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Efficiency and Impact of MGNREGS in Tripura

Indraneel Bhowmik[*] and Pritam Bose[**]

Abstract

Tripura, one of the smallest states of India is considered as better performer in implementation of MGNREGS from the perspective of employment generation for having the highest average man-days generated per household in a year for three successive years now. The rationale behind the implementation of the scheme suits the state perfectly owing to minimal industrialisation, stagnation in the agricultural sector, high poverty levels, and limited employment opportunities. The scheme, with an annual budget of about Rs. 1000 crores has been prioritised by the State government as a major tool of outreach. The paper attempts to explore - 'How is MGNREGS doing in Tripura?' on the basis of two objectives- one, to find out intra-state level of efficiency in implementation of MGNREGS using DEA efficiency analysis and two, to examine the nature and impact of benefits accruing to the participating households. The study indicates significant differences in the average man-days generated per household across the rural development blocks with the tribal majority regions having higher scores. However, there are significant increases in the income level of the participating household though their awareness about the features of the scheme is very nominal.

I. Introduction

Tripura, the second smallest of the north-eastern states of India has been one of the better performing states in the implementation of the Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) across the country exhibiting one of the highest average man-days generated per household in a year since the initiation of the scheme in 2006. Basically, the rationale behind the implementation of the scheme suits the state perfectly owing to its minimal industrialisation, stagnation in the agricultural sector, high poverty levels, and limited employment opportunities. The state is predominantly rural and is inhabited by a heterogeneous mix of tribes living in the hills and non-tribes living in the plains. A sizeable population of scheduled castes adds another dimension to the demographic aspect. The tribes of Tripura have been shifting cultivators for ages while large section of the Bengali speaking majority

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are mostly migrants or their descendents from the erstwhile East Pakistan. The altered demographical profile of the state and its consequent declining land-man ratio has been the prime cause of the ethnic disturbances witnessed by the state for more than twenty years. In this context, it should be noted that the Tripura Tribal Areas Autonomous District Council (TTAADC), set up in 1982, extends over all the districts and functions in accordance to the Sixth Schedule of the Constitution.

With limited corporate sector, large tracts of undulated highlands, and a poor transportation and communication network, developmental activities are mostly the onus of the state government and it is the major employer of the state with more than one lakh employees across all categories. The active state participation in the economic sector is also in tune with the political ideology of the ruling CPI (M) led Left- Front government. The poverty head-count ratio according to Suresh Tendulkar Committee, 40.6 per cent, is around 3 per cent higher than the national figures and government led schemes and programmes are often the most vital sources of livelihood to a major section of the people of the state. The importance of the MGNREGSin Tripura is therefore easily understood as its objectives are very close to heart of the state government. The scheme was introduced in the most backward district of the state, Dhalai, during 'Phase- I' activities involving 200 districts of the country. The two districts of West Tripura and South Tripura were part of the 130 districts of 'Phase-II', while the North Tripura district came under the purview of the scheme in the 'Phase-III' when it was made universal across the country.

Tripura's performance in the implementation of the MGNREGS has been credited particularly for higher average person-days creation per household (DrezeandOldiges, 2007; UsamiandRawal, 2013 and The Shillong Times, 2012) in the literatures. The scheme's potential is high as its can improve the underdeveloped agriculture, poor irrigation system and poor road connectivity (Roy, 2010). Further, the equity aspect of the scheme has also been found to be in the right direction as participation of women and socially excluded groups are found to be highly encouraging (Talukdar, 2008; Bhowmik, 2013). Moreover, the scheme has been prioritised by the Left Front government of the state as a major tool of employment generation and poverty eradication. With an annual flow of about Rs. 1000 crores (approximately 5 per cent of GSDP) into the state economy it is obvious that MGNREGS have started making an impact on the rural economy more precisely on rural households in sustaining their live and livelihood opportunities. The official statistics show that more than 60 per cent of the rural households have enrolled for the programme and more than 90 per cent of the job-card holding households have been provided with employment. Moreover, accepting the positive contribution of the scheme on the people of Tripura, the Finance Minister of Tripura in course of his presentation of the Annual Budget 2014-15, called for an extension of the scheme to offer 200 days of employment per year. However, one can easily understand that the implementation of the scheme is not uniform across the state.

It is in this background that the present paper stems with the broad intention of finding

the answer to the question- 'How is MGNREGS doing in Tripura?' However, for the present context, we set up two specific objectives- a] to find out intra-state level of efficiency in implementing the scheme in 2012-13 and b] to examine the nature and impact of benefits accruing to the participating households relating to their income, financial inclusion, awareness level and other livelihood aspects.

The study uses both secondary as well as primary data. A field survey of a representative sample was undertaken in two districts of the state- Dhalai(comprising of 8 Rural Development Blocks)and West Tripura (comprising of 9 RD Blocks)for addressing the second objective. These two districts were purposively selected for being the most backward and advanced districts of the state respectively. From each district, one RD Block is selected randomlyand from that selected RD Block, two Gram Panchayats (GPs)were further selected randomly. Again, from each GP, 3 per cent of the households registered for MGNREGS, with a minimum of 50 households from each GP, were selected. A structured schedule has been used to collect the necessary information. The primary data has been collected from two Gram Panchayats of Durga Chowmuhani Block- Kalachari and Dhan Chandra Para in Dhalai district, of which the former has a mixed population while the latter is a remote tribal majority village belonging to the TTAADC region. The two GPs of West Tripura district- KhasMadhupur and Suryamaninagar, had a non-tribal majority and belonged to the Dukli Block located in the vicinity of the capital city Agartala. The impact of the scheme has been studied using standard statistical, descriptive and inferential, tools.

The first objective was addressed using secondary data obtained from the official website of the scheme, www.nrega.nic.in. Efficiency of implementation has been examined using the non-parametric frontier approach- data envelopment analysis (DEA). We measure the Overall Technical Efficiency (OTE), Pure Technical Efficiency (PTE) and Scale Efficiency of the constituent Rural Development Blocks for the year 2012-13 using the EMS software developed by Prof. H. Scheel, University of Dortmund. The performance indicators of the scheme like Average Person-days generated per household per year, proportion of households attaining 100 days work and work completion rate has been considered as the efficiency determinants. The present paper is structured into six (6) sections including the present introduction. The second section provides a methodological note on the Data Envelopment Analysis, while the third section gives us an overview of the extent of MGNREGS in Tripura. The fourth segment provides with the empirical results of the efficiency analysis while the impact of the scheme on the participating households forms the crux of the fifth section. Finally, we surmise the issue in the conclusion.

II. Methodological Note

The DEA is a linear (mathematical) programming based method first originated in the literature by Charnes, Cooper & Rhodes (1978) as a reformulation of the Farrell's (1957) single-output, single- input radial measure of technical efficiency to multiple-output, multiple-input case. The originators described DEA as a mathematical

programming model applied to observational data (that) provides a new way of obtaining empirical estimates of relations- such as the production functions and/or efficient production possibility surfaces- that are cornerstones of modern economics.

Formally, DEA is a methodology directed to frontiers rather than central tendencies. Instead of trying to fit a regression plane through the centre of the data as in statistical regression, for example, one 'floats' a piecewise linear surface to rest on top of the observations. Because of this perspective, DEA proves particularly adept at uncovering relationships that remain hidden from other methodologies.

The Extended Pareto- Koopmans definition states that full (100 per cent) efficiency is attained by any Decision Making Unit (DMU) if and only if none of its inputs or outputs can be improved without worsening some of its other inputs or outputs. However, as the theoretically possible levels of efficiency is not always known in management and social science application, a concept of Relative Efficiency has been advanced. Accordingly, a DMU is to be rated as fully (100 per cent) efficient on the basis of available evidence if and only if the performances of the other DMUs does not show that some of its inputs or outputs can be improved without worsening some of its other inputs or outputs. This definition avoids recourse to price and other assumptions of weights which are supposed to reflect the relative importance of the different inputs or outputs. This basic kind of efficiency is referred to as 'technical efficiency' in economics.

Under this technique for each of the n decision making units (DMU) which consume m different inputs to produce S different outputs, technical efficiency is given by the measure

$$\Sigma_r u_r y_{ro} / \Sigma_i v_i x_{io}$$

where, y_{ro} = r^{th} output of a particular DMU, O

x_{io} = i^{th}input of that particular DMU, O

$u_r$is the weight associated with each kind of output &

$v_i$is the weight associated with each kind of input

The problem is to find these weights such that $z = \Sigma_r u_r y_{ro} / \Sigma_i v_i x_{io}$, i.e. the ratio of the virtual output to the virtual input of each DMU is maximised. However, without additional constraints this ratio would be unbounded. To deal with this a set of normalising constraints are introduced:

$$\Sigma_r u_r y_{rj} / \Sigma_i v_i x_{ij} d" \ 1 \text{for } j = 1, 2 \ldots n \ \&$$

$$u_r \& \ v_i \ e" \ 0 \text{ for all } i \ \& \ r$$

which reflects the condition that the virtual output to virtual input ratio of every DMU must be less than or equal to unity for non-negative weights.

The DEA method is applicable to identify a host of efficiency parameters. The technical

efficiency score θ^{CRS} is called the overall technical efficiency (OTE) and is calculated on the assumptions of constant returns to scale and is popularly known as CCR (Charnes, Cooper and Rhodes) model. However, if the DMUs are not operating at an optimal scale, it can be decomposed into pure technical efficiency (PTE) and scale efficiency (SE). Pure technical efficiency is calculated on the assumptions of variable returns to scale where an additional convexity constraint: $N1\lambda = 1$, is added to the existing model of overall technical efficiency and is generally referred as the BCC (Banker, Charnes and Cooper) model. Symbolically, PTE = θ^{VRS}. Further the mathematical programming ensures that pure technical efficiency scores are either greater or equal to the overall technical efficiency scores (Banker et al, 1984).

Scale Efficiency for the i^{th} DMU, on the other hand, is obtained as

$$SE_i = \theta_i^{CRS} / \theta_i^{VRS}$$

where SE = 1 indicates scale efficiency or constant returns to scale and SE < 1 indicates scale inefficiency.
Further, in case of scale inefficiency, we identify whether it is increasing or decreasing on the basis of computing an additional DEA model imposing an alternative restriction, substituting $N1'\lambda = 1$ (as in VRS) by $N1'\lambda \leq 1$, which indicates, non-increasing returns to scale (NIRS). Thus, increasing returns to scale is said to exist when, $\theta^{VRS} \neq \theta^{NIRS}$; while for $\theta^{VRS} = \theta^{NIRS}$ the DMUs face decreasing returns to scale (Bala, 2007).

It should be further noted that in DEA, technical efficiency can be viewed from two perspectives-

a] input oriented, where θ^{input} = Minimum possible input/ Actual input &

b] output oriented, where θ^{output} = Actual Output/ Maximum Possible Output.

For the present purpose, we consider the rural development blocks as the decision making unit as the major responsibility of implementation falls on them. The average person-days generated per household, the proportion of households attaining 100 days of work and the work completion rate are considered as the output; whereas, the availability of fund, the number of works undertaken and the total number of households demanding job are considered as inputs. The efficiency analysis has been undertaken for 2012-13 considering 45 Rural Development Blocks for an output oriented model since better efficiency means higher man-days generation per household, greater coverage of households with 100 days of work and a higher completion rate.

III. An Overview of MGNREGS in Tripura

Tripura is a miniscule in the Indian context in terms of volume of MHNREGS as is evident from Table 1. The state accounts only for about 0.5 per cent of the total job-cards issued in the country under the scheme. The share of Tripura with 641,136 card holders in 2012-13 against 12.84 crores card holders in the country has actually come down marginally from that of 2008-09. However, the state's share in terms of the

employment demanded is much higher and has been varying consistently in the range of 1.2 per cent of the national pie. The share of the state in terms person-days generated is even higher. The state had a share of 1.62 per cent of the total person-days created in the country in 2008-09. The number of person-days created in the country has consistently increased over the years, but the rate of growth of Tripura has been higher as is seen in its share rising to 2.67 per cent of the total employment generation in 2012-13. In other words, Table 1 attests the greater outreach and acceptance of MGNREGS in the state as is evident from the higher share in the national pie for person-days generated and employment demand in proportion to enrolment.

Table 1: MGNREGS in Tripura

	2008-09	**2009-10**	**2010-11**	**2011-12**	**2012-13**
Job-cards (HHs)	600615	607010	624133	602131	641136
	(0.59)	(0.54)	(0.51)	(0.50)	(0.50)
Employment	549145	577540	557413	567101	597434
Demand (HHs)	(1.22)	(1.10)	(1.02)	(1.12)	(1.20)
Person-days	351.12	460.23	374.51	487.71	518.51
(Nos. In Lakhs)	(1.62)	(1.62)	(1.46)	(2.25)	(2.67)

Source: www.nrega.nic.in

Notes: Figures in parenthesis indicate share within India

On the other hand, considering the performance indicators, we find that Tripura has consistently created higher average person-days per household than the national average for all years after the scheme was extended all over the country. For the last two years, 2011-12 and 2012-13, the state has been the best performer in the country. However, in terms of providing 100 days of work to participating households, the state was behind the national average in 2008-09 and has been ahead since then. But, in terms of women participation the state lags. The proportion of female workers in Tripura is lesser than the national average for all years.

Table 2: Performance Indicators of MGNREGS in Tripura

	2008-09	**2009-10**	**2010-11**	**2011-12**	**2012-13**
Average Person days	63.95	79.83	67.23	86.43	86.78
(Nos./HH)	(47.95)	(53.99)	(46.79)	(43.0)	(39.0)
HHs with 100 days (%)	10.37	37.09	14.61	35.72	37.93
	(14.33)	(13.40)	(9.97)	(7.80)	(10.37)
Women Person-days(%)	41.09	38.45	38.21	33.42	37.93
	(48.10)	(47.73)	(50.59)	(49.03)	(41.84)
Work Completion Rate	91.92	98.41	97.98	87.75	96.09
	(43.75)	(48.93)	(49.21)	(70.10)	(35.87)
Utilisation of Funds	94.48	75.82	99.04	93.78	96.46
	(72.87)	(76.45)	(72.69)	(77.89)	(86.25)

Source: www.nrega.nic.in

Notes: Figures in parenthesis indicate the all India figures

From Table 2, we also find that the work completion rate in the state is way above the national average across time. The only year where completion rate was less than 90 per cent was in 2011-12. Tripura's performance in terms of utilisation of funds has also been credit worthy for being ahead of the national average for all years except 2009-10. The state government often claims that activities under the scheme often suffer roadblocks due to late flow of funds from the centre. Further, from Table 2, we can easily understand that the performance of the state in the implementation of MGNREGS has been much better than most of the other parts of the country. However, there have been wide variations in the performance of the constituent districts in the past in terms of average person-days generation per household and the proportion of households provided 100 days of work (Bhowmik, 2013) in 2009-10 and 2010-11. In this context, we may note that the existing state administrative setup (4 districts, 17 sub-divisions, and 40 RD Blocks)was reorganised in early 2012 and the new set up of 8 districts, 23 sub-divisions and 45 RD Blocks became functional since the financial year 2012-13. The 45 RD Blocks have further been subdivided into 58 RD Blocks in 2013-14. The intra-state variation of MGNREGS for 2012-13 is therefore undertaken considering 8 districts and 45 RD Blocks.

IV. Intra-State Level Efficiency

The intra-state efficiency in the implementation of the scheme are addressed on the basis of the three major desired objectives of the scheme- average person-days generated per household, the proportion of households completing 100 days of work and the work completion rate, with the idea that if these three achievements are made then the life and livelihood of the participating poor households would have a facelift.

Table 3: District Level Performance in Average Person-days, HH with 100 days and Work Completion Rate in 2012-13

Districts	Av. Person-days	HH 100 days	WCR
Dhalai	92.76	58.88	98.58
South Tripura	86.79	30.61	98.36
West Tripura	80.25	17.09	98.77
North Tripura	77.82	31.46	94.72
Gomati	96.31	66.72	91.88
Khowai	86.17	33.5	99.2
Sepahijala	82.16	25.85	89.18
Unakoti	97.26	73.11	91.17

Source: www.nrega.nic.in

The table 3 shows that the average person-days generated in the state had been highest in the newly created Unakoti district with Gomati district following closely as second. On the other hand, the average person-days generated per household has been the least for the West Tripura district. Again, in terms of the proportion of households completing 100 days of work also we find it is the same Unakoti district, curved from the erstwhile North Tripura, emerges at the top with 73.11per cent achievement. The West Tripura

district, alike for average work days lags in this aspect also. The lagging of West Tripura in terms of employment indicators is expected as it is the most urbanised and developed districts. Employment opportunities in other sectors are high and naturally demand for job is less. The third important criteria for performance, Work Completion rate, appears to be pretty high for Tripura as a whole and Khowai district formed from the erstwhile West Tripura district has been the top performer in 2012-13, with Sepahijala district being placed at the nadir.

Table 4: Descriptive Statistics of Average Person-days, HH with 100 days and Work Completion Rate in 2012-13 at the Block Level in Tripura

		Av. Person days/HH	HH with 100 days of work	Work Completion Rate
Mean		86.65	37.14	94.43
Standard Deviation		8.76	22.16	8.42
Minimum		67	2	53
Maximum		99	88	100
Percentiles	25	81.99	23.50	94.63
	50	91.68	44.00	98.77
	75	96.19	59.00	99.80

Source: www.nrega.nic.in

We however observe that at the Block level, there are wide variations in terms of performance of the MGNREGS (Table 4). The deviations are highest in terms of providing 100 days work. The maximum achievement has been 88 in AmarpurBlock while the minimum was only 2 at Mohanpur Block in West Tripura district. In terms of average person-days per households, Killa Block in Gomati district leads, while Kadamtala in North Tripura is at the bottom. Two Blocks, Salema in Dhalai and Padmabil in Khowai stand at the top with 100percent completion of work, while Shilachari in Gomati has the least work completion rate.

Considering the data of the constituent Blocks, we find that the performance level of the districts of the state vary significantly for the employment indicators. The average person-days generated per household in the districts of Tripura vary significantly (F= 3.47, p= .006; Df- 7, 37). Similarly, we find that the mean level of proportion of households provided with 100 days of work in the districts of Tripura are also statistically different at significant levels (F= 5.05, p= .000; Df- 7, 37). Therefore, we may say that the variation in the average person-days remained significant even though the administrative setup underwent a change.

Further, it seen that the tribal majority Blocks had higher levels of achievement in both the employment indicators (Bhowmik, 2013). The administrative reorganisation indicate similar situation in 2012-13 also. The average performance of the TTAADC Blocks is better than the non-TTAADC Blocks. The average person-days generated per household in the TTAADC Blocks is 95.02, while that of non-TTAADC Blocks is 84.51, suggesting a statistically significant variation between the two regions (p=

.000). Similar is the case for 100 days employment. The TTAADC Blocks with an average of 52.4 per cent coverage lead significantly (p=.007) over the non-TTAADC Blocks having a coverage of 34.9 per cent. It should be also noted that the achievements of the districts in the context of work completion rate is pretty similar and no significant variations are observed among the districts as well as between the tribal majority and non-tribal majority areas.

Table 5: Frequency Distribution and Descriptive Statistics of OTE, PTE & SE of RD Blocks in Tripura

Efficiency Scores	OTE	PTE	SE
E< 0.5	0 (0.0)	0 (0.0)	0 (0.0)
0.5 ≤ E < 0.6	16 (35.56)	9 (20.00)	0 (0.0)
0.6 ≤ E < 0.7	23 (51.11)	11 (24.44)	7 (15.56)
0.7 ≤ E < 0.8	4 (8.89)	10 (22.22)	7 (15.56)
0.8 ≤ E < 0.9	0 (0.00)	1 (2.22)	9 (20.00)
0.9 ≤ E < 1.0	0 (0.00)	2 (4.44)	18 (40.00)
E= 1.0	2 (4.44)	12 (26.67)	4 (8.89)
Descriptive Statistics			
No. of Blocks	45	45	45
Mean	0.6478	0.7647	0.8673
Median	0.6294	0.7151	0.8863
Standard Deviation	0.0963	0.1651	0.1235
Q1	0.5903	0.6292	0.7757
Q3	0.672	1	0.988
Minimum	0.5453	0.5542	0.6284
Maximum	1	1	1

Source: Computed by authors

The scores obtained as indicator of efficiency in implementation of the scheme are analysed in Table 5. As mentioned earlier, the efficiency scores are obtained considering the three indicators as output from the scheme, while the inputs are total fund available, number of job demand and the number of works taken up. From Table 5, we see that for the measure of overall technical efficiency (OTE) only two DMUs (RD Blocks), Shilachari in Gomati and Jampui Hill in North Tripura, are found to be having the score of 1, suggesting 100 per cent efficiency. The least efficient DMU in terms of OTE, Mohanpur in West Tripura has a score of 0.5453 and is one of the largest Blocks in the state and has the lowest coverage of provisioning 100 days work. Majority of the Blocks (51 per cent) has an OTE score in the range of 0.6 to 0.7 suggesting a technical efficiency level of 60to 70 per cent when working with constant returns to scale. More than 35 per cent of the Blocks lie in the range of 0.5 to 0.6. However, relaxing the condition of constant returns, we find the efficiency level of most of the DMUs increase. Altogether 12 Blocks (26.7 per cent) functions with 100 per cent pure technical efficiency (PTE), measured under variable returns to scale. The number of DMUs working with less than 60 per cent PTE also decreases. Further on the basis of the Scale Efficiency, we see that only 4 DMUs obtain the 100 per cent score. Altogether 40 per cent of the Blocks have a score above 0.9 under SE; while there are no DMUs

with score less than 0.6 under SE and the minimum is 0.6284 from Salema in Dhalai district.

From Table 5, we can also infer that the average OTE in the RD Blocks of Tripura is 0.6478, while the average PTE is 0.7647 and the average SE is 0.8673. Apart from the two efficient DMUs under OTE, two more Blocks- Lefunga in West Tripura and Gournagar in North Tripura are found to be scale efficient. We should also note that the standard deviation for OTE is lower than the other two scores. Moreover, on the basis of the scores seen in Table 6, we can say that there are other factors apart from scale of operation which causes the inefficiency in implementation of the scheme.

In this context, we may take note of the fact that in terms of efficiency of implementation also, the TTAADC Blocks are performing better. Table 6 gives us the list of the Efficient Blocks in terms of implementation of the scheme. Both the efficient DMUs in terms of constant returns to scale are from the tribal majority areas. Moreover, in terms of PTE also we find 9 of the 12 Blocks belonging to the TTAADC region, while the same scenario is visible in the context of scale efficiency. Thus, we find that the tribal majority areas (RD Blocks) have not just scored heavily in terms of the employment, but also in terms of efficiency in implementation of the MGNREGS.

Table 6: Efficient DMUs

Nature of Efficiency	Number of DMUs	Number of TTAADC DMUs	Name of the DMUs
OTE	2	2	*Jampui Hill &Shilachari*
PTE	12	9	*Damcherra, Jampui Hill, Pecharthal, Chawmanu, Padmabil, Karbook, Killa, Shilachari, Rupaichari,* Kumarghat, Salema & Amarpur
SE	4	3	*Jampui Hill, Shilachari, Lefunga&*Gournagar

Source: Computed by authors
Notes: TTAADC Blocks in Italics

Further, from Table 7, we can see that in terms of average OTE, Gomati district leads. Gomati district, with a score of 0.7121, also boasts of one of the most efficient RD Blocks/DMU,Shilachari as a constituent. The second highest average efficiency score, 0.7086, is in the North Tripura district, which is the home for the other most efficient RD Block- Jampui Hills. The lowest average efficiency, 0.6055, is in Sepahijala district. In terms of PTE, also Gomati district leads followed closely by the Unakoti district. Sepahijala, the least efficient district with constant returns to scale restriction, has the highest score for SE indicating that its inefficiency is more due to operational reasons and not due to scale of returns. Nevertheless, from the table 7, we find that the districts of Tripura there are variations in the implementation of the scheme and Unakoti district that lead in terms of the employment indicators fall back a bit on the efficiency scores.

Table 7: District wise average efficiency in Tripura for 2012-13

District	Number of RD Blocks (DMUs)	Average OTE	Average PTE	Average SE
Dhalai	6	0.6207	0.7807	0.8213
Gomati	7	**0.7121**	**0.8789**	0.8243
Khowai	6	0.6387	0.7790	0.8333
North Tripura	6	0.7086	0.7562	0.9460
Sepahijala	5	0.6055	0.6155	**0.9840**
South Tripura	6	0.6169	0.7636	0.8210
Unakoti	3	0.6296	0.854	0.8219
West Tripura	6	0.6232	0.6910	0.7760

Source: Calculated from secondary sources

V. Impact on the Households

As stated in Section I, the second objective of the present study is to understand how the MGNREGS affect the life and livelihood of the rural poor. The present section therefore attempts to find out what are the impacts of the scheme particularly in the income generation, financial inclusion and livelihood. Further, we also attempt to examine the awareness level of the participants about the scheme.

Sample Profile

The sample respondents were truly representative of the heterogeneous mix that Tripura exhibits. Most of the respondents belonged to the socially excluded class (26.5 per cent STs and 38 per cent SCs) and were from the BPL households (75.5 per cent). Hinduism was the prominent religion among the sample, while 18 per cent respondents from Kalachari (9 in number) followed Islam. However, among the tribal respondents of Dhan Chandra Para, we observed a large proportion of Christians in the sample.

Table 8: Basic Profile of Sample MGNREGS Workers

		Kalachari	DC Para	Khas Madhupur	Suryamani Nagar	Total
1	Sample Size (Nos.)	50	50	50	50	200
2	Community (Nos.)					
2a	ST	3	50	0	0	53
2b	SC	35	0	8	33	76
2c	OBC	3	0	42	8	62
2d	Others	9			9	9
3	Ration Card (Nos.)					
3a	APL	0	0	29	9	38
3b	BPL*	50	39	21	41	151
3c	Antyodaya	0	11	0	0	11
4	Religion (Nos.)					
4a	Hinduism	41	11	50	50	152

		Kalachari	DC Para	Khas Madhupur	Suryamani Nagar	Total
4b	Islam	9	0	0	0	9
	Christian	0	39	0	0	39
5	Age (Years)					
5a	Max	53	54	48	52	54
5b	Min	39	27	26	32	26
6	Family Size (Nos.)					
6a	Mean	4.6	4.78	4.38	4.18	4.49
6b	Max	7	7	6	6	6
6c	Min	4	3	3	2	2
7	Occupation (Nos.)					
7a	Cultivators	6	4	3	3	16
7b	Day Labourers	42	46	42	30	160
7c	Traders	2	0	5	12	19
7d	Private Service	0	0	0	5	5

Notes:*- BPL Cards issued by the state government
Source: Field Survey, 2013-14

Further from Table 8, we find that the age of the respondents ranged between 26 to 54 years, with the youngest member coming from the KhasMadhupurpanchayat, while the oldest respondent hailed from Dhan Chandra Para. The average family size of the respondents were 4.49, with the highest again being Dhan Chandra Para. The smallest average family size was in Suryamaninagar, which also had the smallest family. It is also interesting to find that the largest family size was 7 and was common to both the GPs of the Dhalai district. From the table, we also find that the primary occupation of the majority of the respondents was as day labourers. These people worked for wage in both farm activities as well as in non-farm activities, as and when available.

Experiences in the scheme

Table 9 suggests that the respondents (95.5 per cent) are well informed about the provision of unemployment allowance in the scheme but regarding the provision of compensation for moving more than a 5 km distance only 31.3 per cent of the sample, mostly from Suryamaninagar, are aware. Basically, the knowledge regarding this feature is hardly known to the respondents of the two GPs of Dhalai district. The awareness regarding the provision to receive payments within 15 days of completion of work is much better (56 per cent) known to the respondents, but the system of holding meetings in advance to fix/decide the work is not known to any respondents.

Table 9: Awareness about the features of MGNREGS (in %)

	Kalachari	DC Para	Khas Madhupur	Suryamani nagar	Total
Unemployment Allowance	100	82	100	100	95.5
Compensation	0	10	18	76	31.33
15 days time limit	78	52	30	60	56
Meetings in Advance	0	0	0	0	0

Source: Field Survey, 2013-14

The Ward Member of the Gram Panchayat/ Village Committee is the most important source of information regarding scheme activities and the opportunities of work. Neighbours, relatives and villagers are also important source of information for 42.5 per cent of the respondents and the most popular source in KhasMadhupur. However, for the respondents of Dhan Chandra Para, the officials of the GP (52 per cent) are the most common source as is seen in Table 10 below.

Table 10: Source of Information about MGNREGS (%)

	Kalachari	DC Para	Khas Madhupur	Suryamani Nagar	Total
Neighbours, relatives and Villagers	32	34	62	42	42.5
Ward members	68	14	38	58	44.5
GP Officials	0	52	0	0	13

Source: Field Survey, 2013-14

The respondents opined that though they are aware of the various features of the scheme, these are not practised. None of them have received any unemployment allowances because they apply for work, i.e., they fill up the demand for work form only when asked by the panchayat authorities, who do so only after the receipt of the fund.

