

# 2015

## Public Participation and Climate Governance Working Paper Series

### Picturing Climate Governance: Photovoice and Public Participation

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## 1 Introduction and Literature

Power is an unavoidable topic and dilemma for planning scholars, and citizen participation and empowerment has become a central element in planning and social policy (Collins & Ison, 2006; Davidson, 1998; Rocha, 1997). Friedmann (1992) categorizes three kinds of power facing human beings: social, political, and psychological (p. 33). He further elaborates that (1) social power links to a household's access to produce wealth, such as information, knowledge, organizational participation, and financial resources; (2) political power is concerned with the ability of an individual to affect the process of decision-making, comprising of the power to vote, as well as the power of voice and of collective action; (3) psychological power concerns an individual's sense of personal potency, demonstrated by self-confident behavior. Friedmann proposes an alternative development, which seeks the empowerment of households and individuals in these three categories of power through their involvement in socially and politically relevant actions (1992, p. 33). It emphasizes inclusive democracy as one of its principal ends of action (1992, p. 34).

The development organizational viewpoint considers empowerment as “enhancing an individual's or group's capacity to make choices and transform those choices into desired actions and outcomes,” indicated as both a process and an outcome (Alsop & Heinsohn, 2005, p. 5). Grounded in conceptual discourse and measurement practice, Alsop and Heinsohn (2005) demonstrate the measuring empowerment (ME) framework – an analytic framework with factors of agency and opportunity structure for measuring and monitoring empowerment processes and outcomes (p. 6). Regarding agency, asset endowments including psychological, informational, organizational, material, social, financial, and human are used as measuring indicators. Some of these indicators are easier to quantify than others, and the weighing of these indicators may vary in different cases and in different cultural and political contexts (Alsop & Heinsohn, 2005, p. 8). In terms of opportunity structure, indicators include “the presence and operation of the formal and informal laws, regulations, norms, and customs” (Alsop & Heinsohn, 2005, p. 9). This quantitative attempt to measure empowerment overemphasizes power as the solid feature or steady status, and ignores its more fluid and relational characteristics.

In order to categorize and measure the interaction between public participation and power, Arnstein (1969) introduced the ladder of citizen participation, a typology of eight levels, to illustrate different extents of citizens' power – from non-participation, to tokenism, to citizen power – in determining the plan or program (pp. 216-217). According to Arnstein, citizen participation, referred as “a categorical term of power,” is “the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future” (p.216). However, Arnstein also points out that the ladder may homogenize the have-nots and the power holders, oversimplify the distinctions into eight rungs, and that it may also lack sufficient analysis for discovering key factors hindering the achievement of genuine participation (pp. 217-218). Based on Arnstein's typology model, Rocha (1997) develops a ladder of empowerment to elaborate the understanding of empowerment and its opportunities (p. 31). Based on circumstances, process, goals, and power experience with an axis of individual and community, Rocha's ladder of empowerment is

divided into five categories: atomistic individual, embedded individual, mediated, socio-political, and political empowerment (Rocha, 1997, p.34).

The typology model demonstrates participation as a power struggle between powerless citizens and controlling agencies, suggesting the goal is always to climb to the top of the ladder (Davidson, 1998, p. 14). Participation and empowerment aim at providing an inclusive and progressive element in the planning process. However, this approach to planning has been criticized: some argue that public participation leads to delays in the planning process; some suggest that a tokenism approach to participation is often taken, while real power is retained by more powerful groups; and others indicate that the response to such participation is usually apathetic, which makes the participation process a waste of resources (Davidson, 1998, p. 14). Collins and Ison (2006) posit that participation still does little to affect the distribution of power.

While often referred to as “natural disasters”, disasters are in fact not natural, but a reflection of power and social justice (Wisner et al., 2004). In facing disasters, the social distribution of risks and the resources available to reduce risks are affected by the distribution of power (Mascarenhas & Wisner, 2012). Mascarenhas and Wisner (2012) summarize five major linkages between power and disaster: (1) power in the echoes of the colonial past; (2) wealth, economic power; (3) state power; (4) cultural- and knowledge-based power; and (5) violence as power (pp. 50-54). For marginalized populations facing climate hazards, changing existing patterns of power is fundamental to effectively tackling the challenges of climate change.

Despite criticisms of participation and empowerment, I argue that public participation does offer an outlet for citizens to amplify their voices and exercise their rights, reflecting the ideal of equal access to political decision-making. In this case, delay and noise is better than silence. Planners should continue discovering solutions for strengthening the effectiveness of voices and achieving inclusive democracy, as proposed by Friedmann.

