

Low-cost Housing Delivery to Support Poverty Reduction in the City

Happy Santosa¹, Hasian Siregar², Sarah Cahyadini³

Abstract

The problem of inadequate housing and settlement still exist in the capital city of East Java, Surabaya. The house dwellers cannot improve their houses because of the poor economic conditions. To follow the Agenda 21 (Habitat, 1996) in Human Settlements, which are:

- Adequate housing for all
- Human settlements in urbanizing world,

research on low-cost housing delivery to support poverty reduction is important.

The research covers the socio-economic aspect; the technology aspect, include the house materials and construction systems; and the environment and cultural aspects. The method use was explorative survey and the use of low-cost housing standard and model in the analysis of housing.

The result shows that low-cost housing with adequate space for economic activities can support the poverty reduction programme.

Keywords: low-cost housing, poverty reduction

1. Introduction

The research was conducted to find the answer of very low-cost housing delivery, to provide adequate housing for the poor people. The problem was: how to develop prototype of a very cheap house, affordable for the poor, at the same time can function as a place for living and for economic activities. With the available space for economic activities, it is hoped that the residents can obtain additional income, which in turn may reduce poverty in the settlement.

The method used was explorative survey and using a house model, to obtain people opinion about the limitation and confirmation of the house model to the resident's needs. The

¹Lecturer, Department of Architecture, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia, happyratna@yahoo.com

²Lecturer, Department of Architecture, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia, sutansir@yahoo.com

³Lecturer, Department of Architecture, Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia, s.cahyadini@yahoo.co.id

research also covered the house design, material, and construction of the house with the minimum price. The adaptation of the house to the natural environment and the socio-cultural conditions of the residents were included in the research.

The discussion was focused on the very low-cost house model, with cost reduction about 50% of the normal house price.

2. Low-cost Housing Programmes

There were some housing development programmes in Indonesia, to provide adequate housing for the poor in the city. In the process of urbanization, many people need settlements and houses in the city and this need should be tackled properly to avoid slum areas in the city. There were also housing programmes for the disaster victims and instant simple house, which could be easily constructed. Some examples of the low-cost housing are presented here.

2.1 House for Disaster Victim in Aceh

The house was called RIA that R means *Rumah* (house), I (first letter of ITS: Institute of Technology Sepuluh Nopember), and A means Aceh. Hence RIA means the house from ITS for the disaster victims in Aceh. The house was designed by the Laboratory of Housing and Human Settlement ITS which could be built by anyone; applicable for multi functions building, such as: house, school, office, health center, market, mosque, etc, by using module. The house also could be built in short period (half day) with minimal material and tools.

The size of the house module was 4 x 5 meter (type 20 square meters) could be developed into 36 m², 54 m², 72 m², and 80 m². The materials were planks for walls, cement for the floors, and galvanized iron for the roof. The houses were given freely for the disaster victims, and about 800 houses were built. The house prize was very low, in 2010 was US \$ 1,400 (Silas and Setiawan, 2010).

The house design was very simple, to avoid difficulty in the construction and transportation of building materials to the difficult condition of disaster location (Figure 1, 2, 3 shows the house plan, elevation, and the construction process)

