flowers are used in large quantities"* (cited in Narielwala & Rakshit, 1946: 7). As a matter of fact, legends have it that Akbar was so fond of attar that generous amount of perfume was used to adorn the doors and furniture (Sachasinh, 2020).

Akbar formed a special department 'Khushbu-Khana' towards the production and supply of attar for royal use (Pal, 2016). History reveals that the 'Gandhain Mohalla' region of Kannauj was given the responsibility of supplying the attar to the royal court. Following the footsteps of his father, Emperor Jahangir upgraded the system and created a specific post, 'Khushbu Daroga' or a supervisor responsible for monitoring the production and supply of attar (Marwah, 2012).

Legends also have it that it was Asmat Begum, mother of Mughal Queen Nur Jahan, was the first creator of attar from rose water and named it 'Itr-I-Jahangiri' (Markel, 1999; Smith, 2012; Bashir & Gray, 2015). However, others opine that while Asmat Begum familiarized the extraction process, it was Nur Jahan herself who created attar. In fact, the queen is said to have developed a taste for rose attar by being fascinated by the smell of Kannauj roses in her bath (Sachasinh, 2021).

The prominence of Kannauj in attar production is often attributed to its favorable geographical location; situated on the bank of river Ganges, Kannauj is bestowed with fertile soil and congenial climate suitable for the growth of plants and vegetation (DMO Kannauj Report, 2017).

### **The Art of Perfume Making**

Attar manufacturing in Kannauj is not only an art but also is a part of the cultural heritage of India. Parallels are often drawn between Kannauj and Grasse, France: while Grasse is designated as the "perfume capital of the world"; Kannauj is the "perfume capital of India" (Schaffmeister, 2015; Sengupta & Sen, 2015). Yet, Kannauj is better known for preserving its tradition of deriving attar solely from natural ingredients. It is no wonder that poet Shri Munshi has aptly said *"If you want to visit a perfumery town, visit Kannauj. It is art — it is culture and it is a heritage"* (Kapoor, 1991).

The major outputs of Kannauj perfumeries are essential oils (also called Ruh), Attar and Shamama (an attar having distinguished fragrance) (Brief Industrial Profile of Kannauj District, 2016-17). The essential oils are extracted from the roots of Khus grass (vetiver grass), rose and sandalwood, while attar is extracted from Jasmine, Henna, Kewda, Mogra, Rose, Champak and Narcissus (Nargis) (Narielwala & Rakshit, 1946). Apart from attar, rose has important byproducts like rose oil and rose water (Southwell & Boeck, 1986).

Attar is basically a mix of sandalwood oil and floral oil (Narielwala & Rakshit, 1946). This peculiar attar manufacturing process is known as 'Deg-bhapka', and has been used in Kannauj since the antiquity (Narielwala & Rakshit, 1946; Baser, 2017). The first step of attar manufacturing is plucking and sorting flowers, which is usually done in the early hours of the day. It is imperative that the flowers are distilled the same day lest the fragrance fades away (Kulshreshtra, 2019).

The deg is a copper utensil in which flower petals and water is put together. The pot is then placed on clay furnace (known in Hindi as 'Bhatti') with wood and cow dung added as fuel. The deg is linked to the sandalwood oil filled copper utensil (known as 'bhapka') by means of a 'chonga' or bamboo pipe which is twine wrapped and acts as a condenser. The mouth of the bhapka is covered with cloth and is immersed in a water-filled cooling chamber (known as the 'gachhi') (Tabassum, Asif & Naqvi, 2016). When the deg is heated, vapor from the ingredients gathers in the bhapka and mixes with sandalwood oil on condensation. This fluid is referred to as 'attar'. The process may apparently look simpler, but it involves close monitoring and supervision at every step. For instance, the fire for the deg must be in the right intensity and therefore needs to be controlled by adding or removing fuel. Further, the water in the cooling tank needs to be periodically changed so that it maintains adequate temperature. Once the desired amount of attar has been collected, the bhapka can be removed. However, before removing the bhapka, the deg needs to be adequately cooled to prevent vaporization (FFDC Report, 2019). Thus, all the steps involved in attar manufacturing are absolutely essential and perfecting them requires years of practice. The distillation process is eco-friendly and involves minimal wastage. The waste inside the deg is recycled for agarbati and dhoop manufacturing. The production of attar is however a labor-intensive process and workers or 'dighaa' (as they are referred to colloquially) toil in hot and humid environment for hours together without electricity (GI Journal (GOI) Report, 2013; Kulshreshtra, 2019).