## 2 Community Profile

This research is the result of a collaboration with three local groups and a number of organizations in metropolitan Manila and Cebu City. One of these groups is a faith-based group called Fresh Wind, a small home church and community support group based in a gated community in Quezon City. Religion plays a significant role in the daily lives and decision-making of many people in the Philippines. Participants of this Christian group come largely from low-income households residing in different parts of metropolitan Manila, known as the National Capital Region of the Philippines including Quezon City. There are nine participatory photographers from Fresh Wind, comprising a balanced gender ratio.

Another collaborating group in the metropolitan Manila area is called Buklod Tao, Inc., a community based NGO located in Banaba in the municipality of San Mateo, Rizal Province. This community is highly vulnerable to disasters, floods in particular. Most of the community members reside in a flood plain between two major rivers, Nangka River and Marikina River. Registered in 1996 as a Filipino nonprofit

organization, Buklod Tao has conducted various disaster risk reduction training and advocacy programs to emphasize resilience building for the community. These programs have led to professional boat making, a sustainable community garden, hand-made recycled products, youth development, and disaster preparedness training. Buklod Tao is efficiently organized with a strong leadership management framework, which is accustomed to organizational collaboration with other NGOs and international organizations and has been recognized with various international and national awards. There are twelve participatory photographers from this community, including a youth group and a few adult participants who are mostly females.

The last community involved is the Cebu Gualandi Association of the Deaf, Inc. The participants are from the Deaf community, and come from various demographic backgrounds in Cebu City. There are seven participatory photographers from this community. Most of the participants are active leaders in their neighborhoods as advocates for Deaf rights.

I have selected the collaborating communities for this research based on the following criteria: 1) Communities that are exposed to frequent and varying hazards; 2) Communities whose populations are marginalized, such as women, and who are less visible in the policymaking process; 3) Communities that have established a management or governance framework to some extent. The three participatory communities chosen demonstrate a variety of governance structures, types of inter-organizational engagement, and experiences with hazards and natural disasters. Buklod Tao, Inc. and Cebu Gualandi Association of the Deaf, Inc. demonstrate a more structural management and operational framework, while Fresh Wind has a relatively loose leadership structure. Buklod Tao, Inc. and Cebu Gualandi Association of the Deaf, Inc. also illustrate rich experiences in collaborating with academic institutions, national NGOs, international organizations, and government agencies, while Fresh Wind has been more independent, with very few organizational interactions. Regarding experience with natural hazards, most participants from Buklod Tao, Inc. and Fresh Wind have had first-hand adaptation experience on a yearly basis, while participants from Cebu Gualandi Association of the Deaf, Inc. have significantly had different exposures to hazards due to diverse socio-economic status and neighborhood locations.

### (a) Hazard Description

The Republic of the Philippines is a sovereign state in Southeast Asia in the western Pacific Ocean, comprising 7107 islands. The 2010 Census of Population and Housing reveals the Philippines' population to be 92.34 million, making the Philippines the 12<sup>th</sup> most populated country in the world. According to the 2011 World Risk Report published by United Nations University and the Institute of Environment and Human Security, the Philippines has a 24.32% disaster risk, the third highest disaster risk in the world, taking into account the four components of risk (exposure, susceptibility, coping and adapting capacities).

Since 2004, typhoons have struck the Philippines in a highly unusual, unpredictable manner. Notably, typhoons that come in winter, outside of the rainy season, often lead to disastrous losses. In

November 2013, typhoon Haiyan, one of the largest storms in recorded history, ravaged the Philippines and became the nation's all-time deadliest cyclone, with a confirmed death toll of 6,340. Other destructive storms in recent years include typhoons Bopha/Pablo (its international name and the Philippine Atmospheric, Geophysical and Astronomical Services Administration name and, respectively) in 2012, Washi/Sendong in 2011, and Parma/Pepeng in 2009. In addition to typhoons, the Philippines' position on the Ring of Fire in the Pacific Ocean means that earthquakes and volcanic eruptions have frequently occurred in the country. According to a report from the National Disaster Risk Reduction and Management Council (2013), the death toll of the 7.2 magnitude Bohol earthquake, which occurred on October 15, 2013, was approximately 222. The 2012 Visayas earthquake, with a magnitude 6.7, resulted in 113 deaths (USGS, 2012).

Tropical storms, known as typhoons in Southeast Asia, are cyclones that originate over a tropical ocean with measured winds over 200 km/hr and accompanying torrential rains (Jonkman, Gerritsen, & Marchand, 2012). Coastal storms often result in combined hazards of wind and flood effects, leading to infrastructure damage, social disruption, and loss of life (Jonkman et al., 2012, p. 223). Flood effects are typically the most significant cause of damage and casualties (Schmuck, 2012). Facing the hazards of flooding, vulnerabilities are not equally distributed among individuals and households. For instance, within the same households, women are more likely to drown in a large coastal storm than men due to a greater likelihood of an inability to swim and their social role as caregivers to protect and save small children (Fordham, 2012). The economic status of a household also affects its recovery, and households without good financial access might face significantly slower recovery or fall deeper into poverty (Carter, Little, Mogues, & Negatu, 2007).

