

Affordable and Sustainable Government-Subsidized Housing Development in Aceh Besar Regency



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ABSTRACT

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The provision of livable housing through the Public Housing Credit (KPR) financing scheme is the Indonesian government's way of meeting the housing needs of the lower middle class. However, the program needs further attention and evaluation, especially concerning the fulfillment of affordability and sustainability aspects. This research was conducted in Aceh Besar Regency using a mixed methods approach. Primary data was obtained through a survey that managed to collect 83 respondents. Then, statistical data analysis is supported by secondary scientific data, especially from books and journals published in the last ten years. The 20 criteria from Mulliner and Maliene, which describe ideal housing conditions that are affordable and sustainable, are used as measuring tools. The study results show that the housing area meets the affordable aspect. Meanwhile, for the sustainability aspect, there are still three indicators whose impact has not been satisfactory: access to public transport, waste management, and deprivation in the area. This research is expected to provide new insights for the government and housing developers in building community residential areas, namely by not only focusing on affordable aspects but also being able to integrate them with sustainable aspects.

1. INTRODUCTION

A house or housing is one of the basic social needs that determine the quality of life and the level of welfare of any citizen. Every year, it is inevitable that world conditions will continue to change, and the population growth rate will continue to accelerate. So in the future, it will be difficult to avoid the urbanization process; This, of course, makes it difficult for all of the demand for housing supply to be met adequately [1]. A survey was conducted among several developed countries, and the study results revealed that of the 293 housing markets surveyed, only 63 were considered affordable [2]. The data shows that providing affordable housing is not easy, given the high demand and population growth that continues to increase yearly.

A spike in world population growth from 3.6 billion to 6.3 billion is projected to occur in 2050, indicating that more development will be needed to meet the growing demand for housing [3]. Meanwhile, the effects of accelerating urbanization and increasing demand for housing are new challenges related to affordability or purchasing power among low-income groups in developed and developing countries [4]. Thus, affordable housing must undoubtedly be a priority for all governments and policymakers for better urban planning.

Several affordable housing policies were initiated decades ago by governments in some countries. However, improving housing affordability for low-income communities is still debatable [1]. On the one hand, some housing developers are not motivated to participate in schemes for low-income

families [5]; on the other hand, the purchasing power of low-income people for affordable housing is still low due to income constraints [6]. By that condition, it is undoubtedly a dilemma, given the need but constrained by the developer's support and the community's purchasing power.

The study by Stone [7] focused on economic measures and affordability of prices to assess the success or improvement of housing policies and the potential implications of the residual income paradigm for successfully analyzing housing problems and needs, especially for housing subsidy policies. In contrast, by focusing solely on economic size, real estate developers, planners, architects, and governments face the challenge of low housing demand and neglect of housing in the provision of affordable housing [8]. A house vacancy rate of 90% was reported in one of the major cities in China [9]. In other countries, such as Malaysia, affordable housing supplied to low-income people was left vacant, leading to abandoned housing [10]. A similar situation in some countries related to housing neglect has been reported in developed countries such as the UK [11]. Home abandonment was linked to sustainability criteria other than affordability in these cases. Thus, there is a paradox between housing needs and abandoned housing conditions, resulting in the fact that not all that is affordable is sustainable.

Mulliner and Maliene [12] developed a comprehensive criteria system that represents affordability and sustainability in assessing a residential area; at least 20 indicators/criteria can ideally describe affordable and sustainable housing. These indicators are considered suitable to test the extent to which

the stakeholders have fulfilled the aspects of affordability and sustainability in developing subsidized housing in Indonesia.

Looking directly at the country with the world's fourth largest population, comprehensive housing finance policies, and programs in Indonesia have been started for a long time, but the existing programs are not optimal. In terms of quantity, perhaps the Indonesian government has made maximum efforts to meet demand, but this quantity is not accompanied by adequate quality [13]. Unfortunately, the findings in the field show that housing for the lower-middle class often provides poor standard facilities [3]. Therefore, bridging the gap between sustainable and affordable housing is crucial.

