

MGNREGA IN ASSAM: WHO ARE TAKING UP EMPLOYMENT?

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ABSTRACT

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is functional in almost all rural districts of India guaranteeing wage employment on demand. The main intention behind launching MGNREGA was to provide some minimum level of employment security to the poorest rural households. However, it has been found that only a fraction of households registered under the Act actually demands employment. This paper studies the latter for some distinctive socio-economic characteristics so as to deduce targeting efficiency of MGNREGA across India in general and in the State of Assam in particular. Findings of the paper suggest that it is the poorer and underprivileged regions as well as households who constitute the bulk of those demanding MGNREGA employment. Low income, poor material conditions, social backwardness, low levels of literacy and absence of stable source of income have been found to be significant in determining MGNREGA participation. Moreover, there is considerable participation by people past the conventional working age of 65 years as well as from women who are otherwise not part of the formal workforce. Thus, it is found that MGNREGA is reaching out to most of its intended beneficiaries, i.e., people who are prone to high degree of livelihood insecurities.

Introduction

In 2005 the Government of India (GoI) announced a social security programme larger in scope and coverage than any such previous programme. The "National Rural Employment Guarantee Act or Scheme" (NREGA or NREGS), which was implemented in three phases (Phase I: 2005-06; Phase II: 2007-08 and Phase III: 2008-09) across all rural districts of India,¹ today poses as an alternative wage employment avenue in

rural India and guarantees 100 days employment on demand to rural households.

The scheme was greeted by both praise and censure from academicians, bureaucrats, politicians and social leaders. One particular aspect which has remained a constant subject of debate relates to beneficiaries of MGNREGA, i.e., which sections of rural population are taking up employment under MGNREGA? The very purpose

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of this ambitious scheme would stand defeated if intended beneficiaries have not sought employment in significant numbers. An objective assessment of the above has become even more relevant today as the Government of India is taking steps to strengthen the scheme further. Jha et al. (2008) studied the targeting efficiency of NREGS in Rajasthan and found that disadvantaged groups like scheduled tribes (STs) and landless households had significantly high probabilities of participating in NREGS. However, the poorest households had relatively lower probability of participation than households owning moderate quantities of land and those self-employed in agriculture. Dreze and Khera (2009) reported that widows and single women were especially appreciative of NREGA because of the opportunity to earn close to their homes. A study by Dutta, et al. (2012) found targeting performance of NREGS varied across States, with generally higher participation rates among the poor, along with several households that were just above official poverty line. Literature on NREGA participation in Assam is relatively limited. Bordoloi (2011) found that the scheme offered job opportunities for unskilled workable population and provided hard cash to the needy. Singha and Boroowa (2013) in a study found that participation of BPL households in NREGS was very low. Households who owned and / or cultivated land were joining the scheme in greater number than landless poor people. Lower wage rate and late payment of wages made the scheme less preferable to the poor and landless sections of society.

The present paper attempts to study those sections of rural population who have taken up employment under MGNREGS in India as a whole

and the north eastern State of Assam in particular. Assam's performance with regard to implementation of MGNREGS is average on several parameters like total employment generated, persondays of work provided per household, proportion of registered households in districts covered, etc., (Drèze and Oldiges, 2007; Bordoloi, 2011; Singha and Boroowa, 2013). Assam has remained an economically backward State for decades. A high proportion (79.8 per cent) of its rural workforce is engaged in agriculture² and 67.32 per cent of the State's total operational landholdings are marginal³ (average size 0.6 Ha). Latest estimates (2009-10) show that poverty rate in rural Assam is very high at almost 40 per cent (Economic Survey of Assam, 2013). These observations indicate that a large section of the population suffers from livelihood insecurity and these people are potential MGNREGS beneficiaries. However, the important question here is whether the intended beneficiaries are the actual participants in the scheme.

Objectives

The study assesses the socio-economic features of the population participating (demanding employment) in MGNREGS in order to determine whether the scheme has been efficiently targeted across the country in general and in Assam in particular. It has attempted to determine the influence of a select set of socio-economic characteristics on the extent of participation in MGNREGA during the reference period (2012-13) and examine whether the characteristics found significant at the national level have influence on the extent of participation in Assam. Furthermore, to substantiate its findings, the study has undertaken some primary data

investigation through visits to three MGNREGS worksites in Dibrugarh district of Assam. The aim is to dissect socio-economic composition of workers at sites and relate the same with inferences drawn from previous analysis. Although the sample size is small, the primary data analysis has given insights on the ground realities. One main objective in including this primary analysis is to investigate inconsistencies, if any, between the ground realities and the indications from the secondary data.

Methodology

The study is analytical in approach. Data are tabulated across different parameters to identify broad patterns. Regression analysis is used to find out direction and magnitude of influence of select socio-economic variables on the level of demand for employment under the scheme.

