Application of Information Technology in Rural Employment Programmes: A Study with Special Reference to MGNREGA

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Abstract:

The urge for employment and poverty alleviation is so strong as far as India is concerned. The government have the minimal obligation to tackle the problem. In this context a mass employment generation programs with the aid of the public fund is the need of the day. It is not only to enhance the rural poor but to maintain their bare subsistence. At the same time it is to ensure transparency and efficiency at all levels. From the start to till now, what had happened is enumerated here .The most progressive note of the scheme is the application of most advanced technology in and massive participation of the people in MGNREGA.

Keywords: MGNREGA, NIC, MIS

Over a decade unprecedented changes happened in the rural employment structure in India. The categorization of employment seemed as a marginal visual from the view point of a spectator. The rural employment and urban employment is the result of this marginal categorization. Wherever the space of employment, it serves the same purpose. The ultimate result of employment is nothing but the generation of income. The same shall at least maintain the subsistence living of the working class. The income, irrespective of its size, not only exhibits the status of life but also the standard of living too. Mass population organically act as the mechanism on the physical surface, they have the mouth, that should have to be feed. A mere provision to provide food is a charity act, and is basically temporary in nature, so is not stand too long. The question is how to prepare the masses to getting them in front of the war to fight against poverty. The fighting strategy have to be either self-designed or designed by others. The dilemma should be shouldered either by the institutional setup or by the warrior himself. But the laymen are of most times incapable of facing the dilemma. From the abstinence of the layman, the activity should have to be carried out by the institutional setup of the nation. The contextual discussion is how to generate mass employment and to accommodate the illiterate, unskilled and marginalised people. The same question may be addressed many times, but gone to vein. The real problem is the lack improper execution of projects, poor management, corruption and lack of supervision. There are large public employment programmes that desired to perform very well. But had not get the desired result. It will not extend its good results to the society. This may be assessed through the improper mechanism. The new public sponsored employment programme for the rural space had gained its momentum. Its

mandatory assessment and better supervision with the information technology made it a virtuous programme that assure minimum living for the marginalised community.

There were large public sponsored employment programs played in the rural ground of India. The IRDP, NREP, RLEGP, JRY, NRY, TRYSEM, DWCRA, FFW Programs etc. performed their role in the country. The large public funded programmes are either of wage employment programme or food employment programmes. The assessment of the same on beneficiary basis was difficult due to its unfitting administration. The paramount of funds over the projects made it difficult to assess each of the programmes one by one. The lately introduced employment programme, Mahatma Gandhi Rural Employment Guarantee Act (MGNREGA) can overcome the hostile effects of the prior employment programmes.

Objectives of the study:
1. To recognize the MGNREGA and its implementation.
2. To evaluate the application of technology in MGNREGA.
3. To comprehend the use of Management Information System (MIS) and the Geo-tagging techniques.

The far-reaching objectives of MGNREG Act can be classified into two categories. They are ambitious objectives and specific objectives. The ambitious objectives are achieved on the basis of the conditions of the work. The ambitious objectives are;

● To improve the livelihood security of the people in rural areas by generating wage employment opportunities through work.
● To address the grave situations like chromic poverty, draught, deforestation and soil erosion.
● Rejuvenate the natural resources and build the infrastructure of the rural areas.
● To motivate the unskilled local community by enabling people to work for wage employment.

