

Reframing Support System for Pradhan Mantri Awaas Yojana Gramin

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Abstract: *This paper targets to evolve strategies to enhance the support system that can be extended for Pradhan Mantri Awaas Yojana Gramin (PMAYG) in the rural areas predominantly occupied by the Particularly Vulnerable Tribal Groups (PVTG) of India. The need to enhance support system arise from the ground scenario of the Awaas Yojana where hundreds of houses are left incomplete at various stages of the housing project, primarily due to complex community behavior and various environmental reasons pertaining to the community and the region. Complex community behavior can be understood with respect to their differing ideologies in life, different sets of skills and lack of faith in the mainstream due to their historical exploitation. Further, various environmental reasons such as low literacy level, extreme poverty and constant debt risk put the housing on the low priority agenda. Hence, these variations increase their vulnerability to deviate from the goal of completion of the housing project. Therefore, this research and its findings attempts into improving the support system to cater to the unique community requirements through housing project flow analysis, behavior analysis as well as the environmental analysis of the targeted beneficiary in the region focused on the PVTG of Odisha. The case community for the purpose of the study has been taken as Juang community. The paper targets to calculate the current probability of the beneficiary to complete the project based on the ground scenario and then work out the increased probability to complete the project by change in the community behavior and environment by designing specific support system.*

Keywords: Rural Housing, PMAYG Housing scheme, Support System Design, Markov Chain, Behavioral analysis

1. Introduction

Housing for all by 2022- National goal of the government of India, under which it is needed to develop about 11 crore housing units including current shortage of 6 crore units and Investments of more than USD2 trillion is required. To achieve this big target, efficient implementation of affordable housing schemes is necessary. A strong support system for the scheme will increase the success rate of it and will ensure the efficient utilization of such big money investment.

PMAY scheme has played a crucial role in addressing rural homelessness since inception though still there is a gap to meet the demand and till now and total 333.82 lakh houses have been constructed incurring a total expenditure of INR 117039.00 crores. The size of the scheme has increased substantially in recent years. The budgetary outlay for rural Housing has been enhanced from Rs.1991 crore in 2001-02 with a physical target of construction of 12.94 lakh houses to INR 16000.00 crore in 2014-15 for construction of 25.18 lakh houses (Annual Report, 2014-15). Efficient support system for this scheme will help to implement it successfully on ground level without any obstruction. The study area is limited to Scheme 'Pradhan Mantri Awaas Yojana' - Parameters study, live cases and recommendations for its Support System. Physical model Area for the live study is restricted to Kendujhar District of Orissa State.

It is important to highlight that rural population was getting the benefit of housing from government of India previously under Indira Awaas Yojana and in at the end of the year 2015, Pradhan Mantri Awaas Yojana Scheme was launched with some improvements in previous running scheme framework. Therefore, failure cases of houses built under IAY have been considered for behavioral as well as environmental analysis. Further, amendments in the new

framework of PMAYG from previous one in IAY scheme have been considered and recommendations are made according to that. Many of the changes linked with the PMAYG are very early to be analyzed, however, the need for those were highlighted in the findings while studying IAY.

2. Study area Profile

Kendujhar District also known as Keonjhar is part of Odisha district of India. Kendujhar is one of the major mineral producing Districts of Odisha. As per the administrative set up is concerned, the Kendujhar District has three subdivisions namely Anandpur, Champua and Kendujhar. In 2011, Kendujhar had a population of 1,801,733 of which male and female were 906,487 and 895,246 respectively. Kendujhar District population constituted 4.29 percent of total Odisha population. There was a change of 15.35 percent in the population compared to population as per 2001. In the previous census of India 2001, Kendujhar District recorded increase of 16.83 percent to its population compared to 1991. Total Population of all who lived without roof at the time of Census 2011 numbers to 1,068 (290 families). The district has most of the geographical area under rural area and thus the majority of population concentration can be seen in rural areas of the district. Higher rural population density in the district makes it a suitable area for the study of any rural housing scheme performance and framework design.

3. Community Profile

The Juang is one of the Particularly Vulnerable Tribal Group of Odisha formerly known as Primitive Tribal Group. They are found in Odisha exclusively in Kendujhar, Dhenkanal, and Angul district. There are currently 137 villages of Juang Tribe in the region. This Tribe displays a unique cultural and social system, which is significant to conserve and promote

for sustainable future. However, this community is undergoing massive transition due to change in living environment and law. Many initiatives have been taken to improve their education, health, living condition and livelihood pattern. However, housing has been failure to a great extent.

