

# Post Disaster Relocation through Special Housing Program in Indonesia: The Case of Post Flood and Landslide in Bogor, West Java

Winda Dwi Aryani (Author), SobarSutisna, Lasmono  
Disaster Management Study Program  
Defense University Jakarta, Indonesia

Pujo Widodo, Herlina Juni Risma Saragih  
Vice Dean of National Security Faculty  
Defense University Jakarta, Indonesia

**Abstract:-** Based on the 2021 Indonesian Disaster Risk Index (IRBI) study, all regions of Indonesia have a high or moderate level of risk. On 1<sup>st</sup> January 2020, flood and landslide occurred in Bogor and caused casualties, thousands of people had to evacuate to a safer place and even lose their house. Law of the Republic of Indonesia Number 24 of 2007 on Disaster Management has regulated the responsibilities of the central and local government in disaster management, among other things is provision and rehabilitation of housing and settlement for disaster victims. This study uses qualitative research methods. Documentation studies and interviews to several informant is conducted to collect data for this study. The conclusion of this study shows that the focus in handling people affected by floods and landslides in Sukajaya District, Bogor Regency is to keep people them from disaster-prone area. For this reason, relocation and resettlement activities were chosen as a strategy to recover community life after the disaster and to reduce disaster risk in the future. The relocation of disaster-affected community was carried out through an existing program, namely the Special Housing Program. Collaboration between central government and local government is conducted in implementing this program.

**Keywords:-** Post Disaster Relocation; Special Housing Program; Permanent Housing.

## I. INTRODUCTION

Based on the 2021 Indonesian Disaster Risk Index (IRBI) study, all regions of Indonesia have a high or moderate level of risk. This study shows that there is no area in Indonesia that is safe from the disasters threat, including Bogor, West Java. The geographical and physical condition of Bogor mostly dominated by highlands, hills and mountains. It also has a high rainfall and flowed by 6 Watersheds. This feature indicates that Bogor is a disaster-prone area, especially landslides, tornadoes and floods. On 1<sup>st</sup> January 2020, flood and landslide occurred in Bogor and caused at least 7 people die, 4 people went missing and made 13,467 people evacuate to safer places such as village offices, schools, mosques, and other people houses. It was further reported that the impact of this incident also caused several social facilities and infrastructure damaged.

Law of the Republic of Indonesia Number 24 of 2007 on Disaster Management has regulated the responsibilities of the central and local government in disaster management. In post disaster phase, the government has responsibilities in 1) guaranteeing the rights of communities and refugees affected by the disaster in a fair manner and in accordance with minimum service standards; and 2) recovery from the impact of the disaster. Furthermore, based on the Regulation of the Head of National Agency for Disaster Management (BNPB) Number 17 of 2010 on Guidelines for Post-Disaster Rehabilitation and Reconstruction, it is stated that there are 6 substantial targets for rehabilitation and reconstruction: 1) humanitarian aspect; 2) housing and settlement aspects; 3) infrastructure development aspects; 4) economic aspect; 5) social aspect; and 6) cross-sectoral aspects. In addition, Law Number 23 of 2014 on Local Government has mandated that the housing and settlement especially the provision and rehabilitation of housing and settlement for disaster victims, are mandatory matters that must be implemented concurrently by the central and local governments. Based on the explanation above, it is clear that the government must be present to restore communities' houses and settlement affected by the disaster.

In this regard, President Joko Widodo during his visit to the disaster site on January 7, 2020 ordered his Cabinet Ministers and the Bogor Government to relocate people affected by floods and landslides in Sukajaya, Bogor Regency into permanent housing development.

Two years after the floods and landslides in Sukajaya District, the Government through the Ministry of Public Works and Public Housing has built a total of 563 permanent housing units spread across two locations, 205 units in Sukaraksa Village and 358 units in Urug. Post disaster permanent housing construction is carried out under the Special Housing Program scheme which began in 2020 and completed in 2021.