All secondary data used were accessed from credible official sources: Ministry of Rural Development's (MoRD) official website of NREGA (<http://www.nrega.nic.in>); Census of India, 2011 (<http://www.censusindia.gov.in>); Economic Survey of Assam (GoA 2012-13), Directorate of Economics and Statistics, Assam; Ministry of Statistics and Programme Implementation (MoSPI), etc. Although MGNREGS was operational in 636 rural districts of the country during 2012-13, only 586 districts were considered because of the differences between MGNREGS and Census of India records for the remaining districts. The compiled secondary data were subjected to some adjustments to make them comparable, as shown in Appendix 2.

Primary data were collected through visits to the population of three MGNREGS

worksites in Barbaruah block of Dibrugarh district of Assam in November, 2013. Details are provided in Appendix 1. Care is taken to ensure that each village is different from others in terms of economic and population characteristics. Data were collected through one-on-one interviews with workers present at the site on several aspects like age, sex, literacy, earners, latrine facility, asset ownership, income sources, consumption-expenditure, land ownership, year of registration, number of registered household (hh) members and reasons for opting MGNREGS employment. In addition, a focus group discussion (FGD) was conducted with both panchayat and block officials.

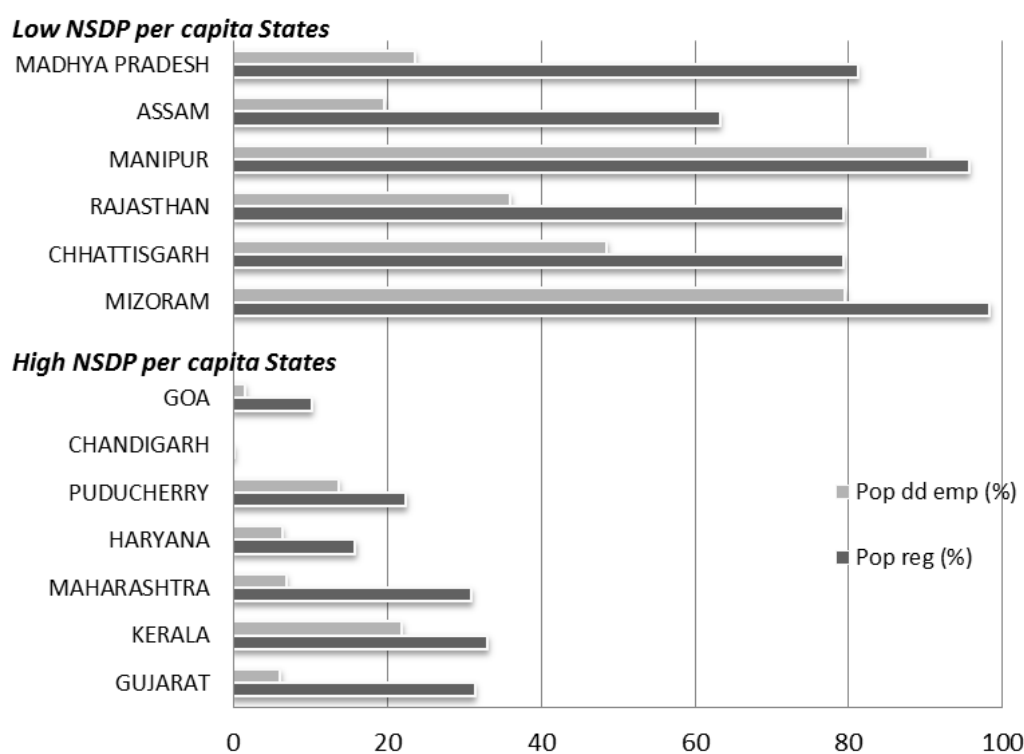
Findings

Findings from Secondary Data Analysis: This section analyses the characteristics of the population that demanded employment under MGNREGA across the country as a whole and in the State of Assam in particular. Data available through management information system (MIS) of MGNREGA (www.nrega.nic.in) show that States differ with respect to extent of registration and participation and in several regions a much smaller proportion of registered persons actually demanded employment under the scheme. Careful analysis shows that percentage of registered households and employment demand is quite low in States and Union Territories which had per capita net state domestic product (NSDP) higher than country's per capita net national income of ₹ 38005 at constant (2004-05) prices during 2011-12 like Chandigarh, Goa, Haryana, Punjab, Puducherry, Maharashtra, Gujarat, Kerala, Karnataka, Tamil Nadu and Andaman & Nicobar

islands. On the other hand, opposite was true for States with per capita NSDP below national average like Madhya Pradesh, Assam, Manipur, Rajasthan, Chhattisgarh, Mizoram,

Jharkhand and Odisha (Figure 1). This indicates that NREGA employment has been sought more by persons from poorer and less developed regions.

Figure 1: NSDP Per Capita and NREGA Participation (India)



Source: Compiled from www.nrega.nic.in and MoSPI [http://mospi.nic.in/Mospi_New/upload/State_wise_SDP_2004-05_14mar12.pdf].