4. Analytical Framework

Markov Theory of chain has been incorporated in the analysis of the community behavior in the usage of the fund allocated for the purpose of the house construction. (Markov Chains) For the purpose of the analysis, the ground scenario has been developed at various levels as per the project provisions and cases have been built (Kanaroglou, 1987). Further beneficiary's attitude has been analyzed in entire scheme process flow in flow chart format and insights from the previous scheme experience have been considered to find the conflict between scheme objectives and beneficiaries' action and to reach the root of these projects' failure.

4.1 Stages of Scheme

For the application of Markov Theory in scheme process to analyze the flow, it is important to understand the major stages of the scheme. The house construction as per the program provisions are done in three stages but as per observation about attitude change of beneficiary at critical points, the whole process has been divided in following five stages for analysis purpose –

Stage 0, Beneficiary Selection (Planning Phase) where beneficiary gets selected under the scheme for house project and first money installment is released to him/her to start the house construction.

Stage 1, Start of Construction (Construction Phase) where beneficiary uses received money and starts house construction process and reaches till plinth level. Beneficiary's attitude for housing priority as well as his/her current financial condition decides whether he/she will enter into stage 1.

Stage 2, Lintel Level (Construction Phase) where the beneficiary is expected to successfully cross the stage 1 to stage 2 by completing construction till Lintel level in normal process. However, for the ease of analysis, those cases as well which failed at stage 1 and are pushed through support system are also considered for arriving at the probability rate of success.

Stage 3: Roof Level (Construction Phase) where the beneficiary is expected to successfully cross the stage 2 to stage 3 by completing construction till Roof level in normal process. However, for the ease of analysis, those cases as well which failed at stage 2 and are pushed through support system are also considered for arriving at the probability rate of success.

Stage 4: Completion Level (Construction Phase) where the beneficiary is expected to successfully cross the stage 4

by completing construction to completion level in normal process. However, for the ease of analysis, those cases as well which failed at stage 3 and are pushed through support system are also considered for arriving at the probability rate of success.

4.2 Transition Levels

In the transition level, beneficiary crosses one level of house construction and reaches next levels. For example, in transition level 1, the beneficiary gets selected and receives the first installment of the fund for the construction of the house and plans his house construction task. In this stage, the fund released to the beneficiary is Rs 20,000/-. However, in the ground reality as reported and informed, many of the beneficiary pitch for the house sanction for the purpose of the monetary benefit as the need for money is high. Hence, based on this, the following transition matrix has been developed and the probability is calculated from the case study.

Table 1: Scenario of Houses Sanctioned in the year 2010

<i>Stages \ Village</i>	<i>Budhighar</i>	<i>Kadlibadi</i>	<i>Upper Baitarani</i>	<i>Total</i>
Stage 0: House sanction for construction under IAY	8	6	9	23
Stage 1: Started construction activity and completed till plinth level	6	6	9	21
Stage 2: Continued construction activity and completed till lintel level	0	4	9	13
Stage 3: Continued construction activity and completed Roof construction	0	1	7	8
Stage 4: Continued construction and finished the house	0	1	6	7

Table 2: Scenario of Houses sanctioned in the year 2010 and fund used for another purpose than house construction

<i>Stages \ Village</i>	<i>Budhighar</i>	<i>Kadlibadi</i>	<i>Upper Baitarani</i>	<i>Total</i>
Stage 0: House sanction for construction under IAY	8	6	9	23
Stage 1: Did not start the construction activity hence project not completed till plinth level	2	0	0	2
Stage 2: construction completed till plinth level however incomplete at lintel level	8	0	0	8
Stage 3: Construction completed till lintel level however roof not complete	8	5	2	15
Stage 4: House complete till roof level however not finished	8	5	3	16

Table 3: Scenario of Houses Sanctioned in the year 2011

Village Stages	Budhighar	Kadlibadi	Upper Baitarani	Total
Stage 0: House sanction for construction under IAY	9	8	12	29
Stage 1: Started construction activity and completed till plinth level	3	8	11	22
Stage 2: Continued construction activity and completed till lintel level	0	6	10	16
Stage 3: Continued construction activity and completed Roof construction	0	5	8	13
Stage 4: Continued construction and finished the house	0	4	6	10

(Here 'H' represents probability of beneficiary building the house and 'O' represents probability of other possibilities than building house project)