Once the production process ends, attar is poured into glitzy 'ittardan' or glass bottles of varied shapes and colors. These small bottles come in various sizes-10 ml, 25 ml, 50 ml and price of 10 ml of attar varies between Rs. 100-Rs. 1500 depending on the ingredients used (Upadhye, 2019). Flower based perfumes

like ‘gulab’, ‘champa’, ‘mogra’ are cheaper because flowers are comparatively inexpensive; while sandalwood perfumes are expensive (Upadhye, 2019). However, there can be exceptions as well, sunflower perfume can be as expensive as Rs. 18,000 alitre (Munjal, 2015). Further, designer bottles can raise the price of attar depending on size, make, and the style of it (Kulshreshtra, 2019).

Kannauj attar is based on variety of ingredients like flowers (‘gulab’, ‘chameli’, ‘kewda’, ‘jasmine’, ‘bela’, etc.), khus grass (vetiver), and other herbs and spices (e.g., saffron, cardamom, cloves, etc.) (Ratnagar, 2014). A unique variety of perfume in Kannauj is the ‘shamama’ perfume, which is made out of the co-distillation of a variety of herbs and spices. The shamama perfume is made by several families at Kannauj, but each has its own secret method (Gangopadhyay, 2021).

Another famous attar variety of Kannauj perfumeries is the ‘Mitti attar’, also known as the ‘Rain attar’. The attar is produced by distilling earth/clay found in dried-up wells and ponds (McMahon, 1996). Rain attar is distinguished by its scent, the fragrance that emerges when the first seasonal rain descends upon the earth (GI Journal (GOI) Report, 2013). The attar is produced by hydro-distillation process and involves clay being baked like chapati after being made into soft dough and flattened in the shape of discs. The art of making ‘mitti attar’ is so specialized that only 10 percent of 400 perfumeries in Kannauj produce it. Moreover, the process of making it is a lengthy affair (taking about 15 working days) and it cannot be produced in monsoon seasons as the clay becomes too squelchy to be baked (Sengupta, 2016). The expertise of attar artisans of Kannauj is exemplary and craftsmanship has been carried over the generations.

### **Contemporary Challenges**

There are 375 attar units in Kannauj, employing about 30,000 people with a turnover of about 400 crores (Brief Industrial Profile of Kannauj District, 2016-17). Moreover, the industry is having active linkage with flower cultivators, brick kilns, bottle manufacturing, etc. and hence the prosperity or failure of the attar industry directly influences these subsidiary industries (Gangopadhyay, 2021).

At present, the eco-friendly traditional method of attar production is facing stiff competition from mass-produced, alcohol-based perfumes. This is because of the rising cost of raw materials and challenges in procurement of sandalwood oil after the Indian government imposed a ban on sandalwood trade (Sengupta & Sen, 2015; Food and Agriculture Organization (FAO) Report, 2014). The situation has forced many manufacturers to use liquid paraffin or DOP (dioctyl phthalate) as a substitute for sandalwood oil (GI Journal (GOI) Report, 2013). Moreover, factors like rising cultivation costs (of flowers) and labor charges, are also responsible for the rising production expenses. This apart,

the maintenance of old equipment also remains a formidable challenge (Munjal, 2015).