Most of the respondents, 74.7 per cent have received their job-cards within 7 days of application and the performance of the two GPs of Dhalai is better than that of the GPs of West Tripura (Table 11). Similarly the time gap between the application and allotment of works is also better in the remote district as compared to the advanced district. Altogether 61 per cent of the respondents have been assigned with works within 7 days of application, while for the rest; the work was assigned within 14 days.

Table 11: Experiences in the Scheme Enrolment and Allotment of Work (%)

	TGBRAIJC		WPBAAOW	
	Less than 7days	Between 7 to 14 days	Less than 7days	Between 7 to 14 days
Kalachari	90	10	80	20
DC Para	92	8	60	40
KhasMadhupur	42	58	30	70
Suryamaninagar	32	68	74	26
Total	**74.67**	**25.33**	**61**	**39**

Notes: TGBRAIOJC- Time Gap between registration and issue of job card
WPBAAOW- Waiting period between application and allotment of works
Source: Field Survey, 2013-14

The Job cards are generally in possession of the respondents themselves; however, in Suryamaninagar we find that only 8 per cent of the respondents had the job-cards in their possession as it was mostly with the head of the household. In Kalachari and

KhasMadhupur we also found job-cards being with the ward member. Interestingly, we found the unanimous answer of Muster Roll not being read out from the respondents across all the GPs as shown in Table 12.However, willing workers can check their individual names in the Muster Roll. Altogether 56 per cent of the respondents from Kalachari opined to have checked it at least once, while none of the respondents in Dhan Chandra Para had ever verified their names in it. The situation is not impressive in the two villages of West Tripura also as only around 20 per cent of the households have checked the muster roll ever.

Table 12: Access to Muster Roll (%)

	Read Out	Verification
Kalachari	0	56
DC Para	0	0
KhasMadhupur	0	20
Suryamaninagar	0	24
Total	**0**	**38**

Source: Field Survey, 2013-14

Impact on Income

The sample respondents are mostly from labourer households and seek to avail any income opportunities that come their way. The annual income earned by the sample NREGS workers from four villages varied from a low of Rs. 30000 to a high of Rs. 96000. From Table 13 , we find that maximum number of NREGS workers (60 per cent) at Kalachari earn between Rs. 48000 to Rs. 60000 per year, while at Dhan Chandra Para, the maximum concentration lies in the level of less than Rs. 36001 annually (70 per cent). Basically, in no other GPs do we find such an income level. The situation in KhashMadhupur is better with the major concentration being in the range of Rs. 72000 to Rs. 84000 per annum (52 per cent), but for Suryamaninagar the concentration is in the income range of Rs. 60000 to Rs. 72000 per annum (40 per cent). Altogether 9 respondents from KhasMadhupur report an income above Rs. 84000 per annum. No respondents from any other GPs falls into that category. In all, 29.5 per cent of the sample reports an annual household income between Rs. 60000 to Rs. 72000. Nonetheless, the average income of the workers across the four sample villages is Rs. 59130 per annum. The mean annual income for KhasMadhupur workers, Rs. 79488 is the highest, while the least mean occurs at Dhan Chandra Para, understandably. Moreover, the mean income of all the four GPs are significantly different ($F = 451.18$, df.- 3, 199; $p = 0.00$).

Table 13: Income of the Sample respondents from Four Villages (in Rs. /annum)

Rs/Annum	Kalachari	DC Para	Khas Madhupur	Suryamani nagar	Total
Less than 36001		35(70)			35(17.5)
36001-48000	16(32)	15(30)		1(2)	32(16)
48001-60000	30(60)				30(15)
60001-72000	4(8)		15(30)	40(80)	59(29.5)
72001-84000			26(52)	9(18)	35(17.5)
Above 84000			9(18)		9(4.5)
Mean 52992	36048	79488	67992	59130	
Max. 72000	45600	96000	84000	74400	
Min. 42000	30000	66000	45600	45900	

Source: Field Survey, 2013-14
Notes: Figures in parentheses indicate percentage

Getting employment through MGNREGS has certainly eased their livelihood efforts. Further, we may note from Table 14 that on an average the participating households earn more than Rs. 8500 per annum from the scheme. Intervention of MGNREGS has certainly had an impact on the rural workforce and their income levels, and these sample respondents are no exception. In terms of the average household income from the scheme as well as in terms of proportionate contribution to the annual household income it is Dhan Chandra Para leading over other three villages. The average household income from NREGS at Dhan Chandra Para is Rs. 10020 and average share of NREGS income in aggregate income of sample households is 28.0 per cent, which is much higher in comparison to the other sample GPs. On the flip side, with an annual average income of Rs. 8572.8 per annum, the relative importance of the scheme is less in KhasMadhupur, as it captures only about 11 per cent of the average annual household income. The contribution of the scheme is higher in Kalachari as compared to Suryamaninagar, which is pretty similar to that in KhasMadhupur. Another important observation in this regard is the significant difference in the average income from MGNREGS among the considered GPs (F= 438.368, df.- 3, 199; p =0.00).

Table 14: MGNREGS intervention to sample Households

	Kalachari	DC Para	Khas Madhupur	Suryamani nagar
Average Household Income from MGNREGS (in Rs. per annum)	9374.40	10020.00	8572.80	8678.40
Average Share of MGNREGS Income in Aggregate Income of participating Households (%)	17.90	28.01	10.89	12.90

Source: Field Survey, 2013-14

The income earned through MGNREGS work has certainly boosted the economic status of the respondents, as is evident from the Table 15. The differential in the income level is highly significant in across the sample GPs. The mean income of the

sample households have increased the most in KhasMadhupur (by almost 80 per cent), where contribution of MGNREGS income is the least.

Table 15: Results of Paired sample t-test for pre and post MGNREGS income of the respondents

GPs	Mean Income		T-stat	Df	sig.
	(Pre -NREGS)	(Post -NREGS)			
Kalachari	3700	4416	-7.40	49	0.00
Dhan Chandra Para	2530	3004	-15.38	49	0.00
KhashMadhupur	3702	6624	-12.10	49	0.00
Suryamaninagar	4639	5666	-26.33	49	0.00

Source: Computed from Primary Data

Impact on the Quality of Life

There are no doubts about the positive impact of the scheme on the participating households. Higher employment opportunities have been the most prominent outcome of the MGNREGS. All the households from Kalachari, KhasMadhupur and Dhan Chandra Para have vouched for their increased employment opportunities, while almost three-fourths of the households from Suryamaninagarhave the same opinion. Improved health care facilities have been an impact of MGNREGS for 82.5 per cent households, of which the GPs from Dhalai are more vocal about it. Fall in School Dropouts are another positive outcome from MGNREGS, which have been supported by 68.5 per cent households. Reduction of Migration has been one of the objectives of the scheme and the participating households indicate of such an occurrence across the villages. Altogether 83 per cent of the total households believe that migration in search of work has declined and the belief is strongest in Kalachari and weakest in the tribal majority village of Dhan Chandra Para.

Table 16: Impact of NREGS on the participating households (%)

	Kalachari	DC Para	Khas Madhupur	Suryamani Nagar	Total
NREGS Responsible for reduction in School Dropouts	60	100	78	36	68.5
Contribution of NREGS to improved Health Care Facilities	88	100	74	68	82.5
Higher employment opportunities	100	100	100	74	93.5
Reduce Migration	100	64	84	84	83

Source: Field Survey, 2013-14

It is certainly very interesting to note that the respondents from this village were unanimous in identifying the positives of all the other three factors considered and it is only in case of migration that there is a fractured opinion among the respondents. The positive contribution of MGNREGS appear to be acknowledged in greater proportion by the distant respondents, while the respondents from the West Tripura

district having greater access to better facilities find the intensity of impact a bit less (Table 16).

Another positive impact of MGNREGS has been in the context of financial inclusion. All the respondents have their bank accounts where the payments from MGNREGS reach. However, we find that most of these accounts are no-frills account, opened with the specific purpose of receiving the wages from the scheme. From the Table 17, we find that 70 per cent of the respondents have had their savings accounts operational only since the last four years, while for another 26.5 per cent, the ages of the accounts are less than 7 years. Only 6 per cent and 8 per cent of the respondents have accounts for more than 7 years (basically 10 years) in Khas Madhupur and Suryamaninagar GP of West Tripura respectively. In other words, MGNREGS can claim the credit for financial inclusion of all the respondents from Dhalai district.

Table 17: Time of opening of bank accounts

	Age of Bank Accounts		
	0-4 years	**4- 7 years**	**Above 7 years**
Kalachari	58	42	0
DC Para	78	22	0
KhasMadhupur	64	30	6
Suryamaninagar	80	12	8
Total	**70**	**26.5**	**3.5**

Source: Field Survey, 2013-14

VI. Summary and Conclusion

The analysis of the secondary data and the efficiency analysis allow inferring that even after the reorganisation of the administrative setup in the state, there are significant differences in the average person-days generated per household and in the proportion of households provided with 100 days of work in a year among the districts of Tripura in 2012-13. The tribal majority areas in the state i.e., the TTAADC Blocks have higher levels of achievement in both the employment indicators. It is also observed that in terms of the efficiency scores also the RD Blocks belonging to the Tripura Tribal Autonomous District Council leads. Only 2 DMUs (RD Blocks) attain 100 per cent OTE, while in terms of PTE 12 DMUs achieve the target. Moreover, most of the RD Blocks are scale inefficient as SE is obtained by only 4 DMUs.

The primary data collected from household survey indicates significant increases in the income level of the participating households as well as they opine about greater employment opportunities, reduction in school dropouts, improved health care facilities and reduced migration for work after the introduction of MGNREGS in their locality. Moreover, the Panchayat and village council functionaries play an active role in disseminating information about the scheme and its activities.

On the basis of the above sections, one may say that rural people in Tripura have benefitted from the MGNREGS particularly because of the better implementation of the scheme. The tribal majority areas which are remote and have limited economic opportunities seem to have benefitted more as compared to the plains where alternatives are available in greater number. The state government has been successful in implementing the scheme in a manner which is better than most of the other parts of the country. People in rural areas are having greater employment and income opportunities, which are reflected in their improved living. Financial inclusion has occurred for a large section of rural people in the state. The commercial banks have also come forward with their business correspondent models, which has improved their outreach. The quality of life of the rural people of Tripura has also improved as is recorded by the reduction in school dropouts, migration and better health care facilities. Last but not the least, the significant cash flow to the participating households through the scheme is possibly a big reason for the ruling Left Front to win the Legislative Assembly elections of 2013 with a thumping majority. Nevertheless, we conclude raising two questions about the overall rural economy of Tripura and the excessive dependence on the scheme by the state government- a)Is the scheme popular due to lack of other opportunities or b) Is the scheme a tool for consolidation of rural votes?

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Disparities in Access to Basic Amenities across Caste, Ethnicity and Classes in Rural and Urban India

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Abstract

This paper examines the changes in access to basic amenities like drinking water, sanitation, electricity and drainage arrangement in Rural and Urban India using datasets from Census of India, 2001 and 2011 and National Sample Survey Housing Condition Round for 1993 and 2008/9; there is a special focus on disparities in access to basic amenities across caste and ethnic groups and consumption expenditure classes. With respect to all the indicators of basic amenities, an improvement in access by households was observed in proportion terms between 2001 and 2011 as per Census data and between 1993 and 2008/9 by NSS data, with acceleration during 2002 and 2008/9. However, Census data also showed an increase in the absolute number of deprived households in case of drinking water, latrine facility, and closed drainage connectivity for waste water outlet in the premise in both Rural and Urban India. Results highlight the need to take immediate action towards providing the access to basic amenities, giving special attention to rural India and bringing in inclusive policy measures (to reduce the increasing disparities in access to basic amenities) taking care of weaker sections (socio-economic) of society to raise the overall standard of life and well-being of the people.

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I. Introduction

Access to basic amenities like drinking water, sanitation, electricity, housing, drainage and others are crucial for the overall well-being of a household. India, like many other developing nations, has also suffered from wide-spread deprivation in access to basic amenities and services. Its importance for human development has been highlighted in the international arena ever since it was included in the Millennium Development Goals.

"The process of enlarging people's choices, as well raising their level of well-being or human development, has emerged as the ultimate goal of development of a society. The motivation behind such an exercise relates closely to seeing poverty as a serious deprivation of certain basic capabilities... (this) alternative approach leads to a rather different diagnosis of poverty from the ones that a purely income-based analysis can yield. There are at least four different sources of variation (effecting capabilities besides income availability): (1) personal heterogeneities, (2) environmental diversities, (3) variations in social climate, (4) differences in relative deprivation connected with customary patterns of consumption in particular societies. Poverty analysis cannot really be dissociated from pragmatic considerations, particularly informational availability (related to these sources of variations). Axioms can indeed be proposed that attempt to capture our distributional concerns in this constructive exercise" (Sen, 1999).

Accepting such a broad perspective on the human development scenario, various policies and actions have positively stimulatedimprovements in housing conditionsand amenities in India over the last few years, evidenced in terms of the type of dwelling structures, access to drinking water, sanitation, electricity and other amenities enjoyed by households. However, there is still a large proportion of households that fail to have basic amenities and adequate housing, especially in rural areasand including households belonging to Scheduled Tribes (STs), Scheduled Castes (SCs)and lower strata of consumption expenditure classes (Srinivasan and Mohanty, 2004; Mohanan and Chakrabortty, 2008;, Kumar, 2013; Dreze and Sen, 2013; Kumar, 2014a; Kumar, 2014b; Kumar, 2014c).

The disparities in delivery of basic amenities leading to a stunted growth of the nation indicate a preponderance of inequitable policies and administrative efforts, supplemented by a cavalier attitude and tolerance for market-led provisions of basic amenities. They also indicate that the government and para-statal institutions have not exhibited sensitivity towards backward states, small and medium towns and the poor (Kundu et al, 1999). Presently, privatisation, partnership arrangements and promotion of community-based projects have emerged as the only options for undertaking investments in basic amenities due to resource crunch in the government. This changed perspective and a consequent decline in public investment, however, is likely to accentuate the disparity in the levels of amenities across the size class of urban settlements (Kumar, 2013).

Studies have now recognised and echoed the need to promote the interest of economically and socially weaker sections in India. 'The insights from the experience of poverty and consumption expenditure changes during the periods 1994-2005 – 2005-10, particularly during the latter period...(also) imply that a broad-based pro-poor policy needs to be supplemented by group specific policy (social, religious and economic groups), and this must be made an integral part of the overall planning strategy' (Thorat and Dubey: 2012).

To gauge the magnitude of prevalent deprivation and disparities in the access to basic amenities this paper highlights the changes at an aggregate level, with further enquiry into disparitiesacross social groups and economic groups (consumption expenditure classes).

II. Policies on Basic Amenities

There have been several initiatives, plans and programmes in India to improve access to basic amenities. Since rural and urban areas have different sets of administrative arrangements and needs, separate plans and programmes are designed for them.Two important programs launched in the year 2005 by the Government of India that have contributed to development in rural and urban areas are the Bharat Nirman and the Jawaharlal Nehru National Urban Renewal Mission (JnNURM) respectively. There are also various other schemes functioning at the sub-national levels for the provision of various basic amenities.

Under Bharat Nirman, various schemes (for improving the access to basic amenities in rural areas with special provisions for poor, excluded and marginalised groups), such as rural housing (Indira AwaasYojana), rural drinking water supply (National Rural Drinking Water Programme under Rajiv GandhiNational Drinking Water Mission), Total Sanitation Campaign (which has been renamed Nirmal Bharat Abhiyan in May 2012 by the Ministry of Drinking Water and Sanitation), rural electrification (Rajiv Gandhi GrameenVidyutikaranYojana) among others, are functioning. A landmark initiative was the launch of Provision of Urban Amenities to Rural Areas (PURA) in 2004.

The JnNURM aims at improving and augmenting the economic and social infrastructure of 65 select cities as well as providing affordable housing and Basic Services to the Urban Poor (BSUP) through planned development of the identified cities. The JnNURM caters to the non-mission towns and cities under the two components - the Urban Infrastructure Development Scheme for Small and Medium Towns and the Integrated Housing and Slum Development Programme. The schemes of Affordable Housing in Partnership and Interest Subsidy Scheme for Housing Urban Poor dovetailed into Rajiv AwasYojana, which focuses on slum free India, in the 12th Plan.

All these policies have special provisions for the weaker and marginalised sections, but the efforts have lost momentum in some aspects,leading to the current disparities in access to basic services among rural and urban sector and different socio-economic sections of society. It has also been recognised by various official sources that one of the problems in the policies adopted is that the schemes are designed in New Delhi and states are asked to implement them in a top-down approach. This is not desirable,and has resulted in design flaws and implementation issues leading to sub-optimal performance.

The Twelfth Five Year Plan recognised the inclusive growth approach as the means to an end that would demand outcomes which yield benefits for all and particularly for the marginalised sections of society(Thorat and Dubey, 2012). "Inclusive growth should result in lower incidence of poverty, improvement in health outcomes, universal access to school education, increased access to higher education, including skill and education, better opportunities for both wage employment and livelihoods and improvement in provision of basic amenities like water, electricity, roads, sanitation and housing. Particular attention needs to be paid to the needs of the SC, ST and OBC population, women and children as also minorities and other excluded group" (Planning commission, 2011).

III. Database and Methodology

Data for basic amenities for household level enquiry from two major sources— Census of India (Data on Houses, Housing Amenities and Assets, Hoselisting and Housing Census), 2001 and 2011 and National Sample Survey(NSS) Housing Conditions Rounds unit record data 1993 and 2008/9 have been used in this paper.

Indicators of Basic Amenities

For the analysis, we have selected, as deprivation measures,a few indicators which highlight households not having access to the corresponding basic amenities. The focus here is to include those indicators which significantly capture the unavailability and lack of access to the corresponding basic amenities.

Census of India

1. *Households not having availability of drinking water within the premises*: It refers to households having availability of drinking water *near the premises* and *away from the premises*.
2. *Households not having latrine facility within the premise*: It refers to households having *public and open latrine use,* meaning no latrine facility within the premises.
3. *Households not having electricity in the house (as a source of lighting in the house)*: It refers to households having *kerosene, other sources* of lighting in the house and *no electricity*.

4. *Households not having closed drainage connectivity for waste water outlet:* It refers to households having *open drainage and no drainage* connectivity for waste water outlet.

Changes in these indicators of basic amenities, during 2001–2011, for rural and urban areas, at an aggregate level and then by further disaggregation into Caste and Ethnic groups (Scheduled Tribe, Scheduled Caste and Other), have been analysed.

NSS Housing Conditions Rounds[1]:

1. *No facility of drinking water in the house:* It refers to the community use - by all households - of the drinking water facility.
2. *No latrine facility in the house:* It refers to public or community use of latrine facilities, and non-availability of such facilities in the house.
3. *No electricity used for domestic purposes*.
4. *Open katcha and no drainage arrangement:* Here underground and *pucca* arrangement for drainage are excluded.

Changes inthese indicators of basic amenities during 1993 and 2008/9 for rural and urban areas at an aggregate level, and then by further disaggregation into Caste and Ethnic groups, Consumption Expenditure Classes (CEC) (Poor – Non-Poor and Monthly Per Capita Expenditure Quintiles) and their interface have been analysed.

Disparities among various Caste and Ethnic groups for Census 2001–2011, and among Caste and Ethnic groups and Class (Poor – Non-Poor), and among Caste and Ethnic groups and Consumption expenditure classes for NSS 1993–2008/09 have been measured by Modified Sopher's Disparity Index (Modified Sopher's Disparity Index = Log (X2/X1) + Log [(200-X1)/(200-X2)], where, X1 and X2 are the respective percentages of value of variables (deprivation of basic amenities) for group 1 and 2. The ideal value for the Index for having no disparity is 0; higher value of the Index shows that the extent of disparity is higher, and vice-versa; a positive value suggest that the situations are in favour of group 1 (less deprived of basic amenities), and vice-versa). The changes in the index values, over time, have also been captured and analysed.

[1] Data on the indicators was extracted and tabulated from NSS Household unit record data by applying the weights provided by the NSS. It should be noted here that the reference time is considered to be the mid-point of the NSS Housing Conditions surveys for arriving at the year differences between two surveys. 49th (January to June, 1993) round survey, NSS was completed in six months duration whereas the 65th (July, 2008 to June, 2009) Round was completed in a year. Overall Period 1993–2008/9 - 16 years.

IV. Findings on Disparities in Access to Basic Amenities in Rural India: By Aggregate, Caste, Ethnicity and Class

There was an improvement in access to basic amenities in rural India during 2001–2011 as indicated by Census data. The data show fall in percentages of deprived households—from 71.3% to 65% fordrinking water, 78.1% to 69.3% for latrine facility, 56.5% to 44.7% for electricity and96.09% to 94.2% for closed drainage connectivity for waste water outlet in the premise (Table 1.1). The rate of decline (annual compounded) of the deprived households were 0.92%, 1.19%, 2.32% and 0.19% for drinking water, latrine facility, electricity andclosed drainage connectivity for waste water outlet in the premise respectively during 2001–2011. Similar improvements were also observed during 1993–2008/9 from NSS data (Table 3.1), with acceleration in the rate of decline during 2002-2008/9 (Kumar, 2014 a).

However, despite improvement in percentage terms of the households during 2001–2011 shown by the Census, there was an increase in the absolute number of deprived households in case of drinking water, latrine facility, andclosed drainage connectivity for waste water outlet in the premise, and decline in case of electricity in the premises. In 2011, rural households reported very high deprivation in the attainment of level of basic amenities.

Taking the changes of levels into consideration, it was found that special and immediate attention towards access of households to drinking water facility, sanitation facilities and drainage arrangement in the house is needed in rural areas.

Across caste and ethnic groups, ST and SC households lag behind Other in terms of levels and changes (rate of improvement) in access to basic amenities as per both Census and NSS data (Table 2.1 and Table 4.1.1 to 4.1.4). The disparities in the deprivation in access to basic amenities (as measured by Modified Sopher's Disparity Index) were also observed to be increasing between ST and SC households and between SC and Other households in rural India as suggested by the increasing values of the index from 2001 to 2011 as per Census and from 1993 to 2008/09 as per NSS.

Poor households were found to have very low annual rate of decline of deprivation in access to basic amenities as compared to non-poor households, from 1993 to 2008/9, resulting in their high levels of deprivation in 2008/9 (Table 3.1). Disparities in deprivation in access to basic amenities among Poor – Non-Poor were observed to have increased, as suggested by the increased values of the index from 1993 to 2008/9. Across CEC quintiles, as we move from top to bottom MPCE quintiles households, the non-availability of the amenities keeps on increasing and the rate of improvement keeps decliningfor all the amenities during 1993–2008/9 by NSS data. Households belonging to lower strata of the CEC (bottom MPCE quintiles) lag behind upper CEC (top MPCE quintiles) in terms of levels and changes (rate of improvement) in access to basic amenities. During 2002-2008/9, there was acceleration in the annual rate of change; contributing to improvement across all quintiles among drinking water and

sanitation, and for bottom three quintiles among electricity and drainage. (Kumar, 2014 a)

Across every CEC quintile, the STs and SCs lagged behind Other households in their levels and changes (rate of improvement) in access to basic amenities during 1993–2008/9 by NSS data, which indicates that even if same economic condition prevails there is variation in attainment by different caste and ethnic groups (Tables4.1.1 to 4.1.4). As we movefrom bottom to top MPCE quintile classes, the rate of annual decline in deprivation of basic amenities improves among all the groups, with the same-as-in-aggregate pattern across caste and ethnic groups. The results suggest that disparities in deprivation in access to basic amenities exist across caste and ethnic groupsin every quintile class category and these have increased during 1993–2008/9among all the amenities.

Further, it was evident that policies are needed to focus immediately on high levels of unavailability of basic amenities such as drinking water, sanitation, electricity and drainage facilities in rural India, and also to address the severe inherent caste, ethnic and class disparities.

V. Findings on Disparities in Access to Basic Amenities in Urban India: By Aggregate, Caste, Ethnicity and Class

There was an improvement in access to basic amenities in urban India during 2001–2011 according to Census data, with a fall in percentage of deprived households — from 34.6% to 28.8% fordrinking water, 26.3% to 18.6% for latrine facility, 12.4% to 7.3% for electricity, and 65.5% to 55.5% for closed drainage connectivity for waste water outlet in the premises (Table 1.2). The rate of decline (annual compounded) of the deprived households was 1.82%, 3.4%, 5.16% and 1.64% for drinking water, latrine facility, electricity andclosed drainage connectivity for waste water outlet in the premise respectively, during 2001-2011. Similar improvements were also observed during 1993-2008/9 from NSS data (Table 3.2), with acceleration in the rate of decline during 2002-2008/9. (Kumar, 2013 and Kumar, 2014 a)

However, despite improvement in percentage terms of the households, during 2001–2011, by Census, there was an increase in the absolute number of deprived households in case of drinking water, latrine facility, andclosed drainage connectivity for waste water outlet in the premises, and decline in case of electricity in the premises. In 2011, urban households also reported deprivation in the attainment of level of basic amenities especially in drinking water facility, sanitation facilities and drainage arrangement (though, far better than in rural India).

Across caste and ethnic groups, ST and SC households lag behind Other in terms of levels and changes (rate of improvement) in access to basic amenities as per both Census and NSS data (Table 2.2 and Table 4.2.1 to 4.2.4). Also, the disparities in the deprivation in access to basic amenities were observed to be increasing between ST

and SC households and between SC and Other households in urban India as suggested by the increasing values of the index from 2001 to 2011 as per Census and from 1993–2008/09 as per NSS.

Poor households were found to have high levels of deprivation and very lower annual rate of decline for the deprivation in access to basic amenities as compared to Non-Poor householdsduring 1993 to 2008/9 by NSS data, resulting in high levels of deprivation in 2008/9 (Table 3.2). Disparities in the deprivation in access to basic amenities among Poor - Non-Poor were observed to be substantially increasing as suggestedfrom the values of the index which increased during 1993 and 2008/9. Across CEC quintiles, as we move from top to bottom MPCE quintiles households, the non-availability of the amenities keeps on increasing and the rate of improvement keeps decliningfor all the amenities, during 1993-2008/9, by NSS data (Tables4.2.1 to 4.2.4). Households belonging to lower strata of the CEC (bottom MPCE quintiles) lag behind upper CEC (top MPCE quintiles) in terms of levels and changes (rate of improvement) in access to basic amenities.Disparities were found to be high across quintile classes in levels and annual rate of change. However, the overall endowment in urban areas is better than rural. During 2002-2008/9, there was acceleration in the annual rate of change; contributing to improvement for bottom three quintiles in all the indicators, while there was slowdown for top two quintiles after attaining higher levels of access to basic amenities. (Kumar, 2014 a)

Across every MPCE quintile, the STs and SCs lagged behind Other households in their levels and changes (rate of improvement) in access to basic amenities, during 1993–2008/9, by NSS data, which indicates that even if the same economic conditions prevail there is variation in attainment by different caste and ethnic groups (Tables4.2.1 to 4.2.4). As we movefrom bottom to top MPCE quintile classes, the rate of annual decline in deprivation of basic amenities improves among all the groups, with the same-as-in-aggregate pattern across caste and ethnic groups. Results suggest that disparities in deprivation in access to basic amenities exist across caste and ethnic groupsin every quintile class categories which have increased during 1993–2008/9among all the amenities.

Urban areas witnessed improvement in the access to basic amenities (better than rural areas), butwith rise in absolute number of deprived households.

VI. Conclusions and Policy Implications

Access to basic amenities, ensuring well-being of people, is a cornerstone to the development efforts of a country. In India, as the results of this study imply, worrisome levels of deprivation prevail in access to basic amenities in rural and urban India, with rural households lagging much behind the urban households, especially in access to drinking water, sanitation and drainage facilities,as highlighted by Census and NSS data.

Both rural and urban households experienced improvement in access to all the basic amenities (with highest improvement in access to electricity within the premises) during the overall periods, as per both Census, 2001–2011 and NSS, 1993–2008/9, with an acceleration during 2002-2008/9. However, rates of improvement in rural areas were far lower than those in urban areas.

The findings of this paper suggest that special and immediate action towards access to drinking water facility, sanitation facilities and drainage arrangement is needed, with more focus on rural areas, addressing the systematic weaknesses of the top-down approach followed by the main policies.

Across socio-economic groups, households belonging to Scheduled Tribe, Scheduled Caste and lower strata of CEC (poor) were found lagging in their level of access and rate of improvement in access to basic amenities in both the areas. Even for identical CEC quintiles, the Scheduled Tribe and Scheduled Caste households lagged behind Otherhouseholds, which indicates that even if the same economic conditions prevail, there is variation in attainment by different caste and ethnic groups. To reduce the gap, the rate of change should be greater for those who are lagging behind, but the opposite picture was found in the case of basic amenities. Disparities in the deprivation in access to basic amenities were observed to be increasing between Poor– Non-Poor, between ST and SC households and between SC and Other households in both rural and urban India. Results suggest that disparities exist across caste and ethnic groupsin every CEC quintile categories, which have increased between all the amenities during the last few decades.