This paper primarily investigates the climate governance of selected groups in metropolitan Manila and Cebu City facing frequent and continuous devastating natural hazards. The local lens reveals opportunities and challenges of public participation through mobilizing adaptive capacities.

### **(b) What Can We Learn from These Communities?**

Communities with different geographic, political, and social features are selected to make a comparison of different variables that contribute to disaster adaptation and governance. These variables include local community capacity, grassroots NGO engagement, governmental support, leadership influence, communication networks, and interaction among stakeholders. Results are expected to discover: (1) how factors such as social relations, actual hazards, vulnerabilities, local capacity building and cultural diversity operate and interact; (2) how technology and mobilization can transform disaster adaptation and governance even in areas with less robust technological development; (3) how communities can establish visual and communicative platforms for a more representative and connected disaster governance framework; (4) how various stakeholders can seek skills and resources for community resilience development in the face unpredictable hazards; and (5) how the Photovoice model can be applied to different community settings with various scales and levels of socio-economic development.

### 3 Discussion of Photovoice

Created and first applied by Wang and Burris in a Women's Reproductive Health and Development Program in Yunnan, China, Photovoice exerts theoretical influence in the fields of visual anthropology, public health, feminist theory, and community-based documentary photography (Wang & Buris, 1997; Wang et al., 1996; Wang et al., 1998). By providing participants with cameras to document their daily realities, Photovoice utilizes photography training, visual information, and community participation for policy change by creating and defining the images (Wang, 1999, 2006). Therefore, during the Photovoice project, participatory photographers take part in the project and the community as a whole. For research projects, these photographers act as peer researchers, discovering, collecting, analyzing, and sharing information to an audience, such as the academic world. As community members, participatory photographers are able to provide local perspectives to challenges and issues through their lens, standing on their insider identities as well as established social relations. The following section will provide more detailed discussions regarding the disadvantages and advantages of Photovoice methodology and project.

#### (a) Advantages of Photovoice

First, Photovoice affords a platform for individual participation, learning, and empowerment. Photovoice enables participants, including marginalized populations, to record and visualize their communities' strengths and concerns, providing them with a communicative and educational tool (Strack et al., 2004; Wang, 2006). Participants have been empowered during this process through enhancing confidence and increasing political democracy (Krieg & Roberts, 2007; McIntyre, 2003; Wang, 1999).

Second, Photovoice cultivates social capital, creates policymaking discourse, and provides opportunities for transformation within the community. Photovoice is able to explore the linkage between place and identity through a visual presentation of everyday lives embedded in the place with multilevel social actors (McIntyre, 2003). It provides a platform for participatory communities to connect and learn from each other, for the formation of social identities at the community level, and for capacity building. It also allows communities to reach policy makers and help influence positive change (Strack et al., 2004; Wang, 2006). Through the visual lens of Photovoice, a community can document successful and unsuccessful policies and actions, gaining visual evidence to guide and evaluate future policymaking (Krieg & Roberts, 2007; Wang, 1999). In addition to recognizing injustice within the community, Photovoice can also be a tool for advancing knowledge around marginalization, identifying experiences of inequality and insufficient resources in order to create change (Krieg & Roberts, 2007).

Third, Photovoice discovers and encourages alternative ways of knowing. Through the lens of local participants, Photovoice creates critical dialogues and knowledge about community issues and policies that cannot be easily studied by outside experts (Strack et al., 2004; Wang, 1999, 2006). Photographs taken by local participants are valued for intangible cultural practices and complex relationships and issues, in comparison to traditional quantitative methods. Engaging with the planning theory and

application discourse, Photovoice provides an alternative epistemology for planning practice facing a planning field with a dominant quantitative discourse. It visualizes local knowledge and vital practices through the grounded photographs and their photo stories, exploring the depth of critical theories and knowledge beyond statistical analysis.

Fourth, Photovoice promotes collaboration amongst multiple stakeholders. Within and beyond the community, Photovoice as an educational and communicative platform also encourages the formation of partnerships and the mobilization of different resources from various stakeholders to create collaborative governance and enhanced policymaking (Rhodes et al., 2008). The complete research cycle of a Photovoice project consists of planning, training, implementation/photograph execution, and outreach/sharing programs. It encourages various actors from within and beyond the community, including participatory photographers, community members, government agencies, private sector actors, civic organizations, and the general public, to engage with this series of programs. Thus, Photovoice affords various perspectives on certain research topics from multiple actors and layers in community, and encourages collaborative planning.