To add to the woes, the industry has also suffered heavily from the partial ban that is imposed on 'gutka' or chewing tobacco in certain states considering the issue of public health. Earlier, local manufacturers used to source the scent for their 'gutka' from attar manufacturers of Kannauj and this has changed drastically since the ban on the use of chewing tobacco (Mohan, 2018).

It is therefore not surprising to note that the number of attar manufacturing units came down from 375 in 2008 to 250 in 2012 (Marwah, 2012). Similarly, Schaffmeister (2015) reports that the number of perfumeries in Kannauj came down from 700 in the 1990s to 90 in the present times. While many of the traditional attar shops have closed their operations by incurring heavy losses; many of the younger generations in attar making families are apprehensive about joining the traditional occupation.

The industry further suffered as the status conscious Indians shifted their allegiance to deodorants and Western perfumes. The lure of Western perfumes and deodorants and the advertisement gimmicks have made it difficult for the Kannauj artisans to compete. Evidentially speaking, the demand of attar has particularly fallen among the present-day youths as they prefer to use branded items (Rai, 2015; Borgave & Chaudhari, 2010). Considering public demands, many of the attar makers have started selling deodorants instead of attars. Some have entered into the business of producing fragrance of international brands like Zino Davidoff, Ralph Lauren, etc. These imitation perfumes are available for much cheaper rates (approximately Rs. 500) than the original (which costs somewhere in the range of Rs. 4,000-Rs. 10,000) (Munjal, 2015). Others have stopped their manufacturing unit and solely concentrate on selling perfumes imported from Mumbai or Kolkata (TNM report, 2015).

In sum, the demand of attar has largely become seasonal in nature, with a surge in demand among the Muslim community in the Ramzan season (Sachasinh, 2020). Most of the attar orders come from the Middle-East, where use of attar remains popular. In fact, of the total perfume produced in India, 5 per cent is sold in the country, 20 per cent is used in 'agarbatti', 'dhoop' (incense stick), and other cosmetic use, and the remaining majority is exported to the Middle-East (Kulshreshtra, 2019).

### **Steps Taken**

To boost the declining industry, the state and the central government have implemented several initiatives. For instance, the United Nations Industrial Development Organization (UNIDO) alongside the Central and the State government have established the Fragrance and Flavour Development Centre (FFDC) at Kannauj in 1991. FFDC serves as the link between essential oil,

fragrance, and flavor industry and strives to develop an agro-chemical technology to positively contribute towards the social mobility of farmers/workers engaged in aroma cultivation (Raghuvanshi, 2019). Further, recognizing the tradition and heritage associated with attar production in Kannauj, the Government of India recognized it with the Geographical Indicator (GI) tag in 2013-14 (Sharma & Kulhari, 2015).

The state government of Uttar Pradesh have also initiated the establishment of the International Perfume Park project in Kannauj. The park is to be set up over 100 acres of land and the government is exploring the possibility of a tie-up with Grasse (France) to enhance collaboration in perfume making. Unlike the modern facilities and techniques available at Grasse in France, attar manufacturing units in Kannauj are small scaled and use traditional methods and techniques (Rai, 2015). The collaboration between Kannauj and Grasse will augur well particularly for the Indian counterpart in terms of export of perfumes and gaining exposure/expertise in modern techniques of manufacturing and packaging attar (Rai, 2015).

### **Analysis and Discussion**

Many contend the deadlock of the Kannauj's attar industries to the traditional technologies (about 800-900 years old) that are being used in the manufacturing process. They say adoption of updated technology coupled with use of chemical/synthetic instead of organic ingredients may save the industry. While the big players may be ready to upgrade themselves to face the challenge, the smaller players may find it difficult to survive (Munjal, 2015). Moreover, it may be noted that as against machine manufactured, mass produced perfume, attar making in Kannauj is an art and it involves labor-intensive, and semi-industrial manufacturing process. And by adopting the industrial mode of production, the attar making craft of Kannauj will essentially be modified/lost.

