Impact Assessment of PMAY-G
(Madhya Pradesh, Odisha & West Bengal)

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CONTENTS

ABBREVIATIONS

CG   :   Control Group

DBT   :   Direct Benefit Transfer

ESP   :   Economic Stimulus Package

GP   :   Gram Panchayat

IAY   :   Indra Awaas Yojana

IEC   :   Information, Education, Communication

LPG   :   Liquid Petroleum Gas (cooking gas)

MGNREGS: Mahatma Gandhi National Rural Employ't Guarantee Scheme

PMAY-G   :   Prime Minister Awaaz Yojana

PMUY   :   Prime Minister Ujjwala Yojana (cooking gas provision scheme)

MFI   :   Micro Finance Institution

MIS   :   Management Information System

NIRDPR   :   National Institute of Rural Development & Panchayati Raj

ODK   :   Open Data Kit (software for mobile-based data collection)

RCT   :   Randomised Trial Control

SBM-G   :   Swachh Bharat Mission – Gramin

SECC   :   Socio-economic Caste Census

SHG   :   Self Help Groups

TG   :   Treatment Group

SUMMARY OF FINDINGS

This study on the impact of PMAY-G set out answering: (i) To what extent were the program objectives met with regard to improving the physical conditions of living of the target population; and (ii) socio-economic improvements experienced by the target population, as a result of owning a new house? These precisely mean the changes brought about by PMAY-G in physical facilities or subjective well-being of the people, who availed house under the PMAY-G. Studying the convergence possibilities under PMAY-G and factors constraining effective convergence was also part of the study.

The study was conducted in three states viz. Madhya Pradesh, Odisha, and West Bengal (covering 24 Gram Panchayats in six districts, interviewing 1382 PMAY-G beneficiaries). The methodology used was RCT (Randomized Control Trial), where the beneficiaries who availed house 'already and are living in that house for the past 6 months to one year' are taken as Treatment Group; and those who were selected and have been put on the 'waiting list' (that they shall avail house in the upcoming years) are taken as Comparison Group. The following are some of the important findings of the study.

Findings

Type of House: The poor who were living in thatched houses, mud houses, and houses with paddy straw roofs have got concrete roofed houses (58%); partly concrete roofed plus partly asbestos roofed houses (25%), and fully asbestos roofed houses (17%). PMAY-G Houses are made of brickwork or cement block work. PMAY-G has provided better housing condition to the beneficiaries by providing *pucca* houses with natural light and ventilation that's much better compared to those on the Comparison Group. In the comparison group we found only 66 percent of the houses electrified, whereas in PMAY-G houses, we found 81 per cent electrified. PMAY-G has slightly reduced congestion in occupancy by providing two or more rooms. In other words, the programme has slightly reduced the congestion in occupancy by bringing the median occupancy from 5 to 4.5. About 68 per cent of the households have mentioned about having got additional space for livelihood activities in-door.

Kitchen: PMAY-G has provided cooking space (kitchen) inside the house. This has changed the practice of cooking outside, but not to the extent it could have changed. PMAY-G beneficiaries seem to prefer having one more room in place of a kitchen. Some have designed their houses to be all rooms, and no kitchen. A few of them who have constructed kitchen also prefer cooking outside, so as to use the kitchen space as another living room. This explains why Prime Minister Ujjwala Yojana (PMUY) that provides LPG for cooking, has not picked up amongst the PMAY-G houses, to the extent it could have.

Fuel for Cooking: Traditional *chula* and fire wood still remain the main fuel for cooking even in PMA-G houses. The LPG is used only in 14% PMAY-G houses in MP; 20% in Odissa; and 8% in West Bengal. The PMAY-G convergence with PMUY (LPG for cooking) has earned little success. The reasons stated are: (i) the price of LPG cylinders; and (ii) having to find money to replace empty cylinders almost every month. A third factor is that the awareness level with regard to PMUY convergence is found to be poor, even among the *Awaas Bandu* (Local Motivators of PMAY-G).

Toilets: Among the PMAY-G households, about 10% of them are not using the toilets. It shows new houses constructed under PMAY-G have provided with toilets to every household, but still a good number of them do not use. Most of these non-use cases are reported from Odisha, and West Bengal, and very less from Madhya Pradesh. It requires probing in order to ascertain if the non-use / disuse is due to behavior-related reasons or because of poor installations.

Drinking Water: In providing access to piped water supply through convergence with NRDWP, there has been no much head way made amongst PMAY-G beneficiaries. Most beneficiaries of PMAY-G houses get water through common water collection points only. The same holds good for other common facilities like waste collection, drainage, and street lights too confirming once again poor convergence of PMAY-G with other programs.

Additional Expenditure Incurred: It was found that about 80% of the beneficiaries have invested additional funds for constructing their PMAY-G assisted houses. The median amount spent was Rs.60,000/- In most cases, the amount spent ranges from Rs.50,000 to Rs.80,000/- A

few beneficiaries reported to have spent additional funds ranging from Rs.200,000/ to Rs.600,000/- But the number of such beneficiaries do not go beyond 10 at the maximum (out of 1380 beneficiaries interviewed). Therefore, such outliers (extreme cases) need not be taken as, the programme driving the beneficiaries to become indebted - as some studies argue. However, a matter of concern here is the source from which the beneficiaries generate the additional fund.

The main sources reported are private money lenders, and building material suppliers (54%); and friends and relatives (18%). Five percent of them have reported to have used up savings / sold out assets or pledged assets etc. Hardly, 3% have gone for SHG/MFI loans, and less than one percent of them have gone for nationalized banks. During informal interviews it was found that they were aware (as per PMAY-G Guidelines) that they could approach banks for availing a loan up to Rs.70,000. Some report of having very little hope about convincing a banker to lend for the purpose of investing in a house being constructed under a government programme.

House Maintenance Expenditure: With regard to the house maintenance expenditure incurred by PMAY-G beneficiaries, most of them have reported 'zero maintenance'. The reason, possibly, could be because a new house does not require much maintenance. Some beneficiaries have reported to have spent Rs.2000 – Rs.6000, and their number is too few. Reportedly, the new PMAY-G house has lightened the house maintenance burden, which otherwise in the mud / dilapidated house, maintenance expenditure used to be too big almost every year.

Conclusion

Taking into account physical facilities such as type of house, electricity connection, kitchen, toilet and bathroom, natural ventilation, natural light, space for livelihood activities etc. when we measure the overall objective well-being of the PMAY-G beneficiaries in comparison to those on the waiting list, we can conclude that PMAY-G beneficiaries have the mean positive difference of: 31.9% in Madhya Pradesh; 26.9% in Odisha; and 39% in West Bengal. The T-test conducted also shows significant difference between the PMAY-G beneficiaries against the Comparison Group (those on the 'waiting list' living in the old dilapidated house). In terms of effect size (Cohen's d) we find that as far as Madhya Pradesh and Odisha are concerned the programme has

made 'Very Large' effect; and in West Bengal the programme has made a 'Huge Effect'. On convergence possibilities - except with some programmes such as SBM-G or MGNREGS - the programme still has not made any perceptible headway.

In terms of subjective well-being (socio-psychological well-being), on indicators such as Social Status, Self-worth, Confidence Level, Feeling of Ownership, Feeling of Safety & Security, Self-perceived Improvement in Health, Overall Quality of Life, and Satisfaction about the New House, we find the PMAY-G beneficiaries feel much better, compared to the Comparison Group. It can be concluded that the new PMAY-G has made significant impact on the lives of beneficiaries – both in terms of physical facilities provided and subject well-being.

Policy issues with regard to PMAY convergence with other programmes require major changes. For example, once a set of beneficiaries have been selected under PMAY-G, other facilities such as toilet, solar light, LPG, yard connection for drinking water provision, etc. from other programmes (e.g. SBM-G, NRDWP, PMUY, etc.) must get marshalled into a package and delivered. This can avoid the beneficiaries having to go to every office of the government that implements each of these programmes. Secondly, we find that Awaas Bhandu (PMAY-G Local Motivators) in many places are doing commendable work in local coordination. They, in fact, seem to help speed up progress. But, they are unaware of the convergence possibilities. They can be trained in various schemes that a PMAY-G beneficiary can avail. Possibly, this can also facilitate convergence to take momentum.

CHAPTER – 1

INTRODUCTION AND REVIEW OF LITERATURE

Introduction

Public housing programme in the country started with the rehabilitation of refugees immediately after independence and since then, it has been a major focus area of the Government as an instrument of poverty alleviation. Rural housing program, as an independent programme, started with Indira Awaas Yojana (IAY) in January, 1996. Although lAY addressed the housing needs in the rural areas, certain gaps were identified during the course of performance audit in 2014. These gaps include non-assessment of housing shortage, lack of transparency in selection of beneficiaries, low quality of house and lack of technical supervision, lack of convergence, loans not availed by beneficiaries and weak mechanism for monitoring, were limiting the impact and outcomes of the programme. In order to address these gaps in the rural housing program and in view of Government's commitment to provide "Housing for All" by 2022, the scheme of lAY has been restructured into Pradhan Mantri Awaas Yojana - Gramin (PMAYG) w.e.f. 1" April, 2016.

PMAY-G aims to provide a pucca house with basic amenities to all houseless households and households living in kutcha and dilapidated house by 2022. The immediate objective is to cover 1.00 Crore households living in kutcha house/dilapidated houses in three years from 2016-17 to 2018-19 and ensure construction of quality houses, using local materials, designs and masons specially trained in quality workmanship. For houses to become homes, adequate care for adopting a habitat approach through convergence is proposed.

Key Features of PMAY-G

- The minimum unit (house) size enhanced from the existing 20 sq.mt. to 25 sq.mt including a dedicated area for hygienic cooking.
- Enhancement of unit assistance from Rs. 70,000 to Rs. 1.20 lakh in plains and from Rs 75,000 to Rs.1.30 lakh in hilly states, difficult areas and IAP districts. The cost of unit

(house) assistance is to be shared between central and state governments in the ratio 60:40 in plain areas and 90:10 for north-eastern and hilly states.

- Identification of beneficiaries using SECC-2011 data. The identification and selection of the beneficiaries shall be done by the community through the Gram Sabha, from the SECC 2011 list, based on the housing deficiency and other social deprivation parameters.

- The beneficiaries of PMAY-G in addition to being provided financial assistance shall also be offered technical assistance in the construction of the house. If the beneficiary so chooses, he/she will be facilitated to avail loan from Financial Institutions for an amount of uptoRs 70,000. Special module for orientation of beneficiaries for demystifying concepts of construction costs and process. All payments through DBT to beneficiary's Bank/Post office accounts registered in AwaasSoft MIS.

- Provision of toilets at Rs. 12000/- and 90/95 days of unskilled wage labour under MGNREGA over and above the unit cost.

- Use of effective Convergence for provision of electricity, piped drinking water facility, rain water harvesting, LPG gas connection under UJJWAL scheme, solar initiatives, backyard fruit plants, poultry, goatery, dairy shed, solid and liquid waste management etc.

- Creating menu of housing designs based on local typologies incorporating local materials, traditional knowledge and aesthetics. Specially designed mason training certificates pro-forma on site to improve quality of homes and enhance skills of participants.

- Saturation approach in housing provision using Gram Panchayat, block or District as unit, wherever possible.

Role of Gram Panchayat

Under the scheme of PMAY-G, Gram Panchayats have been given the most critical role to play in the actual implementation of the scheme. These include the following:-

- The GP finalises priority list of eligible beneficiaries prepared on the basis of SECC-2011 data by convening a Gram Sabha

- The GP through Gram Sabha prepares the list of additional beneficiaries who though eligible have been left out from the list of eligible beneficiaries.

- The GPs should ensure maximum participation in the Gram Sabha held to finalize the Priority List of beneficiaries.

- They should arrange the meeting of beneficiaries either at the level of the Village Panchayat or for a cluster of Village Panchayats, depending on the number of beneficiaries, and facilitate the orientation of beneficiaries on different aspects of the scheme.

- The Gram Panchayats with the help of the Gram Sabha would identify families who cannot construct houses on their own and help in identifying NGOs/Civil Society Organizations of repute to handhold such beneficiaries to construct the houses in time.

- The GPs assist in identifying common land and other land including Govt land for allotment to the landless beneficiary.

- The GPs may facilitate the beneficiaries in accessing materials required for construction at reasonable rates and also the trained masons needed for construction.

- The Gram Panchayats would ensure convergence with other scheme of the Centre and State so that the beneficiary of PMAY-G avails the benefits of these schemes.

- They should discuss the progress of the scheme in their scheduled meetings.

- They should also proactively assist the social audit teams to conduct Social Audit.

- The Gram Panchayat should identify and monitor the local level functionary who would be tagged with each house sanctioned for ensuring completion of the construction of the house without delay.

In order to enable the Panchayats to play their role effectively, the State Government may do the following:-

- ✓ Organise training programme to equip the Panchayats to carry out the tasks assigned to them.
- ✓ Provide the Panchayats IEC material particularly on materials and building technologies.
- ✓ Provide share of administrative expenses commensurate with workload.
- ✓ Issue an order specifying the roles and responsibilities of each tier of Panchayat as appropriate to the States.