To create decent, safe, and affordable community settlements, the Indonesian government implements a program to provide housing for lower-middle-income communities through a subsidy scheme. The province of Aceh, one of the areas with the highest number of poor people in Indonesia, has received serious attention from the central government regarding subsidized housing for low-income groups. The existence of a house with a government subsidy scheme is enough to ease the burden of low-income people in meeting their basic needs.

There are many subsidized houses at some points in the area of Aceh Besar Regency; in terms of quantity, these houses are sufficient to meet the demand for housing in Aceh. However, in terms of the quality of subsidized housing, not all of them have fulfilled the aspects contained in the sustainable dimension (social, economic, environmental). Sustainability can be measured here, such as house price, quality of building materials, how easy access residents to any public spaces, and other sustainable aspects that need attention. Therefore, based on the problems above, the authors are interested in assessing the extent to which the government's efforts to provide affordable housing do not forget the sustainable aspects of its construction.

Housing and its problems are one of the resolutions embodied in the Sustainable Development Goals (SDGs), as stated in Goal 11 of Sustainable Cities and Communities. However, there is a lack of in-depth research in Indonesia focusing on the SDGs and housing issues. Susanti et al. [14] correlated sustainable issues with smart cities and the topic of housing density but did not debate the SDGs in their discussions. Meanwhile, Lubis and Sinaga [15] promoted the SDGs in their opening discussions, but the research focused on helping low-income families access affordable housing by implementing philanthropy-related regulations. Therefore, this research will examine the housing policy and its correlation with the SDGs.

On the one hand, the government subsidizing housing has fulfilled the affordability aspect, so people with lower middle income are expected to find it easier to own a house. While on the other hand, the government and developers seem negligent in paying attention to sustainability aspects. This study aims to determine the extent to which the concept of sustainable development has become an insight and commitment to be applied by stakeholders in housing development in the district of Aceh Besar. Thus, it is hoped that this research can provide new insights for the government in building public housing, namely building houses, by prioritizing affordable and sustainable concepts.

2. METHODS

This research was conducted in Aceh Besar Regency. The

location selection was based on almost all government-subsidized housing in Aceh Province being built in this area. Besides being directly adjacent to the capital city of Banda Aceh, land prices in this area are affordable; thus, many developers have decided to build subsidized houses in Aceh Besar Regency.

This study uses a mixed-method approach. In this strategy, the first stage is to collect and analyze quantitative data, followed by qualitative data collection built based on the initial results of quantitative data. The population in this study is the people of Aceh Besar who live in government-subsidized housing, either buying or renting. Then, a convenient sampling technique was used by distributing 100 questionnaires, then as many as 83 respondents were successfully obtained. Convenience sampling has practicality in determining the number of respondents, primarily related to availability at a particular time or willingness to participate [16].

A comprehensive criteria system that represents both affordability and sustainability aspects in assessing a residential area was developed by Mulliner and Maliene [12]; at least 20 indicators/criteria can ideally describe affordable and sustainable housing. The authors use those variables to answer the problems in this study (Table 1).

Table 1. Residential area comprehensive criteria

Criteria	Indicator
C1	House prices in relation to income
C2	Rental costs in relation to income
C3	Interest rates and mortgage availability
C4	Availability of rented accommodation (private and social)
C5	Availability of low cost home ownership products
C6	Availability of market value home ownership products
C7	Safety (crime)
C8	Access to employment
C9	Access to public transport
C10	Access to good quality schools
C11	Access to shopping facilities
C12	Access to health services
C13	Access to early years child care
C14	Access to leisure facilities
C15	Access to open green public space
C16	Low presence of environmental problems
C17	Quality of housing
C18	Energy efficiency of housing
C19	Waste management
C20	Deprivation in area

In quantitative data analysis, the field research results will be analyzed using the SPSS version 22. Then to support the first findings, qualitative analysis of secondary data such as journals, books, and other scientific references is also empowered.

3. RESULTS

As for the 20 comprehensive criteria system for housing areas developed by Mulliner and Maliene [12], the researchers developed further according to the data collection needs in the field. The 20 indicators are divided into affordable (C1 to C6) and sustainable (C7 to C20).

The affordable aspect must also be divided into two groups because it adjusts the direction of the question, namely buying (C1, C3, C5, C6) and renting (C2 and C4). The following are respondents' responses to each statement in "The extent to

which housing is affordable” and the element of “The extent to which housing has met the sustainable aspect” (Table 2).