The worsening state of Kannauj attar industry is a testimony to the 'social exclusion' faced by an industry for not adopting capitalist technology. Echoing Manual Castells (2000), we argue that technology is sharpening the contradiction in the perfume market and it is leading to deskilling, redundancy, and displacement of labor. The generational skills of attar makers in Kannauj are at stake because they are unable to adopt capital intensive technologies and 'reskill' themselves. They are thus systematically debarred from accessing positions that would grant them independent livelihood and respectable position in society (Karimi, 2016). There is thus steady deskilling of artists in the capitalist economic system and the only skill required is that of "accessing the technology" and gaining competitive advantage by making the products cheaper. As Castells (2000: 72) aptly puts it, "*social exclusion de-franchises a person as a labor in the context of capitalism.*" Hence, we are encountering the steady de-skilling of artisans into middle-men in the attar trade.

Artisans are thus inhibited from exercising their creativity and free will and become engaged in the production of pseudo or sham art, as reflected from their increasing preoccupation with ‘simulacra business’ i.e., producing imitation/replica perfumes of renowned brands like Zino Davidoff, Ralph Lauren, etc. They produce goods that cater to demands of people instead of exercising free will and exploring his/her artistic creativity. The condition of the attar artisan therefore resembles that of an alienated labour, who has no control over his work and is engaged in monotonous and meaningless work. This closely resonates Rosenberg and Fliegel’s (1990) portrayal of the situation of painters and sculptors of New York City in their celebrated work “The Vanguard Artist”. Instead of independently touching the consciousness of others through their art, artists are influenced by the commercial values of society.

Additionally, the predicament of attar industry in Kannauj can be attributed to the changing consumer taste and preference. In the modern times, social identity is based on consumption of branded goods and products. As Bourdieu (1984) aptly observes that in the present times the ethics of hard work is being replaced by hedonistic values and sellers exploit the situation by projecting flashy, attractive images rather than highlighting product substance. “Consumerism” and “hedonism” have become the buzz word of the day and the lives of individuals are parochially governed by self-seeking (O’ Shaughnessy and O’ Shaughnessy, 2002). It is no wonder that in such a situation people prefer branded deodorants and perfumes over indigenous perfumes for keeping up with the Joneses and for achieving desired visibility. Kannauj perfumes are undermined because they lack adequate advertisement and marketing gimmicks. They are not backed by the adoration of flashy images, glossy packaging, and designer labels. It is therefore obvious that Kannauj perfumes enjoy limited patronage among the urban youths, who readily accept the trend that market popularizes (Ghosh, 2011: 158).

The preference for branded products and services reflects the condition of enslaved consumers and prevailing mass culture in the modern society. Following Marcuse (1991), we argue that technologically dominated society is governed by ‘commodity fetishism’, whereby people define themselves in terms of the commodity that they possess. They lose their ability to define themselves, or for that matter to raise their ‘dissenting voices’ in owning their own destiny. Man, thus, resides in a state of sublimated servitude, where their needs are decided according to the prevailing order of things (Marcuse, 1991).

In sum, the worsening condition of attar artisans in Kannauj is a testimony of the loss of an “art form” to the values of techno-capitalism and subjugation of human creativity in the modern society.

