

Employability, Livelihood Diversity, and Identity: Factors Affecting Coastal Communities' Social Vulnerability

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Abstract— According to the International Institute for Environment and Development (IIED, 2007), the Philippines is one of the countries particularly vulnerable to sea level rise and other climate-related hazards affecting coastal areas since a large portion of its population is living in low elevation coastal zones. This study aims to look at the factors contributing to social vulnerability to climate-related hazards affecting the fourteen (14) selected coastal barangays of Zamboanga City using participatory approaches coupled by a socio-demographic and social vulnerability survey. Results of the study show that in the last ten years, coastal barangays have been exposed to more intense and more frequent strong winds and big waves brought about by the southwest monsoon (Habagat), storm surge, receding shoreline and sea-level rise. Results also show that four of the selected barangays show high social vulnerability to climate-related changes affecting coastal environment. They exhibited low employability, high attachment to occupation and low livelihood diversity with more than fifty percent dependent on fishing and seaweed farming as main source of livelihood. The communities show deep connection with their physical community for identity that limits their ability and interest in trying new occupations or working elsewhere and making them more heavily reliant on coastal resources, thereby making them highly sensitive to coastal environmental changes brought about by climate change.

Keywords— Social Vulnerability, Livelihood Diversity, Climate Change

I. Introduction

Climate Change is “any change in climate over time, whether due to natural variability or as a result of human activity”(IPCC, 2007). Although the climate change impact is geography specific, the most vulnerable are those who come from countries where many already struggle with poverty, inequality, poor health and nutrition, and environmental degradation. They also have the least capacity to cope and adapt to the adverse effects of climate change (Klein et al., 2007a).

A rise in sea waters and other disasters will endanger the lives of people living in these areas. Gozun (2011) advised those living along the coastlines or those areas that get inundated to move out as the only way to safeguard

themselves from the impacts of climate change. She further stressed that one of the ways to reduce disasters is to act early and not to wait for the disaster to happen.

Climate change is already affecting the physical security of vulnerable communities particularly in fragile and conflict-affected countries. The importance of using conflict-sensitive approach in responding to climate change by policy makers and practitioners can promote peaceful positive adaptation actions which can yield the double dividend of building resilience to climate change and conflict (Vivekananda, 2011).

Due to its geographical location and physical characteristics, the Philippines is considered one of the most disaster-prone countries in the world (Bildan, 2003; World Bank, 2005; Fortes and Jose, 2006). The areas that are most vulnerable to the impacts of climate variability and extremes include tropical forest ecosystems, agricultural ecosystems, coastal and low-lying areas, small islands, inland water ecosystems, wet plains and mangrove areas (Gozun, 2011).

This paper looked into one of the dimensions of vulnerability-Social Vulnerability. Ballesteros (2008) defines social vulnerability as the inability of people, organizations, and societies to withstand adverse impacts from multiple stressors to which they are exposed. These impacts are due in part to characteristics inherent in social interactions, institutions, and systems of cultural values. Social vulnerability was measured as a function of employability, livelihood diversity and identity or level of dependency of the coastal communities to coastal resources for food, livelihood and socio-cultural activities, and adaptive capacity or the ability of a system to adjust to climate change (including climate variability and extremes) to moderate potential damages, to take advantage of opportunities, or to cope with the consequences (IPCC, 2001). It is also a component of vulnerability as adaptive capacity determines which of the potential impacts of a climate-related hazard will actually happen. Adaptive capacity will influence social systems and behavior and is therefore essential to adaptation planning, and a determinant of social vulnerability.

II. Methodology

This study gathered, organized and analyzed barangay level information on the social vulnerability, adaptive capacity and sensitivity of fourteen coastal barangays following participatory community-based approaches based on the Climate Vulnerability and Capacity Analysis (CVCA) framework developed by CARE in 2009. A household level survey was used to do a socio-demographic profile and measure the level of social vulnerability of fourteen (14) selected coastal communities to gather information related to Employability, Livelihood Diversity, and Identity. Key informant interviews and field observations were used to validate data gathered from community workshops and the survey.

