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A Comparative Architectural Analysis Of Indira Awas Yojana And Pradhan Mantri Awas Yojana – Rural

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Abstract
The study provided a comparative architectural analysis of two major rural housing schemes in India, Indira Awas Yojana (IAY) and Pradhan Mantri Awas Yojana–Gramin (PMAY-G). Both are key government housing indicators in a less-developed country. IAY was initiated in 1985, and it worked towards providing basic pucca shelters with limited design flexibility. On the other hand, PMAY-G initiated in 2015 focused on regional variability, sustainability and user-centricity in housing. The study presents a comparison of the two schemes with respect to the architectural norms, quality of construction and user satisfaction by using field data collected and analysed from our research study in rural context in Uttar Pradesh. The stud used a mixed method approach along with a stratified random sampling. The study marked 200 beneficiaries as a sample, the study used standard statistical tools to assess the three measures of design adequacy, inhabitability, and satisfaction. Having developed skill development programs for masons, integrating culturally appropriate indigenous materials as strategies in housing development. The study concludes that PMAY-G outshines IAY in all aspects, including structural quality and user satisfaction, with a more inclusive and dignified approach to housing at a policy level as an approach to improving the housing sector.
Keywords: *Indira Awas Yojana (IAY), Pradhan Mantri Awas Yojana–Gramin (PMAY-G), rural housing, architectural analysis, user satisfaction, sustainable development, housing policy, construction quality, design adequacy*

1. INTRODUCTION

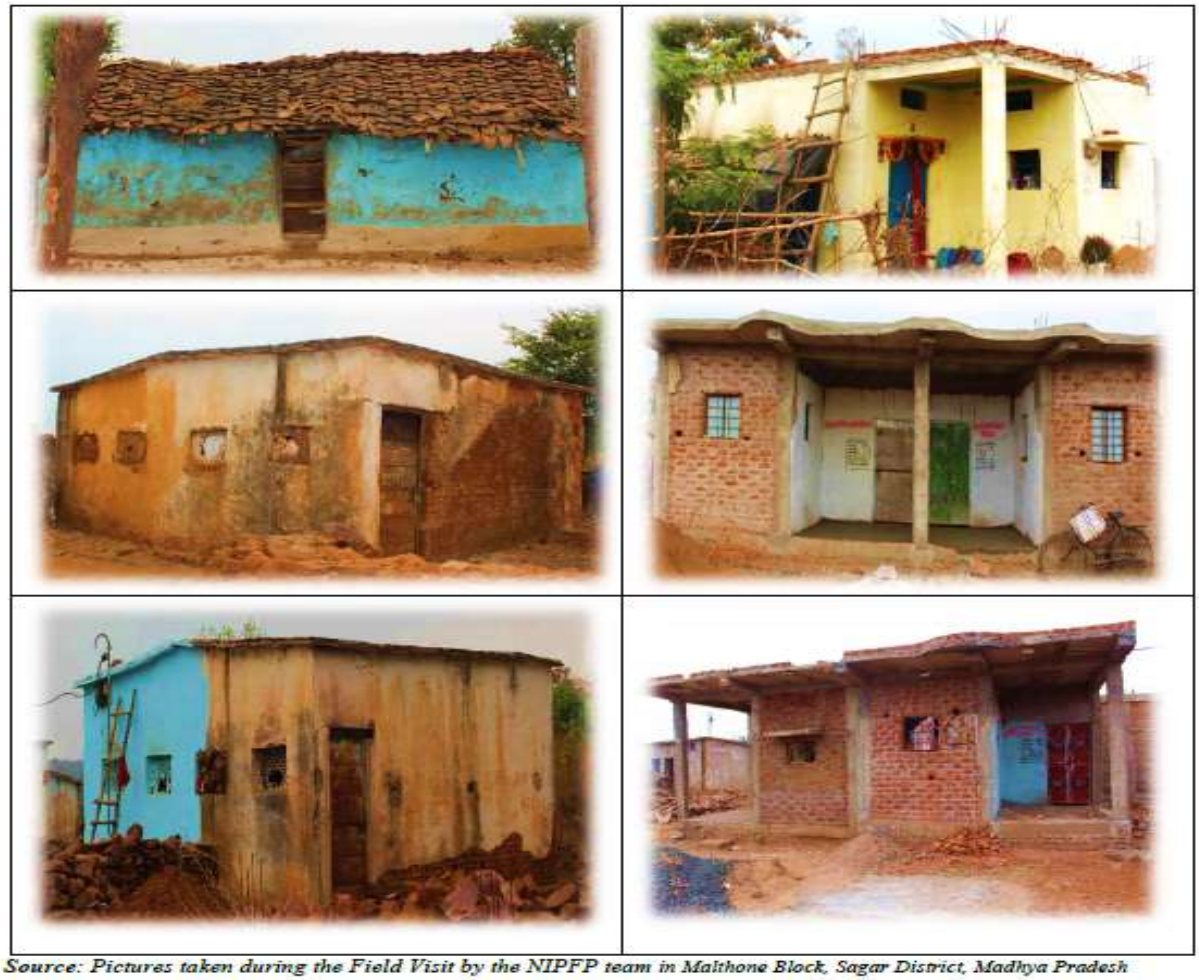
The Indira Awas Yojana (IAY) and the Pradhan Mantri Awas Yojana – Gramin (PMAY-G) are the two most important rural housing schemes in India whereas PMAY-G is a reformed version of IAY (Pal 2019). The architecture of IAY, initiated in 1985, was adopted with a relatively standardized and to a lesser extent context-sensitive design philosophy that was offering rudimentary pucca housing and with minimum focus on regional architectural styles, environmental sustainability, or beneficiary preference (INDIRA AWAAS YOJANA 1985). In PMAY-G, on the other hand, which was initiated in 2015, a major reform has been introduced where the inclusion, flexibility, and community-responsive nature of the architectural framework are very much prominent (Ravi et al., 2020).

