



Knowledge Test Scale to Measure the Knowledge Level of the Village Councillors about MGNREGA in Meghalaya

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ABSTRACT

Due to the non-availability of a standardized scale to measure knowledge of village councillors about MGNREGA it was thought necessary to construct a test for the purpose and an attempt has been made to develop a knowledge test. Relevant items covering all aspects of MGNREGA were collected from various sources based on the concept generated by the Meghalaya State Rural Employment Society. After getting jury opinion on the items, 48 items were selected and administer to thirty non-sample respondents. Finally, 20 knowledge items were included in the final format of the knowledge test based on the difficulty index ranges from 30 to 70, discrimination index from 0.30 to 0.80 and point-biserial correlation coefficient. The reliability of the knowledge test was measured with the help of split-half method and reliability coefficients was found to be $r=0.56$, which indicates that this knowledge test is quite reliable. A total of 120 VEC members covering 30 villages implementing MGNREGA were selected purposively for the final study covering two blocks each from three districts of the state. Results revealed that only 17.50 per cent respondents knew that MGNREGA followed a 4 tier-system in Meghalaya, while more than 65.00 per cent of the respondents had knowledge on the programme officer. A high percentage of 91.66 percent knew that machineries are not permitted under this programme. Results also shown that about 46.66 percent of the village councillors belonged to the medium category of knowledge level, followed by high level (30.83%) and low level (22.50%) respectively.

Key words: Knowledge test; MGNREGA; Village councillors; Village employment council (VEC); Job card.

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was started in Meghalaya in the year 2016 with the aim to provide a 100 days unskilled employment for the rural households. It plays a crucial role in developing the livelihood in the rural villages. This programme helps in increasing the household income thereby improving the living standards of the people. Panchayati Raj Institutions (PRIs) are the primary units of development of the country because they are the nearest institutions at village level to

implement policies and programmes (Buch, 2012). PRIs have to play a major role for the rural development (Singh, 2015). Panchayati Raj System exists in all the states except Nagaland, Meghalaya and Mizoram also all the UTs except Delhi (Mishra et. al., 2011). MGNREGA in Meghalaya at the grassroot level is implemented by the Village Employment Council (VEC), a committee formed with the representatives of the local villagers including headman and women. VEC acts as an implementing agency which operates and manage

the overall welfare of the MGNREGA scheme. A village Headman usually acts as a chairman of the VEC. MGNREGA in Meghalaya follows a 4-tier system with DEC (District Employment Council) at the top level followed by BEC (Block Employment Council) at the block level, Area Employment Council (AEC) for cluster of villages and finally VEC at the grassroot level.

Bloom et al. (1956) defined knowledge as those behavior and test situation, which emphasized the remembering, by either recognition or recall, of ideas, materials and phenomenon. *English and English (1961)* defined knowledge as "The body of understood information possessed by an individual or by a culture". Knowledge is an important trait in an individual for which it is acquired from formal education and informal sources through self-learning, personal experience, discussion as well as from social media etc. Knowledge helps in boosting the performance of the village councillors in implementing the MGNREGA. As knowledge test has not been developed in the past with respect to the knowledge of the village councillors about MGNREGA. With this background, a present study is conducted with the objective to construct the knowledge test so that we could determine the knowledge level of the village councillors about MGNREGA in Meghalaya. A knowledge test is a set of questions, each of which has a correct answer, to which people respond (*Ray and Mondal, 2014*).

METHODOLOGY

Locale of study and sampling plan : Meghalaya is purposively selected for the study because it has no Panchayati Raj system in the state and implementation of rural development programmes are usually executed through the traditional village heads known as Rangbah Shnong/Sordar/Wahoh Shnong/Nokmas in different parts of the state. For development of knowledge test, thirty non respondents from Pyndengumiong village area of West Khasi Hills were taken, subjected to item analysis to screen more items based on the opinion of the respondents. Later, for calculating reliability of the developed knowledge test, thirty fresh non-sample respondents from Mairangbah village, West Khasi Hills were taken. Further, the developed Knowledge test was administered to test the knowledge level of 120 respondents of the study area. A total of 120 VEC (Village Employment Council) members implementing