The condition of housing in the rural India continues to be problematic. Problematic due to reasons, inter alia, such as poverty in rural areas; priority of the poor towards livelihoods search; lack of idea on cost-effective housing designs that the poor can afford; near absent institutional assistance when a poor person wants to construct a house. Therefore, they continue to live in insecure habitat. Such conditions can also be attributed to ignorance, and a sense of insecurity which significantly affect their social life. The poor need institutional assistance – especially technical and financial. Importance of housing has been identified in almost every Five Year Plan document starting, perhaps, from the Ninth Five year Plan (1997-2002) as important aspect of social sector development.

There are studies that show (for instance, Sudarshnam and Ajantha Kumar, 2005) that social sector development demands appropriate policies and programs formulated and ensured by adequate investment supported by State so that marginalized and vulnerable section of the population can access basic facilities [such as housing] based on their needs and not on their ability to pay. In the words of Gaur K.D. (1996) Food and shelter are two necessary needs of an individual and the absence of the two is a curse to the society that can lead to social deprivation of the poor. Homelessness can be expressed in social segregation. Adequate effort must be put to remove poverty and houselessness. Sudarshnam and Ajantha Kumar (2005) further state that in terms of durability of houses and other standards like sanitation, clean drinking water and others the situation is not up to standards. The rural houses are mostly huts, sheds, and shacks and to call these a 'house" is not justifiable. According to Sudarshnam and Kumar (2005) rural houses are deficient in many aspects. They lack durability and are not conducive to hygienic living. Rural houses are not constructed in a proper manner in order to withstand natural calamities. Arguments given by Sudarshnam and Kumar bring out the issues that continue to exist in ongoing housing schemes in country.

Pro-poor policies and programmes on rural housing is a dire need, given the size of rural population that continue to live in houses that unsafe to live in. PMAY-G is another significant step towards fulfilling the housing needs of the poor. Researchers have analysed the impact of earlier rural housing programmes. Taking a dip into the existing research-based literature on this subject would be in order for being able to write a clear road map for a study on the impact of PMAY-G.

Review of Literature

(Anand, 2017) in his study titled: 'Housing for the Poor and the Impact of IAY in Rural India: Present Context' has analyzed the impact of housing for rural poor in India in rural poverty eradication with reference to the major housing scheme of the Indian government i.e., Indira Awaas Yojana (IAY). It is based on the secondary data. He argues that rural housing has been marginalized both in wider policy discussions as well as within the debate on rural issues because rural housing needs are generally subordinated to urban housing needs in policy priority. Yet housing is essential for the well-being and social security of rural households.

Compared to urban areas, rural areas are more deprived. With incomes generally lower than the urban areas and seasonal unemployment, many households find difficult to gain ownership of homes. This has implications for social sustainability of rural communities and is causing increased polarization as younger people migrate to the urban areas in search of jobs leaving behind their old folk and children resulting in negative impact on rural enterprise and economic viability. He concludes that a house must have connectivity to drinking water supply, sanitation, electricity etc in order to give a feeling of security to its inhabitants. Housing, as a basic need has evolved as a prime component not only in providing shelter but also by providing employment opportunities and aiding local development. This article puts across that the emphasis of rural housing should be more and more on inclusiveness and on quality improvement. When a poor man owns a house, it helps in giving him a self-identity, and that housing sector has positive impact on overall standard of living of the rural people.

(Kumar K. K., 2016) in his research paper titled: 'Impact of Rural Housing Schemes on Human Development in India – An Analysis' has analysed the problems of rural housing programmes on human development in Karnataka taking into account, besides IAY, other major programmes of the Government of India. This study argues that housing is known to have multiple linkages with the rest of the economy and investments in housing have orchestrated impact in the region and on the broader economy. This paper intends to analyze the various major housing schemes of the Government of India. It is based on the secondary data. The authors have attempted to explain the multiplier effect of housing programme to the weaker sections of the population in Karnataka. They have found that the State Government of Karnataka has been very pro-active in

creating a multiplier effect combining IAY with other major development programmes in order to gear up human development efforts in the state.

(Kumar, June,2014) has made a review of work of the Working Group on Rural Housing for the Twelfth Five-Year Plan, which was published in Economic and Political Weekly (Vol.49, Issue No.26-27). The working Group has estimated the rural housing shortage in India to be 43.13 million in 2012. Using the latest data sets - Census 2011 and the National Sample Survey housing condition round for 2008-09 - and the improved methodology used by the technical group on urban housing shortage, this paper re-estimates the rural shortage to be 62.01 million in 2012. Households living in temporary houses and in congested conditions were found to be mainly responsible for the rural housing shortage. The results suggest the need for holistically focusing on eradicating shelter deprivation in rural India and contributing to an enhancement of the quality of life of the people.

Drawbacks in terms of provision of sanitation, drinking water and others in preceding housing project was analysed by Nirmal Kumar et.al.(2004). They have concluded that rural houses are not treated as engineering structures. Rather, they are built without proper planning of drainage, sewage and lack a building plan. It has been observed that the technological knowledge related to construction of building and rural infrastructure is not percolating down to remote village. Therefore, measures must be taken in order to strengthen dissemination of information relating to transfer of technology, use of environment-friendly materials and credit /subsidy/ finance etc. Avtar (2005) confirms that the issue pertaining to the scenario of convergence of various schemes is quite miserable. Village where rural housing programme has been implemented lack basic amenities like water supply, sanitation, disposal of wastewater, solid waste etc. This can be attributed as causes for the environmental deterioration and pollution of common resources such as land, water, soil and air in rural areas. One thing which comes out on scene is the persistent connectivity of sanitation and basic amenities which establish linkages with the hosing schemes. These basic amenities are related to health and are generally taken as social indicator in the overall assessment of social well-being. The place of child birth was considered as an important facilitating factor for maintaining improved health, particularly of infants. However, child delivered in unhygienic condition (home) has a direct bearing on his/her birth (Veena Kumari

and Singh, 2004). Arguments of Veena and Singh argue that housing is a key input in economic, social, and civic development. On the social side, housing in better times generates wealth by appreciating in value, providing secure premises for income-generating activities, and opening the door to credit. Incremental investment in housing allows poor families to improve their asset base over time, as resources become available. And clean, warm housing is an essential input for disease prevention and health care.

Research carried out by Srinivasan (1988) came up with the idea of applying appropriate technology in the construction of rural house. He viewed that in the context of increasing housing needs, resources available for construction need to be appropriated in best possible manner. According to Srinivasan locally available resource must be incorporated in construction to the maximum extent. The familiarity of the local artisans with correct uses of indigenous material and acceptance by the people are positive advantage. Srinivasan (1988) found that large number of rural houses is constructed with non-durable material like mud, grass thatch etc. Such construction requires frequent maintenance besides being highly vulnerable to fire and natural hazards like rain, floods and earthquakes. The livable quality of the houses leaves much to be desired. The technology should aim at improving the durability and livability of houses. Extension of same argument has been located in the work of Mathur (1989) where he linked rural housing technology with poverty eradication. According to him adoption of appropriate technologies can contribute largely in mitigating the economic and social problems faced by rural poor families in eradicating poverty by the use of self-reliance in building technology, conservation of energy and maximum use of local reserves with gainful utilization of traditional skills. Concern for appropriate technology in rural housing was also discussed by Dutt (2002). He discussed that one of the major problems in rural housing is lack of awareness and information about the various technical inputs required for habitat development.

Significance of having household assets was highlighted by Abhiroop Mukhopadhyay and Indira Rajaraman (2012) in the context of economic benefit suggesting that housing is the major durable assets owned by households and in rural India it has more significance. Housing varies by quality and therefore, transition in housing quality is potentially useful makers of the confidence of a household in its future income stream.

Kumar K. K. (2016) one of the recent studies conducted on the impact of rural housing within the realm of human development. Kumar also linked the housing scheme with larger rural economy. He took the detail study of some villages of Karnataka and try to establish an argument that housing project has multiplying connectivity with other policies and scheme which need to be viewed in the pretext of human development. PMAY-G can be one of that schemes which through its mechanism or provision of convergence can help in bringing appropriate assessment of many policies for the benefit of rural poor. One of the main concerns affecting rural development is bringing about a qualitative change in lives of rural poor through scheme convergence within and across ministries. The Habitat Development Working Group on Rural Housing (12th Five Year Plan, 2011) came with a recommendation that a 'hamlet' should be treated the 'unit of convergence' rather than a village. Convergence of IAY with schemes delivering other elements of a holistic habitat such as sanitation, water supply, domestic energy and insurance cover need to be strengthened. Convergence also needs to be explored with MGNREGA and Backward Regions Grant Fund (BRGF) for physical development of habitats.

Development Facilitators, (2009), New Delhi has conducted an evaluation of rural housing programme (IAY) under Economic Stimulus Package (ESP) in selected Naxal Affected districts in Jharkhand, Bihar and Odisha. This study has been carried out for the Research Division of NITI Aayog, GoI, New Delhi. The study found that earning of respondents in post ESP regime was noted to have increased marginally, and the proportion of beneficiaries not meaningfully engaged in any activity prior to ESP intervention noted to be declined after getting an IAY house; (ii) Increased scope for work opportunities were reported as beneficiaries were engaged in construction activities of other fellow IAY beneficiaries, 44% reported scope for exposure to other avenues of employment as women IAY beneficiaries were engaged in small business activities by becoming members in Self Help Groups (SHGs); (iii) Other valued non-monetary outcomes perceived by a majority of beneficiaries was reduction of discomforts or inconveniences after having pucca units and indicating possession of pucca IAY dwelling units had impacted sustainable living; (iv) Augmentation of social security was indicated to be one of the impacts as migration by younger people leaving behind elderly persons was reduced after possession of IAY houses. Increased wage employment opportunity nearby through MGNREGS was stated to have diminishing effects on seasonal migration of adolescents and youths; (v) Use of savings to better health of household members by ensuring sanitation and drinking water

within households. Over-all, the level of satisfaction owing to possession of IAY units depicted positive valuation of dwelling units by respondents in terms of fostering societal rejuvenation and improved social status.

Studies conducted have focused on 'benefits of rural housing programme as a component in some other larger studies or social impact of housing with specific indicators. New PMAY – the revised / revamped rural housing programmes - has not been studied for its socio-economic impact on the rural poor. Hence, this study is taken up.

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CHAPTER – 2

DESIGN OF THE STUDY

Introduction

The Pradhan Mantri Awaas Jojana – Grameen (PMAY-G) was launched in the month of April 2016, which aims at providing a *pucca* house, with basic amenities to all houseless households and those households living in *kutcha* and dilapidated house, by 2022. The immediate objective is to cover 10 million households living in *kutch* houses / dilapidated houses in three years from 2016-17 to 2018-19. In addition to enhanced financial assistance and the increased size of the house, several other features such as beneficiary support services and convergence elements have gone into the new framework of PMAY-G, in order to make the outcome perceptible. So much so, the concept of 'green development' requires bearing in view when it comes to choice of construction technologies; design typologies and material use. The e-Governance mechanism of the programme has been made robust through AwaasSoft, which is expected to respond to the newer requirements.

The guideline shows that the transparency and accountability have significantly been improved especially in selection of beneficiaries and construction of houses in PMAY-G. Another milestone in PMAY-G is geo-tagging to each and every house with photographs of beneficiaries. Furthermore, the convergence of other development programmes such as drinking water, sanitation, waste management, electricity, cooking gas and other amenities shall improve the quality of life of beneficiaries. Therefore, in the changing scenario, there is a need to study the impact of PMAY-G on the following aspects such as – social status, health improvement, rural livelihoods enhancement, perceived self-worth, satisfaction, improvement in other amenities etc. for understanding the grassroots level realities, which in-tern can be shared with the PMAY-G Programme Division of the Ministry of Rural Development, Government of India. In order to put this study in proper perspective, a review of existing studies with similar themes was made. [Ref: Chapter - 1 of this report]. Studies conducted have focused on 'benefits of rural housing programme as a component in some other larger studies or social impact of housing with specific indicators. New PMAY – the revised / revamped rural housing programmes - has not been studied for its socio-economic impact on the rural poor. Moreover, none of the study reviewed

have come out measuring the difference Rural Housing Programme has made on the lives of the rural poor in terms of objective well-being and subjective feelings. Hence this study is taken up.

Statement of the Problem

The PMAY-G is an improvement over the previous rural housing programme not only in terms of the criteria adopted for beneficiary selection, but also in several other respects including the community participation and financing. The convergence elements are expected to make greater impact improving the quality of living of people with other amenities such as drinking water, sanitation, waste management, cooking fuel and other amenities. There are studies conducted on the impact of IAY Programme, which was the earlier version of PMAY-G. However, there are hardly any studies carried out to understand the extent to which programme objectives of PMAY-G are being fulfilled to impact on rural social development. Therefore, this study is taken up with the following research questions, and research objectives: (i) To what extent were the program objectives met with regard to improving the socio-economic conditions of the target population? And (ii) what are the changes brought about by PMAY-G in physical facilities or subjective well-being of people?

Objectives of the Study

1. To assess the overall socio-economic changes brought about on the lives of beneficiaries of PMAY-G at household and community levels.

2. To study the extent of convergence of development programmes with PMAY-G and factors constraining effective convergence.

Research Methods

Research Design: This study aims at bringing out '*the socio-economic impact*' of PMAY-G Programme on the target group in a real life situation. Therefore, we have followed Experimental Research Design (using RCT) with a pragmatic research approach. We have worked with Treatment Groups and a Comparison Groups in each of the study state. Those who got their house constructed under PMAY-G have been taken as Treatment Group, and those who were on the 'waiting-list' were taken as Comparison Group. [Ten respondents on the waiting list of

PMAY-G beneficiaries in every Gram Panchayat made the Comparison Group for this study]. These groups were very similar in socio-economic standing, and so there was almost no chance of any sampling bias to occur. These two were our groups for establishing the 'difference or impact'. We have conducted interviews and FDGs as well. Mixed methods approach was followed in order to obtain statistically credible results. Experimental Research Design ensures internal validity, which is essentially used to determine cause-effect relationships. Pragmatism ensures the external validity and maximizes applicability and generalizability.

