

# Implementation Of Community Participation Concept In Rebuilding Housing Post Earthquake Disaster

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**Abstract:** Besides devastation, an earthquake also caused trauma and distress to many people who experience it. Due to that fact, the ruined housing area needs reconstruction, which is not only to build, but also to restore the “lives” in it. An interesting study in architecture field had been conducted in Bantul village, Yogyakarta, Indonesia, where all victims of the earthquake, without any background of formal education in engineering, had roles in reconstructing their devastated settlements after the earthquake. They did this only by holding into the mutual spirit to rise and restore their lives as soon as possible. The participation of Ngibikan Bantul village community after the earthquake had been written in history as a part of completing the rehabilitation and reconstruction of the housing after an earthquake. This study will discuss about things related to the success of that participatory reconstruction. Both roles and involvement of the builders, the rebuilding process, physical products of the process, and its impact for community’s social life and the general communities. The explanations will refer to the pattern of community participatory in the rebuilding process after the earthquake.

**Keywords:** earthquake, reconstruction, participatory, community

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## I Introduction

In 2006, a 5,9 Magnitude earthquake struck the area of Yogyakarta, Indonesia. Besides killing a large number of people, the earthquake also ruined the settlements where community lived and causing many traumatic victims. The ruined settlements needed to be rebuilt, as well as the souls who lived there. One of the community settlements that had been devastated was Bantul Village, located approximately 30 km from Yogyakarta city. The city had an interesting phenomenon in recovering from the natural disaster, because all the victims, who did not have any formal education background in building houses, had directly involved in reconstructing their devastating village. The roles of community were not only in making decisions regarding the plans and designs, but also in executing the processes. This condition got a unique appreciation from other countries, especially in regards to cultural angle of Indonesian people, who had practiced “gotong royong”, or helping each others, since a long time ago. The building process involving community participatory had its own values, through direct contribution in building process that became mutual responsibility. The reconstruction of community housings due to the earthquake was a way to solve problem of the victims: devastation of their settlements. How was the result of the building process which has been done through participatory approach from community as the earthquake victims, even though they did not have any knowledge in building and construction?

## II Theoretical Approach

### 2.1 The Users Participation Concept in Building Housing

The widespread acceptance of the principle of user participation in housing and urban development is the major achievement of social architecture in the recent past. It is true that the goals of participation have been limited in many cases to individual satisfaction, and that design participation has not yet extended, as it must, to the work place (Hatch, 1990). Participation has strategic value and plural dimensions, but it needs to be understood, especially to clarify the meaning of participation of user in development context. Participation is not a new issue, because it is often found in various mass media, both domestic and international. Participation is really needed in development process, because the urban development always faces directly with the community. Therefore, participation becomes a term that is usually used by every policy maker, project manager, and planner. Participation also has financial dimension, so it is not only a social aspect. On the other hand, participation has active and passive meanings. Active participation means an activity where the subject has initiative, and passive participation happens where there is an initiator (usually a local community leader). So, participation could be started as a social act, and continued to become a social movement. Therefore, participation has to be understood through “social alteration concept”, which enables effort for changes or improvement in accordance with the objective of a program.

## **2.2 The Benefits of Users Participation in Housing**

When associated with development in housing and dwelling, this study will be conducted through participatory development aspect which has been patterned in the whole development housing process. The development pattern is done through participatory approach; an approach which is trying to build in one action agreement and one development perception, where the subjects of development will act with the common willpower. In regards to this, it could be concluded that the followings are the benefits of participation where community involves directly as subjects:

1. Every subject in development process, or every substance involves in it, is aware of the objective and purpose of the movement.
2. Every subject in development process can learn from each other about what is good and what is bad to be done, and how to solve a problem together. The development process is a learning process that refers to a new social life.
3. The potential concentration does not happen because of mobilization, but the common awareness and willpower to do something that has been agreed before.
4. In development process and the result of participatory development, every subject knows himself because the existence of every subject is accepted in the community, and could be seen in the involvement of every subject in the whole development process. This condition can grow the solidarity, sense of belonging, and sense of togetherness that will be very conducive.

Therefore, in urban development, the benefit of public participation needs to be reviewed more thoroughly, because it is related to social aspects and connections.