MGNREGA with four members from each village covering 30 villages implementing MGNREGA were selected purposively for the final study covering two blocks each from three districts of the state-East Khasi Hills, West Jaintia Hills and West Garo Hills. Ex post facto research design was used for the study. A standardized knowledge test was conducted through structured interview schedule for assessing the knowledge of village councillors taking into consideration the procedures adopted by *Jaganathan (2010)* and *Kumar et. al. (2014)*. However the knowledge index was calculated by the following formulae:

$$\text{Knowledge index} = \frac{\text{Respondent's total score}}{\text{Total possible score}} \times 100$$

Development of village councillors' knowledge test about MGNREGA :

Construction of knowledge test : The knowledge test was developed in the line elucidated by *Lindquist (1951)*. The procedure followed for constructing the knowledge test is described as below:

Collection of items : The most important element of a knowledge test is the set of statements or questions called items. The content of knowledge test is composed of questions called items (*Chatterjee et. al., 2020*). Here, the items for the test were constructed from the content generated by the Meghalaya State Rural Employment Society. About sixty-five items related to MGNREGA focusing on the basic information, guidelines for implementation at the grassroot level were collected initially from various sources viz., relevant literatures, consultation with the MGNREGA officials, group discussion and personal experience. While selecting the items, necessary care was taken to see that the items should abet in differentiating the well-informed respondents with poorly informed ones, have certain level of difficulty value and encourage thinking rather the mechanical memorization (*Ray and Mondal, 2014*). After screening, fine tuning, editing and discussion with the field experts, the items were reduced to forty-eight items. The items of the test were converted into genuine dichotomous objective type questions to facilitate facile scoring and analyses.

Pre-testing and item analysis : An item analysis generally yields three kinds of information-item difficulty index, item discrimination index and point bi-serial correlation (*Yadav, 2009*). The forty-eight items were

administered to 30 non sample respondents conducted in Pyndengumiong village area of West Khasi Hills as a pilot study and respondents were selected for those that were not included in the final test with two-point response continuum. The scores allotted were one for correct response and zero for incorrect response. After computing the total score obtained for each of the 30 respondents on 48 items, they were arranged in order from highest to lowest. Based on which the 30 respondents were then divided into six equal groups. These groups were labelled as G1, G2, G3, G4, G5 and G6 with 5 respondents in each group. For the purpose of item analysis, the middle two groups G3 and G4 were eliminated keeping only four extreme groups with high and low scores.

Table 1. Range of Scores obtained by the Respondents (G1=Group 1 G6=Group 6)

Group No.	G1	G2	G3	G4	G5	G6
Score Range	16-20	15-16	14-15	13-14	9-13	5-9
No. of respondents	5	5	5	5	5	5

Item difficulty Index (P) : Garrett (1966) described several ways to determine the difficulty of an item (i) by the judgments of the competent people who rank the items in order of difficulty, (ii) speed with which the items can be correctly solved, and (iii) by the number of examinees in the group who can solve the item correctly. Item difficulty index indicates the extent to which an item was difficult or unable to answer correctly. The index of difficulty was worked out as the percentage of the respondents answering an item correctly. The difficulty level was calculated using the following formula:

$$P_i = \frac{n_i}{N} \times 100$$

Where,

- P_i = Difficulty index for i th item,
 n_i = Number of respondents who correctly answered the i th item,
 N = Total number of respondents to which i th item were administered that is 30 respondents. The items with 'p' values ranging from 30 to 70 were considered for the final selection of the knowledge test battery.

Item discrimination index ($E^{1/3}$) : Discrimination Index is calculated to express the extent to which a particular item discriminates the respondents who sharply has more knowledge about the topic with those who lacks the same. The statement or items which is either answered correctly by everyone or none in the sample, is supposed

to have no power of discrimination (Sinha *et. al.*, 2020). Item discrimination index provides information on how well an item discriminates in agreement that is whether an item really discriminates well informed respondent from poorly informed respondent. The item discrimination index indicated by " $E^{1/3}$ " which is calculated by the formula.

$$E^{1/3} = \frac{(S1 + S2) - (S5 + S6)}{N/3} \times 100$$

Where,

S1, S2 and S5, S6 are the frequencies of correct answers in the groups G1, G2 and G5 and G6 respectively. 'N' is the total member of respondents of the sample selected for the item analysis that is 30. The discrimination index varies from 0 to 1.