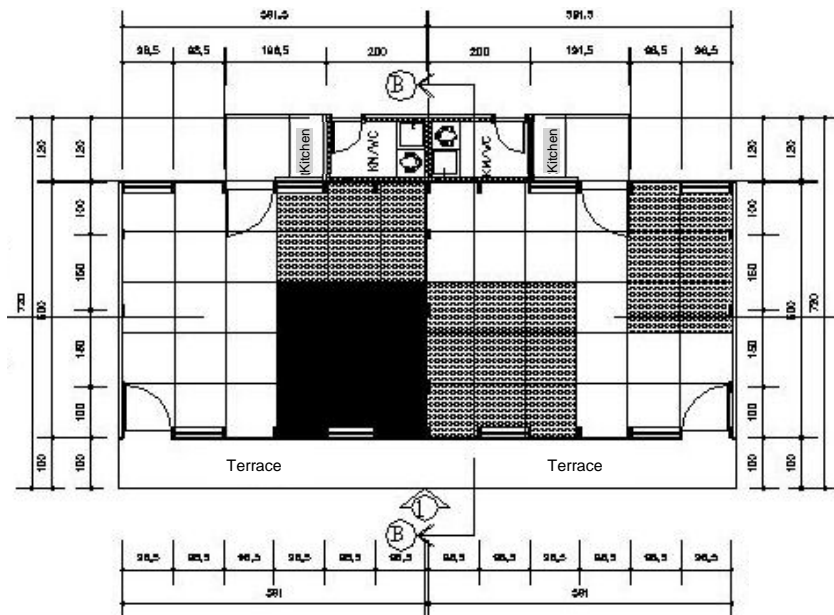


Figure 1: RIA House Plan (Silas and Setyawan, 2010)

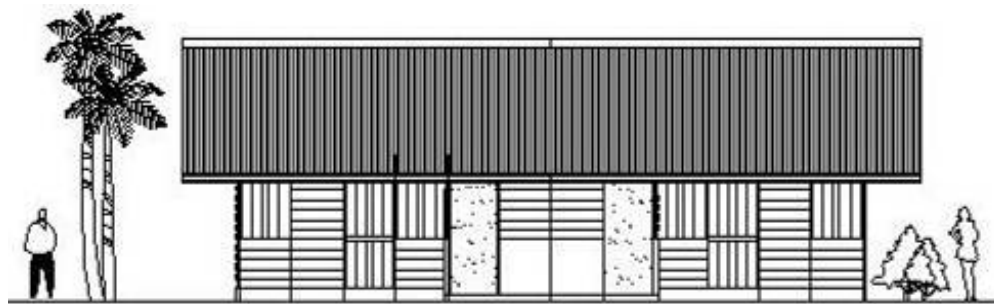


Figure 2: Front Elevation RIA type 36 (Silas and Setyawan, 2010)



Figure 3: Construction Process of RIA (Silas and Setyawan, 2010)

2.2 Simple Instant House (RISHA)

RISHA means R for *Rumah* (house), IS for Instant and HA for *Sederhana* (simple). RISHA house was built to respond the need of very quick built house, based on the available local materials, including wastes. The structure was simple with pre-fabricated building materials. The RISHA house characteristics are as follows (Menpera, 2011):

- Fast construction house
- Efficient, general materials, multi function and modular
- Low-cost, can be built incrementally
- Good quality: strong, safe and comfortable
- Practice: can be built and reconstructed in other place by the dwellers
- Flexible: free design with the local materials
- Earthquake stand

One unit of RISHA house cost was US \$ 3,900. This was twice the price of the RIA house, since the materials were stronger but less heavy. For RISHA house type 36 m² the building material's weight was only 50 kg. Figure 4 shows the construction process of RISHA house, and Figure 5 the variety of RISHA house performance.



Figure 4: The construction process of RISHA house (Menpera, 2011)



Figure 5: Variety of RISHA house performance (Menpera, 2011)

2.3 Pro Poor Housing Programme

The pro poor housing programme was one of the very low-cost housing programmes. This was to provide adequate housing for all, particularly for the lowest income people. The low-cost and very low-cost housing programmes description can be seen in Table 1.

Table 1. Housing Programmes for the Lowest Income

No	Programme	Description
1	Very low-cost house	<ul style="list-style-type: none">• Price: US \$ 1,000 per unit• Finance: Government, CSR, Private Enterprises• Temporary house, than can be increased to low-cost house• Target: one to two million units
2	Low-cost house	<ul style="list-style-type: none">• Price: Maximum US \$ 2,500 per unit• Finance: soft bank credit, subsidized by the government• Cheap credit• Target: five to ten million units

(Source: Menpera, 2011)

The very low-cost house was equipped with common facilities, such as communal toilets. The structure was concrete, with bataco walls, asbestos roof, and cement floors. The low-cost house was built with the same materials but with individual toilets.

All the low-cost and very low-cost housing were pro-poor housing programmes. These programmes were to avoid slum and squatter homes. The financing of the pro-poor houses were by the government and the private enterprises as charity. Bearing in mind that the average wages of the poor was about US \$ 100.00 per month, the available financial assistances were very important.