Source of Data: Gram Panchayat Offices and Block Development Office were the main source of secondary data – of people who were already living in houses constructed under PMAY-G (or almost ready to occupy), and those who were on the waiting list. List of beneficiaries that got their houses sanctioned after April 2016, and completed before February 2018 have been taken for Treatment Group. The list of beneficiaries of PMAY-G on the waiting list during the same period in the respective Gram Panchayats has been taken as Comparison Group for this study.

Sampling: The study covered 24 Gram Panchayats in 3 states covering 6 districts in 12 Blocks. Two Gram Panchayats in each selected Block were covered. Thus, there were four GPs studied in each selected district. The study states were selected covering regions that are plain, coastal and hilly – after ranking the states based on the coverage of beneficiaries under PMAY-G after April 2016. One state per region was selected. Thus, one state per region viz. (i) Madhya Pradesh [Plain], (ii) Odisha [Coastal], (iii) West Bengal [hilly]. The list of Gram Panchayats selected based on this criteria is given as annexure – 1. For the purpose of this study 1383 PMAY-G beneficiaries; and 250 waitlisted beneficiaries have been interviewed.

The respondents were selected based on the list of beneficiaries (Treatment Group); and those on the waiting list to get benefited in the upcoming years (Comparison Group). This helped avoiding any selection bias, for their socio-economic background was very similar. On-line Sample Size Calculator was used for determining sample size from each Gram Panchayats with a view to getting results with 95% confidence level, or with 5% margin of error. Excel Random Number Generator was used for selecting respondents (sample fraction) for this study from the total list of PMAY-G beneficiaries (sampling frame) obtained from the respective Gram

Panchayats. In order to ensure Statistical Power, we have gone for States, districts, blocks and Gram Panchayats where PMAY-G has made the highest coverage during the period under reference. This, in other words, means we get adequate number of samples especially in our Treatment Group so that statistical treatment of data makes sense.

Data Collection: We prepared two different questionnaires – one for TG, and the other for CG. They were almost similar but for a few differences that may not be applicable to CG. Mobile app-based ODK (Open Data Kit. This is an open source software) was used for data collection. Use of Mobile-app brought down the time otherwise, we would have spent entering data from questionnaire into excel sheets. Data was collected from respondents using mobile app, and was saved in the mobile phone for which no internet connectivity was required. Every evening data from mobile phone was uploaded into server at NIRDPR when we got access to internet connectivity (in a Hotel Room in the field). Data sent from ODK mobile-app to the server at NIRDPR opens as excel sheets, completely saving the time required for data entry and data cleaning. The data was ready for analysis and statistical treatment straight after 'data collection stage'. 'Data collection' itself served the purpose of 'data entry' as well.

Period Covered: PMAY-G is an improvised programme over IAY. Studies are required to determine the impact in terms of 'socio-economic and quality of living indicators' on the target beneficiaries of PMAY-G. Thus, this study covered beneficiaries of PMAY-G reported in the PMAY-G website of the MoRD as of 2017-18 (December) 2017. At the Block and Gram Panchayat level, we have made sure that we take into account those beneficiaries who got their houses sanctioned after April 2016, and completed before February 2018.

Scope of the Study

This study has covered PMAY-G houses sanctioned and completed between April 2016 and December 2018. It does not cover houses constructed under IAY, nor under any of the state government programmes or through NGO/CSR funding. It covers only beneficiaries of PMAY-G houses. It focuses on socio-economic impact, which is operationally defined below.

Operational Definitions

Impact: The difference PMAY-G has made in the lives of beneficiaries of the programme measured in terms of objective well-being and subjective well-being.

Objective Well-being: This is about the changes brought about in the physical conditions of dwelling objectively verifiable through indicators such as:

- Type of materials used in construction and roofing
- Number of rooms
- Electricity connection
- Availability of toilet
- Separate kitchen for cooking
- Type of fuel used for cooking
- Natural lighting and ventilation
- Drinking water supply
- Drainage etc.

Subjective Well-being: This is about the changes that have come about at the 'gut feeling' subjectively stated / expressed.

- Satisfaction about having a house
- Feeling of 'Ownership'
- A Sense of Improved 'Social Status'
- Self-perceived improvement in 'Self-Worth'
- Self-perceived improvement in 'Confidence level'
- Self-perceived improvement in 'Health'
- Feeling of 'Safety and Security'
- Improvement in Overall Standard of Living

Economic Indicators:

- Extra money spent
- Source of borrowing, if borrowed
- Money spent on Repair and Maintenance

- Space for taking up livelihood activities
- Type of fuel used for cooking

Analytical Framework

As mentioned in the design of the study, this is a study using Experimental Design where we had Treatment Groups and Comparison Groups from six districts of three states. After controlling for extraneous / confounding variables, any improvement (difference) made by the Treatment Group over the Comparison Group has been construed as impact of the programme. Besides Descriptive Statistics such as mean, mean difference, median, range, Standard Deviation, and graphic presentations; appropriate inferential statistical tools such as variances, T-test, Cohen's D, and ANOVA have been used for data analysis. Pragmatic trials bring out maximal heterogeneity in all aspects. This helps policy makers have an active interest in pragmatic trials, since these are designed to answer the question most relevant to a decision maker's agenda: effectiveness of an intervention in the routine practice.

Chapter scheme

Chapter – 1: Introduction

Chapter – 2: Design of the Study

Chapter – 3: Profile of the Study States

Chapter -4: Analysis and Discussion

Chapter -5: Findings and Conclusion

CHAPTER – 3

PROFILE OF THE STUDY AREA

This section describes the demographic profile of the respondents under this study. It starts with profile such as age of the respondents, gender, education, marital status, family type, family size, livelihood details, involvement in MGNREGS, bank account details etc. it also provides the number of respondents included in this study - state-wise. All these together put across the contributions of PMAY-G to the socio-economic and subjective well-being of the PMAY-G beneficiaries.

States under Study

State	Madhya Pradesh		Total	Odisha		Total	West Bengal		Total
District	Sagar	Rajgarh		Baleshwar	Ganjam		Bankura	Purulia	
No of Respondents	191	216	407	182	211	393	301	281	582
% within State	46.9	53.1	100.0	46.3	53.7	100.0	51.7	48.3	100.0

Note: Total Number of respondents: 407 + 393 + 582 = 1382

Demographic Profile of the Respondents

Table No: 01: State and District-wise Distribution of Respondents

State	District	Total		Total Number of Respondents
		Male	Female	
Madhyapradesh	Sagar	150 (78.5)	41 (21.5)	191 (13.8)
	Rajgarh	165 (76.4)	51 (23.6)	216 (15.6)
Odisha	Baleshwar	110 (60.4)	72 (39.6)	182 (13.2)
	Ganjam	139 (65.9)	72 (34.1)	211 (15.3)
West Bengal	Bankura	55 (18.3)	246 (81.7)	301 (21.3)
	Purulia	237 (84.3)	44 (15.7)	281 (20.3)
Total		856 (61.9)	526 (38.1)	**1382** (100)

Source: Primary Data (Figures in brackets are percentage to the total)

Table – 1 shows the number of respondents (male and female) interviewed state-wise with break-up details on districts. In Madhya Pradesh state, Sagar (191) and Rajgarh (216) districts were selected for this study. From these districts, we had 407 respondents proportionate to the total that was in the list of PMAY-G beneficiaries, who got their houses constructed (Treatment Group) during the period under reference. Among them 92 were women, and others were men. In Odisha state, at Baleshwar (182) and Ganjam (211) districts we had 393 respondents. Among them there were 144 women and the others were men. In West Bengal, at Bankura (301) and Purulia (281) districts, we had 582 respondents. Among them 290 were women, and the rest were men. In total we had 1382 respondents, among them 62% were men, and 38% were women.

Table 02: Distribution of the Respondents by Age of the Head of the Household

State	District	Age-Group						District Total	State Total
		under 18	18-29	30-41	42-53	54-65	66 and above		
Madhya Pradesh	Sagar	0	14 (7.3)	72 (37.7)	61 (31.9)	28 (14.7)	16 (8.4)	191 (100)	407
	Rajgarh	0	21 (9.7)	98 (45.4)	62 (28.7)	25 (11.6)	10 (4.6)	216 (100)	
Odisha	Baleshwar	0	11 (6.0)	53 (29.1)	60 (33.0)	43 (23.6)	15 (8.2)	182 (100)	393
	Ganjam	0	14 (6.6)	77 (36.5)	53 (25.1)	49 (23.2)	18 (8.5)	211 (100)	
West Bengal	Bankura	0	40 (16.0	134 (44.5)	69 (22.9)	47 (15.6)	11 (3.7)	301 (100)	582
	Purulia	0	2 (7.0)	66 (23.5)	95 (33.8)	95 (33.8)	23 (8.2)	281 (100)	
Total		0 (0)	102 (10.3)	500 (36.2)	400 (28.9)	287 (20.8)	93 (6.7)	1382 (100)	1382

Source: Primary Data

Table – 2 shows the age of the respondents who got houses sanctioned under PMAY-G. The table shows that most of the head of the households (900/1382) in this study are in the age bracket of 30 – 53 years. If we split this group further and analyse, we find that most of them (500/900) are within the age group of 30 – 41 years, which is nearly the appropriate age when one needs to own a good house to live in, so as to be able to focus on livelihoods-related search.

This is to say that the age at which the houseless poor people get house is appropriate. Thus, it can be stated that in terms of 'age of the beneficiaries selected under the PMAY-G', it is found they are at appropriate age to own a house.

Table No: 03: Caste-wise Distribution of Respondents

State	District	Caste				Total
		SC	ST	OBC	General	
Madhya Pradesh	Sagar	30 (15.7)	29 (15.2)	115 (60.2)	17 (8.9)	191 (100)
	Rajgarh	28 (13.0)	0	158 (73.1)	30 (13.9)	216 (100)
Odisha	Baleshwar	76 (41.8)	50 (27.5)	41 (22.5)	15 (8.2)	182 (100)
	Ganjam	153 (72.5)	2 (9.0)	34 (16.1)	22 (10.4)	211 (100)
West Bengal	Bankura	180 (59.8)	13 (4.3)	101 (33.6)	7 (2.3)	301 (100)
	Purulia	89 (31.7)	45 (16.0)	128 (45.6)	19 (6.8)	281 (100)
Total		**556**	**139**	**577**	**110**	**1382**
		40.2%	**10.1%**	**41.8%**	**8.0%**	**100.0%**

Source: Primary Data

Table – 3 shows caste-wise distribution of respondents' families. We find there is a fair distribution among various caste categories, meaning a fair share of sanction is found among the SC/STs, and among the OBCs and General Category of people. The SC/ST put together on one side, and the OBC and the General Category put together on another weigh almost equal. Going by population proportion of SC/ST in India or in the states under reference, it might look inequity in distribution. But, going by inclusive policy of the government, the distribution is justifiable that a good number of SC/ST households (695) along with equal number of OBCs and General Category households (687) have got houses sanctioned under PMAY-G.

Table No: 04: Distribution of Respondents by Religion

State	District	Religion			Total
		Hindu	Muslim	Christian	
Madhya Pradesh	Sagar	187 (97.9)	4 (2.1)	0	191 (100)
	Rajgarh	191 (88.4)	25 (11.6)	0	216 (100)
Odisha	Baleshwar	179 (98.4)	0	3 (1.6)	182 (100)
	Ganjam	191 (90.5)	0	20 (9.5)	211 (100)
West Bengal	Bankura	198 (65.8)	103 (34.2)	0	301 (100)
	Purulia	260 (92.5)	21 (7.5)	0	281 (100)
Total		1206 (87.3)	153 (11.1)	23 (1.7)	1382 (100)

Source: Primary Data

Table – 4 shows the distribution of respondents by religion. Obviously for India, we find among the beneficiaries most of them are Hindus (87%), some are Muslims (11%) and a few belong to Christianity.

Table 05 Marital Status of the Respondents

State	District	Marital Status				Total
		Single	Married	Divorced	Widow	
Madhya Pradesh	Sagar	2 (1.0)	166 (86.9)	0	23 (12.0)	191 (100)
	Rajgarh	3 (1.4)	195 (90.3)	0	18 (8.3)	216 (100)
Odisha	Baleshwar	8 (4.4)	153 (84.1)	3 (1.6)	18 (9.9)	182 (100)
	Ganjam	11 (5.2)	171 (81.0)	1 (0.5)	28 (13.3)	211 (100)
West Bengal	Bankura	7 (2.3)	269 (89.4)	3 (1.0)	22 (7.3)	301 (100)
	Purulia	7 (2.5)	254 (90.4)	0	20 (7.1)	281 (100)
Total		38 (2.7)	1208 (87.4)	7 (0.5)	129 (9.3)	1382 (100)

Source: Primary Data

Table – 5 Most of the beneficiaries (87%) are married and are living with their families, and the others are either widowed or divorced, living with or without other family members.