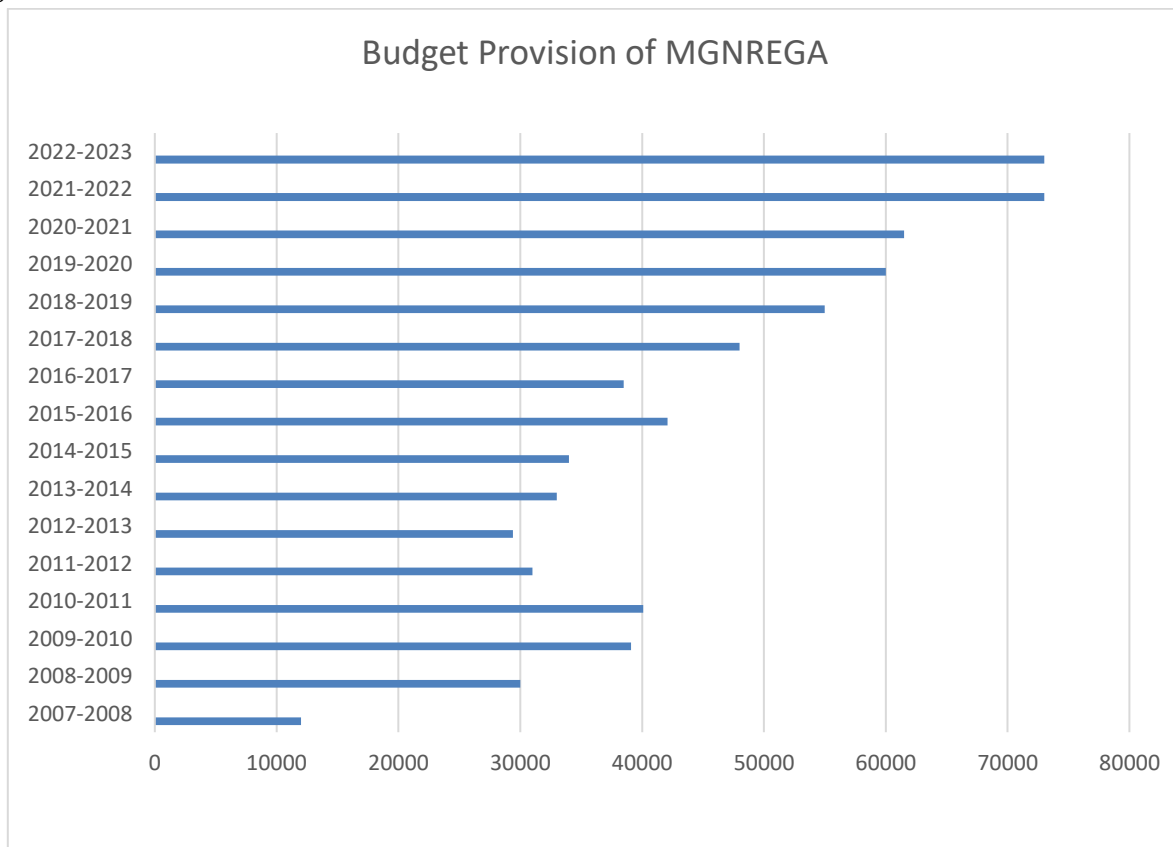The specific objectives implicit in the Act are:
• To reduce rural- urban migration
• To create rural assets in the country.
• The change power equation and increase the speed equitable social order.
• To endow the Panchayathi Raj Institutions (PRI$_S$) by providing the financial resources for local development.

The many-sided objectives can be contented by the will power of the government. By doing so, the country can achieve new heights of development in rural areas. The socio-economic viability of the program be able to analyse. Because the provision of funds have a start and an end. Every projects stand same economic burden, social too. The primary economic burden of the programme was 0.5% of the Gross Domestic Product (GDP) of 2005-06 and advanced over the years. It has gone up to 1% of the GDP in 2008-09. The following years the percentage increased deliberately. The economic viability of the MGNREGA is to be assessed on the basis of the budgetary provisions, as the source of revenue and expenditure over various financial years. But the actuality of the Act is assessed by the socio-economic gains received by the rural society. The same is made to explore the chances of rural development also. A bumpy assessment primarily can be prepared in the following table;

Budget allocation of MGNREGA from 2007-2023

Financial Year	Budget Allocation(In Crores)
2007-2008	12000
2008-2009	30000
2009-2010	39100
2010-2011	40100
2011-2012	31000
2012-2013	29387
2013-2014	33000
2014-2015	34000
2015-2016	42084
2016-2017	38500
2017-2018	48000
2018-2019	55000
2019-2020	60000
2020-2021	61500
2021-2022	73000
2022-2023	73000

Budget Allocation over the last Sixteen Years

Source: Budgets in various financial years

In 2012-13 budget only shows a slight decline in the budget allocation. All the other financial years the budget share has shown a positive trend.

