Implementing a Participatory Design in the Observation Phase: Case Study - Sidotopo Railroad Settlements

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Keywords: Participatory Design, Community-based Development, Railroad Settlement

Abstract: Community-based development can be achieved through community participation in the design process. Based on Arnstein's ladder of participation, Surabaya had reached the level of tokenism that includes informing, placation and information through several ways such as Musrenbang and hearing sessions. This method had already been used in Surabaya for a community-based sustainable development concept that accommodates human living activities, leaving no one behind. However, whether a higher level of participation will be more effective and beneficial for this purpose remains the question. Marginalized communities often suffer as the most disadvantaged due to under-representation, with the lowest capacity in advocating their issues and views to ensure inclusion. One of them is the community of railroad settlements that sprawl wide across Surabaya. Nonetheless, they receive poor attention to city development. This research observes a participatory process in observation and data collection of the design process. The tools used include observation, inline process, and participatory mapping; producing potentials and problems about people, planet, and profit aspects. The community actively engaged as the main actor that observe and analyse their own physical and social environment. The result of this research is a participatory map that includes more detail and accuracy regarding site analysis, activities, and user-needs. There are contextual pieces of information like places they need to improve, their history, and their unique lifestyle. The community also improved their awareness and engagement about the development of their urban environment. During the process, they obtained a better understanding of their kampung, their living space, including them as active participants in improving their urban environment through the design process.

1 INTRODUCTION

In many countries, limited government success in managing natural resources, providing basic infrastructure, and ensuring primary social services has led to the search for alternative institutional options. There is a shift from supply-driven toward demand-driven approaches, and from centralistic control to decentralized local management or co-management. This shift is intended to increase efficiency, equity, empowerment, and cost-effectiveness. One of these options is community-based development. (Narayan, 1995)

1.1 Community-Based Development

Community-based development (CBD) is an approach that advocates community participation in decision-making and management of local development projects. (Baldwin, 2016) It is focused on reversing control and accountability towards the community it is based on. To do this, a deep understanding of the pre-existing condition of the community is needed. Planning should be tailored to the needs and potential of the community instead of asking the community to abide by the purpose introduced by the government or planner.

There are a lot of instances where community-based development fails because of the false focus of the experiment in which a change is induced from external ideas assumed to be 'the best' for the community, while the common needs and interests are neglected. An example of this failure can be observed from one of the examples illustrated by Arnstein(1987) in which an urban renewal program through the CAC (City Advisory Committee) was carried out. Officials used CAC to educate and persuade citizens, much like campaigns, about the

legitimacy and need of their programs to improve the community welfare. A proposal of a multipurpose center that will house "doctors from the healthcare department, workers from the welfare department, and specialists from the employment services" was presented, asking for approval from citizens that supposedly had been informed of the program's benefits. However, they failed to deliver that the new multipurpose center would be a one-stop referral system, to the same old services and town, which only adds to the bureaucracy of getting services. After the completion of the multipurpose center, the old town services would not receive any customer unless they had the referral form from the center. This only created yet another problem without asking the right question nor giving the citizen any involvement in making decisions.

Another prominent failure of community-based developments is attempting to achieve results on a wide scale through the infusion of external management, funds, and technology, controlled from a distance. Successful community-based development must feature a reversal of control from the authority to the community in the research and design process. (Narayan, 1995).

However, CBD approaches encompass a wide variety of levels and types of community participation and have been advocated by aid agencies starting as early as the 1950s (White, 1999). Arnstein (1987) in his Ladder of Participation theory describes this phenomenon by categorizing the level of community participation into three stages: no-participation, tokenism, and citizen power, as described in Figure 1.

Nonparticipation occurs where participation is substituted by efforts done with the intention of 'educating' or 'curing' the participants from their problems rather than enabling genuine participation. Tokenism allows the participants to have their voice heard, with varying degrees of influence on the final decision but without having the power of negotiating design decisions. In citizen power, the participants have power in decision-making, whether partially or fully, through partnership, delegation, or full control.