Observations made about Assam also conform to the national picture. Assam had a total of 27 districts at the time when this study was undertaken⁴. In Sivasagar, Dibrugarh, Jorhat and Tinsukia districts with per capita net district domestic product (NDDP) which is higher than the State's per capita net domestic product, the percentage of population/households registered

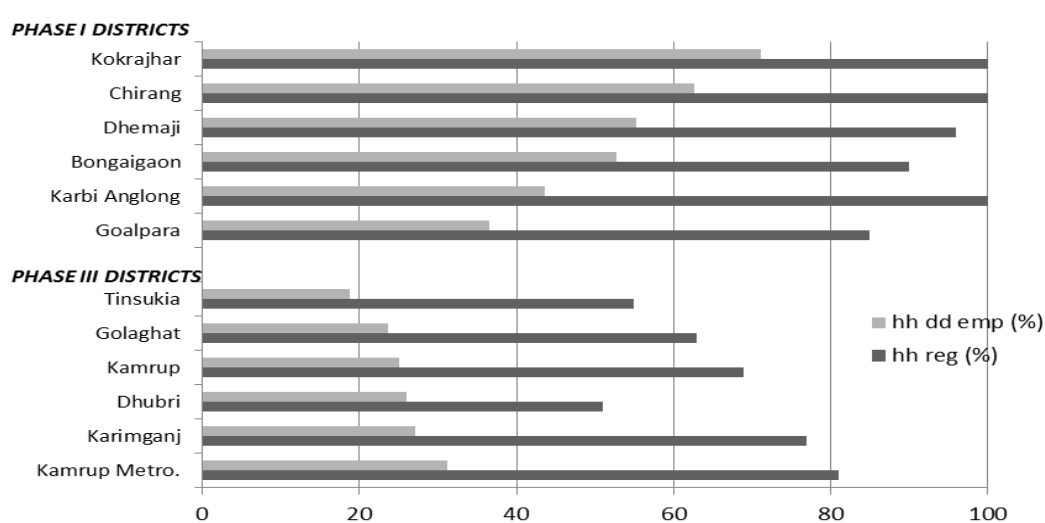
and/or demanding employment is relatively low. On the other hand, registration/demand is higher in Chirrang, Dhemaji and Barpeta, which have per capita NDDP much lower than per capita NSDP of Assam.

Another important factor influencing the extent of registration and employment in districts is time, i.e., length of exposure to NREGA. A

comparison of percentage of total rural households and population (aged 18 years and above)⁵ registered (and demanding employment) shows that, on an average, figures were higher for those districts which were

included under NREGA in the first phase (2005) and lowest for districts which were included in the last phase (2008)⁶. Figure 2 demonstrates clear differences in participation among households in Phase I and Phase III districts.

Figure 2: Differences in NREGA Participation Across Phase I and Phase III Districts (Assam) during 2012-13



Source: Tabulated from data available on www.nrega.nic.in.

District	Percentage of Total Population Demanding Employment
1. Kokrajhar	23.60
2. Dhemaji	21.58
3. Baksa	17.33
4. Chirang	17.23
5. Morigaon	17.10
6. Goalpara	15.90
7. Bongaigaon	15.40
8. Karbi Anglong	15.29
9. Hailakandi	11.04
10. Sonitpur	10.80
11. Sivasagar	10.66

Given below is a list of districts in Assam having higher than the State's average (10.01 per cent) percentage of total persons demanding employment under NREGA:

Out of eleven, six districts (Kokrajhar, Dhemaji, Chirrang, Bongaigaon, Karbi Anglong and Goalpara) were included under NREGA in Phase I. Thus, we find the districts identified as backward (Phase I) are actually seeing higher participation in NREGA than others.

Next, a more detailed analysis is undertaken to estimate the influence of some important households and demographic characteristics on NREGA participation at national level. A linear regression model has been used on district level data (covering 586 districts) for 2012-13, which can be written as:

$$Y = \beta_0 + \beta_1(X_1) + \beta_2(X_2) + \dots + \beta_7(X_7) + \beta_8(X_8) + \mu$$

The choice of explanatory variables is guided by economic theory and existing literature. It is expected that the material well-being of households will be reflected in the physical state of their residence / living conditions, their asset holdings, level of formal education, stability of their income sources and their access to formal institutions like banks. Households belonging to lower economic strata will not perform well on these aspects. Furthermore, in India, it is found that households belonging to the scheduled caste (SC) and the scheduled tribe (ST) communities are deprived of economic opportunities irrespective of their material condition. Hence, they are also analysed in the model. Details of variables used are provided in Appendix 3. Results of the regression are tabulated in Table 1.