The minimum financial cost of employment is the statutory minimum wages as envisaged by the public works department. The economic cost will not change if the labour is otherwise employed. The major challenge faced by the programme in financing employment guarantee is in terms of the slit of the country's revenue and expenditure. The huge amount of money spent on this programme may lead to financial insolvency and financial venality. But by thinking e the benefits to the society, the cost of expenditure seems worthless. The cost is based on money terms and benefit is calculated should be on the basis of real life standard and marginal receipts.

The Panchayathi Raj Institutions (PRIs) is the implementing agency of the program. They stipulate certain rules and regulations for selecting beneficiaries. The rules and regulations concerning to the program are;

- Registration of employment seekers from rural area. It is mandatory requirement for being part of the program.
- Minimum requirement for opening a new work is that, there should present at least 50 applicants for doing the work under one project.
- Maximum availability of work for one worker in a year period of minimum 100 days.
- Out of the total available employment one third shall be reserved to women workers.
- The provision of wage to workers through their bank account only. So it is mandatory to open an account of the beneficiary in a bank
- The wages are credited to the bank account of the
- beneficiary after the work is over, i.e., fourteen days after the project completion.
- The project shall maintain wage- material ratio.
- There is the provision of the contractor and machine, if necessary.
- The Panchayathi Raj Institutions should maintain an institutional mechanism, a separate section for the smooth conduct of the program.

Management Information System (MIS) and MGNREGA

Management Information System is a web based visual site that has been developed to access the programme into public domain. The web search is available in the form an address tag in the management information system of MIS, now it is www.nrega.nic.in. The access of the web site is to ensure data transparency. The remarkable of the system is that it has open to   all. The village level data relating to the household has internal scrutiny. This is to ensure consistency and transparency at the bottom level. The large data base of the MIS contains separate pages for each grama panchayaths, block Panchayaths, district panchayaths, States and Union Territories. (approximately 2.5 lakh Gram Panchayaths, 6465 Blocks, 619 Districts and 34 States and union territories). The portal displays complete transaction level data in public domain for example - job cards, demand for work and muster roll etc. The muster roll which is attendance cum payment sheet for workers.

The data pages include:
1. Workers data and documents such as registration, Job cards and muster rolls
2. Work selection and execution data. MIS further categorized in to approved works, sanctioned works, work execution and measurement of work.

3. The data on labour market is displayed in the system. The labour demanded and supplied are specifically displayed at micro and macro level.

4. Pages showing, Public Fund Management System(PFMS) annual allocation of fund, availability of fund, total outlay of fund, wages paid, cost of materials and administrative expenses.

It is not merely a compilation of data page but a comprehensive software system is truly engineered by a group of experts. The huge data base is subject to cross verification of records and generation of reports. The subject of the MIS is so designed for the general public, grama panchayaths, block panchayaths district panchayaths, workers, programme officers, district programme co-ordinators, state rural departments, ministry of rural development and the administrators of government of India.

Mission and Vision of the project-MIS

- NREGAsoft is one of the software developed for e-governance across the state and ensure e-governance of public fund among the various levels of the Panchayath Raj Institutions (PRI).
- It empowers IT access among common people and a proper solution to digital divide
- It acts as a transformation process in the arena of Right to Information Act (RTI). The huge documents are made available in the public domain, like muster rolls, registration, application register, job card, muster roll (Issue and roll receipt), which are once away from the public domain.
- The NREGAsoft facilitates information exchange among the various stake holders at different levels.