## II. METHODS

In this study, researchers used a qualitative approach with exploratory descriptive methods. This method is considered suitable for this research because researchers can more freely understand the complex and meaningful situations in the process of program implementation in handling disaster affected community to post disaster permanent housing through relocations.

Literature review and documentation studies conducted to explore the mechanism of special housing program and several interviews were conducted with the central and local government to verify the implementation of the special housing program in handling disaster affected community through relocation.

### III. CONCEPTUAL FRAMERORK

#### A. Flood and Landslide in Bogor, West Java

Landslides which occurred in Sukajaya District, Bogor Regency on January 1<sup>st</sup>, 2020 were massive and simultaneous, there were hundreds of landslides on a large and small scale in almost all areas of the district. Most of the Sukajaya District has undulating to hilly morphology with steep to very steep slopes of areas affected by landslides.

Most of the population lives in landslide-prone areas, because safe areas are limited and hard to find. Relocations have actually been carried out in limited numbers. Disruption from human activities is quite large in exploiting the land which increases the occurrence of landslides.

The landslide disaster triggered by high-intensity rain occurred in Sukajaya District, Bogor Regency. At the start of the landslide disaster, there were six isolated villages, namely: Kiarapandak Village, Urug Village, Kiarasari Village, Cileuksa Village, Cisarua Village, and Pasir Madang Village. Almost all villages in Sukajaya District were affected by the landslide disaster. Landslide disasters that had a major impact on human casualties and infrastructure occurred in Harkatjaya Village, Pasir Madang Village, Kiarapandak Village, and Cileuksa Village (Naryanto et al., 2020). Rainfall data in Sukajaya District on January 1, 2020, according to Indonesian Agency for Meteorological, Climatological and Geophysics (BMKG) information, is 301.6 mm/day. The rainfall data includes the classification of very high (extreme) rainfall, and rainfall of this magnitude has never occurred in Sukajaya District before. Rainfall for a day is almost the same as rainfall data for a month. The dominant factors that most influenced the landslide disaster in Sukajaya District were: (1) extreme daily rainfall before and during the landslide (2) volcanic rock types with a very high level of weathering which formed very thick soil/soil (3) steep slopes steep-very steep. Of the many factors that influence landslide disasters, in particular are the steep topography and the type of soil that is very thick and loose.

With extreme daily rainfall in Sukajaya District which began on December 31<sup>st</sup>, 2019 and increased greatly on January 1<sup>st</sup>, 2020, the slope conditions at many locations in Sukajaya District, especially those that were steep to very steep, became unstable and there were many small-scale to big-scale landslides. The landslides in Sukajaya District occurred simultaneously, almost at the same time, as well as subsequent landslides, causing many victims, both lives and property. Typology of landslides in Sukajaya District are mostly in the form of debris slides, which form landslide marks like a horseshoe appearance from the

crest to the foot of the landslide, then in several places because the landslide material is mixed with water in large quantities it develops into a debris flow. In several places, landslides are found in the form of creeps.

#### B. Post Disaster Relocation

Relocation is defined as a process whereby a community's housing, assets, and public infrastructure are rebuilt in another location. Relocation is sometimes perceived to be the best option after a disaster for one or more of the following reasons: (1) people have already been displaced by the disaster, (2) their current location is judged to be uninhabitable, or (3) relocation is considered the best option to reduce vulnerability to the risk of future disasters (World Bank, 2010). According to this study by World (2010) relocation can disrupt life so it must be avoided and this policy should be taken as the last resort unless it is the only feasible approach to disaster risk management. If relocation is forced to take place, it is necessary to ensure that affected communities must be involved in the site selection process and adequate budgetary support must be available in the long term to minimize socio-economic impacts. If the relocation location is not suitable, it can lead to loss of livelihoods, loss of a sense of togetherness and social capital, cultural alienation, poverty, and in the end the relocated people return to their original community locations.