Theory's Application here brings out the beneficiaries' attitude for building their house in quantitative form by drawing probability to build house in present scenario as well as future trend at various levels of project. Comparative analysis of figures in current scenario indicate maximum probability of failure of the project at level 2 and 3 i.e. construction from plinth level till roof level while least probability of failure is at level 1 i.e. construction till plinth level. That concludes that beneficiaries face more problems between level 2 and 3 of their house project and this problem can be in terms of technology availability, money shortage, material supply or lack of skill. Comparison of this data with future trends shows maximum negative transition from present at level 1 of the project. This indicates failure of more house projects at level 1 only in coming years which will cause more effort to bring project towards completion. These inferences drawn from analysis of theory application and literature study are converted into recommendations further.

Table 4: Scenario of Houses sanctioned in the Year 2011 and fund used for another purpose than house construction

Village Stages	Budhighar	Kadlibadi	Upper Baitarani	Total
Stage 0: House sanction for construction under IAY	9	8	12	29
Stage 1: Did not start the construction activity hence project not completed till plinth level	6	0	1	7
Stage 2: construction completed till plinth level however incomplete at lintel level	9	2	2	13
Stage 3: Construction completed till lintel level however roof not complete	9	3	4	16
Stage 4: House complete till roof level however not finished	9	4	6	19

5. Recommendation

5.1 Creating enabling environment

The history of housing schemes in India stands testament to the fact that the government has transitioned from being a provider to being an enabler. This scheme, no different from the aforesaid, entails provision not of a product, but of an environment conducive to its formation process. This paper envisages the attainment of truly conducive environments by adopting two approaches. First approach is to strengthen the existing process flow as per PMAY with a proposed support system. Second approach seeks to incentivize private players into entering this uncharted territory and adopting pre-cast mass construction for these districts. Both the approaches have their respective merits and demerits. While first approach is more inclusive, second approach is more efficient and saves unnecessary direct and indirect transaction costs. To be able to gauge the adequacy of both the approaches, it's imperative to understand the means of achieving truly enabling environments. These means have been identified and listed below:

Values in these tables are for two consecutive years i.e. 2010 and 2011 and if we compare the values in these tables with each other, behavioral change of beneficiary can be clearly observed. When we apply Markov theory for these two years' data, the scale of the change can be obtained and future orientations can be predicted.

Table 5: Application of Markov's Theory to predict future trend at different levels of construction process of houses under the scheme PMAYG

Transition Level	Current Scenario	Future Probability
Level 1 (Stage 0- Stage1)	$\begin{matrix} \text{Stage 0} \\ \text{H} & \text{O} \\ \begin{pmatrix} .83 & .17 \\ 0 & 1 \end{pmatrix} \end{matrix} = \begin{matrix} \text{H} & \text{O} \\ (.91 & .09) \end{matrix}$	$(.91.09) \begin{pmatrix} .83 & .17 \\ 0 & 1 \end{pmatrix} = \begin{matrix} \text{H} & \text{O} \\ (.76 & .24) \end{matrix}$
Level 2 (Stage 1- Stage2)	$\begin{matrix} \text{Stage 1} \\ \text{H} & \text{O} \\ \begin{pmatrix} 1 & 0 \\ .29 & .71 \end{pmatrix} \end{matrix} = \begin{matrix} \text{H} & \text{O} \\ (.62 & .38) \end{matrix}$	$(.62.38) \begin{pmatrix} 1 & 0 \\ .29 & .71 \end{pmatrix} = \begin{matrix} \text{H} & \text{O} \\ (.73 & .27) \end{matrix}$
Level 3 (Stage 2- Stage3)	$\begin{matrix} \text{Stage 2} \\ \text{H} & \text{O} \\ \begin{pmatrix} 1 & 0 \\ .52 & .48 \end{pmatrix} \end{matrix} = \begin{matrix} \text{H} & \text{O} \\ (.61 & .39) \end{matrix}$	$(.61.39) \begin{pmatrix} 1 & 0 \\ .52 & .48 \end{pmatrix} = \begin{matrix} \text{H} & \text{O} \\ (.81 & .19) \end{matrix}$
Level 4 (Stage 3- Stage4)	$\begin{matrix} \text{Stage 3} \\ \text{H} & \text{O} \\ \begin{pmatrix} .88 & .12 \\ 0 & 1 \end{pmatrix} \end{matrix} = \begin{matrix} \text{H} & \text{O} \\ (.88 & .12) \end{matrix}$	$(.88.12) \begin{pmatrix} .88 & .12 \\ 0 & 1 \end{pmatrix} = \begin{matrix} \text{H} & \text{O} \\ (.77 & .23) \end{matrix}$