Quick and Feldman (2011) distinguished the different approaches of citizen involvement in 'participation' and 'inclusion'. Using the case of the master plan and budgeting process in Grand Rapids that started in 2001 and the case of the Indian Trails Golf Course, they divided modes of involvement into participation and inclusion. According to Quick and Feldman (2011), the differences in participation and inclusion are shown in Table 1.
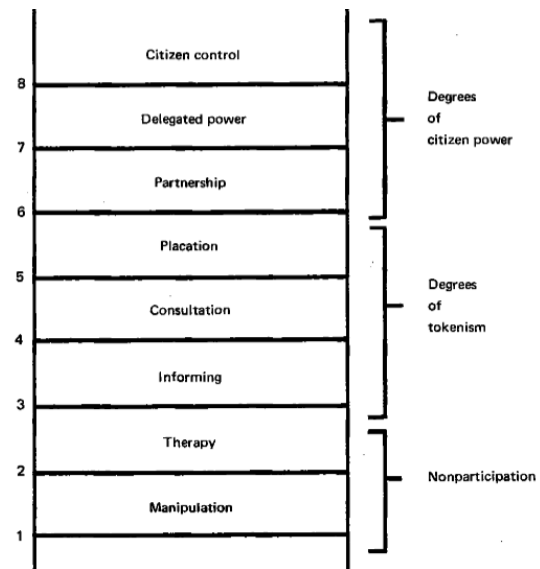

Figure 1. Eight rings of the ladder of participation.
Source : 'A Ladder Of Citizen Participation', Journal of the American Planning Association (1969)

Table 1. Differences of participation and inclusion according to Quick and Feldman (2011)

Participation
Involvement is measured by quantity of participants
Community contributes inputs/data to help the decision made by authority
Decision process is not open
Community isn't given any chance to explore ways of knowing or diving into connections between information
Inclusion
Involvement is measured by the engagement of multiple perspectives
Coproducing decisions between authority and community
Sustaining temporal openness to ideas and critics during the whole process
Engaging multiple ways of knowing, exploring connections

Reference to Arnstein's Ladder of Participation in the formulation of 'participation' and 'inclusion' category by Quick and Feldman was not described, however, the illustrated process can be related to Arnstein's tokenism and citizen power level of participation, respectively. Both participation and tokenism describe a method of citizen engagement through inputs from the community, but without community involvement in decision making. And both inclusion and citizen power describe a method

of citizen engagement whereas communities have actual power in making decisions, and the needs of communities are represented and included in the final decision.

From both perspectives of Arnstein and Quick and Feldman, participation and inclusion of communities in data input and decision making is a relevant topic that continues to be discussed and can be referred to determine the best practices in making design for the community.

1.2 Participatory Planning in Surabaya

Indonesia had begun to make the switch into community-based development through participatory methods since the reformation era. According to UU no. 25/2004, one of the Social Development Planning System's purposes is to optimize citizen participation as a democratic nation. This is important to legitimate decisions done for national development and give voice to the people, leaving no one behind. The system described in UU no. 25/2004 combines a technocratic approach that is based on the functional scientific method and framework of an organization (top-down approach) and a participatory approach that carries out a planning process with the involvement of every stakeholder in the development, including the community (down-top approach). The combination of the two approaches can be observed in the implementation of Musrenbang in several Indonesian cities, including Surabaya.

Surabaya had applied e-Musrenbang since 2010. E-Musrenbang follows a down-top procedure. In the beginning, each RW, which is the smallest official neighbourhood organization after RT, is given access to an account that can input suggestions into the e-Musrenbang system. *Kelurahan,* which consists of several RWs, organizes and maps the suggestions before proposing it to *Kecamatan*, which consists of several *kelurahan*s, where the selections are either accepted or rejected. Accepted suggestions then are brought to *Satuan Kerja Perangkat Daerah* that will follow up with a survey to determine the relevancy of the suggestions. After the confirmation, the selected suggestions are taken to the city-wide Musrembang as a contribution to policy and budget making for the city development.