Relocation and resettlement of disaster-affected communities is an alternative to reduce disaster risk, especially if the initial location of community settlements is a disaster-prone area and there is a potential for similar disasters to occur in the future. However, in the implementation of relocation must pay attention to the social life of the community and the sustainability of the life of the relocated community. Often, disaster-affected communities have no other choice but to relocate considering the condition of their homes which have been completely destroyed. However, relocation and resettlement programs can also have significant negative impacts on resettled populations (particularly the most vulnerable members of society) due to a number of factors, including (Badri et al, 2007):

- loss of houses and land, and inadequate sanitation (causing malnutrition and other health problems);
- drastic decline in the quality of education and employment opportunities (displaced individuals may no longer have access to agricultural land and commercial company);
- disruption in social support networks (social activity may never recover and dispersed individuals may have difficulty adjusting to life away from family and friends); and
- loss of cultural assets (Cernea, 1996)

Resettlement of people in a new area, not only providing housing facilities and all the infrastructure facilities, but also moving people's lives as an individual, as a family and as a community in a new environment. Therefore, the socio-cultural, economic and environmental quality aspects must also be moved together to their new homes. In other words, implementing a resettlement

program means moving the community's life completely, including their livelihoods, socio-culture and environmental awareness.

Resettlement program should be able to improve communities' welfare not to add the problem of poverty in the new settlement. The strategy to improve the living standards of the relocated people should be considered during the process of site plan development, so that the potential decline in the community's economic level and environmental quality could be anticipated and carried out properly. For this reason, in carrying out the process of relocating disaster-affected communities, several aspects must be considered as follows (Usamah& Haynes, 2011; Dikmen, 2006; Ozden, 2006 in Harliani, 2014):

- Social and cultural aspects, which include social relations with neighbors, relatives, availability of gathering places and other supporting facilities such as those in old residential areas, as well as guarantees of land and building ownership status;
- Economic aspects, including the distance between the new environmental location and the place of work, guarantees for livelihoods, and replacement of land and building assets;
- Physical and environmental aspects, which affected by the availability of environmental facilities and infrastructure as well as geographical conditions in the new environment;
- Quality of building construction aspects, such as building materials used to build new houses, installation systems inside the house, selection of new residential locations, site selection, and design plan of the new settlement;
- Decision-making process aspects, involving community participation and other interested stakeholders as well as a good process of communication between the government and the community.

Based on the Standard Procedures for Implementing Relocation by the Ministry of Public Works (as quoted in Hadi, 2017), there are several basic requirements that must be considered in settlement relocation activities, such as:

- Relocation is carried out while taking into account the daily life of those who are moved with all physical and non-physical conditions, including the communities at the relocation destination.
- Relocation must consider that the affected community of relocation program is a party that is considered vulnerable (vulnerable person), so in the implementation of relocation must follow a number of principles as follows:
  - Relocation must be done voluntarily. Relocation is a voluntary activity based on awareness and mutual agreement to reduce disaster risk.
  - The affected community get an equal or better livelihood after the relocation. In this case, the beneficiaries of the relocation program must have access to natural resources, land, houses and infrastructure, at least of the same quality so that they are able to recover, and even increase their income levels in a significant period of time.

- The affected community get full compensation during the transition process. The beneficiaries of relocation program must receive compensation, including the amount of lost income due to displacement.
- Minimize the breakdown of social networks and economic opportunities. It is advisable that the relocation location is not far from the original location so that it does not cause significant changes to the life cycle of the recipient of the beneficiaries, including social networks and economic opportunities.
- Provide development opportunities for beneficiaries. The beneficiaries must become the first party to benefit from any relocation activities, including construction activities in relocation process.
- Democratic, participatory, open and accountable. Every stage of the relocation activity is carried out in a democratic, participatory, open and accountable manner.