(a) Beneficiary Sensitization

(To make them consider housing as top priority)

Even a cursory glance at asset holding and liability structure of households gives us insights about their wealth status. This status inevitably drives their demand for commodities, especially housing. Often, the rural population doesn't understand the importance of proper housing. Since even the time taken for construction is perceived as subconsciously perceived as a cost, the complex and laborious process of constructing is disregarded at nascent stages as an 'unnecessary hassle'. This perceived 'lack of benefit' often outweighs their 'perceived direct and indirect costs of constructing a house'. As a result, many projects get stalled. Therefore, it's important to sensitize the rural denizens about

the importance of proper housing so that they can follow the process through; be rest assured that this seemingly taxing investment will pay-back in the long run. This subtlety, however, can't be instilled in their minds in an hour-long conversation; there needs to be proper dialogue and usage of art to convey the message. Identified means for spreading the message include:

- Community-level plays
- Movie shows
- Interactive sessions between officials and villagers

(b) Sensitization of Officials involved in Scheme and Region

Not only do formal institutions see the creditworthiness of rural population as risky, they also see rural finance as a hassle because of the dismal success rate of such initiatives in past. As a result, they lack the motivation to adeptly enable rural population to avail adequate housing. Availing government schemes is a complicated process for the rural population and they need support from officials to ease the process. It is, therefore, important to enable the involved officials in becoming truly supportive of the beneficiaries. In achieving the aforesaid, however, one may face various hurdles. For instance, officials may not be well versed in the local language to fully comprehend and address the issues community maybe facing. They also may be distanced and unaware of the behavioral pattern of the community to anticipate the struggles that may emerge. To adequately sensitize the officials involved in the process, following measures are proposed:

- Removing the understanding gap between both the officials and beneficiaries through local language training
- Bridging the understanding gap by interaction and behavior training
- Using local language for any advertisements, announcements or awareness initiatives

(c) Constant Counseling of Beneficiary

In global economic landscape, India is a rising star. The only looming problem that might await this country could be its double balance sheet problem. This problem is perpetuated by its Non-Performing Assets. Stalled projects weigh heavily on our economy. While stalled projects are not new for our country, they still heavily dent the economy. Hence, it becomes important to stop project failures, especially at crucial and near-completion stages. Even though the government is an enabler, the true in charge of a project is its beneficiary. The success failure or completion of a project depends largely on the beneficiary. Need for appropriate counseling and training of beneficiaries is extremely important to gain from the process. Constant counseling includes: telling the beneficiaries beforehand about various stages of implementation and in turn aid their completion of the process.

(d) Leadership at various levels of the executive committee, community and intermediate organization

Right from identification to the last stage of house construction, various stakeholders are involved. While some provide technical and managerial support, others provide financial backing. Leadership should be developed at each of these stages. For instance, State nodal officer should be

appointed as a head of State level project monitoring unit; a fulltime project coordinator should be appointed at the district level; a block-level coordinator should be appointed at the block level. At village/gram panchayat level, Gram Rozgar Sahayak, Bharat Nirman Volunteer, self-help groups should be identified, incentivized and remunerated.

(e) Integration of all projects and programs running at the village level for comprehensive development and to improve the environment

Various schemes have been engendered and adopted as a part of action plan by Ministry of Rural Development. To name a few, IAY, Credit cum subsidy for the rural scheme for rural housing, setting up rural building centers, Innovation schemes for rural housing and habitat development and Samagra Awas Yojana are some examples in rural housing alone. It is proposed that integration of other rural initiatives such as MGNREGA, Rajiv Gandhi Gram Vidyutikaran Yojana and Pradhan Mantri Sadak Yojana should be practiced for a more holistic growth of the area. Above mentioned infrastructural schemes help housing scheme by laying the base for further development. Integrating the above-mentioned schemes will not only help us gauge their cumulative effects on the ground but also one scheme may be a catalyst of growth for the other. For example, if integrated with RGGVY, IAY could be extremely successful as it may also benefit from the already electrified site and hence yield positive results faster.

