

Assessing the Integration of Participatory Urban Neighbourhood Assessment (PUNA) Output into Spatial Planning in Jakarta Case Study: Marunda, North Jakarta, Indonesia

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Executive Summary of Research

1. Background

To build disaster risk resilience in Marunda, North Jakarta, the NGOs Cordaid, PT. Bina Swadaya Konsultan (BSK) and Yayasan Bina Tani Sejahtera (YTBS), initiated a project called Marunda Urban Resilience in Action (MURIA) as a platform to face the complex disaster risks and climate change issues faced by the community in Marunda.

Cities are the most vulnerable locations to the adverse impact of climate change. Particularly in developing countries, urban disasters strike hardest to the urban poor, the majority of whom reside in more vulnerable informal areas (Rafael, Martins, Borrego, & Lopes, 2015; Stern, 2007). Informal areas tend to be significantly vulnerable to climate change because of the poor quality of housing, unequal access to infrastructure and lack of access to essential facilities and services (IPCC, 2012; Revi et al., 2014; UNISDR, 2009).

With respect to the adverse impact of climate change on low-income groups particularly, the concept of community resilience has gained prominence in science and policy over the decades (Rafael et al., 2015; Sharifi, 2016). Community resilience is here understood as the ability of affected people to withstand and absorb disturbance, and self-organise to adapt and return to the functioning of their system as it was and may be (Solar, 2014).

Building a resilient urban community is a critical need for the village of Marunda, Jakarta, Indonesia. It is because Marunda is a densely populated urban village in a location that highly vulnerable to natural disasters. It is the home to 29,465 inhabitants (Statistics Indonesia of Jakarta Utara City, 2017). The community suffers from inequalities many complex problems, such as low household income, lack of access to basic services, and frequent flooding from rivers, tidal waves and high winds.

The *Marunda Urban Resilience in Action* (MURIA) platform aimed to develop and execute a multi-stakeholder approach model to facilitate collaboration in building urban resilience in

the village of Marunda, North Jakarta. One of the objectives of this project was trying to minimise flood risk. This was approached through strengthening the community’s capacity in using maps to identify risks, social capacity, and potential for development in response to disaster preparedness. The Marunda community was for this purpose involved in a *Participatory Urban Neighbourhood Assessment* (PUNA). The output of PUNA itself is a *community-based adaptation* (CBA)¹ in which could help people to adapt in response to disaster risk. As one of the results, this initiative identified the main threat as flooding which is caused by rain and the overflowing river that is worsened by erosion.

There is an established need to promote integrated planning and CBA initiatives and assimilate these within the formal spatial planning of Jakarta, Indonesia. It is considered that this integration is a key policy for bringing forward community initiatives and build sustainable community resilience (Barton, Krellenberg, & Harris, 2015; Wijaya, 2015). However, there apparently is limited integration of community adaptation planning with formal planning initiatives in Jakarta.

As part of MSc research an assessment of PUNA process and outputs was therefore made. It focused on the conceptualisation of the PUNA process, to which extent the PUNA outputs meet users’ needs, and the enabling environment for integration of PUNA outputs into formal spatial planning in Jakarta.

2. The Framework of Research

The research was underpinned by two theoretical frameworks; a framework of Participatory PGIS (PGIS) (Sieber, 2006) and a framework of Collaborative Governance (Emerson, Nabatchi, & Balogh, 2012). As research objectives, the PUNA process and output was firstly evaluated on the basis of these frameworks. Secondly, the extent to which the outputs of PUNA was satisfying community and local government needs was investigated. Thirdly, the perception of local government experts, associated with Jakarta spatial planning, toward PUNA output was assessed.

Several methods were used to get relevant data to fulfil the objectives. Table 1 summarises the main methods of this research:

Table 1. Summary of Research Methods

Specific Objectives	Data Collection Methods	Data and Tools Requires	Analysis Methods
To review the existing PUNA process used in building resilient communities in Marunda	Documents review	PUNA Document Literatures	Literature Review
To examine to which extent the PUNA outputs satisfy the communities and local government needs	Semi-structured Interview Photovoice Focus group Participatory mapping	Field notes Audio recorded Transcripts Maps of PUNA outputs Sketch map	Content analysis (Qualitative and Quantitative)
To examine on how PUNA outputs can be integrated to Jakarta spatial planning from collaborative governance perspective	Documents review Semi-structured Interview	Audio recorded Transcripts	Literature review Content analysis (Qualitative)

¹ PUNA outputs and Community-based Adaptation Planning are used interchangeably in this research.

3. Reviewing the PUNA process

Marunda urban village is located on the coast and is surrounded by industrial activities. The PUNA process took place in the context of a situation in which insecurities over land tenure exist. While this issue was avoided by respondents, it is a crucial challenge for local government and NGOs to take land tenure status into account when implementing CBA activities in urban low-income settlements (Archer et al., 2014). It was therefore difficult to motivate community members in Marunda to participate in the PUNA process.