III. Study Area

The study was conducted in selected coastal barangays of Zamboanga City. The most vulnerable barangays were selected following these criteria: risk exposure, poverty index, population density, and accessibility and staff security. Based on these criteria, six (6) barangays (Victoria, Arena Blanco, Bolong, Sangali, Manicahan and Vitali) were selected from the East Coast to represent the agro-mariculture zone, three (3) barangays (Talon-Talon, Mariki and Campo Islam) from the city proper to represent the urban residential zone, and five (5) barangays (Ayala, Talisayan, Sinunuc, Recodo and Labuan) from the west coast to represent the industrial economic zone.

industrial economic zone.

IV. Results and Discussion

The IPCC defines vulnerability as “the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes” (IPCC, 2007). Gallopin (2006) described vulnerability as often opposite to resilience. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity. Understanding these elements can help evaluate the nature and magnitude of the climate change threat, detect the key sources of vulnerability, and identify actions to help reduce or deal with the threat under each element. While earlier IPCC-based approach emphasized on the need for responses to specific climate change impacts, greater emphasis is now placed on understanding the underlying causes of vulnerability and building adaptive capacity, not just at the national level, but more importantly at the local level (Klein et al., 2007).

This study gathered, organized, and analyzed information on the vulnerability and adaptive capacity of communities, households, and individuals following the Climate

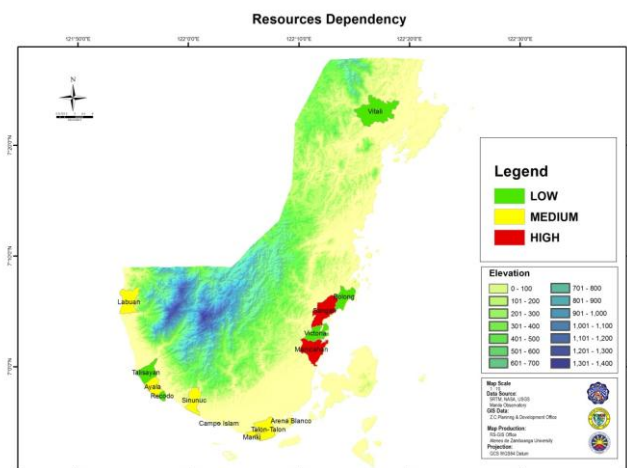


Figure 1: Level of dependence of selected barangays to coastal resources for livelihood.

Figure 1 shows the sources of livelihood and specialization and level of Poverty Affecting selected barangay residents. As shown, fishing and seaweed farming are among the major sources of income of communities located along the coastal areas. In some communities, even the secondary sources of income are also coming from coastal resources. These communities may be considered specialists. Results of the study show that the coastal communities of Arena Blanco, Labuan, Manicahan, Mariki, Sangali, and Talon-talon may be considered specialists. Majority of these communities' main sources of livelihood are dependent on one or two coastal resource dependent industries: fishing and seaweed farming. The breadth of other available industries is also coastal resource dependent (i.e., canning). Machlis and Force (1988) argued that specialists, having narrower skills, are likely to be more sensitive to climate-induced changes in resources. Bliss et al. (1998) and Randall and Ironside (1996) support this statement. As compared to generalists, those that have a greater skill set due to a variety of income sources and/or broader variety of industries may be more adaptable and therefore less sensitive to climate-induced changes in the resource (Poggie & Gersuny, 1974). This means that specialists, as a whole, can be potentially highly sensitive to coastal environmental changes because the economic base of a community is heavily reliant on coastal resources. The IUCN (2009) explains that communities that are highly specialized, contain a limited range of industry types, as well as use specialized resources from a small resource base can be expected to be more sensitive to climate change. Thus,