The improvement can be attributed to various policies adopted by the government for rural and urban areas namely Bharat Nirman and JnNURM (as discussed earlier) which accentuated the rate of improvement and also focussed on the inclusion of weaker sections of society. Nonetheless, the existing levels of deprivation and disparities as discussed in this paper call for taking further steps which accelerate the pace of improvement in providing basic amenities to households for raising the overall standard of life and well-being. Additional and complementary policy measures such as incorporating focus on rural areas, pro-poor and group-specific (economic and social) targeted approach are required to tackle exclusion (also pointed out in the Inclusive Growth agenda in the Twelfth Five Year Plan) and to ensure safeguards towards equal access to services (as suggested by the World Bank (2013) and the United Nations (2013).

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Tables:

Table 1.1. Levels and Changes of Deprivation in Access to important Basic Amenities by the Household during 2001 and 2011 in Rural India, (Numbers are in Millions)

	Levels		2001 – 2011 (Changes)		
	2011	**2001**	**Numbers (millions)**	**as proportion of total households during 2001 (in %)**	**Annual compounded (in %)**
Number of Households (in millions)	167.83	138.27		29.56	*21.37*
Number of Households Not having Availability of Drinking Water within the premise (Near the premise and Away) (in millions)	109.09	98.59	10.50		
as proportion of total HHs (in %)	*65.00*	*71.30*		*10.65*	*-0.92*
Number of Households Not having Latrine Facility within the premise (Public and Open latrine use) (in millions)	116.30	107.99	8.31		
as proportion of total HHs (in %)	*69.30*	*78.10*		*7.70*	*-1.19*
Number of Households Not having Electricity in the house (Kerosene, Other sources and no lighting) (in millions)	75.02	78.12	-3.10		
as proportion of total HHs (in %)	*44.70*	*56.50*		*-3.97*	*-2.32*
Number of Households Not having Closed Drainage Connectivity for Waste Water Outlet (Open drainage and No drainage) (in millions)	158.18	132.87	25.31		
as proportion of total HHs (in %)	*94.25*	*96.09*		*19.05*	*-0.19*

Note: Annual compounded growth rate is calculated based upon proportion of Households in 2011 over proportion of Households in 2001 of levels of deprivation.Source: Author's Calculation using Tables on Houses, Household Amenities and Assets, House listing and Housing Data, Census of India, 2001 and 2011.

Table 1.2. Levels and Changes of Deprivation in Access to important Basic Amenities by the Household during 2001 and 2011 in Urban India, Census (Numbers are in Millions)

	Levels		2001 – 2011 (Changes)		
	2011	**2001**	**Numbers (millions)**	**as proportion of total households during 2001 (in %)**	**Annual compounded (in %)**
Number of Households (in millions)	78.9	53.7	25.2		
in %				*46.9*	
Number of Households Not having Availability of Drinking Water within the premise (Near the premise and Away) (in millions)	22.7	18.6	4.1		
as proportion of total HHs (in %)	*28.8*	*34.6*		*22.3*	*-1.82*
Number of Households Not having Latrine Facility within the premise (Public and Open latrine use) (in millions)	14.7	14.1	0.5		
as proportion of total HHs (in %)	*18.6*	*26.3*		*3.9*	*-3.40*
Number of Households Not having Electricity in the house (Kerosene, Other sources and no lighting) (in millions)	5.8	6.7	-0.9		
as proportion of total HHs (in %)	*7.3*	*12.4*		*-13.5*	*-5.16*
Number of Households Not having Closed Drainage Connectivity for Waste Water Outlet (Open drainage and No drainage) (in millions)	43.8	35.2	8.6		
as proportion of total HHs (in %)	*55.5*	*65.5*		*24.4*	*-1.64*

As in Table 1.1.

Table 2.1. Deprivation of Few Important Basic Amenities in the House by Social Groups Households in Rural India, 2001 and 2011

	ST	SC	Other	Total		Modified Sopher's Disparity Index (SC,ST)	Modified Sopher's Disparity Index (SC,Other)
Households							
2011							
Number (in million)	20.1	32.9	114.8	167.8			
Share of households in %	*12.0*	*19.6*	*68.4*	*100.0*			
2001							
Number (in million)	15.9	27.9	94.4	138.3			
Share of households in %	*11.5*	*20.2*	*68.3*	*100.0*			
2001 - 2011 (Changes)							
decadal growth in %	*26.8*	*17.8*	*21.5*	*21.4*			
annual exponential in %	*2.4*	*1.6*	*1.9*	*1.9*			
Households Not having Availability of Drinking Water within the premise							
2011							
Number (in million)	17.30	23.70	68.08	109.07			
as proportion of total HHs (in %)	*85.9*	*72.0*	*59.3*	*65.0*		0.13	-0.13
2001							
Number (in million)	14.21	22.09	62.27	98.57			
as proportion of total HHs (in %)	*89.4*	*79.1*	*65.9*	*71.3*		0.09	-0.12
2001 - 2011 (Changes)							
Number (in million)	3.09	1.61	5.80	10.50	Changes in Index Value	0.03	0.00
decadal growth in %	*21.7*	*7.3*	*9.3*	*10.7*			
compounded annual in %	*-0.4*	*-0.9*	*-1.1*	*-0.9*			
Households Not having Latrine Facility within the premise							
2011							
Number (in million)	16.96	25.40	73.89	116.25			
as proportion of total HHs (in %)	*84.2*	*77.2*	*64.4*	*69.3*		0.06	-0.12
2001							
Number (in million)	14.13	23.72	70.12	107.97			
as proportion of total HHs (in %)	*88.9*	*84.9*	*74.2*	*78.1*		0.04	-0.10
2001 - 2011 (Changes)							
Number (in million)	2.84	1.67	3.77	8.28	Changes in	0.03	-0.02
decadal growth in %	*20.1*	*7.1*	*5.4*	*7.7*	Index Value		
compounded annual in %	*-0.5*	*-1.0*	*-1.4*	*-1.2*			
Households Not having Electricity in the house							
2011							
Number (in million)	10.84	16.64	47.54	75.02			
as proportion of total HHs (in %)	*53.8*	*50.5*	*41.4*	*44.7*		0.04	-0.11

	ST	SC	Other	Total	Modified Sopher's Index (SC,ST)	Disparity Index (SC,Other)
2001						
Number (in million)	11.1	18.1	48.9	78.1		
as proportion of total HHs (in %)	*69.6*	*64.9*	*51.8*	*56.5*	0.05	-0.14
2001 - 2011 (Changes)						
Number (in million)	-0.22	-1.50	-1.35	-3.07	Changes in	-0.01 0.03
decadal growth in %	*-2.0*	*-8.3*	*-2.8*	*-3.9*	Index Value	
compounded annual in %	*-2.5*	*-2.5*	*-2.2*	*-2.3*		
Households not having closed drainage connectivity for waste water outlet						
2011						
Number (in million)	19.80	31.73	106.66	158.18		
as proportion of total HHs (in %)	*98.3*	*96.4*	*92.9*	*94.3*	0.02	-0.03
2001						
Number (in million)	15.66	27.28	89.93	132.87		
as proportion of total HHs (in %)	*98.6*	*97.6*	*95.2*	*96.1*	0.01	-0.02
2001 - 2011 (Changes)						
Number (in million)	4.14	4.45	16.73	25.31	Changes in	
decadal growth in %	*26.4*	*16.3*	*18.6*	*19.1*	Index Value	0.01 -0.01
compounded annual in %	*0.0*	*-0.1*	*-0.2*	*-0.2*		

Note: ST- Scheduled Tribe, SC- Scheduled Caste, Other- Other than ST and SC.
Source: Author's Calculation using Tables on Houses, Household Amenities and Assets, Houselisting and Housing Data, Census of India, 2001 and 2011.

Table 2.2. Deprivation of Few Important Basic Amenities in the House by Social Groups in Urban India, 2001 and 2011

	ST	SC	Other	Total	Modified Sopher's Index (SC,ST)	Disparity Index (SC,Other)
Households						
2011						
Number (in million)	3.2	11.3	64.4	78.9		
Share of households in %	*4.0*	*14.3*	*81.6*	*100.0*		
2001						
Number (in million)	2.3	7.8	43.6	53.7		
Share of households in %	*4.3*	*14.5*	*81.1*	*100.0*		
2001 - 2011 (Changes)						
decadal growth in %	*36.9*	*44.8*	*47.8*	*46.9*		
annual exponential in %	*3.1*	*3.7*	*3.9*	*3.8*		
Households Not having Availability of Drinking Water within the premise						
2011						
Number (in million)	1.43	4.86	16.40	22.70		
as proportion of total HHs (in %)	*44.9*	*43.0*	*25.5*	*28.8*	0.02	-0.27
2001						
Number (in million)	1.24	4.02	13.33	18.59		
as proportion of total HHs (in %)	*53.1*	*51.5*	*30.6*	*34.6*	0.02	-0.28
2001 - 2011 (Changes)						
Number (in million)	0.19	0.84	3.08	4.11 Changes in	0.01	0.01
decadal growth in %	*15.7*	*20.9*	*23.1*	*22.1* Index Value		
compounded annual in %	*-1.7*	*-1.8*	*-1.8*	*-1.8*		
Households Not having Latrine Facility within the premise						
2011						
Number (in million)	1.08	3.85	9.77	14.70		
as proportion of total HHs (in %)	*34.0*	*34.1*	*15.2*	*18.6*	0.00	-0.40
2001						
Number (in million)	0.98	3.56	9.57	14.11		
as proportion of total HHs (in %)	*42.3*	*45.5*	*22.0*	*26.3*	-0.04	-0.38
2001 - 2011 (Changes)						
Number (in million)	0.10	0.30	0.20	0.59 Changes in	0.04	-0.02
decadal growth in %	*10.2*	*8.3*	*2.0*	*4.2* Index Value		
compounded annual in %	*-2.1*	*-2.9*	*-3.6*	*-3.4*		
Households Not having Electricity in the house						
2011						
Number (in million)	0.43	1.48	3.86	5.78		
as proportion of total HHs (in %)	*13.5*	*13.1*	*6.0*	*7.3*	0.01	-0.36

	ST	SC	Other	Total	Modified Sopher's Index (SC,ST)	Disparity Index (SC,Other)
2001						
Number (in million)	0.5	1.8	4.4	6.7		
as proportion of total HHs (in %)	*21.9*	*22.6*	*10.1*	*12.4*	-0.02	-0.38
2001 - 2011 (Changes)						
Number (in million)	-0.08	-0.28	-0.53	-0.89 Changes in	0.03	0.02
decadal growth in %	*-15.3*	*-15.8*	*-12.1*	*-13.3* Index Value		
compounded annual in %	*-4.7*	*-5.3*	*-5.1*	*-5.1*		
Households not having closed drainage connectivity for waste water outlet						
2011						
Number (in million)	2.11	7.48	34.18	43.77		
as proportion of total HHs (in %)	*66.1*	*66.2*	*53.1*	*55.5*	0.00	-0.14
2001						
Number (in million)	1.73	5.95	27.49	35.17		
as proportion of total HHs (in %)	*74.4*	*76.2*	*63.1*	*65.5*	-0.02	-0.13
2001 - 2011 (Changes)						
Number (in million)	0.37	1.53	6.69	8.60 Changes in	0.02	-0.01
decadal growth in %	*21.6*	*25.8*	*24.3*	*24.4* Index Value		
compounded annual in %	*-1.2*	*-1.4*	*-1.7*	*-1.6*		

As in Table 2.1.

Table 3.1. Changes in Levels of Deprivation of few important Basic Amenities by Poor–Non-Poor Households in Rural India, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

	Non-Poor	Poor	Total		Modified Sopher's Disparity Index (Poor, Non-Poor)
No Facility of Drinking Water in the House					
Levels in 1993	*69.83*	*78.00*	*73.48*		-0.08
Levels in 2008-09	*52.17*	*68.98*	*56.90*		-0.17
Changes during 1993-2008-09 (annual compounded)	*-1.83*	*-0.78*	*-1.61*	Changes in Index Value	-0.10
No Latrine Facility in the House					
Levels in 1993	*84.01*	*91.65*	*87.83*		-0.07
Levels in 2008-09	*59.83*	*83.80*	*66.46*		-0.23
Changes during 1993-2008-09 (annual compounded)	*-2.13*	*-0.57*	*-1.75*	Changes in Index Value	-0.16
No Electricity Use for domestic Purposes					
Levels in 1993	*56.71*	*71.08*	*63.04*		-0.14
Levels in 2008-09	*27.57*	*50.93*	*33.99*		-0.33
Changes during 1993-2008-09 (annual compounded)	*-4.48*	*-2.09*	*-3.85*	Changes in Index Value	-0.19
Open, Katcha and No Drainage Arrangement in the House					
Levels in 1993	*88.39*	*92.67*	*90.43*		-0.04
Levels in 2008-09	*72.09*	*84.03*	*75.32*		-0.11
Changes during 1993-2008-09 (annual compounded)	*-1.29*	*-0.62*	*-1.15*	Changes in Index Value	-0.07

Note: Poverty line has been calculated based on old official poverty line method used by Planning commission. Poverty line has been updated from 1993 and 2004-5 poverty estimates of Planning Commission using Consumer Price Index for Agricultural Labourers (Base year 1986-7 = 100) for rural areas and using Consumer Price Index of Industrial Workers (Base year 1982 = 100) for urban areas.Source: Author's Calculation using National Sample Survey, Housing Conditions Round unit record data for the respective years, Planning Commission and Ministry of Labour, GOI.

Table 3.2. Changes in Levels of Deprivation of few important Basic Amenities in Urban Areas by Poor – Non-Poor, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

	Non Poor	Poor	Total		Modified Sopher's Disparity Index (Poor, Non Poor)
No Facility of Drinking Water in the House					
Levels in 1993	*32.38*	*50.96*	*39.22*		-0.25
Levels in 2008-09	*17.89*	*44.39*	*22.86*		-0.46
Changes during 1993-2008-09 (annual compounded)	*-3.70*	*-0.87*	*-3.37*	Changes in Index Value	-0.22
No Latrine Facility in the House					
Levels in 1993	*30.17*	*47.83*	*36.52*		-0.25
Levels in 2008-09	*12.36*	*40.78*	*17.74*		-0.59
Changes during 1993-2008-09 (annual compounded)	*-5.51*	*-1.01*	*-4.48*	Changes in Index Value	-0.34
No Electricity Use for domestic Purposes					
Levels in 1993	*13.11*	*27.49*	*18.36*		-0.36
Levels in 2008-09	*1.80*	*12.69*	*3.86*		-0.87
Changes during 1993-2008-09 (annual compounded)	*-11.85*	*-4.79*	*-9.43*	Changes in Index Value	-0.52
Open, Katcha and No Drainage Arrangement in the House					
Levels in 1993	*32.30*	*50.14*	*38.73*		-0.24
Levels in 2008-09	*16.13*	*39.78*	*20.60*		-0.45
Changes during 1993-2008-09 (annual compounded)	*-4.31*	*-1.46*	*-3.93*	Changes in Index Value	-0.21

As in Table 3.1.

Table 4.1.1. Changes in Levels of No Facility of Drinking Water in the House by Social Groups and MPCE Quintile Categories Households in Rural India, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

CEC	ST	SC	Others	All	Modified Sopher's (SC, ST)	Disparity Index (SC, Others)
Levels in 1993					**1993**	
0-20	*87.62*	*81.32*	*75.83*	*79.10*	0.06	-0.05
20-40	*83.79*	*78.73*	*73.15*	*75.71*	0.05	-0.05
40-60	*83.29*	*74.45*	*72.32*	*73.79*	0.08	-0.02
60-80	*81.86*	*76.23*	*66.05*	*69.40*	0.05	-0.10
80-100	*82.59*	*68.02*	*58.92*	*61.64*	0.14	-0.09
Total	*84.66*	*77.89*	*69.84*	*73.25*	0.06	-0.08
Levels in 2008-09					**2008-09**	
0-20	*84.94*	*74.98*	*62.38*	*70.02*	0.09	-0.12
20-40	*79.28*	*72.16*	*56.90*	*63.52*	0.07	-0.15
40-60	*75.09*	*68.27*	*52.50*	*58.42*	0.06	-0.16
60-80	*71.34*	*60.51*	*47.53*	*52.30*	0.11	-0.14
80-100	*60.35*	*53.42*	*32.90*	*37.64*	0.07	-0.27
Total	*77.26*	*67.83*	*49.58*	*56.82*	0.09	-0.19
Changes in Levels during 1993 to 2008-09, Annual Compounded					**Changes in Index Value**	
0-20	*-0.20*	*-0.51*	*-1.23*	*-0.77*	0.03	-0.07
20-40	*-0.35*	*-0.55*	*-1.58*	*-1.11*	0.02	-0.10
40-60	*-0.66*	*-0.55*	*-2.01*	*-1.47*	-0.02	-0.14
60-80	*-0.87*	*-1.46*	*-2.07*	*-1.78*	0.06	-0.05
80-100	*-1.97*	*-1.52*	*-3.63*	*-3.08*	-0.06	-0.18
Total	*-0.58*	*-0.87*	*-2.15*	*-1.60*	0.03	-0.12

Note: ST- Scheduled Tribe, SC- Scheduled Caste, Others- Forward Castes and also Other Backward Castes. MPCE- Monthly Per Capita Expenditure. Consumption Expenditure Classes (CEC) (Quintiles) is in percentages. Annual compounded growth rate is calculated based on the percentage of levels of un-attainment in respective years. Source: Author's Calculation using National Sample Survey, Household Conditions Rounds, unit record data for the respective years.

Table 4.1.2. Changes in Levels of No Latrine Facility in the House by Social Groups and MPCE Quintile Categories Households in Rural India, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

CEC	ST	SC	Others	All	Modified Sopher's (SC, ST)	Disparity Index (SC, Others)
Levels in 1993					**1993**	
0-20	*94.65*	*93.63*	*90.99*	*92.26*	0.01	-0.02
20-40	*91.73*	*92.03*	*88.68*	*89.82*	0.00	-0.03
40-60	*88.32*	*90.13*	*86.93*	*87.73*	-0.02	-0.03
60-80	*87.31*	*88.92*	*83.18*	*84.62*	-0.01	-0.05
80-100	*80.79*	*82.47*	*73.57*	*75.20*	-0.02	-0.08
Total	*90.83*	*91.09*	*85.37*	*87.24*	0.00	-0.05
Levels in 2008-09					**2008-09**	
0-20	*91.07*	*89.12*	*80.09*	*84.63*	0.02	-0.08
20-40	*79.14*	*82.79*	*73.93*	*76.85*	-0.03	-0.08
40-60	*71.36*	*76.62*	*65.78*	*68.86*	-0.05	-0.10
60-80	*66.07*	*70.97*	*56.40*	*60.19*	-0.05	-0.15
80-100	*47.82*	*52.17*	*35.05*	*38.38*	-0.05	-0.22
Total	*76.52*	*77.43*	*60.92*	*66.41*	-0.01	-0.16
Changes in Levels during 1993 to 2008-09, Annual Compounded					**Changes in Index Value**	
0-20-*0.24*	*-0.31*	*-0.81*	*-0.55*		0.01	-0.06
20-40	*-0.93*	*-0.67*	*-1.15*	*-0.99*	-0.03	-0.05
40-60	*-1.34*	*-1.03*	*-1.75*	*-1.53*	-0.03	-0.07
60-80	*-1.75*	*-1.42*	*-2.44*	*-2.14*	-0.03	-0.10
80-100	*-3.27*	*-2.87*	*-4.60*	*-4.18*	-0.04	-0.14
Total	*-1.08*	*-1.03*	*-2.12*	*-1.72*	-0.01	-0.11

As in Table 4.1.1.

Table 4.1.3. Changes in Levels of No Electricity Use for domestic Purposes by Social Groups and MPCE Quintile Categories Households in Rural India, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

CEC	ST	SC	Others	All	Modified Sopher's (SC, ST)	Disparity Index (SC, Others)
Levels in 1993					**1993**	
0-20	*74.83*	*73.35*	*71.46*	*72.48*	0.01	-0.02
20-40	*71.26*	*70.58*	*64.88*	*66.97*	0.01	-0.06
40-60	*74.31*	*63.95*	*62.01*	*63.56*	0.10	-0.02
60-80	*60.83*	*59.41*	*55.01*	*56.36*	0.01	-0.05
80-100	*56.56*	*50.68*	*41.37*	*43.57*	0.07	-0.11
Total	*69.86*	*67.42*	*60.11*	*62.80*	0.02	-0.07
Levels in 2008-09					**2008-09**	
0-20	*52.76*	*56.05*	*49.95*	*52.20*	-0.04	-0.07
20-40	*43.18*	*45.02*	*41.55*	*42.64*	-0.02	-0.04
40-60	*37.83*	*36.73*	*31.12*	*33.09*	0.02	-0.09
60-80	*37.75*	*29.72*	*22.67*	*25.46*	0.12	-0.14
80-100	*24.14*	*19.44*	*11.51*	*13.46*	0.11	-0.25
Total	*42.67*	*40.54*	*30.21*	*33.95*	0.03	-0.15
Changes in Levels during 1993 to 2008-09, Annual Compounded					**Changes in Index Value**	
0-20	*-2.19*	*-1.69*	*-2.25*	*-2.06*	-0.05	-0.05
20-40	*-3.13*	*-2.81*	*-2.79*	*-2.83*	-0.03	0.01
40-60	*-4.20*	*-3.46*	*-4.28*	*-4.06*	-0.08	-0.07
60-80	*-2.98*	*-4.30*	*-5.47*	*-4.92*	0.11	-0.09
80-100	*-5.26*	*-5.90*	*-7.80*	*-7.19*	0.04	-0.13
Total	*-3.08*	*-3.18*	*-4.27*	*-3.83*	0.00	-0.08

As in Table 4.1.1.

Table 4.1.4. Changes in Levels of Open, Katcha and No Drainage Arrangement in the House by Social Groups and MPCE Quintile Categories Households in Rural India, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

CEC	ST	SC	Others	All	Modified Sopher's (SC, ST)	Disparity Index (SC, Others)
Levels in 1993					**1993**	
0-20	*95.63*	*93.35*	*93.34*	*93.68*	0.02	0.00
20-40	*95.53*	*92.98*	*89.04*	*90.73*	0.02	-0.03
40-60	*95.46*	*91.80*	*89.78*	*90.73*	0.03	-0.02
60-80	*94.57*	*91.58*	*87.91*	*89.21*	0.03	-0.03
80-100	*93.48*	*83.08*	*82.68*	*83.44*	0.09	0.00
Total	*95.23*	*91.96*	*88.81*	*90.21*	0.03	-0.03
Levels in 2008-09					**2008-09**	
0-20	*93.75*	*85.21*	*81.69*	*84.85*	0.08	-0.03
20-40	*86.95*	*80.74*	*78.23*	*79.92*	0.06	-0.02
40-60	*89.29*	*79.98*	*73.86*	*76.82*	0.08	-0.06
60-80	*89.59*	*75.09*	*68.47*	*71.72*	0.13	-0.06
80-100	*77.37*	*68.89*	*59.60*	*62.07*	0.08	-0.09
Total	*89.09*	*79.35*	*71.71*	*75.39*	0.09	-0.07
Changes in Levels during 1993 to 2008-09, Annual Compounded					**Changes in Index Value**	
0-20	*-0.13*	*-0.58*	*-0.84*	*-0.63*	0.06	-0.03
20-40	*-0.60*	*-0.89*	*-0.82*	*-0.80*	0.03	0.01
40-60	*-0.42*	*-0.87*	*-1.23*	*-1.05*	0.05	-0.04
60-80	*-0.34*	*-1.25*	*-1.57*	*-1.38*	0.10	-0.03
80-100	*-1.19*	*-1.18*	*-2.06*	*-1.86*	-0.01	-0.09
Total	*-0.42*	*-0.93*	*-1.35*	*-1.13*	0.06	-0.04

As in Table 4.1.1.

Table 4.2.1. Changes in Levels of No Facility of Drinking Water in the House by Social Groups and MPCE Quintile Categories Households in Urban Areas, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

ST CEC	SC	Others	All		Modified Sopher's (SC, ST)	Disparity Index (SC, Others)
Levels in 1993					**1993**	
0-20	64.87	58.45	50.42	52.97	0.07	-0.09
20-40	61.02	54.42	42.08	45.02	0.07	-0.15
40-60	47.37	42.34	36.06	37.18	0.06	-0.09
60-80	35.44	28.35	29.45	29.50	0.12	0.02
80-100	26.01	34.20	23.10	23.72	-0.14	-0.20
Total	54.40	49.97	36.62	39.15	0.05	-0.17
Levels in 2008-09					**2008-09**	
0-20	46.27	57.47	41.81	45.67	-0.13	-0.18
20-40	49.23	44.00	32.51	35.59	0.06	-0.16
40-60	28.04	33.49	22.44	24.39	-0.09	-0.20
60-80	18.76	22.92	14.93	15.93	-0.10	-0.21
80-100	5.99	12.46	5.49	5.90	-0.33	-0.37
Total	31.32	37.89	19.93	22.89	-0.10	-0.32
Changes in Levels during 1993 to 2008-09, Annual Compounded					**Changes in Index Value**	
0-20	-2.12	-0.11	-1.18	-0.94	-0.19	-0.10
20-40	-1.35	-1.34	-1.62	-1.48	-0.01	-0.02
40-60	-3.27	-1.48	-2.97	-2.64	-0.15	-0.12
60-80	-3.96	-1.34	-4.22	-3.84	-0.21	-0.22
80-100	-8.90	-6.21	-8.72	-8.46	-0.19	-0.17
Total	-3.44	-1.74	-3.79	-3.35	-0.15	-0.15

As in Table 4.1.1.

Table 4.2.2. Changes in Levels of No Latrine Facility in the House by Social Groups and MPCE Quintile Categories Households in Urban Areas, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

ST	SC	Others	All		Modified Sopher's	Disparity Index
CEC					(SC, ST)	(SC, Others)
Levels in 1993					**1993**	
0-20	67.22	57.29	46.85	50.26	0.10	-0.12
20-40	57.72	54.64	38.50	42.14	0.03	-0.20
40-60	41.25	42.73	32.76	34.33	-0.02	-0.14
60-80	19.70	36.01	26.85	27.55	-0.30	-0.15
80-100	14.69	35.19	21.06	21.66	-0.43	-0.26
Total	50.74	50.49	33.58	36.60	0.00	-0.22
Levels in 2008-09					**2008-09**	
0-20	47.48	59.09	37.88	43.33	-0.13	-0.25
20-40	32.43	40.26	24.62	28.31	-0.11	-0.25
40-60	24.33	25.24	15.57	17.40	-0.02	-0.23
60-80	9.73	16.04	8.40	9.29	-0.23	-0.30
80-100	2.12	6.55	3.24	3.40	-0.50	-0.31
Total	25.59	33.50	14.66	17.74	-0.14	-0.41
Changes in Levels during 1993 to 2008-09, Annual Compounded					**Changes in Index Value**	
0-20	-2.18	0.20	-1.34	-0.94	-0.23	-0.14
20-40	-3.59	-1.92	-2.80	-2.49	-0.15	-0.06
40-60	-3.30	-3.29	-4.61	-4.22	0.00	-0.09
60-80	-4.38	-5.01	-7.11	-6.67	0.07	-0.15
80-100	-11.57	-10.12	-11.21	-11.09	-0.07	-0.05
Total	-4.25	-2.57	-5.13	-4.49	-0.14	-0.18

As in Table 4.1.1.

Table 4.2.3. Changes in Levels of No Electricity Use for domestic Purposes by Social Groups and MPCE Quintile Categories Households in Urban Areas, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

ST	SC	Others	All		Modified Sopher's	Disparity Index
CEC					(SC, ST)	(SC, Others)
Levels in 1993					**1993**	
0-20	41.80	39.81	27.44	30.92	0.03	-0.19
20-40	27.69	28.42	18.85	20.91	-0.01	-0.20
40-60	15.75	21.67	14.06	15.15	-0.15	-0.21
60-80	11.03	10.88	10.68	10.71	0.01	-0.01
80-100	11.36	8.65	8.32	8.39	0.12	-0.02
Total	28.18	28.25	16.21	18.35	0.00	-0.27
Levels in 2008-09					**2008-09**	
0-20	19.24	18.92	12.48	14.38	0.01	-0.20
20-40	9.38	7.41	5.29	5.89	0.11	-0.15
40-60	5.25	3.89	2.10	2.48	0.13	-0.27
60-80	3.09	1.39	0.81	0.94	0.35	-0.24
80-100	0.09	0.95	0.17	0.21	-1.03	-0.75
Total	8.45	7.50	3.04	3.86	0.05	-0.40
Changes in Levels during 1993 to 2008-09, Annual Compounded					**Changes in Index Value**	
0-20	-4.81	-4.61	-4.88	-4.74	-0.02	0.00
20-40	-6.64	-8.18	-7.75	-7.73	0.12	0.05
40-60	-6.74	-10.33	-11.37	-10.85	0.29	-0.07
60-80	-7.76	-12.25	-15.10	-14.31	0.34	-0.23
80-100	-26.45	-13.09	-21.89	-20.87	-1.15	-0.73
Total	-7.36	-8.08	-10.08	-9.42	0.06	-0.13

As in Table 4.1.1.