Those who do participate find it hard to share their local knowledge openly. Partly this could also be caused by the mixed-cultures and prior experiences with participatory process in Marunda, which affect their tolerance of expert solution (Carver, 2003; Sieber, 2006). It is also worsened by environmental degradation of Marunda that affects community livelihood. It triggers people to feel anxious towards development activities and subsequently leads to community resistance to participate. Such situations produce lack of commitment to sustaining the initiatives within the community itself (Chirenje, Giliba, & Musamba, 2013).

The facilitating NGOs began to approach community by studying the secondary data and conducted some observation to understand Marunda condition. After that, with a help of Marunda Chief, the facilitators shared their aims on how importance of having better preparation for disaster risks to the community. The community members interested and gradually participated in the PUNA process, and therefore the facilitators could execute this CBA activity.

The low-tech approaches that PUNA practice have used showed effectively engaging Marunda community enabled the sharing of their spatial knowledge. Yet, the use of OpenStreetMap² and Ushahidi³ platforms showed an imbalance with regards to the community's access to the internet. A high portion of adults and elderly in Marunda do not know how to access or use the internet. Therefore, although the web-based GIS technology yielded a sense of belonging to these people who now have their own spatial information through internet/website, this technology also marginalised the adults and elderly that do not know how to access the internet.

As these platforms enable the community to articulate their planning to the decision-making process in an inclusive way, its usability is debatable if the spatial information can only be provided and accessed by a minority in the community. It should also be taken into account that the local support network for the technology could "informal and fragile and fail to ensure the long-term sustainability of the GIS" (Sieber, 2006, p. 499). Therefore, the involved NGOs tried to teach community members, especially youths, to have the basic technical skills to use OSM and Ushahidi (Brandusescu, Sieber, & Jochems, 2016). At least, the Marunda community itself should know how to acquire, implement, and maintain the GIS platforms to sustain the spatial information. This study suggests that youths should not only learn to apply and sustain the information, but also how to disseminate the information within the community.

PUNA practice showed a positive effort in encouraging community to communicate their initiatives to several government institutions such as Provincial Food Security, Marine, and

² openstreetmap.org

³ ushahidi.com

Agriculture Agency of Jakarta (DKPKP) and Provincial Disaster Management Agency of Jakarta (BPBD). Although the PUNA process has promoted a multi-stakeholders approach which is a promising approach to build resilience for community, it is up to the stakeholders themselves to create the awareness and willingness to build a resilient community. Several spatial planning offices however, which are assumed to play important roles to strengthen community adaptation, failed yet to be involved. Collaboration with government institutions in Jakarta therefore still needs to be expanded.

The PUNA process has empowered Marunda community to cope with hazards risks with their local context and capacities. It is seen that women in Marunda are now encouraged to take parts in issuing an opinion and become capable to manage their economies through activities such as urban farming, joint business savings and loans, and waste bank management. This process certainly generated ownership for people of the spatial information that they produced together with facilitators.

4. The PUNA Outputs

Based on a geo-information needs analysis, it has become clear that the community required information that could help them better prepare for hazard occurrences but also historical information on hazard occurrences. Local government required the PUNA outputs to utilise the land use plan map from Jakarta spatial planning as a base layer in PUNA maps. This would support them to take actions on implementing place-based policy. Information of the existing conduits utilities is required by all stakeholders. Furthermore, information on vulnerable groups, flooding exposure, emergency shelters, and evacuation routes have been available, yet need to be improved in associated with information and representation.

The government of Jakarta needs information which can be used for mitigation plans such as existing infrastructure, socio-economic condition, and identified hazards of Marunda village. These kinds of information are quite specific and can be addressed by the involvement of community, as local knowledge owner, and grassroots organisations. It is therefore apparent that collaboration and information sharing amongst stakeholders ideally will fulfil the information needs of both sides to address hazard risks in Marunda.

The majority of participants within Marunda perceive the PUNA outputs as satisfactory. It is clear that they never before had a spatial representation available of the hazards related information. It is observed that they now compare themselves to other hamlets and sub-districts within Jakarta and are aware that currently Marunda is the only urban village which has such spatial information available online. This inevitably generates ownership of PUNA outputs with the people of Marunda. Nevertheless, they still felt that some information should still be updated and fixed, in order to provide better understandable information to the whole community in Marunda.

Conversely, the government institutions involved are satisfied but at the same time also reluctant to the PUNA outputs. It might be caused by a lack of trust towards the community. They fundamentally emphasised on the coordination between demand for and supply of information and the credibility of the information. Not understanding or knowing the provenance of information or the reason why it was produced are serious barriers to the integration of this community generated information. The involvement of government institutions in all stages of the process is therefore paramount (Cloutier et al., 2014).