The low-cost and very low-cost housing provided by the government however, were not always suitable to the culture of the dwellers. This was understandable since the important aspect considered was the minimum cost of the house. The minimum standard of the house size and construction was matched, in the hope that the dwellers can improve their houses incrementally.

3. Low-cost Housing to Support Poverty Reduction

The low-cost house, including the very low-cost, might be obtained by the poorest house - holds, however the dwellers should be able to maintain and to improve their houses. For this reason some additional income activities should be available. Based on the experience in the city or in the village the low-income houses were generally used for economic activities in line with the domestic activities. The economic activities for examples were selling foods and readymade cakes; household's every day needs and providing services, such as barber, tailor, laundry, photo-copy, etc. Such activities were mostly done at the house terraces, because the very minimum space of the low-cost house.

To support the house dwellers activities in finding some additional income at the house, the low-cost house design should be improved, based on the needs of the dwellers, the environment and the socio-cultural conditions, also the minimum standard of decent housing.

3.1 Low-cost House in the City

Some examples of low-cost house in the city with minimum size of 36 m² are discussed here. Usually low-cost house size was varied, from 36 m² to 45 m². Figure 6 shows the plan of the house with size about 36 m².

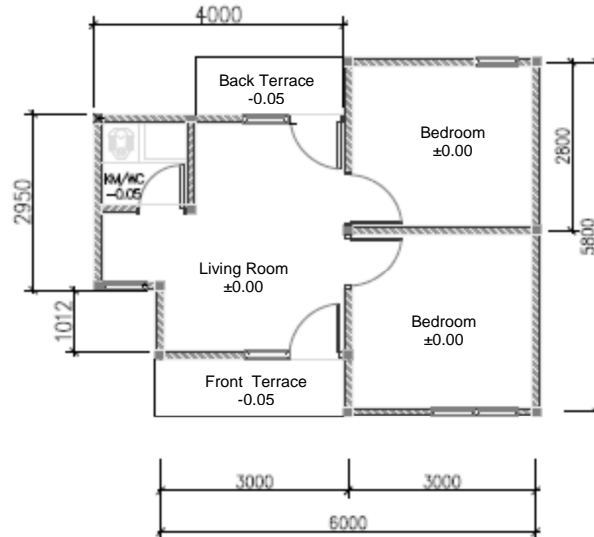


Figure 6: Plan of the House Type 36 (Laboratory of Housing and Human Settlements ITS, Survey 2012)

The use of space in the house was for domestic activities. To obtain more space for the kitchen the dweller extended the back side of the house, while for economic activities space extension was to the front of the house. Due to the unavailable spaces at the sides of the house, space extension could only be done to the back and front of the house.

The house construction was done by the private developer with the conventional technology. Building materials used were available locally. In the swampy area, lime stones were used for the house foundation. The conditions of the low-cost housing in the city were good enough. Figure 7 shows the example of the low-cost housing in the city.



Figure 7: The street picture and the row of low-cost houses in the city (laboratory of Housing and Settlements ITS- survey in July 2012)

In term of the standard for adequate house, the low-cost house was up to standard and was conformed to the culture of the dweller. In term of the environment surrounding the house, was less suitable because some houses were constructed in the remote area of the city. Some empty houses were surrounded by wild shrub and grasses. To support poverty reduction, place for small economic activity in the house was important for consideration.

3.2 Low-cost House at the Fisherman Settlement

The houses of fishermen included in the study were those at the coastal areas of the city. The house size was varied from 36 m² to 60 m², the example of the fisherman house with 36 m² area is shown in Figure 8.