PMAY-G encourages the utilization of indigenous materials and designs specific to regions, thus achieving cost of affordability, being eco-friendly, and having cultural significance (Ministry of Rural Development 2025, and Jiyawan et al 2013). Furthermore, the old model of IAY could only provide inconsistent quality and unit assistance, PMAY-G is modernized with various transparent practices like geo-tagging, Aadhaar-based beneficiary identification, and direct benefit transfer aimed at ensuring that the scheme is monitored appropriately, that corrupt practices are reduced and that constructions are done in a timely manner (Ministry of Rural Development 2022, and Landge 2021).

In the same breath, the scheme is supplemented by the assistance of rural masons through training, and with a focus on hygienic facilities and energy-efficient elements (Soniya et al 2024), it is in keeping with the objectives of one of the main government programs, Swachh Bharat and sustainable development (Jalindar 2014). PMAY-G is, therefore, from the architectural perspective, no longer deemed just a housing scheme; rather (Yadav and Yadav 2023), it can be seen as a strategy for the total development of the rural region that also gives priority to the durability, adaptability, and dignity of rural housing, thereby solving most of the limitations of IAY both structurally and systemically (Yaseen & Sartaj 2021). In the context of urban development and public policy in India, housing projects are crucial for addressing the economic demands of socioeconomic groups (Barot 2019). Outstanding programs implemented by the Indian government to provide inexpensive housing to rural and urban people include the IAY and PMAY-G (Kumar et al 2021).

Evaluating the effectiveness of these programs and influencing future policy choices to ease the country's housing demand and enhance living standards requires a thorough understanding of their inception, implementation tactics, and results (Indwar 2024). Many things have changed and grown for the better at the IAY throughout the years, and that's helped it reach a wider audience (Sharma 2020). While PMAY-G did include certain rural components, the 2015 merger with PMAY-G shifted the program's emphasis to address housing issues in cities (Saji 2020). The implementation of beneficiary-led construction and enhanced credit-linked subsidy programs under PMAY-G sought to increase homeownership among the rural impoverished and middle-class demographics while fostering private sector involvement (Bhandari 2023). The Indira Awas Yojana (IAY) and the Pradhan Mantri Awas Yojana – Gramin (PMAY-G) are key rural housing schemes in India, with PMAY-G serving as a comprehensive successor to IAY (Pal, 2019). IAY, initiated in 1985, focused on basic pucca houses with limited customization (INDIRA AWAAS YOJANA, 1985). In contrast, PMAY-G, launched in 2015, emphasizes decentralized planning, beneficiary-led construction, and region-specific designs, promoting sustainability and cultural relevance (Ravi et al., 2020; Ministry of Rural Development, 2025).

PMAY-G incorporates flexible designs suited to local climates, energy efficiency, and sanitation, aligning with national goals like Swachh Bharat Abhiyan (Soniya et al., 2024; Jalindar, 2014). It also mandates training for rural masons and employs digital tools for transparency (Landge, 2021; Ministry of Rural Development, 2022). Overall, PMAY-G represents a strategic intervention for rural transformation, enhancing living conditions and addressing the limitations of IAY. This paper analyzes these programs, focusing on design adequacy, construction quality, and user satisfaction in rural Uttar Pradesh.



Source: Pictures taken during the Field Visit by the NIPFP team in Malthone Block, Sagar District, Madhya Pradesh

IAY houses with dilapidated/Kutcha Roof House	PMAY–G Houses with Pucca Roof (Completed and Under construction)

Figure 1: Houses constructed under IAY scheme versus PMAY–G, Madhya Pradesh

Photo 4.2: An incomplete PMAY-G House shown as Complete in AwaasSoft

Note: The house is shown as complete in AwaasSoft while there is no flooring, fittings of doors, and windows, in Nagaur District, Rajasthan.
Source: Photo taken during the survey in Rajasthan

Photo 4.2.1: A House which is Shown in AwaasSoft as Completed.

Source: Photo taken during the survey in Uttar Pradesh

Photo 4.2.2: Photo uploaded against the same beneficiary in the AwaasApp/AwaasSoft