5. Barriers to Integrating Spatial Planning Initiatives

The five barriers recognised in adaptation literature are lack of: institutional arrangements, leadership, knowledge, resources, as well as the presence of behavioural problems, were clearly evident in the case study of Marunda. Additionally, a lack of technology was also found to be a barrier in this study. In terms of institutional arrangements, the study revealed that there are two limitations which can hamper the integration of community-based adaptation planning into spatial planning in Jakarta. This includes the limited of coordination between local and the higher levels of administration and the lack of distinct responsibilities amongst government institutions. because of this, the government stakeholders' view on community-based adaptation initiatives can negatively influence government priorities and interests. These priorities and interests are negatively influenced by limited awareness and participation, behavioural and lifestyle of people, and an apparent lack of leadership regarding CBA (Wijaya, 2015).

The top-down character of decision making is still hugely embedded in the spatial planning process in all cities in Indonesia, including Jakarta (Firman, 2004). This is a challenge for communities that wish to mainstream their initiatives. Inter-institutional discussions regarding authority and responsibility are known but hardly addressed within government institutions. The silo mentality leads to frustration with government institutions and the community as it hinders collaboration. These findings emphasise that local government has to play an important and leading role in mainstreaming adaptation (Cloutier et al., 2014).

The institutional issues are strongly related to the unclear leadership division amongst government institutions in Jakarta when it comes to CBA and hazard mitigation. Coordination amongst different levels of government has been challenging as no institution has taken responsibility to give meaningful attention to community engagement in decision-making processes. This issue is acute in regards to certain priorities of higher level towards spatial planning. Interviews with different levels of government make clear that there is an assumption that all areas in Jakarta have similar issues such as flooding. This generalized view is considerably constraining any attempt to incorporate community-based adaptation into spatial planning, as it is clear that different areas/arenas have different approaches to derive solutions from.

Coastal flooding that frequently happens in Marunda, is seen as a common flooding problem by the Jakarta government. It leads to government giving less attention to community initiatives. This is worsened by the lack trust government officials have towards the community, which they perceive to be unable to participate in the decision-making processes. Based on this study it has however become clear that the Marunda community has substantial local knowledge that can be used as inputs of such development planning and also for validation of development interventions (Adger et al., 2009; Yuen, Jovicich, & Preston, 2013). Moreover, lack of participation awareness within the community complicates the issue of collaboration among stakeholders. It will be highly acute if both parties do not possess a willingness to sustain a city. Although there is a bottom-up process in Jakarta to accommodate community initiatives for the decision-making, it seems useless as long as mutual trust and awareness are not embedded with the government and community.

This study also identified issues regarding the available resources. Clearly local government needs professional assistance or external support to identify specific vulnerabilities of communities in different areas. Local government in Jakarta expressed the need for mapping

expertise, especially in the light of human resources, which hindered their capability to use and apply geospatial information in planning. This is illustrated by a technological barrier identified in this study. Different government institutions use different map projections. Although this is an issue that can relatively easily be solved, it slows down the process of integration, worsening the issue of trust and credibility of data. There is a need to expand the collaboration to relevant government institutions to take parts in the process of obtaining information. The availability of geographic data that Marunda community has produced is such a stepping-stone to enable a community to raise their initiatives to decision-making processes. Also, it can help government to have more accurate spatial information.

The lack of human resources, information/data, and leadership can be avoided through a participatory process that supports the information sharing, knowledge, and experiences of urban environment, hazards events, and the lesson learned from previous feedback (Cloutier et al., 2014). The PUNA process has produced data in web-based GIS in which government can use as inputs in the decision-making process. Issues to overcome are the fact that only youths can operate the technology, government lack technical expertise, and government highlight on the trust and credibility of data. Those issues can be turned into opportunities for government and community as well as NGOs and academicians to increase collaboration in order to produce and disseminate reliable and credible information. As Wijaya et al. (2017) stated that data availability, quality and accessibility remain challenging for integrating adaptation information into spatial planning in all cities in Indonesia including Jakarta. The availability of community-based data as well as collaboration with NGOs and academicians can significantly help local government to minimise the issues at local level and also reinforce technical expertise in Jakarta.

6. An Enabling Environment to Integrate Spatial Planning Initiatives

The endeavour of community and NGOs to produce community-based adaptation planning can address the limited data and information as well as generate community awareness on participation. However, the findings highlight a number of factors critical to enable community-based adaptation planning integrating into spatial planning.