## **2.3 The Successful Rate of Development Through Public Participation Concept**

### **2.3.1 The Subject of Development Process**

The sophistication of the local leadership and the talent of the volunteer architects held the promise of significant innovations in design. The success rate of public participation in development process could be measured from the extent of what has been reached by the subjects according to their expectations. The subjects who play a part in the development are:

- a. **Prime Subject** : The subject who is actively initiate a useful development project.
- b. **Participants** : Subjects who play a part in discussing, deciding, and executing the development.
- c. **Facilitator** : Subject who supports the development process to go well.

### **2.3.2 Connections in Public Participation Pattern**

Whose participation in whose decision?

The central issue is the control or the power to decide : who actually does. This is what citizen participation is really about : whose participation in whose decision?

How the utilization of public participation in the whole development process could be said successful is also related to how the involvement pattern of the community which can be described through the connections between community and the housings as physical aspect which has been built based on the design from the users. The development process will be succeeded if the community always be involved. The community involvement should be emphasized in decision making process, especially those related to priority and direction of the development, and not just an involvement in term of building the houses together. The community involvement has to be started at the earliest point. Involvement which is only emphasized in the togetherness when building the houses is only good when the community "leader" has a strong leadership and could continuously raise, grow, and push the community movement. The leader needs to have an exact program and concept of housing or community development, as well as sufficient resources to stimulate the community movement. This event could be said as a mobilized movement and tends to be dead or stop if the leader is changed or the program is finished. So the cycle that has been formed is not a continuous system that could be run by anybody or any community group. In this pattern, it could be seen that the relation between leader and his community is a relation between "he who has the job" and "them who do the job", or in other words, "head" and "crew". Therefore, there are several things expected in the participatory community development:

1. Interest, benefit and result or load of development could be understood and accepted easier by the involving community.
2. The decisions made are more appropriate with the needs and priorities of the involving community, so that the development will be more acceptable.
3. To grow the sense of belonging, because the community is involved in decision making process, and this will guarantee the continuity of the project.

4. To improve the community potential to carry the load of development together and utilize its result.
5. To accustom the community to plan, think in long term perspective, organize the development, and improve the environment and community quality.

## 2.4 Participatory Development Phases

Participatory development is consisted of five phases:

1. Need Assessment Phase  
his phase is to transform the individual needs into group vision. There are three different needs:
  - a. Felt needs, needs which were felt when doing the discussion process
  - b. Actual needs, the actual/real needs which had not been realized/felt
  - c. Anticipated needs, needs which will be felt in the future

2. Development Planning Phase

The result of needs assessment gives a picture about the target of community development. Therefore, the development plan has to be made based on the needs of community. The following things are made in the development planning phase:

- a. Budget
- b. Financial plan
- c. Technical work phases
- d. Distribution of human resources and possible challenges

3. Designing Phase

In this phase, designing process has to consider various aspects related to nature condition, the users and their settlements environment.

4. Execution Phase

The development will be executed based on the plan in previous phases. Changing in plans always happens in the execution process, but as long as the frequency of changes is not too far from the expected result and not a principle thing, it still can be tolerated.

5. Evaluation

This phase is to find out whether the activity has reached the target. The result of evaluation can be used as a recommendation of the community success in the development process.

## III Data Collection And Analysis

### 3.1 The Implementation of Participatory Development Concept in Rebuilding Houses Post Earthquake in Yogyakarta

This research had been conducted in the area affected by the earthquake: dwellings in RT 05/neighborhood sector (there are 6 neighborhood sectors) Ngibikan Village, located in Bantul Village, approximately 15 km from Yogyakarta, Indonesia. See figure 1.



Figure 1. Map of Bantul, Special District Yogyakarta  
Source: Gempa Jogja, Indonesia dan Dunia  
(Earthquake Yogya, Indonesia and the World)

### 3.1.1 Width and Border of the Area

Settlements area in RT (neighborhood sector) 5, Ngibikan Village has the width of approximately 19.575 m<sup>2</sup> with the following borders:

- North region : Bordering with RT (neighborhood sector) 06
- West region : Bordering with RT (neighborhood sector) 04
- East region : Bordering with RT (neighborhood sector) 03 and a ditch
- South region : Bordering with Pepe Village and rice field

### 3.1.2 Condition of Ngibikan Village RT 05 Before the Earthquake

Physically, this settlement has common characters of village dwelling, it could be seen from the borders of river, cemetery and rice fields. Besides that, the character of housings is very simple visually, with irregular layout pattern. See Figure 2.