livelihood specialization results in higher sensitivity and thereby increasing social vulnerability. The coastal communities of Manicahan and Sangali are subsistent fisherfolks. This means that most families who live by the coastal area are highly dependent on coastal resources for everyday food. Other communities dependent on coastal resources for food include Ayala, Arena Blanco, Labuan, Mariki, Sinunuc, Talisayan, Talon-Talon, and Vitali. Unlike other barangays, Barangay Vitali has very few households built within the 300-meter distance from the shoreline. The other barangays are mostly populated, and social infrastructure (i.e., houses) are made of light construction material. Most of these residents are not original settlers of the barangays and have just recently migrated in the last 20 years. Among the 14 barangays, Barangay Talisayan shows the highest dependence on coastal resources for their socio-cultural practices. Community workshop supports this finding as the community's cemetery is located along the coast. Arena Blanco, Mariki, Campo Islam, Labuan, Manicahan, and Talon-Talon also show a moderately high dependence on coastal resource for socio-cultural practices. It can be noted that these coastal communities are hosting indigenous peoples communities who are dependent on the sea not just for their livelihood but also more especially for their identity. These indigenous peoples pride themselves as fisher folks and seaweed farmers. This attachment to occupation means that when they are no longer able to continue their means of earning, they do lose not only their income but also their identity (Minnegal et al., 2004). This means that the community, as a whole, can be potentially highly sensitive to coastal environmental changes because the economic base of a community, their food source, and their socio-cultural practices are reliant on coastal resources. A study by Bautista (2010) indicates that the monthly per capita as of 2003 should be no less than one thousand one hundred eighty two pesos (PhP 1,182) for urban barangays. So a household of five (5) members, which is the coastal communities' average household size, should have an income higher than five thousand nine hundred ten pesos (PhP 5,8910) pesos so as not to fall below poverty line. Results of the study show that most communities have more than fifty percent (50%) of its total households earning below the poverty line. Income is also a determinant of sensitivity as it determines the household's financial flexibility. Those with just enough for subsistence may not have savings that may serve as fall back in times of crisis or disaster. Thus, vulnerability increases as financial flexibility and savings decrease.

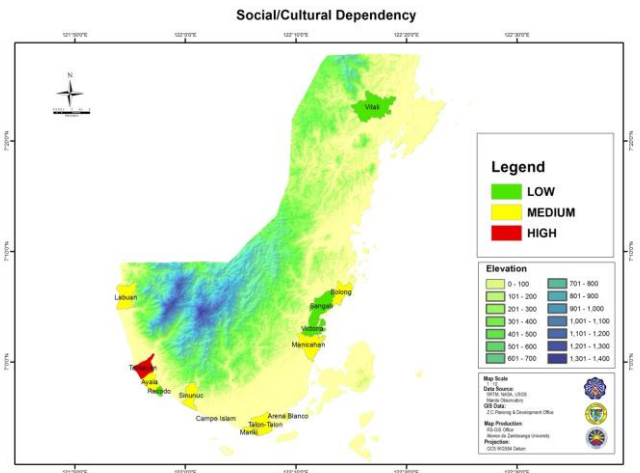


Figure 2: The level of dependence of selected coastal communities on coastal resources for socio-cultural practices and/or activities.

As shown in Figure 2, most of the coastal communities' strength is their level of interest in adapting to change. This dimension of adaptive capacity explains the degree to which communities are capable of "self-organization". Individuals or communities with high interest in adapting to change have either higher financial, social and/or emotional flexibility to do so. In the case of the coastal communities of Zamboanga, most communities highlighted their social and emotional flexibility. They pride themselves in their ability to provide support to each other as proven by the strong "bayanihan" and strong social network all sectors of the community receives during disasters and/or calamities.

Family characteristic is another strength common to most communities. Although most households have school-aged children, they are still able to experiment as social and family networks are able to provide support in times of need. This is true for the coastal communities of Vitali, Victoria, Sinunuc, Manicahan and Talisayan.

Bolong, Labuan and Talon-talon have coastal communities who may be mostly dependent on coastal resources for livelihood but expressed low attachment to these livelihoods. Unlike the indigenous peoples communities of Arena Blanco, Mariki and Campo Islam, Bolong, Labuan and Talon-talon's coastal communities' identities are not linked to their occupation. They also expressed willingness to take on other jobs should need be. These communities also show high employability and the surrounding communities offer sources of livelihood that are not coastal resource dependent. These communities also show a moderately low attachment to place which means their level of connection to their physical community is low (Hidalgo and Hernandez, 2001). Most individuals would often prefer to have the stability and familiarity of staying the same community, but this preference

often leads to lower capacity to adapt and effectively respond to climate change (Stedman, 1999).