Based on the results of data processing, overall, the average score for the aspect of “To what extent housing is affordable” with both the status of “Buy” and “Rent” is 3.94, so it is included in the agreed category. Then overall, the average score for “The extent to which housing has met the sustainable aspect” is 3.75, which is included in the agreed category.

Only one indicator that gets the criteria for strongly agreeing, namely “I feel safe and comfortable living in a residential environment”, more than half of respondents answered strongly agree, which amounted to 57.8%. So the average score for the statement is 4.37, which is in the category of strongly agree.

Then three indicators get a medium response from respondents: (i) Regarding “Easy access to public transportation”, the majority of respondents answered neutral, which is 36.1%, so the average score for the statement is 3.35, which falls into the category neutral; regarding “Around the residential area there are waste management facilities”, the majority of respondents answered neutrally, amounting to 22.9%, so that the average score for the statement was 3.00 which was included in the neutral category; regarding “The housing area has many shortcomings”, the majority of respondents answered neutral, which amounted to 30.1%, so that the average score for the statement was 3.14 which was included in the neutral category.

Table 2. Respondents Response

Aspect	Statement	STS	TS	N	S	SS	Score	Criteria
The extent to which housing is affordable	The price of buying a house is affordable, and by income	3.6%	9.1%	27.3%	27.3%	32.7%	3.76	Agree
	Low mortgage interest rates	3.6%	7.3%	32.7%	30.9%	25.5%	3.67	Agree
	Ease/availability of units in buying a house	0.0%	10.9%	25.5%	25.5%	38.2%	3.91	Agree
	House has commercial value (for sale/rent)	1.8%	10.9%	12.7%	29.1%	45.5%	4.05	Agree
	The mean group with the status “Buy”						3.85	Agree
	Affordable housing costs and according to income	0.0%	3.6%	10.7%	50.0%	35.7%	4.18	Agree
	Ease/availability of units in renting a house	0.0%	3.6%	25.0%	35.7%	35.7%	4.04	Agree
The mean group with the status “Rent”						4.11	Agree	
Mean about “The extent to which housing is affordable”							3.94	Agree
The extent to which housing meets sustainable aspects	I feel safe and comfortable living in a residential neighborhood	2.4%	3.6%	6.0%	30.1%	57.8%	4.37	Strongly agree
	Easy access to work	3.6%	7.2%	12.0%	31.3%	45.8%	4.08	Agree
	Easy access to public transportation	9.6%	12.0%	36.1%	18.1%	24.1%	3.35	Neutral
	Easy access to quality schools	4.8%	7.2%	26.5%	26.5%	34.9%	3.80	Agree
	Easy access to shopping facilities	1.2%	2.4%	14.5%	42.2%	39.8%	4.17	Agree
	Easy access to health services	2.4%	4.8%	18.1%	34.9%	39.8%	4.05	Agree
	Easy access to child care/activity center	2.4%	9.6%	21.7%	36.1%	30.1%	3.82	Agree
	Easy access to entertainment/recreation center	2.4%	15.7%	26.5%	27.7%	27.7%	3.63	Agree
	Easy access to green open areas	2.4%	6.0%	20.5%	38.6%	32.5%	3.93	Agree
	Lack of environmental problems	2.4%	12.0%	28.9%	27.7%	28.9%	3.69	Agree
	Housing has good quality	3.6%	8.4%	18.1%	47.0%	22.9%	3.77	Agree
	Housing has an energy efficiency	3.6%	7.2%	27.7%	36.1%	25.3%	3.72	Agree
	Around the residential area, there are waste management facilities	20.5%	18.1%	22.9%	18.1%	20.5%	3.00	Neutral
	The residential area has many drawbacks	7.2%	24.1%	30.1%	24.1%	14.5%	3.14	Neutral
	Mean on “The extent to which housing meets sustainable aspects”							3.75

4. DISCUSSION

The presence of a global development agenda has provided new insights for a country in carrying out development plans in the local sphere. Starting with the Millennium Development Goals (MDGs) agenda, which has been successfully implemented for approximately fifteen years with all its advantages and disadvantages, then continued with the latest

Sustainable Development Goals (SDGs) currently running. The SDGs aim to build on and expand the scope of the MDGs, which ended in the same year that the SDGs were launched in 2015. This international platform tries to integrate the three main pillars of development: economic, social, and environmental sustainability.

