

**Purpose:** The purpose of this case study is to help the participants to realize the importance of Statistics Sampling Performance Audit when a large data is under consideration of Audit.

**Time allotted:** Individual reading and sub-group discussion: 20 min.

**Required:** Read the case study and discuss following questions:

Q: Discuss Statistical Methods used for selection and analysis of Data.

### **Case Performance Audit on Indira Awaas Yojana**

Indira Awaas Yojana (IAY) was introduced in June 1985 as a sub-scheme of Rural Landless Employment Guarantee Programme (RLEGP) with the objective to help the poor in rural areas to construct/upgrade their dwelling units. The beneficiaries under the IAY are scheduled castes/scheduled tribes, freed bonded labourers, minorities in the Below Poverty Line (BPL) category and other below poverty line non-scheduled castes/scheduled tribes rural households, widows and next-of-kin to defence personnel/paramilitary forces killed in action residing in rural areas (irrespective of their income criteria), ex-serviceman and retired members of paramilitary forces fulfilling other conditions *viz.* the beneficiary should be houseless person or have *kutcha* house and residing in rural area.

This performance audit covered the period from April 2008 to March 2013 and was undertaken in 168 districts, 392 blocks under these districts and 2960 gram panchayats under these blocks of 27 states and four union territories.

It was observed that several ineligible beneficiaries were selected. In 12 states, 36,751 non- BPL families were given assistance of Rs. 89.15 crore. In 11 states, 10,184 ineligible beneficiaries were selected and Rs. 31.73 crore was paid to them. In seven states, 33,536 beneficiaries were selected from outside the permanent IAY waitlists and paid assistance of Rs. 138.02 crore. In eight states, 1,654 beneficiaries who received assistance of Rs. 5.37 crore, already had *pucca* houses. In eight states, 5,824 beneficiaries were selected more than once and payment of Rs. 14.67 crore was made to them. In six states, allotment of dwelling units in the name of female members of the household was not preferred.

The Working Group under the Planning Commission on Rural Housing had fixed the targets of construction of 170 lakh houses under the IAY for 2008-13. However, only 128.92 lakh houses (75.84 *per cent* against Working Group target) were constructed during the period, indicating the IAY could not bridge the gap in housing shortage in the country.

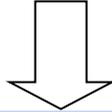
### **Significant Audit Observations**

- The cases of IAY houses being abandoned even after receiving full amount by the beneficiaries;
- beneficiaries having got first installment neither claimed nor were paid the second installment of the IAY assistance;

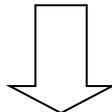
- engagement of contractors/department in contravention of the IAY guidelines (e.g. 2188 cases in Andaman & Nicobar Islands); etc.
- No quality inspections/technical supervisions were conducted by the concerned authorities/technical .
- due to slow pace of utilization/under utilization of funds by the states, there was deduction of Rs. 2,451.84 crore from their due Central allocation. Corresponding states' share on account of Central share deduction which would have been contributed by them worked out to be Rs. 810.08 crore. This resulted in denial of assistance to 7.25 lakh targeted beneficiaries.
- Multiple bank accounts (from 2 to 20) were operated in selected districts, blocks and GPs.
- there was diversion of IAY funds of Rs. 37.12 crore towards other schemes/ programmes.
- the scheme envisaged convergence activities with other GoI schemes, i.e. Total Sanitation Campaign for construction of sanitary latrines in the IAY houses; Rajiv Gandhi Grameen Vidhyutikaran Yojana for providing electricity; National Rural Water Supply Programme for providing drinking water; Differential Rate of Interest scheme for availing loan facility; Insurance Policies for rural BPL families and rural landless families and job cards under Mahatma Gandhi National Rural Employment Guarantee Scheme, so that the possible benefits under these schemes could be extended to the IAY beneficiaries. Audit noted that sanitary latrines were constructed only in 25.48 lakh (23.68 *per cent*) out of 107.58 lakh houses for the entire country during the period 2009-10 to 2012-13 leaving a shortfall of 76.32 *per cent*. Audit also noted that In 21 states, the IAY was not converged with RGGVY for providing free electricity connections. In 24 states/UT, IAY beneficiaries were deprived of the benefits of convergence with NRWSP.
- Loan facility under DRI scheme was not availed by beneficiaries in 13 states due to lack of initiatives by states/DRDAs to co-ordinate with financial institutions to make available the credit facility to beneficiaries.
- convergence of the insurance schemes *Janshree Bima* with the IAY for rural BPL families and *Aam Aadmi Bima* for the benefit of rural landless families was not ensured.
- Monitoring at the Central as well as states level was deficient against the stipulated norms. Regular monitoring at the Central level through National Level Monitors (NLMs) could not cover all the districts of the country.
- The Ministry launched a web-based management information system (MIS) called *AwaasSoft* to capture beneficiary-wise data to monitor the IAY. This tool was meant for management, reports generation, keeping tracks of funds released, progress in construction of houses and convergence of all the envisaged benefits. Though 15 states/UT had operationalised *AwaasSoft*, the same could not be made fully functional. Further, no specific mechanism to verify the authenticity of data uploaded at GP/block/DRDA level was existing.
- In contravention of IAY guidelines, in 22 states, social audit of the IAY was not conducted to monitor the implementation of IAY at the ground level.
- As part of the IAY, a scheme for providing homestead sites to those rural BPL households who neither possessed agriculture land nor a house site, was launched in August 2009. Funds were released to Andhra Pradesh, Bihar, Karnataka, Kerala, Maharashtra, Rajasthan and Uttar Pradesh under the scheme without identification/possession of land by the states.