Although E-Musrenbang was designed to give a wide opportunity for citizen participation, the process of policy and design decision making still hugely depends on the ecopolitics relationships between governmental institutions involved. The level of participation involved in still far from what is expected based on the MDGs (Millenium Development Goals). (Yunas, 2017) There are a lot of questions that can be asked here regarding the basis of suggestion and selection. The citizen, especially the desperately marginalized ones, are often not consulted in the formulation of suggestions taking place at RW level. The decision is held by a few people with power and access to the Musrenbang system. The selection process in *Kecamatan* level also puts the decision in the hand of a higher authority, who might choose and eliminate suggestions based on biases and interests of an elite few. In short, this process cannot guarantee that the aspiration of the citizen, especially marginalized ones, are represented.

1.3 Railroad Settlements in Surabaya

As a coastal city, Surabaya had undergone a rapid city development due to it's importance to the nationwide economy and transportation hub. The development of Surabaya attracts people, resulting in massive urbanization. Migrants who started to settle down in Surabaya typically work as workers in factories, harbors, and shipyards, as well as traders. The construction of railroad tracks began in the 19th century further develops the city. Consequently, a lot of migrants started to settle down in informal settlements. One of those informal settlements is railroad settlements.

Aside from the lack of basic human rights to housing that include access to a safe, secure, habitable, and affordable home with freedom from forced eviction—as typical in the case of informal settlements—for its' settlers, railroad settlements have distinctive characteristics on its own. The lack of land makes railroad settlers decide and make borders between their houses and the railroad on their own, this results in unorderly settlements prone to dangers from the passing trains. More often than not, the inhabitants of these settlements are very marginalized people who are barely involved in the city planning process. And unlike other informal settlements like city-center kampung or riverside kampung, there had been very little attention given to railroad settlements in the city planning processes and studies.

1.4 Optimizing Citizen Participation through Participatory Mapping

To advocate their needs and interests, railroad settlers and informal settlers in Surabaya as part of the marginalized communities in Surabaya must rely on the existing participatory planning system. The

existing system, including Musrenbang, can be evaluated based on Arnstein's participation ladder. The levels reached are the three different levels of tokenism: Informing, Consultation, and Placation, in which citizen can express their aspiration and ideas, but has no power in decision-making. In some cases, the aspirations of the truly marginalized people don't even get channelled through the RW level. And so, it can be said that in the current system, the purpose of the Social Development Planning System's purpose which is to optimize citizen participation is not optimally attained yet.

Thus, can we use a higher level of participation for more fruitful participation in the design and planning process of the city? This research will discuss an attempt in optimizing citizen participation, reaching citizen power, through participatory mapping in the data collection phase of the participatory planning process. The model used will require full participation from the citizen level to produce a comprehensive, complex, and more relevant data as a very valuable input for the design and planning process.

2 THEORY AND RESEARCH METHODS

2.1 Qualitative Research Method

This research uses a qualitative method with a naturalistic approach. The qualitative research involves multiple tactics that are both particular to the context being studied and appropriate to the research questions being asked, involving the studied use and collection of a variety of empirical materials. (Groat, 2013) Empirical data was recorded based on the existing phenomenon in their natural setting and is synthesized and analyzed to be interpreted and concluded into a coherent set of data.

2.2 Citizen Power in Arnstein's Ladder of Participation

Arnstein's (1987) Ladder of Participation describes Citizen Power as the highest level of participation. This includes partnership, delegated power, and citizen control. This research's goal is to leverage citizen participation into the lowest level of citizen power which is a partnership. Arnstein argues that partnership in citizen participation can only be possible when citizens have access to resources, including professional help or knowledge regarding

community organizing and the technical and political aspects of advocacy and design. In short, the community needs to be empowered and has the assistance of professional human resource. In most cases, citizen partnership can only be reached by demands from the community, who felt that they were powerless in the decision making of the city planning process. The example described was that of the Philadelphia model neighbourhood.

