

Comparative Study of MGNREGA performance: A case Study of Surat District

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Abstract: MGNREGA is an ambitious scheme providing employment to rural people of India. The basic aim of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is to enhance livelihood security of household in rural area. By this scheme, Govt. gives assurance of employment to unskilled rural labourer for 100 days. The Act for the first time brings the role of the state as provider of livelihood within the reach of the participants/beneficiaries themselves. By design, it is different from any employment generation scheme that has been previously implemented. A number of socio-economic development programme cannot be measured by a single descriptive indicator and that, instead, they should be represent with multiple dimensions such as progress poverty, social inequality, wellbeing, quality of life, provision of infrastructure, etc. The composite indices are widely used by several international organization for measuring economic, environmental and social phenomena and, they provide an extremely relevant tool and in the course of evolution.

This presented paper analyze secondary data of Surat district blocks and compares the performance of MGNREGA on them for the year 2012 to 2016. Indicators used in this analysis are such as Women participation, Average days of employment, HHs completed 100 Days of Wage Employment, work compilation rate, NRM Works Expenditure (Public + Individual), payment process and Fund utility. Composite index of all above indicators have been constructed using geomean, normalization followed by weighting and aggregation. The analysis concludes that MGNREGA performance has significant impact on Backward Blocks of Surat District. Amongst various studied blocks of Surat district, Umarpada and Palsanablocks has been the best performer in MGNREGA Act. Bardoli, Mahuva, Mangrol and Mandvi have significant performance compare to poor performed blocks such as Choryasi, Kamrej and Olpad.

Key Words: MGNREGA, R-Scale, Composite Index, Backward Block, and Index Value.

1. INTRODUCTION:-

Indian rural areas' economy predominantly depends upon the agriculture sector and in most of the cases agriculture, sector's performance depends upon the rainfall the regions receive annually. The rural people often do not get any sorts of employment or income generation works during the summer as without water agriculture, related activities are not possible and that results in less or no works for the rural people of India. People may still want to migrate because they want better incomes but let us create conditions that they do not have to migrate because of distress. India has the second largest population and the second largest population of workers in the world. Our workers are our resource. If we can use their labour power in a planned and productive manner, our villages can have employment throughout the year

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was passed by the Parliament in 2005 to provide the right to wage employment for 100 days to every rural household in the country. MGNREGA was launched in 200 select districts on 2February, 2006 and was extended to 130 additional districts during the period of 2007-08; the remaining rural areas were covered with effect from 1 April 2008.

The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), 2005, was notified on 7 September 2005. Mandate and Objectives the mandate of the Act is to provide 100 days of guaranteed wage employment in a financial year (FY) to every rural household whose adult members volunteer to do unskilled manual work.

The objectives of the programme

- Ensuring social protection for the most vulnerable people living in rural India through providing employment opportunities,
- Ensuring livelihood security for the poor through creation of durable assets, improved water security, soil conservation and higher land productivity,
- Strengthening drought-proofing and flood management in rural India,

- Aiding in the empowerment of the marginalised communities, especially women, Scheduled Castes (SCs) and Scheduled Tribes (STs), through the processes of a rights-based legislation, Strengthening decentralised, participatory planning through convergence of various anti-poverty and livelihoods initiatives, Deepening democracy at the grass-roots by strengthening the Panchayati Raj Institutions (PRIs),
- Effecting greater transparency and accountability in governance.

Surat district is located in the Southern part of Gujarat State and stands at second number as largest commercial hub. This comes between 21.1702° degree Northern latitude and 72.8311° degree Eastern Longitude. There are 09 Taluka in Surat district namely Bardoli, Olpad, Mangrol, Umarpada, Mahuva, Mandvi, Kamrej, Choryasi and Palsana. There are total 09 taluka and 729 villages in the district. The geographical area of the district is 4,326.97 sq. km. Land at the Arabian Sea lying in Olpad and Choryasi taluka is salty. While, land in Kamrej, Palsana and Bardoli, Mangrol and taluka is Black. Where in Umarpada taluka, the land is goradu and mixed up with forest area.

MGNREGA has become a powerful instrument for inclusive growth in rural India through its impact on social protection, livelihood security and democratic governance. It was applied in total nine taluka namely Olpad, Mangrol, Umarpada, Mahuva, Mandvi, Kamrej, Choryasi and Palsana.

2. OBJECTIVES OF THE STUDY:

- The comparative analysis of MGNREGA performance for all Suart District blocks by using various indicators.
- To develop a MGNREGA performance index for each block.