## References

- Baser, K. H. C. (2017). Rose Mentioned in the Works of Scientists of the Medieval East and Implications in Modern Science. *Natural Product Communications*, 12(8), 1327–1330. <https://doi.org/10.1177/1934578x1701200843>
- Bashir, H., & Gray, P. W. (Eds.). (2015). *Deconstructing Global Citizenship: Political, Cultural, and Ethical Perspectives* [Google Book]. Retrieved from [https://www.google.co.in/books/edition/Deconstructing\\_Global\\_Citizenship/eeg8CwAAQBAJ?hl=en&gbpv=0&kptab=overview](https://www.google.co.in/books/edition/Deconstructing_Global_Citizenship/eeg8CwAAQBAJ?hl=en&gbpv=0&kptab=overview)
- Baur, R. (1868). *On Attar of Rose*. Retrieved February 3, 2021, from <https://search.proquest.com/openview/9de8a3d97b0afcc30b06b803ae86c28f/1?pq-origsite=gscholar&cbl=41445>
- Borgave, S., & Chaudhari, J. S. (2010). Adolescents' Preferences and attitudes towards Perfumes in India. *Journal of Policy and Organisational Management*, 1(2), 01–08. Retrieved from [https://bioinfopublication.org/files/articles/1\\_2\\_1\\_JPOM.pdf](https://bioinfopublication.org/files/articles/1_2_1_JPOM.pdf)
- Bourdieu, P. (1984). *Distinction: A Social Critique of the Judgement of Taste*. Cambridge, USA: Harvard University Press.
- Brief Industrial Profile of Kannauj District*. (2016-017). Prepared by (GOI) MSME-Development Institute, Kanpur. Retrieved November 26, 2020, from <http://dcmsme.gov.in/dips/2016-17/DIP%20Kananuj%20%20VK%20Bhatt%202.6.2016.pdf>
- Butler, H. (2000). W.A. Poucher's influence on the early cosmetic industry. In H. Butler (Ed.), *Poucher's Perfumes, Cosmetics and Soaps* (10th ed., pp. 03–11). New York, United States: Springer Publishing.
- Cancelik, M. (2020). A Field Research on the Medical Aromatic Plant Selling Enterprises (Aktar / Attar) in Sanliurfa. In Y. A. Unvan & İ. Serbestoğlu (Eds.), *Current Researches in Economics and Administrative Sciences* (1st ed., pp. 390–401). Montenegro, Montenegro: Iype Cetinje.
- Castells, M. (2000). *The Rise of The Network Society: The Information Age: Economy, Society and Culture* (2nd ed., Vol. 1). Retrieved from [https://books.google.co.in/books/about/The\\_Rise\\_of\\_The\\_Network\\_Society.html?id=hngg4aFtJVcC&redir\\_esc=y](https://books.google.co.in/books/about/The_Rise_of_The_Network_Society.html?id=hngg4aFtJVcC&redir_esc=y)
- Conceicao, P. (2019, March 2). What is the Chemistry of a Perfume? Retrieved May 12, 2021, from <https://sciencing.com/chemistry-perfume-6869966.html>
- DMO Kannauj. (2017). *District Survey Report*. Government of Uttar Pradesh. Retrieved from <https://cdn.s3waas.gov.in/s37eabe3a1649ffa2b3ff8c02ebfd5659f/uploads/2020/09/2020093056.pdf>
- Dwivedi, P., & Kar, S. (2018). Phonology of Kanauji. *Advances in Hindi Language Teaching and Applied Linguistics*, 1(1), 189–220. Retrieved February 4, 2021, from [https://www.academia.edu/37652031/Phonology\\_of\\_Kanauji](https://www.academia.edu/37652031/Phonology_of_Kanauji)

Essa, A., & Ali, O. (2010). *Studies in Islamic Civilization: The Muslim Contribution to the Renaissance* (1st ed.). Herndon, USA: International Institute of Islamic Thought (IIIT).

FFDC, Kannauj. (2019). *Cluster Diagnostic Report Kannauj Attar & Essential Oil Cluster*. Office of DC MSME, Ministry of MSME (GOI). Retrieved from [http://www.dcmsme.gov.in/tcsp/Program%20Overview/Kannauj\\_V1.pdf](http://www.dcmsme.gov.in/tcsp/Program%20Overview/Kannauj_V1.pdf)

Food and Agriculture Organization (FAO) of India (Ed.). (2014). *Rediscovering wood: the key to a sustainable future*. Retrieved from <http://www.fao.org/3/ap001e/ap001e15.pdf>

Gangopadhyay, U. (2021, January 27). Kannauj: The Perfume Capital of India. Retrieved May 11, 2021, from <https://www.outlookindia.com/outlooktraveller/explore/story/70470/do-you-know-why-kannauj-is-called-the-perfume-capital-of-india>