Like most applicants for a Model Cities grant, Philadelphia wrote its more than 400-page application and waved it at a hastily called meeting of community leaders. When those present were asked for an endorsement, they protested the city's failure to consult them on the preparation of the extensive application. A community spokesman threatened to mobilize a neighbourhood protest against the application unless the city agreed to give the citizens a couple of weeks to review the application and recommend changes. The officials agreed, and at their next meeting, citizens handed the city officials a substitute citizen participation section that changed the ground rules from a weak citizens' advisory role to a strong shared power agreement. (Arnstein, 1987).

In this research, the community is included from the very beginning of the decision process. The design process itself is a learning process for all the participants—both the community and the architect/researcher. By bringing together the community and assisting them to observe their neighbourhood to the planning process, the community can upgrade their ability and awareness of information and be more capable of reaching Citizen Power.

2.3 Design Process: Analysis

Design is a process undergone based on an existing state and condition to reach the desired state through some processes. Jay Doblin in his article 'A Short Grandiose Theory of Design' (1987) describes a design process that consists of Analysis, Genesis, and Synthesis—which are respectively the data collection phase, the design phase, and the implementation phase. The data collection phase can also be called the observation phase (figure 2).

The information in this analysis phase is collected and put together comprehensively in information structuring, resulting in a holistic document containing all the needed information, to plan the next steps that will be taken before undergoing the genesis or the design generation process. This paper will focus on the analysis phase which represents the observation phase in design, consisting of

information gathering, information structuring, planning, and plan evaluation. All of it was done through a participative method.

2.3 Participatory Planning and Design Process: Participatory Mapping

Participatory planning had become an increasingly prominent concept. Participation in the planning process enables citizen as the user to communicate their knowledge and ideas, that are usually kept in silence. This is especially true in the case of marginalized people, whose opinion is often dismissed. By building up confidence in expressing their opinion, participatory planning can encourage an active and critical discussion habit for the people, which can better prepare and engage them for the sustainability of community-based development. One of the most important stages of this process is in the data collection phase. Traditionally, data collection is done through surveys, interviews, and passive observations. While data can be effectively obtained with this method, there are a lot of shortcomings that can be noted. The community, treated as an object, can only assist with providing data that is asked only, unable to add more useful input that can optimize the local knowledge.

Silas (1993) mentions the five rights of housing—the right to ownership, the right to quality improvement, the right to access resources, the right to information, and the right of governmental assistance where needed.

However, in many cases, the community was not given enough information about the design purpose, procedure, nor big idea. They are not able to even understand the extent of the right they have in the design process. The data obtained is very likely to be biased to the architect/researcher and tailored to a pre-conjured purpose decided by an elite few, dismissing the novel options that can be provided with the rich perspectives of the community. The lack of communication sometimes also results in overlapping plans due to incomplete information on the existing condition that may be counterproductive to the city development.

The mapping process is not simply a gathering of information and data and arranging the analyzed data simply to inform people. The process of mapping itself also provides a good starting point for all community members to reflect on how they live in the community, how things relate to one another both socially and physically, and to identify the common community problems that concern everyone. This opportunity also provides the community with the chance to form working groups to help determine community priorities. (Luansang, 2012)

Participatory mapping is so important for the community because by mapping the whole area, the community can grasp an understanding of an entire area, both in physical and socio-economic dimensions. With the knowledge, the participant leverages their ability in advocating their needs. And by enabling community participation in the process of the map construction, a relationship can be built in the community as a beginning of a solid and capable community organization for successful community-based development. By involving the community with the full knowledge of their neighbourhood's development plans, the community can help reduce the misinformation, not giving a gap for the common mistake of overlapping or crashing plans by various stakeholders. The community will actively engage when there is a felt need and common interest agreed upon. In this setting, architects as designer hold the role to keep a horizontal relationship and fill the professional—people gap with their skill and knowledge.