Project Description:

- The project description includes the following;
- Worker Management Module of the software for Registration, demands for work, work allocation and Muster rolls on which a person worked. This software has the provision of payment of wages through bank/post office as it captures the bank/post office account number, bank/post office name, branch name for all the person who demanded job and their account number are shown in muster toll against their name and calculate unemployment allowance. It also tracks of number of days of employment of a family.
- Fund Management Module software accepts the funds transferred from MoRD/States to Districts and then to Programme officers/Panchayats and expenditure incurred by various implementing agencies on labour, material and contingency. Hence it keeps track of each and every paisa spent under the scheme.
- Works Management Module contains information about the various works under taken under the scheme at various level of the local self- government. It facilitates online approval of projects and keeps track of time taken for approval of project. Each project is provided a unique ID and status of work is maintained in the system.
- Labour Budget Module allows planning and preparing the labour budget for each Gram Panchayat. The module is so designed that it enables each GP to upload its labour budget which gets consolidated at every level from block up to the State Level. It captures the details of the works to be taken up in next financial year along with the estimation of the household demanding the works and the person days. The module is so designed that it is drillable from State to the level of the Gram Panchayat for better monitoring.
- Social Audit module allows the Gram Panchayat to plan for the social audit and prepare social audit calendar. It has the feature to upload all the issues and minutes of meeting.

- Workers module (People's Information System) allows the Job card holder to access their information and demand for the work.
- Grievance redressal system allows a worker/Citizen to lodge complaint and trace the subsequent response.
- Staffing Position module captures name, telephone numbers etc. of all the officials, planning and implementing agencies from Gram Panchayat to Ministry of Rural Development involved in NREGA, thus strengthening communication and co-ordination among them
- Cost Estimation Module makes detailed estimation for the works taken up under NREGA e.g. construction of Tank, Well, Sluice Gate, Earthen road, Cement concrete road etc. This module calculates quantity of work to be done and calculate the per unit rate as per Schedule of Rates (SOR) for each sub activity of a work. This further helps engineers to fill the Measurement book and calculate wage per day for a particular muster roll.
- Alerts: The software also gives alerts to implementing agencies about the various irregularities, important activities, and messages for funds to be received by the agencies.
- Knowledge network/ Solution exchange provides a common platform to all stakeholders to exchange their views, pose queries to other stakeholder/experts and get responses, exhibit their best practices.

Benefits of NREGA- MIS:

- The Management Information System(MIS) that allows the free access of e-governance facility and information to the general public. But editing is possible to the authority concerned. All activities of the programmes of MGNREGA shall be put under a system of computerization. A fulltime Data Entry Operator (DEO) is appointed for the data collection and compilation and also to maintain huge data base for the MIS. The aim is to ensure the transparency and accuracy of mode of payment of wages. An online grievance and redressal mechanism that comes closer with the Management Information System. It is an added feature of MIS. Above all the facility of social auditing try to establish the public participation in centrally sponsored programmes.

How the tracking mechanism works:

- Tracking of 100 days of employment to a household.
- Generates documents as per NREGA guidelines.
- Tracking of funds from the Ministry to the worker (Through Bank/Post office account only)
- Provides status of available funds in accounts of Panchayaths/ Blocks/ Districts.
- Provides details of unfulfilled demand, works which can be taken up and the unemployment allowance

MIS Assistance to Programme Officers and Administrators:

- The MIS act as a strong support to the local managers of the data and scheme in the following way
- Locations with number registration, number of demand for work, number of allocation of work, number of total work in shelf, number of current work etc.
- Funds transfer, fund availability at each level and expenditure on work.
- Generates Monthly Progress Report (MPR) at Gram Panchayath / Block/ District and State level.
- MIS and Information Technology - A rapport.

- NREGAsoft is available in both online and offline mode to meet connectivity barriers.
- The Unicode enabled and supports all local languages overcoming the language barrier.
- Software is available in both Microsoft technologies as well as open source technologies.

Data Collection, Compilation and Data Verification in MIS

The activities of NREGA are happening at the village level. Panchayat Secretary at the Gram Panchayat level are responsible for the record maintenance and account keeping. Stationary like Blank Muster Roll, Cash book, Measurement Book is made available to the Gram Panchayat from the Programme Officer. Blank Muster roll forms goes to the work site where workers mark the attendance. Engineers visit the worksite after the closure of muster roll and do the measurement and fill the Measurement Book. Panchayat secretary maintains the cash book which has details of the amount received and expenditure made on labour and material component. Gram Panchayats where computers are available like West Bengal, Karnataka, Kerala, Himachal Pradesh, Gujarat; the data get entered into the computer which will then be sent by offline/ online mechanism to the central server at New Delhi. The Gram Panchayats where computers are not available; the physical records move to Programme Officer office at Block Level where they get digitized and sent to by offline/ online mechanism to the central server at New Delhi. The movement of records from Gram Panchayat to Block takes place at a regular interval of 2-3 days. NREGASoft MIS developed for NREGA is a work flow based system. Data entered for any activity cross check/ freezes for the previous activity. Proper checks have been introduced to validate the data entered and stop the wrong entries.