Table No: 06: Bank Account Holding Particulars of Respondents

State	District	Bank Account		Total
		Yes	Active	
Madhya Pradesh	Sagar	191 (100)	191 (100)	191 (100)
	Rajgarh	216 (100)	216 (100)	216 (100)
Odisha	Baleshwar	182 (100)	182 (100)	182 (100)
	Ganjam	211 (100)	211 (100)	211 (100)
West Bengal	Bankura	301 (100)	301 (100)	301 (100)
	Purulia	281 (100)	281 (100)	281 (100)
Total		**1382 (100)**	**1382 (100)**	**1382 (100)**

Source: Primary Data

Table – 6 shows everyone has a bank account, and reportedly all the accounts are active.

Table: 07: Educational Status of the Respondents

State	District	Education					Total
		Illiterate	Primary	Secondary	Intermediate	Graduate	
Madhya Pradesh	Sagar	114 (59.7)	73 (38.2)	1 (0.5)	2 (1.0)	1 (0.5)	191 (100)
	Rajgarh	94 (43.5)	113 (52.3)	6 (2.8)	1 (0.5)	2 (0.9)	216 (100)
Odisha	Baleshwar	69 (37.9)	87 (47.8)	22 (12.1)	4 (2.2)	0	182 (100)
	Ganjam	74 (35.1)	130 (61.6)	7 (3.3)	0	0	211 (100)
West Bengal	Bankura	265 (88.0)	34 (11.3)	2 (0.7)	0	0	301 (100)
	Purulia	113 (40.2)	144 (51.2)	23 (8.2)	1 (0.4)	0	281 (100)
Total		729 (52.7)	581 (42.0)	61 (4.4)	8 (0.6)	3 (0.2)	1382 (100)

Source: Primary Data

Table – 7 shows surprisingly that most respondents either never went to school (53%) or have had only Primary Level of Education (42%), [despite the fact that most of them are in the age group of 30 – 53 years (read along with Table -2)]. This data supports the thesis that there is a direct correlation between

educational attainments and poverty levels. All the beneficiaries selected are poor, and almost all of them are illiterates or have had Primary level education. This proves the thesis that illiterates tend to get mired in the poverty sludge. This, to some extent, validates that right beneficiaries have been selected.

Table No:9 Distribution of Respondent by Family-type

State	District	Family Type		Total
		Nuclear	**Joint**	
Madhya Pradesh	Sagar	136 (71.2)	55 (28.8)	191 (100)
	Rajgarh	145 (67.1)	71 (32.9)	216 (100)
Odisha	Baleshwar	154 (84.6)	28 (15.4)	182 (100)
	Ganjam	173 (82.0)	38 (18.0)	211 (100)
West Bengal	Bankura	218 (72.4)	83 (27.6)	301 (100)
	Purulia	96 (34.2)	185 (65.8)	281 (100)
Total		**922 (66.7)**	**460 (33.3)**	**1382 (100)**

Source: Primary Data

Table 10 Size of Family (Treatment)

State	District	Family Size			Total
		Less than 5	**5 -8**	**8 <**	
Madhya Pradesh	Sagar	55	123	13	191 (100)
	Rajgarh	68	134	14	216 (100)
Odisha	Baleshwar	118	61	3	182 (100)
	Ganjam	114	94	3	211 (100)
West Bengal	Bankura	149	142	10	301 (100)
	Purulia	117	150	14	281 (100)
Total		**621**	**704**	**57**	**1382 (100)**

Source: Primary Data

Table – 10 shows the 'family size'. We find 55% of the families have had more than five members in the family. In terms of families being nuclear or joint, we find about 67% are nuclear families, and 33% belong to joint-families (see table – 9).

Table No: 11 Distribution of Respondents' families having children (0-14 Years)

State	District	Families Having Children		Total
		Yes	**No**	**Total**
Madhya Pradesh	Sagar	139 (72.80)	52 (27.2)	191 (100)
	Rajgarh	165 (76.40)	51 (23.6)	216 (100)
Odisha	Baleshwar	93 (50.90)	89 (48.9)	182 (100)
	Ganjam	123 (58.30)	88 (41.7)	211 (100)
West Bengal	Bankura	212 (70.40)	89 (29.6)	301 (100)
	Purulia	191 (68.00)	90 (32.0)	281 (100)
Total		929 (66.70)	459 (33.20)	1382 (100)

Source: Primary Data

Table – 11shows that many families (nearly 67%) have children too, of less than 14 years old. Number of families having children is more in Madhya Pradesh, and West Bengal, and it is slightly less in Odisha. Table – 12, that the number of children at school going age is more in all the states under study.

Table No: 12: Distribution of Children at School going-age

State	District	If children all are going school			Total
		No Children in Family	Yes	No	
Madhya Pradesh	Sagar	52 (27.2)	44 (23.0)	95 (49.7)	191 (100)
	Rajgarh	51 (23.6)	76 (35.2)	89 (41.2)	216 (100)
Odisha	Baleshwar	90 (49.5)	72 (39.6)	20 (11.0)	182 (100)
	Ganjam	88 (41.7)	111 (52.6)	12 (5.7)	211 (100)
West Bengal	Bankura	88 (29.2)	173 (57.5)	40 (13.3)	301 (100)
	Purulia	90 (32.0)	137 (48.8)	54 (19.2)	281 (100)
Total		459 (33.2)	613 (44.4)	310 22.4)	1382 (100)

Source: Primary data

Table No: 15: Distribution of respondents by their MGNREGA Job Card

State	District	MGNREGA Job card		Total
		Yes	No	
Madhya Pradesh	Sagar	172 (90.1)	19 (9.9)	191 (100)
	Rajgarh	202 (93.5)	14 (6.5)	216 (100)
Odisha	Baleshwar	164 (90.1)	18 (9.9)	182 (100)
	Ganjam	203 (96.2)	8 (3.8)	211 (100)
West Bengal	Bankura	285 (94.7)	16 (5.3)	301 (100)
	Purulia	281 (100)	0	281 (100)
Total		1307 (94.6)	75 (5.4)	1382 (100)

Source: Primary Data

Table – 15 shows the number of PMAY-G beneficiaries, who are NREGS Job Card holders. We find that nearly 95% of them are NREGA job card holders. This is almost uniform in all the three states under study. This goes to confirm that selection of beneficiaries has been properly done in all the three states under study.

Table No: 16 MGNREGA Convergence

State	District	MGNREGA Convergence		Total
		Yes	No	
Madhya Pradesh	Sagar	178 (93.2)	13 (6.8)	191 (100)
	Rajgarh	205 (94.9)	11 (5.1)	216 (100)
Odisha	Baleshwar	162 (89.0)	20 (11.0)	182 (100)
	Ganjam	206 (97.6)	5 (2.4)	211 (100)
West Bengal	Bankura	254 (84.4)	47 (15.6)	301 (100)
	Purulia	205 (73.0)	76 (27.0)	281 (100)
Total		1210 (87.6)	172 (12.4)	1382 (100)

Source: Primary Data

Table – 16 shows the number of PMAY-G beneficiaries who also got benefited under NREGS, while their house was under construction. Nearly 88% of the PMAY-G beneficiaries have got wages for 90 days of employment under NREGS for involving themselves in constructing their own houses. The remaining 12% have not benefited under NREGS convergence, the reasons for which is unknown. It requires exploring.

Table No: 17 Distribution of respondents by their family members livelihood status

State	District	Family Members involvement for other Livelihood Activities		Total
		Yes	No	
Madhya Pradesh	Sagar	10 (5.2)	181 (94.8)	191 (100)
	Rajgarh	25 (11.6)	191 (88.4)	216 (100)
Odisha	Baleshwar	61 (33.5)	121 66.5)	182 (100)
	Ganjam	103 (48.8)	108 (51.2)	211 (100)
West Bengal	Bankura	150 (49.8)	151 (50.2)	301 (100)
	Purulia	162 (57.7)	119 (42.3)	281 (100)
Total		**511 (37.0)**	**871 (63.0)**	**1382 (100)**

Source: Primary Data

Table – 17 shows if the beneficiaries of PMAY-G have been involved in any other additional livelihood activities to have secondary / subsidiary source of income – in addition to their primary source of income. It was found that 37% of the families have an additional member (other than the head of the household), involved in adding to the income of the family by involving themselves in goat/sheep rearing, maintaining a cow for milking, or involved in some kind of handcrafts making etc.

CHAPTER – 4

ANALYSIS AND DISCUSSION

This chapter discusses the focal point of this research study. That is the impact of PMAY-G on the beneficiaries of the programme. As put across in the research design part of this report, we have taken Control Groups (wait listed beneficiaries) from each study village to be able to compare the difference the programme has made on the lives of the PMAY-G beneficiaries (Treatment Group). This is presented in two parts. Part – I deals with the objective well-being and economic benefits, and Part – II deals with subjective well-being that the beneficiaries report. In order to make it easy to comprehend, an attempt has been made to make graphic presentation, as far as possible.

Housing Condition: Condition of housing (in terms of materials used for constructing and the type of roof) is one important indicator one can take up for measuring the change brought about in the condition of housing.
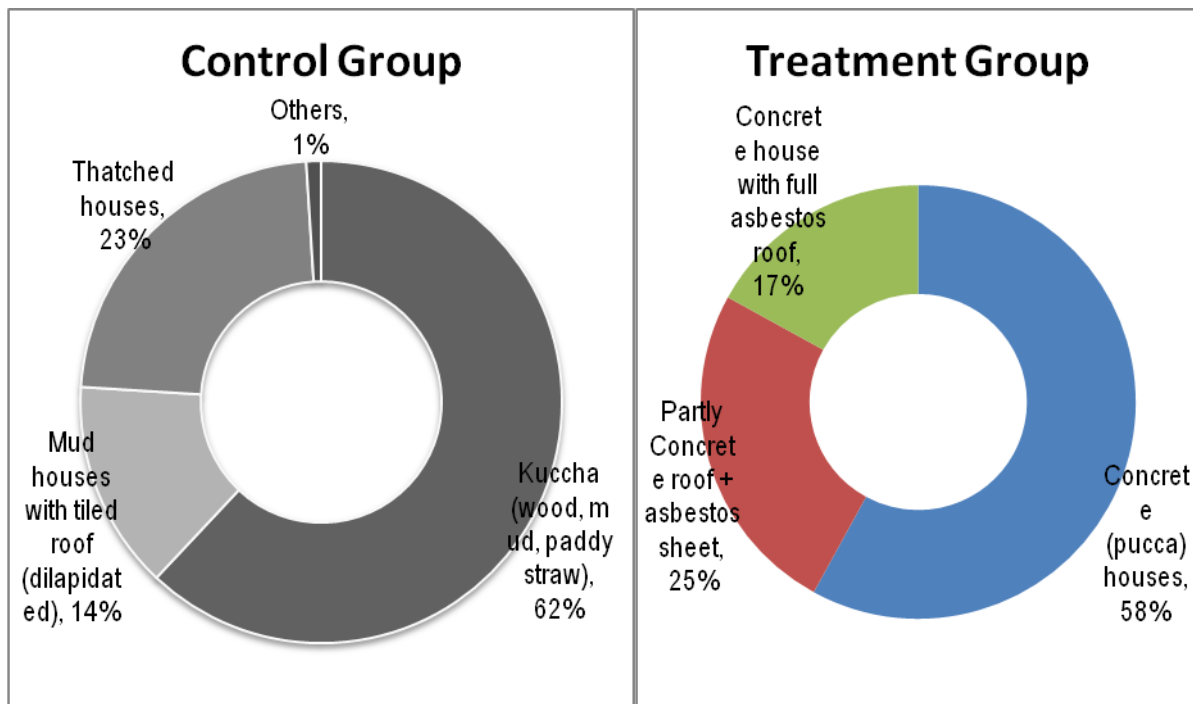
Fig. 4.1 Housing Condition (Control Group)   Fig.4.1a Housing Condition (Treatment Group)

Figure – 4.1 & 4.1a shows the housing condition of the PMAY-G beneficiaries who are already living in the house constructed with the assistance of the PMAY-G, in comparison to the housing

condition of those waiting to get a house sanctioned. We find (in Figure 4.1a) that 58% of the beneficiaries (TG) have got houses that are concrete pucca; about 25% have concrete houses with asbestos roofs; and the remaining (17%) have partial concrete roof and partial asbestos. Most of the houses are made of brickwork or cement block work. A look at the Comparison Group (Fig: 4.1) shows that most of them live in mud houses that have paddy straw roof (62%) or thatch roofs (23%). There were mud wall houses with tiled roof (14%) as well. About a 1% of the houses have been constructed with a variety of materials that are indescribable – too abysmal for words. PMAY-G has provided better housing condition to the beneficiaries by providing pucca houses. To what extent it has improved their level of well-being compared to those who are yet to get a house shall be taken up for analysis, later in this section.