The process of participatory mapping combines several strategies and is began with observation to determine the appropriate location. Following that, an inline process is started to collect more information and prepare for a community organization. A series of meetings are held with the community, involving as many people as possible from various demography to make a participatory map. The map may include physical aspects such as houses, infrastructure, and the environment; as well as the socio-economic aspects such as demography and the mapping of existing community organizations. The data obtained is then interpreted through a forum group discussion (FGD) to identify existing potentials and problems. With this method, the main issue and purpose in the community can be determined as a base for a further planning process. The result is digitized and structured into a comprehensive document that can be used for further processed as well as various other actions.

This research used this participatory mapping as a tool, which is divided into pre-participatory mapping phase and participatory mapping phase. Pre-participatory mapping is the preparation phase for community involvement through some processes including initial observation, assessment and inline. Participatory mapping phase is the process for making map together with the community and analyzing the data.
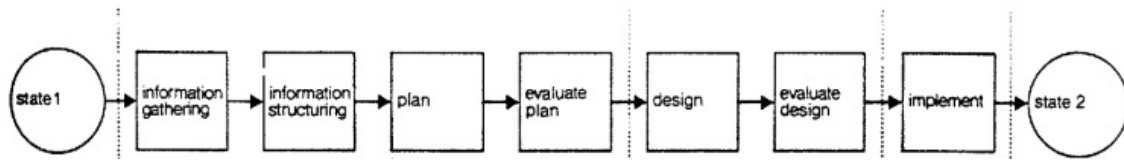
Figure 2. Jay Doblin's design process chart.
Source : A Short Grandiose Theory of Design, Analysis and Intuition: 1987 STA Design Journal(1987)

3 RESULT AND DISCUSSION

3.1 Pre-Participatory Mapping

The initial observation was used to determine the research location between several available options. The observation was done in the Sidotopo Dipo area settlements because the area is relatively dense. In this phase, initial data is collected from 4 locations including RW 02, RW 03, RW 10 and RW 12 Simokerto to determine the most suitable location for the research. The initial observation is a rapid-day observation focusing on the visible environment and community response to outsiders.

The result of the initial observation is as shown in Table 2:

Based on that initial assessment, RW 10 was eliminated due to the bad community response.
Assessment is done following the initial observation. The team contacts the community to get the contact person and continue to do a deep survey. The contacted persons are people expected to be able to become the local actor and act as the local community leader who will help the researcher team organize the community. The contacted person is used as an asset for the following inline process.

The inline process is done by making an event together with the community, called 'KAPIREL'. In this event, we invited communities from the three selected RW to participate in a sketch and photography competition about their environment. In this event, we also held an FGD with the community to identify their environment through sketches and photographs. The result of that FGD was a conclusion to together collaborate in continuous activities, including participatory mapping. After the event, we held initial mapping with informal means aside from the FGD sessions. Through this process, we concluded that two RT out of the three locations have a higher rate of community participation which is RT 04 RW 02 and RT 05 RW 12, and thus were chosen as the research location.

Table 2. Result of Initial Survey in Sidotopo Railroad Settlements in Simokerto

RW	Visible Environment	Community Response
RW 03	Dense and organized in several areas, but still disorganized in several areas	Open and receptive
RW 10	Disorganized in several areas	Bad response, high crime rate according to some citizen
RW 02	The railroad side is not organized, but the inside kampung is quite organized	Very open and receptive, already has an active community (Kampung Dolanan) that frequently
RW 12	Already organized in some part	Very open and receptive, community actively participate in city events

Figure 3. FGD with the community through sketches and photograph.