Table 4.2.4. Changes in Levels of Open, Katcha and No Drainage Arrangement in the House by Social Groups and MPCE Quintile Categories Households in Urban Areas, 1993 and 2008-09 (in percentage points and Annual Compound Growth Rate)

ST CEC	SC	Others	All		Modified Sopher's (SC, ST)	Disparity Index (SC, Others)
Levels in 1993					**1993**	
0-20	66.26	54.13	50.79	52.39	0.13	-0.04
20-40	50.62	48.38	42.19	43.63	0.03	-0.08
40-60	52.64	34.97	35.72	36.00	0.23	0.01
60-80	42.12	29.17	30.14	30.36	0.19	0.02
80-100	36.41	23.58	24.72	24.88	0.22	0.02
Total	54.40	44.63	37.13	38.80	0.11	-0.10
Levels in 2008-09					**2008-09**	
0-20	40.25	47.42	39.57	41.41	-0.09	-0.10
20-40	43.14	40.26	30.08	32.75	0.04	-0.15
40-60	34.86	24.64	19.92	21.14	0.18	-0.10
60-80	20.91	14.37	12.75	13.17	0.18	-0.06
80-100	9.41	14.33	5.64	6.22	-0.19	-0.42
Total	30.99	31.31	18.30	20.60	-0.01	-0.27
Changes in Levels during 1993 to 2008-09, Annual Compounded					**Changes in Index Value**	
0-20	-3.12	-0.84	-1.57	-1.48	-0.22	-0.06
20-40	-1.01	-1.16	-2.13	-1.80	0.01	-0.08
40-60	-2.58	-2.20	-3.64	-3.32	-0.05	-0.12
60-80	-4.35	-4.40	-5.32	-5.16	-0.02	-0.07
80-100	-8.23	-3.11	-8.96	-8.43	-0.42	-0.45
Total	*-3.51*	*-2.23*	*-4.39*	*-3.94*	-0.12	-0.17

As in Table 4.1.1.

Understanding Limits to Human Development: Group Affiliation and Social Conditioning

Joydeep Baruah*

Abstract

Capability approach brings about a fundamental shift in thinking about development by powerfully arguing development as 'freedom'– freedom to choose valuable 'functionings'– rather than the functionings themselves. According to the capability approach development entails expansion of the 'capability space'. The paper argues that elementary aspect of the capability space is its "connectedness" both extensive and intensive. However, the capability approach is typically characterised by various notions which tend to sever the elementary connectedness of the capability space. The paper, therefore, attempts at highlighting the interactions and interconnections among these notions and intends to demonstrate that these interactions and intersections, in fact, may become extremely vital in understanding 'limits' to capability enhancement.

I. Introduction

The capability approach pioneered, consistently developed over a long period of time and brought into vogue by Amartya Sen (Sen, 1982, 1985, 1987, 1989, 1995, 2000)andprofoundly enrichedand extended by some very distinguished thinkers(Alkire, 2002; Clark, 2005a; Nussbaum, 1995, 2000; Robeyns, 2003; Sakiko, 2003) is regarded asa broad, interdisciplinary and normative framework[1] offering remarkable insights as to what constitutes a 'better' human life, and how further 'betterment' may possibly be achieved. The approach, originating in the domains of poverty and inequality, and subsequently being applied to diverse domains across disciplines[2], brings about a fundamental shift in thinking by powerfully arguing development *as* 'freedom'– freedom to choose *valuable* 'functionings'– rather than the functionings*themselves*,

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1 The fact that the Capability Approach is fundamentally a 'framework' rather than a 'theory' as such is discussed in Robeyns (2000, 2005).

2 Application of capability framework is commonly found in the study of well-being and living standards, quality of life, freedom and liberty, social justice, gender bias and differences, horizontal inequality assessment etc. besides poverty and inequality ranging from Economics to Philosophy and Ethics.

which denote some levels of 'realised achievement'(Sen, 1989, 1995). It is, indeed, this emphasis on the idea of 'freedom to achieve', distinguished from 'achievement' itself,makes the capability approach highly beguiling and seemingly 'liberating'.

The notion of capability, in brief, includes 'genuine choice with substantial options' (Clark, 2005b). Therefore, development entails expansion of the 'capability space'. Further, capability 'reflectsfreedom' to lead different type of life that an individual values or has reason to value (Sen, 1999, p. 33). Notwithstanding, it may be noted that 'expanding capability'implies, at least, two possibilities viz. enhancing choicesby making available *additional*functionings i.e. quantitative expansion of freedom and/ or *empowering* people to exercise choices over *available* functionings i.e. qualitative expansion of freedom. Therefore, it is held that the goodness of capability (set) should be judged both by *quantity* and *quality* of available opportunities (Sen, 1995). In a traditional, highly stratified society, it is commonly observed that the latter i.e. the qualitative dimension tends to get preponderance over the former. This is because, very often it is found that given the 'available options', not all individuals are *allowed* to choose (or exercise freedom) whatever he or she values.This is due to the feature of *connectedness*– extensiveas well as intensive– involved in the capability space, which imposes limitations of diverse kinds on realisation of functionings i.e. achievements. The distinctions between 'positive' and 'negative'freedom; and between 'agency' and 'well-being' aspects of freedom made in the capability approach, thus, have serious implications on the*connectedness* of the capability space. It may be argued that implication of having such distinctions often can be genuinely 'limiting'.It is in this context that 'interactions' and 'intersections' between 'positive' and 'negative' freedoms, and 'agency' and 'well-being' aspects of freedom, rather than distinctions amongst them, can be of special relevance. The present paper intends to demonstrate that these interactions and intersections, in fact, may become extremely vital in understanding 'limits' to capability enhancement.

In this paper it is argued that the *way*capability approachdichotomises the notion of freedom– imputing*intrinsic* significance to oneand *instrumental* importance to the other – tends to miss out some intricate and nuanced aspects of the diverse 'interactions' and 'intersections' between myriad notions of freedom involved, which eventuallyturns out to beself-limiting in general;and particularly soin deeply stratified, custom-ridden societies.

The scope and purpose of the present paper, therefore, entail 'understanding' various *forms* and *nature* of 'limits' to human development in general, and thosecontingent on*group affiliation* and *social conditioning* in particular viewed from the capability perspective. While doing so, field insights and experiences from a large-scale survey relating to human development in Assam, India has been used[3]. The paper, however, does not intend to offer any *way-out* of overcoming the 'limits' as such. On the

[3] This survey was conducted during June 2013 to February 2014 among 39998 households covering all districts of the state by the Directorate of Economics and Statistics, Government of Assam under the overall supervision of the Institute to which the author belongs.

contrary, it seeks to highlight some of the nuanced issues which can prove to be extremely critical in making the capability approach, indeed, a 'self-liberating' one.

The paper, accordingly, is divided into four sections. The first section introduces the 'limiting possibilities' of the capability approach. The second section elaborates the limiting aspects of capability approach in greater details with special reference to group affiliations and social conditionings. The third section offers pointers to 'potential liberating aspects' of the capability approach, and the last section concludes by summing up the main contentions.

II. Towards Understanding the 'Limits'

It is well-knownthat in the capability approach, the development is seen as 'a *process* of expanding the *real freedoms* that *people* enjoy'(Sen, 2000, p.3)[4]. The three terms viz. 'process', 'real freedom' and 'people' are most significant in this understanding of 'development'; and what follows next, I shall try to demonstratehow, while trying to appreciate and utilise the approach, these three crucial terms get either obscured or at least, becomeambiguous[5] in the approach itself.

The centrality of the idea of 'freedom' in capability approach is well-argued and well-discussed.The fundamental motivation behind the approach rests on the notion that human life is all about 'doings and beings' what people 'value or have reason to value' and, hence, ultimate evaluation of human life needs be carried out with respect to peoples' capability to perform valuable doings.As such, two constitutive concepts have been put forward viz. 'functioning' and 'capability' to neatly formulate the approach. The 'functioning' in the approach is construed as 'what a person *manages* to do or be' while 'capability' stands for 'various combinations of functionings she or he *can* achieve' (Sen, 1987, 1989)[6]. In fact, a person does not perform a single functioning in life; rather she or he carries out a collection of functionings, that too not all at a time but spanning over his life time. To describe such 'collection of functionings', Sen uses the notion of 'functionings n-tuple' and the universe from which this sub-set is drawn has been termed as 'capability set' or 'capabilities'. In most of the time, however, discussion regarding capability approach confines only to the notion of 'functioning' and 'capability', although the terms 'functionings' and 'capabilities' have been used to denote both 'functioning' and 'functioning n-tuple', and 'capability' and 'capability set' respectively. For the sake of simplicity, functioning and functionings, capability and capabilities have been used interchangeably in capability literature.

Undoubtedly, the distinction between 'functioning' and 'capability' is elementary in capability framework. Typically, a 'functioning' is taken as an 'achievement' of an individual while the 'capability' is considered to be the embodiment of her/his 'real

[4] Emphasis added.
[5] Sen however, defends such ambiguity quite distinctly. See Sen (1989, 1999, p. 34).
[6] Emphasis added.

freedom to achieve'. In this sense, the differential capabilities of individuals are indicative of differences in 'real freedoms' that individuals enjoy, which, eventually,produce differential 'achievements'. As it is widely held, the shift of focus tocapability as the*end* is the most salient feature of capability approach, which distinguishes it from the class of 'achievement focused' evaluations of human life. In answering the mind-boggling question: 'equality of what', Sen, therefore, argues that it is the equality in terms ofcapabilities – the basic capabilities to be exact, whichis most*relevant*[7]. This claim, however, does not dispense the other dimensions of evaluation as irrelevant,rather, it suggests that they are, perhaps, *instrumental*at best, not definitely*intrinsically* important; - capability is the only intrinsically important end.

'Richness' and 'Diversity' of Functionings

The essence of evaluation of human life on the space of capabilitylies in the 'extents of freedoms' (Sen, 1995, p. xi) to achieve functionings i.e. having greater number of valued alternatives to choose from. The capability expansion, therefore, involves enabling people to have more choices of valued functioning. Sen, however, dismisses the mechanical way of 'counting the number of alternatives in the range of choices' while evaluating capability (Sen, 1995, p. 5)[8]. He, on the contrary, emphasises that while evaluating capability, examination of the 'nature' and 'value' of attainable functionings is also important, which can offer useful information regarding the capability space itself(Sen, 1995, p. 5). The point can be better understood by referring to the peculiar case of a professional killer whose capability space typically accommodates various functionings like 'to be able to kill someone', 'to be able to rob someone', 'to be able to kidnap someone' so on and so forth. Capability space derived from these sorts of functionings when expandedsurely wouldn't qualify as development today, even if the person has his/her own reasons to value these functionings. Needless to explain, this is precisely because of the very 'nature' and 'value' of the functioningsinvolved in it. Therefore, two things: the *richness* i.e. the value/worth of the functionings and the *diversity* i.e. choice-range of the functioningsi.e. the notion of 'freedom' involved are of special interest in the capability evaluation. I, this context, would argue that not only the *distinction* between 'functioning' and 'capability' is significant in capability evaluation, but also the *interconnectedness* between the two is equally important simply because the notion of capability is a derived notioni.e. only the space containing 'relevant' and 'valuable'functionings can be labelled, in turn, as 'relevant' and 'valuable'.

This point takes us to two well-debated areas of capability approach viz. who selects relevant functionings and how, and when selected, how one can evaluate capability set to which the particular functioning belongs. As regard to the first point, the debate is broadly divided into two opinions: having a prescribed list of valuable capabilitiesand

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7 In fact choice of relevant focal variable and how valuable is the variable two concerns of capability approach. See Sen (1999, p 32).

8 For interesting problems of counting choices See Sen (1999, pp.34-35).

not having any such list. Nussbaum, for instance, suggests such a list– list of 'central human capabilities'(Nussbaum, 2000), while Sen himself doesn't provide any and contends that selection of relevant functioning is an act of reasoning and part of democratic process. A few, who believe in having a pre-defined list, further tries to findout 'processes' of doing it (Alkire, 2002; Robeyns, 2003). Second issue is rather operational– problem of deriving *unobservable* capability based on information related to *observable*functionings. There are situations when due to technicalities involved, it is practical to evaluate functionings themselves. These issues, and several other connected issues, however, have been sufficiently discussed and debated (Robeyns, 2000, 2005). I do not intend to indulge in these areas here; rather I would try illuminating a few other related aspects.

It is, indeed, not difficult to see that whether one favours a pre-determined list or not,one thing is certain that functionings have to be *valuable*in any case– either the person preparing *the* list has reason(s) to value them or the individuals choosing them have reason(s) to value. Clearly then, the *richness* or the worth or value of functionings is to be judged by their underlying *reasons* i.e. how 'valuable' really is the chosen functioning. This aspect– mechanics of justifying a functioning in one's life– throws up a plethora of extremely complicated questions, a few of which I intend to discuss below in some detail for placing my argument in perspective.

'Reasons to Value': Some Features

Within the capability literature the role of cultural indoctrination and adaptive preference in 'value formation' and 'choice' is not uncommon really. I will turn to this aspect a little later. Before that let us focus on a few aspects of 'reasons'*themselves* as such so as to gauge the enormity and complexity of the issues involved.

Let us begin by admitting that it will be really naive to believe that there is only *one* reasonbehind a functioning. Indeed, individuals engage in the same functioning for myriad reasons. For instance, an individual sees 'to be educated' as an important functioning in life for a variety of reasons viz. education gives knowledge, education gives employment, education gives status and respect in society so on and so forth. There will surely bemultiple, possibly all, reasons behind the motivation to choose the given functioning i.e. 'to be educated'. I suggest, while valuinga functioning, besides the reason(s) favouring the functioning,it may be useful to examine the reason(s) for *not choosing* the functioning as well. Let us look at the following reasons obtained from a surveyto the question: 'why have you not sent your child to school?' i.e. reasons for not choosing the functioning 'to be educated':

Table 1: Reasons for never enrolling children to schools

Reasons for being never enrolled	No.	Percent
Need to work at home	181	17.94
Need to support earning	154	15.26
Cannot afford	56	5.55
Looks after siblings	13	1.29
School too far	36	3.57
Ill health	58	5.75
Not interested in study	343	33.99
No use of education	50	4.96
Got displaced/shifted	70	6.94
Others	48	4.76
Total	**1009**	**100**

Source: Assam Human Development Survey (2013-14), Total Sample HH 39998

It is, thus, clear that just as individuals have reason(s) to value a particular functioning, they also have reason(s) *not to value* the functioning. It is the *net worth*, not the only reason(s) *in favour* of functioningthat determines the ultimate 'choice' – whether or not the given functioning is chosen. For example, the reason 'to get employment' motivating to choose the functioning 'to be educated', will be *weighed* against the reason 'no use of education' in providing employment before one decides whether to choose the functionings 'to be educated' or not.

I, now, would like to bring in the second aspect, which can be called as *contemporaneity* of reasons. The contemporaneity of the reason refers to the 'objective situation' of the society. This is to be distinguished, however, from the social and cultural factors influencing the value formation. Besides, cultural and social norms, 'objective' conditions also influence the reason(s) to value or not to value a given functioning. The reason 'no use of education', indeed, emanates from the objective condition of unemployment prevailing in the society. It is to be noted that the *net worth* gets shifted completely when objective conditions change with times. For instance, in absence of unemployment, the two reasons – 'education gives employment' and 'no use of education' – put against each other – should expectedly shift the balance in favour of the former. Similarly, in our earlier example of the capability containing functionings – 'to kill someone', 'to kidnap someone' etc. is no longer valuable today, but it used to be extremely valuable, in fact, the most sought after in earlier times when warfare itself was important for the state. This point – the change in objective condition changes the net value of reasons for and against functionings – will be of particular relevance in examination of reasons to value any given functioning.

The third aspect, which results from the multiplicity of reasons (both 'for' and 'against' a functioning) relates to *interconnectedness*amongst the reasons, and also between reasons and *other* functionings. This point can be illustrated with the help of Table 1. For instance, the reasons 'need to support earning' and 'cannot afford' are related – they both relate to one reason viz. 'lack of financial means'. The lack of financial

means can be due to another functioning failure – not being able to engage in decent employment. This failure again may be a result of other functioning failure, say, 'not being educated'. Supposing otherwise i.e. being able to achieve education, it would possibly result in 'no use of education', thus remain unemployed (lived experience). It is, thus, obvious that 'reasons' and 'functions' all get enmeshed in a very complicated manner in practice, and there is, perhaps, no definitive way of arriving at one or more *elementary*reasons of choosing a relevant functioning. Moreover, the *order* in which various functionings are chosen over time or space (i.e. the given *description* of functioning n-tuple) can well influence reasons for choosing subsequent functionings.

Table 2: Primary school going children by School-type

Type of school	No.	Percent
Government/Government Aided	25248	84.29
Private	4504	15.04
School run by NGO	50	0.17
Government *Madrassa*	89	0.30
Private *Madrassa*	56	0.19
Cannot Say	6	0.02
Total	**29953**	**100.00**

Table 3: Reason for choice of private schools

Reason	No	Percent
Good Infrastructure	1492	33.13
Quality Teachers	946	21.00
Regular Classes	681	15.12
Student Care	1169	25.95
Extra Activity	126	2.80
Others	90	2.00
Total	**4504**	**100.00**

Source: Assam Human Development Survey (2013-14), Total Sample HH 39998

Adding forth aspect here would make the whole picture all the more obscured, and this relates to *multi-layered* reasoning and choice effecting a functioning. To perform the functioning 'to be educated', in effect, one has to choose a school. Now this choice of school is based on a set of other choices e.g. what type of school– government or private, which medium– mother tongue or others etc. Each of these choices will have own set of reasons 'for' and 'against' the choice.

The Table 2 and Table 3 above portray such a picture. The reasons for choosing private schools over the government schools, in fact, are*the* reasons due to which the government schools were *not* chosen. It, therefore, needs to be recognised that not only the reasons in favour of and against a particular functioning are *weighed* as has been discussed earlier, but also they are placed *vis-à-vis* the possible alternatives to make a choice which may be *instrumental* in making the 'final choice' regarding the given functioning. There can be situations when in absence of alternatives with the

reasons to value viz. having good infrastructure, quality of teacher, regular classes, student care, extra activity etc. the available option i.e. going to government school can be negatively valued as having 'no use' thereby finally deciding to escape the functioning of to be educated.

The fifth and last aspect that can be underlined in this context is that of *interdependence*. This point has been forcefully argued, albeit in a different context, by Dean (2009). He argues that 'interdependence' is *constitutive* of individuals' identity. His notion of 'interdependence', in fact, goes beyondSen's idea of 'responsible functionings'. He finds that individuals' membership in the societybased on the idea of 'responsibility' is rather 'contractarian' in nature. Contrary to this he prefers individuals' membership in the society to be 'solideristic' i.e. the individuals survive through their *attachment* with fellow individuals rather than through *bargain* with them. Indeed, this point can be well-understood by referring to the choices related to basic capabilities (used in the Sen's original sense) with respect to education and health. At an early stage of life the capability related to health and education depends not on the individuals themselves buton the choice and preference of their parents. These have undoubtedly profound implications on their overall capability at a later stage. To say that these are mere 'responsibilities' of parents towards their children would certainly de-humanise the entire set of functionings.

Notion of 'connectedness'

The essence of the five aspects related to reason(s) to value discussed above lies in theirfeature of*connectedness*. The *richness* of functionings (vector of functionings or functioning n-tuple), and thereby, that of capability (set), when evaluated by examining *worth* of their underlying reasons that people have, leads to a complex web of *interconnections* and *dependence*: among various reasons, among reasons and functionings, among functionings, among reasons and objective situations, among individuals and functioningsand so on.The act of valuing functioning, thus, requires individuals to be seen in their *totality*– in terms of all its *connectedness*. This implies that individuals not only happen to *be* in the society,but they *belong* to the society. To my mind, the world *people* referred to at the beginning while defining developmentcomes closer to this meaning of individual, rather than suggestinga collective signifying summative aggregation of independent and autonomous individuals.

It will be, however, completely wrong to construe that elements of this connectedness per se is missing in the capability approach. Sen, for instance, admits quite categorically that 'complex social issues', 'intricate intra-group relations and interactions' can exert influence over functionings (Sen, 1995, p.33). Robeyns (2005, p.98) actually tries to model the underlying fundamental interconnections of capability approach. It may be noted that these interconnections by themselves may be 'limiting' at times. This aspect can be demonstrated by introducing *social conditioning* and *group affiliation* in to the picture.

Social Conditioning and Value Formation

The word *social conditioning*in general connotes the matrix of social institutions, norms, customs and practices. The word finds a place in capability literature in diverse contexts. Sen himself has used it to represent set of social and cultural norms and practices (Sen, 1995, p. 149). Robeyns(2005) seems to include social institutions, social and legal norms, other peoples' behaviour and characteristics, environmental factors etc. within the matrix of social conditioning. The influence of social conditioning on capability is typically viewed in terms of 'conversion rate' of *means* into *functioning*(Sen, 1995, p. 33). Robeyns (2005), for instance identifies three specific sets of factors affecting conversion rate of individuals: personal conversion factors, social factors and environmental factors (p.99). Robeyns, however, makes the influence all the more prominent by linking it directly to capability set itself, value and preference formation and choice. The first i.e. influence of social conditioning on capability set itself, in fact, relates to the *diversity* aspect of functioning, thereby having implications on*real freedom*. It is not difficult to observe that the *means* of functioningscan be very well limited by social conditioning, and such examples are, indeed, many. For example, in discussions on caste in Indian contexts, it is commonly found that some of the means, even if available, are not simply accessible to individuals belonging to particular castes. This again brings in the question of *group affiliation*. I intend to discuss both these aspects in some detail a little later.

The other aspect i.e. the influence of social conditioning over value and choice formationis also quite evident. What is valuable functioning and what is not is hardly autonomous. Social norms, traditions, customs, practices play important roles in determining such valuation overwhelmingly since individuals are born *into* it. The duringthe life time a person naturalises all these elements of social conditioning and becomes a *carrier* of it for that is why these conditionings continue to perpetuate over time. This point is well-accommodated in capability literature and various 'limiting' aspects of this process is being discussed by Sen himself, especially with respect to gender (Sen, 1987). For example, how the 'limiting' features of social conditioning naturalisethe aspirations of women and accordingly their valuation of functionings,has been discussed by Kynch and Sen (Kynch & Sen, 1983). They have shown that even if achievement wise female suffer, utilitarian metric wise they may be still better-off due to such naturalisation and indoctrination. Let us consider a concrete field example depicted in Table 4 to see the connection between social conditioning and value (or say reason) formation.

Table 4: Plan for future study and reasons for not studying further (child finishing high school in coming 2 years)

Where will you study next	Male	Female	Total
Local Higher Secondary/College	2946	2813	5759
Schools/Colleges outside the district	221	167	388
Schools/Colleges outside the state	11	5	16
Professional/Vocational Colleges	8	7	15
No plans	83	103	186
Will not study further	11	18	29
Total	**3280**	**3113**	**6393**
Reason for not studying further			
No opportunity in the village	2	0	2
Cannot afford	7	9	16
Higher education has no use	2	3	5
Will get married	0	6	6
Total	**11**	**18**	**29**

Source: Assam Human Development Survey (2013-14), Total Sample HH 39998

It will be clear from the above table that the social practice of 'early marriage of girls' imposes a significant 'limit' in realising the functioning of higher education. It is interesting to note that people have reason not to pursue higher education as 'higher education has no *value*'. Now, whether this valuation is based on some objective conditions (like higher education does not provide a decent employment) or is due to traditional values getting preponderance over any *other* values– objective or otherwise– is, however, not very clearly known. Next, Robeyns' inclusion of 'other persons' behaviour' into the matrix of social conditioning is of special relevance to us and a couple of quick points can be made in this regard.

The first point that can be made in this regard relates to what can be described as'following the trend that the most people follow'. No individual really, and very *naturally*, wants to be an odd-man-out in the society. The way other persons behave is generally taken for granted and people try to follow it. Therefore, this indicates to a clear 'limitation' upon autonomy of individual preferences. Second, the way people treat one goes into form his/her aspirations. In an interview conducted in the Tea Gardens of Assam it could be found, quite interestingly, that most of theschool going boys and girls aspired to be 'army-man' (mostly boys) and 'nun/nurse' (mostly girls). During deep probing as to why they wanted to become army-man or nun/nurse, they replied that they wanted it because this would 'give them respect in the society'[9]. The functioning of becoming army-man or nun/nurseis 'valued' in terms of 'gaining respect'. Clearly, the behaviour of others towards these students has helped in forming their valuation and preference for a particular functioning. The third point relates to 'negative' functionings of crime, kidnapping etc. Ones' behaviour of these kinds certainly puts limit over others' functionings and capabilities.

[9] This interview was conducted by Indranee Dutta, my colleague at the Institute.

Group Affiliation and Range of Choice

Let us now turn to the *diversity* aspect of functionings (and capabilities) and to particular limits imposed by *group affiliations* over them. To put it plainly, the diversity of functionings implies the 'range of choice'. Therefore, the diversity aspect is closely related to notion of 'opportunities': expansion of capability essentially entails'enhancing people choices' (the standard phase of UNDP's Human Development Reports) i.e. providing more valuable options of functionings to people to choose from (Robeyns, 2005). Sen, however, advises not to use the term 'opportunity' in a 'limited sense' (Sen, 1987, p.4). In the limited sense 'opportunity' implies 'availability of options, which is termed as 'advantage' (Sen, 1987, p.3). Rather, Sen uses 'opportunity' in a broader sense: ability to *take* the advantages. Sen argues that this broader notion of opportunity comes closer to the concept of freedom. Therefore, having diversity of opportunities is not merely *instrumental* in capability approach, but is *intrinsic*– an end itself.

Sen clearly identifies two perspectives of freedom viz. 'opportunity' and 'process' perspectives and observes that having opportunity freedom is *substantive* in capability approach (Sen, 2000, 2003). The opportunity perspective of freedom in capability approach is, no doubt, 'positive' in nature – when options are offered people need to take advantage of them on their own(Robeyns, 2000) i.e. this is, indeed, 'freedom from within'. The process aspect of freedom, on the other hand, concerns about procedural features of achievement (Sen, 2003, p.585). The opportunity freedom – positively perceived – is concerned with 'ability to achieve' and, thus, directly relates to capability (Sen, 2003, p.585). Process freedom relates to the *externalities*i.e. the world outside and falls mostly within the domain of negative freedom[10]. The considerable overlaps between the two, nonetheless, is well-recognised (Sen, 2003, pp.585–586). The approach, further, does not dismiss the role of 'negative' freedom, rather accommodates it various forms (Sen, 1987, 1989, 1995, 2000). Notwithstanding, the approach postulates that only 'positive freedoms' have 'intrinsic value' (and also instrumental value), whereas the value of 'negative freedoms' is only 'instrumental'. Sen, for instance, argues that violation of negative freedom results in violation of positive freedom but not *vice versa*(Sen, 2003, p. 586). Since the approach is consistent about the distinction between 'means' and 'ends' placing *intrinsic* value only over the *ends*,and not on the *means*, it is the 'positive freedoms' in opportunity perspective that is central in capability expansion, and consequently, development. In fact, the point that the capability approach underplays the role of negative freedom vis-à-vis positive freedom is well-recognised (Clark, 2005b; Qizilbash, 1996).

With these remarks on perspective of freedom as envisioned in the capability approach, I now turn to a brief discussion regarding the*group affiliation*and its role in the capability.The fact that groups are critically important category determining preferences and values is fairly well-discussed in capability literature, for instance Stewart (2004).

[10] Distinction between 'positive' and 'negative' freedom is as per Isaiah Berlin's notion.

The defining character of a 'group', in general, is 'common affiliation'. Members of the groups have shared goals and objectives, as well as identities – bearing considerable *externalities*. Discussion about group is invariably complicated by many issues.How group affiliations implicate capability is difficult to evaluate due to several accounts. To start with, the individuals have multiple group affiliations – all differentially constructed for different purposes. The relative significance and weight of a particular affiliation is contingent over time and context. Moreover, there are considerable intersections among several group boundaries. Locating an individual uniquely is, more often than not, is an enormous exercise. Besides, group affiliations can change over time and there is a considerable fluidity with regard to group membership of individuals.