Ghosh, B. (2011). Cultural Changes and Challenges in the Era of Globalization. *Journal of Developing Societies*, 27(2), 153–175. <https://doi.org/10.1177/0169796x1102700203>

G.I. APPLICATION NUMBER – 157. (2013). *GEOGRAPHICAL INDICATIONS JOURNAL (GOI)*, 54, 18–25. Retrieved from [https://ipindia.gov.in/writereaddata/Portal/Images/pdf/Journal\\_54.pdf](https://ipindia.gov.in/writereaddata/Portal/Images/pdf/Journal_54.pdf)

Groom, N. (1997). *New perfume handbook* (2nd ed.). London, UK: Chapman and Hall.

Groom, N. (1992). *The Perfume Handbook*. Berlin, Germany: SPRINGER-SCIENCE+BUSINESS MEDIA. <https://doi.org/10.1007/978-94-011-2296-2>

Kapoor, J. N. (1991). Attars of India - A Unique Aroma. Retrieved November 23, 2020, from <https://www.perfumerflavorist.com/fragrance/application/multiuse/Attars-of-India---A-Unique-Aroma-371983072.html>

Karimi, A. (2016). Bhadohi Carpet Industry: Dynamics of Social Exclusion. Unpublished Doctoral Thesis (Supervisor: Prof. Abdul Martin). Aligarh Muslim University.

Khare, R. S. (1960). The Kānya-Kubja Brahmins and Their Caste Organization. *Southwestern Journal of Anthropology*, 16(3), 348–367. <https://doi.org/10.1086/soutjanth.16.3.3629037>

Kulshreshtra, U. (2019, November 11). The Art of Aromas: Ittar Industry of Kannauj. Retrieved May 12, 2021, from <https://www.sahapedia.org/art-aromas-ittar-industry-kannauj>

Llewellyn-Jones, R. (2014). The Last King in India: Wajid 'Ali Shah, 1822-1887. Retrieved February 3, 2021, from [https://books.google.com/books/about/The\\_Last\\_King\\_in\\_India.html?id=KcSHCwAAQBAJ](https://books.google.com/books/about/The_Last_King_in_India.html?id=KcSHCwAAQBAJ)

Marcuse, H. (1991). *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society, 2nd Edition* (2nd ed.). New York, USA: Routledge.

Markel, S. (1999). Flora and Fauna in Mughal Art. *South Asian Decorative Art (In Choice Reviews Online)*, 37(06), 25–35. <https://doi.org/10.5860/choice.37-3165>