Point-bi-serial correlation coefficient : Point-Bi-serial correlation coefficient is the statistics used to work out the internal consistency of the items of dichotomous or binary nature, which signifies the relationship of the total score to a dichotomized answer of any given item. Thus, the point biserial correlation provided information on how well item measures or discriminates in agreement with the rest of the test. The items were revised and administered to 30 respondents selected for the purpose of pretesting in controlled situation. The point bi-serial correlation for each of the item of initial knowledge test was calculated by using the formula given by Garrett (1966):

$$r_{pbi} = \frac{MP - MQ}{SD} \times \sqrt{pq}$$

Where,

- r_{pbi} = Point bi-serial correlation coefficient,
 MP = Mean of the total scores of the respondents who answered the item correctly,
 MQ = Mean of the total scores of the respondents who answered the item incorrectly,
 SD = Standard deviation of the entire sample,
 p = Proportion of the respondents giving correct answer to the item,
 q = Proportion of the respondents giving incorrect answer to the item (or) $q = 1 - p$.

Final selection of items : Those items, which met all the following conditions, were finally selected for the knowledge test. Difficulty index (DI) between 0.30 to 0.70, discrimination index value between 0.30 and 0.80 and Point bi-serial correlation coefficient at five and one per cent level of significance. Thus, a total of 20 items from a total 48 items were retained finally, for the final knowledge test.

Reliability of the test : Split half reliability method was

Table 2. Difficulty, Discrimination and Point Bi-Serial Correlation for Knowledge Test Items

Knowledge Items	DI	DP	PBS	S/R
In Meghalaya, MGNREGA programme was started in the year 2001? Yes/No	0.76	0.6	0.3	S
The mandate of MGNREGA is to provide at least 100 days of guaranteed wage employment in a financial year to every rural household whose adult members volunteer to do unskilled manual work? Yes/No	1	0.1	NC	R
MGNREGA in Meghalaya followed a 3 tier system? Yes/No	0.6	0.5	0.31	S
MGNREGA programme is implemented both centrally and state sponsored scheme on cost sharing on basis of ratio of 90:10? Yes/No	0.3	0.4	0.32	S
The fund released by the central government, will be directly released to village council from BDO office? Yes/No	0.76	-0.1	NC	R
MGNREGA is demand driven and allocated work related to creation of durable assets in the community and strengthening the livelihood base of the rural poor? Yes/No	1	0	NC	R
MGNREGA programme is implemented by VEC at village level? Yes/No	1	0	NC	R
Creation of durable asset and providing employment of rural poor are the two broad objectives of the Scheme? Yes/No	0.83	0.1	NC	R
Village Headman is the Programme Officer (PO) under the MGNREGA? Yes/No	0.73	0.4	0.34	S
All adult members of a rural household willing to do skilled manual labour can register under MGNREGA? Yes/No	0.23	0.3	0.35	S
Wage and material component should be in the ratio of 50:50? Yes/No	0.9	0.3	NC	R
Do we need to have a job card to work under MGNREGA? Yes/No	0.96	0	NC	R
Can a person apply for a job card in villages where he / she is not a local domicile? Yes/No	0.63	0.5	0.35	S
Households can register with the village Headman? Yes/No	0.4	0.7	0.39	S
Separate job card will be given to all the adult individuals in a household? Yes/No	0.83	0.5	NC	R
Is it allowed to employ person who are below 18 years under MGNREGA? Yes/No	0.8	0.5	0.02	S
All Job Cards shall be in the custody of the Secretary VEC? Yes/No	0.6	0.4	0.07	S
If Job Card is lost, can we still work under MGNREGA? Yes/No	0.63	0.7	0.20	S
Can a Job Card be borrowed or sold? Yes/No	1	0	NC	R
A Job Card is a legal document valid for 5 years? Yes/No	0.86	0.1	NC	R
A Demand Driven employment guaranteed means people should come forward to ask for employment? Yes/No	0.93	0.2	NC	R
One can apply for work under MGNREGS through phone call? Yes/No	0.93	0.2	NC	R
One can get employment within 15 days of submitting the application? Yes/No	1	0	NC	R
The applicant will be entitled to unemployment allowance if employment is not given to the eligible applicant? Yes/No	0.03	0	NC	R
VEC should not consult the MGNREGA officials for project preparation? Yes/No	0.76	0.3	0.02	S
Safe drinking water is to be made available to workers at worksite? Yes/No	0.96	0	NC	R
Wages are to be paid within two weeks after the date on which such work was done? Yes/No	0.83	0.3	NC	R
Equal wages shall not be paid to men and women? Yes/No	0.76	0.6	0.34	S
The worker is entitled to receive 10% additional wages as transportation cost if the work is provided beyond 5 km radius? Yes/No	0.9	0.1	NC	R
Work is to be provided within 5 km radius of the applicant's residence? Yes/No	0.8	0.25	0.02	S
Do household in your locality apply for employment? Yes/No	0.8	0.1	NC	R
Machineries are permitted under this programme? Yes/No.	0.73	0.4	0.25	S
Contractors are permitted under this programme? Yes/No	0.86	0.3	NC	R
Due to non-availability of public land, can we take up work on private land? Yes/No	0.93	0.1	NC	R
VEC should decide the rate of wages for both men and women? Yes/No	0.8	0.6	0.39	S
Area Employment Council (AEC) which is formed at the Cluster level comprising of villages within 2.5 km radius? Yes/No	0.83	0.3	NC	R