Independence and sustainability. The implementation of relocation activities should consider post-relocation conditions and guarantees the process towards self-reliance and sustainability of life and livelihood as well as management and development of the relocation settlement environment.

### C. Special Housing Program

The key policy for providing adequate permanent housing for disaster-affected communities came from the mandate of the Indonesian constitution as stipulated in Article 28 H Paragraph (1) of the 1945 Constitution of the Republic of Indonesia which states that "everyone has the right to live in physical and spiritual prosperity, to have a home, and get a good and healthy living environment." Furthermore, the right of habitation also mentioned in Law Number 1 of 2011 on Housing and Settlement Article 19 paragraph (1) which states that "house and housing management is carried out to meet housing needs as one of the basic human needs for the improvement of and distribution of people's welfare. Furthermore, in paragraph (2) it is stated that "house and housing management is carried out by the central government, local government and/or everyone to guarantee the right of every citizen to occupy, enjoy and/or own a decent home in a healthy, safe, harmonious, and well-ordered environment. These two constitutional mandates imply that the state must present to protect the viability of its citizens, one of which is through the provision of housing and settlements that are safe, adequate and affordable. Shelter is one of the basic human needs and the right to live is one of the most basic human rights as stated in Article 40 of Law Number 39 of 1999 concerning Human Rights which reads "everyone has the right to a place to live and a decent life." The right to housing is a human right, so the state has an obligation to protect, respect and guarantee this right and to carry out various efforts to make it happen.

The provision of permanent housing for the victim of flood and landslide in Sukajaya, Bogor Regency was carried out through special housing program. Based on Law Number 1 of 2011 on Housing and Settlements, special houses are defined as houses organized to meet special needs. In this context special needs include the need for

transmigration housing, resettlement of disaster victims, and social housing to accommodate the elderly, the poor, orphans and neglected children, as well as for the construction of houses in dispersed locations and houses in areas country border. Furthermore, in accordance with the provisions of the Regulation of the Minister of Public Works and Housing Number 7 of 2022 Concerning the Implementation of Housing Development Assistance and the Provision of Special Housing, it is stated that the Provision of Special Houses can be in the form of single houses and row houses with a typology in the form of landed houses or houses on stilts built along with infrastructure, facilities and utilities. general. One of the beneficiaries of the provision of special housing regulated in this Ministerial Regulation is the disaster victims who have to leave their original residence as a result of being directly affected by the disaster in the form of national scale natural disasters, non-natural disasters and/or social disasters.

#### IV. RESULTS AND DISCUSSION

##### A. Institutional and Financial Strategy

Immediately after the disaster occurred on January 1, 2020, President Joko Widodo gave instructions to relocate affected communities to a safer place. Therefore, the government agreed to build permanent housing for disaster victim on a new location. It was further conveyed that Ministry of Public Works and Housing (PUPR) along with local government of Bogor appointed as executive agency for governing post disaster relocation and resettlement.

Permanent housing for disaster affected community in Bogor was built through collaboration between central and local government. Therefore, both of State Revenue and Expenditure Budget (APBN) and Local Government Budget (APBD) were used in permanent housing development. Cooperation and collaboration in the construction of special housing program has indeed been mandated in the Regulation of the Minister of Public Works and Housing Number 7 of 2022 on Housing Development and Provision of Special Housing which states that the construction of special housing can be carried out through collaborative programs and/or activities with work units, organizational units, and/or ministries/agencies, which are involved in housing and settlement development. The division of tasks and responsibilities is in accordance with the authority of each government agency, both at the central and local government levels. The central government (Ministry of Public Works and Housing) is responsible for providing housing units, while the local government of Bogor Regency is responsible for land acquisition and land preparation. Moreover, the local government of Bogor Regency also has supporting role in updating the number of damage houses, collecting data of beneficiaries' candidate, assisting and guiding the beneficiaries in utilizing the permanent housing and its environment, facilitating the building permits, and facilitating the provision of housing deeds in the future.

