**ROLES OF COMMUNITY AND COMMUNAL LAW
IN DISASTER MANAGEMENT IN THE PHILIPPINES:
THE CASE OF DAGUPAN CITY**[*]

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I.   Introduction

In the aftermath of disasters, government agencies usually lead in disaster recovery efforts. Communities, more often than not, are reduced to passive recipients of relief goods and services. Yet, it is argued in available literature that community-based recovery programs in particular, and disaster management[1] in general, show high level of success based on the assumption that the more the community owns disaster management plans and the resources involved, the easier it is to implement them (IFRC 2006). On the other hand, it has been found out also that externally planned and funded plans usually prolong recovery efforts due to the absence or inadequate participation of intended beneficiaries (UNISDR 2010).

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[1] Instead of using more specific and technical terms, the author opted to employ the term "disaster management" to be inclusive of various terminologies, e.g., disaster risk reduction, disaster risk management, etc.

Community participation in disaster management has numerous advantages. First, it gives community members the power to control decisions on disaster management planning and implementation. Second, plans are aligned to the vulnerabilities of the community and needs of the victims (see Barakat 2003, Barenstein 2008, Thwala 2005, and Fallahi 2007).

However, there are also acknowledged disadvantages in community involvement in disaster management efforts. Some of these are: (a) difficulties in involving the community in the design and management of projects, (b) difficulties in building up mutual trust between agencies and communities, (c) reluctance on the part of governments to give power to low-income groups in the community, and (d) the reduction of community involvement to sweat equity instead of active involvement in decision making (Davidson et al. 2007).

The Philippines recognizes the role of *barangays* (or "villages"in English) in disaster management. In fact, its new law on disaster risk reduction, i.e., Republic Act No. 10121 (RA 10121) or the ''Philippine Disaster Risk Reduction and Management Act of 2010, "establishes 41,956 Barangay Disaster Risk Reduction and Management Committees (BDRRMCs) but only as committees under Barangay Development Councils (BDCs).

> (d) The BDRRMC shall be a regular committee of the existing BDC and shall be subject thereto. The punong barangay shall facilitate and ensure the

participation of at least two (2) CSO representatives from existing and active community-based people's organizations representing the most vulnerable and marginalized groups in the barangay.

As the smallest and basic political unit of government, the BDRRMCs, just like its counterparts at the provincial, city, and municipal levels are mandated by RA 10121 to "set the direction, development, implementation and coordination of disaster risk management programs within their territorial jurisdictions." Given their limited technical know-hows and financial means, are *barangays*, as communities on their own, up to the challenge?

Taking all the issues mentioned above, this paper aims to answer the following research questions. First, what are the roles of community and communal law in disaster management? Second, under what conditions does community involvement result to effective disaster management? Are they affected by local conditions (i.e., biophysical conditions and geographical terrain, local socio-economic and political conditions, and culture and traditions)? Third, what roles do various stakeholders (residents, experts, academe, NGOs, local authorities, donor institutions) play in community-led disaster management?

To be able to answer these research questions, a rapid desk review of relevant literature was conducted. A case study was written to illustrate empirically what the theories propound.

II.   Review of Relevant Literature

A. Community and Community Involvement

"Communities" are typically defined either geographically or socially. Geographically speaking, a community "is recognized by attributes tied to physical appearance or location, such as natural boundaries, a recognized history, demographic composition, or the presence of certain industries or organizations" (CARE USA 2005: 8) On the other hand, socially speaking, a community is classified as such in terms of "people who share common social attributes and interests, such as language, customs, class, or ethnicity, regardless of geographical proximity" (CARE USA: 8). For purposes of this research, both geo-administrative-political boundaries define the meaning of "community."

B. The Role of Communities in Disaster Management

The role of community in disaster management can be identified by examining its involvement in all phases of the latter and how it reacts with other governance actors that help it deal with disasters.