Houses Electrified: Electrification of houses is another important indicator in rural housing programme. The PMAY-G Framework of Implementation states that houses should be electrified under rural electrification programme, or under MNRE's solar electrification scheme.
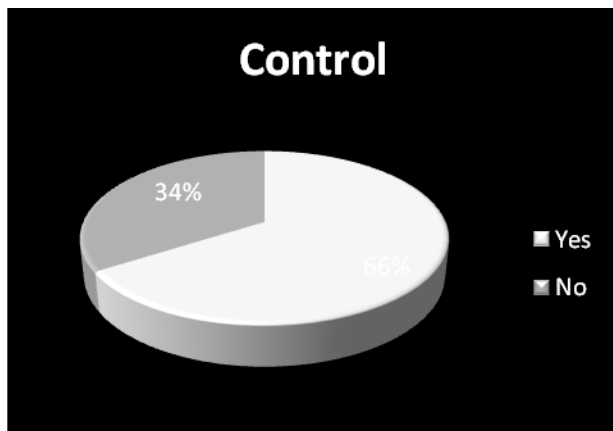
Fig: 4.2 Electrification (Control Group)   Fig: 4.2a Electrification (Treatment Group)
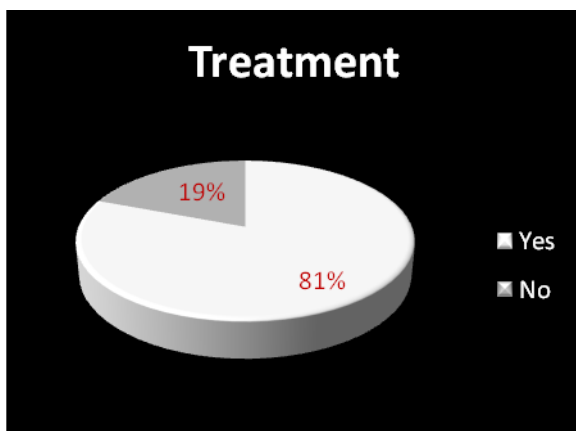
A comparison of Figure 4.2 against Figure 4.2a reveal that in the Control Group 34% of the households do not have electricity facility, whereas in the Treatment Group only about 19% do not have electricity facility. Thus the houses electrified have gone up from 66% to 81%. Among the 19% of the households, who do not have electricity, many of them reported that they have applied for power connections, but they are yet to get connected to a power grid. People are unaware of electrification through solar, unless implementing officers explain the possibilities with solar, and educate the people. We found solar lights in only one village in Odisha.

Family Size and Congestion: Number of occupants in a house is an indicator of any housing programme. It must help reduce the congestion in occupancy.
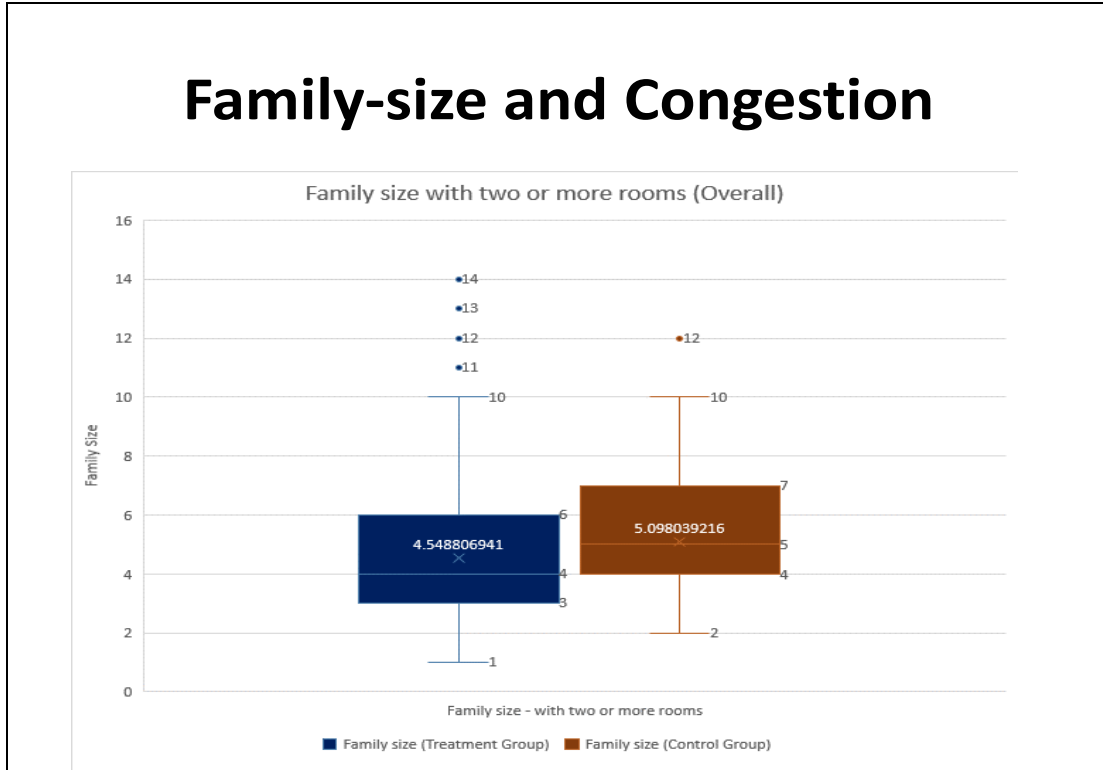

Fig: 4.3 Family Size and Congestion

The number of members occupying a house is an important indicator of any rural housing programme. The box and whisker plot above shows the occupancy status of Control Group on the right side, and the occupancy status of Treatment Group on the left side. It indicates that PMAY-G has slightly reduced the congestion in occupancy by bringing the median occupancy from 5 to 4.5.

Availability and use of Kitchen: Any general measure of housing as a facility shall include kitchen and toilet. PMAY-G is no exception to that rule. The researchers studied the availability and use of kitchen in PMAY-G houses in comparison to the Control Group houses. The data is presented in the following pie-diagram (See Fig: 4.4).
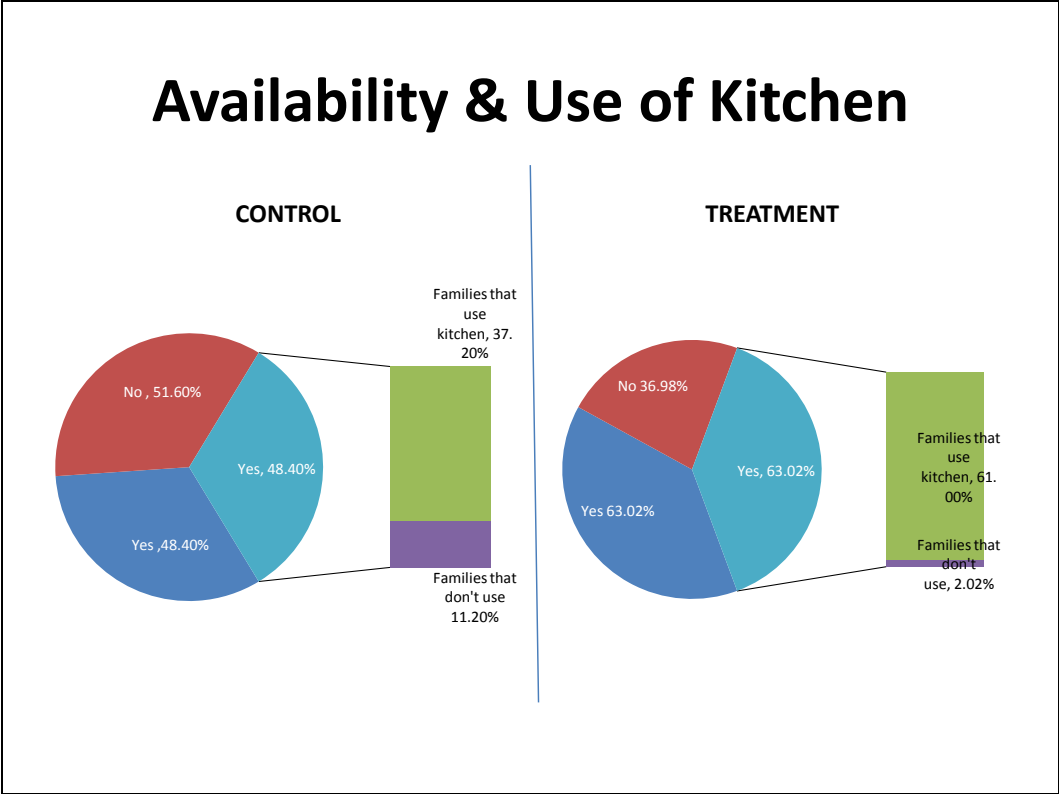
Fig: 4.4 Availability and Use of Kitchen

Figure 4.4 shows that in the Control Group (left) 48% of the houses have kitchen, and 52% did not have kitchen. That means they cook outside. Even among the 48% who have kitchen about 11% do not use the kitchen, and they also cook outside. Among the Treatment Group 63% of the households have kitchen, and others 37% do not have kitchen, meaning they have opted to have one additional room in place of a kitchen. Even among the 63% who have kitchen 2% of the families cook outside, and have started using the space meant for kitchen as another room for use. This shows the tendency to have additional room for occupancy rather than having a kitchen for cooking. Perhaps, the kitchen is used hardly one or two hours a day, whereas a room can be used for more than 10 hours a day.

Cooking Fuel: The PMAY-G suggests the beneficiaries to avail LPG under PMUY (Prime Minister Ujjala Yojana). This is suggested as part of the possible convergence under PMAY-G. The Figure 4.5 shows a comparative picture of what type of cooking fuel is used by Treatment Group vis-à-vis the Control Group.
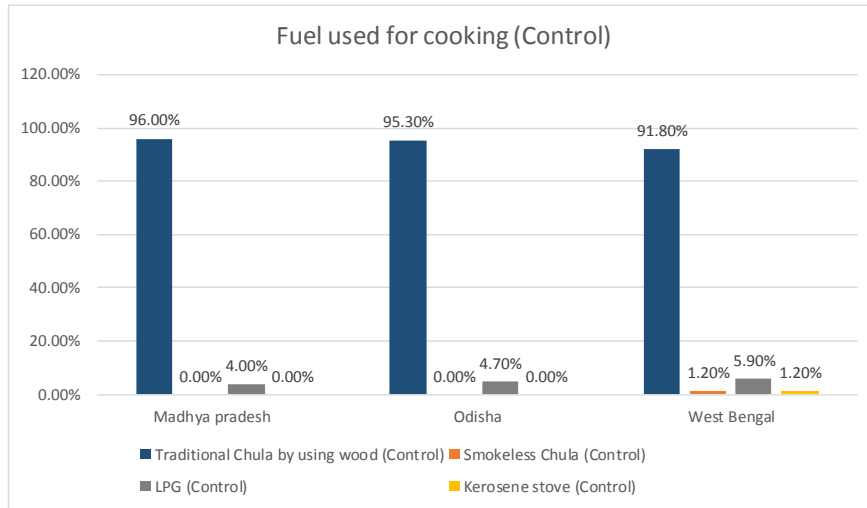
Fig: 4.5 Cooking Fuel Used (Control Group)
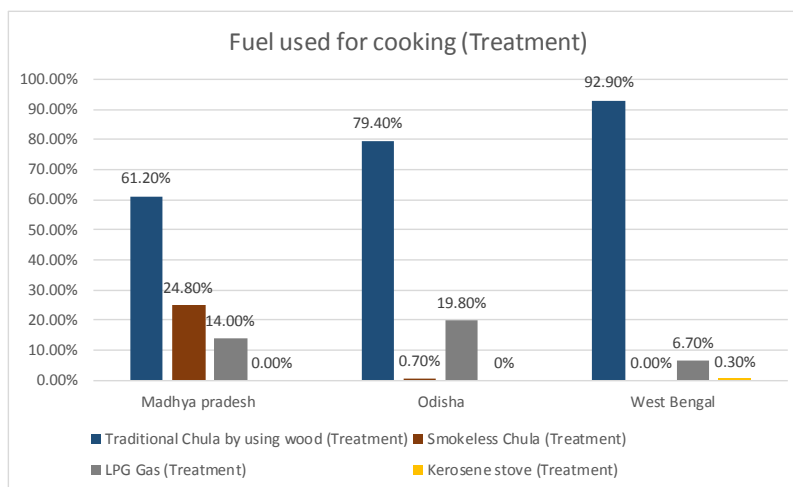
Fig: 4.5a Cooking Fuel Used (Treatment Group)

Figures 4.5 and 4.5a show that traditional *chula* and fire wood still remain the main cooking fuel even in PMA-G houses. Over 92% of the households in Control Group use traditional Chula with fire wood, and there is no noticeable difference in the Treatment Group except in the case of Odisha where nearly 20% of the people report to be using LPG. LPG is used only in 14% PMAY-G houses in MP (which is 4% in CG); 20% in Odissa (which is 5% in CG); and 8% in WB (which is 6% in CG).