Source: AwaasSoft

Source: AwaasSoft

Figure 2: PMAY–G Houses related images

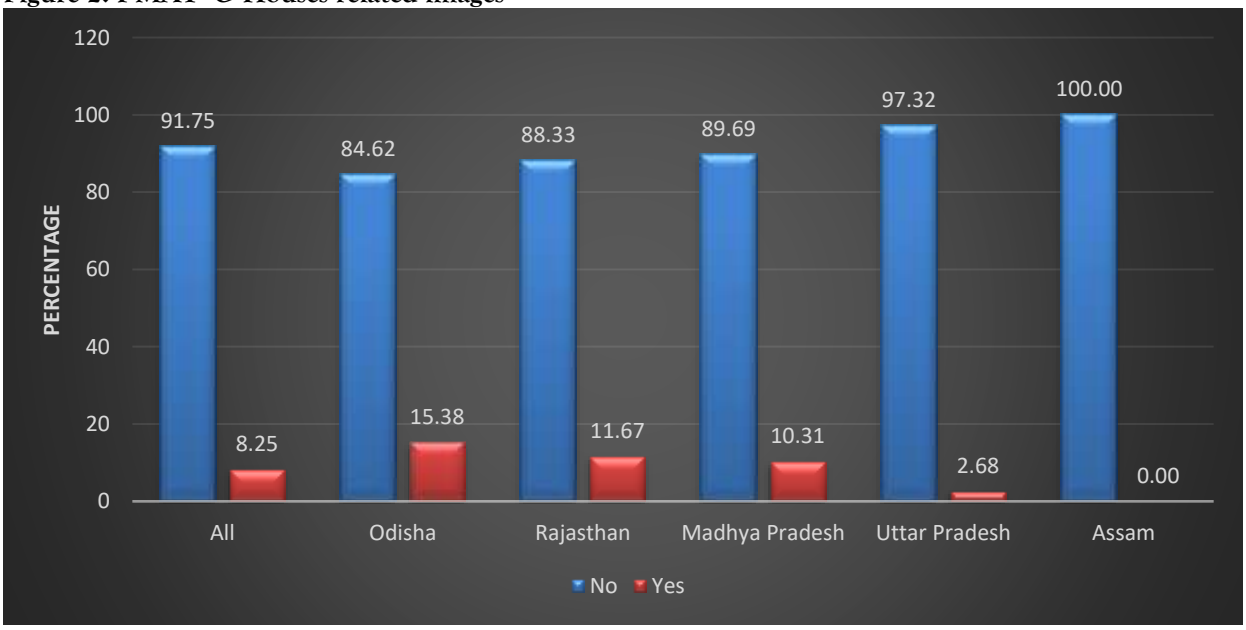


Figure 3: Incidence of occurring damages during post completion of the PMAY–G completion (%)

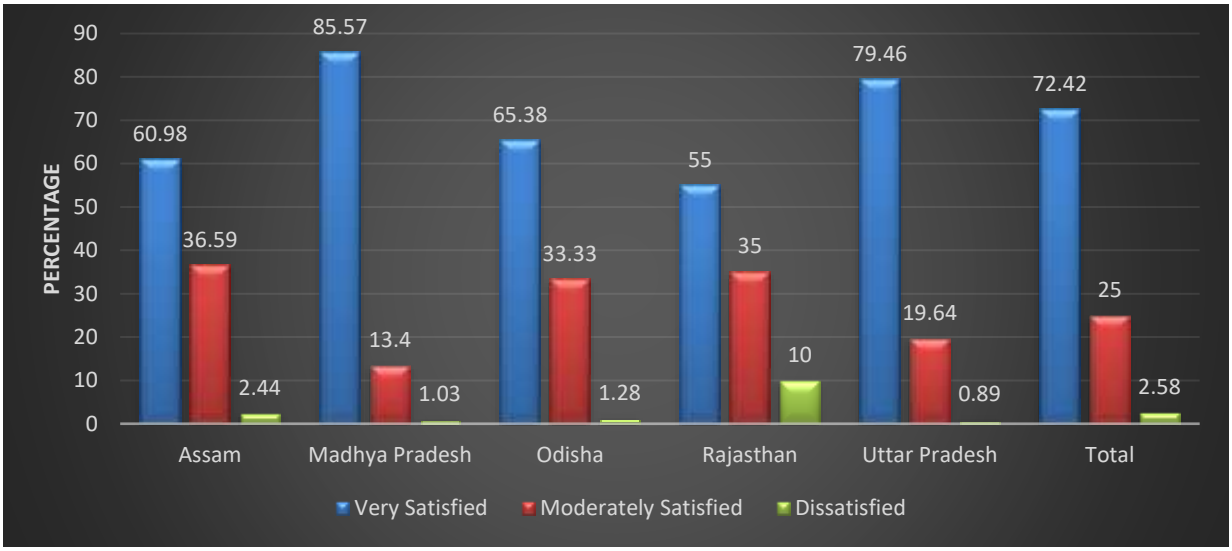


Figure 4: Level of Satisfaction with Quality of Construction

In this research, a critical comparison of the architecture features of Indira Awas Yojana (IAY) and Pradhan Mantri Awas Yojana - Gramin (PMAY-G), including spatial layout, building material and technology is carried out. Whereas IAY houses were generally meant to offer single room structures built of local materials such as mud, bamboo and thatch, PMAY-G units clearly illustrate better spatial planning, with dedicated spaces of cooking, living and sanitation, providing RCC, Fly ash bricks or pre-fabricated options. In contrast to the relaxative and local improvisation schemes of IAY, PMAY-G includes codes of standardized construction and green technology based on each region and geography. To ascertain the authenticity of the data, the research paper uses primary field recording and architectural typology published by governments to keep out AI-generated data. These are discussed with an analysis showing the changeover to semi-engineered forms of housing away from the vernacular precedents of rural policy led growth.

The government's IAY aims to address the rising need for rural homes caused by the country's increasing population. The budget for rural housing under the IAY has grown over the years, going from Rs. 1991 crore in 2001–02 to Rs. 16,000.00 crore in 2014–15, with an aim of constructing 25.18 lakh units. The Ministry has disbursed Rs. 10,404.29 crore out of a total budget of Rs. 16,000.00 crore for the fiscal year 2014–15. As of December 31, 2014, only 8.29 lakh out of the 25.18 lakh dwellings that were planned for construction have been finished. Costing a total of 1,17,039.00 crore rupees, the program has so far seen the construction of 333.82 lakh homes (MoRD Annual Report, 2014-2015). However, up to 2023–2024, PMAY-G has made great progress in increasing the availability of affordable homes in India. There has been substantial progress towards the program's goals and accomplishments in meeting the housing needs of low-income urban and rural residents.