One of the bases for assessing the quality of life and welfare of the people is housing, which is also an essential feature of

sustainable development [3]. Meanwhile, creating sustainable cities and settlements is one of the important agendas of concern in sustainable development in the SDGs era, with 17 goals. In particular, Goal 11 of Sustainable Cities and Human Settlements seeks to create an inclusive, safe, resilient, and sustainable urban and residential area. Moreover, the 11th goal specifically there is Target 11.1, which has a noble mission of ensuring access for the public to decent, safe, affordable housing and essential services and managing slum areas by 2030.

As it is well known that housing is one of the three basic needs besides clothing and food, Prayitno et al. [17] stated that housing is an absolute necessity and a prerequisite for welfare. Unfortunately, not everyone can fulfill their needs in owning a house; it can happen due to a lack of income which causes the inability to buy or rent. Furthermore, it can also be due to the unavailability of land to build, especially in urban areas where land prices have a fantastic value.

In Indonesia, especially in urban and surrounding areas, some people are forced to become homeless, which eventually causes them to sleep in inappropriate places such as; under bridges, riverbanks, railroad tracks, and other slum areas. Based on the static table of the Badan Pusat Statistik [18], the percentage of households owning a house has increased slightly from 80.07% in 2019 to 81.08% in 2021; Unfortunately, this figure is a decrease if we look at the 2015 data which states that the number of people who own houses is at 82.63%. Furthermore, in the same data, about 8.66% of the people rent homes, and the rest do not own houses.

The ability to own a house is still a problem for some individuals, especially in urban communities. Considering that the city is the center of economic growth, coupled with the desire of the community to improve their monetary standard, in the end, it has triggered the process of urbanization of rural communities to urban areas. Mohamed and Malek [19] assessed that massive rural migration has led to high demand for housing in urban areas, especially in middle-income communities. However, the amount of income ultimately affects the people's ability to buy houses, especially if there is a difference between the ratio of house prices to income; people's ability to own a home will inevitably be low [20].

Reflecting on the data and conditions mentioned above, policymakers know the importance of housing for low-income communities. To meet housing needs, the Indonesian government has implemented a million houses program through the Ministry of Public Works and Public Housing since 2015. One of the existing schemes in the program is subsidized housing, where middle-income people can buy houses by paying installments through banks that the government has appointed. And this program is part of the government's efforts to make the SDGs successful, especially Goal 11. However, although building a house is easy, it can become problematic if it has to meet sustainable characteristics.

Sustainability can be understood as an effort to maintain the continuity of human needs for an extended period into the future [21]; to realize a sustainable home, three aspects of sustainable development must be considered: environmental, social, and economic [22]. Furthermore, Golubchikov and Badyina [3] said that sustainable housing is significant to be applied for the benefit of the future because it can offer a broad spectrum in promoting economic development, environmental management, improving the quality of life, and social equality. Thus, the subsidized housing program is one of the

government's efforts to overcome housing shortages and provide affordable housing for low-income families in Indonesia.

Discussing the sustainability dimension in more depth. First, let us look at environmental sustainability. Environmental aspects of sustainable housing are related to climate change, the environment, and the environmental impact of housing itself [3]. Several people still live in areas that are less suitable for living. For example, data in 2017 states that around 7.62% of urban people live in slum areas; this number even jumped to 13.86% two years ago [23]. Worse yet, it is estimated that the location of urban slums in Indonesia will continue to grow as the year progresses [24]. It is believed that many environmental problems are caused by slums, such as sanitation and drainage that are not functioning correctly, waste that has not been appropriately managed, and other ecological issues. These conditions certainly provide a source of pollution which ultimately leads to the root of the spread of the disease. Therefore, the provision of livable housing by the government is a must.