Table 1: Results of Linear Regression

Var	Variable name (Predictor)	Co-efficient (β)	Std.Err.	t	p (sig.)
β_0	(Constant)	8.386	1.735	4.834	.000
X_1	Houses dilapidated	-.471	.115	-4.086	.000
X_2	No assets owned	.013	.040	.338	.735
X_3	No latrine facility	.004	.018	.224	.823
X_4	No baking facility access	.055	.020	2.804	.005
X_5	Illiterates	-.148	.053	-2.770	.006
X_6	SC	.143	.049	2.889	.004
X_7	ST	.168	.021	8.059	.000
X_8	Agri labourers	.052	.036	1.444	.149

(For Definitions See Appendix 3)

N = 586

Dependent Variable : Percentage of Persons Worked under NREGA

R = 0.472^a

R² = 0.223

F = 20.654

Sig. (p) = 0.000^a

An F value of 20.654 with p value of 0.000 implies that the model as a whole is statistically significant. Five out of eight explanatory variables taken have been found to be significant at less than 1 per cent level of significance. Among them, proportion of SC, ST and households without access to banking are positive, indicating that higher the presence of these characteristics in population of any district, more will be number of persons taking up employment under NREGA in that district. This is in line with our expectations. On the other hand, coefficients of the variables representing proportion of dilapidated households and illiterates have been found to be negative, which is against our expectation. Again, the variables representing absence of any assets owned and latrine facility along with proportion of agricultural labourers in total workers are not found to be statistically significant. This indicates absence of clear unidirectional effect of the factors. Taken together, these two findings point to the fact that the study could not find strong evidence to support the claim that the districts that have higher proportion of

households with poor material conditions witnessed higher participation in NREGA. Also, the fact that the proportion of illiterate population is found to be negative and significant needs further examination. This particular finding is against what was expected and is explored later in the study with the aid of primary data.

Coming to Assam, in the eleven districts that were identified as having a higher NREGA participation rate, some broad patterns in socio-economic characteristics could be observed. Most of these districts have higher than the State's average proportion of ST population, illiterate (ignoring the population below the age of 7 years), workforce engaged as agricultural labourers and households in dilapidated residence conditions with no latrine facility within premises. On the other hand, these districts have a lower proportion of households availing banking facilities, having either none or all of the considered assets⁷. Important findings about demographic and household characteristics of these districts are provided in Table 2.

Table 2: Distinctive Demographic and Household Characteristics of High NREGA Participation Districts (Assam)

Characteristic	State Average (%)	Districts (% of population)
		Proportion found Higher than State Average
ST population	18.37	Karbi Anglong (58.3), Dhemaji (49.7), Chirang (39.5), Baksa (35.2), Kokrajhar (32.1), Goalpara (25.3)
Illiterate population*	25.48	Chirang (38), Bongaigaon (32.7), Kokrajhar (30.6), Sonitpur (29.8), Hailakandi (28.6), Goalpara (28.1), Karbi Anglong (27.9), Morigaon (27.6), Baksa (26.8), Dhemaji (23.9)
Marginal agricultural labourers in workforce	8.78	Baksa (12.4), Goalpara (11.8), Karbi Anglong (11.5), Morigaon (10.9), Chirang (10.5), Bongaigaon (10.1), Sonitpur (9)

(Contd.....)

Table 2 (Contd.....)

Residence in dilapidated conditions	10.35	Hailakandi (15.9), Morigaon (14.1), Kokrajhar (12.3), Goalpara (11.9), Baksa (11.1), Bongaigaon (11), Chirang (11)
No latrine facility within premises	35.11	Chirang (71.3), Kokrajhar (70.8), Baksa (60.6), Dhemaji (55.2), Karbi Anglong (45.2), Bongaigaon (43.7), Sonitpur (40.8), Morigaon (39.9)
Proportion found lower than State average		
All considered assets available	1.87**	Hailakandi (0.6), Baksa (0.7), Chirang (1.1), Goalpara (1.1), Karbi Anglong (1.2), Kokrajhar (1.2), Morigaon (1.3), Dhemaji (1.4)
None of the considered assets available	23.55	Baksa (15.9), Sonitpur (16.3), Sivasagar (17.7), Dhemaji (19.1), Bongaigaon (19.2), Karbi Anglong (20), Chirang (20.1), Kokrajhar (22.61)
Availing banking services	44.09	Baksa (33.6), Chirang (36.9), Dhemaji (35.7), Goalpara (33.3), Karbi Anglong (41.7),

*illiterates above the age of 6 years.

**Excluding Kamrup Metro which has an extremely high (17 per cent) share of households with all of the considered assets and therefore disproportionately distorts the State average.