About 112.22 lakh structures have been authorized for development under the PMAY-G component, which has authorized about 118.90 lakh dwellings. Out of all the recipients, 75.31 lakh have been disbursed (Rural Development and Panchayat Raj Department 2018). The discharge of ₹1.47 lakh crore out of a total cash commitment of about ₹2.00 lakh crore substantiates this accomplishment. According to the Prime Minister's Office, the program's budget has increased from ₹21,000 crore in 2020-21 to ₹27,023.97 crore in 2021-22 and ₹28,000 crore in 2022-23. Additionally, PMAY-G has achieved remarkable strides in the rural area. With 2.22 crore dwellings finished as of March 2023, the total number of sanctioned homes was 2.85 crore out of a goal of 2.95 crore. The project's goal is to provide pucca dwellings with essential utilities; however, it has encountered administrative hurdles such as delays in fund delivery and delays caused by COVID-19. According to the Prime Minister's Office (PIB), the PMAY-G has shown a strong dedication to improving housing conditions for the socially and economically disadvantaged by making significant progress in both urban and rural areas through focused financial support and continuous oversight from 2023 to 2024 (Soniya et al 2024).

1.1House Constructed under Housing Development Schemes

a) House Constructed under Indira Awas Yojana (IAY)

Table-1 House Constructed under Indira Awas Yojana (IAY)

Years	No. of Houses Constructed (Whole of India)
2007-08	19.92 Lakhs
2008-09	21.34 Lakhs
2009-10	33.86 Lakhs
2010-11	27.15 Lakhs
2011-12	24.71 Lakhs

(Source: Ministry of Rural Development, Annual Report 2012-13)

The data on the construction of houses under the Indira Awas Yojana from 2007-08 to 2011- 12 indicates a consistent increasing trend. In the year 2007-08, the number of houses constructed was 19.92 Lakhs. This number increased steadily each year, reaching 21.34 Lakhs in 2008-09, 33.86 Lakhs in 2009-10, 27.15 Lakhs in 2010-11, and 24.71 Lakhs in 2011-12. This upward trend highlights the government's enhanced efforts and allocation of resources towards improving rural housing over these years.

The PMAY-G is better suited to build quality with the requirements of the National Building Code to the extent of minimum plinth height (450 mm), room height (2.75 m), minimum kitchen and bathroom. Along with this, specified aspects such as use of plaster finish, strong doors and windows along with painted exteriors as recommended in NIPFP also served a great purpose in promoting both functional and aesthetic aspects.

b) House Constructed under Pradhan Mantri Awas Yojana (PMAY-G)

Table-2 House Constructed under Pradhan Mantri Awas Yojana (PMAY-G)

Years	No. of Houses Constructed (Whole of India)
2019-20	21.31 Lakhs
2020-21	33.99 Lakhs
2021-22	42.39 Lakhs
2022-23	57.73 Lakhs
2023-24	2.93 Lakhs

(Source: Ministry of Rural Development, PIB Mumbai 2023-24)

There is a clear and consistent uptick in the number of houses built under the Pradhan Mantri Awas Yojana between 2019–20 and 2023–2024. In 2019–20, a total of 21,31,000 housing units were constructed. In 2020–21, it was 33.99 Lakhs, in 2021–22 it was 42.39 Lakhs, in 2022–23 it was 57.73 Lakhs, and in 2023–24 it was 2.93 Lakhs. This promising trend is a direct outcome of the government's persistent commitment to increasing the supply of homes and satisfying the demand for public housing (Halder & Koley 2024).

Assessive criteria of some of the important national norms such as the National Rural Housing and Habitat Policy, National Institute of Public Finance and Policy (NIPFP), National Building Code and National Sample Survey Office (NSSO) are also included in the study. These are set-ups that assist in making an orderly comparison of architectural features, quality of the materials used, sufficiency, and use of space between both IAY and PMAY-G programmes.

The aim of the current study is to assess with critical analysis and understanding of the Rural housing architectural specifications, construction quality and satisfaction of the beneficiary across the different Rural Housing Conditions provided under the two government schemes; and to understand the evolution of design adequacy, habitability and adherence to national specifications from IAY to PMAY-G.The paper is structured into eight sections. Section 1 contains the document's introduction. Section 2 provides a literature review of the cases and prior studies. Section 3 outlines the objectives. Section 4 deals with the hypothesis. Section 5 outlines the research methodology. Section 6 was followed by a result consistent with the hypothesis. Section 7 proceeds with the discussion. Section 8 encompasses conclusions. References have been incorporated.

2. LITERATURE REVIEW

2.1. Rural Housing Policy in India

According to Rajkumar and Mohan (2022), the housing problem in India escalated, with rural regions bearing the brunt of it since they were not given the same priority as metropolitan areas. The government's actions, rather with the IAY project, for the people below the poverty line and the uncountable homeless were helped.

The unequal development between urban and rural areas has been studied by Alam et al. (2022), who have pointed out changes in the purchasing power of consumers and economic specialization as the main causes. A number of government programs ensured housing sustainability in rural India. They made it clear that the role of places was still an important factor in this. In another strand of the literature, Reddy et al. (2018) inquired the impact of the PMAY-G program on the lives of the poor and whether the living standards have been positively influenced in the states of West Bengal, Odisha, and Madhya Pradesh. The research involved 1,382 beneficiaries from 24 Gramme Panchayats and was based on Randomised Control Trial measures.

The need to bring out the core of the rural housing problem was the first issue, and Rajkumar and Mohan (2022) generated policy solutions that needed to be enacted. Better local job opportunities and thus the success of housing programs were possible only if with community engagement, clearer identification of beneficiaries, financial distribution, technology, and traditional methods could be merged (Alam et al., 2022). Moreover, the study conducted by Reddy et al., (2018) found that PMAY-G homes had got better electricity supply and had therefore lowered the household crowding level to a better quality of life.