Figure 2. Ilustration of dwellings in Ngibikan Village RT (neighborhood sector) 05 before the earthquake (Drew by Destaza H-2008)

### 3.1.3 Social Life of Community Before the Earthquake

From long time ago, the community in Ngibikan Village RT (neighborhood sector) 05 is used to mutual cooperation (gotong-royong). The togetherness of solving problem made RT (neighborhood sector) 05 more advanced than the six other RTs (Rukun Tetangga/Neighborhood Sector) in Ngibikan Village. This culture is not only done in village cleaning which has mutual interest, but also when a citizen is building his house, cow house, or renovating a house for his personal interest. Every citizen works together and helps according to his own skills.

### 3.1.4 Physical Condition Right After the Earthquake

After the earthquake, Ngibikan Village was having damage in several roads and destruction of settlements. In that disaster, about 95% of the dwellings were flat on the ground. Many victims were buried in the ruins and only several houses survived.

### 3.1.5 Community Life Inside Evacuation Tent

The early stage of effort done in order to help the community was building the evacuation tent for the refugees. Over the time, problems started to occur inside the tent. Some refugees were forced to eat stale food. The threat of food poisoning came from packaging food, such as expired canned fish, canned milk, instant noodle, and also food that came from volunteered caterer. Condition of sanitation in the emergency tent was not appropriate, and the cold weather especially at night started to affect the community health, children in particular. Besides tetanus, diarrhoea and vomiting, influenza was also threatening the children victims. Several victims were also having mental health problem, and had to go into mental hospital. Meanwhile, the rehabilitation and reconstruction programs from central government had started various problems in implementation stage. Local government who managed the fund policy for living expenses had problem due to unclear policy from central government. To avoid the ongoing problems, governor asked the victims to stand up and not expecting help from any parties, including central government. This invitation had been said directly by the governor in the Bantul community meeting.

### **3.2 The Success Rate of Public Management Participation in Ngibikan Settlement Post Earthquake**

#### **3.2.1 Success Rate of Public Participation**

The development will be succeeded well if the community always be involved in the process. This could be measured from community role and involvement in the development. The community involvement should be emphasized in decision making process especially in regards to priority and direction of the development. The involvement was not only done in the togetherness of building the houses.

The utilization of community participation in the whole process could be said succesfull if the community involvement pattern was done thoroughly, through the connection happened between physical condition as the result of the designed system, and community as the user.

#### **1. Early Development Process**

The result of this early process is the common vision of the community needs. In this process, citizens have right to express their opinions in the community meeting. Therefore, citizens as the users will understand perfectly the process of the development.

#### **2. Designing Process**

The community involvement in the designing process could be done by considering the designs which involve the community as the future users. This could be determined by the following analysis:

- a. Choosing the building material
- b. Dividing the area and locating the houses

Community participation in the designing process could be seen from the mission achievement: Houses as the product of community participation development is in accordance to needs and wishes of community as the users. Citizens consider the permanent house as the house where its inhabitants live comfortably, and not the house which is built from its materials, see figure 3.



Figure 3. Illustration of settlements condition in Ngibikan Village RT (neighborhood sector) 05 after the earthquake  
(Drew by Destaza H-2008)

#### **3.2.2 Time Line for Planning Stage**

Community involvement in planning stage is determined by working groups division and their outcoming mission. Followings are the analysis :

- a. The citizens are involved in making a development planning system, accompanied by leader of neighborhood's sector and development consultant.
- b. The participants are involved as direct subject of development, divided into eight types of job according to their own skills.
- c. In having mutual agreement, each participant unites his own vision, needs, benefit and objective for common interest.

Community participation in planning could be seen from mission achievement, when the execution process could be done effectively and efficiently.

#### **3.2.3 Execution Stage**

The most important thing in this stage is to do it efficiently and effectively. The followings are things which can support this stage:

- a. Each citizen does his part with high enthusiasm, awareness and responsibility
- b. The job is done according to the stages agreed in the planning process
- c. Citizens have skills in construction field
- d. There is donation fund from third party.

Community participation in the execution process is seen from mission achievement:

The development could be finished in a relatively short time (2 months). Besides that, the housing quality as the outcome is still hold on and stand firm even though small earthquakes occur in the future.

The success rate of community participation in the development could be measured from how far the development subjects reach what they hoped.