3.2 Block Doing Practice

The participatory mapping process was carried out communally in a forum group discussion. The community was organized in groups and was told to look back on their neighbourhood and describe it through drawing. Drawing is chosen as a method due to its versatility. Drawing uses symbolism to

communicate ideas, and it can be done by every member of the community including children, teenagers, and adults. Every participant was encouraged to communicate their knowledge of the neighbourhood using communally agreeable and understandable simple symbols. The participants drew a map indicating houses, roads, and other infrastructure. In this process, the researcher became a facilitator who stands by to direct the participants until the map is finished, asking questions to gain more information and details.

While the map is being drawn, the community was encouraged to openly talk about their neighbourhood. In this stage facilitator asked every participant one by one to talk, giving chance to every member of the community to be heard. The participation of the community is very important, thus the more people who come means the more complete and legitimate the resulting data will be.

Discussions are held in suggestions and debate as the community come into an agreement regarding information in the map, such as the border, location of houses, and infrastructure. This is done so that the resulting data will include different perspectives from everyone.

The resulting data consists of two kinds of information, which are physical and non-physical.

1. Physical
    Physical data consists of many information including houses, public facilities, streets, drainage, electricity system, disaster gathering point, productive spaces, social spaces, and other infrastructures. The data also includes other aspects such as water bodies and vegetations.

2. Non-physical
    Physical data consists of socio-economic data of the community such as demography, economy, history, culture, and the mapping of existing community organizations.
    Preparation

3.2.1 Mapping Process in RT 04 RW 02 Simokerto

The community participation recorded is as follows:

-   Several meetings were held with the total participants of 16 people that consists of 5 men, 9 women, and 2 teenagers.
-   The process was held in several places including the local mosque
-   The community that attended FGD actively engaged in the forum.

The community recorded their neighbourhood using simple hand-drawn maps. In the beginning, some of the participants expressed their confusion due to only knowing part of their neighbourhood. But as the discussion progressed, it could be observed that the participant became increasingly knowledgeable about the condition of their neighbourhood, both in physical and non-physical aspects.

After the mapping process, the people who participated understood about the current condition of their neighbourhood. This apprehension was the beginning of an analysis process that would be done by the community regarding their neighbourhood. After the initial analysis of the neighbourhood, the community then participate in the discussion about the identification of potential and problem in their neighbourhood.

Figure 4 (top) and 5 (bottom). Community meetings in making the participatory map

Information about physical data that can be obtained from the maps are:

1. Houses, streets, and demography, indicating the location and borders of the RT as well as the owner of every house.
2. Type of Public facilities, RT 04 has some public facilities that are used to support the daily life of the community.
3. Location and type of sources of clean water in RT 04, which is PDAM and groundwater from wells, some houses have access to one or both.
4. Building functions, which are as a house, *kost*s (monthly rented rooms) or *kontrakan*s (yearly rented buildings).
5. Private and public bathrooms.

Non-physical data: information was collected through the discussion process in participatory mapping. There were several narrations told by the community that support the complexity of information regarding the neighborhood and the larger area. In the forum group discussion, the participants discussed the economy, culture, the mapping of existing community organizations, and history.
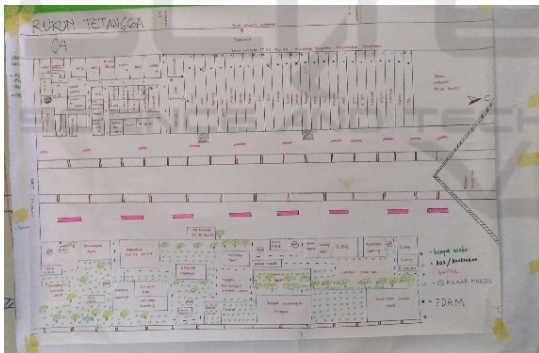