**Multi-stage sampling plan for Indira Awaas Yojana**

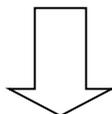
**District Level: 25 per cent from each stratum (each state/UT was divided in regions to make sample representative of the entire state) of the state subject to a minimum of two district from region using PPSWR method<sup>#</sup>**



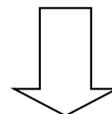
**Block Level: 20 per cent from the selected district subject to minimum of two blocks from each district.**



**Gram panchayat level: 30 per cent from each selected block subject to a minimum of 10 GPs from each selected block using SRSWOR\* method.**



**Village level: two villages within a selected GP using SRSWOR method**



**Beneficiary survey: Within each village six beneficiaries subject to a minimum 12 beneficiaries from a GP using SRSWOR method**

**.# PPSWR: Probability promotional to size with replacement.**

**\*SRSWOR: Simple random sampling without replacement.**

**The result from the above multi-stage sampling was as follows:**

- 1. 168 districts/DRD as out of 617 districts.**
- 2. 392 blocks of 168 selected districts.**
- 3. 2,960 gram panchayats in 392selected blocks**
- 4. 48,04 villages in 2960 GPs for joint physical inspection.**
- 5. 29923 houses/ beneficiaries were selected for physical inspection/to respond a questionnaire in 4804 villages.**

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## Case Study

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1. Statistical Sampling method that was most likely used for selection and analysis of Data.
2. Alternative Statistical Sampling method that could have been used for selection and analysis of Data

### Case Performance Audit of MGNREGA

The second Performance Audit of MGNREGA was taken in response to request of Ministry of Rural development and covers the period from April 2007 to March 2012. Implementation of scheme was checked in 3848 gram panchayats in 28 states and four union territories.

Analysis of data related to the performance of scheme showed that there has been significant decline in per rural household employment generation in the last two years. The per rural household employment declined from 54 days in 2009-10 to 43 days in 2011-12. There was also substantial decline in the proportion of works completed in 2011-12. It was also seen that Bihar, Maharashtra and Uttar Pradesh, which together account for 46 percent of the rural poor, utilized only about 20 percent of central schemes funds, this indicated that the correlation between poverty levels and implementation of MGNREGA was not very high.

In 14 states and one UT, 129.22 lakh works amounting to Rs. 1,26,961.11 crore were approved in the annual plans. But only 38.65 lakh works (30 percent of the planned works) amounting to Rs.27,792.13 crore were completed during the audit period, indicating significant inefficiencies in implementation of the annual plans.

In terms of MGNREGA, the states were to notify schemes and rules for its implementation, however, it was seen that despite passage of seven years, after the Act came into force, State Governments of Haryana, Maharashtra, Punjab, Rajasthan and Uttar Pradesh did not formulate rules as of March 2012

Ministry relaxed all conditionalities and released a sum of Rs.1960.45 crore in March 2011 to the States, contravening norms of financial accountability. An amount of Rs. 4072.99 crore was released between 2008-12 to states for use in the subsequent financial year.

Job Cards were not issued in 12,455 household in six states. Non-payment /underpayment of wages of Rs. 36.97 crore was noticed in 14 states. Delayed payments for which no compensation was paid.