First of all, there is a need for institutional reform to put community-based adaptation on the agenda. The findings show, by identifying the limitation of institutional arrangement, it is possible for local government to argue a basis for reform at the higher level in order to give authority to plan in climate change responses from community base. If urban resilience is to be a concern at local level, then the capacity of people and institutions to understand the climate change and hazards risks and how to adapt to them needs to be strengthened by giving authority to manage and plan within and across administrative boundaries (Measham et al., 2011). Moreover, this effort is strengthened by Firman (2004) and Wijaya et al. (2017) who argued that the role of government in spatial development needs to change at all levels in Indonesia and the capacity of local government in spatial management needs to be reinforced. Therefore, this effort will provide opportunities for raising awareness of local capabilities in overcoming climatic uncertainty as well as for reshaping socio-technical institutional relations (Archer et al., 2014).

Secondly, top-down priorities should ensure be aligned with local-level needs. It is known that the top-down character is still deeply embedded in spatial development planning in Jakarta. Then it is critically argued that a coherent top-down policy framework is essential in ensuring the integration of community-based adaptation into spatial planning in order to avoid

mismatched priorities amongst different levels of government (Archer et al., 2014). By mainstreaming the adaptation from the bottom-up process, it will strengthen the adaptation effort at higher level.

Thirdly, an effective adaptation action can be developed and embedded in spatial planning if local government has the will and leadership to execute the tasks and actions towards climate resilience (Archer et al., 2014; Barton et al., 2015). The awareness of the government of Jakarta toward urban resilience is currently reflected in the building of the Jakarta resilience framework. They have been collaborating with international NGOs to establish Jakarta resilience strategies with three stages of development, including the establishment of resilience platform, preliminary resilient assessment (PRA) and framing the strategies, and to strategy implementation. This action provides potential and opportunity to integrate community adaptation planning. From a bottom-up perspective, the PUNA process emphasised multi-stakeholder collaboration to strengthen community to the climate change and hazards risks. It is hoped that both sides can find the way in which certain concerns and goals can be integrated. Opportunities are considerably determined by leadership. This study suggests that while political leadership is important for driving swift change, local leadership can be essential for aggressive change (Measham et al., 2011; Pasquini et al., 2015). The hazards risks, climate change, and their costs provide substantial initial catalyst for local government to transform their development towards more sustainable. This transformation is assisted by the acknowledgement that the environment, the community and the local wisdom have value (Pasquini et al., 2015). As such, leadership factor is highly needed within local government to achieve successful adaptation action. It is essential to emphasise that the development of the leadership can be addressed through a participatory process (Cloutier et al., 2014).

With respect to leadership and a participatory process, the findings encourage local government to trust the community, regarding their abilities in providing data/information, incorporating their knowledge and culture to achieve effective adaptation planning, despite the power relations being complicated to be addressed. Although there is a bottom-up process embedded in decision-making in Indonesia, it seems to fail to raise community initiatives. It has been stated by Conoras (2007) and Bitongo (2013) that the community needs identification through Musrenbang remains questionable. It is undoubtedly argued that “local communities can generate clear and practical information and disseminate it, opening different options to enable more effective actions in cities. Involvement by communities which have been affected by climate impacts can drive action by decisionmakers, [...] and reluctance by politicians to share information about probable risk areas” (Archer et al., 2014, p. 350). Hence, apart from building awareness of participation in community for urban development, local government also needs to have capacity development to understand how important adaptation issues related to urban planning and management are and make it as one of the priorities in the development of Jakarta.

The final critical factor is to encourage the government of Jakarta to focus on integrated geospatial data. It has been a challenge in Indonesia to have one map policy to reduce overlapping maps related to land resources issues (Wibowo & Giessen, 2015), which is reflected in this study. It is an essential issue that affects political issues such as conflicts of interest with the different institutions involved (Wibowo & Giessen, 2015). This issue is highly important with regards to an effective adaptation planning in spatial planning (Mardiah et al., 2017). Therefore, a need for local government to cooperate with the Geospatial Information Agency (BIG) and BPBD associated with integrated data and information (Mardiah et al., 2017). It should be clear that integrated geospatial data contributes not only to resolving technical issues, but also unifying those different sectoral interests.

7. Recommendations

By investigating an enabling environment for the integration of community participation output towards adaptation into spatial planning in Jakarta, this research provided reflections on the policy-making in Jakarta and about the importance of bottom-up information for building resilience in the city. The government of Jakarta has to change the way they take the role of local government in decision-making processes in consideration. This is not only for delivering and implementing policies that have been made at higher level but also requires authority to manage and plan their administrative units. It is important for sustaining the city to be aware that every area or administrative unit in the city has different problems that should be solved by taking the local context into account, especially for mitigating hazards risks and climate change. It is therefore important that (local) government leadership is enabled to solve institutional problems, has the resources to solve technical issues and can sustain a bottom-up process. Another recommendation for public participation is that in order to expand collaboration between grassroots organisations and government institutions, mutual trust, understanding, legitimacy and commitment should be promoted. Sharing trust between government and the communities is important to facilitate an effective process.

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