Can we take up three or more projects in a year? Yes/No	0.93	0	NC	R
Can we construct a road that will link the village to a water source which is located in the outskirts of the village? Yes/No	0.56	-0.1	NC	R
Construction of Anganwadi centres are not permissible under MGNREGA? Yes/No	0.7	0.3	0.13	S
Solid and liquid waste management project works are not permissible under MGNREGA? Yes/No	0.8	0.4	0.07	S
Only male members are eligible as members of the Village Employment Council? Yes/No	0.93	0.2	NC	R
Every male and female heads of each household are eligible to be members of the Village Employment Council? Yes/No	0.96	-0.1	NC	R
The renewal period of Village Employment Council is five years? Yes/No	0.93	-0.1	NC	R
Due to non availability of public land, can we take up work on private land? Yes/No	0.9	0.1	NC	R
The term of members of PEIC and AEC members will be three years? Yes/No	0.96	0.1	NC	R
At least one woman member should be members of the PEIC? Yes/No	0.76	0.3	0.33	S
Social audit should be conducted once a year? Yes/No	0.46	0.3	0.33	S
Social Audit under MGNREGA should be conducted only after project implementation? Yes/No	0.4	0.6	0.39	S

NC=Rpbis is not calculated for items difficulty index more than 80 and less than 20 and items Discrimination index more than 0.8 and less than 0.2; DI=Difficulty index; DP=Discrimination power; PBS=Point Bi-Serial Correlation; S=SelectItem R=Rejected .

Table 3. Item wise knowledge of village councillors about MGNREGA (N=120)

Knowledge items	No.	%
In Meghalaya, MGNREGA programme was started in the year 2001? Yes/No	41	34.16
MGNREGA in Meghalaya followed a 3 tier system? Yes/No	21	17.50
MGNREGA is implemented both centrally and state sponsored scheme on cost sharing ratio of 90:10? Yes/No	54	45.00
Village Headman is the Programme Officer (PO) under the MGNREGA? Yes/No	79	65.83
All adult members of a rural household willing to do skilled manual labour can register under MGNREGA?	68	56.66
Can a person apply for a job card in villages where he / she is not a local domicile? Yes/No	113	94.16
Households can register with the village Headman? Yes/No	53	44.16
Is it allowed to employ person who are below 18 years under MGNREGA? Yes/No	54	45.00
All Job Cards shall be in the custody of the Secretary VEC? Yes/No	25	20.83
If Job Card is lost, can we still work under MGNREGA? Yes/No	88	73.33
VEC should not consult the MGNREGA officials for project preparation? Yes/No	73	60.83
Equal wages shall not be paid to men and women? Yes/No	77	64.16
VEC should decide the rate of wages for both men and women? Yes/No	76	63.33
Work is to be provided within 5 km radius of the applicant's residence? Yes/No	70	58.33
Machineries are permitted under this programme? Yes/No	110	91.66
Solid and liquid waste management project works are not permissible under MGNREGA? Yes/No	84	70.00
Construction of Anganwadi centres are not permissible under MGNREGA? Yes/No	95	79.16
Social audit should be conducted once a year? Yes/No	73	60.83
At least one-woman member should be members of the PEIC? Yes/No	43	35.83
Social Audit under MGNREGA should be conducted only after project implementation? Yes/No	54	45.00