Availability and Use of Toilet: Availability and Use of Toilet is another indicator in PMAY-G convergence, which must happen through Swachh Bharat Mission (SBM-G) or through MGNREGS. Fig 4.6 shows the availability and toilet use in amongst Control Group and Treatment Group.
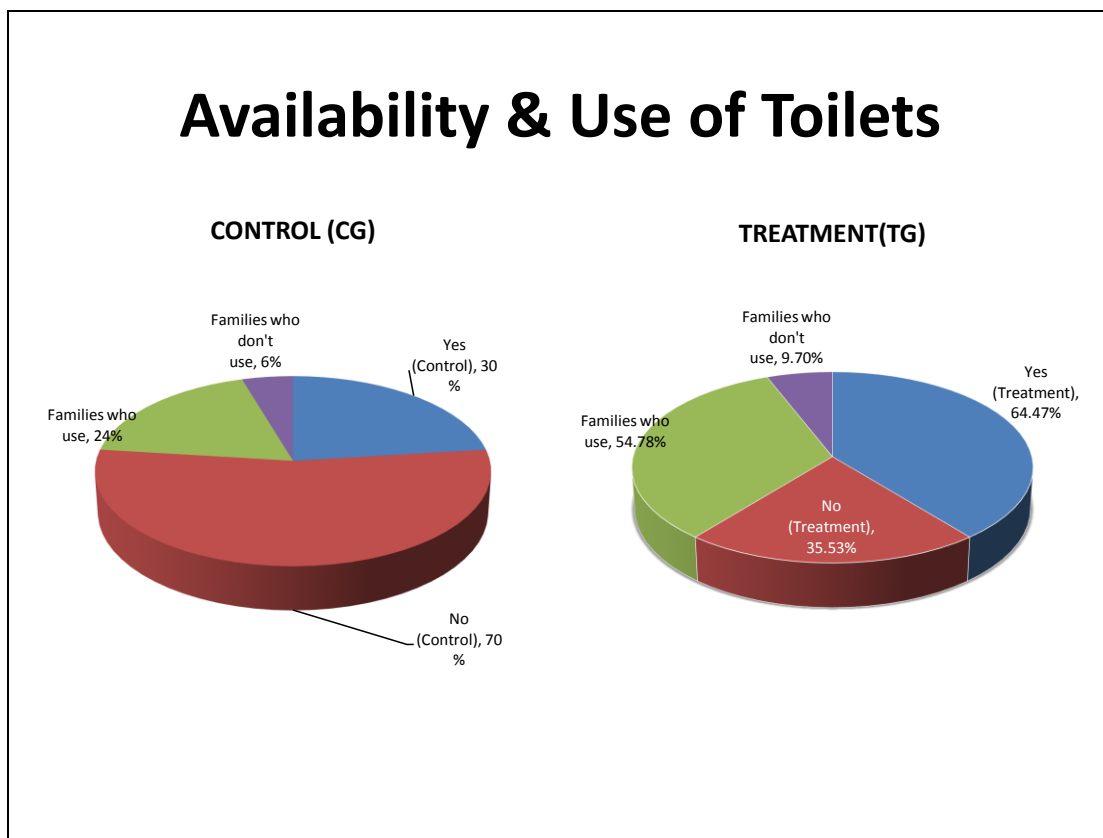
Fig: 4.6 Availability and Use of Toilets

Fig 4.6 shows that among the Control Group 30% have toilets; and 70% don't have toilets. Among the 30% CG who have toilet 6% of them don't use. Among the Treatment Group, 65% of the households have toilets, and 35% don't have toilets. Out of the 65% of the households in Treatment Group who have toilets, on an average (all the 3 states put together) 10% of them are not using. It shows new houses constructed under PMAY-G have provided people with toilets, but still a good number of them do not use. Most of these non-use cases are reported from Odisha, and West Bengal, and very less from Madhya Pradesh. It shows new houses constructed under PMAY-G have provided people with toilets, but still a good number of them do not use. This is surprising, and it requires probing in order to ascertain if the non-use / disuse is due to behavior-related reasons or because of poor installations.

Drinking Water: Domestic water supply facility, especially house service connection for the houses constructed under PMAY-G is another measure of convergence that can improve the quality of living of PMAY-G beneficiaries. Figure 4.7 and 4.7a show the status of drinking water provision to the Control Group and Treatment Group in the study states.
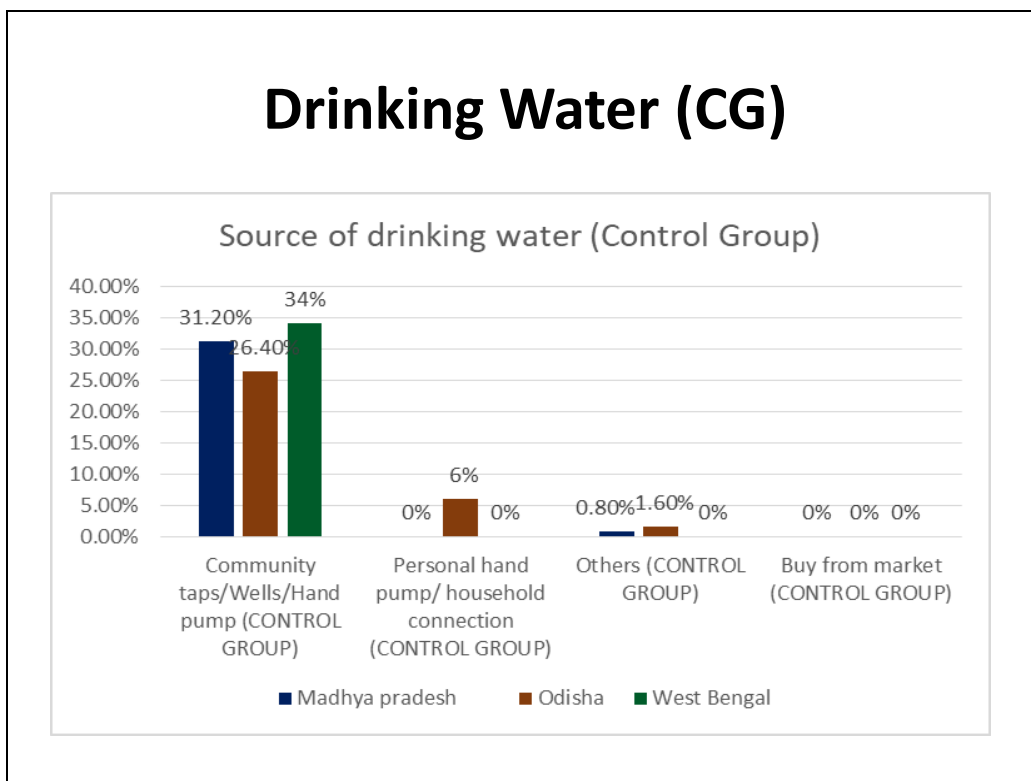

Fig 4.7 Drinking Water Supply Facility (Control Group)
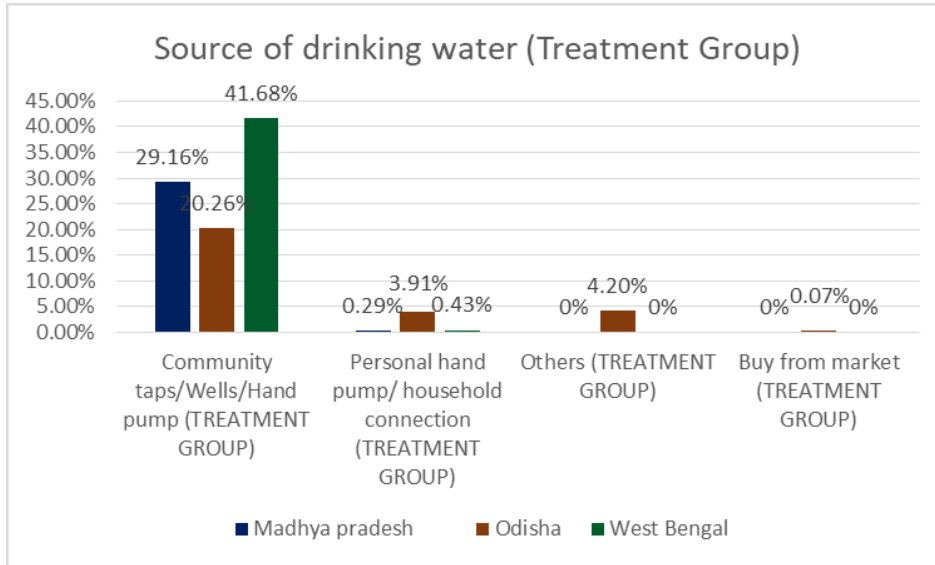
Drinking Water (TG)

Figure 4.7a Drinking Water Supply Facility (Treatment Group)

In providing access to piped water supply, there is no much head way made. Most beneficiaries of PMAY-G houses get water through common water collection points only. We find that there is no much difference between CG and TG when it comes to drinking water facility. The dependence is still on common water collection points. The same holds good for other common facilities like waste collection, drainage, and street lights too confirming once again poor convergence of PMAY-G with other programs.

Space available for Livelihoods: It often happens that houses provided under government programmes ignore the livelihood requirements of the beneficiaries (Palanithurai, 2008). Figure 4.8 analyses this fact in the case of PMAY-G beneficiaries in comparison with Control Group.

Space Available for Livelihoods

Control

Space available for livelihood (Control Overall)

33.60%

66.40%

■ YES ■ NO

Treatment

Space available for livelihood (Treatment Overall)
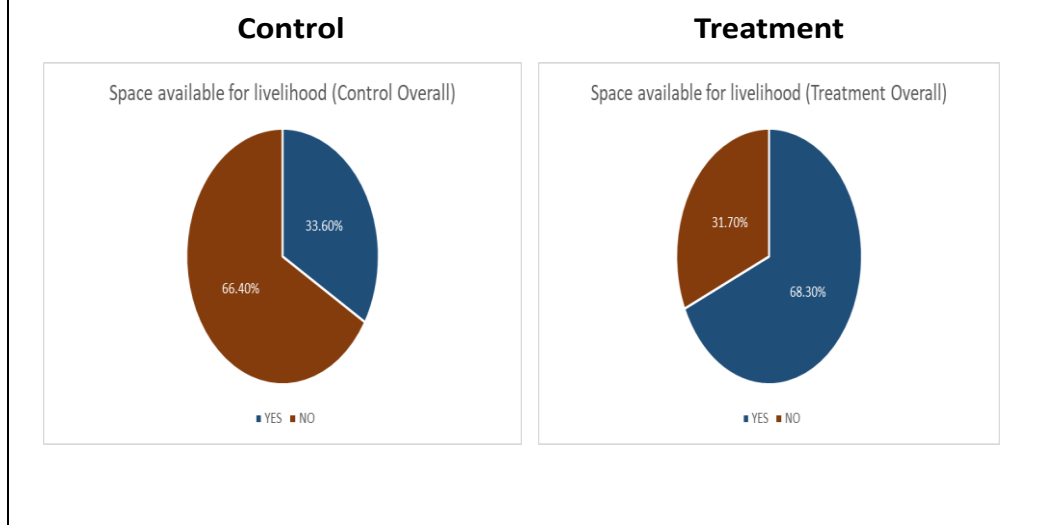

31.70%

68.30%

■ YES ■ NO

Fig: 4.8 Space Available for Livelihoods

Figure 4.8 shows that only 33% of the houses under Control Group have had space for livelihoods; whereas in Treatment Group 68% of the households have mentioned about having got additional space for livelihood activities in-door. PMAY-G houses have become facilitative of livelihood activities in rural areas.

Extra Expenditure Incurred: The Government of India provides Rs.120,000/ for constructing house under PMAY-G. It often happens that the beneficiaries tend to invest additional funds from their own sources with a view to constructing a house to their liking. Figure 4.9 shows the additional investment made by beneficiary households.

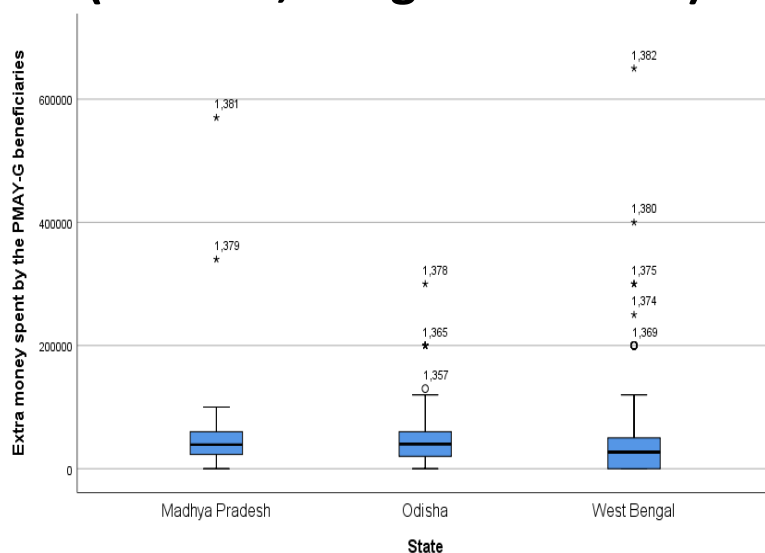**Extra Expenditure Incurred (Median, Range & Outliers)**

Fig: 4.9 Additional Investment made by PMAY-G Beneficiaries

It was found that about 80% of the beneficiaries have invested additional funds for constructing their PMAY-G assisted houses. The median amount spent was Rs.60,000/- And most people have spent an amount ranging from Rs.50,000 to Rs.80,000/- We find in the box plot above, there are some outliers ranging from Rs.200,000/ to Rs.600,000/- But the number of such beneficiaries do not go beyond 10 at the maximum. Therefore, such extreme cases need not be taken as the programme driving the beneficiaries to become indebted - as some studies argue. The PMAY-G guidelines clearly says that beneficiaries can borrow (at differential rate of interest) up to Rs.70,000/- from banks, if they need additional funds for construction. If the beneficiaries made huge investments beyond their means, it should be within their sanction and sanity.