#### **(b) Disadvantages of Photovoice**

There are a number of challenges facing Photovoice researchers. First, like other qualitative methods, planning researchers have to spend additional time on legitimizing, implementing, analyzing, and defending a Photovoice study under the positivism-dominated academic system. Second, a Photovoice project requires a significant time commitment from both the researcher and participatory photographers to create visual products and develop communicative and educational tools together (Krieg & Roberts, 2007). Third, the costly equipment and travel expenses to implement a Photovoice project can be a significant financial burden for researchers. Fourth, since Photovoice is a relatively new research method, previous studies of the methodology documentation and discussion are fairly limited, requiring researchers to continuously improve the research design and methods. Fifth, for certain sensitive topics, such as political corruption, Photovoice projects may face bureaucratic opposition from governmental agencies.

Photovoice researchers have to pay special attention to participants for a series of financial, social, and ethical issues. As noted, a Photovoice project is time-consuming for the researcher and participants alike. Particularly for participants with a financial burden and significant work commitment, such a time investment can be challenging. The researcher should identify the barriers and provide proper aids to motivate active participation. Other challenges include motivating photographer involvement, gaining trust from the community, and ensuring consistent participation (Krieg & Roberts, 2007). Regarding the structure and design of the methodology, researchers must recognize and cope with the timidity, suspicion, and ridicule of themselves and participants, as well as the potential danger of photography becoming a tool for social control and surveillance instead of empowerment (Prins, 2010, p. 426). The potential harms and risks, such as the loss of privacy, cannot be neglected. Wang and Redwood-Jones (2001) point out the ethical concerns of using Photovoice, including the potential “invasion of privacy,

recruitment, representation, participation, and advocacy” during the process, and possible risks for participants in the practice (p. 560). Researchers should address the risks and potential harms and maximize the benefits of participants by implementing a monitoring and risk prevention plan, providing training, and ensuring that consent is obtained from participants.

### (c) Photovoice Methods

Social media has changed modes of communication, playing a significant role in people’s daily social, financial, and political lives. Numerous social movements, such as Occupy Wall Street, have been ignited and cultivated all over the world through the power of social media. To adapt Photovoice methods to the social media era, this research replaces traditional cameras with smart phones. Participants are given basic social media training, allowing their stories to reach a global audience. This section describes the major phases of the research project. Currently (August 2014), the project is proceeding to the seventh phase: participant observation.

1. *Visitation and finalization of collaborating communities.* I visited potential NGOs and community groups, evaluated potential collaborating sites based on community diversity, disaster vulnerabilities, partners’ working networks and accessibility, and communicated with community cultural and political leaders (such as village chiefs and concerned government units). After confirming the collaboration with Fresh Wind, Buklod Tao, Inc., and Cebu Gualandi Association of the Deaf, Inc., I finalized partnership mechanisms with them.
2. *Recruitment of community photographers.* To recruit participatory photographers, I informed community leaders and announced project briefings and participation recruitment through posters and meetings in the communities. I selected approximately ten community members from each of these three participatory communities in metropolitan Manila and Cebu City based on voluntary consent from the recruitment promotion. Most of the participants are from low income households, have strong ties with their communities and community groups, and are exposed to disaster risks.
3. *Project training.* The training was conducted mainly by me as the principal investigator, as well as by collaborating agency staff and social media/photography trainers. There were two major elements to the training: Photovoice and photography. The Photovoice section was composed of an introduction to the concept and method of Photovoice. The photography section included the fundamentals of photography and social media, responsibility and authority as a photographer, the ethics of taking photographs, and proactive solutions to minimize potential risks. I provided the selected community members with smart phones and facilitated project design conversations in order to decide on the themes for visual documentation. These themes included: a) how hazards have affected the community environmentally, economically, and socially; b) how the community responds to these hazards; c) how disaster governance operates effectively or ineffectively; and d) what disaster risks the local community faces.