Figure 6. Result of the community mapping: hand-drawn map by the community

In the economic aspect, the community members are mostly lower-middle-class workers, like street vendors and market sellers. There is livestock consisting of goat, cow, chicken, and duck. The community also obtained capacity building through several workshops. Existing social ties and culture in this community make them feel a strong sense of unity. Community Organizations in this community recorded include women's group in crafting and a teenage group for education called the Kampung Dolanan community. Historical Data about the growth process of this kampung, from an open space to condition nowadays, was also obtained. From this

data, this community started to build small houses sporadically from 1963 and later built improvement of infrastructures such as roads and public facilities including public bathrooms.
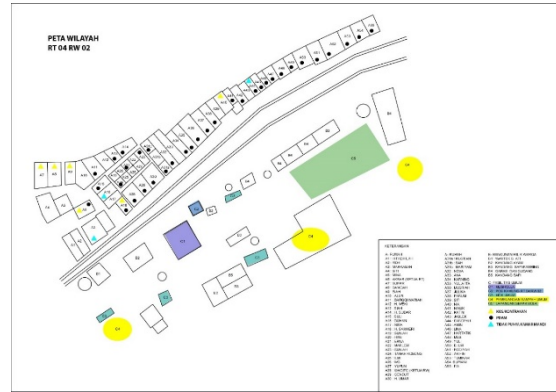

Figure 7. Result of community mapping: digitalized map by researcher with several thematic indicators

3.2.2 Mapping Process in RT 05 RW 12 Simokerto

The community participation recorded in the participatory mapping process in RT 05 RW 12 Simokerto is as follows :

- Several meetings were held with the total participants of 14 people that consists of 3 men, 9 women, and 2 teenagers.
- The meetings were attended by RT and RW administrator as well as the local youth movement group (*karang taruna*) and elderlies
- The process was held in several places including the local mosque
- The community that attended FGD actively engaged in the forum.
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In the beginning, some of the participants only knew part of their neighbourhood. But as the discussion progressed, it could be observed that the participant became increasingly knowledgeable about the condition of their neighbourhood, both in physical and non-physical aspects. After the mapping process, the people who participated understood about the current condition of their neighbourhood. This apprehension was the beginning of an analysis process that would be done by the community regarding their neighbourhood. After the initial analysis about the neighbourhood, the community then participate in the discussion about the identification of potential and problem in their neighbourhood

Figure 8 and 9. Community meetings in making the participatory map

Figure 10. Result of community mapping: hand-drawn map by the community

Information about Physical Data regarding that can be obtained from the maps are:

1. Houses, streets, and demography, indicating the location and borders of the RT as well as the owner of every house.
2. Type of Public facilities, RT 04 has some public facilities that are used to support the daily life of the community.
3. Building functions, which are as houses or *kontrakan*s (yearly rented buildings).
4. Private and public bathrooms.
5. Greeneries. The community plants a lot of greeneries along the neighbourhood paths, including trees, decorative plants, and medicinal plants.

Non-physical data: information was also collected through the discussion process in participatory mapping.

In economic aspects, this community had received several stimulant funds from the government to improve the economy of the community including *Program Nasional Pemberdayaan Masyarakat* (PNPM) or National Programme of Citizen Empowerment and *Badan Keswadayaan Masyarakat* (BKM) with a saving and lending program. Social

and Culture aspect was recorded as follows: most community members are from the Javanese and Tionghoa ethnic and there is a routinely held community meeting for all community or specific group, such as women group, religious group or kids-caring group (*posyandu*). Community Organizations in this community were recorded including women's group in crafting and youth movement group called *Karang Taruna.* Historical data about the growth process of this kampung was obtained regarding the process from an open space to condition nowadays. From this data, this community's growth started in 1947 with Umar Said as the first settler and more house were built mostly in 1978-1990. This condition was continued with the improvement of infrastructures like road and public facilities such as public bathrooms.