Table 4. District-wise distribution of respondents according to the knowledge level of the village councillors about MGNREGA (N=120)

Knowledge level	East Khasi Hills (n=40)	West Garo Hills (n=40)	West Jaintia Hills (n=40)	Overall (N=120)
Low level	06 (15.00)	07 (17.50)	08 (20.00)	27 (22.5)
Medium level	28 (70.00)	28 (70.00)	22 (55.00)	56 (46.66)
High level	06 (15.00)	05 (12.50)	09 (22.5)	37 (30.83)
Mean	11.07	11.62	11.15	11.44
SD	02.56	01.70	02.53	01.16

used to find out the reliability of the test. In this method, all the twenty items were first randomly arranged and then divided into two equal halves one containing the odd items and other one containing the even items. The test was administered to thirty respondents and the two sets of knowledge scores obtained were correlated. The co-efficient correlation ($r=0.56$) was highly significant indicating a high degree of dependability of the test for measuring knowledge of village councillors about MGNREGA.

Validity of the test : The two methods employed to know the validity of the test were jury opinion and point biserial correlation. Content validity was ensured initially by administering every item to different experts for evaluating the representation of universe by the test, its relevance and appropriateness. For establishing internal consistency of each item, point bi-serial correlation coefficient (r_{pbi}) was estimated by using the formula suggested by *Garrett (1966)*.

The calculated point bi-serial (r_{pbi}) correlation of every item determined the construct validity of the test. The items with significant correlation coefficients either at 1 or 5 per cent level were included in the standard knowledge test designed to measure the knowledge of village councillors about MGNREGA as depicted in Table 2. Finally, twenty items were selected based on the items' difficulty level and discriminatory power.

RESULTS AND DISCUSSION

Assessment of the knowledge level of the village councillors about MGNREGA

Knowledge Level of the respondents : From Table 3 it is evident that only 17.50 per cent respondents knew that MGNREGA followed a 4 tier-system in Meghalaya, while more than 65 per cent of the respondents had knowledge on the programme officer. A mere percentage of 20.83 per cent had knowledge that job cards should not be in the custody of VEC Secretary. Whereas nearly cent percent of the respondents

(94.16%) answered correctly to questions related to application of job cards to a person is meant only is meant only for a local domicile. A high percentage of 91.66 per cent knew that machineries are not permitted under this programme and 60.83 per cent correctly answered that social audit should be conducted not once but twice in a year. The score was more for the items which they experienced than on factual knowledge about the programme. So, it is of immediate importance to introduce awareness programme to the rural population especially to the village councillors from time to time to update their knowledge level with respect to MGNREGA.

From Table 4 it was shown that on overall about 46.66 per cent of the village councillors belonged to the medium category of knowledge level, followed by high level (30.83%) and low level (22.50%) respectively and similarly district wise¹. Research findings are in line with the findings of *Kirar and Mehta (2009)*, *Devarani and Bandhyopadhyay (2014)*. This happened due to the fact that most of the respondents acquired the knowledge about MGNREGA based on work experience, book keeping through training participation at the Community and Rural Development (C&RD) Blocks.

CONCLUSION

The study revealed that availability of information by the Village Employment Council members especially on the guidelines of the scheme and its implementation at the grassroot level is of utmost importance for the successful implementation of the programme. Therefore, this developed knowledge test may be used to assess knowledge level of the village councillors which could easily differentiate the knowledgeable persons from the poorly knowledgeable persons. After assessing their knowledge level, different interventions may be arranged to upgrade their knowledge level. Hence, knowledge is the first hand tool necessary for an individual to achieve a better work performance.

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