Second, providing low-cost housing of high quality, inclusive and diverse, healthy, safe and comfortable, and well-integrated into the more expansive social space are characteristics of social sustainability [3]. The million houses program aims to build at least one million units annually, covering 700,000 units for low-income people and another 300,000 for non-low-income people. Thus, the million houses program seeks low-cost housing for low-income people. Also, several units are traded for commercial needs to be affordable, inclusive, and diverse, which means this program represents the social aspect of sustainability.

The number of houses successfully built from 2015 to 2021 did experience fluctuations. In the program's first three years, the one million targets have not been fully realized, and the government can only build 700,000 to 900,000 units. Only in the fourth year could the government finally fulfill its promise by successfully building more than one million units; even at its peak in 2019, the government could produce more than 1.2 million units. Nevertheless, unfortunately, the number of successfully rebuilt houses decreased to below one million units in 2020; understandably, COVID-19 paralyzed some sectors that year (see Figure 1).

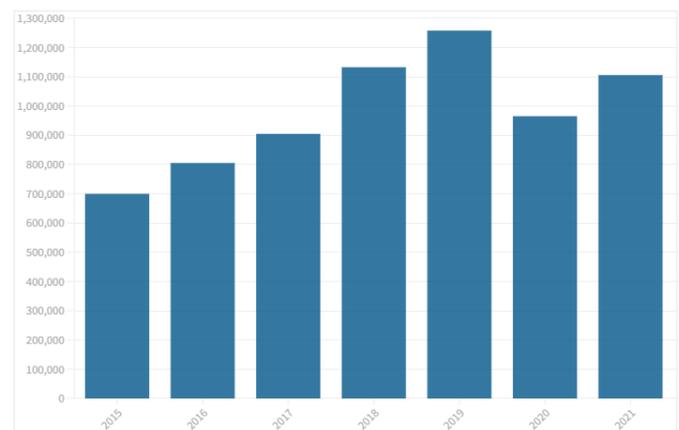


Figure 1. Realization of 2015-2021 one million houses program development

Tanrıvermiş [25] reports that the pandemic has negatively impacted housing construction and sales globally. Furthermore, Setyoko and Wijaya [26] saw that the impact of

COVID-19 had made the government make adjustments by changing the policy focus where the government had prioritized handling COVID-19 so that more budget posture was used up for this one sector. Nevertheless, it did not last long; the government's seriousness in realizing one million housing units per year was re-realized in 2021. The government is very committed to housing low-income families, even though the pandemic intervened in 2020.

However, this program has a potential social risk, namely the emergence of social jealousy between beneficiaries and non-beneficiaries caused by the inappropriate targeting of program recipients, especially for those who have the right to a house but are not included in the list of beneficiaries. Moreover, the Indonesian government has had a terrible experience delivering a program, and some previous experiences have shown an inaccurate target in allocating social assistance. For example, in the rice program for people with low incomes, some people are still not entitled to become beneficiaries of this social program [27]. Of course, this case should be a lesson for the government to run the program as accurately as possible.

The last is the dimension of economic sustainability. Everything related to the function of housing will have implications for the running of the economy, such as product standards and human mobility; household and public expenditure standards; platforms of economic activity and main fields of work; and part of natural resources and energy flows [3]. The subsidized housing program will likely become an economic locomotive carrying out other economic activities. First, the construction of this housing requires human resources, so it will require many employees with different skills to fill some of the needed positions. Second, this housing development will open up great opportunities for private investors to invest funds that will benefit them. Third, the wheels of the economy will be faster, seeing the need for construction goods increase, so when they are ready to live, the residents need some new household furniture. And other economic benefits. In addition, since it is mainly aimed at low-income families, an affordable price is required.

Tibaijuka [28] said that affordable housing is the main instrument of social welfare because it can reduce poverty, create justice, and guarantee the right to home ownership. In addition, affordable housing for low-income people should have the decent quality to help achieve sustainable development [29]. Thus, affordable housing is a productive asset contributing to welfare and national economic development. Not without obstacles, Caeserio [30] sees at least seven main challenges faced by the current government to realize the one million houses program, namely: (i) housing data is less accurate; (ii) the program has not been communicated adequately to local stakeholders; (iii) housing is not the main program of local government; (iv) local government regulations related to the construction of houses/housing have not been supported; (v) housing development permits in the form of complex requirements and permit issuance processes; (vi) expensive and limited land prices; (vii) high Bank Indonesia mortgage requirements. With these significant obstacles, the government needs to improve its performance by improving data accuracy, establishing better communication with local governments and banks, and controlling land prices.