The limit of group affiliation is very commonly seen in terms of *partitioning* of opportunity set i.e. not all options are available to all individuals in society. Herein Sen brings in his idea of *real* freedom –the freedom *in fact* enjoyed, not *in principle* (Sen, 1995, p. 149). Many a times, difference in achievement is attributed to such partitioning of opportunity, when group inequalities on achievements are highlighted. Before, proceeding further, it will be worthwhile to characterise partitions imposed by group affiliations.

Group Affiliation: 'Perception' and 'Subjectivity'

It can be argued that the partitions over the opportunity set, in general, are operative in two dimensions – *perception* and *subjectivity*.That a particular option is not to be accessed and taken advantage of is a perception so long it is *external* to the individual. When that perception is *internalised* by the individual through a process of 'naturalisation'with the belief that option is indeed not available to him or her – it becomes *constitutive* of subjectivity. It is not difficult to observe such revelation of subjectivity with regard to job preference by different caste categories in India. Similar examples can also be found with respect to religion.

Implication of this characterisation in understanding the limits imposed by group affiliation is quite profound. The common interpretation of limit in the sense of partition imposed over opportunity set draws heavily on perception dimension and hence tries to relate it to negative freedom in its treatment. Group affiliation based customs, rules, tradition, practices, norms – mostly discriminatory in nature – are treated in this way in capability literature. The subjectivity dimension is eschewed in this whole treatment of group affiliation. It is important to note that the subjectivity dimension, essentially, relates to positive freedom and hence, crucial in capability approach per se. The interaction between perception and subjectivity dimension of limits emanating from group affiliation is illustrative of deep interconnection between positive freedom and negative freedom. The link provides adequate ground to argue that negative freedom not only has an instrumental value, but also has palpable *intrinsic* value.

Now, to say that capability approach is oblivious to various 'limits' imposed by social

conditioning and group affiliation will, however, be highly erroneous. The approach does explicitly identify and recognise these limits. For instance, Sen categorically observes that notion of positive freedom implies ability to do things taking *everything into account* (Sen, 2003, p. 586). Notwithstanding, the approach does not 'endogenise' them, rather keeps them 'exogenous'. The notion of positive freedom as articulated in the capability approach suggeststhat one needs to concentrate on 'the *real* freedoms *actually* enjoyed, taking note of *all* barriers– including those from social discipline'(Sen, 1995, p. 149). I suggest that the approach, although, talks about *real* freedom– it is this emphasis on *only*'acknowledging'(i.e. taking note) and 'accommodating' (i.e. taking everything into account) the barriers, rather than 'overcoming' them makes the approach 'limiting'.

Agency Goal and Agency Freedom

This has given us a passage to discuss briefly about role and significance of notion of 'agency' as proposed by Sen (1985, 1987, 1995, 2000, 2003). Sen distinguishes the 'agency aspect' from 'well-beingaspect' of individuals. However, he, at the same time, admits their inter-relations (Sen, 1995, p. 57). Sen defines agency aspect as goals and values that an individual has reason(s) to pursue whether or not they are connected with his/her own well-being. Related to the notions of 'agency achievement', 'agency freedom' has also been proposed. Complicacies arising out of such distinction between agency aspect and well-being aspects are fairly well-treated, and those details and technicalities are not needed for the present context. On the contrary, I would like to underline only the point that this distinction, indeed, reinforces the idea of 'real freedom' as discussed in the previous sections– and it is, in this sense, the distinction is critically desirable in capability framework.

Before proceeding further, one can pose a legitimate question as to whether such a distinction is at all feasible to arrive at in real life. Ananswer is attempted under with help of actual field data.

Table 5: Responses to environment related questions

Question	Response	Number	Percent
Whether feel importance of environment	*Very Important*	31060	77.65
	Not Important	2381	5.95
	Don't Know	6557	16.39
Whether feel happy for better environment	*Very much*	26730	66.83
	Somewhat	5669	14.17
	No	738	1.85
	Don't Know	6861	17.15
Whether concerned for environmental degradation	*Yes*	21456	53.64
	No	4515	11.29
	Don't Know	14027	35.07
Whether responsible for conservation of environment	*Very much*	19552	48.88
	Somewhat	9305	23.26
	No	2262	5.66

Source: Assam Human Development Survey (2013-14), Total Sample HH 39998

Let us try to interpret the above results in connection with a particular functioning 'to protect environment'. People can have different reasons to value this functioning as indicated in the table. Clearly, the first reason 'feeling environment important' may be based on objective assessment or may be based on the next reason i.e. 'I feel environment important for me as I feel happy to find good environment around me'. The third reason again can be based on objective facts i.e. knowing objectively the ill-effects of environmental degradation or simply related to the second reason viz. utility loss. The forth reason, which relates to agency aspect, at leastreflectively, can pretty well be dependent on reason 1, 2 and/or 3. Practically, given the intensive and extensive connectedness of reasons to value it may not be possible to strictly separate agency aspect from the well-being aspect.

I would like to sum-up the forgoing discussion as follows: the essence of capability approach lies in intensive, extensive and varied connectedness among reasons, functionings, capabilities, individuals and social conditionings considered in the broadest possible way. This makes the approach, on one hand, remarkably rich; on the other hand, complicatedly self-limiting. The approach acknowledges the connectedness but tries to disconnect many of the inter-connections by introducing concepts like 'opportunity' and 'process', 'positive' and 'negative' freedoms, 'agency' and 'well-being' aspects etc. and placing one vis-à-vis other.The distinction made this way results in endogenising a part of inter-connections leaving aside the other part of interconnection as exogenous. The capability typically accommodates the endogenised inter-connections *only*, imputing intrinsic values over them, taking the exogenous part as *given*. This distinction, as have been demonstrated,is inherently 'self-limiting'.

III. Possibility of 'Liberation'

As has been clearly mentioned in Section I, the purpose of the paper is not to suggest any way-out to overcome the inherently limiting features of capability approach.Rather, purpose was to understand the limitsof the capability approach in general, and with respect to group affiliation and social conditioning in particular. This was dealt with in detail in Section II. The essence of the argument presented there lies in identifying the myriad conceptual *disconnectedness*vis-à-vis the nature of *connectedness* in the capability space, thereby implying the inherent limits to the approach. This Section offers a plausible line of thinking so as to 'liberate' the capability approach from its inherent 'limits'.

Intuitively, if limits have been predicated on aspects of 'disconnectedness', overcoming of them must necessitate 'unification' of some sort where critical disconnects prevail. The most critical unification, it seems, lies in the sphere of 'agency' and 'well-being'. It is of pivotal significance to accommodate 'agency aspect' within capability space. The major problem one encounters in making such an effort relates to the *collective*nature of agencyaspect and its potential trade off with well-being aspect. This problem is stated by (Robeyns, 2000, p. 18): "just as it is ontologically impossible to speak of well-being of a community, it is also impossible to speak of capability

of a community". The potential solution, perhaps, lies in considering various agency roles as intrinsically valuable functioning themselves so that ethical individualism upheld by the capability approach remains unaffected. This idea of considering agency goals as constitutive of capability comes closer to Robeyns (2000) idea of 'fundamental capability' where fundamental capability is defined as deeper, foundational, more abstract and aggregated capabilities (p. 9). Sen seems to be open to such possibilities when he favours accommodating even the utilitarian idea of'happiness' in the capability framework provided 'to be happy' is considered as a valuable functioning in itself (Sen, 1987, p. 10). Incorporation of agency goals as valued functionings have immense possibilities in 'liberating' the capability approach from its inherent constrains and confines. The agency goal can be defined as 'ability to realise limitation imposed by external conditions and remove those limitation'. This is not exactly the same idea as Nussbaum's 'control' but similar. It is beyond 'enabling' – it is about overcoming the subjectivity – it is about 'empowering'. This provides a much richer and meaningful description of human life. This is, I argue is the *process* of development in true sense.

IV. Conclusion

The paper, to conclude, makes an attempt to interpret Sen's idea of 'development *as* freedom'. It, accordingly, takes up the definition of development as 'a process of expanding the realfreedoms that people enjoy' for critical examination. The three key terms used in the definition viz. 'people', 'real freedom' and 'process' have been interpreted within the rubric of capability approach and it is argued that essence of these three terms may be valuably located in the notions of connectedness, according intrinsic values to negative freedoms and accommodating agency goals into the capability space. Otherwise, as it is argued in the paper, these three creates a dichotomy between endogenous and exogenous where exogenous is to be treated as datum. This dichotomy invariably has to favour status-quo and is, therefore, potentially 'self-limiting'. The notion must be made 'liberating' if it is to emancipate people at the time of present crisis. The paper finds that such a possibility in capability framework if the three key ideas – people, real freedom and process are put into proper perspective.

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Supreme Court: Mining, Forest Encroachments and Rehabilitation from Kudremukh National Park

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Abstract

In contemporary India, competing claims and counter claims over the use and management of natural resources has sought the intervention of the judicial activism, which has been considered as the last resort for addressing environmental problems. The Supreme Court intervention on the issue of forest conservation over the last one and a half decade is unparalleled in terms of its scope and extent. The paper tries to analyze the role of Supreme Court with reference to Kudremukh Iron Ore Company Limited, which has been inconsistent and at odds with its own precedence!It is observed that major issues such as pollution have been primarily raised from the middle class Non-Government Organizations through public interest litigation and paradox is that Supreme Court landmark judgments are leading to certain unforeseen problems.Moreover, there are tensions between the Forest Department and NGOs in the context of rehabilitation of the tribals from Kudremukh National Park!

I. Introduction

The close link of forests, wildlife and environment are interconnected, but regulatory system treats them as largely independent from each other.[1] In the last two decades, the Supreme Court of India has been actively engaging in many respects in the protection of environment. The Supreme Court has effectively taken over the day-to-day governance of Indian forests leading to negative social, ecological and administrative effects. The Court's approach in admitting Public Interest Litigations (PIL) on matters concerning Forest conservation can be seen in the larger context of the liberal approach of Indian judiciary to enforce rule of law, enforce fundamental rights of the citizens and constitutional propriety aimed at the protection and improvement of environment. The Supreme Court is interpreting and introducing new environment laws, created new institutions and structures and conferred additional

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1 Geetanjoy, Sahu (2014): *Environmental Jurisprudence and the Supreme Court: Litigation, Interpretation, Implementation*, Orient Blackswan, New Delhi, pp.12-33.

powers on the existing ones through a series of directions and judgments. Judicial activism of the Supreme Court was essentially to fill the void created due to bureaucratic lethargy and political apathy.

The Court role with respect to forest has undergone a change from being initially concerned with the enlarging the scope of existing conservation laws, Forest Conservation Act 1980, and to some extent the Wildlife Protection Act, 1972, as a reviewing authority over the Ministry of Environment and Forests. This in turn is dependent on the recommendations of the Forest Advisory Committee. The Forest Conservation Act 1980 shifts 'forests' from the "State List" to the "Concurrent List" and prohibits non-forest use of forest land without Central Government approval. This powerful legislation has, to a large extent, curtailed the indiscriminate logging and release of forestland for non-forestry purposes by state governments.

It is observed that the environmental policies and laws followed by the state to protect the land, air, water, forests of the country are often violated for commercial and industrial interests patronised by the political and bureaucratic system. The failure of enforcement agencies to enforce laws has led to social movements and difference of opinions between government institutions, interest and pressure groups and members of civil society and local communities. The Supreme Court intervention in forest issues now has changed the situation requiring more detailed appraisal of the projects for final approval of the Ministry of Environment and Forests. The court decisions are also guided by the orders in Centre for Environment Law, WWF v. Union of India passed in the year 2000 prohibiting the de-reservation of any forest, National Park and Sanctuary without approval of the Supreme Court.[2] The reconstitution of the Forest Advisory Committee and National Board for Wildlife has led to a relatively greater scrutiny of proposals with a marginal increase in the rate of rejection of projects especially in ecologically sensitive areas. The genesis of Godavarman case was the reluctance of the central as well as the state Governments to take tough decisions relating to environment in general and forests in particular. This paper analyses the case of Kudremukh Iron Ore Company Limited in the ecological fragile Western Ghats of Karnataka for continuation of mining.

II. Mining in Kudremukh

The Kudremukh iron ore deposit is located in the Kudremukh-Aroli-Gangamoola range of the Western Ghats of Chikmagalur district is a 100% Export Oriented Public Sector Unit of Government of India under the Ministry of Steel and Mines.[3] It

[2] Sarin, Madhu (2014): "Undoing Historical Injustice: Reclaiming Citizenship Rights and Democratic Forest Governance through the Forest Rights Act" in Democratizing Forest Governance in India (Ed) by ShaarachchandraLele and AjitMenon, Oxford University Press, pp. 100-146.

[3] In Karnataka, Kudremukh falls approximately at the middle of mid-Western Ghats (the stretch between Goa and Nilgiris).Kudremukh is endowed with some of the most magnificent forests in the country ranging from majestic evergreen forests of the Western Ghatsto the scrub jungles of the plains, a wide variety of habitats exists with typical flora and fauna, some of them endemic to the region.

secured a lease area of 5,218 hectares of land in the Bhadra reserve forest on lease from the Government of Karnataka for a period of 30 years from1969-99. The protest against Kudremukh Iron Ore Company Limited (henceforth KIOCL) gained momentum from 1994 as its lease meant to expire in 1999 and the company was pushing for the extension of lease to continue mining.

The opposition against the company centered on river Bhadra[4] that originates a little distance from the Lakya dam, into which the KIOCL is allowing the waste iron slurry and silt has created pollution to Bhadra River. With over 7000mm of annual rainfall that Kudremukh receives, open cast mining is an extremely dangerous operation here, and results in adverse impacts on a thickly forested and river area. The washing down of large amounts of silt during monsoons has resulted in high rates of siltation of feeder streams and to the Bhadra River. The KIOCL Management argued that mining is an eco-friendly activity and had spent vast sums of money on the preservation of nature and environment in addition to efforts to prevent pollution.[5]

The KIOCL also appointed National Environment Engineering Research Institute to prepare a "Comprehensive Environment Impact Assessment" (CEIA) report, which gave a 'clean chit' to KIOCL for extension of lease in the broken-up area for another 20 years. Another report submitted by the Indian Institute of Science, warned about the loss of habitat and fragmentation of wildlife which are endemic to the region. The enactment of laws both by the Central and State Governments relating to environment has not made much headway in controlling the environmental degradation process and the laws, by and large have remained unenforced and mismanaged. In addition there is a separate petition from environmental activists in the Karnataka High Court for not renewing the contract for KIOCL.[6]

The State High Court of Karnataka disposed writ petition NO. 38716/1999, stipulating the Supreme Court direction in the I.A. No. 207-210/97 that "*in view of the fact that in matters pending in this court and throughout the country, it is appropriate that no aspect of this matter be considered separately by another court in any form*", thereby disposing the matter giving liberty to the parties to approach the Supreme Court. During this period social movements played a bigger role in shaping broader public opinion against the mining. The Karnataka VimochanaRanga (KVR) affiliated to CPI (ML) based its campaigns centered against mining operation at *Gangadikallugudda*to 'Save Tunga origin' in 1994, whichgained momentum in places

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4 The '*Gangamoola'* is the birthplace of three rivers – Tunga, Bhadra and Nethravathi. The river Tunga, which originates in the midst of the forest, flows northwards and then turning to east joins river Bhadra at Kudali in Shimoga district far away from the mining site. The river Nethravathi first flows westwards turn to southwest, and join the Arabian Sea in an estuary at Mangalore. Only Bhadra River flows downwards towards Balehonnur via, Jamble, Nellibeedu and Kalasa.

5 See Neeraj, Vagholikar, KaustubhA.Moghe and RitwickDutta (2003): *Undermining India: Impacts of Mining on Ecologically Sensitive Areas*, Kalpavriksh, Pune, p-7.

6 Mahalakshmi, Parathasarthy (2001): "Escalating Ecocide in the Kudremukh National Park", Fact-Finding Report, *NagarikaSeva Trust*, Gurvayanakere, Dakishna Kannada.

such as Sringeri, Koppa, Thirthahalli and Shimoga. The KVR activists undertook a cycle *Jatha*(procession) from Sringeri to Harihar to enlighten the people on the consequences of the mining operation. The movement did not exclusively deal with environment issues, but follow an integrated approach by linking poverty, social justice, inequality, rural development and health issues.

Several prominent public personalities and religious seers of *Pejawar, Sringeri, Dharamstala, Adichunchungiri, Siddaganga and SirigereMaths*[7], writers K.P. PurnachandraTejasvi, U.R. Anantha Murthy[8] and social worker H. Sudershan played a key role in persuading the Government of Karnataka to stop the mining.[9] The delegation led by U.R. Ananthmurthy[10] submitted a Memorandum to the then Chief minister Mr. S.M. Krishna and pleaded not to renew the mining lease and ordered the Kudremukh Company to "pack off" as company had done enough.[11]

III. Supreme Court Intervention

The emergence of green attitudes coincides with the Supreme Court's interpretation of constitutional promises in favour of the poor, the illiterate, and the disadvantaged people, liberated *locus standi* from the narrow clutches of justice and developed a new jurisprudence of social action, known as public interest litigation. These cases pertain to the issue of environmental pollution caused by industrial units due to the failures of the State in protecting the right to a healthy environment and the rights to health are an integral part of the right to life under Article 21 of the Indian Constitution.[12] The Public Interest Litigation (PIL) based judicial activism has transformed from an passive arbiter of ordinary disputes and giving relief to the disadvantaged groups, the Supreme Court gained in stature and legitimacy covering a wide cases such as industrial pollution, violations of Forest Conservation Act[13]. Moreover, there are several instances

7 In Karnataka, the influence of religious Mutts as people as powerful bodies, which not only control funds but also influence public opinions and intervene for the purpose of patronage distribution. See Atul, Kohli (1987): "Karnataka: Populism, Patronage and piecemeal reform" in *The state and Poverty in India*, 145-85, Cambridge, Cambridge University Press, p-152.

8 U.R. Ananthmurthy is the most influential representative of the '*navya*' (modernist) movement in Kannada literature. He joined hands with "*Tungamula Ulisi*", a movement to protect the source of the River Tunga with K.G. Sridhar who led the movement in thirathhalli of Shimoga District.

9 Praveen, Bhargav and Niren Jain (2004): "Battle for Kudremukh"*: The Hindu* January 4th.

10 The delegation included the leader of the opposition of the legislative council, Mr. K.H. Srinivasa, Mr. B.L. Shankar, Mr. K.B. Mallikarjun, Mr.A.Jnanendra and Mr. Visvesvara Hedge. The former State Government official, Mr. Yellappa Reddy, and the noted environmentalist, Mr. UllasKaranth was also part of the delegation. *The Hindu*, July 19, 2001.

11 Harsh, Sethi (2001): "Movements and Mediators", *Economic and Political Weekly*, January 27, Vol.XXXVI, No.4, pp. 269-270.

12 S.P. Sathe (2002): *Judicial Activism in India: Transgressing Borders and Enforcing Limits*, New Delhi, Oxford University Press, p-224.

13 The Forest Conservation Act of 1980 was enacted in order to check rapid deforestation due to forestlands being released by state governments for agriculture, industry and other development projects (allowed under the Indian Forest Act) the federal government enacted the Forest Conservation Act in 1980 with an amendment in 1988. The Act made the prior approval of the Central government for de-reservation of reserved forests, logging and for use of forestland for non- forest purposes.

that NGOs and lawyers have been capable of producing the facts and materials to convince the court of the importance of a particular environmental problem. For instance, in the Dehradun limestone quarry case, TarunbharatSangh, Alwarvs Union of India, Delhi Industrial relocation case and Delhi vehicular pollution case.

The Supreme Court intervention in Writ Petition 202 of 1995, T.N. GodavarmanThirumulpadvsUnion of India[14], asserted that FCA applied to "all areas that are forests in the dictionary meaning of the term irrespective of the nature of ownership and classification thereof". Initially the definition of "forest land" was assumed to be only that land which has been legally notified as forest as per the Indian Forest Act or Reserved or Protected Forest.[15] In the process of hearing over 800 interlocutary applications since 1996, the court has assumed the role of policymaker, administrator of policy and interpreter of law.

The cases are being heard under the "continuing manadamus" where the courts rather than passing final judgments, keeps on passing orders and directions with a view to monitor the functioning of the executive. The irony of this judicial environmental activism has been a further centralisation of power over the country's forest lands and transcending judicial boundaries into the legislative and executive domains are continuing to overrule them. On the other side of the legislation the Supreme Court orders have curtailed the indiscriminate logging and release of forest land for non-forestry purpose by state governments. While the federal Government imposed such restrictions, it did not simultaneously evolve a mechanism to compensate State Governments for loss of timber logging revenues.[16]

In 2001, K M Chinnappa, a retired forest officer and trustee of the NGO Wildlife First, in association with the Delhi based NGO, LAW, filed an Interloculatory Application in I.A 670 with the Supreme Court in the GodavarmanThirumalpadVs Union of India Case in which K.M. Chinnapa appealed for the mines to be closed and the lease areas to be included in the National Park.[17] The main reliefs sought were:

a) To direct the MoEF to withdraw the illegal 'temporary working permission' for mining activities.

b) Direct KIOCL to stop polluting the Bhadra river due to open cast mining

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[14] T.N. GodavarmanThirumalpad, an ex-estate owner in Gudalur, Tamil Nadu a resident of Nilgiri had filed a Public Interest petition to prevent illicit felling of timber from forests nurtured by his family for generations which have since taken over by the government. Armin Rosencranz, Edward Boenig and BrindaDutta (2007): "The Godavarman Case: The Indian Supreme Court's Breach of Constitutional Boundaries in Managing India's Forest", *ELR News and Analysisi*, 37, Washington, pp.10032-42.

[15] Sharachchandra Lele (2007): "A Defining Moment for Forests? *Economic and Political Weekly*, Vol. 42 No.25. June 23, pp. 2379-2383.

[16] RitwickDutta and BhupenderYadav (2011): Supreme Court on Forest Conservation, Universal Law Publishing Company, New Delhi, p-47.

[17] Praveen, Bhargav and Niren Jain (2004): "Battle for Kudremukh": *The Hindu*, January 4th.

c) Take action against KIOCL for illegal encroachment in the forest and for the destruction of forests in the Kudremukh National park

d) To stop KIOCL from laying a new slurry pipe line in the forest of the National Park.

The State and Central Government agreed to renew the contract period for 20 years and subsequently turned around to five years period. The Karnataka Government predicament stems from the fact that it cannot be instrumental in the closure of profit making company, with nearly annual earnings of $150 million foreign exchange. The company is boosting states revenue by payment of royalty, sales tax and entry tax to the tune of Rs 2.5 crores annually.[18] The decision on the renewal was still pending; the MoEF promptly went ahead, issued a year's Temporary Working Permission (TWP) to KIOCL in 1999, and extended by another year, because of the Karnataka Government's submission that the area concerned would not form a part of the area notified as a national park. The TWP was conditional, with one of the conditions being the State government's final notification on the constitution of the KNP by September 30, 2000.

The Court observed: "*Before we part with the case, we note with concern that the state and the Central Government were not very consistent in their approach about the period for which the activities could be permitted. Reasons have been highlighted to justify the somersault. Whatever is the justification, it was but imperative that due application of mind should have been made before taking a particular stand and not to change colour like chameleon, and that too not infrequently*."[19]

The increasing number of pending cases before the Supreme Court made it difficult for the court to examine each and every issue in detail and pass appropriate orders. The Forest Conservation Act, 1980 did not provide any opportunity for setting up Tribunals or Authorities to adjudicate on such issues. The affected people started approaching the court, the need was felt to urgently set-up a system in place to render justice faster if not more effectively. This led to the setting up of High Powered Committees, Empowered Committees, Forest Protection Authority and later on the Central Empowered Committee.

The Supreme Court has constituted the Central Empowered Committee (henceforth CEC) as an advisory for the Honorable Court orders and to place the non-compliance cases before it, including in respect of encroachments removals, implementations of

[18] The Mangalore port receives Rs 3 crores annually by way of port charges and another Rs 2.5 crores as land rent charges as the ore and pellets are exported to China, Iran, Australia, Turkey and Japan and the company signed fresh contracts in 2000-01. The company has so exported 210 million tones of ore concentrate and its mining zone has a stockpile of weathered ore of about 140 million tones and beneath it another 350 million tones of primary ore, enabling operations for another 20 years.

[19] K.N. Murthy and D.V.R. Seshadri (2011): "Kudremukh Iron Ore Company Limited (KIOCL): The Death Knell and Beyond", *Vikalpa*, Vol.36, N0.2, April-June, pp.133-137.

working plans, compensatory afforestation, plantations and other conservation issues. The wide ranging powers were conferred on CEC and it could undertake field visits, conduct public hearings, meet NGOs etc. and CEC was also empowered to pass interim orders in situations demanding immediate public action. The CEC may decide its own procedure for dealing with the pending affidavits filed by the states and their recommendations placed before the honorable Supreme Court for order. The process prescribed under this notification could bring together local communities, project affected people, government agencies, project proponents, planners, consultants, and NGOs in decision-making processes. The convergence of these actors for environmentally sustainable and locally appropriated decision-making has occurred partially in few cases.

The KIOCL Case was referred to the Central Empowered Committee for hearing the parties and taking note of the materials placed before it. The recommendations done by CEC were based on a documentary film named "*Mindless Mining*" made by filmmaker ShekarDattatri.[20] The film has been submitted as audio visual evidence in the Supreme Court to stop mining inside the national park filed by wildlife first. The film claimed that farmers using the Bhadra Reservoir command Area (located downstream of mining) will be losing irrigation potential due to heavy siltation in the reservoir from the mining site at Kudremukh. The documentary was used by CEC to stop mining operation by KIOCL and "Restoration and Winding up" has to start so that the company can restore all mined lands, plants and protect the region from further degradation. The exploitation of the Kudremukh iron ore follows no principles in law; the valuable rainforest has a greater value to human life than iron ore.[21]

The Supreme court in the final judgment ordered all mining operations to cease as per the recommendation made by CEC that the company to be closed by 2005.[22] The Supreme Court orders is not against mining per se but against mining which is in violation of the Forest Conservation Act, 1980 and also mining in National Parks and Sanctuaries. The Supreme Court final order for closing the company draws attention to the importance of Sustainable Development and the need for balance between Ecology and Development has to be maintained for future generation. The pro-environment stance of Supreme Court has affected the workers' rights. The KudremukhShramShakthiSanghatan[23] filed Application NO.1374/2005 for reconsideration of the judgment stating that it was against the principles of natural

[20] See Shaker Dattari (2007): "Wildlife Films do they have a future in India", *Sanctuary Asia*, Vol. XXVII, No.1, Mumbai, pp. 18-29.

[21] Memorandum submitted by KudremukhShram Shakti Sanghatan to ValmikThapar to honourable Chairman and Members of the Central Empowered Committee during his visit to Kudremukh on 30 September 2002.

[22] Ritwick, Dutta (2003): "Courts and Environmental justice: Critical issues", *Social change*, Vol.33, No.2&3, June-September, pp. 24-5.

[23] Circular of KudremukhShram Shakti Sanghatan dated 26/12/2005.

justice[24] and prayed that the same to be heard with 1010/2003 filed by KIOCL[25] as the subject matter of both the applications were substantially similar. The trade unions working in KIOCL have opposed the closing down of the company and organised nationwide strikes, *bandhs*, rallies but these have not had any effect in terms of changing the policies. The traditional forms of protest have lost their strength where protection of labour rights is concerned.[26] The Supreme Court has become the most powerful institution of the state because it enjoys enormous power and the arbiter of disputes between citizens and the state, and between states and the union, and directs the government in closing down industries.[27] Kudremukh region is rich in biodiversity and is recognized as one of the 18 mega-biodiversity centers of the world because of its tropical and subtropical climate. In India Eastern Himalayas and Western Ghats are known as the hot spots areas to identify the density of species and the degree of threats to it. The awareness of ecological hot spots is a recent development but none of these considerations appeared to have weighted in when Kudremukh Iron Ore Company limited started its mining operations. The issue of mining was also interconnected with the declaration of Kudremukh National Park, which includes the entire KIOCL lease area of 37sq km was not included in the area that was notified as a National Park and did not include any of the patta lands, revenue lands, *gomaal* lands.[28]

[24] The concept of natural justice has undergone a great deal of change in recent years. In the past it was thought that no one shall be a judge in his own cause and no decision shall be given against a party without affording him a reasonable hearing has changed with quasi-judicial enquires must be held in good faith, without bias and not arbitrarily or unreasonably.

[25] On 19-11-2003 the Kudremukh Iron Ore Company filed application No. 1010/2003 praying the court to appoint an independent committee to examine the matter on the ground that an interested person was a member of the CEC and also with a prayer to allow the KIOCL to continue the mining for 20 years producing evidence in abundance in support of it.