Amongst the weaknesses of coastal communities in adapting to change is attachment to livelihood and lack of livelihood diversity. A good example is the coastal community of Layag-layag in Barangay Talon-Talon. Majority of the residents in the area rely on seaweed farming alone as source of livelihood. The same is true for the residents of the coastal communities of Mariki and Arena Blanco, they are also dependent on fishing and seaweed farming as their main source of livelihood. These three (3) communities strongly identify themselves as fisherfolks and seaweed farmers, and as such highly attached to their livelihood. This may be supported by the fact that majority of the individuals in these communities have low employability owing to their level of education, level of transferable skills or their attitude and openness to work elsewhere. Reed (1999) discussed that people who lack transferable skills tend to stick to what they do and eventually become "locked" to that occupation. Most participants also expressed the communities' lack of opportunities for other types of employment. The lack of transferable skills, low level of education and the lack of opportunity and openness for other types of employment lower the individual's capacity to adapt to change. Communities that derive income from multiple sources or resource types or are more able to switch between occupations tend to have higher adaptive capacity. This is true for the coastal communities of Sinunuc, Bolong, Victoria and Vitali.

Conclusion:

The study has illustrated the climate-related hazards already faced by selected coastal communities and the potential risks that these communities face as hazards become more intense and/or frequent as a result of climate change. Looking at the coastal communities' social vulnerability, the study shows that those who have already been exposed to and those that have higher susceptibility to face more intense and/or frequent climate-related hazards also exhibit high social vulnerability.

Their attachment to livelihood, lack of transferable skills, lack of livelihood diversity and level of poverty decreases their ability to adapt to change and thus increasing vulnerability. An increase in dependence to the coastal resource for food, livelihood and socio-cultural practices or a little decrease in adaptive capacity will eventually increase the communities' social vulnerability.

This means that these communities might not be able to adapt to the changes brought about by the changing climate and have low resilience to the potential impacts of these changes will most likely eventuate.

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References

- Bautista, C.C. (2010) "Subjective Poverty Thresholds in the Philippines" *The Philippine Review of Economics*, Vol XLVII No. 1, 147-155.
- Brown P, et al. (2007) *Rural Livelihoods Analysis Enabling Natural Resource Managers to Self Assess their Adaptive Capacity*. Draft Only.
- CARE (2009). *Climate Vulnerability and Capacity Analysis Handbook: First Edition*. Countries. *Journal of Agricultural Economics*, 51:289-302.
- Ellis, F. (2000). *The Determinants of Rural Livelihood Diversification in Developing*
- Fortes and Jose, 2006. Report on Survey Results. Workshop on Financial Strategies Managing Economic Impact of Natural Disaster at the Macro-Meso-, Micro-Level. Manila, Philippines. May 22-24, 2006.
- Gozun (2001) "Climate Change Officials Urges Relocation of Coastal Settler" *Climate Change Philippines* retrieved from http://climatechangephilippines.blogspot.co.uk/2011_06_01_archive.html on August 20, 2012.
- Humphrey CR (1994) Introduction: Natural Resource-Dependent Communities and Persistent Rural Poverty in the U.S.-Part II. *Society and Natural Resources* 7, 201-203.
- Humphrey CR (1994) Introduction: Natural Resource-Dependent Communities and Persistent Rural Poverty in the U.S.-Part II. *Society and Natural Resources* 7, 201-203.
- IPCC Working Group 1, 2001. *Climate Change 2001: The Scientific Basis*. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change. J.T.
- IPCC, 2007c. *Climate Change 2007: Impacts, Adaptation and Vulnerability*. Fourth Assessment Report. M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds), Cambridge University Press, Cambridge, UK.
- Ironside, RG and Randall, J (1996) *Communities on the Edge: An Economic Geography of Resource-Dependent Communities in Canada*. *THE Canadian Geographer* 40 (1), 17-35.

- Lasco, et al (2008) "The Role of Local Government Units in Mainstreaming Climate Change Adaptation in the Philippines. AdaptNet Policy Forum 08-09-P-Ad, 30 September 2008.
- Lasco, RD. et al (2009). *Mainstreaming Adaptation in Developing Countries: The Case of the Philippines*. Climate and Development. Retrieved from www.earthscanjournals.com on August 20, 2012.
- Stedman, RC (1999) Sense of Place as an Indicator of Community Sustainability. *The Forestry Chronicle* 75, 765-770.
- World Bank (2005). *Natural Disaster Risk Management in the Philippines Reducing Vulnerability Follow-on study: Final Report*. June 2005.
- Yohe, G.W. et.al. (2007). Perspectives on Climate Change and Sustainability. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University, UK.