In the test checked districts of 25 states /UTs 1,02,100 inadmissible works amounting Rs 2,252.43 crore were undertaken. These inadmissible works included construction of earthen/

## Case Study

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kutcha roads, cement concrete roads, construction of raised platform for cattle and other animals, construction of bathing ghats etc.

**Suggested Solution**  
**Case Study- Performance Audit of MGNREGA**

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Suggested Solution

Statistical Methods that can be used for selection and analysis of Data.

1. Statistical Sampling method that was most likely used for selection and analysis of Data.

**Multi stage random record sampling**

The NREGA performance audit employed a multi-stage random sampling approach for the selection of districts, blocks, gram panchayats (GPs), works and beneficiaries for inclusion in the audit, resulting in the selection of 182 districts, from which 458 blocks and then 3,848 GPs were selected. While this selection process ensures that each district in India is equally likely to be selected for audit, it neglects the wide variation in NREGA spending and rural population across the country. In FY2011-12, districts in India ranged in rural population from 5,620 persons to 6,074,188 persons and in NREGA expenditure from ₹ 0 to 337.71 crore. Thus, there is wide variation across districts in both the size of the population targeted for NREGA and the intensity of implementation of the scheme.

2. Alternative Statistical Sampling method that could have been used for selection and analysis of Data

**Stratified Sampling**

Stratified Sampling method, sensitive to the varying levels of relevance of districts to the MGNREGA scheme, while maintaining the random nature crucial to a representative audit. This sampling approach incorporates sampling strategies from financial audit to more effectively capture the rich variation between districts by using a stratified random sample to select districts with likelihood proportional to their size. The Financial Attest Audit manual notes that "where either monetary values or assessed risks of error vary widely between transactions, alternative sampling methods to simple random sampling are usually preferable." If each district in India is viewed as one "transaction" or unit in the overall implementation of MGNREGA, there is wide variation in the "value" of each district in terms of the target population of the scheme and in terms of the intensity of implementation. The Performance Auditing Guidelines require that the sample selected be representative of

**Suggested Solution**  
**Case Study- Performance Audit of MGNREGA**

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the entire population, unbiased, and of sufficient size to extrapolate results to the entire population. In addition, the auditor is given discretion to "use judgment in determining which kind of sampling is best suited to his audit job."

The methodology proposed here ensures that all three of these requirements are met, while giving CAG deeper insight into those districts where NREGA implementation has been most intensive. For more insight into creating representative samples with post stratification weights is as under :-

When selecting a stratified sample, results can be extrapolated to the national level with the use of weights. In a stratified sample, observations have varying probability of selection into the sample, whereas in a simple random sample, every observation has an equal probability of inclusion. Thus, to obtain nationally representative figures, each observation within a strata must be weighted to reflect the ratio of the strata size as a proportion of the sample to the strata size as a proportion of the population.

Three indicators could potentially be used for this stratified sampling:

a) MGNREGA expenditure

The first is a financial measure of the scope of MGNREGA implementation in the district, and would ensure that districts with the highest level of expenditure were accordingly most likely to be audited. In effect, as in Monetary Unit Sampling, each rupee of expenditure becomes the unit on which sampling is based, and each rupee of spending becomes equally likely to be selected for audit

b) Rural population

Rural population measures the potential population which qualifies for NREGA in the district, thus ensuring that the larger the targeted population in a district, the higher the probability of audit

c) Person days worked

Person-days worked provides a measure of the intensity of implementation in an area.

## **Suggested Solution**

### **Case Study- Performance Audit of MGNREGA**

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#### **Outcomes under Stratified Sampling**

For each of the three proposed samples, a variety of MIS variables were computed and compared to those outcomes for the audit sample. This gives a sense of what might have been found at the ground level, and could be used as indicative data in determining the focus of the audit. Though the MIS data has been criticized as containing some inaccuracies, so long as these inaccuracies are broadly consistent across districts, this does not negate the usefulness of the data in determining relative levels of the indicators of interest. Moreover, the use of logical checks within the MIS data can uncover likely instances of falsification, which can be further explored on the ground.

Each of the three samples is representative of the average rural person, person-day of MGNREGA work, or rupee spent on MGNREGA, respectively. Thus, where the sample has a higher value of an indicator than the country as a whole, this suggests that the indicator has higher values in higher-intensity areas. By contrast, where there is a lower value, this suggests that there may be less of a problem in higher-intensity areas.