Community involvement is embedded within "community governance" because the latter deals with community management and decision-making (Totikidis et al. 2005) where the former

operates. Within the context of disaster management, community governance is associated with participation and responsiveness of affected communities in recovery operations (IRP 2010: 2).
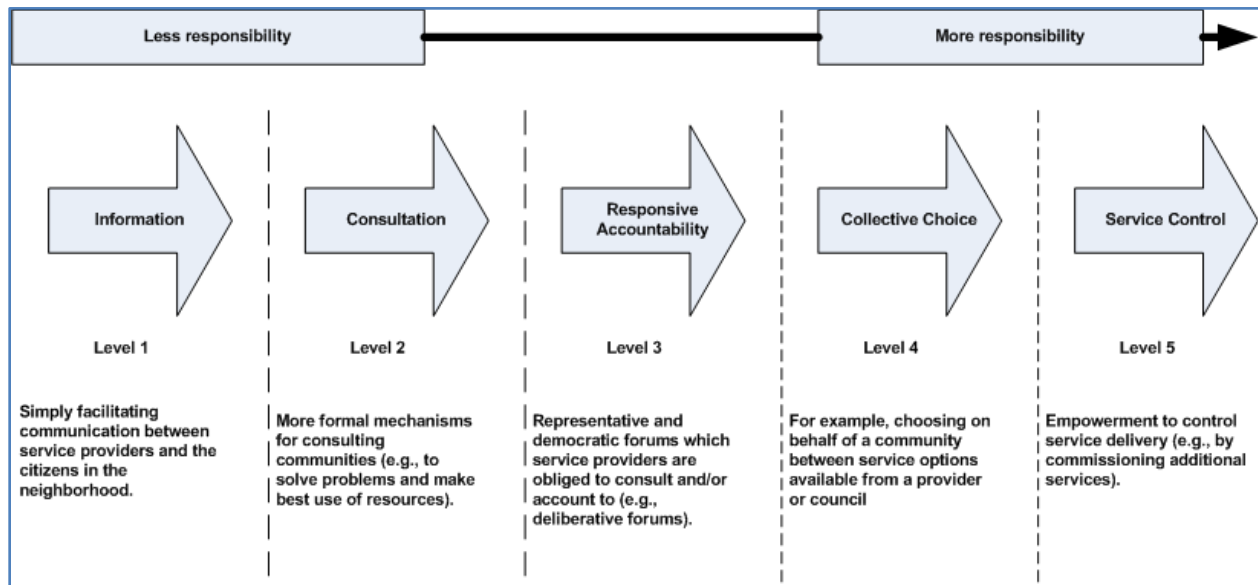
The nexus between community involvement and community governance, within the disaster management context, can be better understood this way:

- When community is involved in the development of local policies which signifies that community governance spreads decision-making among local organizations (Jalali 202 and Post 1997);

- When "people are able to articulate strategies for recovery and reconstruction which respond to their real needs through community-based organizations" (Maskrey 1989: 84); and

- When looking for funding, community involvement is usually considered as important component (Davidson et al. 2007).

In the theoretical framework called **"spectrum of responsibilities"** shown on the diagram below, the role of communities in disaster management are compartmentally discussed. It ranges from a community having less responsibility (i.e., in information dissemination, and

consultation) to getting more responsibility (responsive accountability, collective choice-making, and service control) (ODPM 2005 in IRP 2010: 4).

Figure 1. Spectrum of Responsibilities of Communities

| Less responsibility			More responsibility	
Information	Consultation	Responsive Accountability	Collective Choice	Service Control
Level 1	Level 2	Level 3	Level 4	Level 5
Simply facilitating communication between service providers and the citizens in the neighborhood.	More formal mechanisms for consulting communities (e.g., to solve problems and make best use of resources).	Representative and democratic forums which service providers are obliged to consult and/or account to (e.g., deliberative forums).	For example, choosing on behalf of a community between service options available from a provider or council	Empowerment to control service delivery (e.g., by commissioning additional services).

Source: ODPM 2005 in IRP 2010: 4.

The framework spells out five levels of responsibilities for communities in disaster management, namely: (1) Level 1 – informing community members of the available services from various providers; (2) Level 2 - officially consulting community members to resolve issues and solve problems; (3) Level 3 - being made accountable for decisions and actions; (4) Level 4 – serving as a venue for collective decision-making; and (5) Level 5 – managing the delivery of services (ODPM 2005 in IRP 2010: 4).