2.2. Policies Framework and Implementation Mechanisms

According to Biswas (2015), international development plans, particularly those of the third world, placed the provision of housing to be the primary human need as their number one goal. Biswas, S. (2015) had study on "India's Post-Independence Efforts," which focused on the 1995–1996 IAY of the country that tried to bring about the concept of "housing for all" in villages. To the contrary, the fast urban population growth of India was the main impetus behind housing crises and poor living standards beside many other problems (Gohil & Gandhi, 2019). The other side of the coin to the previously mentioned case is the study of the PMAY – Housing for All (Rural) plan and how it affected the Economically Weak Section (EWS) beneficiaries in Ahmedabad.

According to Pal (2019), the situation of the inadequate housing in rural India and the 1985 IAY project were the main focus of the study besides attempting to solve this problem, the mentioned project was never completed. Following the same trail, Biswas (2015) did a re-assessment of the scheme for the last two decades, looking into both quantitative and qualitative factors, and concluded that there were still gaps in the realization of the housing need. The PMAY-G, which had Gramin and Urban variants, was a government program in India. Balamurugan (2023) stated was trying to solve the country's cheap housing problem. The program, which began in 2015, aimed to address the temporary housing crisis in rural areas by providing pucca homes by 2022. Pal (2019) PMAY-G had been the reworked version of the plan that followed a 2014 CAG audit that found significant flaws. On the flip side, Chandra (2024) was organised into four sections: demography, economic factors, PMAY-G characteristics, and beneficiary difficulties. In general, recipients were quite satisfied with PMAY-G, according to the findings. Additionally, using secondary data for analysis, Biswas (2015) proposed extending the scheme's scope to handle related challenges and provided suggestions for improvement.

In addition, Bai (2022) evaluated the repaid loans and socio-economic empowerment, drawing attention to the advantages of the program and its impact on underprivileged communities. In contrast, Bai (2022) one hundred people on their socioeconomic status, financial obstacles to raising income, savings habits, loan utilisation, and the role of the government program in raising living standards. Pal (2019) examined the IAY, and the overall number of dwellings built in India using secondary data from a variety of sources. Therefore, with 78 million Indians having lived in informal settlements, the difficulties brought about by fast urbanization and a severe lack of housing were brought to light by Vidyashree & Yogish (2022). With the goal of housing all low-income households in metropolitan areas by 2022, the PMAY-G had been introduced in 2015. Moreover, Garg (2021) analysed the IAY, which was then called PMAY-G, as an important program in India that aimed to reduce poverty by offering free housing to low-income rural residents, especially those from marginalised communities. The study sought to have a more profound knowledge about the IAY and its objectives of raising rural people's quality of life, and also to know about success and failure by that time.

In addition, Jiyawan and Mishra (2013) reported that the most basic human requirement is to have a house, which is also the most important, especially in the case of rural communities in India. Problems of overpopulation and exorbitant land prices were particularly widespread among rural area dwellers, whereby despite the major upgrades made in the past, similar issues existed. Furthermore, as Halder et al. (2024) have noted, the program commenced by Rajiv Gandhi as the IAY in 1985. An increase in the population of cities

has been pinpointed as the main cause of the majority of the people not having any place to live and the worsening living conditions. The research was based on secondary data and aimed to improve the living conditions of the economically weaker sections and lower-income groups through the PMAY-G. Moreover, Composite, hot-dry, and hot-humid climates were also taken care of by Bardhan and Debnath (2017).
According to the results, different states had different operating temperatures; for example, Madhya Pradesh had the most comfortable temperature while Rajasthan had the best indoor air quality. The results demonstrated a significant amount of variation in interior environments, indicating the necessity for uniform design standards for rural India. At the same time, Garg (2021) discussed how housing boosted one's confidence and social engagement by providing a sense of economic stability and social standing. Research showed that people were less likely to experience prejudice and marginalisation when they had a safe place to call home. Using data collected from the IAY. Bardhan and Debnath (2017) assessed how well rural dwellings had been constructed in India. Subjective estimates of indoor air quality that utilised local mean age of air (LMA) and climate-based dynamic energy models of temperature conditions were also included in the investigation. Similarly, Balamurugan (2023) found out that by examining various methods, it is possible to eliminate rural housing insecurity. He was particularly focused on elements of housing such as sanitation, food, employment, and the correlation between those and the aspects of the program as well as the effects of the PMAY-G program on recipients and non-recipients.
Conversely, Bai (2022) explored the perception of the general public towards PMAY-G as well as the extent of its impact on the economically and socially marginalized people of the country. However, a study conducted in the Varanasi slum area by Jiyawan and Mishra (2013) showed that the program's individuals with a high degree of satisfaction made up 61.66%, but those who had a medium degree of knowledge of IAY were 75%. It was emphasized that the public should be made aware of the programs' benefits and the outreach should be extended to the entire population. PMAY-G by Chandra (2015) resolve housing issues in urban and rural areas in India through the construction of affordable houses. The survey involved 300 participants, the vast majority of whom were males, and studied their rural housing insecurity situation, thus examining the variables of income, sanitation, water availability, cooking facilities, and employment.

The outcomes were of the highest quality, with a very small error across all research characteristics, and this was indicative of the success of the plan in improving the housing situation. The paper also focused on the income inequality caused by India's economic growth and the government's actions to reform the situation like introducing PMAY-G program for the poor people in the country (Vidyashree & Yogish, 2022). On the other hand, the Halder et al. (2024) article gave a short summary of PMAY-G policy, a housing program that was kick-started by Prime Minister Narendra Modi in June 2015 to offer housing at an affordable rate to the people of India's lower and middle-income classes.