The above findings for Assam point towards the inference that most persons who actually seek MGNREGA employment come from poor households whose houses are in dilapidated conditions, have no latrine facility within their premises and no access to banking facilities. However, in terms of asset ownership, most of them do own some assets like television. When this is augmented with the findings at all-India level, it points towards the possibility that even though there is higher demand from the lower economic strata, it is relatively less worse, who participate more in MGNREGS. This claim requires further enquiry and can be taken up in

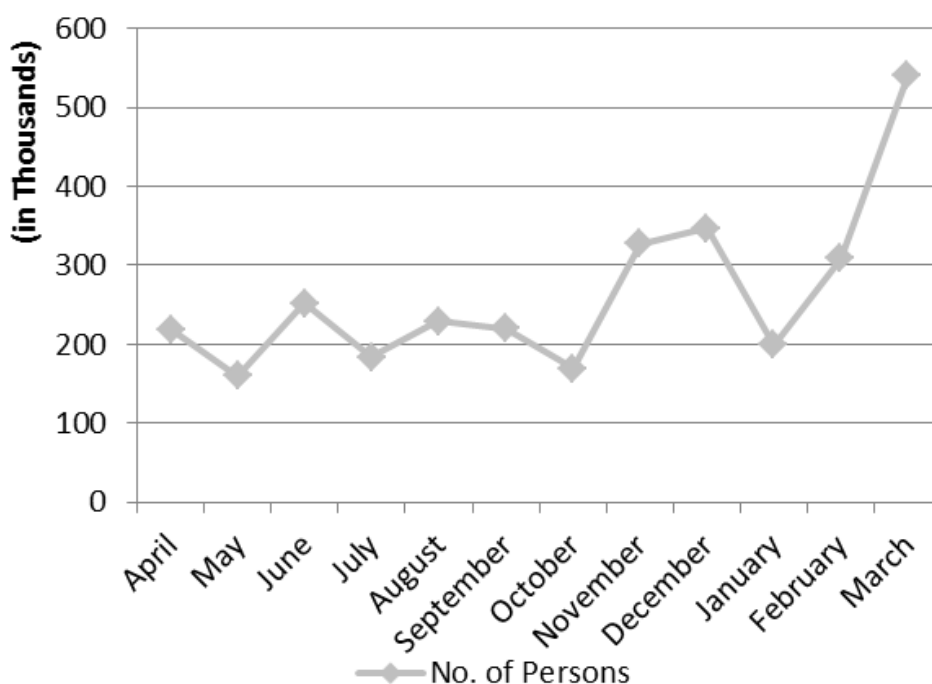
subsequent researches. In terms of demographic characteristics, there is relatively higher demand from socially underprivileged sections like SCs and STs. Again, participation has been highest by those engaged as marginal agricultural labourers, who represent the population without stable employment and income source. Also the influence of proportion of literates (or illiterates) on participation rate could be identified for Assam.

The study delves deeper into data regarding NREGA employment demand pattern in Assam by registered persons and households to explore any influence of district's workforce

composition (or occupation type) on demand for NREGA employment over the years and finds a clear seasonality. Figure 3 plots average number

of persons demanding NREGA employment in different months during last four financial years (average of 2009-10 to 2012-13).

Figure 3: General Pattern of Demand for Employment in Different Months in Assam (2010-13)



Demand remains low during peak agricultural season (April to October) and rises steeply in agricultural lean season (November to March).⁸ Hence, it is concluded that majority of households that have sought employment under NREGA are engaged in agriculture (either as cultivators or as agricultural labourers) who are prone to seasonal unemployment and seek employment under NREGA during agricultural off-season. In addition, this distinct seasonality also indicates that non-farm occupation holders are numerically less among NREGA participants.

To gain more insight, the months of the year can be grouped into 'peak' (March), 'moderate' (November, December, February) and 'low' (the remaining eight months). Table 3 presents the distribution of number of days of employment provided in different months in the respective groups. It can be easily seen that the peak season months not only see higher number of persons employed but also higher share in total days of employment provided in the year. Table 4 presents the average person-days of employment provided under NREGS in each of

these sub-groups. It can be clearly seen that the persondays of work are substantially higher in the periods classified as peak and moderate. However, there is not much difference in the average persondays generated 'per person'. This

signifies that most of the increase in demand for work comes from a higher number of persons demanding employment in these months and is not because of the already engaged persons demanding more work in terms of number of days of work.

Table 3: Days of Employment in NREGA Across Different Agricultural Seasons

Season	Month	Persondays of Employment	Share in Total Persondays in a Year (%)
Peak	March	5651651	17.99
Moderate	November	3221151	10.25
	December	3306610	10.53
	February	2937054	9.35
Low	April	2301851	7.33
	May	1596010	5.08
	June	2724777	8.67
	July	1821915	5.80
	August	2176931	6.93
	September	2053165	6.54
	October	1579610	5.03
	January	2045473	6.51

Table 4: Average Employment in NREGA Across Different Agricultural Seasons

Season	Average Persondays of Work under NREGA	
	(per day)	(per employed person)
Peak	182311	10.46
Moderate	106346	9.63
Low	66530	9.99

Findings from Primary Data Analysis: This section attempts to substantiate the findings from secondary data analysis by examining a sample taken from three villages in Dibrugarh district of Assam. Further, some additional characteristics of sample population have also been looked into. Details of the villages whose worksites were visited are given in Appendix 4.