4. *Meeting and narrative development.* Participatory photographers were requested to post at least five photos a week for 26 weeks to their social media accounts. They chose about five photographs to develop detailed narratives after a specified time, such as two weeks after the initial training and then met again once every four weeks for six times thereafter. Thus, each photographer has developed a total of 25 photo stories for the project. During this stage, photographers began to identify the major themes, mechanisms, and recommendations for adaptation according to the photographs. I recorded and documented the narratives and developed key themes after transcription and initial coding.
5. *Photograph clustering.* After the second or third narrative development meeting, participatory photographers developed strategies for photograph clustering and analysis. The photographs selected by photographers were clustered topically, similarities and differences between and across topics were identified, and holistic analysis was established. Participatory photographers explored the causes of the problems presented and sought effective solutions and policy recommendations.
6. *Action planning.* Participatory photographers planned and formed a series of events to share their photographs and narratives as well as policy recommendations for adaptation with a larger audience, including community leaders, policy makers, researchers, journalists, and affected community members.
7. *Participant observation.* Along with the research team, I conducted observations of the participatory communities and photographers including field notes and photographs to demonstrate: a) how marginalized participatory photographers create a public sphere and social network for discourse, learning, and solutions regarding disaster risk reduction and adaptation; b) how the newly formed communicative sphere transforms the established governance mechanism into a more interactive disaster adaptation framework; and c) the challenges and limitations of the proposed action methods and research.
8. *In-depth interviews.* I have carried out in-depth interviews with the participatory photographers, holders of local knowledge, political and cultural leaders, nonprofit managers, and various other stakeholders. The interviews evaluate the effectiveness of this Photovoice project and its methodology, as well as develop a further action plan for influencing sustainable development in a broader region. Participatory photographers reflect on their accomplishments and decide the future of the project.

## 4 Discussion and Reflection

### (a) Picturing Vulnerability and Resilience

From the photo stories provided by the participatory community members, one is able to see and understand various disaster vulnerabilities that these marginalized communities have to face, as well as the resilience governance that they are building.

**Environment with great risks.** Most of the participatory photographers reside in marginalized communities that are at risk for disasters due to environmental features and poor infrastructure. The photos taken by the community participants demonstrate vividly the environmental vulnerability that they directly face. The reconstruction of the damaged Santo Niño Chapel of the Basilica in Cebu and the relocation of housing units under the Batasan-San Mateo highway bridge illustrate how the region and its residents must continuously tackle seemingly unavoidable challenges. Soil erosion has been a critical issue for the Buklod Tao, Inc., one of the involved organizations in metropolitan Manila. Pictures from a few participants demonstrate residents, especially those living near the river bank, exposed to an urgent risk of losing their homes and lives if heavy rain occurs; there is no protection for their houses in preventing a landslide. In addition to these environmental features, very little policymaking or government attention has been directed towards these marginalized communities, which are mostly informal settlements. For instance, a series of photographs point out that road projects surrounding the informal settlement community have been underway for years, while very little has been achieved. These uncompleted roads can be hazardous to residents in the rainy season.

**Poverty.** Policymakers and scholars apply different statistical standards to define and demonstrate poverty. The illustration of these quantitative categories may not be critical to understand the concept of poverty and its multiple layers interacting with climate hazards. The participatory photos taken in these low-income communities afford a local lens for exploring poverty. First, poverty can be demonstrated as lacking material resources and means for preparing, mitigating, and adapting to hazards. Even though residents realize their houses are too fragile to survive during the heavy rain, they have no resources to replace the plastic cardboards and rebuild their houses. Second, through the visual presentation, one can see how poverty has influenced the behaviors of the affected population. These people have no stable sources of income, safe dwellings, solid education, or steady social networks. They may also expose themselves to greater risk physically, financially and socially when disasters strike. For example, homeless children have been photographed trashing the communities and infrastructure in which they reside, increasing their own physical vulnerability. Third, poverty can be perceived and defined in various ways. Most of the participatory photographers who lack material resources seldom define themselves and their neighbors as “poor” in their photo stories. Instead, they focus on how they tackle the challenges using the limited resources they have.

**Gender.** Even though most of the photographers were not cognizant of it, the photo stories presented indicate that disaster risk and adaptation is gendered. For instance, most of the women from these communities cannot swim although most are born and raised near the water. Swimming, regarded as the overexposure of one’s body, may not be seen as appropriate for women. In the face of water-related disasters, the inability to swim leads these women to face much greater risks compared to their male counterparts. Furthermore, the division of adaptation is largely gendered as well. Male community members engaged with the disaster preparedness programs are often involved with boat making, participating in rescue training, and educated with updated software and mapmaking techniques, which plays a more significant role in urgent response and mitigation to disasters. Female community

members are engaged with gardening, shoe making, and cleaning – activities that conform to their traditional perceived role as caregivers. When natural disasters strike, female community members are expected to take more responsibility for protecting the household and children compared to their male counterparts. This division of adaptation work results in women's participation in fewer critical processes and less training in disaster management, exposing them to greater disaster risks. Participatory photographers not only picture vulnerabilities relating to hazards, but also capture various forms of adaptation within communities that are building resilience with limited resources.

***Transformative resilience of boat-making.*** The selected communities are exposed to great risks of hazards. For example, Buklod Tao, Inc. recognizing the risk of flooding to the Barangay Banaba of San Mateo, began training their male community members in professional boat-making. Later, they transformed their boat-making program into an entrepreneurial idea and requested sponsorship from NGOs, international organizations, government agencies, and the private sector. Buklod Tao members put the sponsors' logos, such as Greenpeace, onto the boats that they professionally construct and paint, making this business a significant source of community income. In addition, this progressive and pioneering community promotes and provides boat-making training to other similarly marginalized communities.