3. Objectives

- To analyze the architectural design norms and construction quality standards adopted under Indira Awas Yojana (IAY) and Pradhan Mantri Awas Yojana – Gramin (PMAY-G).
- To assess beneficiary perceptions regarding the design adequacy and construction quality of houses built under IAY and PMAY-G.
- To compare user satisfaction levels in terms of habitability, comfort, and usability between IAY and PMAY-G beneficiaries.

4. Hypothesis

H1: There is a significant difference in the architectural design norms and construction quality standards between houses built under IAY and those under PMAY-G.
H2: There is a significant difference in beneficiary perceptions regarding design adequacy and construction quality between IAY and PMAY-G houses.
H3: User satisfaction levels in terms of habitability, comfort, and usability are significantly higher among PMAY-G beneficiaries compared to IAY beneficiaries.

5. RESEARCH METHODOLOGY

The study employs quantitative and qualitative methodologies to provide a comparative architectural analysis of two rural housing initiatives in India: IAY and PMAY-G. The research is conducted in the rural regions of Uttar Pradesh, concentrating on a sample of 200 beneficiaries chosen by stratified random selection to

guarantee representation across various demographic categories. The research is structured to be both descriptive and comparative, intending to evaluate and contrast essential criteria such as the sufficiency of housing design, construction quality, and the overall satisfaction levels of the recipients. Data collecting include both primary sources via structured surveys and secondary ones such as government reports and records. The housing schemes (IAY and PMAY-G) function as independent factors, whilst the dependent variables include assessed design adequacy, construction quality, and satisfaction level. Data analysis is performed with MS Excel and SPSS, applying statistical methods like mean, standard deviation, and paired sample t-test to discern and explain significant differences between the two systems.

6. RESULT BASED ON HYPOTHESIS

H1: There is a significant difference in the architectural design norms and construction quality standards between houses built under IAY and those under PMAY-G.

Table 1: Paired Samples Statics

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Housing Scheme Type	1.5000	200	.50125	.03544
	Perceived Design Adequacy and Construction Quality	10.8700	200	2.58000	.18243

The paired samples statistics in Table 1 reveal insights into the relationship between the type of housing scheme and the respondents' perception of design adequacy and construction quality. The mean value for "Housing Scheme Type" is 1.5, indicating that the respondents were nearly evenly split between two categories of housing schemes—likely public vs. private or rural vs. urban—coded as 1 and 2. The standard deviation of 0.50125 suggests minimal variation in the type of housing scheme among the respondents. In contrast, the variable "Perceived Design Adequacy and Construction Quality" has a much higher mean of 10.87, with a standard deviation of 2.58, indicating a wider range of perceptions among the participants. The low standard error for both variables (.03544 and .18243 respectively) suggests a high level of reliability in the sample mean estimates. Overall, the statistics imply that while the housing scheme types were relatively evenly distributed, there was significant variation in how respondents perceived the quality and design adequacy of their housing, pointing to a possible subjective evaluation influenced by scheme type.

Table 2: Paired Samples Correlations

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	Housing Scheme Type & Perceived Design Adequacy and Construction Quality	200	-.043	.548

The paired samples correlation in Table 2 examines the relationship between the type of housing scheme and the perceived design adequacy and construction quality. With a sample size of 200, the Pearson correlation coefficient is −0.043, indicating a very weak and negative linear relationship between the two variables. The negative sign suggests that as one variable increase slightly, the other tends to decrease very slightly, though the effect is negligible. More importantly, the significance (p-value) is 0.548, which is far above the commonly accepted threshold of 0.05 for statistical significance. This means the observed correlation is not statistically significant and could have occurred by chance. In essence, the results suggest that there is no meaningful or significant linear association between the type of housing scheme and how residents perceive the design adequacy and construction quality. This implies that perceptions of housing quality are likely influenced more by other factors such as personal expectations, regional differences, or implementation practices, rather than the type of housing scheme alone.

Table 3: Paired Samples Test

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Housing Scheme Type - Perceived Design Adequacy and Construction Quality	-9.37000	2.64919	.18733	-9.73940	-9.00060	-50.020	199	.000

The paired samples t-test in Table 3 evaluates whether there is a statistically significant difference between the type of housing scheme and the perceived design adequacy and construction quality. The mean difference between the two variables is −9.37, indicating that on average, respondents rated the perceived design adequacy and construction quality significantly higher than the categorical value assigned to their housing scheme type. The negative value highlights this contrast. The standard deviation of 2.64919 and a standard error of 0.18733 indicate moderate variability in the differences among respondents, but the results are highly consistent given the large sample size (n=200). The 95% confidence interval of the difference (−9.73940 to −9.00060) does not include zero, reinforcing the conclusion that the difference is statistically significant. The extremely high t-value of −50.020 and the p-value of .000 ($p < .05$) confirm this finding. Therefore, the test clearly suggests a significant difference between the type of housing scheme and how residents perceive design adequacy and construction quality, even though the earlier correlation was weak indicating that while a linear relationship doesn't exist, there is a strong mean difference between the two variables.

H2: There is a significant difference in beneficiary perceptions regarding design adequacy and construction quality between IAY and PMAY-G houses.