The subjects who have roles in the post earthquake development are:

### **1. Primary Subject, the leader of neighborhood sector**

In this case, the primary subject is the leader of neighbourhood sector (RT). Based on the need to move his community as soon as possible from evacuation tent and have their own houses. This could be seen from the time needs to finish the development process, which is relatively short, 2 months for 65 houses. To show to public that the citizens have great potential and could participate in the development without have to wait outside parties. It could be seen from the large number of foreign NGOs such as IOM (International Organization for Migration), and UNICEF, who came to the locations directly to collect more detail information. Other interest is seen from foreign journalists who came from various countries to visit the location; they thought that the participatory development is very unique and incredible. This thing could become an image, even recommendation to other countries who have similar problems.

### **2. Participants, Citizens of RT (neighborhood sector) 05**

The participants are the community, citizens of RT (neighborhood sector) 05 who divided into three groups:

- a. Males group
- b. Teenage boys group
- c. Females and teenage girls group

The biggest wish of the community is to live back in the house immediately and move out from the evacuation tent.

### **3. Companion Subject/Facilitator/NGOs**

The companion of the citizen is the development consultant. Consultant's wish is not only to build houses but also build the community social life. This condition is fulfilled, which could be seen from the social life of community who are now slowly back to their everyday lifes in the new homes after the earthquake. Meanwhile, the wish of the donors through their donations is to make the development process easier and smoother. This is also quite successful. The following is a table of the relations of community involvement pattern from the whole development process, see table 1.

Table 1. The subjects and their roles in development

Subject of Development	Roles
Leader of RT (neighborhood sector) 05	As the subject who initiate the development process actively since the beginning of the development.
Community Groups (Citizens of RT/ Neighborhood Sector 05)	As the subjects of development who are Involved since the beginning of the process
Development Consultant	As the development process
Donors	As the donors of development fund
Involvement	

#### IV Conclusions

Several conclusions from the study of community participation pattern in settlements development post earthquake, in Ngibikan Village, Yogyakarta, Indonesia, are as follows:

1. The success of community participation in development could be reviewed from community involvement in the development process.

Community is totally involved in giving aspiration, making decisions and determining the direction of development since the beginning of the process, planning stage, designing stage, and executing stage.

**a. In the planning and designing process**

- In the beginning of development process, the community discussed. This shows that village community has important roles and direct involvement.
- In the development process of housings post earthquake in RT (neighborhood sector) 05 Ngibikan Village, citizens or future inhabitants were seated as decisive or primary subjects from early stage to end stage, therefore the result of planning and designing which is reviewed from inhabitant aspect is very satisfying. It also could be concluded that the development process is possible to village citizens who are the victims of the disaster to stand up with spirit of togetherness.

**b. In the executing stage**

Community participation is an educative form where they could dig their potential and understand about responsibility. The execution of development by citizens keeps them enthusiastic even though they are still in a fragile situation and condition.

**2. The success rate of community participation in the development is reviewed from the relationship between housings as a physical aspect which is built from system that has been designed by public as the users.**

The citizens feel comfortable live inside the houses. The citizens thought that the permanent house is a house where its inhabitants could feel at home, and not just some house from permanent materials.

**3. The success rate of community participation in development is reviewed from suitability of function and citizens needs.**

The house which has been built is assessed according to local wisdom of citizens as the village community.

**4. The success rate of community participation for dwelling physical aspect**

The conditions of dwellings before the earthquake:

- Physical condition of the dwellings is not in order (most of the house was facing South)
- The roads on the dwellings were relatively narrow

The conditions of dwellings right after the earthquake

- 95 % of the citizens houses were collapsed and flat into the ground
- The roads were covered with building ruins

The conditions of dwellings post the earthquake

- Physical condition of the dwelling became more orderly and neat with the houses orientation face the road to give access of escape road if an earthquake occurs in the future
- The roads on the dwellings become wider

The physical condition of the dwellings have their own characteristic, where every house has similar typology but with its own unique visual characters.

- Structure and construction of the houses is earthquake resistant. See figure 4.



Figure 4. Houses condition in Ngibikan Village RT (neighborhood sector) 05 after the earthquake

## 5. The success rate of community participation for community social life

- The citizens realized that they have great potential in development based on togetherness and common interests.
- Houses built from community participation development is suitable with the needs and wishes of the citizens as the users. Citizens thought that a permanent house is a house where its inhabitants could feel comfortable and not the house that is built from its materials.
- To grow the sense of belonging, both to the house as well as to other citizens who also built the houses together.
- To increase community identity as the village citizens.
- To add harmony and concord between communities in a solidarity with common interest, common benefit and common objective.

As a whole, community participation in the development could be said successful. This is because from the beginning of the development the community was totally involved. The limited knowledge of the citizens of building and construction could be overcome by good cooperation between each development subject.

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