***Food for diversity and resilience.*** Diversity regarding socio-economic indicators is a critical component in planning theory as well as resilience building. As mentioned in the theoretical framework, adding diversity enhances the capacity of a community to mitigate various threats. In this visual exploration, participatory photographers show how communities are engaged in sustainable gardening, handcrafting using native materials, and accessing local resources for diversifying sources of food, economic opportunity, and knowledge, in order to build resilience. In particular, there are a large number of photographs that emphasize the diversification of food through community gardening, and planting a variety of local crops to increase community autonomy. The community garden program enhances the quantity and quality of food storage, significantly increases community income, and establishes collaborating partnerships and solid social networks amongst community members.

***Leading community resilience.*** Human capital plays a crucial role in resilience building for community development. Leadership to mobilize resources cultivates more efficient community development. Among three communities involved in this study, Buklod Tao, Inc. demonstrates the most structural leadership as well as the most transformative and diverse capacities for building resilience, even though its residents experience the highest frequency of hazards. Focused leadership enables the community to develop roadmaps to respond and adapt to uncertain challenges. However, the dominant leadership may hinder the contribution of different perspectives and interest groups, precluding more representative governance. Furthermore, it has not been stated what roles the governmental agencies and their support have played in establishing and cultivating community resilience and collaborative adaptation governance. It remains to be explored how outside actors, such as governmental support, interact with community leadership to enhance multi-sector resilience governance.

## (b) Picturing Empowerment

Based on Friedmann's power framework (1992), participatory photographers are empowered through the elevation of their social, political, and psychological power as photographers, researchers, and facilitators: they attain more access to knowledge and skills relating to climate adaptation; they give voice to the greater public for disaster decision making; and they build self-confidence for their personal and social development.

Specifically, through a Photovoice approach, this research project provides an outlet for disadvantaged community members to engage with the adaptation governance network of the community. Each participant, regardless of their gender, age, religion, occupation, income, educational background, or political affiliation, has the opportunity to illustrate their observations and viewpoints regarding climate hazards and adaptation. Their photographs become strong statements that they can convey to the rest of world without limit or boundary. The personal narratives attached to the photographs provide an "insider" perspective on climate hazards and adaptation. For instance, numerous photographs taken during this process demonstrate vividly the physical features and frequency of continuous hazards in their communities. Flooding becomes an unavoidable challenge that the project participants – who are mostly informal settlers – have to deal with on a daily basis, especially during the rainy season. The pre-hazard period emphasizes potential risks, including blocked drainage, inappropriate trash management, and malfunctioning facilities, that can become a real danger when flooding occurs. The water level affects the mobility of every resident. Malfunctioning facilities increase the physical vulnerabilities of critical infrastructure, such as major highways. The post-hazard period focuses on both challenges and opportunities for these disadvantaged communities. The increased cost of foods post-hazard becomes a tremendous financial burden for these low-income residents, since most of them do not have direct accessibility to land and food production. It also encourages more community members to participate in the community garden more actively, which can be an ideal model to prepare for the next hazard by emphasizing resilient food security.

Therefore, participatory photographers empower themselves not only through visually expressing their viewpoints of daily life and community efforts under the threat of hazards, but also by being exposed to social learning opportunities with other photographers, local community members, and outsiders to explore and discover effective solutions to climate and other social challenges.

## (c) Reflections

Participation has not changed the essential distribution of power. First, physical and financial features constrain the selection and participation of project participants. Residents with extreme financial burdens for the most part do not have time and access to participate in community activities that require a considerable investment of time. Thus, before the project implementation, it was noticed that the most disadvantaged community members, such as the single-parent low-income households, were not represented among the project participants.

Second, participation has not changed the current institutional leadership and distribution of power among community groups to a great degree. Especially for the church group and Deaf community, where leadership is highly concentrated in the hands of the few, project implementation is affected by the current leadership structure. Leaders from existing community structures have been more active during the project training, photograph execution, and social media interaction. Perhaps these leaders have a clearer understanding of the vision and mission of their institutions as well as how the proposed program can affect them individually and institutionally. For instance, community leaders tend to take and upload more photographs and motivate others to participate in the project. Partnering with the current leadership structure aids the effectiveness and efficiency of project implementation, but it provides little space for the transformation of power structures, especially for those less representative community members.