In terms of land acquisition, local government of Bogor Regency is coordinating with PT Perkebunan Nusantara (PTPN) because the permanent housing was built on a land which the right of cultivation belongs to PTPN. Up to this moment, the transfer of legal status of this land from PTPN to local government of Bogor Regency is still on going and the Ministry of Agrarian Affairs and Spatial Planning still processing the PTPN's cultivation right relinquishment. Therefore, until now the local Government of Bogor Regency has not received the legal deed of ownership or land certificates for the permanent housing development. Admittedly, the mechanism for land acquisition from PTPN to the local Government of Bogor Regency has been quite tough considering there are several related regulations that must be heeded. This consequently has a direct impact to permanent housing beneficiaries since they do not have secure tenure of property, they live in.

To ensure security against future disasters, the local government of Bogor Regency has also coordinated with the Geological Agency to obtain recommendations for relocation site. Even though it was difficult to find a safe location in the Sukajaya District due to many disaster-prone areas, in the end the relocation site was not far from the initial community settlement and was still in the same village.

##### B. Construction Approach

According to President Joko Widodo directives, the relocation of disaster affected community in Bogor was carried out simultaneously with resettlement facilitated by the government. In this case, according to the mandate of Law Number 1 of 2011, resettlement is carried out by moving affected people from locations that cannot be rebuilt because they are not in accordance with the spatial plan and/or are prone to disasters and can cause danger to goods or people.

The strategy in relocating disaster-affected communities was the construction of permanent housing through the Special Housing Program mechanism. According to Law Number 1 of 2011 on Housing and Settlement, a special housing is a house organized to meet special needs. What is meant by "special needs", among other things, is the need for transmigration housing, resettlement of disaster victims, and social housing to accommodate the elderly, the poor, orphans, and neglected children, as well as for the construction of houses for people who live in remote area or in the border region of the country.

Furthermore, according to the Circular Letter of the Directorate General of Housing Number 13 of 2022 concerning Technical Guidelines for the Provision of Special Housing, the forms of special housing assistance include: 1) construction of adequate new houses; 2) Infrastructure, including environmental roads, drainage system, sanitation, clean water supply, and/or other supporting works; 3) Facilities, including place of worship facilities, educational facilities, and/or social and cultural facilities; 4) Public utilities, in the form of network and/or

electrical installations; 5) Furniture, including cupboards, beds, tables and chairs. However, from the five forms of provision of special housing, it is noted that facilities and furniture were provided based on directions and/or approval from the Minister of Public Works and Housing.

According to the technical guidelines for the provision of special housing, special houses must be built with an earthquake-resistant housing construction of a minimum of 28 m<sup>2</sup> and a maximum of 36 m<sup>2</sup>. A special house can be in the form of a single house, a coupling house or a row house with a typology in the form of a landed house or a house on stilts. Based on field observations, it is known that both of post disaster housing in the Sukaraksa Village and Urug Village have a floor area of 36 m<sup>2</sup> in the form of a single house with a landed house typology. The permanent housing is in the form of a one-story house consisting of one living room, two bedrooms (one bedroom is not insulated), one cooking room and one bathroom. Permanent housing was built with a priceround 70 million rupiah per unit without ceramic, ceiling, and wall paint work.

The construction of special houses is carried out through a contractor-based method. In this case, all procurement mechanism for this program refer to the regulations of goods and services government procurement compiled by Indonesia Public Procurement Agency (LKPP). The scope of procurement of goods/services for permanent housing development disaster affected community in Bogor Regency includes: 1) construction consulting services and 2) construction work. This imply that there is no community participation in the process of permanent housing development. Hence, the development of permanent housing is not community-based development since there is no mentoring or training process that can prepare communities to be able to plan their own housing and settlement. If the community is involved from the beginning of the planning process to the end, the community's sense of ownership of this post disaster housing will be higher.