3. METHOD:-

The secondary data has been taken from the various official websites of MGNREGA. The data has been taken from the 2012-13 to 2015-16. The comparative study of the performance of all the blocks in Surat District has been measured by using the 08 various indicators. (1) Women Person days (2) Employment provided per Household (3) HHs completed 100 Days (4) Work Completion Rate (5) NRM Works (Public + Individual) (6) Infrastructures Works (Category B) (7) Wage expenditure against total available funds (8) Payments generated within 15 days. The geometric mean was used for actual average performance calculation. Then after, all indicators are normalized with R scale method. Principal Component Analysis (PCA) with varimax has been used (using SPSS 23.0) to estimate weights.

4. ANALYSIS:

4.1 Geo mean

The geometric mean is more appropriate for describing proportional growth. The marginal utility of an increase in the score would be much higher when the absolute value of the score is low. it a better chance of improving its position in the ranking. We calculated the geometric average of MANREAG performance in order to get an accurate measurement of actual average annual performance over the four-year period from 2012-13 to 2015-16.

4.2 Normalization of Data

The set of 08 indicators reveals that they have either direct or inverse relationship. Some of these indicators are in ratio form and others in percentage form. In view of this, each indicator considered in MPI (MGNREGA Performance Index) computation is first required to be normalised. Normalised values range between 0 and 1 and it indicates the relative position of Block with reference to a selected indicator. (1-Table:) Thus in case of each indicator, in view of its nature, the best value and the worst value are identified which are then used to transform by using the following formula.

$$R \text{ Scale} = \frac{\text{Actual } x_i - \text{Min}(x_i)}{\text{Max}(x_i) - \text{Min}(x_i)}$$

- One of the provision of the Act is that one-third of those given employment should be women, Point out that, the 1/3 women employment ration has been met in all blocks except Mandvi (0.18) and Palsana (0.00), the highest being reported in Mahvva (1.00) and lowest in Plasana. This picture indicates that more and more women have been coming in workforce.
- Average days of employment provided per Household in Palsana block was (1.00) followed by Umarpada (0.63), Olpad (0.58), Mangrol (0.51), Mahuva (0.48), Kamrej (0.44) and choryasi (0.40). Two blocks Bardoli (0.24) and Mandvi (0.00) are lowest performing in this indicator.

- In Umarpada (1.00) and Palsana(0.99) blocks created high HH completed 100 Days of Wage Employment , which was followed by Mahuva (0.53),Mangrol (0.37), and 0.22 in Bardoli. Chroyasi,Kamrej,Mandvi and Olpad are not better performing in this indicator.

Table:-1 R Scale value

Surat	Women Persondays outof Total (%)	Averagedays of employment providedper Household	% of HHs completed 100 Daysof Wage Employment	Work Completion Rate	% of NRMExpenditure Work(Public + Individual)	% of Category B Works	% payments generated within 15 days	% of wage of Total Expenditure
BARDOLI	0.75	0.24	0.22	1.00	0.09	0.24	0.91	0.39
CHORASI	0.77	0.40	0.05	0.00	0.86	0.08	0.57	0.05
KAMREJ	0.47	0.44	0.00	0.20	0.00	0.14	0.48	0.39
MAHUVA	1.00	0.48	0.53	0.40	0.59	0.12	0.85	0.27
MANDVI	0.18	0.00	0.12	0.20	0.43	0.58	0.12	1.00
MANGROL	0.26	0.51	0.37	0.33	0.46	0.94	0.32	0.36
OLPAD	0.64	0.58	0.19	0.21	0.11	0.11	0.08	0.00
PALSANA	0.00	1.00	0.99	0.71	0.01	0.00	1.00	0.31
UMARPADA	0.21	0.63	1.00	0.39	1.00	1.00	0.00	0.91

- Work compilation Rates is an important parameter to evaluate the MGNREGA processes involved in the creation of the asset, There is significant inter-block variation in the work completion rates. The highest work completion rate was that of Bardoli at 1.0 value and the lowest was that of choryasi at 0.00 values. Palsana (0.71), Mahuva (0.40) and Umarpada (0.39) are better performing as compare to Kamrej, Mandvi, Magrol and Olpad blocks.
- Assets Created numbers are variation in across the blocks. Umrapada is high performing in NRM work as well infrastructural work. Lowest in Bardoli, Kamrej Olpad and Palsana. Mahuva and choryasi block are well performing in NRM assets as compare to infrastructural assets .In Madvi block is equally performing in both category and Mangrol is best performing in B category work as compare to NRM work .
- MGNREGA mandates that wage payment process be made to beneficiaries within 15 days of work being completed. Delays on wage payments are a huge disincentive for beneficiaries who seek employment under the Scheme. Palsana, Bardoli and Mahuva are good performing in payment process to households. Choryasi, Kamrej and Mangrol were delays in Payments. While Umarpada, Mandvi and Olpad are lowest performing in this indicator.
- Wages are to be paid as per the State-wise Government of India (GoI) notified MGNREGA wages. Wages are also to be paid according to piece rate, as per the Schedule of Rates (SoRs) .Umarpad and Mandvi blocks has been met highly wage expenditure of total expenditure, that means more workers got employment as camper to other block Bardoli, Kamrej ,Mahuva, Mangrol and Palsana.