Figure 4.10 shows the source from where the PMAY-G beneficiaries arranged additional funds / to be able to meet the extra investment, they thought they needed.
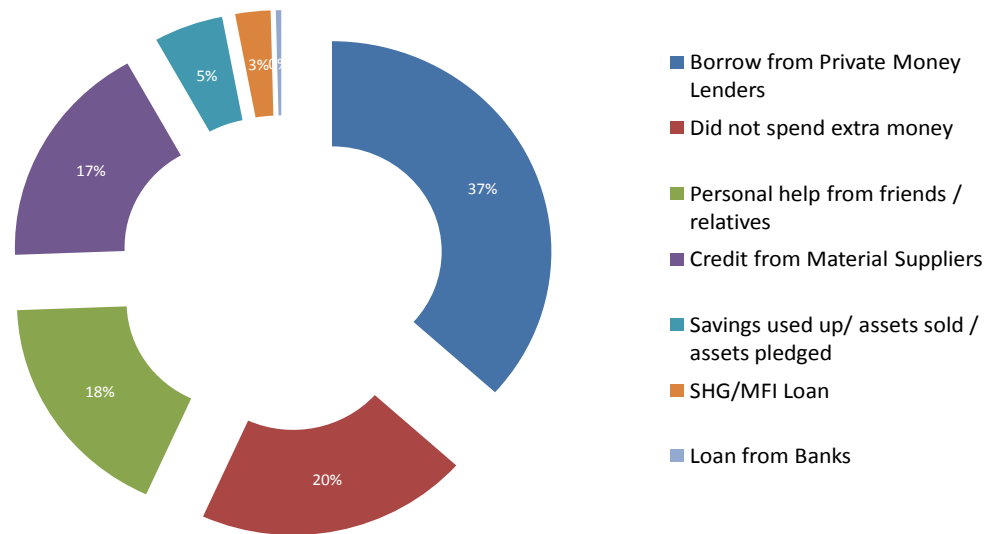
Fig: 4.10 Sources of Additional Funds for Investment

Figure 4.10 shows that only 20% of the PMAY-G beneficiaries have constructed the house within the amount sanctioned from the Programme. About 80% of the beneficiaries have borrowed funds from various sources. The main sources reported are: 37% from private money lenders; 18 from friends and relatives; and 17 from materials suppliers. Five percent of them have reported to have used up savings / sold out assets or pledged assets etc. Hardly, 3% have gone for SHG/MFI loans, and less than one percent of them have gone for nationalized banks. The predominant source has been non-institutional sources such as private money lenders, building material suppliers, and relatives and friends. Why is it that many have not approached banks, remains unexplained, although some report of having very little hope about convincing a banker to lend for the purpose of investing in a house being constructed under a government programme.

House Maintenance Expenditure
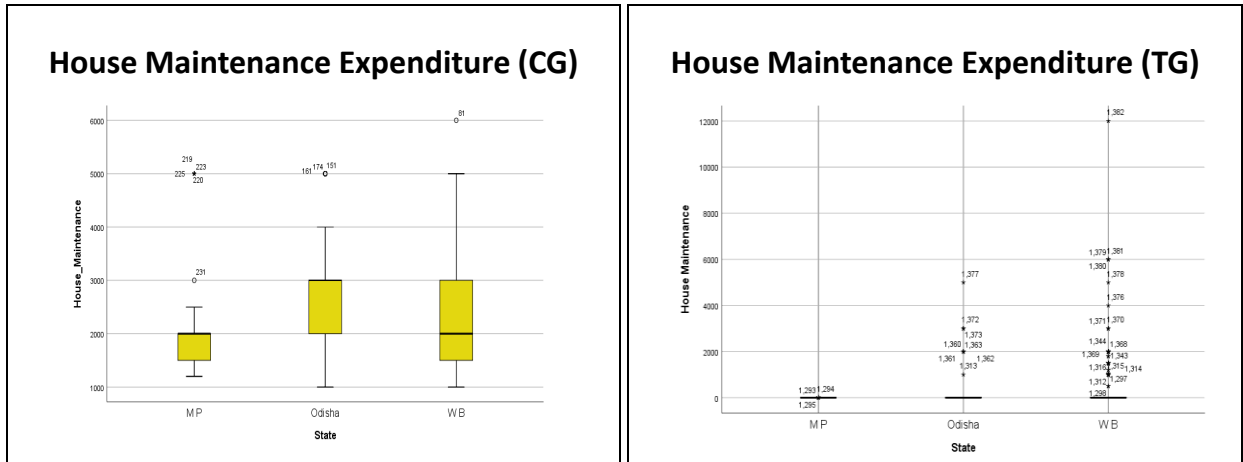
Fig. 4.11 House Maintenance Expenditure (CG): Fig. 4.12 House Maintenance Expenditure (CG):

Figure 4.11 shows the house maintenance expenditure that the Control Group reported incurring. It shows they incur median Rs.2000 in Madhya Pradesh and West Bengal, and Rs.3000 in Odisha. The range goes up to Rs.5000 – 6000/ annual. There is a need for people living in old, thatched house, and dilapidated house to keep attending to repairs constantly. Thus, they incur this expenditure. Figure 4.12 shows the house maintenance expenditure incurred by the Treatment Group (beneficiaries of PMA-G). We find most of them have reported zero maintenance. The reason, possibly, could be because of new house does not require much maintenance. Some beneficiaries have reported to have spent Rs.2000 – Rs.6000, and their number is too few, although.

Part – I

## Results – Objective Well-being

Taking into account physical facilities such as type of house, electricity connection, kitchen, toilet and bathroom, natural ventilation, natural light, space for livelihood activities etc. we measure the overall objective well-being of the Treatment Group and Control Group. Figure 4.13 shows a comparison of these facilities in percentage terms. Figure 4.14 shows the mean difference of the same facilities in the study states.
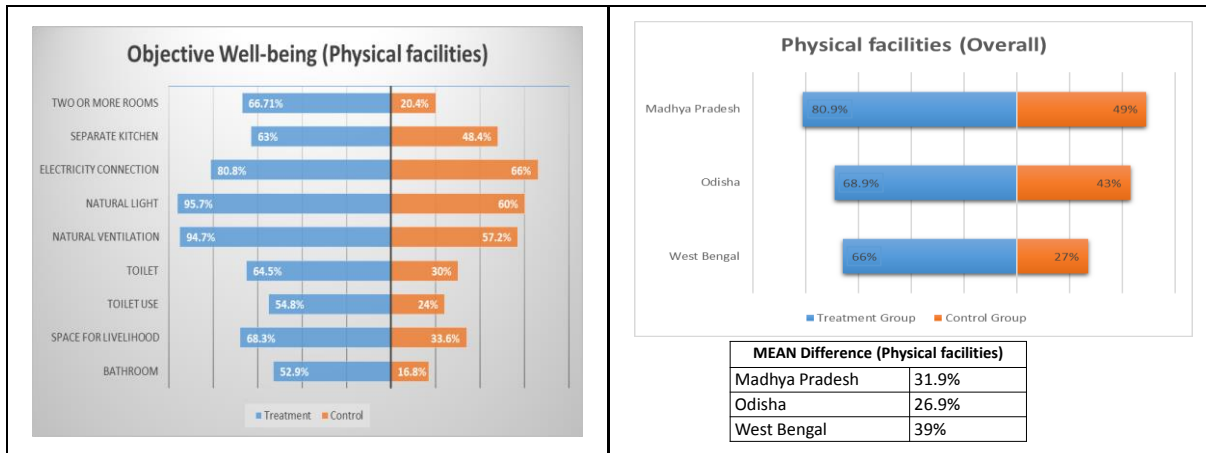
Fig. 4.13 Physical Facilities (Treatment – Control) Fig.4.14 Mean Difference in Facilities

Figures 4.13 and 4.14 show the mean difference in facilities. We have Treatment Group on the left and Control Group on the Right. The mean positive difference is 31.9% in Madhya Pradesh; 26.9% in Odisha; and 39% in West Bengal. The same is plotted in a line graph in Figure 4.15 below, which clearly put across the difference PMAY-G has made in terms of providing house as a physical facility.
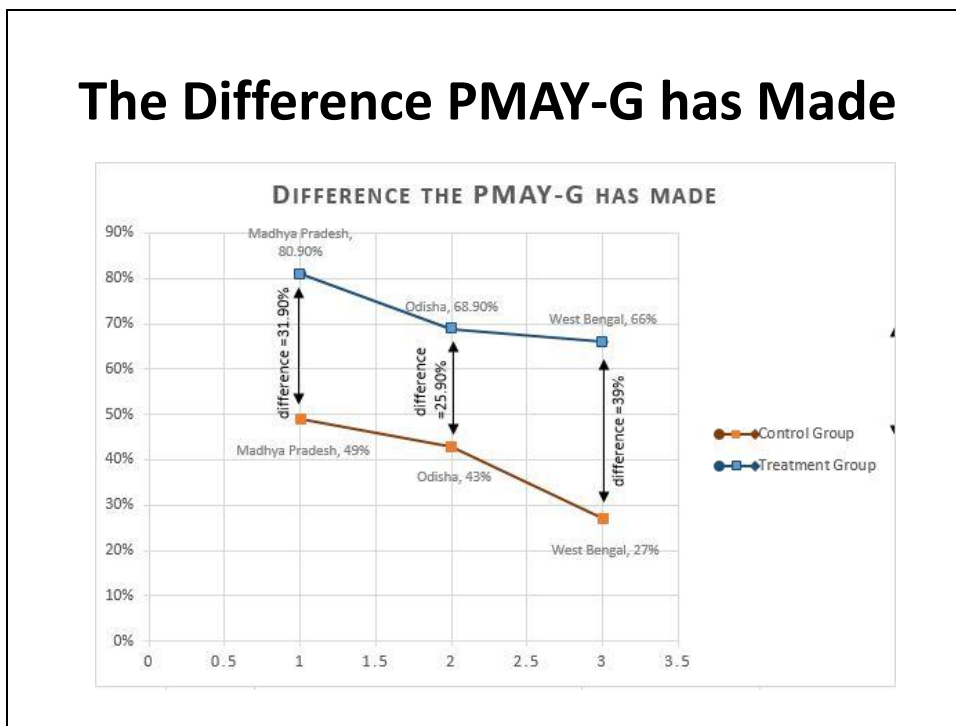
Figure: 4.15 The Difference PMAY-G has made

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Results of T-Test

Moving beyond descriptive statistics, an attempt was made to use T-test from inferential statistics in order to find out if inferential statistics also supports the internal validity of our inference.

T-Test

Paired Samples Test

		Paired Differences			
					95% Confidence Interval of the Difference
		Mean	Std. Deviation	Std. Error Mean	Lower
Pair 1	Madhya Pradesh Treatment & Madhya Pradesh Control	32.22222	38.47330	12.82443	2.64903
Pair 2	Odisha Treatment & Odisha Control	25.33333	25.70506	8.56835	5.57468
Pair 3	West Bengal Treatment & West Bengal Control	38.66667	20.67607	6.89202	22.77363

Paired Samples Test

		Paired Differences			
		95% Confidence Interval of the Difference			
		Upper	t	df	Sig. (2-tailed)
Pair 1	Madhya Pradesh Treatment & Madhya Pradesh Control	61.79541	2.513	8	.036
Pair 2	Odisha Treatment & Odisha Control	45.09199	2.957	8	.018
Pair 3	West Bengal Treatment & West Bengal Control	54.55970	5.610	8	.001

We find the 'significance' / P Value to be less than 0.05 in all the states, which indicates that there is a significance difference. Hence, we accept H_1 i.e. there is difference due to intervention.

Effect Size

We wanted to move beyond 'P value' in order to find out the 'Effect Size'. These effect sizes estimate the amount of the variance within an experiment that is "explained" or "accounted for" by the experiment's model. We used Cohen'd and Sawilowsky (2009) method of finding out the effect size. We calculated the effect size, and fixed our values into Sawilowsky (2009) chart.

Table 4.1 Effect Size

EFFECT SIZE	d	Our Values	Reference
Very Small Effect	0.01		Swailowsky, 2009
Small Effect	0.20		Cohen, 1988
Medium Effect	0.50		Cohen, 1988
Large Effect	0.80		Cohen, 1988
Very Large Effect	**1.20**	**0.83 (MP), 0.98 (Odissa)**	Swailowsky, 2009
Huge Effect	**2.0**	**1.80 (WB)**	Swailowsky, 2009

Note: The table above contains descriptors for magnitude of d=0.01 to 2.0, as initially suggested by Cohen (1988) and expanded by Sawilowsky (2009)

We find that as far as Madhya Pradesh and Odisha are concerned the effect size is 'Very Large'; and in West Bengal the programme has made a 'Huge Effect'.