5.2 Alternative 1: Strengthening the existing flow as per PMAY with following proposed support system

(a) Project Management Training for Beneficiary

Apart from technical capacity building, the beneficiary should be provided with holistic project management training to enable him/ her to fully comprehend and manage all the stages of the project completion. This training shall not only help the beneficiary development management skills in addition to construction skills but also help him make more educated and informed decision according to the scenario or situation he/ she finds himself/ herself in.

(b) Strong implementation of Proposals in Scheme document

Speculating and engendering schemes and plans for a community is still simple but implementing it is often seen as a mammoth task. Implementation is often halted due to lack of coordination between various stakeholders involved in the process. Since they're often arranged in a sequential process, delay by one authority also stymies the next one from performing. This report identifies money as a connecting thread between the responsible authorities. It's therefore suggested that money installment should reach in the bank account within one week to ensure speedy flow and actual implementation on the ground. It's also imperative for the government to ensure and provide adequate material at an affordable price.

(c) Ease in the loan sanction process and installment release

As elaborated earlier, money plays a very important role in ensuring easy and fast deliverance of project on the ground.

Hence, this report stresses on the need for provisioning of easy loans to the rural dwellers. One more challenge rural India faces is delay in paperwork for loan sanctioning due to illiteracy or semi-literacy of the masses. It's also felt that interventions in this sphere should be made to ease the beneficiaries to attain loans as well as providers to facilitate them. Often, due to illiteracy and semi-literacy of the masses, several unauthorized money lenders come into picture luring people into skipping the mandatory paperwork. While the above mentioned may look convenient and fast, it's imperative to have a transparent and legal transaction of money. Hence, this report favors the removal of unauthorized money lenders by engendering mechanisms that aid in weeding out of such unscrupulous practices. Another endorsed way of going about achieving the goal is through e-governance and digital connectivity to offices for update of money transfer. This shall not only make the process transparent but also render it hassle-free and fast.

(d) Framework to make Community labour force functioning

It's economical for the government to local source the labour for construction. Men of the community, however, see this as a substandard occupation-which is seemingly beneath them to undertake. Therefore, it's seen that most of the construction projects at a rural scale are carried out by females. But, employing female laborers isn't as easy as it seems. Firstly, they lack the physical strength that construction work requires and secondly, there's an opportunity cost to females taking up construction work. It's, therefore, important to take care of these opportunity costs by the government itself. There should be guaranteed of food provisioning to the labor roped in. Dignity associated with the occupation should also be addressed by raising the payment bars. In case of female workers, childcare issues should be addressed by setting up Aanganwadis for their little ones. Female workers should be supported in time management since they do not let go of their household responsibilities even after taking up construction jobs.

(e) Clustering of units under Project

It is suggested that house construction is carried out in clusters to achieve economies of scale. Since construction process involves setting up of various supporting machinery. In taking up projects cluster-wise, the machinery established for one house may be used for another and hence save a lot of costs that incur due to taking projects in isolation. For instance, leftover construction material from one house can be used for another still saving on the transportation cost; labor employed in the construction of one may be employed to aid construction of another.

5.3 Alternative 2: Approach for Fast Project Delivery and hustle free process

While the above-mentioned project is inclusive and has several hidden benefits, it may still be worthwhile to weigh it against an absolute economy of scale by incentivizing private players to provide pre-cast mass construction. As per the review of housing process flow and the analysis of community priority agendas and complication involved in multi-player dealing, it is suggested to adopt such a

technique. The alternative will be fast and save unnecessary complication of dealing. This approach may have the challenge of context and acceptability. To make it more acceptable to the community, sufficient time should be invested in designing the house. To avoid making alienating chunks of concrete, it's suggested to layout the houses and community through community participation. This approach may also risk alienating the beneficiary from the process of building his own house. It's therefore suggested that construction is carried out by mobilizing the beneficiary in order to create a sense of ownership in them.

6. Conclusion

The failure cases in this region have become of particular concerns to the state government as they range in the scale of 90 percent failure on the ground compared to 90 percent success in the different parts of the state. This region and the community acts as a pullback for the state in enhancing its performance and achieve higher rate of success. There are many such areas in the state as well as the nation, where complexity arises to meet the basic requirements of the community. The analysis exercise reveals that for the complete success of the project at any region and in particular, when target beneficiary belongs to a special group, additional efforts and preparation should be made at different levels. Such a study would be helpful for the policy maker and the executive body in the nation and state for improving the program efficiency.

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