Nearly half the population of the villages concerned was registered under NREGA at the time of survey. Although females constitute a

relatively lower share among registered persons (45.20 per cent in Barbaruah gram panchayat and 23.74 per cent in Garudhoria gram panchayat), the proportion of females in the sample stands at 82.5 per cent indicating higher proportion of females in worksites in relation to their proportion in total registered persons. We thus infer that it is mostly female job cardholders who opt for employment under NREGA. Also in several cases wives were working in lieu of their husbands. Thus, female participation in NREGA was found to be quite high.

Table 5: Summary of Socio-economic Characteristics of the Sample

Characteristic	Number	Per cent
Household Characteristics		
	<i>(Households)</i>	
BPL	38	60
Kachcha House	46	73
Semi-pucca house	5	8
Self owned	42	67
Quarter	21	33
None of considered assets owned	18	29
Bicycle owned	37	59
Motorcycle/scooter owned	6	10
TV owned	24	38
All of considered assets owned	2	3
No separate kitchen	3	5
No proper kitchen	29	46
No toilet	52	83
Cultivating HH with harvest not sufficient	21	33
Child education	51	81.0
Female literacy	45	71.4
Personal Characteristics		
	<i>(Persons)</i>	
Illiterate	23	36.5
Agri occupations	52.0	82.5
Marginal farmer	21	33
Marginal with land <2 bighas	10	47.6*
Tenant Cultivator	7	11

*out of total marginal farmers.

Table 5 provides details of select socio-economic characteristics of the sample, which show high conformity to findings presented in the previous section.

Clearly, majority of workers in the sample live in kachcha houses and are from households below official poverty line for rural Assam.⁹ Most respondents come from households that have no proper kitchen (46 per cent) or latrine/toilet facility within premises (83 per cent), but possess

at least one of the considered assets (71 per cent). Also, it is found that for 33 per cent of sample households who cultivate land, the harvest is not sufficient to feed them for the entire year. These findings indicate that most NREGA participants belong to households of poor material conditions.

Another observation from the sample is that dependency is high in most participant households as average number of regular income earners per household is low at just around one.

The ratio of non-earner to regular income-earner household member stands high at around 3.5. Again, around 35 per cent (more than 1/3rd) of respondents belonged to households with no regular income-earners.

As regards education, it is mostly persons with very low levels of formal education who are coming to NREG works. Although over 63 per cent of the sample population reported as literates, a large fraction (49.2 per cent) of them

is below matriculation. Especially, more than half (62.2 per cent) of literate females are below matriculation. This may explain the finding in section 1 that illiteracy is negatively significant at the national level. Interestingly, most sample households encourage child and female education as proportions of households with at least one literate child or literate female are quite high at 81 and 71 per cent, respectively. Table 6 gives details of level of education of sample population.

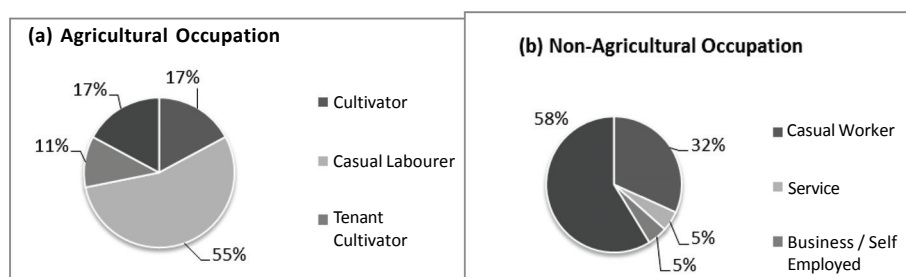
Table 6: Level of Education of Respondents

Level of Education	No.	Per cent
Under matriculation	31	49.2
X th pass	4	6.3
HS pass	5	7.9
Illiterate	23	36.5
Child education	51	81.0
Female literacy	45.0	71.4
Female (under matriculation)	28.0	62.2*

Coming to occupation of respondents, most of them were engaged in multiple activities, with several households engaged in both agricultural as well as non-agricultural activities simultaneously. However, 84 per cent of respondents were engaged in agriculture-related occupations. Detailed information about occupations of sample households is in Figures 4

(a) and 4 (b). However, it needs to be recognised that persons from non-agricultural occupations too have taken up NREG employment. Also, most respondents were casual labourers either in agricultural (55.6 per cent) or non-agricultural activities (31.7 per cent). Thus, it is inferred that persons without stable income source are taking to NREGS.

Figure 4: Households Engaged in (a) Agricultural Occupations and (b) Non-Agricultural Occupations



Male-female differences could be observed in relation to occupation too. A large fraction (44 per cent) of female respondents reported as not working anywhere apart from NREGS. The same figure for males is zero (0), i.e., all male respondents were engaged in some other alternative income source. Thus, it is inferred that the scheme is reaching out to that section of females who would not have taken up any employment in the absence of NREGS.

Analysis of sample data also shows that most of the respondents are young; mean age is around 34 years, while 58.73 per cent fall in the age group of 25-45 years. Thus, participation in NREGA is highest from working age population. Moreover, females coming to work are young and are of 32.75 years age when compared to males (40.91 years).