Part – II

Subjective Well-being (Socio-Psychological)

There are certain subjective well-being elements we included in the study. They are analysed separately. They include: Social Status, Self-worth, Confidence Level, Feeling of Ownership, Feeling of Safety & Security, Self-perceived Improvement in Health, Overall Quality of Life, and Satisfaction about the New House. Figure 4.16 shows the subjective well-being measured for the Treatment Group in comparison to the Control Group.
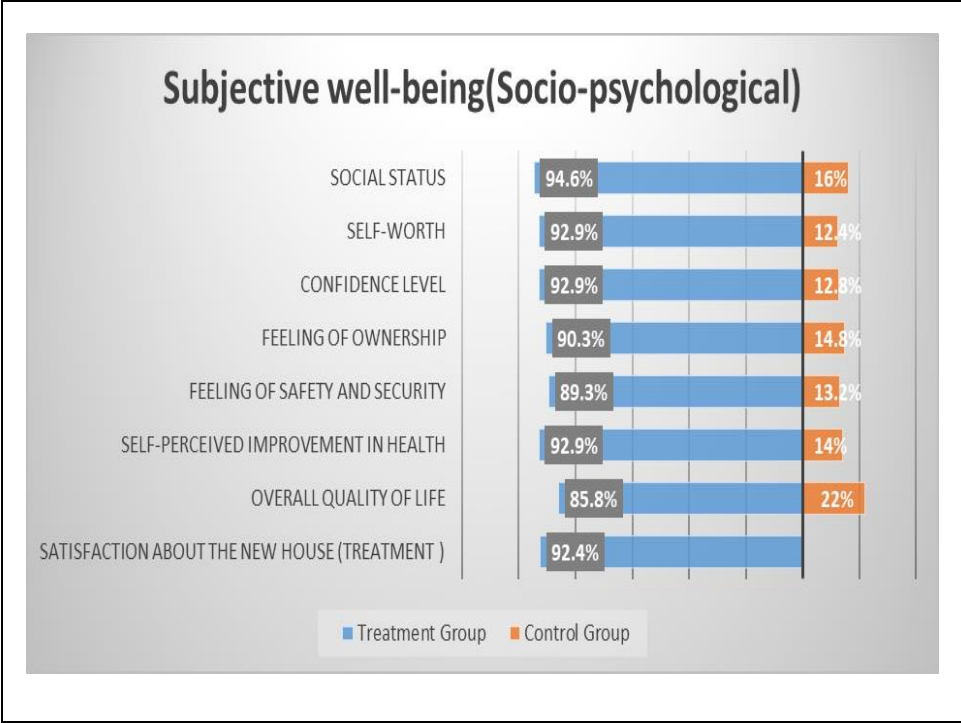
Figure: 4.16 Subjective Well-being of PMAY-G beneficiaries viz-a-viz Control Group

Fig: 4.16 shows on all the parameters of subjective well-being, we find the Treatment Group feels much better, compared to the Control Group. Subjective well-being goes to say that a housing programme provides not only a safe and secure house to live in. The agency value of the person, who is becoming a new house owner goes up; his social status steps up; self-worth expands; his confidence level raises; and his voice in his society becomes audible. That way, the contribution of PMAY-G to poor families is very much perceptible in the study states.

CHAPTER – 5

FINDINGS AND CONCLUSION

This study on the impact of PMAY-G set out answering some specific research questions. They are: (i) To what extent were the program objectives met with regard to improving the physical conditions of living of the target population; (ii) socio-economic improvements experienced by the target population, as a result of owning a new house? These precisely mean the changes brought about by PMAY-G in physical facilities or subjective well-being of the people, who availed house under the PMAY-G. Studying the extent of convergence of development programmes with PMAY-G and factors constraining effective convergence was also part of the study.

The study was conducted in three states (covering 24 Gram Panchayats in six districts) viz. Madhya Pradesh, Odisha, and West Bengal. The methodology used is RCT (Randomized Control Trial), where the beneficiaries who availed house already and are living in the past 6 months to one year are taken as Treatment Group, and those who were selected and have been put in waiting list to avail house in the upcoming years are taken as Comparison Group. The following are the results of the study.

General Findings

Most (900/1382) of the head of the beneficiaries, who got houses sanctioned under PMAY-G, are in the age bracket of 30 – 53 years. If we split this group further and analyse, we find that most of them (500/900) are within the age group of 30 – 41 years, which is nearly the appropriate age when one needs to own a good house to live in, so as to be able to focus on livelihoods-related search. This is to say that the age at which the houseless poor people get house is appropriate. Thus, it can be stated that in terms of 'age of the beneficiaries selected under the PMAY-G', it is found they are at appropriate age to own a house.

We find there is a fair distribution among various caste categories, meaning a fair share of sanction is found among the SC/STs, and among the OBCs and General Category of people. The SC/ST put together on one side, and the OBC and the General Category put together on another weigh almost equal. Going by population proportion of SC/ST in India or in the states under reference, it might look inequity in distribution. But, going by inclusive policy of the government, the distribution is justifiable that a good number of SC/ST households (695) along with equal number of OBCs and General Category households (687) have got houses sanctioned under PMAY-G.

In terms of families being nuclear or joint, we find about 67% are nuclear families, and 33% belong to joint-families. With regard to the 'family size', we find that 55% of the PMAY-G beneficiaries' families have more than five members in the family. There are families with eight or more than eight members too. We analysed if there were any members of the beneficiaries' family involved in livelihoods that add to the family kit (adding to the overall household income). It was found that 37% of the families have an additional member (other than the head of the household), involved in adding to the income of the family by involving themselves in goat/sheep rearing, maintaining a cow for milking, or involved in some kind of handcrafts making etc.

Specific Findings

Type of House: The poor who were living in thatched houses, mud houses, and houses with paddy straw roofs have got concrete roofed houses (58%), Concrete + asbestos roofs (25%), and fully asbestos (17%). Most of the houses are made of brickwork or cement block work. PMAY-G has provided better housing condition to the beneficiaries by providing pucca houses. In the comparison group we found only 66 percent of the houses electrified, whereas in PMAY houses, we found 81 per cent electrified.

Congestion in Occupancy: PMAY-G have slightly reduced congestion in houses by providing two or more rooms. It has slightly reduced the congestion in occupancy by bringing the median occupancy from 5 to 4.5.

Kitchen : PMAY-G has provided cooking space (kitchen) inside the house. This has changed the practice of cooking outside, but not to the extent it could have changed. PMAY-G beneficiaries seem to prefer having one more room in place of a kitchen. Some have designed their houses to be all rooms, and no kitchen. A few of them who have constructed kitchen also prefer cooking outside, so as to use the kitchen space as another living room. This explains why PMUY, (LPG gas) has not picked up amongst the PMAY-G houses, to the extent it could have.

Fuel for Cooking: Traditional *chula* and fire wood still remain the main cooking fuel even in PMA-G houses. The LPG is used only in 14% PMAY-G houses in MP (which is 4% in CG); 20% in Odissa (which is 5% in CG); and 8% in WB (which is 6% in CG). The PMUY (LPG for cooking) is not a big success under PMAY-G convergence. The price of LPG, and voluntarily placing oneself under the pressure of having to find money to replace empty cylinders every time it runs empty, are reportedly another reason, why PMAY-G beneficiaries do not apply for LPG for cooking. The awareness level with regard to PMUY convergence is also poor, even among the *Awaas Bandu* (Local Motivators of PMAY-G).

Toilets: With regard to the availability and use of toilets, among the Control Group 30% have toilets; and 70% don't have toilets. Among the 30% CG who have toilet 6% of them do not use. Among the Treatment Group, 65% of the households have toilets, and 35% do not have toilets. Out of the 65% of the households in Treatment Group who have toilets, on an average (all the 3 states put together) 10% of them are not using. It shows new houses constructed under PMAY-G have provided with toilets to every household, but still a good number of them do not use. Most of these non-use cases are reported from Odisha, and West Bengal, and very less from Madhya Pradesh. This is surprising, and it requires probing in order to ascertain if the non-use / disuse is due to behavior-related reasons or because of poor installations.

Drinking Water: In providing access to piped water supply through convergence with NRDWP, there has been no much head way made amongst PMAY-G beneficiaries. Most beneficiaries of PMAY-G houses get water through common water collection points only. We find that there is no much difference between CG and TG when it comes to drinking water facility. The

dependence is still on common water collection points. The same holds good for other common facilities like waste collection, drainage, and street lights too confirming once again poor convergence of PMAY-G with other programs.

Space for Livelihoods: Under Control Group only 33% of the houses have had space for livelihoods; whereas in Treatment Group 68% of the households have mentioned about having got additional space for livelihood activities in-door. PMAY-G houses contribute to livelihood activities by providing additional space for livelihoods.

Additional Expenditure Incurred: It was found that about 80% of the beneficiaries have invested additional funds for constructing their PMAY-G assisted houses. The median amount spent was Rs.60,000/- In most cases, the amount spent ranges from Rs.50,000 to Rs.80,000/- A few beneficiaries reported to have spent additional funds ranging from Rs.200,000/ to Rs.600,000/- But the number of such beneficiaries do not go beyond 10 at the maximum (out of 1380 beneficiaries interviewed). Therefore, such outliers (extreme cases) need not be taken as, the programme driving the beneficiaries to become indebted - as some studies argue (cite). The PMAY-G guidelines clearly says that beneficiaries can borrow (at differential rate of interest) up to Rs.70,000/- from banks, if they need additional funds for construction. If the beneficiaries made huge investments beyond their means, it should be within their ability and sanity.

Source of funds for Additional Investment: It was found that only 20% of the PMAY-G beneficiaries have constructed the house within the amount sanctioned from the Programme. About 80% of the beneficiaries have arranged additional funds from various sources. The main sources reported are private money lenders, and building material suppliers (54%); and friends and relatives (18%). Five percent of them have reported to have used up savings / sold out assets or pledged assets etc. Hardly, 3% have gone for SHG/MFI loans, and less than one percent of them have gone for nationalized banks. The predominant source has been non-institutional sources such as private money lenders, building material suppliers, and relatives and friends. During informal interviews it was found that they were aware that they could approach banks for availing a loan up to Rs.70,000. Some report of having very little hope about convincing a

banker to lend for the purpose of investing in a house being constructed under a government programme.

House Maintenance Expenditure: The median expenditure incurred by those in the Comparison group was Rs.2000 in Madhya Pradesh and West Bengal; and Rs.3000 in Odisha. The range goes up to Rs.5000 – 6000/ annual. There is a need for people living in old, thatched house, and dilapidated house to keep attending to repairs almost every year. Thus, they incur this expenditure. With regard to the house maintenance expenditure incurred by the Treatment Group (beneficiaries of PMA-G) most of them have reported 'zero maintenance'. The reason, possibly, could be because a new house does not require much maintenance. Some beneficiaries have reported to have spent Rs.2000 – Rs.6000, and their number is too few. New PMAY-G house has lightened the house maintenance burden.

Conclusion

Taking into account physical facilities such as type of house, electricity connection, kitchen, toilet and bathroom, natural ventilation, natural light, space for livelihood activities etc. when we measure the overall objective well-being of the PMAY-G beneficiaries in comparison to those on the waiting list, we can conclude that PMAY-G beneficiaries have the mean positive difference is 31.9% in Madhya Pradesh; 26.9% in Odisha; and 39% in West Bengal. The T-test conducted also shows significant difference between the Treatment Group and Comparison Group. In terms of effect size we find that as far as Madhya Pradesh and Odisha are concerned the effect size is 'Very Large'; and in West Bengal the programme has made a 'Huge Effect'.

In terms of subjective well-being (socio-psychological well-being), on indicators such as Social Status, Self-worth, Confidence Level, Feeling of Ownership, Feeling of Safety & Security, Self-perceived Improvement in Health, Overall Quality of Life, and Satisfaction about the New House, we find the Treatment Group feels much better, compared to the Control Group. It can be concluded that the new PMAY-G has made significant impact on the lives of beneficiaries.

Policy Issues

1. **Kitchen:** PMAY-G has provided cooking space (kitchen) inside the house. Although this has changed the practice of cooking outside, not to the extent it could have changed. PMAY-G beneficiaries seem to prefer having one more room in place of a kitchen. Some have designed their houses to be all rooms, and no kitchen. A few of them who have constructed kitchen also prefer cooking outside, so as to use the kitchen space as another living room. This explains, in a way explains, why PMUY, (LPG gas) has not picked up amongst the PMAY-G houses, to the extent it could have.

2. **Cooking Fuel:** With the convergence of PMUY, LPG cylinders could have made way into PMAY-G houses. But, it has not happened to the extent, it could have. Besides their usual practice of cooking outside house, the money required for replacing empty cylinders is also reported as a factor preventing the PMAY-G beneficiaries from applying for LPG for cooking. This stands in the way of PMAY and PMUY convergence.

3. **Toilet Use:** It was found that 10% of the toilets constructed along with PMAY-G houses remain unused. Is it to do with the behaviour-related factors of the community in question, or poor installation rendering the toilet not usable? This requires probing.

4. **Drinking Water:** The NRDWP has a target of providing piped water supply as yard connections to most rural households by 2022. In providing access to piped water supply to PMAY-G houses, there is no much head way made in this regard. Most PMAY-G houses get water through common water collection points only. The same holds good for other common facilities like waste collection, drainage, and street lights too confirming once again poor convergence of PMAY-G with other programs.

5. **Source of Borrowing:** Eighty percent of the PMAY-G beneficiaries have availed loan to be able to meet the additional expenditure in house construction. Nearly 72% of them have borrowed from private money lenders and from other private sources such as material suppliers or from friends and relatives. It shows that banks are of little use to PMA-G beneficiaries. Hardly 3% of the beneficiaries borrow from banks or SHGs and MFIs in order to meet the additional expenditure required for construction. Many of them are aware that the PMAY-G guidelines suggests that beneficiaries can avail up to Rs.70,000 bank loan from any commercial bank. Yet, we find most of the PMAY-G beneficiaries choose to remain away from the banks. It is a policy matter to look into. Being a member of SHG and their linkage with banks could facilitate availing bank loan for house construction under PMAY-G. Those SHG members who are part of Bhandan bank in the study area have availed such loans - their number is not big, though.

6. **Awaas Bhandu:** We find Awaas Bhandu (PMAY-G Local Motivators) in many places (e.g. WB, Odisha) are doing commendable work in local coordination. They, in fact, seem to help speed up progress. But, they are unaware of the convergence possibilities. They can be trained in various schemes that a PMAY-G beneficiary can avail. Possibly, this can help convergence to take momentum.