Furthermore, based on the results of the documentation study, the following is a site plan and technical drawings for post disaster housing in Sukaraksa Village and Urug Village.



Fig. 1: Permanent Housing Site Plan for Sukaraksa Village

Source: Ministry of Public Works and Housing, 2021)



Fig. 2: Permanent Housing Site Plan for Urug Village

Source: Ministry of Public Works and Housing, 2021

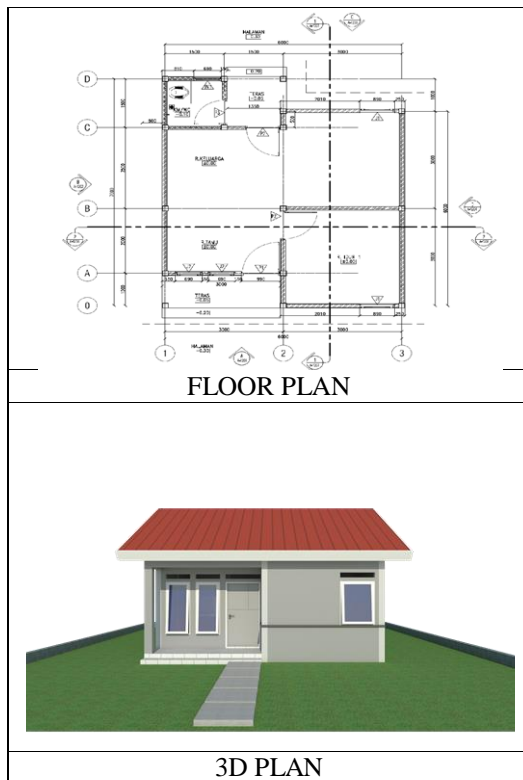


Fig. 3: Design for Post Disaster Permanent Housing

Source: Ministry of Public Works and Housing, 2021

Technically, the permanent house building has met the standards of the Simple-Healthy House Conception listed in the Decree of the Minister of Settlement and Regional Infrastructure Number 403/KPTS/M/2002 on Technical Guidelines for Healthy Simple Houses. Simple-Healthy House are houses that are built using simple building materials and construction but still meet the following standards:

- Minimum requirement of building area per person. Based on the results of previous study, the space requirement per person is 9 m<sup>2</sup>. With a permanent housing area of 36 m<sup>2</sup>, it is assumed that it is inhabited by four family members. This housing size is also in accordance with the regulation stated in Law Number 1 of 2011 which states that the minimum area for single houses and row houses is at least 36 m<sup>2</sup>.
- Health and comfort needs of occupants. Based on the results of observations, the physical form of the permanent house building meets health requirements which are influenced by three aspects: lighting, ventilation, and indoor air temperature and humidity.
- Minimum requirements for building security and safety. Basically the permanent house building has fulfilled the main structural parts for a simple residential building consisting of the foundation, walls, roof, and floor.

## V. CONCLUSIONS

The focus in handling people affected by floods and landslides in Sukajaya District, Bogor Regency is to keep people away from disaster-prone area. For this reason, relocation and resettlement activities were chosen as a strategy to recover community life after the disaster. The relocation of disaster-affected community was carried out through an existing program, namely the Special Housing Program. In implementing this program, a collaboration between central government (i.e., Ministry of Public Works and Housing) and local government of Bogor Regency were conducted according to their institutional duties and functions

However, there are still some notes in this program implementation as follows:

- The administrative process of land right release from PTPN VIII to the local government of Bogor Regency Government has not been completed. This will hamper the legal transfer of housing ownership to the beneficiaries in the future.
- The structure of the building and site selection of permanent housing have considered disaster risk reduction aspect. However, there is still a need for some improvements to the house to increase its quality so that it can be more adequate to live in.
- Considering that permanent housing construction is carried out under special housing program with the construction service providers, the participation of affected communities in housing construction process cannot be implemented.

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