Finally, a summary of findings from focus group discussion (FGD) conducted with key informants as well as observations made by the author during field visits are presented here.

Total Job Cardholders vs Actual Workers: FGD revealed that NREGA job cards were opted by several households for reasons other than seeking employment (like identity proof), as it is easier to obtain than other formal documents. Thus, 'total registered households' is an overestimate of persons who have really opted for NREGS in need of alternative income source.

BPL Participation: Several households with per capita consumption expenditure level below official poverty line did not have BPL cards. Because of this, participation of BPL families in NREGA gets underestimated when calculated from official records in NREGA website.

Reasons for Demanding Employment: Common reasons cited by respondents (arranged in order

of decreasing frequency) were:

- (i) Low household income (90.5 per cent)
- (ii) No or too few regular income earners in the household (83 per cent)
- (iii) To be self-dependent (in case of women) (9.6 per cent of female respondents)
- (iv) To afford children's education

Conclusion

The study has drawn several key inferences about socio-economic factors exercising influence on participation in NREGA. Participation was higher in poorer and less developed, on the one hand, and in regions where NREGS has been operational for a longer duration of time, on the other. Participation was higher from materially poor households reflected by parameters like absence of latrine facility within premises and no access to banking facilities. Participation was also found to be high from socially underprivileged sections (SCs and STs). In addition, primary data show that majority of NREGS participants have monthly per capita consumption below official poverty line for rural Assam. As regards literacy, primary data showed that it was persons with very low levels of formal education who took to NREGS. Other common features of NREGS participants include relatively higher participation from households with lack of regular / stable income sources and high dependency ratio. Out of the working population, participation was highest by those engaged in agriculture, on the one hand and as casual labourers (both agricultural and non-agricultural), on the other. Again, through primary data analysis gender was found to be another important determinant of demand for NREGS employment. More female job cardholders opted for employment under NREGS relative to the male

jobcardholders. Males, on an average, came from households having greater need for alternate income sources from its members.

To conclude, targeting of NREGS has been found to be fairly efficient as it has reached several sections of its intended beneficiaries, i.e., persons (and households) in dire need of some

alternative income source in rural areas. The primary data analysis, even though limited in sample size, has pointed out several important aspects which could not have been without its aid. Hence, a more extensive and rigorous study on primary data from Assam is required to obtain a clearer picture of ground realities in the State.

NOTES

- 1 In 2009, NREGA was renamed as Mahatma Gandhi NREGA. The terms NREGA, MGNREGA, NREGS, and MGNREGS mean more or less the same (with the first two referring to the Act on which the scheme is based).
- 2 Calculated from State Primary Census Abstract, Census of India, 2011.
- 3 Marginal landholdings are defined as landholdings that are less than one hectare in size.
- 4 On August, 2015, five new districts were announced in the State taking the total number to 32.
- 5 Population aged 18 and above was calculated from Census data on Single Year Age Returns.
- 6 NREGA was implemented in three phases across the country with the most backward districts covered in the earlier phases. In Assam, Phase I covered seven districts (Bongaigaon, Dhemaji, Goalpara, Karbi Anglong, Kokrajhar, Lakhimpur, NC Hills), Phase II covered six districts (Barpeta, Cachar, Darrang, Hailakandi, Marigaon, Nalbari) and Phase III covered the remaining (Baksa, Chirang, Dhubri, Dibrugarh, Golaghat, Jorhat, Kamrup, Kamrup (metro), Karimganj, Nagaon, Sivasagar, Sonitpur, Tinsukia, Udalguri).
- 7 The assets considered are radio, bicycle, scooter, motor-cycle/moped, television, laptop/computer, telephone, mobile phone.
- 8 Kharif is the main agricultural season in Assam. Rabi cultivation is not very widespread in Assam.
- 9 Latest official poverty line for rural Assam as per Tendulkar Methodology is ₹ 691.7 per capita per month (Planning Commission, Government of India).

Appendices

Appendix 1: NREGA Worksites Surveyed

Table A.1: Details of the Works Visited During Field Survey

Work Code	Name of Work	Village	Estimated Time (days)	Employment (persondays per day)
RC/116901	Construction of Gohain Gaon Saikia Path with Gravelling & Culvert	Changmai Gohain Gaon	52	168
DP/38707	Development & Earth-filling Burial Ground and Tea Plantation	Borbaruah Tea-Estate (TE) Line No. 4	12	169
RC/111069	Construction of Subhasuk Harbojanin High School	Subhashouk	NA	NA

Appendix 2: Adjustments to Data

- (a) Census Data:** Census data (2011-12) and NREGA data (2012-13) were made comparable by adjusting census population figures for growth as per compounded annual growth rate (CAGR) of population of each district computed for period from 2001-2011 from the two Censuses. (Table A.2). The formula used:

$$\text{Pop}_{2012-13} = \text{Pop}_{2011-12} \times e^{rt}$$

Where, r = annual rate of growth.

t = time

Again, data for illiterates and non-workers was modified by subtracting population below age of 7 years.