- Marwah, J. (2012). *Attars: The Fading Aromatic Culture of India* (Diminishing Cultures of South Asia: 2011-2012, pp. 1-84, Rep.). Retrieved November 24, 2020, from [http://saarcculture.org/wp-content/uploads/2020/09/2011-12\\_Jyoti\\_Marwah.pdf](http://saarcculture.org/wp-content/uploads/2020/09/2011-12_Jyoti_Marwah.pdf)
- McMahon, C. (1996). Indian attars. *International Journal of Aromatherapy*, 7(4), 10-13. doi:10.1016/s0962-4562(96)80023-3
- Mohan, S. (2018, July 27). Fading Scent of Attar. *The Hindu Business Line*. Retrieved from <https://www.thehindubusinessline.com>
- Munjal, D. (2015, June 6). Can Ittar Town Survive with French Help? Retrieved May 12, 2021, from [https://www.business-standard.com/article/beyond-business/can-ittar-town-survive-with-french-help-115060600797\\_1.html](https://www.business-standard.com/article/beyond-business/can-ittar-town-survive-with-french-help-115060600797_1.html)
- Narielwala, P. A., & Rakshit, J. N. (1946). *Report of the Essential Oil Advisory Committee* (pp. 1-69, Publication). New Delhi, India: Council of Scientific and Industrial Research. Retrieved from <https://archive.org/details/dli.csl.69/mode/2up>
- O'Shaughnessy, J., & Jackson O'Shaughnessy, N. (2002). Marketing, the Consumer Society and Hedonism. *European Journal of Marketing*, 36(5/6), 524-547. <https://doi.org/10.1108/03090560210422871>
- Padhy, S., Dash, S. K., Panda, B. B., Misra, M. K., Padhi, N. P., Sahu, D., . . . Padhy, R. (2016). Pandanus fascicularis Lamk. (Kewda): The Prime Vegetation in the Hinterland Biodiversity of Coastal Odisha, With Unique Ethnic Utility, Genetic Variation and Economics- A Review. *Journal of Biodiversity*, 7(1), 33-49. <https://doi.org/10.1080/09766901.2016.11884758>
- Padhi, R., & Sadangi, N. (2020). The Kia in Rage. In *Resisting Dispossession: The Odisha Story* (pp. 169-189). Singapore: Palgrave Macmillan. doi:<https://doi.org/10.1007/978-981-15-0717-5>
- Pal, S. (2016, June 24). This Indian Town Has Been Bottling the Scent of Rain for Thousands of Years. Retrieved November 23, 2020, from <https://www.thebetterindia.com/59606/scent-rain-mitti-attar-kannauj/>
- Pathak, H. (2020, February 20). The history of fragrance: How attar or ittar has evolved from one era to the other. Retrieved May 12, 2021, from <https://en.gaonconnection.com/the-history-of-fragrance-how-attar-or-ittar-has-evolved-from-one-era-to-the-other/>
- Prasad, G. P., Pratap, G. P., Neelima, M., & Satyanrayanashastry, V. P. (2008). Historical perspective on the usage of perfumes and scented Articles in ancient Indian literatures. *Ancient science of life*, 28(2), 33-39. Retrieved February 4, 2021, from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3336354/>
- Raghuvanshi, U. (2019, September 11). UP to go ahead with perfume park project in Kannauj. *Hindustan Times*. Retrieved from <https://www.hindustantimes.com>

Rai, M. (2015, May 25). Akhilesh, Dimple Yadav to ink deal with France to revive UP's perfume industry. *The Economic Times*. Retrieved from <https://economictimes.indiatimes.com>

Rao, Y. R., & Rout, P. K. (2003). Geographical Location and Harvest Time Dependent Variation in the Composition of Essential Oils of *Jasminumsambac*. (L.) Aiton. *Journal of Essential Oil Research*, 15(6), 398-401. Retrieved November 25, 2020, from <https://www.tandfonline.com/doi/abs/10.1080/10412905.2003.9698620>

Rashkow, E. D. (2014). Perfumed the axe that laid it low: The endangerment of sandalwood in southern India. *The Indian Economic & Social History Review*, 51(1), 41-70. doi:doi.org/10.1177/0019464613515553

Ratnagar, D. (2014). Fact, not Fancy. *Beauty without Cruelty*, 37(4), 06–10.

Rosenberg, B., & Fliegel, N. (1990). *The Vanguard Artist: Portrait and Self-Portrait* (Reprint ed.). New York, USA: New Amsterdam.

Sachasinh, R. (2020, December 17). How did Kannauj become the perfume capital of India? Retrieved May 12, 2021, from <https://www.nationalgeographic.com/travel/article/how-did-kannauj-become-a-perfume-capital>

Sachasinh, R. (2021, February 16). This Ancient Town in Uttar Pradesh Is the Perfume Capital of India. Retrieved May 12, 2021, from <http://www.natgeotraveller.in/this-ancient-town-in-uttar-pradesh-is-the-perfume-capital-of-india/>

Schaffmeister, N. (2015). *Brand Building in Key and Marketing Emerging Markets: A Practitioner's Guide to Successful Brand Growth in China, India, Russia and Brazil* [9783319194820, 3319194828]. Retrieved December 05, 2020, from [https://www.google.co.in/books/edition/Brand\\_Building\\_and\\_Marketing\\_in\\_Key\\_Emer/xQC5CgAAQBAJ?hl=en&gbpv=1](https://www.google.co.in/books/edition/Brand_Building_and_Marketing_in_Key_Emer/xQC5CgAAQBAJ?hl=en&gbpv=1)