3.3 Data Analysis

The participatory mapping that was done enabled the community to have a better knowledge of the physical and non-physical aspects of their neighbourhood. After understanding the condition of their neighbourhood, the community was involved in a discussion to begin the analysis of the potential and problem of their neighbourhood. In RT 04 RW 02 Simokerto, the participatory mapping process was followed up by the analysis of potential and problems via focus group discussion. The forum group discussion results of RT 04 RW 02 Simokerto are as follows:

Table 3. Potentials and Problems of RT 04 RW 02 Simokerto

POTENTIAL	PROBLEMS
There is an active woman's group working in craft and is supported by Dreamdelion Community, Al-Azhar foundation, and the college students of Petra Christian University	Lack of Modal
	Lack of Marketing
	Lack of Workshop to improve ability
	Lack of place to assemble
	Lack of cohesiveness in the group
Kampung Dolanan as a container for children of RT 04 RW 02 Simokerto to get extra education in general knowledge and culture, especially in conserving traditional games	Garbage problem
	Waste from livestocks
	Flooding
	Sewer
	The river is very dirty and
	shallow

By realizing the potential and problems of their neighbourhood, the community gained more understanding regarding their circumstances. They can be more confident in expressing their views and think comprehensively about their next act and plans. They started to think about improvements based on their condition, and their plans are backed up by sufficient data. This process can be the basis of participatory planning which aims to solve problems and utilize potentials of the neighbourhood. With this method, the community can solve their problem independently as well as empower themselves to reach a better living condition.

3.4 Kampung Pinggir Rel (KAPIREL) Exhibition and Discussion Event

As a follow up from the participatory mapping process, Arkom Jatim initiated an exhibition and discussion event with the community, showcasing the result of the participatory mapping process in the railroad settlements of Surabaya. The title of the event was "Menyusuri Sisik Melik Perkembangan Kampung Pinggir Rel Surabaya" or "Going Along the Other Side of the Development of Railroad Settlements in Surabaya". This discussion was held for the public audience. The discussion was attended by the community, the general public, as well as academics from several subjects including architecture, history, and sociology. In this discussion, the community expressed their aspirations to act upon the mapping results from their respective neighbourhood. The discussion was also attended by community members from other railroad settlements in Surabaya such as Gubeng and Wonokromo railroad settlements. This event acts as a media to publish the participatory mapping result and discuss scientifically with experts from several subjects. With this event, the community can gain more perspective on the issue and gain more confidence and ability in advocating their needs.

Figure 11. Result of community mapping: digitalized map by researcher with several thematic indicators

Figure 12. Kapirel exhibition and discussion

4 CONCLUSION

The participatory process with citizen power degree through participatory mapping needs more community engagement before starting the data collection phase in the design process. The information-gathering process needs more engagement with the community through initial observation, assessment, inline and last participatory mapping. The integration of design phase and participatory mapping can be seen in this table:

Table 4. Integration of participatory mapping and design phase

Design Process (Observation Phase)	Participatory Mapping
Information gathering	Initial Observation (Pre-participatory mapping)
	Assessment (Pre-participatory mapping)
	Inline (Pre-participatory mapping)
	Participatory Mapping
Information structuring	Data analysis (Problems and Solution
Plan	Participatory Planning
Evaluate Plan	

This process resulted in a more detailed and accurate site analysis, activities, and user-needs, including:
1. Accurate location of houses, borders, roads, and other physical elements
2. Building functions and water resources can be found in one map
3. Growth history of kampung
4. Problems in kampung especially about safety issue can be discovered
5. Inclusion of different perspectives from diverse gender and age groups, as well as in-depth explorations into problem-solving and making connections between information

The information is then analyzed to understand the aspects they need to improve or ignore, realizing the problem and making a solution together. Through this process, the community improved their awareness and engagement about the development of their urban environment. They had a better understanding of their *kampung*, their living space, making them participate actively in improving their urban environment through the design process.

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