As the results of the statistical data analysis in the previous section, government-subsidized housing in Aceh Besar Regency has fulfilled the affordability aspect but still has

deficiencies in three indicators of the sustainable part, namely: (i) access to public transport; (ii) waste management; and (iii) deprivation in the area. Firstly, the people of Aceh Besar Regency have long complained that, although they are comfortable living in a residential area, they are disappointed with the lack of public transportation [31]. Currently, there is only one mode of public transport operated by the government, Trans Koetaradja; however, the bus fleet only serves several main roads in Banda Aceh and a small part of Aceh Besar. Conversely, the high number of private vehicles and low interest in using public transport also affect the accessibility of public transport [32, 33]. Consequently, people now rely on individual service providers such as single-seat motorbikes or 4-7 passenger cars registered with transportation application companies such as Gojek and Grab; they are more convenient but costly.

Secondly, waste management in Aceh Besar Regency is a highly complex matter, considering that Aceh Besar is one of the largest districts in Aceh. The geographical conditions located separately and far apart make it difficult for the government to manage all regions simultaneously; the lack of public awareness and the limited number of transport vehicles are also the cause of the government's efforts in dealing with waste problems [34]. In 2022, the Head of the Aceh Besar Regency Environmental Service, as quoted from the Serambi Indonesia website, revealed that most of the villages in Aceh Besar Regency did not have trash containers [35]. Therefore, waste management will continue to be an extensive homework for the district government of Aceh Besar.

Thirdly, two deficiencies related to deprivation in the area have been revealed: access to public transportation and waste management facilities. Another condition that likely has a possibility of causing a deprivation impact on residents of government-subsidized housing in Aceh Besar Regency is the potential for natural disasters. Most government-subsidized houses were built in the Baitussalam sub-district, Aceh Besar Regency. This sub-district is close to the coast and was hit by the tsunami in 2004. Many residential areas have been developed in this area, and some are very close to the beach, creating fear for newcomers [36]. It is argued that some Acehnese people admit they are still traumatized by the 2004 tsunami [37, 38]. The availability of large tracts of land at affordable prices and its proximity to the city of Banda Aceh is why housing developers chose the Baitussalam sub-district as an ideal location for government-subsidized housing.

To improve this condition, the government must take proper steps to create more sustainable settlements in Aceh Besar Regency, especially government-subsidized housing. One way is to choose an alternative location for development that: (i) is close to public transportation; (ii) has disposal facilities; (iii) is away from potential disasters. Thus, the SDGs Goal 11 of Sustainable Cities and Communities will likely achieve according to the targets set.

5. CONCLUSIONS

The government's subsidized housing program is a flagship program to help low-income families own their homes. Suppose we try to draw a relationship pattern. In that case, it turns out that the national strategic program directly correlates with achieving the SDGs, especially Goal-11 (sustainable cities and communities); creating a sustainable residential environment is a must.

Government-subsidized housing in Aceh Besar Regency has met the affordable aspect but not the sustainable one. Residents in residential locations do not have easy access to public transportation, inadequate waste management system, and housing deprivation. The study results are expected to provide more significant concern for the government and housing developers in building community settlement areas, namely integrating development plans into three dimensions (social, economic, and environmental) which are the main pillars of sustainable development. And if the government can maximize this global development agenda.

Therefore, the success of this program will most likely depend on the government's political will and public participation in the long term. However, despite the obstacles, the government has a long way to go to overcome the complications and realize affordable and sustainable government-subsidized housing development in Aceh Besar Regency.

Researchers realize the shortcomings of this study, primarily related to the number of respondents. Considering the difficulty of getting available respondents, the number of respondents was taken from the convenience sampling technique. On the one hand, this technique can facilitate and expedite research; however, on the other hand, the sampling technique becomes a limitation in exploring more in-depth results. Thus, it is hoped that further research can use a more comprehensive sampling technique.

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