Third, project participation has changed little regarding the larger power structures underlying the established social and political system. Starting with the project's design, this research aims to afford another gendered perspective on climate governance. During the project observation period and ongoing interviews with the participants, it has been illustrated and recognized that females have played a more active role in engaging with community events and programs compared to their male counterparts – an observation that is not limited to this particular project. The gender division within Filipino households, and especially for low-income families, has been clear and steady: males, regarded as the primary financial contributor of their families, are more focused on earning income. Females, regarded as the homemaker, are more focused on taking care of the household. In this division, community engagement has often been categorized as being within the household sphere. Females are more engaged in such community programs, even assuming leadership positions. However, the most critical decision-making positions, such as president and executive director, continue to be occupied by males, despite a majority of female participants in these community programs. Therefore, concerns have been raised that participation in community events may not change the gendered nature of the power structure relating to family and community decision making.

While public participation has perhaps not effectively changed the distribution of power on the ground, it does offer an opportunity to transform marginalized individuals and communities with the help of technology, media, local capacity, and social learning.

## 5 References

- Alsop, R., & Heinsohn, N. (2005). *Measuring empowerment in practice: structuring analysis and framing indicators* (Vol. 3510). World Bank Publications.
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of planners*, 35(4), 216-224.
- B. Krieg and L. Roberts. 'Photovoice: Insights into Marginalisation through a 'Community Lens' in Saskatchewan, Canada' in S. Kindon, R. Pain and M. Kesby (ed). *Participatory Action*

- Research Approaches and Methods: Connecting People, Participation and Place* (New York: Routledge, 2007), 150-159, at 7-9.
- B. Wilsner, I. Davis, P. Blaikie and T. Cannon, *At Risk* (London: Routledge, 2004) at 3.
- C. C. Wang, 'A Participatory Action Research Strategy Applied to Women's Health', 8:2 *Journal of Women's Health* (1999), 185-192, at 7-8.
- C. C. Wang, 'Youth Participation in Photovoice as a Strategy for Community Change', 14:1-2 *Journal of Community Practice*, (2006), 147-161, at 7.
- C. Wang and M.A. Burris, 'Photovoice: Concept, Methodology and Use for Participatory Needs Assessment', 24:3 *Health Education and Behavior*, (1997), 369-387, at 7.
- C. Wang and Y.A Redwood-Jones, 'Photovoice Ethics: Perspectives from Flint Photovoice' 28:5 *Health Education & Behavior*, (2001), 560-572, at 9.
- C. Wang, K. Carovano, K.W. Yi, and Z. Tao, 'Photovoice as A Participatory Health Promotion Strategy' 13:1, *Health Promotion International*, (1998), 75-86, at 7.
- C. Wang, M.A. Burris, and X.Y. Ping, 'Chinese Village Women as Visual Anthropologists: A Participatory Approach to Reaching Policymakers' 42:10 *Social Science & Medicine*, (1996), 1391-1400, at 7.
- Carter, M. R., Little, P. D., Mogues, T., & Negatu, W. (2007). Poverty traps and natural disasters in Ethiopia and Honduras. *World development*, 35(5), 835-856.
- Collins, K., & Ison, R. (2006). Dare we jump off Arnstein's ladder? Social learning as a new policy paradigm. Paper presented at the PATH (Participatory Approaches in Science & Technology) Conference, 4-7 June 2006, Edinburgh.
- Davidson, S. (1998). Spinning the wheel of empowerment. *Planning*, 1262(3), 14-15.
- E. Prins, 'Participatory Photography: A Tool for Empowerment Or Surveillance?' 8:4 *Action Research* (2010), 426-443, at 9.
- E.M. Rocha, 'A Ladder of Empowerment', 17:1 *Journal of Planning Education and Research* (2008), 31-44, at 2-3.
- Friedmann, J. (1992). *Empowerment: the politics of alternative development*. Blackwell.
- H. Schmuck, 'Flood' in: B. Wisner, J. C. Gaillard & I. Kelman (eds.), *Handbook Of Hazards and Disaster Risk Reduction* (New York: Routledge, 2012), 244-256, at 6.
- J. Friedmann. *Empowerment: The Politics of Alternative Development* (Blackwell, 1992), at 2,4 and 15.
- Jonkman, S. N., Gerritsen, H., & Marchand, M. (2012). Coastal storm. In B. Wisner, J. C. Gaillard & I. Kelman (eds.), *Handbook of hazards and disaster risk reduction* (pp. 220-231). New York: Routledge.
- Krieg, B., & Roberts, L. (2007). Photovoice: insights into marginalisation through a 'community lens' in Saskatchewan, Canada. In S. Kindon, Pain, R., Kesby, M. (Ed.), *Participatory*

*action research approaches and methods: connecting people, participation and place* (pp. 150-159). London and New York: Routledge.

M.R. Carter *et al.*, 'Poverty Traps and Natural Disasters in Ethiopia and Honduras', 35:5 *World Development* (2007), 835-856, at 6.