[26] V.K. Sridhar (2013): "Social Movements and Mining: The Case of Kudremukh Iron Ore Company Limited", *The Indian Journal of labour Economics*, Vol.56, No.3, pp. 463-480.

[27] The judicial orders of the Supreme Court resulted in the closure of polluting and non-conforming industries in Delhi the capital city, throwing out of work an estimated 2 million people in a population of 12 million people through public interest litigation by bourgeoisie environmentalism. See AmitaBaviskar, (2003): "Between violence and desire: space, power and identity in the making of metropolitan Delhi", No. 175, *International Social Science Journal*, pp. 89-98.

[28] *Gomals/ Gauchars* are revenue/village lands used and managed by the local communities by the village as common grazing grounds belong to all. Betta lands or *Soppinabetta* are an individual owning an acre of areca plantation was given privilege over to mulching material in their arecanut gardens. *Kans* are protected forests which is given for the privilege for coffee, pepper, Gum and Honey and also Green Manure as per the section 134(3) and 138(3) of the Karnataka forest Manual. *Paisari lands* are revenue wastelands under the control of the revenue department, allotted to the landless for housing and crop cultivation under '*Darkhast*' (literally meaning 'request') grant of land to the landless on request. *Kharab land* is a wasteland; non-arable land that is in procession of the Government. *Bhanelans* is part of the protected forest land granted for service of holding of wet land which is allotted to be held free of revenue by cultivator for grazing and to supply leaf manure and fire wild and small timber required for agricultural and domestic purposes of the cultivator. *Kumki/ Hadi* (Hadya) lands are also government forestlands under the private control and use of the local farmers. *AmrutMahalkavals* are government lands used and control by the Animal Husbandry Department (AHD). *DevaraKadu/ Sacred Forests* are forests set apart for some object of worship are still managed and used by the local committees, through temple committees. See Srinidhi, A.S. and S.Lele (2001) "Forest Tenure Regimes in the Karnataka Western Ghats: A compendium", *Institute for Social and Economic Change*, Bangalore.

IV. Kudremukh National Park

Kudremukh was initially notified as a national park when Government of Karnataka identified *lion-tailed macquae* as an endangered species specific to the region.[29]The *lion-tailed macques*was used as a 'flagship' species to conserve the entire biotic conservation of wildlife population in the region.[30]In 1987, the first notification brought the mining area under the purview of the Wildlife (Protection) Act, 1972 which disallows any non-forestry operations, including mining, within a protected area.[31]

Kudremukh National park which is spread over an area of 563 sq. kms and falls in three districts namely, Dakshina Kannada district (158 Sq. Kms), Udupi district (89 Sq. Kms) and Chikmagalur district (316 Sq. Kms.).The final notification of the Kudremukh National Park was issued in 2001 when the Assistant Commissioners under the Wildlife Protection Act initiated the 'settlement processes.[32]The legal lands holding at the time of notification of Reserve Forest were treated as enclosures.[33] These enclosures are located within the overall area of National Park, which are not notified for the purpose of the National Park. This has affected the tribals[34] namely Gowdlu, Malekudiya and Marathi Naiks traditionally living in the purview of Kudremukh national park consists

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29 With regard to the declaring an area as a National Park, Section 35 of the Wildlife Protection Act, 1972 provides "whenever it appears to the State Government that an area, whether within a sanctuary or not, is by reason of its ecological, faunal, geo-morphological or zoological association or importance, needed to be constituted as a National Park for the purpose of protecting, propagating or developing wildlife therein or its environment, it may be notification, declare its intention to constitute such a rea as a National Park".

30 The major policies on reserved forests were declared during the period 1914-16 with reference to KNP which included two Reserved Forests and three State Forests, which were brought together to constitute the national park. The Western Ghats cover 38,019 sq. km in the state of Karnataka and has 5 national parks and 15 wild life sanctuaries and a part of Nilgiri Biosphere reserve.

31 Valmik, Thapar (2003): *Battling for Survival: India's Wilderness Over Two Centuries* (Ed), Oxford University Press, p-244.

32 The process involves conducting an inquiry into the rights (habitations, agriculture, use of forest resources etc) exercised by people in or over extinguishing these rights after giving compensation. The national park was reduced to 563.29 sq. kms, from the original 600.32 sq. kms which does not include any of the revenue villages, patta lands, revenue lands, gomal lands and such other areas, which do not form any part of the above mentioned state forests and Reserve Forests.

33 The major policies on reserved forests were declared during the period 1914-16 with reference to KNP which included two Reserved Forests and three State Forests, which were brought together to constitute the national park. The Indian forest Act of 1927 which set aside forests for different purposes and gave them an administrative designation indicating their purpose. Many forest areas that were declared "reserve forest" under IFA have received additional protecting and have been named as a sanctuary or national park under the wildlife protection Act of 1972 in recognition of their values as critical habitat for wildlife.

34 According to 2001 census, there are 34.6 lakhs tribes in the state. The tribal population is concentrated in the 5 districts of the state: Bellary, Bidar, Chitradurga, Mysore and Raichur. The Malekudiyas speak *tulu* language which is a dialect spoken by all communities in the region of Dakishna Kannada. The Marathi Naiks and *Gowdlu* speak Kannada language in the Chikmagalur district.

of 90 hamlets belonging to 40 revenue villages, with 1299 families, who does not possess *patta*[35](land rights certificate) are labeled as encroachers.[36] The rights of the local communities have been ignored in the original demarcation of forest boundaries, when such sanctuaries were set up, leading to much conflicts.[37]

In 1990, the 29th report of the Schedule Castes and Scheduled Tribes Commission had drawn out a clear, unambiguous framework to settle the encroachment issue, keeping in mind both conservation interests and livelihood security for Adivasi and forest dwellers. In a set of six guidelines, it suggested that all encroachments made prior to the Forest Conservation Act be settled and those made after that be carefully examined, distinguishing the claims of the tribal people from those of encroachers. Besides making it mandatory for the states to come up with schemes to provide alternative means of livelihood to those affected, the recommendations also sought to involve village communities in setting disputes and ensuring lasting solutions. However, the report has been consistently ignored by policy makers on the question of encroachment.[38]

V. Forest Encroachment

In 2001 the solicitor General and Amicus Curiae filed interlocutory applications (IA) 703 in the Godavarman case regarding encroachments.[39] The Supreme Court directed the chief Sectaries of Orissa, West Bengal, Karnataka, Tamil Nadu, Assam, Maharahstra, Madhya Pradesh, Chattisgarh and Kerala to file a reply to this IA in relation to the steps required to be taken by them to prevent further encroachment of forest land to indicate the steps already taken to clear earlier encroachments.[40] The Ministry of Environment and Forests (MoEF) used the above references in the court proceedings to issue a directive to all states/Union territories on 3rd May 2002, to summarily evict "all illegal encroachment of forestlands" before 30th September 2002. The 2002 order retailed the 1990 circular directive of the MoEF that 1978 should be the cut-off year for legalising encroachment and those who encroached later should be evicted subject

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35 Earlier the lands were administered by village elders and there was no concept of 'exclusive title or possession', within the community, but it was based on mutual respect and recognition to an individual family. See Prabhu, Pradip (2002): "land Alienation, land reforms and Tribals in Maharashtra", in *Land Reforms in India: Issues of Equity in Madhya Pradesh*, Vol. VII, (ed) Praveen K. Jha, New Delhi, Sage publications, p-249.

36 The Government of Assam and Maharashtra obeying the Supreme Court began eviction drive were the Assam's forest department used elephants to raze down huts and homesteads on land recorded as forest. In certain areas however they could be treated as encroachers on forestland owing to "faulty settlement" by state governments. See Akhileshwar, Pathak (1994): "State, Environment and Law", *Economic and Political Weekly*, December 10th, pp. 3138-41.

37 SharachchandraLele (2011): Rethinking Forest Governance: Towards a perspective beyond JFM, the Godavarman and FRA, *The Hindu Survey of the Environment*, pp.95-103.

38 Madhu, Sarin (2010): "Democratizing India's Forests through tenure and governance reforms", *Social action*, Vol.60, April-June, pp. 105-120.

39 Archana, Prasad (2003): "Forest Encroachments: Guidelines and Implications of Recent orders", *People's Democracy*, Vol.XXVII, No.01, January5th, New Delhi.

40 Archana Prasad (2004): Environmentalism and the left, *Leftword Books*, Delhi, pp.34-40.

to certain conditions.[41] It ignores the other circular of 1990 such as "Review of Disputed claims over forest land arising out of forest settlement[42]and Disputes regarding pattas/leases/grants involving forest land, which has a considerable bearing on deciding what, constitutes an 'encroachment'.

The Supreme Court orders created fears among tribals all over the country and this led to a clarification by MoEF wherein it acknowledged that not all occupation of forest lands was illegal or an encroachment, and so they could not be evicted until their rights were verified. This led the Government of India to introduce the Schedule Tribes (Recognition of forest Rights) Act, 2006 to strengthen the tribal empowerment process.[43]

The Supreme Court strategy of appointing committees, which are supposedly expert bodies, has also resulted in different set of problems while solving disputes.In Karnataka forest encroachments have occurred since Independence, with the last two decades witnessing a rising trend. The commercial crops such as coffee, cardamom, areca nut, groundnut, rubber and agricultural crops such as paddy, jowar and ragi around the Kudremukh National Park has led to the encroachment in pockets in the midst of thick reserve forest. The issue is so complex that Forest Department indicates only five categories of forests: Reserve forests, Protected forests, Unclassified forests, Village forests, and Private lands, but there are dense forest patches which are classified as

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41 The regularisation has to be done on the condition that it was only to be done to an extent of 3 acres or 1.2 ha in individual cases (including forest encroachment), and in the case of persons belonging to the Schedule castes and Scheduled tribes (SC/ST), Landless marginal agricultural labourers and those holding an insufficient extent of land- up to 3 acres of agricultural land. The person concerned should be a domiciled for at least 10 years in a village adjacent to which the forestland encroached by her/him. In the case of landless marginal agricultural labourers the encroacher or his family should not hold or own any agricultural land anywhere in Karnataka and the total annual family income should not exceed Rs. 8,000. The order of the Government of India had decreed that encroachments should not be regularised in the midst of forests, on steep slopes or in the middle of national parks or sanctuaries. Eligible encroachers from these areas are relocated on the fringes of forests, on areas recovered from encroachers.

42 Forest settlement refers to the settlement of rights process followed by the government when it acquired forest land and notified them under various categories. The process involves conducting an inquiry into the rights (habitations, agriculture, use of forest resources etc) exercised by people or over the forest being notified and documenting them. For certain categories of forests the process also involved extinguishing these rights after giving compensation. See Syed Ajmal Pasha (1994): "Uncultivated Lands: Institutional Aspects of their use and Management in Karnataka", *Institute for Social and Economic Change* (ISEC), Bangalore.

43 MadhuSarin (2002): Who is encroaching on whose Land? *Seminar*, No.519, November, pp. 1-10.

grazing land in the Karnataka land Revenue Act.[44] The revenue department in order to spread cultivation has been a facilitator because as revenue is linked to taxation and the extent of land under cultivation.[45]

Coffee is the major crop in Chikmagalur district and cultivated both in large and small holdings. Indian coffee comes from 1.57 lakh holdings were 70 percent of these are than 2 hectares in size and are categorized as "small holdings". The second category is "large holding" are those which are more than 10 hectares in size to 100 hectares constitute 1.6 percent of all holdings and carve up 23.5 percent of all land under coffee. The third category constitute holding size above 100 hectares are generally called as "company estates" constitute only 0.1 percent or 105 such holdings.

The monopolisation of Land by the smallholdings under coffee cultivation during 1980-81 was 17,894, which have doubled by 30,836 and the large holdings from 1,429 to 1,878 in 2001. The issues of forest encroachment for coffee cultivation have cleverly turned the crisis against the labourers by arguing that it would adversely affect the workers in the coffee estates. The peasants fear that much of the eviction process will concentrate on them as they don't have political influence to protect their interests in contrast to the large estate owners of more than 100 acres do not face the risk of investing in a single crop because the gross income they receive from cultivation of coffee is high due to the high volume of their production.

The Supreme Court orders with regard to forest encroachments has identified B.L. Shankar, his brother and his father-in-law, all of whom are partner-owners of a coffee estate, which owns the land comprising Survey No. 3 of Kenjigegudda Coffee Estate Village (KGCEV) in the Thatkola reserve forest. Shankar and his relatives had encroached on an area of 27.67 acres in Survey No.4 of KGCEV in the Thatkola reserve forest. According to the Survey of India report, 147 instances of encroachment (accounting for 611.23 acres) had taken place in the Thatkola reserve forest. Of these 147,100 persons had encroached upon 3 acres or less (accounting for a total of 118.613 acres), 19 persons had encroached on between 3 and 5 acres (totaling 79.96 acres), and 10 had encroached on between 5 and 10 acres (59.5 acres). Interestingly, the majority of the encroachment (adding up to 353.16 acres) was committed by just 18 people, each of whom had encroached on an area in excess of 10 acres. Despite

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[44] Betta lands or *Soppinabetta* are an individual owning an acre of areca plantation was given privilege over to mulching material in their areca nut gardens. *Gomals/ Gauchars* are revenue/ village lands used and managed by the local communities by the village as common grazing grounds belong to all. *Kumki/ Hadi* (Hadya) lands are also government forestlands under the private control and use of the local farmers. *Gomals/ Gauchars* are revenue/village lands used and managed by the local communities by the village as common grazing grounds belong to all. *AmrutMahalkavals* are government lands used and control by the Animal Husbandry Department (AHD). *DevaraKadu/ Sacred Forests* are forests set apart for some object of worship are still managed and used by the local committees, through temple committees. V, Vijyalakshmi (2003): "Schedule Tribes and Gender: Perceptions from Karnataka", Working paper No.128, *Institute for Social and Economic Change*, Bangalore, p-2.

[45] Ravi, Sharma (2003): "Eating up Forest Land", March 28, Vol.20, No.6, *Frontline*, pp.50-54.

Supreme Court to evict encroachers in the Thatkola reserve forest the state Government is yet to act on the orders and the process of surrender remains on paper and the encroachers still enjoy the fruits of the land.[46] There is a constant demand from political parties to permit regularisation, because besides plantations, in many of these encroached areas there are schools, colleges, roads, government offices and even houses built under various government schemes for weaker sections of society. The issue has been turned against the tribal communities that have traditionally and customarily cultivated lands but do not have the title deeds has been labeled as 'encroachers', and to club them in the same category as powerful vested interests. The rural land owners employ a collective strategy reflecting their class interests aimed at bargaining with the state.[47] The nexus between the State and coffee planters from colonial times[48] have always rescued planters in crisis have largely remained indifferent to the Supreme Court verdict on eviction.[49]

The issue of encroachment has also led to unforeseen problems like rehabilitation of tribals from the Kudremukh National Park by giving incentives or packages to relocate human population to less ecologically sensitive areas is seen as a magic solution which benefits both human and wildlife.[50] The tribals in wildlife–rich areas are seen as enemies of the conservationist cause and are physically displaced or denied access.[51] The forest department continues to have very little power and finances, compared to other government agencies that handle 'development' or 'commerce-related activities' has seen a steady rise of NGOs in relation to the already entrenched interests of the forest department. The centralization of forest management increases the distance between the administrators of forest policy and tribal people.

VI. Kudremukh National Park and Rehabilitation process

The collaborations between NGOs and Forest department with regard to rehabilitation package for tribals did not take off due to the allegations and contestation.[52] The District Conservator of Forests (DCF) raided the office of the NGO which had been aiding rehabilitation of communities living within the park. The DCF also filed cases against Environment activists for trespassing into national park, their sources of funding, registration details, permission sought to conduct surveys. The matter was

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46 K.P. Kannan (1989): "Towards Understanding the Dynamics of Rural Labour Markets: An approach based on Indian evidence, Occasional papers, *Indo-Dutch programme on Alternatives in Development (IDPAD)* pp.26-7.

47 Muzaffar, Assadi (2004): "Forest Encroachments, Left Adventurism and Hindutva", *Economic and Political Weekly*, February 26, Vol.39 No. pp. 882-885.

48 V.K.Sridhar (2014): Land Revenue and Commercialization of Coffee Cultivation in the Princely Mysore State: 1800-1881, *Journal of OKD Institute of Social Change and Development*, Vol. XI, No.1, 2014, pp. 90-107.

49 Karnataka Growers Association (2006): Letter written to Shri Kamal Nath regarding Relief package for coffee grower, dated 27th May, *Saklespur*, Karnataka.

50 Interview with Praveen Bhargava, a conservationist on 5/12/06, Bangalore.

51 The National Parks and wildlife sanctuaries form only 5% of our country's land area and within these areas we have human habitations, roads, dams, mines, power plants and other activities which have been the biggest threats to forests and wildlife.

52 Harsh, Sethi (2001): "Movements and Mediators", *Economic and Political Weekly*, January 27, Vol.XXXVI, No.4, pp. 269-270.

taken up by the CEC and held that raid was not justified and asked the State Government to take disciplinary action against the DCF considering the as "illegal and without justifications".

In 2004 the Karnataka government presented the rehabilitation plan for voluntaryresettlement of 201 families, inside the national park where infrastructure development was not possible and hence they needed to be relocated. The rehabilitation plan was sent to the Planning Commission in 2006. The Commission gave recommendations along the lines of the Tigers Task Force appointed by the then Prime Minister to look into the tiger crisis in the country and to prepare a tiger conservation plan. The forest department however asserted that relocation is not the solution to Kudremukh National Park, as people have been residing for centuries and the reserve forest is about hundred years old and relocation needs huge resources and net outcome will be social and cultural displacement of the people. The conservation induced displacements affects the tribal groups although there has been several cases of non-tribal relocations such as the Corbett Tiger Reserve, and Bhadra Tiger Reserve which has been as successful model for relocation.[53] The Tiger Task Force recommends minimizing conservation induced displacement or treating it as a last resort for protecting habitats and species due to the poor record of the government in effective relocation. The Tiger Task Force (TTF) estimates that there are 1,500 villages within the 28 tiger reserves and roughly 65,000 families (around 325,000 people) have to be resettled to create people free core areas in these reserves.[54]

The impression that the forest department is bent on evicting the tribals has caused a fear complex among the tribal population who are alienated from their land and livelihood are getting influenced by the Maoist ideology.[55] The social movements of various kinds prioritized human inhabitants of remote settlements located within the KNP. The Naxalite opposed the KIOCL mining strongly but when the issue of KNP came up they simultaneously demanded the abolition of the KNP and Wildlife protection laws, which they termed as "anti-people". The issue has been taken up by the Maoist Movement[56] against the Indian state with regard to eviction of tribal people from the

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53 Tiger Task Force (2005): Joining the dots, Ministry of Environment and Forests, Government of India, New Delhi.

54 AsmitaKabra(2013): Conservation-induced Displacement: The Anatomy of a Win-Win Solution, *Social Change*, 43(4), pp. 533-550.

55 'Naxalities' or 'Maoism' are identified with leftist groups in parts of eastern and central India have been waging armed struggles for land rights.

56 In November 2004 the CPI (Maoist), programme jointly drafted by the erstwhile People's War Group in parts of Andhra Pradesh, Orissa, Chattisgarh and Maharashtra and Maoist Communist center (MCC) which was once known as the Maoist center of Communist Revolutionaries. They have come together to establish the guerilla zones and the base area in strategically favorable areas where they can organize and arm the vast peasant masses on the basic slogan of "revolution" directed against imperialism, feudalism, and comprador bureaucratic capitalism. After the merger of the two major naxalite formations in the country, the party changed its name to Communist Party of India (Maoist) which accepts Marxism-Leninism-Maoism as its guiding ideology and is committed to "new democratic revolution" in India before passing on to achieve its socialist goal. Guha, Ramachandra (2007): "Adivasis, Naxalities and Indian Democracy", *Economic and Political Weekly*, August 11, Vol.XLII, No.32, pp. 3305-12.

forests.[57] In turn the State government has set up the Anti-Naxalite Force a force reconstituted from the Special Task Force[58] and the police-led operations only intensified, and each encounter followed by a retaliatory strike.[59]

VII. Conclusion

The Supreme Court has used the national interest argument to justify the centralization of powers in its own hands. The initial orders may have been justified, the implications of this sweeping and continuing intervention by the judiciary are far more doubled edged than celebratory accounts of the Godavarman case suggest and should move beyond judicial adventurism and focus on improving the quality of forest-related jurisprudence. In the name of public interest, the court, lawyers, environmentalists, middle class urban citizens and NGOs worked in collaboration with each other has often marginalises the problems of the other sections of society.

The state politicians have used the FCA as a convenient target and generating an anti-environmentalist rhetoric in state-level politics. The tussle is at multiple levels like local communities who want to use forests for their livelihood purposes, state apparatus in the form the Non-timer forest products or wanting to give it for mining or other short term activities. The communities around the Kundremukh National Park are largely non-tribal and the economy is relatively prosperous and where substantial forest rights were granted to forest dependent households at the individual rather than the community level but in a discriminatory manner. The tribals argue about the large contradiction of land, which is not by the people who own an acre or two but by the big coffee estates with thousands of acres on which the government is very silentThe other reasons for the crisis is due to lack of political support and the geographical location is such that they are dispersed and are unable to press their claims. The creation of more nuanced and locally specific categories that allocate rights and responsibilities across the local, state and central levels in ways that reflects the interests of these actors. Finally Supreme Court should motive state responsibilities for managing forests among the various parts of the government by enforcing the Article 48A of the Directive Principles of State Policy of the Indian Constitution. The state should be encouraged to prepare a comprehensive legislation because the land administration is under the purview of the state government. The repeated u-turns and confusions in the policy framing and execution are at the behest of vested interest in industry and the rural dominant caste with political, economic and social status of the rural elite will make it difficult to formulate a policy frame work and to apply it.

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[57] Interview with G.V. Kempegowda, District President of the Sri Durga Parameshwari Yuvaka Sangaha, Menasinahadya, on 15/11/2006.

[58] The Tamil Nadu and Karnataka governments formed the special task force in the 1990s to nab Veerappan and in the last fifteen years there were many encounters between the STF and Veerappan group. Even after accomplishing the task of hunting Veerappan, the STF is not disbanded; instead the government has announced that STF operations in the forest area.

[59] The first instance of Naxalities were noticed in 2003 in Edu village of Karkalataluk were Parvathi and Hajima were killed in an police encounter which brought the basic issues of tribal and Naxalites.The biggest loss to the party was SakethRajan, who was the main architect to the political and organizational growth of the party, and his associate Shivalingu in Menisinahadiya of Chikmagalur district. See Awasthi, Kirtiman (2008): "Many Takers of a Park", *Down to Earth*, Vol.16, No.23, April 16-30, pp.23-27.

Determinants of Female Work Participation and Labour Supply Behaviour of Urban Women in Tripura: A Logit Estimation

Paramita Saha and Mamoni Kalita*

Abstract

This paper tries to identify the labour supply behaviour of women in urban Tripura from a primary survey on working as well as non-working women. The overall picture emerging from the exercise is that certain factors such as time spent at the work place and in household activities, monthly income and the travel time to work place have negative impact on the labour supply. Along with creation of sustainable jobs in the constrained economy of Tripura, policy prescriptions lie on provisioning of certain supportive services for an improvement in women's participation in the labour market. Moreover, the constraints and burden arising out of a task depends on factors like health issues, nature of the task, earning from the task etc. all need much deeper analysis.

I. Introduction

The analysis of women's work participation has attracted considerable attention since the pioneering works of Mincer (1962). In the developing economies, the issue of woman's contribution in economic activities now has been a topic of interest among the researchers leading to formulation of policies on the subject. In developing economies male participation rate dominate over women's in activities recognised to be economically productive. This is despite the longer hour of work women spend in household activities as unpaid labour as well as outside home in various economically productive activities. This paper tries to find out the determinants that influence women's work participation and the labour supply behaviour considering urban Tripura as a case.

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Data and Methodology

Data for this paper are collected through a sample survey conducted in four randomly selected urban areas of West Tripura district during 2014. Census of India (2001) categories 13 areas in West Tripura, four in South Tripura, three areas each in Dhalai as well as in North Tripura districts as urban areas. The Agartala municipality area in West Tripura district accounts for 64.9 per cent urban population of the state and the data for this paper is from four areas of Agartala municipality - namely Nagerjala, Dhaleswar, Ram Nagar and Hapania. A sample of 138 households was picked up randomly from the list of residents provided by the municipality. Information were collected through a structured questionnaire on socio economic, demographic and work related conditions of women in the age group of 15years and above. Factor analysis is done to identify the determinants of work participation of women and logit estimation is run on the composite factor score to examine the labour supply behaviour.

II. Factors Affecting Women's Work Participation: A Review of Literature

In developing countries both demographic as well as non-demographic factors act as determinants in the changes in the labour force. Among the demographic factors the size of the family, economic status, age etc. are considered as important determinants(Rayappa and Erpenshade, 1975). Majumdar (2011) with the help of a binary choice model has demonstrated how the labour force participation decision is influenced by individual, household, and macro level factors. The variables taken into consideration by Majumdar are age, years of schooling, and marital status at the individual level; socio religious groups, place of residence, sex ratio, household dependency ratio and (log of) household income at the household level; and average unemployment rate and average wage rate at macro level as the determinants. Majumdar (2011) finds a clear U shaped pattern between education and female labour force participation. Participation rate is higher among illiterates, decreases consistently for higher educational groups, and again shows a rise for graduates and above. The U shaped is more prominent for urban areas. Again it is found that women withdraw from labour market as their economic situation improves. The U shaped labour force participation curve is also indicated by Unni (1994) and Olsen and Mehta (2009). Massod and Izhar's (2009) study based on NSSO 61st round (2004-05) data revealed personal variables like education and wages are significant determinant of urban women labour force participation, but not for rural women. Anbreen and Afzal's (2012) study in case of Pakistan revealed that income, education, employment status of husband have positive impact on labour force participation of women. Fatma and Bhatt (2013) attempted to investigate the determinants of married women labour force participation in North Cyprus, but could not find any negative effect of being married. There are however evidences that participation and non-participation of married women in the labour force is largely influenced by number of off springs (Anbreen and Afzal, 2012). Muhammad et al (2009) showed that marital status, educated husband, family setup, number of children all influence work participation of women positively and significantly but presence of assets, spouse employment, presence of children in the age group below 6 years, reduces female work participation. Gill et al (2001) in their study focussing on Punjab confirmed that feeling responsible towards family work is

the prime factor responsible for work participation in the farm sector, whereas economic responsibility is the reason of participation in the non-farm activities. Table 1 presents profile of the sampled working and non-working women, derived from the field study. These variables are used to address the determinants of labour supply behaviour.

Table 1: Demographic and Socio Economic Profile of the Respondents

No. of respondent		**Working**	**Nonworking**	**Total**
		80 (58%)	**58 (42%)**	**138**
Economic status	Below poverty	11 (14%)	02 (3.4%)	13
Family type	Joint	25 (31%)	18 (30%)	43
	Nuclear	55 (69%)	40 (70%)	95
Age	15 to 24	5 (6%)	8 (14%)	13
	25 t0 34	23 (29%)	6 (10%)	29
	35 to44	32 (40%)	11 (19%)	43
	45 to 54	18 (22%)	25 (43%)	43
	55 above	2 (3%)	8 (14%)	10
Education of the respondent	None	1 (1%)	0	1
	Primary	10 (12%)	0	10
	Secondary	11 (14%)	16 (28%)	27
	Graduation	35 (44%)	38 (65%)	73
	Post-graduation	23 (29%)	4 (7%)	27
Marital status	Married	63 (79%)	40 (69%)	103
	Unmarried	12 (15%)	5 (9%)	17
	widow	05 (6%)	13 (22%)	18
Husband Education	primary	4 (6%)	0	4
	secondary	6 (9%)	3 (5%)	9
	graduation	31 (46%)	39 (71%)	70
	Post-graduation	27 (40%)	13 (24%)	40
Number of family members	one	2 (3%)	0	2
	two	17 (21%)	8 (14%)	25
	three	19 (24%)	30 (52%)	49
	more than three	42 (53%)	20 (34%)	62
	None	03 (5%)	5 (9%)	8
Number of children under 15 Year	One	18 (33%)	18 (26%)	36
	Two	25 (4%)	2 (37%)	27
	None	25 (63%)	35 (63%)	60
Number of working people in the family	One	37 (46%)	29 (50%)	66
	Two	29 (36%)	25 (43%)	54
	Three	6 (7%)	4 (7%)	10
	More than three	2 (3%)	0	2
	None	6 (8%)	0	6
Number of people financially dependent on the respondent	One	17 (21%)	-	17
	Two	36 (41%)	-	36
	Three	23 (33%)	-	23
	None	4 (5%)	-	4

Source: Field Survey, 2014

III. Work Profile of the Urban Working Women

It is stated that if both SNA (System of National Accounts) and Extended SNA activities are taken together, women in India would be found to be working for much longer hours than men (Government of India, 2000).The SNA activities primarily include production activities like agriculture, forestry, fishing, mining, quarrying, processing, animal husbandry; and tertiary activities like trade, business and services. Extended SNA activities include household maintenance, care for children, sick and elderly; while the non SNA activities include learning, social and cultural activities, personal care and self-maintenance. Table 2 provides a brief idea about the average time spent on SNA and extended SNA activities by urban working women of Tripura.