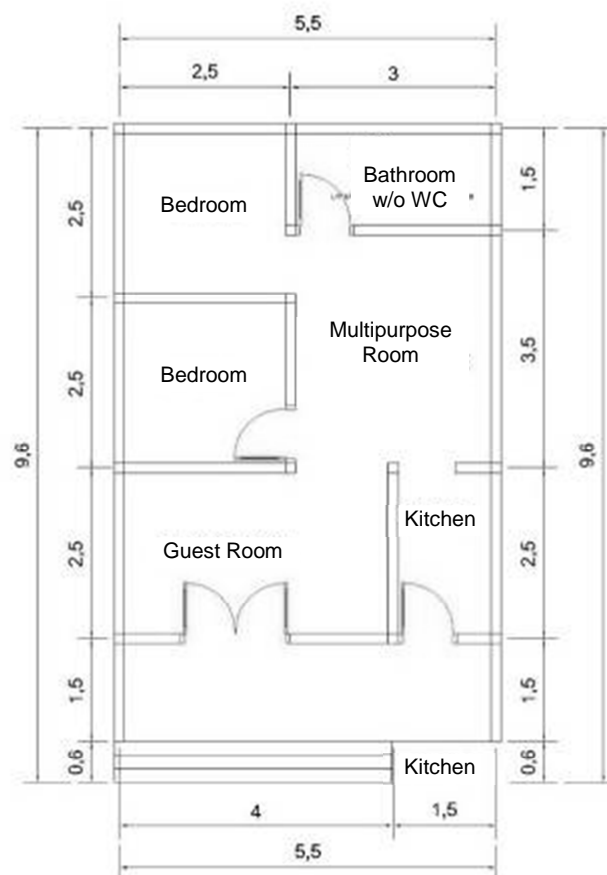


Figure 8: The fisherman house plan, size about 36m² (laboratory of Housing and Settlements ITS- survey in April 2012 by Adinda)

The house was occupied by three persons and three children. Such kind of house actually did not match with the economic activity of the fisherman. Processing of the sea products was outside the house, at the front terrace which was also used for storing the products during rainy period.

The fisherman house was usually built by the dweller with their own money and with the help of carpenters or neighbours. The construction of the house was simple. Building materials were locally available: galvanized iron or asbestos for roof, brick or bataco for walls, and

cement plaster or terrazzo for floors. Extension of the house could only be done to the back and front of the house. Communal sea-product processes were done in the available spaces surrounding the houses, which were used for economic activities. Figure 9 shows the communal space for economic activities.