Sengupta, A. (2016, July 3). Mitti attar: Take home that lush smell of the first rain, trapped in a bottle. *Hindustan Times*. Retrieved from <https://www.hindustantimes.com>

Sengupta N. (2018) Biodiversity and Genetic Resources. In: *Traditional Knowledge in Modern India: Preservation, promotion, ethical access and benefit sharing mechanisms* (pp. 73-103). Springer Link. doi:doi:doi.org/10.1007/978-81-322-3922-2\_4

Sengupta, S., & Sen, A. (2015, August). Re-Inventing a Traditional Green Product in the Contemporary Globalized World. In *Research Gate*. Retrieved December 23, 2020, from [https://www.researchgate.net/publication/281898480\\_RE-INVENTING\\_A\\_TRADITIONAL\\_GREEN\\_PRODUCT\\_IN\\_THE\\_CONTEMPORARY\\_GLOBALIZED\\_WORLD\\_SOCIAL\\_MARKETING\\_OF\\_TRADITIONAL\\_PERFUME\\_'ATTAR'](https://www.researchgate.net/publication/281898480_RE-INVENTING_A_TRADITIONAL_GREEN_PRODUCT_IN_THE_CONTEMPORARY_GLOBALIZED_WORLD_SOCIAL_MARKETING_OF_TRADITIONAL_PERFUME_'ATTAR')

Sharma, R. W., & Kulhari, S. (2015). *Marketing of GI Products: Unlocking their Commercial Potential*. New Delhi, India: Centre for World Trade Studies in collaboration with Indian Institute of Foreign Trade.

- Singh, N. K., & Khan, A. M. (Eds.). (2001). *Encyclopedia of the world Muslims: Tribes, castes and communities* (Vol. 1). Retrieved October 20, 2020, from [https://www.google.co.in/books/edition/Encyclopaedia\\_of\\_the\\_World\\_Muslims/Zzfs\\_G7QHoAC?q=&gbpv=1#f=false](https://www.google.co.in/books/edition/Encyclopaedia_of_the_World_Muslims/Zzfs_G7QHoAC?q=&gbpv=1#f=false)
- Skaria, B. P., Joy, P. P., Mathew, S., Mathew, G., Joseph, A., & Joseph, R. (2007). *Aromatic Plants* (Vol. 1, Horticulture Science Series) (K. V. Peter, Ed.). New Delhi, India: New India Publishing Agency.
- Smith, R. V. (2012, February 12). The scent in the wind! *The Hindu*. Retrieved from <https://www.thehindu.com>
- Smith, V. A. (1908). The History of the City of Kanauj and of King Yasovarman. *Journal of the Royal Asiatic Society*, 40(3), 765-793. doi:10.1017/s0035869x00081004
- Southwell, I. D., & Boeck, W. D. (1986). *Assistance to the Perfumery Industry of Kannauj District* (pp. 1-40, Issue brief No. UC/IND/86/016). India. Prepared By United Nations Industrial Development Organization.
- Tabassum, A., Asif, S. & Naqvi, A. (2016). Traditional Method of Making Attar in Kannauj. *International Journal of Interdisciplinary Research in Science Society and Culture (IJIRSSC)*, 2(1), 71-80.
- TNM Staff (2015, October 9). The News Minute | Features. *The News Minute*. Retrieved from <https://www.thenewsminute.com>
- Tripathi, R. A. (1937). *History of Kanauj to the Moslem conquest* (Vol. 1). Retrieved February 4, 2021, from <https://archive.org/details/in.ernet.dli.2015.461601/page/n9/mode/2up>
- Upadhye, A. (2019, August 16). This Visakhapatnam-based Attar Seller has a Fragrance for Every Occasion. *The Hindu*. Retrieved from <https://www.thehindu.com>

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