In some instances, communities cannot do things alone. Hence, "co-management," usually with government agencies, is encouraged. This is practiced mostly in the area of community-based

resource management. In the book entitled, *Managing Small-Scale Fisheries: Alternative Directions and Methods* by Berkeles et al. (2001), co-management is seen as a continuum between purely government-based management and community-based management. There is a hierarchy of co-management arrangements between partners (communities and governments) which range from information dissemination to inter-area coordination (Bernardo and Rivera-Guieb 2001: 20). This is illustrated on the diagram below.

Figure 2. Co-Management in Community-Based Resource Management
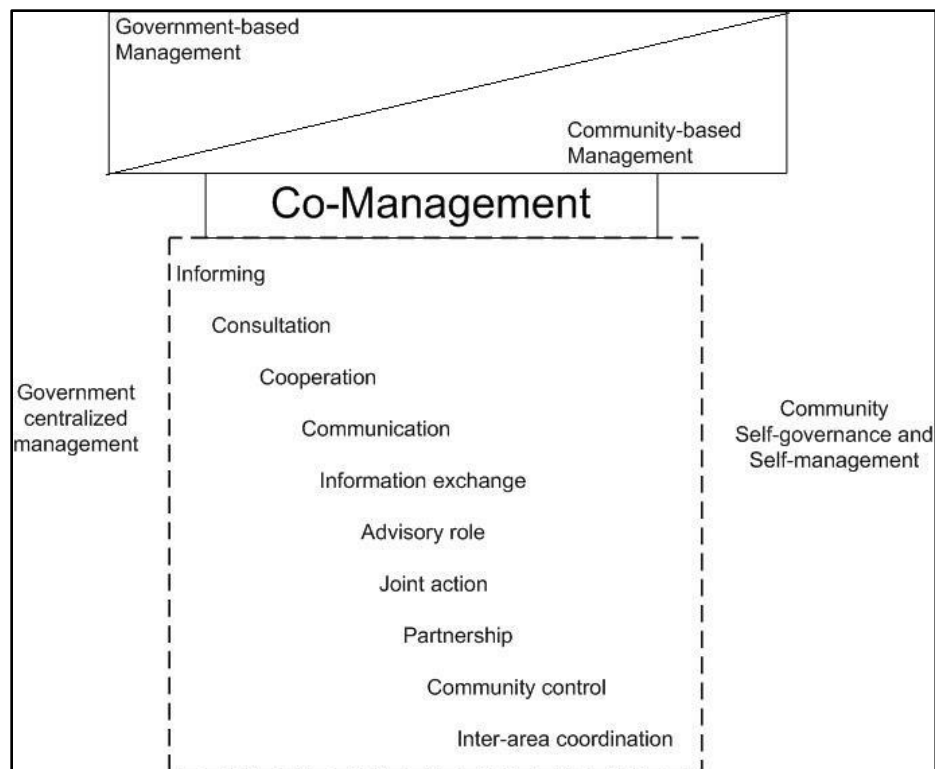
Source: Bernardo and Rivera-Guieb 2001: 20.

C. Community-Based Disaster Management in the Philippines

A recent book on community-based disaster management entitled, *Building Disaster-Resilient Communities* (2010) illustrates the various roles of communities in strengthening their defences against disasters. There are nine case studies drawn from different parts of the Philippines – five from provinces in Luzon (Albay, Camarines Sur, Marinduque, Quezon, and Sorsogon), two from the Visayas (Cebu City and Iloilo), and one from Mindanao (Zamboanga-Sibugay). The studies focused separately on issues such as early warning system, flood risk reduction, mainstreaming of disaster risk reduction (DRR) and climate change adaptation (CCA) to local plans and budget, social protection, and alternative sustainable livelihood generation.

For brevity, only the significant and relevant findings are discussed here. One important finding, as pointed out by one of the authors, underscores the need for community development and community organizing because "most, if not all of the *barangays* or communities are burdened by historical political-economic systems, and structures of poverty and governance that often overwhelm efforts of development and transformation" (Pagaduan 2010: 238 in Polotan-dela Cruz et al. 2010). In other words, going back to the spectrum of responsibilities, these communities went through Levels 1 to 4 (inform, consult, accountability extraction, and

collective decision-making) first to be able organize themselves for disaster management. This over-all finding is not surprising given that *barangays* in the Philippines do not have technically competent bureaucracies, unlike national government agencies and local governments, for public service.