Intensity of the works is an important dimension of women's work. A helping hand at domestic as well as in other works to a good extent could reduce the intensity of work for the women. This study finds that about 38 per cent working women have full time helping hands and 44 per cent have part time helps to assist in their domestic chores. The respondents are almost equally distributed among government jobs (31 per cent), private jobs (30 per cent) and self-employed (30 per cent) and 9 per cent respondents in daily wage earning. The estimates on the average number of hours spent by the working women in both paid and unpaid activities reveal that working women spend on an average around 7 hours at the work place apart from spending on an average 4 hours in household activities and 3 hours in care giving activities. All these increase their work burden by at least 4 to 5 hours compared to the non-working women. The harshness of such situation is experienced by all women who juggle production (including the non SNA activities performed) and reproduction activities with serious consequences to their personal well-being. This calls for the need of legitimising the unpaid activities of women as 'work'. The time use survey of Government of India (2000) at least acknowledges the long working hours of women, a large part of which is unpaid. Table-3 represents the other work related particulars, derived from the field work, which tend to affect women work participation.

Table 2: Time Use of Urban Women

Categories of women	Average hours spent in Paid work	Average Hours spent in unpaid household activities	Average hours spent in care giving of Elders and children
Working women	7 hours	4hours	3 hours
Non-working women		7 hours	4hours

* Source: Government of India (2000)

Table 3: Work Related Particulars of Working Women

Type of job women are engaged with	
Part time	31 (39%)
Fulltime	49 (61%)
Job description	
Government sector	25 (31%)
Private Sector	32 (40%)
Agriculture	0 (0%)
MNREGA/Daily labourer	7 (9%)
Own firm or Business	24 (30%)
Type of support system the working women have to help in the household work	
Full time paid helper	38%
Part time paid helper	44%
Distance from the work place	
1 to 3km	35 (44%)
4 to 6km	20 (25%)
7 to 9km	2 (2%)
10 to 12km	9(11%)
More than 12 km	14(18%)
Mode of Travel	
Walking	30(37%)
Public transport	25(31%)
Organization transport	11(14%)
Own vehicle	12(15%)
Hired vehicle	3 (3%)
Monthly Family Income	
5000 and less	1 (1%)
5001 to 10,000	17 (21%)
10,001 to 20,000	6 (8%)
20,001 to 30,000	17 (21%)
30,000 & above	39 (49%)
Respondent Monthly Income	
5000 and less	16 (20%)
5001 to 10,000	22 (27%)
10,001 to 20,000	18 (22%)
20,001 to 30,000	22 (28%)
30,000 & above	2 (3%)
Husbands Monthly Income	
5000 and less	6 (9%)
5001 to 10,000	10 (16%)
10,001 to 20,000	13 (20%)
20,001 to 30,000	24 (38%)
30,000 & above	11 (17%)

* Calculated by authors

IV. Labour Supply Behaviour of Urban Women in Tripura

To find out the significant factors that determine the labour supply behaviour of women, the principle component method is used to extract the factors from two different groups of data, namely household particulars and work related particulars. At the first step, for each category of sample, factor analysis is carried out. Sample adequacy is checked using KMO and Bartlett's test[1], which yield satisfactory result for both the category[2]. After extracting the factors, logit regression model is run on composite factor score for each respondent to identify the probability of a women participating in the labour force.

Under the household particulars, most of the demographic variables discussed in the earlier section are incorporated in the analysis. While incorporating the variables on work related particulars of working and non-working women few additional variables like time spent at work place, time spent for household activities, time spent for the activities like in child care, caring for elders at home are added. In addition to these variables, the distance travelled daily by working women and the mode of travel are also considered in the analysis. The variables family income, income of the husband and the income of the working women etc. are included on the right hand side of the female labour supply equation. Care has been taken not to miss any variable which might affect the labour supply behaviour of a woman. For this, the availability of helping hands, full or part time is also considered as support system for a woman.

We found that four factors loaded in household particulars category, explain cumulative 66.5% variance. Three factors loaded in work related particulars explain cumulative 68.1% variance. After extracting the factors with the factor score, two binary logit models are estimated. In model 1 we have incorporated the household and demographic variables, and in model 2 work related particulars are incorporated.

Details results of the factors extracted are presented in table 4.

[1] Kaiser-Meyer-Olkin(KMO) measure of sample adequacy is an index used to examine the appropriateness of factor analysis. High values between (0.5 and 1.0) indicate factor analysis is appropriate. Bartlett's test of sphericity is a test statistics used to examine the hypothesis that the variables are uncorrelated in population. In other word the variable correlation matrix is an identity matrix.

[2] Sample adequacy is 0.579 in case of household particulars and 0.747 in case of work profile.

Table 4: Varimax Roated Loading (Household profile)

Factors and variables	Factor 1	Factor 2	Factor 3	Factor 4
First factor				
Education	0.868			
Status of the respondent	0.795			
Husband's education	0.631			
Second factor				
Age		0.741		
Number of people financially dependent on respondent			0.697	
Number of children above 15 years		0.692		
Marital status		0.459		
Third factor				
Family type			0.792	
Number of working member in the family			0.778	
Fourth factor				
Number of children under 15 years				0.889

Table 4 explains the household related factors affecting the labour supply behaviour of urban women in Tripura. In the first factor, variables loaded are education of the respondent, status of the respondent and husband's education in case of married women. In the second factor variables loaded are age of the respondent, number of people financially dependent on the respondent, number of children above 15 years of age and the marital status of the respondent. In the third factor variable loaded are family type and number of working member in the family. In the fourth factor only one variable - number of children under 15 years is loaded.

The logit model can be written as

$$L_i = (P_i/1-P_i) = \beta_1 + \beta_2 FS1 + \beta_3 FS2 + \beta_4 FS3 + \beta_5 FS4 + + \mu_i$$

Table 5: Results of Logit Model -1 Estimated Through Factor Score

Household				
Dependent Variable: Working /Nonworking				
Method: ML - Binary Logit (Quadratic hill climbing)				
Sample: 138				
Included observations: 138				
Convergence achieved after 4 iterations				
Covariance matrix computed using second derivatives				
Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
C	0.4706	0.221865	2.121112	0.0339
FC1	-0.17731	0.248494	-0.71353	0.4755
FC2	1.35509	0.251285	5.392642	0.0000
FC3	0.010087	0.226175	0.044597	0.9644
FC4	-0.99014	0.249479	-3.96882	0.0001
McFadden R-squared	0.311232	LR statistic		58.44511
Prob (LR statistic)	0	Total observation		138

Findings of Model 1

The Mc Fadden R squared[3] value in our analysis is 0.311232 and likelihood ratio (LR) is positive at 58.44 which is highly significant (Table 5).The findings show that in urban Tripura, education of the respondent and husband's education does not have any significant impact on the women's labour supply behaviour. The reason may be that being a small state Tripura does not offer much job opportunities for women with higher education. As we had found while analysing respondent's education, almost 65 per cent of the respondents who are graduate are housewives in urban Tripura. The variable which are loaded in factor 2 are age of the respondent, number of children above 15 years, number of people financially dependent on the respondent and marital status of the respondent have a significant impact on labour supply behaviour of a women in urban Tripura. The reason might be as the children become older, women find it much easier to involve in outside economic activities as she has to spend less time in extended SNA activities. Number of financially dependent person also has a significant impact on the work participation of women. Higher number of financially dependent people means more requirement of income in the household, thus forcing women to engage in economically meaningful activities. Marital status and age of the respondent though might have loaded negatively as individual variables but together in the factor it has a positive and significant impact on the labour supply behaviour of women. Factor 3 in which two variables are loaded i.e. number of family members and number of working members in the family does not have significant impact on urban women labour supply in Tripura. The reason might be that a large number of respondent have nuclear family (see table 1). The Factor 4, in which only one variable - number of children below 15 years of age is loaded, has a negative impact on labour supply behaviour of women.

Table 6: Varimax Roated Loading (Work Profile)

Factors and variables	Factor 1	Factor 2	Factor 3
First factor			
Time spent at work place	0.916		
Respondent's monthly Income	0.857		
Time spent on household activities	0.81		
Job description	0.778		
Type of job	0.746		
Distance from the work place	0.647		
Mode of travel	0.613		
Second factor			
Monthly family income		0.902	
part time helper		0.684	
full time helper		0.581	
Third factor			
Time spent on care giving activities			0.784
husband monthly income			0.588

[3] Mc Fadden R^2 also ranges between 0 and 1. It may however keep in mind that in binary regression models goodness of fit is a secondary importance. What matter most is the expected sign of regression coefficients and their statistical or practical importance. Each slope coefficient in this equation is a partial slope coefficient and measures change in the estimated logit for a unit change in the value of given regressor (holding other regressor constant). Thus the factor 2 coefficient 1.36 means with other factors held constant if factor 2 increases by a unit, on average the estimated logit increases by about 1.36 units suggesting a positive relationship between the work participation of urban women and variables which are loaded in factor 2 (Gujarati and Sangeetha, 2007).

Table 6 explains the work related variables which are loaded in three different factors that affect the labour supply behaviour of urban women in Tripura. Factor 1 has the maximum variables loaded. The factor 2 has loaded three variables and in factor 3 two variables are loaded.

Table 7: Results of Logit Model -2 Estimated Through Factor Score

WORK PROFILE				
Dependent Variable: Working/Nonworking				
Method: ML - Binary Logit (Quadratic hill climbing)				
Sample (adjusted): 2 138				
Included observations: 138				
Convergence achieved after 5 iterations				
Covariance matrix computed using second derivatives				
Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob.**
C	0.910947	0.328475	2.773262	0.0055
FC1	-2.331611	0.403257	-5.781951	0.0000
FC2	-0.076204	0.216779	-0.351528	0.7252
FC3	-0.114268	0.248263	-0.460272	0.6453
McFadden R-squared	0.441560	LR statistic		82.43514
Prob (LR statistic)	0.000000	Total observation		138

Findings of Model 2

Table 7 reveals that out of three factors loaded only factor 1 is significant and the coefficient is negative which means that this factor has a negative impact on women labour supply behaviour. The factor which includes the variable like time devoted at the work place, time devoted in household activities, monthly income, modes of travelling etc. has a negative impact on labour supply behaviour of urban women in Tripura. Individually some variable might have a positive significant impact but when combining with other variable in an extracted factor, it shows a negative impact. In other words the estimate reflects that in case the amount of time spent in workplace or at home is more, the income derived monthly is less and time spent for travelling travel to work is more, women in general would refrain from participating in the labour market. In other words, this indicates that women value that the cost of labour/time spent for participating in labour market is more than the payoffs received and therefore tends to withdraw from labour market participation.

V. Conclusion

The overall picture emerging from the exercises is that the labour supply behaviour of women in Tripura is complex. The results of this study reveal that children below 15 years, marital status and number of people financially dependent on women have

a significant and positive impact on labour supply behaviour of women in urban Tripura. On the other hand time spent at the work place and in household activities and monthly income and the travel time to work place etc. have negative impact on labour supply behaviour of urban women in Tripura. The tiny small and populous state of Tripura is remotely located from mainland India and has bottlenecks in transport infrastructure. Besides, the small size of the economy has limitations in generation of decent and sustainable job opportunities for educated urban women. Along with creation of sustainable jobs, policy prescriptions lies on provisioning of supportive services of child care which could lead to an improvement in women's participation in the urban labour market. The discussion (Floro, 1995) on women's work burden and allocation of time, also suggest that the effect of macroeconomic policy reforms need to take into account both the level of output and the resulted changes in the level and intensity of work for women. This is because constraints and burden arising out of a task depends on a number of factors like health issues, experiences, nature of task, earning from the task etc. all need much deeper analysis.

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Problems of Small Tea Growers: A Study in Sonitpur District, Assam

Prarthana Barua*

Abstract

The small tea plantation sector now occupies an important space in the economy of Assam and contributes to the generation of rural employment. However, the sector is not free from problems.These are largely because of infrastructure deficiency and absence or implementation of certain regulatory measures. This paper provides a brief account of the problems faced by the small tea growers in the state drawing insights from the fields.

I. Introduction

The dominant tea producing regions of the world now see changed trajectory in the production process with involvement of growing number of small growers[1]. The Tea Board of India's emphasis on the promotion of the small tea growers since 1980s is primarily because of the decline in quality and production of tea in the estate sector. Bhowmik (1991) indicates the rise of small tea growers in India is primarily because of the failure of the tea industry to meet the expected growth target and decline in demand in the international market, quality being one of the factors. In India 51 per cent tea bushes are more than 40 years old, which is one of the causes of stagnant productivity (Tea Board of India, 2006). Moreover, the re-plantation rate is never been more than 0.4 percent of the total acreages in a year in recent years, though the prescribed annual norm is two percent[2].

The paper looks at the growth of small tea growers in few pockets of Sonitpur district of Assam and discusses the major challenges faced by the growers in their consolidation process.

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1 For example, In Assam small tea gardens emerged in early 1980s and the number had shot up to 48,292 in 2005 accounting 22.7 per cent of area and 25.8 per cent of total production (Statistical Handbooks of Assam, 2011.

2 The Parliamentary Standing Committee on Commerce, Government of India, 2012 considered lack of bush re-plantation and rejuvenation of bush health as major deterrent factors for Indian tea plantation.

The rise and expansion of small tea gardens

In 1978, the then Agriculture Minister of Assam took the initiative and encouraged the rural youths of the state to take up tea plantations in the homesteads and fallow land to improve their economic conditions (Bora, 2008). Since then, plantations in the small sector show a considerable rise spreading over the districts,particularly in Eastern and Northern Assam. Skilled manpower from the nearby plantation estates, a convenient market to sell in the tea estate factories and advantages of plantation crops over the seasonal agriculture crops were some of the factors that helped in consolidation of the sector in the state. This phenomenon is described in the popular discourse as the most remarkable people-oriented economic activity towards boosting the state's economy and addressing the unemployment problem to an extent.

The expansion of the small tea sector also induced setting up of tea factories, popularly known as bought leaf tea factories (BLTFs) by a wealthy section of investors. At present there are 177 BLTFs across nine districts of the state (Government of Assam, 2011). The establishment of the BLTFs along with the existing factories of the tea estates, however, could not help to create a fair ground to absorb the produce of the small growers. This is particularly reflected by discontents of the small growers over the pricing of green tea leaves. The high oscillation of prices of tea leaves during the year,often un-remunerative,thus leading to a kind of dependency condition to sell the green tea leaves. Data of the survey conducted by the government of Assam (2011) reveals that processing capacity of the 177 BLTFs in Assam is about 260 million kg, whereas the production in the small tea garden sector stood at 391.5 million kg in the year 2008, indicating a crisis picture to sell the leaves.

Study area

The paper is based on interaction with small tea growers in six rural development blocks of Sonitpur district viz.Sootia, Behali, Biswanath, Bagmara, Rangpara and Balipara.The district of Sonitpur is situated between the river Brahmaputra and the Himalayan foothills of Arunachal Pradesh. Its long foothills region with Arunachal Pradesh provides a fertile ground suitable for tea cultivation (particularly in BiswanathChariali and Behali blocks) leading to high concentration of tea gardens in the district. At present, the district has more than 6500 small growers covering an area of 1297.63 hectares (Government of Assam, 2011).

The land available for tea cultivation in the district can be divided into three categories: forest land, agricultural land (low land and high land) and grazing land. The concentration of tea plantation is mostly seen in the privately owned agricultural land, but now expansion is visible in the forest and grazing land, owned by the State. Agricultural land are further divided into three types on the basis of the revenue generated namely, i) *myadi* land (permanently settled), ii) *eksona* (yearly settlement), and iii) *tauzi* (government land but under individual occupation in lieu of nominal rent to the government). At present, people have started using all categories of land

for tea plantations. The use of forest land, for example, is witnessed in development blocks of Rangapara andChariduar. It is found that a large section of small tea growers in the district are from rich class of rural and semi-urban areas. This class, besides using their own land, also acquired land from the poor and marginal peasants for tea plantations. Further, many government officials, influential political leaders and businessmen are also seen to be engaged in grabbing community and State land in the remote areas adjacent to forest land and have started tea plantations.

From agriculture to small tea plantation

One of the reasons of expansion of small tea plantations, as cited by the small growers, is because of the menace created by the animals in the agriculture pockets. "*…growing pineapples on commercial basis, but it became impossible with growing menace from the monkeys. This is precisely the reason that, many people in the villages now even stopped growing the seasonal vegetables. Replacement or change in land use to tea thus became a viable alternative"*[3]. In some other pockets, elephant disturbances in the sugarcane fields, compelled people to shift to teaplantation. This problem has been acute in the study blocks of Chariduar and Rangapara adjacent to the Nameri National Park.

II. The Constraints and the Crisis

Oscillation of prices of green tea leaves

The small growers are dependent on the BLTFs and estate factories to sell their green tea leaves. The growers reported high oscillation of the prices of leaves supplied to the factories (Table 1). The small growers have poor negotiable power and the oscillations and downward trend even in a month create constraints to meet the operational costs of the plantations.

Table 1: Average price of Green Leaves (2009-2013)

Year	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
2009	15.9	15.8	15.8	18.3	13.8	12.8	12.3	13.8	14.1	14.1
2010	15.8	15.8	15.8	15.8	16.3	16.3	14.8	14.8	14.8	14.8
2011	18.4	18.8	18.8	18.8	6.00	14.3	12.0	11.5	10.8	10.8
2012	17.8	18.5	19.8	21.8	19.8	18.8	17.8	16.8	16.8	16.8
2013	18.8	18.5	22.8	19.8	15.3	15.3	15.3	14.5	14.0	14.0

Source: Growers' diary (from Behali Block), figures are in Rs.

Small growers discontent over the prices offered by the tea factories often visible in the state. The Tea Marketing (Control) Order, 2003, of Ministry of Commerce and Industry, Government of India, has stated a price sharing formula of green tea leaves. To this,the price share ratio between tea growers and manufacturers needs to be 65:35

[3] Discussion with a small tea grower in Biswanath Chariali area, August, 2013

from the realisation price of made tea at auction market. This guideline, however, as revealed from the prices (Table 1) is not followed[4].

Heterogeneity issue in formation of producers' co-operatives

The issue often raised that setting up factories by the small tea growers on cooperative mode could help in ensuringremunerative prices for green tea leaves. The concept of co-operative tea factories provided relief to the problems faced by the small growers in many tea producing areas in the country, particularly in the Nilgiris in India (Bhowmik, 1997; Reddy and Bhowmik, 1986). However, the heterogeneous size class of holdings among the small growers comes in the way of forming cooperative in the sector[5]It is seen that in many cases the establishment of BLTFs are joint initiatives of both the growers and affluent investors. Discussion with the small growers in the study area reveals that the owners of some of the BLTFs put pressure on the neighbouringtea estates to keep the price of green tea leaves lower[6]. Moreover, the section of growers with larger size of holdings (more than 10 acre), never raise their voice for price fluctuations. The small growers are on the opinion that there exists a reciprocal relation between the large growers and the factory owners towards ensuring continuous supply to the tea factories and better prices for the leaves.

Oversupply or limit in processing capacity of green leaves

The processing factories set the limits on the supply of the quantity of green tea leaves during peak season[7] adding to the woes of the small growers. The processing units (both the estates and BLTFs) fixed a maximum amount to be transported and purchased for every 'carrier'[8] and refuse to take any extra leaves beyond the pre-determined quantity. This in straight term indicates oversupply of the leaves. Besides the limit imposed on the quantity supplied, the growers also face problem in selling the leaves during the weekends as only a few factories remain open till Saturday noon. Furthermore, without any prior intimation, the processing units sometimes refuse to take leaf from the growers.

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4 To make a kg of dry tea it requires about 4.5 kg of green leaves. The cost component at the factories is estimated at 35 per cent of total costs. Thus the price payable for a kg green leaves should be =sale proceeds at auction market x(1/4.5)x0.65 (the share cost of production at field). Considering the average price of Rs. 130/kg at the auction market of Guwahati during 2013, the price of green tea leaves could have stand at Rs. 18.75/ kg. But we observe huge deviation for larger part of the year (Table 1).

5 The field work captured land holdings in the size classes ofmore than 25 acres, 10-20 acre, 3-10 acre,1-3 acre and below 1 acre. The holdings remain as peasants smallholdings and the existing regulations would work if holdings are of about 2-3 acres in size. The government of Assam's consideration of tea holdings as small with acreages up to 25 acre appears to be problematic.

6 Discussion with the growers, 9th April 2013.

7 The monsoon months (June- September) are the peak season when the tea yields are the maximum.

8 The word 'carrier' refers to those people who got engaged in transporting green tea leaves to the factories.

Theventure in tea plantations in the neighboring state of Arunachal Pradesh, adjacent to the Sonitpurdistrict also has induced the supply of green tea leaves to the factories located in Sonitpur district. This may be one of the reasons for setting the limit of supply of leaves.

Das (2013) views that the meager price offered for the tea leaves is indicative of the fact the processing units take advantage of abundant supply of this perishable product. Discussions with the growers revealed similar experiences which they also encountered from the company's part as they deny the leaves on account of technical glitches.Rise in production in estate plantationsalso leads to refusal in purchase. Under such circumstances the growers have no choice but not to pluck the mature leaves leading to wastages of the leaves.

Experience of the tea leaves agents

The 'carriers'often incur losses during peak plucking seasons when the factory management refuses to buy the leaves, even after reaching the premises of the factory. In such circumstances the entire process becomes very uncertain. Such development also invades the self- respect of the 'carriers' as well as of the growers[9], forcing them to knock the doors of processing factories one after another.

The *Maharis*[10], a multi-tasked staff employed by some of the small tea growers with large landholdings for supervisory activities and transportation of the leaves shared that it is better to work as wage earner than to engage in job of transportation[11].A grower from Rangsali village narrated his experience "*While transporting a fully loaded vehicle of green leaves, the manager of a factory refused to buy the green tea leaves. On my constant request, he agreed to purchase it and bargained the price of the leaves at Rs 15/- per kg instead of Rs 22/- per kg,but finally refused. The approach in another factory yielded the same result. The final action was throwing the green leaves to river out of sheer frustration*"[12].

Scarcity of Labour

Tea plantation is a labour intensive production sector. In this sector labour is non-substitutable to machineries to ensure quality of the pluck. Ideally, a smallholding of about 2 acres can be run by the family members. However, considering the larger size of the plantations (as we have indicated), the growers seek the services of hired labourers. Moreover, there is demand for additional hands during the peak season as the yield of matured tea bushes increases. Generally, the ex-tea garden workers and the casual workers engaged in tea estates are the main source of labour to work in the

9 FGD with growers engaged in green leaf transportation.

10 The term *Mahari* refers to the unemployed youths of the study area who are employed by the relatively large small tea growers as multitasker.

11 Discussion with the Maharis of small tea gardens of village Botiamari (Behali Block).

12 `Discussion with a grower on 25th August 2013

small tea gardens, along with a small segment of daily wage earners from the respective villages.

As, labourers are often not available in the production pockets, transportation of the labourers has become an additional responsibility for the growers. It is found that most of the labourers demand pick up and drop facility. The labour crisis has led to development of a unique system operated by the 'carrier'of green tea leaves. It may be noted that in the areas of small tea gardens, significant number of youths are now involved in the supply of tea leaves from the production holdings to the tea factories. The small growers place the demand on the carriers to supply the labour to work in their plantations,and in turn supply green tea leaves. The carriers also look for sufficient quantity of supply to derive maximum profits. To ensure an uninterrupted supply from the growers, the carriers arrange supply of workers to work in the plantations. The growers also pay a sum of Rs. 10/ per workers towards the transportation cost, irrespective of the distance travelled. In areas of labour shortage, it is seen that the growers offer gifts as well as monetary bonus to the workers during festivals to ensure their availability.

The crisis of labour supply is apparent during the festival period of *Durga Puja* and *Holi*[13]. The hangover of the festivals continues for long leading to absenteeism and subsequent wastage of the leaves. Moreover, availability of relatively remunerative jobs in other non-farm sectors has also created crisis in the supply of labour to work in the plantations (note wage).

Imposition of levies by the State

Since the year 2009, government of Assam is imposing a Cess of Rs. 0.20 for a kg of green tea leaves. TheCess is collected through the BLTFs and estate factories,who deduct the amount from supplies made by the small growers. In addition to the Cess, the government imposes a tax of Rs 200/-per *bigha* onthe government land used by the small growers. Interactions revealed that such levies put additional burden on the growers, particularly because of rising inputs costs in fertilisers, pesticides and wage of labour.

Lack of irrigation facility

One hectare standing mature tea plants requires about 10,000 liters of water per day which is equivalent to 2.5mm rainfall (Barua, 2008). Tea plants also need water after pruning which is generally done during the months of December and January. This period is generally dry in Assam, receives a few showers of retreating monsoon, eventually fruitful for the growth of tea plants after pruning (Barua, 2008).

[13] These are some major festivals celebrated by the working community involved in the tea gardens.

However, erratic nature of rainfall in recent times, particularly during the non-monsoon period, forces the growers to make arrangements for irrigation infrastructure. Considering the size of the holdings, however it is uneconomical to make the provisioning of irrigation infrastructure. Drawing water from the nearby water bodies, river and extraction of groundwater is not inexpensive for the small growers. The Tea Board of India emphasized on this issue in the XII plan period. Now, the Tea Board offers irrigation subsidy at 25 per cent of the total expenditure subject to a maximum of Rs. 10,000 per hectare, but this appears to be very low in comparison with the current cost (around 70,000 per hectare) (Das, 2013: 30).

Pressure from militants groups

Some of the tea pockets in Sonitpur district are infested by the militants groups, who reportedly accumulate a considerable sum from the tea sector. The small growers in the study district, particularly areas bordering Arunachal Pradesh are also the victims. The incidence of demanding money and kidnapping of the small tea growers has become a phenomenon in the area.

Theft of green tea leaves

Stealing of green tea leaves has emerged as a problem in the pockets of small tea garden. The prime reason as indicated is that the BLTFs and Estate tea factories procure green tea leaves through the carriers or agents without verifying the sources. The carriers collect the tea leaves from people at certain collection points and not from the garden directly. The layer of intermediaries creates the space and some needy people get involved in stealing and sell to the carriers (Saikia, 2012).

The Grower's Association

The Biswanath small tea growers' association was formed in the year 1992. Later with involvement of many more growers from other localities it was given a shape of district level association. The association appears to be helpless in addressing the plight of the small growers including finding ways to ensure remunerative price of green tea leaves.

The president of the association shared:*"If no one agrees to sell the leaves in lesser price, the processing units are bound to pay the right price. A section of growers selling leaves at lesser price must have some kind of understanding with the factory management, including the waiver of the transportation cost"*. It may indicate that the spirit of cooperation in missing in the production space.

It may be noted that the Carriers or the Agents, in order to ensure their livelihood assure the supply of tea leaves to the factories. There is an informal directive from the growers association not to sell green leaves through the carriers and at low price. The cash starved small growers, however cannot ignore the carriers, unless some concrete

provisioning from the association is made. This leaves a section of growers to remain indifferent to the directive of the association. It will require an effective formation of the producer societies to collect and sell the tea leaves, along with the regulation to implement the price sharing formula of green tea leaves.

III. Conclusion: Initiatives of the institutions need to be complemented by supportive regulations

Present condition of the small tea growers shows their multifold layers of dependency. The deficiencies in operational infrastructure and absence of certain regulatory supports have only accentuated dependency of the small growers on variety of external factors. On one hand, erratic weather and lack of irrigation facilities affect the yield in their plantations and absence of regulations on price front creates anxiety to sell their produces. In addition to these two set of factors, on operational front certain factors influence the cost of production and yield. It appears that on institutional front the supports are primarily on operational line.

The Assam Agriculture University extends its supports as advisory in husbandry and technological fronts. The "Small tea Growers Advisory Programme" in the Department of Tea Husbandry and Technology, which receive aid from Tea Board of India. The training and supports are in the areas of pesticide residue and overuse of fertilizers, knowhow of growing tea vis-*à*-vispruning, skiffing, shade trees and production process of made tea[14]. The intervention of the Assam Agriculture University is necessary because at present the question is being raised on the quality of tea plucked in the small tea gardens. It is often reported that, the small growers do not use fertilizers and pesticides rationally, largely because of lack of knowledge. The buyers at the international as well as national markets are now quality conscious, look for organic products and test the presence of residuals of fertilisers and pesticides. To maintain the quality and environmental standard the small tea growers will require a brand name and institutional support, which appears to be beyond imagination at the present regulatory environment, particularly on the pricing front.