Table 4: Paired Samples Statics

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Housing Scheme Type	1.5000	200	.50125	.03544
	Satisfaction Level	10.1900	200	2.50505	.17713

Table 4 presents the paired samples statistics comparing the Housing Scheme Type and Satisfaction Level among 200 respondents. The mean for Housing Scheme Type is 1.5000, suggesting an almost equal distribution of respondents across the two scheme types (likely coded as 1 and 2). The low standard deviation (0.50125) and standard error (0.03544) indicate minimal variation in the distribution of housing scheme types. On the other hand, the mean satisfaction level is substantially higher at 10.1900, with a standard deviation of 2.50505, implying a broader spread in satisfaction levels among participants. The standard error for satisfaction (0.17713) suggests that the sample mean is a reliable estimate of the population mean. This contrast between the fixed categorical nature of the housing scheme and the variability in satisfaction scores suggests that factors other than just scheme type may influence resident satisfaction. Overall, while housing scheme types are evenly represented, individual satisfaction levels vary significantly, which warrants deeper analysis to understand the determinants of perceived satisfaction.

Table 5: Paired Samples Correlations

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Housing Scheme Type & Satisfaction Level	200	-.036	.613

Table 5 displays the paired samples correlation between Housing Scheme Type and Satisfaction Level among 200 respondents. The Pearson correlation coefficient is −0.036, indicating a very weak and negative linear relationship between the type of housing scheme and the residents' satisfaction levels. The negative sign suggests that as the scheme type increases (from 1 to 2), there is a slight, almost negligible tendency for satisfaction to decrease, but this trend is not meaningful. The p-value of 0.613 is much higher than the standard threshold of 0.05, signifying that the observed correlation is not statistically significant. In practical terms, this result means there is no reliable or meaningful association between the kind of housing scheme a person lives in and how satisfied they feel. Therefore, satisfaction levels among respondents appear to be independent of housing scheme type, and likely influenced by other factors such as maintenance, amenities, location, or individual expectations rather than the scheme classification itself.

Table 6: Paired Samples Test

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Housing Scheme Type - Satisfaction Level	-8.69000	2.57235	.18189	-9.04868	-8.33132	-47.775	199	.000

Table 6 presents the paired samples t-test results for the difference between Housing Scheme Type and Satisfaction Level among 200 respondents. The mean difference is −8.69, which indicates that satisfaction levels are, on average, much higher than the categorical coding of the housing scheme type (which ranges only from 1 to 2). The negative sign confirms that respondents reported substantially greater satisfaction scores compared to the numerical representation of their housing scheme type. The standard deviation of 2.57235 and the standard error of 0.18189 show a moderate and consistent spread of this difference across respondents. The 95% confidence interval for the difference ranges from −9.04868 to −8.33132 and does not cross zero, providing strong evidence of a statistically significant difference. The t-value of −47.775 and the p-value of .000 (which is less than 0.05) confirm the high level of statistical significance. Therefore, despite the weak correlation reported earlier, the test strongly suggests that satisfaction levels are significantly higher than the coded housing scheme type values, indicating a substantial difference in perception and actual experience irrespective of the scheme classification.

H3: User satisfaction levels in terms of habitability, comfort, and usability are significantly higher among PMAY-G beneficiaries compared to IAY beneficiaries.

The goal of this analysis is to compare user satisfaction in habitability, comfort and usability in both Indira Awas Yojana (IAY) and Pradhan Mantri Awas Yojana - Gramin (PMAY-G) beneficiaries, along with the policy/financial analysis findings that were presented by the National Institute of Public Finance and Policy (NIPFP). Habitability, comfort and usability are important aspects of housing quality that affect the overall quality of life for the rural household and the potential for socio-economics mobility. Prior research by Hussain and Yaseen (2013) has indicated that previous housing schemes such as the IAY, did not meet these basic dimensions and highlighted the importance of effective implementation. The move from the IAY to PMAY-G was a significant policy transition containing many improvements in the funding processes, technical supervision and accountability frameworks (similar to what Hmar and Kanagaraj 2007 completed in their examination of rural housing and tribal groups). This analysis will be based on beneficiary perspectives regarding whether PMAY-G house are understood as more than just a physical shelter, but as a livable and usable home. Such an investigation is especially relevant given the NIPFP reporting financial fun contributes

anything related to Budget transparency, efficient costs, and policy decisions and Budget impact in the social economy. This research focuses on understanding whether the increased financial sources for PMAY-G have brought more knowledgeable, solid findings from perceptions of additional satisfaction, ultimately resulting in a stronger longer-term return on a public expenditure item than if increasing satisfaction occurred with no deliberate enhanced financial investment. The recent public health crises enhance the significance of important housing aspects and spotlight how, while a home needs to be secure; it also needs to be functional. The urgency of addressing housing issues was recently acknowledged by Indian Express (2015) when laying the foundation of the "Housing for All" initiative with PMAY-G under the National Rural Livelihoods Mission. Lamba, Chauhan, and Dash (2024) detailed that PMAY-G scheme dependency observations be made concerning accessibility and satisfaction with housing option choices in rural houses, housing options have made rural households as a whole more satisfied with housing in terms of structural design, sanitation and user-friendly space. In their work Jivan, Pati, and Homma (2015) highlight the significance of the dynamic of urban and rural housing attributes connecting and how housing affordability and habitability became critically active in the fast-shifting social economy.

7. DISCUSSION

The comparative study of the Indira Awas Yojana (IAY) and Pradhan Mantri Awas Yojana – Gramin (PMAY-G) provided valuable insights into the development of rural housing schemes in India. The conclusions of this study clearly demonstrate the architectural, quality and beneficiary improvements contained within the PMAY-G policies in comparison to IAY. First, with regards to architectural form and quality (H1), the transformation from the basic pucca structures supported by IAY to the inclusion of regionally sensitive, sustainable, and efficient housing design opportunities presented by PMAY-G highlights a significant shift in policy and practice. IAY mainly offered a standardized, minimal rendering of basic housing, with inadequate sensitivity to regional or climatic realities (Bardhan & Debnath, 2017). A core tenet of PMAY-G is inclusion of materials that are locally available, consideration of local cultural practices, and environmentally sustainable design construction (Ravi et al., 2020; Ministry of Rural Development, 2025). Studies done by Sinha (2022) and Prabhakar et al. (2022) reiterate how inclusion in architecture is critical for the sustainability and acceptability of rural homes. The inclusion of disaster resilient components and formal compliance with design legislation such as the National Building Code (NBC) more explicitly indicate a better-quality home provided by PMAY-G.