5. PRINCIPAL COMPONENT ANALYSIS (PCA):

The method of Principal Component Analysis seeks to reduce large number of variables into few categories known as Principal Components, which explains maximum amount of variance among the variables. The data on MGNREGA parameters, by using Principal Component Analysis, is reduced too much smaller size without losing the properties of the data. The method of Principal Component Analysis has been applied separately for each of the eight parameters selected for the study. This method has helped to reduce parameters of MGNREGA to select few Principal Components summarising the data without any loss of information. These extracted Principal Components then, has been used to build up MGNREGA performance index. The technical details of the method are elaborated in Table: 2

KMO & Bartlett's Test of Sphericity is a measure of sampling adequacy. While the KMO ranges accepted index is over 0.6 and Bartlett's Test of Sphericity must be less than 0.05. In our case KMO range .368 and Bartlett's Test value more than 0.05. Factor analysis prescribes that there be at least five variables for each variable, while the sample, size less than 50 is considered as unfit for factor analysis. The present study consists of 08 variables and a

sample size of 09; hence, the sample size may be not considered adequate. But our main objective is to calculated indicators weight age. Thus, we go for the PC analysis with varimax test.

Table-2 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.368
Bartlett's Test of Sphericity	Approx. Chi-Square	34.403
	df	28
	Sig.	0.188

6. EXTRACTION OF PRINCIPAL COMPONENTS:

The main statistics resulting from Principal Component's analysis are the variable weight vector associated with each principal component and its associated variance explained. The Principal Component (PC) analysis has extracts Eight PC's from MGNREGA data. Kaiser's Criterion has been used to decide how many PC's to be retained in the analysis. According to Kaiser's criterion only Principal Components having Eigen values greater than one are considered as essential and should be retained in the analysis.(3 -Table:) Three principal components have been selected based on these criteria's. First Principal Component (PC) explains 36 per cent variation and has 2.915 as Eigenvalue, Second PC explains 29 per cent of variation and has 2.302 as Eigen value, and Third Principal Component (PC) explains 15 per cent variation and has 1.211 as Eigenvalue. The three Pc's together explains 80 percent of variation, among the MGNREGA variables.

Table-3 Extraction Method: Principal Component Analysis.

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.915	36.432	36.432	2.915	36.432	36.432	2.467	30.840	30.840
2	2.302	28.775	65.207	2.302	28.775	65.207	2.005	25.064	55.904
3	1.211	15.139	80.346	1.211	15.139	80.346	1.955	24.441	80.346
4	.946	11.825	92.171						
5	.354	4.424	96.595						
6	.198	2.472	99.067						
7	.060	.747	99.814						
8	.015	.186	100.000						

Table -4 gives the results of rotated varimax factor analysis with principal component method based on block-wise data on MGNREGA parameters of Surat Districts Blocks for 2012 To 2016. The first factor explains 31 percent of variance and had high factor loadings with Work (NRM and Infrastructural work) and Wage percentage of Total Expenditure parameters. Wage percentage of Total Expenditure had loading of .928 and Category B Works has .804 as factor loading and NRM Works Expenditure (Public + Individual) having loading of .185 Second Principal Component explains 25 percent of variation. This factor had loadings of .843 for Work Completion Rate, payments generated within 15 days had loading of .705 and -0.073 for Women Person days Third Principal Component explains 24 percent of variation. This factor had loadings of .940 for Average days of employment provided per Household and .890 for HHs completed 100 Days of Wage Employment

Table-4 Rotated Component Matrix

MGNREGA PERFORMEANCE	Factor Loadings		
	PC-1	PC-2	PC-3
Women Person days	-.714	-.073	-.377
Average days of employment provided per Household	-.209	.087	.940
HHs completed 100 Days of Wage Employment	.353	.079	.890
Work Completion Rate	.185	.843	.247
NRM Works Expenditure (Public + Individual)	.185	-.778	.127
Category B Works	.804	-.412	.038
payments generated within 15 days	-.460	.705	.209
Wage percentage of Total expenditure	.928	-.060	-.124

Weighting is the process of assigning weights to seven indicators in order to express the significance of their contribution to vulnerability. Weights for the three factors were calculated using the formula $(5 - Table)E (X \text{ or } Y \text{ or } Z)$ where $E X / E X + E Y + E Z$, is the Eigen value for the X^{th} factor (value >1); $E Y$ is the Eigen value for the Y^{th} factor (value >1); $E Z$ is the Eigen value for the Z^{th} factor (value >1). The weights calculated using these, formulae were weight for

- ✓ Factor-1 (W_1) = $E_1 / (E_1 + E_2 + E_3) = 2.915 / (2.915 + 2.302 + 1.211) = 0.4534$.
- ✓ Factor-2 (W_2) = $E_2 / (E_1 + E_2) = 2.302 / (2.915 + 2.302 + 1.211) = 0.3581$.
- ✓ Factor-3 (W_3) = $E_3 / (E_1 + E_2) = 1.211 / (2.915 + 2.302 + 1.211) = 0.1883$.