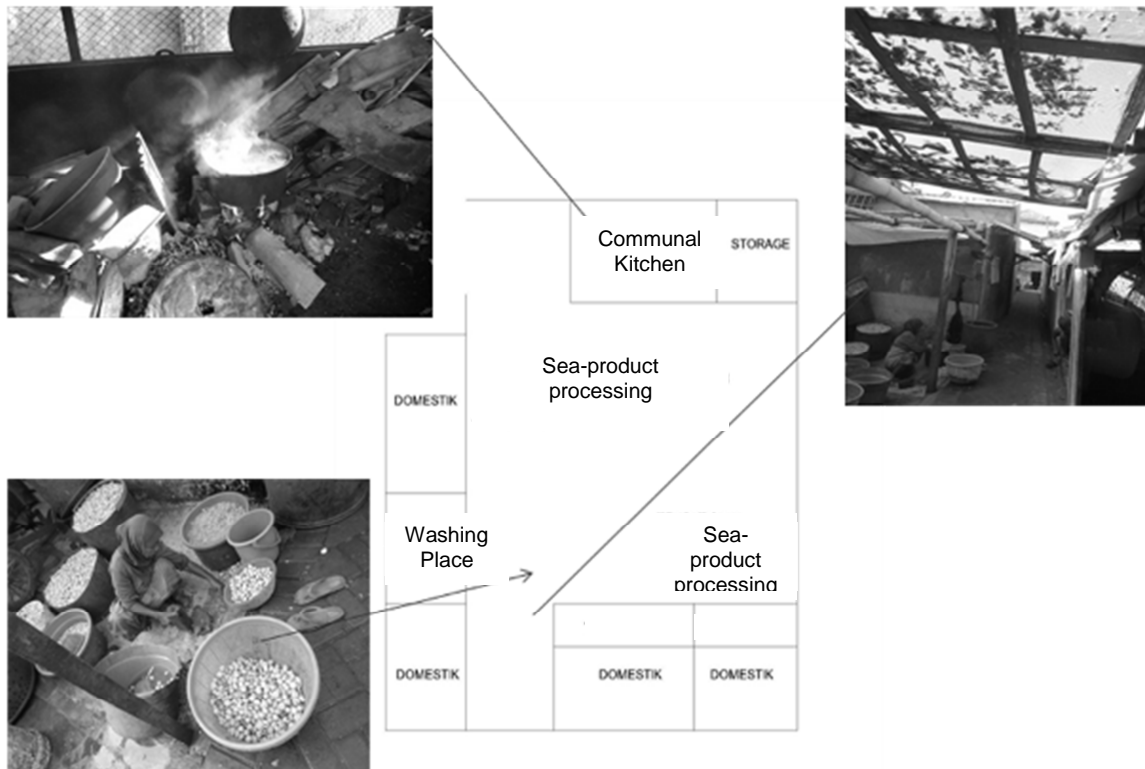


Figure 9: Communal space for economic activities at the fisherman settlement adjacent to the domestic areas (Laboratory of Housing and Settlements ITS- survey in April 2012 by Adinda)

Figure 9 shows that the spaces between houses were used for sea-product processing and for communal kitchen. Washing place for domestic was also used for washing the sea-product. Drying of fishes and other sea-products was at the house lanes, which also functioned as shelters for the passer by.

In term of low-cost house standard, the 36 m² house size for the fisherman household was acceptable. The important improvement should be done was the available spaces for drying and processing of the sea-products. In terms of socio-economic and socio-cultural aspects, the fisherman houses were acceptable, but should be improved with more spaces available for economic activities. Some pictures of the fisherman houses can be seen in Figure 10.



Figure 10: Permanent houses at the fisherman settlement (Laboratory of Housing and Settlements ITS- photograph taken by Adinda)

Figure 11 and 12 show the social-economic activities at the fisherman settlements.



Figure 11: Fisherman's wives processing the sea-products (Laboratory of Housing and Settlements ITS- photograph taken by Adinda)



Figure 12: Drying of sea-products along the lanes between row of houses (Source: laboratory of Housing and Settlements ITS- photograph taken by Adinda)

3.3 Low-cost House, Supporting Economic Activities for Poverty Reduction

The prototype of low-cost or very low-cost housing can be developed in the inner city or in the others area. It was proved that the RIA house price was about US \$ 1,350, the RISHA house price was about US \$ 1,000. These types of very low-cost houses were cheaper than the average formal houses built by developers, which cost about US \$ 60,000 (with land of about 60 m²).

The instalment of the very low-cost house should meet the monthly wage of the dwellers. In the inner city average lowest income of the poor was US \$ 100 per month. Hence the maximum instalment would be 20% of the wage, i.e. US \$ 20 per month. For the very low-cost house of US \$ 1,350, the dweller needs about 70 months or about 6 years to finish the instalment. The maximum time for the instalment was 15 years.

With additional economic activities at the house on average each household could obtain about 10% of the monthly wage. This provided more income for the house instalment. However, to support economic activities at the house, the very low-income house should be provided with more spaces, such as a shelter at the house terraces. Figure 13 shows an example of the very low-cost house with wider terraces.