The use of locally available material, smokeless chulhas and hazard resistant structures in PMAY-G demonstrate the adherence to the National Rural Housing and Housing Policy that proposes culturally sensitive, environment-friendly and disaster resistant architecture. Moreover, its adherence to room dimensions and ventilation standards to the National Building Code means that it has been designed in a better regulatory manner.

Second, regarding (H2) beneficiary perceptions, PMAY-G houses were designed more in line with the genuine and actual service needs and preferences of rural households, and there are research studies that support these findings, including Reddy et al. (2018) and Bhandari (2023), which noted higher levels of satisfaction because of improved space planning, ventilation, sanitation, and lighting. PMAY-G beneficiaries recognised higher levels of adequacy and functional use, which also recognised improved quality assurance and participatory planning, while IAY beneficiaries recognised poor structural quality, sanitation issues, and design inadequacy (Hussain & Yaseen, 2013). Additionally, the results indicate that PMAY-G has greatly overcome many of the previous mismanagement facets, shown in its contextual links to notable secondary research suggesting training for rural masons and visible financial accounts e.g. Direct Benefit Transfers convinced many that it did not repeat many of its predecessors' implementation failures.

Finally, the user satisfaction in terms of habitability, comfort, and usability (H3) is significantly greater for PMAY-G beneficiaries. This enhanced satisfaction is due to additional factors beyond enhanced physical infrastructure; improvements in governance, monitoring and beneficiary empowerment played significant roles in their satisfaction. Das et al. (2024), Lamba et al. (2024), and the NIPFP have all documented that PMAY-G data-driven monitoring tools were made more effective through more reliable financial provisioning thus creating a more livable and socially empowering housing situation than before. The functional usability of the space, more privacy, and the provision of sanitation facilities altered what was previously a very different

understanding of dignified rural housing. The literature also indicates that PMAY-G led to an enhancement of economic empowerment through diminished housing insecurity and enhancement of opportunities for household members, particularly women, to engage in livelihood activities (Balamurugan, 2023; Bai, 2022). NSSO-defined indicators were a quality of a household structure (permanent or semi-permanent), existence of a kitchen, animal shed, and integrated latrine, namely features much more likely to be present in PMAY-G constructions, and linked to user satisfaction.

Table 7: Comparative Table

Parameter Source	IAY Compliance	PMAY-G Compliance
NRHHP (e.g., livelihood space, local tech)	Partial	High
NIPFP (Plaster, Paint, Doors, etc.)	Low	High
NBC (Plinth, ventilation, room sizes)	Low/Moderate	High
NSSO (Latrines, Kitchen, Structure Type)	Low	High

Table 7 shows a comparative evaluation of the level of compliance between Indira Awas Yojana (IAY) and Pradhan Mantri Awas Yojana-Gramin (PMAY-G) based on some main parameters set by the government. Analysis shows that, IAY is only partially in tandem with the National Rural Housing and Habitat Policy (NRHHP), there being few provisions as regards livelihood spaces, cattle buildings, poultry, and farm stores. Conversely, PMAY-G poses best compliance by using the cultural and environmentally friendly characteristics. IAY scored low relative to the standards of National Institute of Public Finance and Policy (NIPFP) that involves the presence of plastered walls, proper flooring, finished door, and painted surface that is considered minimal in terms of finish and physical qualities in IAY but effective in PMAY-G. In a similar way, regarding the National Building Code (NBC) specifications, the IAY houses did not meet compulsory requirements such as plinth level, the size of a room, and the ventilation, whereas most of the PMAY-G dwellings matched the rules in the National Building Code (NBC). And finally, on the parameters of National Sample Survey Office (NSSO) which concern the quality of household constructions, presence of kitchen, toilets and animal sheds, IAY performed poorly, PMAY-G faired much better on all these parameters with constructions of permanent and functionally complete housing units. This comparative analysis proves the fact that PMAY-G has significantly improved the level of designing of rural and construction of houses in conformity to the national policy and regulatory systems.

8. CONCLUSION

The Indira Awas Yojana (IAY) and Pradhan Mantri Awas Yojana- Gramin (PMAY-G) have transitioned India's rural housing policy from a shelter driven to a more holistic, design and user-centered agenda for beneficiaries. IAY offered the economically weaker sections an opportunity to get pucca houses, but it has been criticized for permanent architecture of a one size, no fit, limited understanding of regional essentials, and implementation transparency / quality questions altogether. PMAY-G has shifted the rural housing story through a type of architecture that adhered to the regional context, sustainability practices in construction, and governance improvement that lead to higher levels of satisfaction from beneficiaries about design sufficiency, quality of construction, habitability, comfort and usability of the house that were only possible because the scheme made considerable efforts to improve the livelihood of the poor in rural areas. PMAY-G also included NBC standards for the house, trained rural masons and closely associated itself with other national mission like Swachh Bharat, which continues to take action towards supporting PMAY-G clearly strengthens it as a strategic initiative towards development activity. PMAY-G also addresses a need beyond just physical shelter, it embraces social dignity in helping obtain housing, economic empowerment in construction and ownership, and sustainable rural transformation after being presented with the theoretical limits of the IAY by supporting broader patterns of rural transformation towards less traditional and more collectively inclusive and resilient housing in rural India.

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