The Tea Board of India in the 11th five year plan had incorporated various field oriented developmental measures aimed at increasing field productivity and reduction in cost of production. In order to achieve these objectives, financial assistance is being extended to all segments of sector regardless of their size. In addition to the scheme, for Self Help Groups,the Tea Board has provisions of subsidy for setting up of leaf collection centers, purchase of weighting scales, leaf carrying bags, plastic crates, purchase of transport vehicles, and purchase of field inputs like fertilizers, plant protection chemicals, pruning machines, etc.Such support on the marketing front, however, cannot be considered complete.

Moreover, the schemes of the Tea Board of India are confined only to the registered growers and only a small fraction of the small growers in Assam are registered with

[14] Discussion with Prof Gautam Saikia on 28th August, 2014 (Jorhat Agricultural University).

the Tea Board. Registration in the Tea Board requires submission of certain documents including the land possession certificate. The growers which have used government land do not have land possession certificate. Even though the TBI has introduced the process of issuing biometric card from the year 2013, which is quite easy in comparison to the previous process of registration but the process has not yet completed.

It may be commented that the efforts of the institutions on development front need to be complemented by the regulations to ensure fair price and market for the produces. This could be the first step towards ensuring inclusiveness and distributive justice in the small tea plantation sector.

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Agricultural Marketing Efficiency in Mizoram

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Abstract

This article assesses marketing efficiency of two important agriculture products of Mizoram - Ginger and Squash, on the basis of their institutional arrangements.It is revealed that the non-institutionalisedginger market is characterised by market imperfections with high degree of market instability and lack of market integration in terms of price. However, despite the unavailability of basic market infrastructures, the squash market under domain of a producer society has exhibited a system with elements of market efficiency. The paper suggests that a well-functioning institutionalisedmarket could benefit the farmers.

I. Introduction

Marketing of agricultural products is a process which starts with a decision to produce a saleable farm commodity and involves a chain of operations to deliver the products at the hand of final consumers (Acharya and Agarwal, 1987). The entire process involves technical and economic considerations in the fronts of pre and post-harvest operations, assembling, grading, storage, transportation and distribution. In addition there are issues of ensuring fair return tothe efforts made by the farmers, for which an efficient marketing chain and supportive infrastructures are required.

Pricing of the agriculture produces assumes the critical role in the production initiatives and marketing. An important indicator of the efficiency of marketing is the trend and behaviour of prices at the markets (Dave, 1980). A marketing structure is considered as efficient if the prices generate enthusiasms and provide positive signals to the producers as well as the consumers (Jasdanwalla, 1977). The price guides the movement of commodities through the marketing system, and directs the intermediaries to the location of sources and availability of supplies. For the farmers too, prices act as determinant of the nature, time and the quantity to be produced.

Agriculture occupies a prominent place in the economy of Mizoram. According to the census data of 2001 in Mizoram about 60 percent of the total workers was engaged in agriculture and allied sector. The state at present has serious deficiency in marketing infrastructure, leading to uncertainty and wastage of the productions. The problem is

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more among the farmers not under the domain ofinstitutionalised supports. This paper tries to assess the scenario of marketing of Ginger and Squash and the prevailing institutional arrangements. While the marketing of Ginger is considered to be unorganised, with no institutional support, marketing of Squash on the other hand is carried on under the supervision of a Growers' Society.

Ginger is one of the most important cash crops in Mizoram, andis generally grown in *Jhum* land. The agro-climatic condition of the state is favourableand Ginger is cultivated without the use of manures, fertilisers or pesticides. Its cultivation as a cash crop in the state is known to have started in late 1970s. There are three major varieties of Ginger grown in the state namely *Thingpui, Thinglaidum*and *Thingria,*of which *Thinglaidum*is the most popular. However, this variety of ginger does not seem to have any implication in the price fetched; and hence, most of the farmers are unaware of the quality of the variety they grow.

Cultivation of Squash in Mizoram is known to have started with the coming of western Christian missionaries and locally it is named *Iskut*. Squash being a minor cucurbit was not cultivated extensively and was not a commercialised vegetable in other parts of the country at the time of its introduction in Mizoram. It is a semi-perennial crop, and the soil and conditions of the state are ideal for its successful cultivation. There are different varieties of Squash classified according to the fruits shape and colour, i.e. *Round white, Long white, Pointed green, Broad green* and *Oval green*. A well-grown plant of about one year yields 500-600 fruits per year and each weigh 200-450 grams; and lasts for 3-4 years. Extensive cultivation started only since the 1980's when farmers of Sihphir village of Aizawl district initiated its cultivation, as an alternative to the practice of *jhumming*. According to the records of the State's Horticulture Department, there are around 1200-1600 families engaged in Squash cultivation in Mizoram. The farmers are located in the villages in and around Sihphir in Aizawl and Kolasib districts, viz. SihphirVengthar, SihphirNeihbawih, Lungdai, Serkhan, Nisapui and in other villages at smaller scale. To facilitate marketing of Squash, an association 'Mizoram Iskut (squash) Growers' Association' (MIGA) was formed in 1982 with its headquarters at Sihphir.

Data Sources

This paper uses two sets of data. Along with the secondary data collected from the horticulture department of Mizoram government, a sample survey was conducted to understand the issues from the ground. Primary data in case of Ginger cultivators for the study is collected from the Aizawl district. The district has 12 agricultural circles, from which two circles were randomly selected. Altogether six villages, namely Mualpheng, Rulchawm, Ruallung, Sateek, Tachhip and Thiak, were selected from the two circles (three each from Saitual and Sialsuk) and a total of 301 farmers were interviewed in the villages.The six villages are selected based on the information that Ginger is cultivated in large scale in these villages of Aizawl district. The farmers were selected to represent at least 50 per cent of the farmers engaged in Ginger cultivation in these Six Villages.

The Squash cultivators were interviewed at the Sihphir area, one of the dominant clusters of squash in Mizoram. A sample of 48 farmers was drawn randomly from the member's list of MIGA. To the record of MIGA there are altogether nine clusters of more than 500 squash growers.

II. Area and Production of the Crops

Mizoram ranks fifth in terms of area and production of ginger in the country with a share of 7.8 percent of the country's total production. The yearwise of area, production and yield of ginger during last 10 years is presented in Table 1. The sudden increase in area coverage in 2008-09 is because of implementation of Horticultural Technology Mission (HTM), but emphasis was not placed on yield.

Table 2 presents the area and production of Squash. There had been gradual increase in the total area and production of squash, but a noticeable jump in the year 2008-09 is observed following the implementation of HTM. However, at the post 2008-09 period productivity has declined drastically. Interaction with the MIGA indicated that concerned department put more emphasis on area expansion or overstated the area to avail funds under HTM. The same reason may apply in case of Ginger.

Table 1: Area and production of Ginger in Mizoram (2001-2011)

Year	Area (In Ha)	Production (M T)	Yield/ Ha (MT)
2001-02	7287	46648	6.40
2002-03	5097	31136	6.11
2003-04	4481	29582	6.60
2004-05	4532	38068	8.40
2005-06	4654	45143	9.70
2006-07	3426	55432	16.18
2007-08	3587	57010	15.89
2008-09	10391	34290	3.30
2009-10	6200	31000	5.00
2010-11	6500	32500	5.00

Source: Department of Horticulture, Government. of Mizoram, 2012

Table 2: Area and production of Squash in Mizoram (2003-2013)

Year	Area(in Ha)	Production(in MT)	Yield /Ha (MT)
2003-04	580	20949	36.12
2004-05	583	19886	34.11
2005-06	604	21593	35.75
2006-07	664	24455	36.83
2007-08	714	26418	37
2008-09	3200	48000	15
2009-10	2250	34875	15.5
2010-11	3500	56350	16.1
2011-12	4000	66500	16.63
2012-13	4250	73525	17.3

Source: Department of Horticulture, Government of Mizoram, 2012

III. Marketing Channel and Stakeholders

Harvesting time of Ginger in Mizoram starts from November and continues till May with January-April being the peak season. The month of November also sees arrival of traders from neighbouring states in search of Ginger. The farmers do not make any arrangement in respect of grading and sorting by the varieties or size. The produce is simply packed in gunny bags whatever may be the status - clean or unclean, broken or whole, transported and piled up at the nearest roadside, and farmers wait for the prospective buyers.

Ginger is an important cash crop of the state, but the state does not have an organised support system to market the produce. The petty traders or collectors of Ginger (both local and non-local) fromtrading establishments located in the neighboring state of Assam come to the village to collect the commodity. These marketing agents located in the towns of southern Assam (Karimganj, Bagha, Silchar) would forward the material to terminal marketsof Kolkata, Azadpur (Delhi), Amritsar and Mumbai. The agents also route Ginger to Bangladesh through the Karimganj.

Interaction with the farmers in the six sampled villages revealed three existing marketing channels of Ginger (Table 3). Among the three channels, number II and III assume prime importance. The interaction revealed that more than 69 percent of the farmers with more than 70 percent of the produces directly sell to the Local Commission Agent (Channel III). About 30 per cent farmers sell through local traders (who is also the producer) constituted about 29 percent of output.

Table 3: Marketing Channels for Ginger in Mizoram

Channel I	Producers - Retailers at local market - Consumers
Channel II	Producer - Local Trader -Wholesaler/Traders (Cachar/Siliguri) - Exporter in Terminal market (Bangladesh,Kolkata and Delhi)
Channel III	Similar to the channel II, but local commission agents and itinerants traders, local and non-locals, play the role in collection Ginger

Table 4: Marketing channel of Squash

Channel I	Producer -Wholesale commission agent (local) - Retailer (Local market) - Consumer
Channel II	Producer-Local Trader- Wholesaler/Traders (Cachar Areas)- Retailer (Cachar areas)
Channel III	Producer—Local (Commission) agent- Itinerants traders (Local and Outside)- Wholesaler/ Traders (Cachar Areas)- Retailer (Cacher areas)

As indicated earlier marketing of Squash to an extent is marketed through an organised process under the supervision of MIGA. This association, though is hardly involved in marketing of the commodity, is trying to prevent price crash on account of abundant supply at the market. Farmers on the other hand, have clear knowledge about market destinations and about the prospective buyers who would come to the villages. The produce of the state is normally disposed at the retail and wholesale markets of Cachar District in Assam (Table 4).

An interview with the farmers indicated that more than 80 percent of the total quantity of Squash produced is exported to Assam. There are two major ways of procurement done by wholesalers of Assam viz. (i) direct procurement from the farmers and (ii) procurement through local commission agents and itineranttraders. Itinerant tradersare those middlemen, who facilitate the local commission agent with fund and material to procure the commodity by offering certain margin. These traderswould collect and forward the produces to the wholesalers operating in Cachar District of Assam.

The share of Squash disposed at the local retail markets is about 10 percent. The main actors in this channel are local wholesale commission agents (sometimes acting as retailers), who have direct contact with the producers. They procure the produce from the farmers and brought to various market places of Mizoram. Interestingly, these agents are organised in the form of an association, named 'MahniThlaiZuar Association (MZTA)' (Own Produced Vegetable Marketing Association); who function as wholesalers in addition to marketing their own produces. The MZTA has strong influence on the retail price. To prevent unhealthy competition among its member, the association set the wholesale price limits (minimum and maximum) to be followed by the members.

Seasonal arrivals of the products and the prices

The quantity of arrival and prices of Ginger and Squash for a period of 3 years are presented in Table 5 and 6.

Table 5: Month-wise market arrival and Prices of Ginger during 2010-13

Months	2010-11		2011-12		2012-13	
	Arrival (In Qtl)	Price/Qtl	Arrival (In Qtl)	Price/Qtl	Arrival (In Qtl)	Price/Qtl
November	701.8	500	307	300	773	1100
December	1423.7	650	986.5	350	1513.4	1500
January	3515	700	2228.5	500	3916	1700
February	4500.3	1150	1327.7	400	5132.1	1850
March	1784.4	1400	706	500	2347.5	3000
April	815	1600	390	550	1023	3400
May	370	1950	406	700	308	3800
June	274	2400	233	700	136.5	5000

Source: Sample survey, 2013

Table 6: Month-wise market arrival and Prices of Squash during 2010-13

Months	2010-11		2011-12		2012-13	
	Arrival (In Qtl)	Price/Qtl	Arrival (In Qtl)	Price/Qtl	Arrival (In Qtl)	Price/Qtl
April	250.6	2200	248.7	2150	231.95	3000
May	723.7	1500	639.45	1100	717.6	1900
June	1456	800	1483.04	750	1482.8	750
July	4788.7	700	4813.52	600	5043.99	650
August	8125.9	500	8333.12	400	8588	600
September	9124.8	300	8874.04	250	9577.35	275
October	6007	375	5754.37	350	6471.1	320
November	3323.8	400	3356.44	400	3392.49	400
December	1867.3	500	1923	450	1865.96	450
January	1256.3	550	843	500	737	500

Source: Sample survey, 2013

Table 5 indicates that the price of Ginger has been consistently show an upward trend with the start of the harvesting season and reached its peak towards the end of the season in each of the years under consideration. A comparative examination of market arrivals and price trends of Ginger in the study areas revealed that there is no clear relationship between the two, considering the peak marketing season being January-February, and against this, the peak price period is June. The situation suggests weak price response to arrivals in case of Ginger in the study areas.

Squash has a longer marketing season which starts in the month of April and ends in January the next year; August and September being the peak season. The price also changes according to the volume of market arrivals that it is highest at the beginning of the marketing season and decline continuously to a minimum point at the peak month of quantity arrival.

IV. An Analysis on Marketing Efficiency of the Crops

To test the status of Ginger and Squash on marketing efficiency, log-linear regression model is estimated with price being dependent variable and arrivals in the current and previous year as explanatory variables. The results are presented in Table 7 and 8.

Table 7: Estimated Log-Linear Regression Equation Indicating Price Response to Arrival of Ginger

Dependent Variable: Log(Price)
Method: Least Squares
Included observations: 24
Log(Price)= C1+C2*Log(Arrival)+C3*Log(One Year Lagged Arrival)

Parameters	Coefficient	Std. Error	t-Statistic	Prob.
C1	6.12	1.22	5.03	0.000
C2	-0.42	0.22	-1.93	0.068
C3	0.55	0.24	2.31	0.032
R-squared	0.22	Adjusted R-squared		0.14

Table 8: Estimated Log-Linear Regression Equation Indicating Price Response to Arrival of Squash

Dependent Variable: Log(Price)
Method: Least Squares
Included observations: 30
Log(Price)= C1+C2*Log(Arrival)+C3*Log(One Year Lagged Arrival)

Parameters	Coefficient	Std. Error	t-Statistic	Prob.
C1	10.40	0.44	23.86	0.000
C2	-0.25	0.08	-3.13	0.004
C3	-0.27	0.07	-3.65	0.001
R-squared	0.77	Adjusted R-squared		0.75

The estimated log-linear regression for Ginger suggests the unresponsiveness of price to the arrivals, with uncertainty on the real determinants of current price.This is given the fact that arrivals (current and lagged) contribute only 22 percent of the total price variation[1]. The situationis in support of the existence of market imperfection that the price of Ginger is not determined by market forces but by the Oligopolistic buyers hailing from the outside state.

In contrast to the case of Ginger, Squash is showing a more impressive condition of price response to market arrivals[2]. The crop shows an impressive R-square of 0.77 implying that 77 percent of the existing price variation is determined by the existing market supply (arrival). The estimated coefficients for the current and lagged arrivals are highly significant. That is, a unit percentage increase in the volume of current arrival would have negative impact on the existing price to the extent of 25 percent of that increase. Similarly, the increasing stock of the commodity[3] in the market in

[1] The arrival/harvesting of Ginger in Mizoram market depend on the price quoted by the prospective buyers, which continue to remain uncertain for the Ginger growers from season to season. Ginger can be left unharvest for a period of 2 to 3 years, if the price offered by the buyers is not considered to be remunerative. The marketing of Ginger, therefore, remained depended on demand from the prospective buyers from outside the state and an unpredictable price offered which has link to world market price.

[2] At certain level of demand, the volume of arrival plays a dominant role in determining prices of agricultural produces. On the basis of the extent to which arrival has causal effects on market prices, one can examine the level of marketing efficiency for the products.

[3] Squash is a perishable product. Despite the absence of storage facilities, MIGA occasionally use to controls supply by introducing quota system,particularly during the peak period. The quota system also compels the farmers to harvest their crops rationally. This also set the condition of marketing efficiency.

the current period would be accompanied by 27 percent price reduction in the next period (i.e. next month). So, the estimated model implicated arrivals having systematic and significant bearing on the prevailing market price of Squash in Mizoram. The situation may be taken as a sign of marketing efficiency for Squash.

Earlier we have indicated the role of MIGA in stabilisation of the price of Squash. In addition to this role of MIGA, there is a more or less organised wholesale transaction in respect to procurement and disposal of Squash by large big wholesalers and intermediaries at the farm gate as well as at the immediate market terminals located in Cachar District of Assam. All these observations indicate existence of an organised marketing structure and subsequent efficiency in the system.

Market Stability

Stability of a market is the characteristic of good and efficient market (Rhodes, 1978). If prices are not stable, it poses uncertainty not only to the farmer but also for the consumers. To examine the stability of both Ginger and Squash market, ANOVA is conducted on market arrivals and prices across the marketing seasons. The resultsarepresented in Table 9.

The ANOVA results do not show significant differences of quantity arrivals for Ginger and Squash between the marketing seasons. While the prices of Squash do not show any significant difference between the seasons, the prices of Ginger on the other had showed highly significant difference between each of the marketing seasons[4].

Market Integration

Efficient market function requires the integration of market over space and time; and there should be significant interrelationship in price movements over space and time. Market integration or association of prices is the interrelationship between price movements in two markets (Lele, 1971). If different markets are not integrated, there will be wide price differentials on these markets resulting in unequal prices realised by the farmers. An analysis on the extent of market integration in the context of the agriculture of the state would give us additional information on the status of marketing efficiency.

[4] Having observed that the price of Ginger is determined by the uncertainty decision of the prospective buyers and that the price of Squash by the volume of market arrival, one way ANOVA is presented to examine the differences in arrivals and prices across the three marketing seasons viz. 2010-11, 2011-12, 2012-13.

Table 9: Analysis of Variance for Testing Variability Differences between Marketing Seasons

Items	Factors	Sum of Squares	dF	Mean Square Effect	F-Ratio	Sig.
Ginger	**Quantity Arrivals**					
	Between Seasons	5112720.141	22	2556360.07	1.2606	0.3041
	Within Season	42585638.39	221	2027887.543		
	Total	47698358.53	223			
	Prices					
	Between Seasons	19264375	22	9632187.5	12.5428***	0.0003
	Within Season	16126875	221	767946.4286		
	Total	35391250	223			
Squash	**Quantity Arrivals**					
	Between Seasons	173858.1303	22	86929.06516	0.0082	00.9919
	Within Season	287937124.2	227	10664337.93		
	Total	288110982.3	229			
	Prices					
	Between Seasons	179901.6667	22	89950.83333	0.1855	00.8318
	Within Season	13094435	227	484979.0741		
	Total	13274336.67	229			

***significant at 1 percent level of significance

Earlier we have noted that the main buyers of Ginger are traders from the state of Assam. These traders collect the commodity from different parts of Mizoram through their associated commission agents or itinerant dealers. In such situation, one cannot expect much price differentials at different collection points. At the same time, since Squash is cultivated at a cluster in and around Sihphir village and no other area in the state cultivates in an extensive manner, a reliable farm harvest price can easily be assessed from Sihphir market, though there may be other collection points in its vicinity. Here an attempt is made to examine the extent of price integration or association between current year price and prices in the previous years. This analysis is based on the official price records of government of Mizoram. Table 10 presents the trends of farm harvest prices of Ginger and Squash in Mizoram.

Table 10: Prices of Ginger and Squash in Mizoram in Rs./Kg.

Year	Ginger	Squash
1998-99	4	4
1999-00	6	4.25
2000-01	8	4.5
2001-02	8	5.87
2002-03	8	6.5
2003-04	8.23	7.24
2004-05	9.83	8.33
2005-06	7.5	7.5
2006-07	8.88	7.36
2007-08	8.1	7.35
2008-09	10.05	6.58
2009-10	13.69	7.14
2010-11	13.85	7.15
2011-12	14.02	7.15
2012-13	26.7	9.27

Source: Planning & Programme Implementation Department, Govt. of Mizoram, Economic Survey of various years

To study the extent of price integration over the years, the time series method of *unit root test* is adopted. If the price trend has unit root, current price is purely random and has no integration with the previous years. The trend is called non-stationary series. On the other hand, stationary process would indicate integration of current price with the previous years. Under the Null Hypothesis of non-integration of prices, Augmented Dickey-Fuller (ADF) Test is applied to test price integration over time. The analysis results up to 3 lags length is presented in Table11 and 12.

Table 11: Results of ADF Unit Root Test for the Price of Ginger

Null Hypothesis: D (Ginger Price) has a unit root
Lag Length: 2 (Automatic based on SIC, MAXLAG=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		0.194934	0.7237
Test critical values:	1% level	-2.792154	
	5% level	-1.977738	
	10% level	-1.602074	

Table 12: Results of ADF Unit Root Test for the Price of Squash

Null Hypothesis: D (Squash Price) has a unit root
Lag Length: 3 (Automatic based on SIC, MAXLAG=3)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.152024	0.0363
Test critical values:	1% level	-2.816740	
	5% level	-1.982344	
	10% level	-1.601144	

The calculated t-statistic for Ginger turned out to be 0.195 which is highly insignificant. On the other hand, the t-statistic for Squash is -2.152 and is significant at 5 percent level of significance. That is, the price of Ginger shows non-stationary or random trends, while price of Squash shows stationary process over time. Thus, the result showed that there is no market integration in case of Ginger, while there is significant integration in case of Squash market over the years. In other words, price of Ginger is erratic following the pattern of random series. At the same time, price of Squash follows consistent pattern over time.

Market/Price information

The availability of prompt and reliable information about quantities arrivals and prices quotations for different commodities improve the decision-making capacity of the farmers and strengthen their bargaining powers. To assess the existing status of market information system in place for the farmers in the study area, they were asked to recollect the sources of market information during the recalled period. The results are presented Table 13. While majority of Ginger producers obtained market information from traders and their local agents, it is interesting to know that growers association played the role in disseminating market information to the Squash farmers.

Table 13 : Sources of market information (market price) in the study area

Sl. No	Information Sources	No of farmers	Percentage
	Ginger		
1	Social media i.e. Radio/Television/Newspaper	11	3.65
2	Other farmers	76	25.25
3	Growers' society	51	16.94
4	Traders and their local agents	162	53.82
5	Govt. Sources (MAMCO, Trade& Commerce etc)	1	0.33
	Total	*301*	*100*
	Squash		
1	Other farmers	5	10.42
2	Growers' society (MIGA)	25	52.08
3	Traders and their local agents	18	37.5
	Total	*48*	*100*

Source: Sample survey 2013

V. Conclusion

Based on the analysis of various indicators of marketing efficiency, it may be concluded thatthe unorganised ginger market is characterised by market imperfection, asymmetric information high degree of market instability and lack of market integration in terms of price. However, despite the unavailability of basic market infrastructures, the organised squash market hasexhibited elements of efficient marketing system, even with very limited public interventions in its operation. This has suggested that a well institutionalised and organisedmarket could greatly benefit the farmers and enhance market sustainability. However, one would not deny the fact that organised market does not emerge on its own, but with facilitations and accommodating effortsmade by the State and society.

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New Book

Crisis of Present Day Liberal State

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Bhupen Sarmah, Joydeep Baruah, ed. (2014), Neoliberal State, and it's Challenges, Aakar Books, OKDISCD, Guwahati

Liberalism has faced recurring crises since John Locke, who is credited with the liberal ideology/thought. The liberal State as well has this as part of its being. The rescue operations since Bentham and J.S. Mill till date have not provided with any resolveable solution as shown by its frequent visceral examination. The grammar of Politics of Laski began the exercise of removing meeting the crises by injecting a Fabian dose (a la j. S. Mill and Rousseau problematique). That background brings us the book's Preface. The editors of these texts, read in a seminar organised by OKDISCD, Guwahati, map the 1960s and 1970s from the perspective of the then liberal state's welfare policies thus: 'the theoretical contestations that started in the 1960s and 1970s against the overall 'statist development paradigm' and it's failure, (p. 8) led to policies of monetarism (p.9) and currently the Neoliberal state has to contend with the contradiction between its predatory nature and demands of Keynesian redistributive justice, p. 13). This perspective forms the context of the book's papers under three heads, viz, Neoliberal way (one paper), Neoliberalism and the State (six texts), and Neoliberalism, Class and Power Structure containing four exercises.

The first paper by Neil Devotta on liberal and illiberal ideology and South Asia surveys the Neo liberal agenda, best spelt out by Harvey, and agrees with Radice about its resultant reckless consumption in South Asian authoritarian states like Sri Lanka, armoured democracy in Pakistan, slander politics of Bangladesh and slipping well being of Indian state to maintain that this has negative consequences for Europe and American governance. The impact on Sri Lanka, her special focus, is that Rajapaksa is swapping authoritarianism with terrorism.

Samir Das' paper based on Deleuze and Guattari considers the sovereign gaze as abstract terms like development and nation but ignoring the people as non-existent (p. 46). He critiques Bhakra (1959) and Farakka projects (1975), the Posco project make the people or aggrieved disappear (p.49) entailing the problem of disillusionment further accentuated by the mismanagement in the chars in Bengal. They bemoan the fact that Indian sovereign state does not recognise the people's inalienable right to a home

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(p.56). The state cannot bridge the gap between the existing being and a being in the making for which they attempt to manufacture consent.

Radhika Kumar in her piece on developmental theory links it to Macro economics of Man Mohan Singh (1992) and this has not helped marginalised groups owing to cuts on welfare spending. Naidu's Andhra Pradesh in his earlier *avtar* focused on fiscal discipline as a facilitator and not a provider state administration. In the agricultural sector inequalities had increased in the Rayalseema and Telangana region owing to the promotion of well irrigation under water users' associations whose antics, along with other factors have led to farmer suicides, which almost is like an obituary of the developmental state despite Andhra's new bourgeois.

Santana Rakshit focuses on disconnect between Keynesian and Neoliberal policy framework. He has done a pedantic exercise and gone into theoretical literature on the issue. He finds the disconnect between the two in terms of a predictable Janus face-half market and half human (p. 81) leading to casino type ruling (p. 88) based the dual inclusion and administration, viz, one for the upper and the other for the poorer people-one for Neoliberal juggernaut and the other for benevolence in the governing elite.

Asok Kumar Ray juxtaposes the welfare and the Neoliberal post colonial state to critique this moment on the basis of critiques of Chomsky, Stieglitz, Tariq Ali and Susan George. The crisis of this construct or contest led to changes in political governance in favour of market and the corporates. He highlights the disconnect between the liberal 19th century and its 20 century versions in which the non state actors remain irrelevant in contrast to the conglomerates' role power of controlling market outcomes.

Sudipta Bhattacharya notes that in India the decline of the welfarist agenda led to alienation of the population and brought the Society back in, or, it's Faultlines came up in line with the pattern elsewhere. Despite India's stagnating industrialisation, he argues for this world against the Neoliberal policy that allows free flow of high capital, speculative and real setae criminality, and final dawn of autocracy with reference to South-East Asian States and supports the theorisation of Rosa about fascism(p. 129) in this context. The view may perhaps be more appropriate to say that these are dependent fascist states- different from Germany and Italy- that had been appeased by Britain and France, respectively during the interwar period.

Joydeep Barua's on Indian Neoliberal urban order notes the ticking bomb of urban population by 2025 forcing a new arrangement of city-capital syndrome where localisation over the head of the state planning is the new feature of capital flow of hybrid form. The power of the city increases owing to capital flows coexisting with urban poverty and squalor. He notes this observed divide along with the rural urban divide. He critiques land reform and urban ceiling legislations of the regimes. The new urban order that visualises cities as new magnates of capital finds Guwahati to be a key to look east.

In the second part of the book, specific issues are highlighted to establish the ideology

of the new phase noted in Part I and II. Free market land use, investment induced displacement, constitutional provisions of land acquisition laws and water policy are highlighted. The article on land use rejects kulak-dual linkages. The other articles highlight the limitations of the present state of state power or it's flawed responses in different stages of development.

Most of the papers of the volume take a position in favour of social sciences being products of the system they sprout from. They carry with them their birth marks and any straight jacketing of future of people's or states' policies is fraught with ideological refraction. This volume, given present day highways of neuter world may find trenchant criticism, closeted praise and shelf life. That life will persist as highways turn to byways in a new world of contradictions that they try to fly past. A general remark is in order. Those who subscribe to an ideology permeated world vision need realise that some among the Marxists also prepared the ground for an ideology free social science- which is just a myth.