Table-5 Variable grouping in Factor with Weight age

Factored	Variable `	Weights
Factore-1	%NRM .ExpenWorks(Public + Individual)	0.4534
	Category B Works	
	Wage of Total Expenditure	
Factore-2	Work Completion Rate	0.3581
	Payments generated within 15 days	
Factore-3	Average days of employment provided per Household	0.1883
	HHs completed 100 Days of Wage Employment	

7. MGNREGA Performance index:

The MGNREGA performance index (6 -Table) value for each district was calculated by using the formula $(W_1 * \text{factor-1}) + (W_2 * \text{factor-2}) + (W_3 * \text{factor-3})$ where W_1 , W_2 and W_3 are the weights calculated for factors 1, 2 and 3 as mentioned above and factor-1, factor-2 and factor-3 are aggregated unit less value of the each indicator. The normalized, weighted values of each of the factors were aggregated to arrive at a composite index value for each block. (6-Table:)

Table:- 6 MGNREGA Performance values and ranks for each block

Block	Factore-1	Factore-2	Factore-3	MGNREGA Performance Index Value	MGNREGA Performance Rank
UMARPADA	0.441	0.070	0.154	0.665	1
PALSANA	0.047	0.307	0.187	0.542	2
BARDOLI	0.108	0.343	0.043	0.494	3
MAHUVA	0.149	0.223	0.095	0.467	4
MANGROL	0.266	0.116	0.082	0.464	5
MANDVI	0.305	0.058	0.012	0.375	6
CHORASI	0.150	0.102	0.042	0.294	7
KAMREJ	0.080	0.122	0.041	0.243	8
OLPAD	0.033	0.053	0.072	0.159	9

8. CONCLUSION:-

The MGNREGA is a large socioeconomic programme therefore macro level evaluation of the programme may not be capture the loopholes evolved in the programme, so that micro level execution is needed to find out problems involved in implementation of the programme in tribal blocks. A large number of remote villages have not aware of the programme; hence awareness should be created among tribal villages. Village-level resource planning and designing ought to be strengthened further.

As our data shows, there is a strong co-relation between Blocks geographical area, rural employment programmes can play a key role in improving the rural natural resource base and increasing overall rural production. People are planning their works and the success of these works.

The analysis concludes that MGNREGA performance has significant impact on Backward Blocks of Surat District. Amongst various studied blocks of Surat district, Umarpada block has a very large tribal population and a

large proportion of the land area is covered by forest area. As a result Umarpada block have been the best performer in MGNREGA Act. Palsana, Bardoli, Mahuva, Mangrol and Mandvi have significant performance compare to poor performed blocks such as Chorasi, Kamrej and Olpad. We can also say that location of Chorasi, Kamrej and Olpad nearer to urban area and lack of agriculture and forest land may be the reason for poor performance of them.

REFERENCES:

1. SUDHA MENON, National Rural Employment Guarantee Act Issues, challenges and experiences,2008.
2. MINISTRY OF RURAL DEVELOPMENT DEPARTMENT OF RURAL DEVELOPMENT THE NATIONAL RURAL EMPLOYMENT GUARANTEE ACT 2005 (NREGA) OPERATIONAL GUIDELINES 3rd edition ,GOVERNMENT OF INDIA, 2008.
3. P.Arunachalam, Mahatma Gandhi National Rural Employment Guarantee Programme and Poverty in India, 2011.
4. Ashok K.Pankaj, Right to work and Rural India, 2012
5. Ministry of Rural Development Department of Rural Development Government of India New Delhi MAHATMA GANDHI NATIONAL RURAL EMPLOYMENT GUARANTEE ACT, 2005, Report to the People 2nd February 2013.
6. Arsalan Ali Farooquee, Policy Implementation and Impact Review: A Case of MGNREGA in India, Mediterranean Journal of Social Sciences MCSER Publishing, Rome-Italy E-ISSN 2039-2117 ISSN 2039-9340 Vol 4 No 13 November 2013.

Web references:

- www.finmin.nic.in/reports/Report_CompDevState.pdf Report of the committee for evolving a composite development index.
- www.nrega.nic.in/MGNREGA Website.