- (b). NREGA Data:** The study used the number of people who 'actually worked' as a proxy for number of people 'seeking employment' in analysis due to gaps in data relating to latter in several districts. From data available through MIS, it is seen that in every district employment has been provided to almost all (98-100 per cent) of those who had demanded employment under NREGA (Table A.2).

Table A.2: Adjustments to Data

CAGR computation from census data					Employment to Persons Demanding Employment		
District	Rural Population		Decadal Growth (in %)	CAGR (in %)	Total persons		
	2001*	2011			2012-13		
					Demanded emp	No.	As % of persons demanding emp
Baksa	846878.3	937833	10.74	1.03	104091	103905	99.8
Barpeta	1273383	1546269	21.43	1.96	33378	32707	98
Bongaigaon	521597.1	628994	20.59	1.89	57505	57413	99.8
Cachar	1182422	1421153	20.19	1.86	39599	39422	99.6
Chirang	401315.8	446825	11.34	1.08	45910	45831	99.8
Darrang	714466	873006	22.19	2.02	21170	21019	99.3
Dhemaji	531672.9	637848	19.97	1.84	83581	82650	98.9
Dhubri	1402730	1745557	24.44	2.21	65660	65517	99.8
Dibrugarh	967302.5	1082605	11.92	1.13	63458	63180	99.6
Goalpara	709492	870121	22.64	2.06	81126	80453	99.2
Golaghat	859558.3	969152	12.75	1.21	31095	30412	97.8
Hailakandi	503216.1	611156	21.45	1.96	39156	38941	99.5
Jorhat	797476.9	871722	9.31	0.89	45583	41697	91.5
Kamrup	1188649	1375148	15.69	1.47	33706	33622	99.8
Kamrup Metropolitan	183308.3	216927	18.34	1.7	9068	8972	98.9
Karbi Anglong	717253.8	843347	17.58	1.63	75150	74921	99.7
Karimganj	917954.1	1118986	21.9	2	12255	12200	99.6
Kokrajhar	790990.4	832201	5.21	0.51	117393	116709	99.4
Lakhimpur	811127.8	950804	17.22	1.6	39260	39114	99.6
Morigaon	716819.4	884125	23.34	2.12	87628	87059	99.4
Nagaon	2011667	2454234	22	2.01	101545	101135	99.6
Nalbari	615152.2	688909	11.99	1.14	18864	18691	99.1
NC Hills	133180.8	151613	13.84	1.3	9185	9163	99.8
Sivasagar	951164.1	1040954	9.44	0.91	73915	73602	99.6
Sonitpur	1514725	1750265	15.55	1.46	120597	116887	96.9
Tinsukia	920746.5	1063186	15.47	1.45	36133	36132	100
Udalguri	724472.2	794094	9.61	0.92	41273	41189	99.8

Appendix 3: Details of Linear Regression Model

Estimating influence of socio-economic characteristics on NREGA participation at National level

$$Y = \beta_0 + \beta_1 (X_1) + \beta_2 (X_2) + \dots + \beta_{15} (X_{15}) + \beta_{16} (X_{16}) + \mu$$

Where,

- Y: Percentage of rural population worked under NREGA in 2012-13 in district
- X₁: Percentage of houses classified as dilapidated in district (Houses dilapidated)
- X₂: Percentage of households (hh) having none of considered household assets (No assets owned)
- X₃: Percentage of hh with non-availability of latrine facility within premises (No latrine facility)
- X₄: Percentage of hh with no access to banking facility (No banking facility access)
- X₅: Percentage of illiterate persons (above age of 6 years) in rural regions of district (Illiterates)
- X₆: Percentage population of Scheduled Castes (SCs) in rural regions of district (SC)
- X₇: Percentage population of Scheduled Tribes (STs) in rural regions of district (ST)
- X₈: Percentage of agricultural labourers in total workers in rural regions of district (Agri labourers)

Appendix 4: Details of GP, Villages and Worksites Visited

Area	Total Popn.	Registered Persons*		Worksite Visited		
		Tot (% of popn)	Females (% of tot reg)	Workers Engaged*	Workers Interviewed	Females Interviewed
Barbaruah GP	1812	819 (45)				
Barbaruah Gaon TE (Line no.4)	639	278 (44)	153 (55)	52	26	19 (73)
Changmai Gohain Gaon	961	297 (31)	109 (37)	67	16	13 (81)
Garudhoria GP	3359	833 (24)				
Subhasuk Gaon	901	374 (42)	108 (28)	60	21	20 (95)
Total	949	370 (40)		63	52 (82.5)	

*As reported on the respective days of visit to the worksite in November, 2013.

Source: Compiled from the worksites and the Gram Panchayat Offices of Barbaruah GP and Garudhoria GP, Barbaruah Block, Dibrugarh, Assam.

Note: Figures in parentheses indicate percentages.

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