A. Mascarenhas and B. Wisner. *Politics: Power and Disasters*. Wisner, J.C Gaillard and Kelman, I (eds). *The Routledge Handbook of Hazards and Disaster Risk Reduction* (2012).

Mascarenhas, A., & Wisner, B. (2012). Politics: Power and disasters. Wisner, JC Gaillard, & I. Kelman (eds.), *The Routledge handbook of hazards and disaster risk reduction*, 48-59.

A. McIntyre, 'Through the Eyes Of Women: Photovoice and Participatory Research as Tools for Reimagining Place', 10:1 *Gender, Place and Culture: A Journal of Feminist Geography* (2003), 47-66 at 7.

McIntyre, A. (2003). Through the eyes of women: photovoice and participatory research as tools for reimagining place. *Gender, Place and Culture: A Journal of Feminist Geography*, 10(1), 47-66.

National Disaster Risk Reduction and Management Council. (2013). *NDRRMC Update SitRep No. 35 re Effects of Magnitude 7.2 Sagbayan, Bohol Earthquake*". Retrieved November 18, 2013, from <http://www.ndrrmc.gov.ph/attachments/article/1108/NDRRMC%20Update%20SitRep%20no.%2035%20re%20Effects%20of%20M7.2%20Bohol%20EQ,%203Nov2013,%206AM.pdf>

Prins, E. (2010). Participatory photography: A tool for empowerment or surveillance? *Action Research*, 8(4), 426-443.

R. Alsop and N. Heinsohn, *Measuring Empowerment in Practice: Structuring Analysis and Framing Indicators* (World Bank Publications, 2005), at 2.

R.W. Strack, C. Magill and K. McDonagh, 'Engaging Youth Through Photovoice', 5:1 *Health Promotion Practice* (2004), 49-58, at 7-8.

Rhodes, S. D., Hergenrather, K. C., Wilkin, A. M., & Jolly, C. (2008). Visions and Voices: Indigent persons living With HIV in the southern United States use photovoice to create knowledge, develop partnerships, and take action. *Health Promotion Practice*, 9(2), 159-169.

Rocha, E. M. (1997). A ladder of empowerment. *Journal of Planning Education and Research*, 17(1), 31-44.

S. Davidson, 'Spinning the Wheel of Empowerment', 1262:3 *Planning* (1998), 14-15, at 2-3.

S.D Rhodes, K.C Hergenrather, A.M. Wilkin and C. Jolly , 'Visions and Voices: Indigent Persons Living with HIV In The Southern United States Use Photovoice to Create Knowledge, Develop Partnerships, and Take Action', 9:2 *Health Promotion Practice* (2008), 159-169, at 8.

- S.N Jonkman *et al.* Coastal Storm in B. Wisner, J.C. Gaillard and I. Kelman (eds). *Handbook of Hazards and Disaster Risk Reduction* (New York: Routledge, 2012), 220-231, at 6.
- S.R. Arnstein, 'A Ladder of Citizen Participation', 35:4 *Journal of the American Institute of Planners* (1969), 216-224, at 3.
- Schmuck, H. (2012). Flood. In B. Wisner, J. C. Gaillard & I. Kelman (eds.), *Handbook of hazards and disaster risk reduction* (pp. 244-256). New York: Routledge.
- Strack, R. W., Magill, C., & McDonagh, K. (2004). Engaging youth through photovoice. *Health Promotion Practice*, 5(1), 49-58.
- USGS National Earthquake Information Center. (2012). *Deaths from Earthquakes in 2012*. Retrieved November 18, 2013, from [http://earthquake.usgs.gov/earthquakes/eqarchives/year/2012/2012\\_deaths.php](http://earthquake.usgs.gov/earthquakes/eqarchives/year/2012/2012_deaths.php)
- Wang, C. C. (1999). Photovoice: A participatory action research strategy applied to women's health. *Journal of Women's Health*, 8(2), 185-192.
- Wang, C. C. (2006). Youth participation in photovoice as a strategy for community change. *Journal of Community Practice*, 14(1-2), 147-161.
- Wang, C. C., Yi, W. K., Tao, Z. W., & Carovano, K. (1998). Photovoice as a participatory health promotion strategy. *Health promotion international*, 13(1), 75-86.
- Wang, C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior*, 24(3), 369-387.
- Wang, C., & Redwood-Jones, Y. A. (2001). Photovoice ethics: Perspectives from Flint photovoice. *Health Education & Behavior*, 28(5), 560-572.
- Wang, C., Burris, M. A., & Ping, X. Y. (1996). Chinese village women as visual anthropologists: A participatory approach to reaching policymakers. *Social Science & Medicine*, 42(10), 1391-1400.
- Wisner, B., Blaikie, P., Cannon, T., & Davis, I. (2004). *At Risk*. London: Routledge.