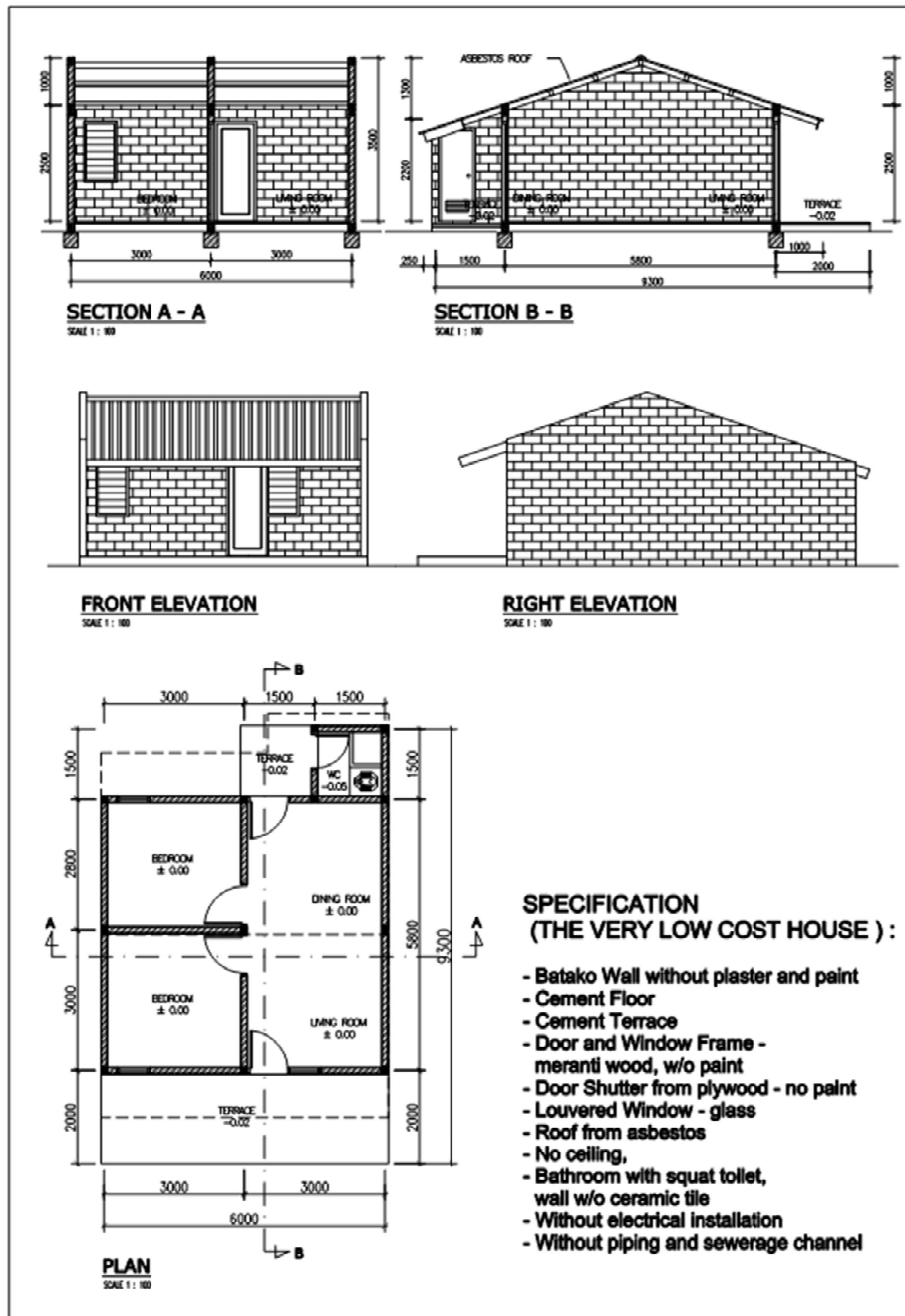


Figure 13: The very low-cost house with wider terraces

At present, the proposed house costs about US \$ 1,400. With the same price as the available very low-cost house, the proposed house with wider terraces and shelter is more acceptable. The spaces at the front and back of the house with wide overhang can provide additional space for economic activities.

4. Conclusion

From the research, it was clear that the development of very low-cost housing was aimed at the poverty reduction of the dwellers.

Some suggestion for the house improvement would include the following:

- The house size of 36 m² was the minimum standard for four persons. Each person occupied 9 m². When the family member exceeded four persons, than the house become over-crowded. It can be mentioned here that the 36 m² house is suitable for small family.
- The conformation of the house design with the dweller's needs and socio-economic activities is very important. With the additional spaces at the front and back terraces, the house will be more suitable to cater for domestic and economic activities.
- To obtain the very low-cost house many systems of house financing can be applied, such as government subsidize, installment, CSR assistance.

References

Kemenpera (2011) *Program Rumah Murah dan Sangat Murah* (Low-cost and Very Low-Cost Housing Programmes), Kemenpera, Jakarta.

Kemenpera (2011) *Draft Blue Print Implementation of Low-cost and Very Low-cost Housing*, Kemenpera, Jakarta.

Silas and Setyawan (2010) *Rebuilding Aceh and Nias, 2005-2010*, Laboratory of Housing and Human Settlements ITS; and the Ministry of Economic Affairs, Jakarta.