A large number of works are taken up in nine permissible categories of MGNREGA. The process starts from the labour budget projection which identifies the works to be taken up and expected number of families demanding job in the next financial year. After that the progress of work is recorded in terms of the persondays generated, expenditure on labour, material and administrative activities. The works attain different status i.e. proposed, approved, ongoing, suspended, completed etc from time to time. GIS can play a significant role in decentralized planning for works which will help in preparing labour budget and monitoring future progress of works. It will also in avoiding duplication of works as all works will be available with their latitude.

Contemporary updating of Information Technology: Geo Tagging

Geotagging is the process of adding geographic information to media in the form of meta media. It coordinates latitude and longitude. Geo Tagging add the altitude, distance and place names. Geo Tagging is the latest technology introduction in MGNREGA. It is the current and updated version of the Management Information System to evaluate and supervise the public funded programmes. Geo-Tagging ensure speedy sending of data on the one side and on the other and the most important side the location sketching of the works on going in the worksite. The objectives of geo –tagging are the following:

1. Use of GIS (Global Information System) as a Decision Support System to strengthen decentralized participatory planning of works under MGNREGA.
2. To monitor the implementation and the impact assessment of works under MGNREGA.
3. To prepare the assets directory.
4. To avoid duplication of works.

How Geo-Tagging Works

- Obtain Satellite Images from National Remote Sensing Center (NRSC) and Base Map (can be obtained from ISRO). Digitization of Satellite images should be carried out. It has been agreed that widely available 1:10000 scale maps will be used for the MGNREGS spatial database, since this can serve the needs of MGNREGS. However, if maps of higher scale i.e. 1: 4000 are available that can also be used. (The Indian Cartosat-I and Cartosat-II could be effectively used for generation of various layers of spatial database for MGNREGS). For integrating maps of different scale, interface can be developed.
- Standard Village Census Codes - 2011 may be used to digitize the local boundaries map.
- The following topographic features of the base map needs to be developed to assist the planning process:
  - State, District, Block, Village Boundaries
  - Watershed Boundaries
  - Contour Map
  - Drainage lines
  - Cadastral Map
  - Land use Map (LULC)
  - Slope
  - Wastelands
  - forestry
  - Assets already created in the area through various schemes (Historical Data)
  - Ongoing works of different department
  - Works already assigned to different department.
- Works should have latitude and longitude information. GPS Coordinates from field will help to locate structures in **Web-GIS** (as in the Gujarat Model) or as well as in Google Map.
- Integration with NREGAsoft (demographic data, employment details, attendance details, expenditure data, works progress data)
- Global Positioning System(GPS) enabled monitoring device may be used to capture the progress of all works with latitude and longitude information which will be recorded as a special data in the Web-GIS and subsequently synchronized with the NREGAsoft- MIS. This will enable us to track the real time progress of the work in relation to each work site.
- As the spatial data is getting updated, the relational maps and GIS features should be reflected in the map with immediate effect.
- It is suggested to have Central Server where all spatial databases are available and accessible for all users preferably in a web server in a distributed decentralized mode.

The new technology accepted by the MGNREGA is an example of technology inclusion and standardization procedure followed in the public funded programmes. The promise of transparency and consistency are the introduction slogans of the newly introduced Act. To ensure efficiency in works and transparency in fund use the application of innovative techniques helps a lot. The general acceptance of a guarantee of one hundred days of employment received as a traditional notion that can be connected with the modern concept of technology. People that are participating in the programme is also aware of the technology attached to them even though they are unskilled and illiterate. Not last but least, to say

that it is one or other, more than an employment programme, can counter the digital divide existing in the field of information technology.

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