The case studies have shown that communities which are usually under staffed and ill-equipped, acquiesce to link up with national government agencies, civil society organizations, and their peers to be able to serve their constituents better. In the case of the Municipalities of Infanta and Nakar, the early warning devise installed to measure water levels in flood-prone Agos River were set-up with support from national government agencies (Philippine Atmospheric, Geophyscial, and Astronomical Services Administration or PAGASA), and academic institutions (i.e., University of the Philippines, and Ateneo de Manila University). It had both the elements of indigenous system and high-technology communication (see Garcia 2010: 9-22 in Polotan-dela Cruz et al. 2010). Thus, communities cannot do, on their own, the monitoring of river upswelling because the residents must learn how interpret the scientific and technical data. Clearly, this example illustrates "co-management" – that communities need government technical/expertise guidance on scientific and technical matters that are beyond their competence. In the other case studies that delve on mainstreaming CCA and DRR, establishing alternative livelihoods, providing social protection, communities were either assisted by civil society organizations, local governments, or national government agencies (see Magalang 2010; Balang, Jr. 2010; Tanchuling 2010; Jimenez-Tan 2010; and Magcuro 2010, all in Polotan-

dela Cruz et al. 2010).   To sum it up, these are cases for Level 4 in the "spectrum of responsibilities." And for service provision to work properly, "co-management" might have to be a prerequisite.

Finally, in the case studies on mainstreaming CCA and DRR, local planning and budgeting, establishing alternative livelihoods, and providing social protection to potential disaster victims, "participatory governance" was identified as an underlying success factor (see Formilleza 2010; Bawagan 2010; Tanchuling 2010; Jimenez-Tan 2010; and Magcuro 2010, all in Polotan-dela Cruz et al. 2010). The over-all message of these case studies is: making members of the community acknowledge the problem, identify solutions, and oversee the implementation of projects and activities is an effective way of making them own the problem.

D. Communal Law for Disaster Management

Being communal means "of or relating to one or more communes; of or relating to a community; characterized by collective ownership and use of property; participated in, shared, or used in common by members of a group or community; and of, relating to, or based on racial or cultural groups" (Merriam Webster Online 2013) A communal law, therefore, is a rule or a regulation created by the community that governs the interactions among member, how they manage their properties, and how they deal with their environment. It is usually less formal compared to laws that were adopted by legislative bodies. They are transmitted in either oral or written way.

It is a term used to refer to the rules or regulations of traditional societies or ethnic communities (Bernardo and Rivera-Guieb 2001: 50).

Communal law is usually a by-product of "indigenous knowledge" or "traditional environmental knowledge" (TEK) which is "a cumulative body of knowledge that is held collectively by a group of people through generations of living in close association with nature. It usually includes a way of classifying the resources found in the environment and observations on its use, and oftentimes, preservation. TEK also usually contains a localized management system on resource use" (Bernardo and Rivera-Guieb 2001: 50). Thus, it can be argued that TEK cumulative knowledge on man's interaction with the environment is useful for disaster management especially to "natural disasters."

In a study on how indigenous knowledge is used for disaster management in four countries in Africa, i.e., Kenya, South Africa, Swaziland and Tanzania, it was found out that "indigenous knowledge systems have enabled the various communities in those countries to live in harmony with their environments for generations, and the systems are important tools in environmental conservation and natural disaster management" (UNEP 2008: 6). The rationales given are the following:

> Over the years … the communities have evolved indigenous knowledge technologies, know-how, experiences and beliefs that aid them not only in predicting the natural disasters but also in devising techniques and coping

mechanisms to deal with the disasters. The communities focus on disaster prevention and preparedness. Thus, they take measures such as growing drought-resistant and early-maturing indigenous crop varieties, gathering wild fruits and vegetables, wetlands cultivation, transhumance, livestock diversifying and splitting, preserving and storing food for use in times of scarcity. All these measures enabled the indigenous communities to live with climatic hazards with little or no support from the outside world" (UNEP 2008: 75-76).
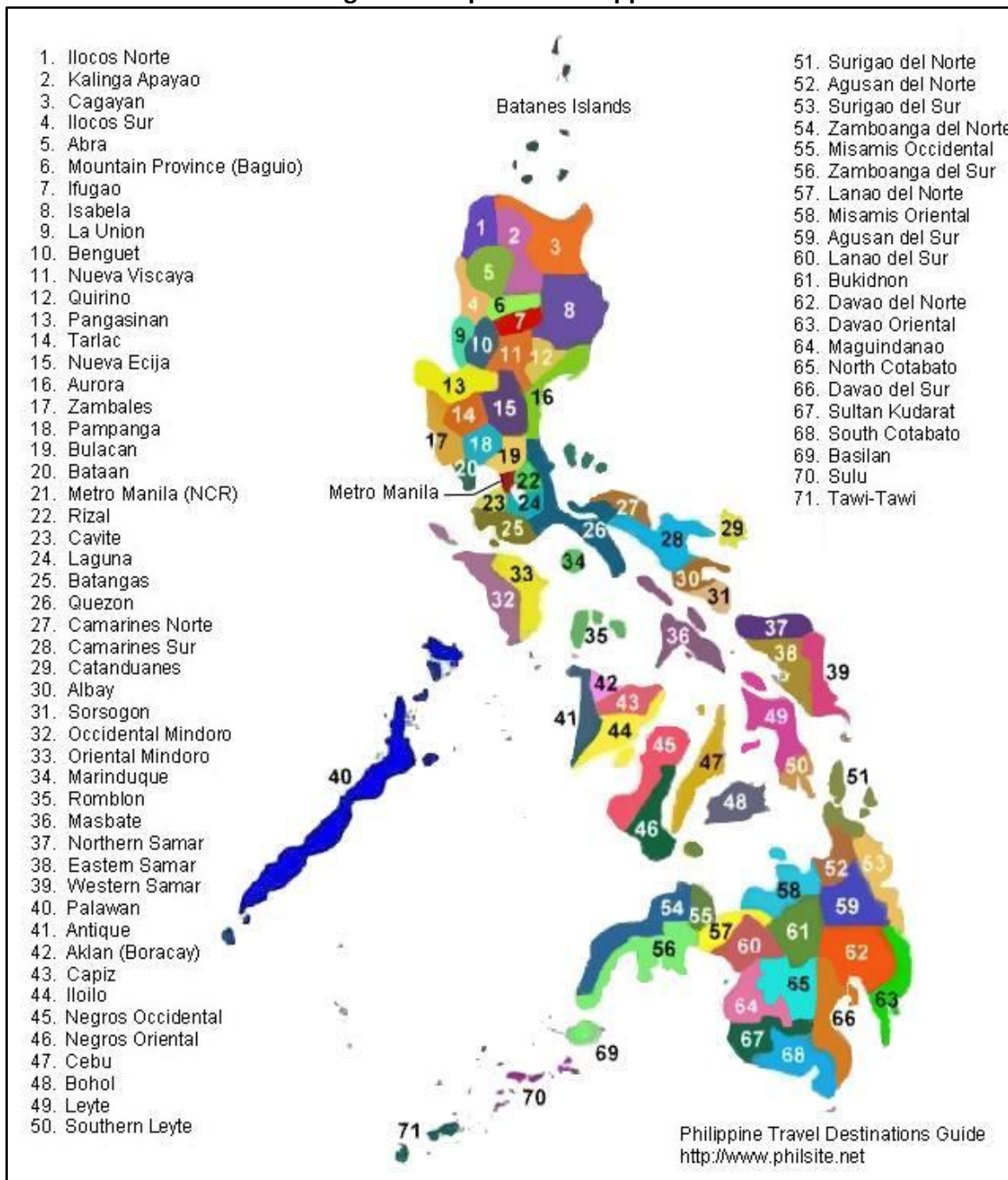
E. The Role of Communal Law in Disaster Management in the Philippines

In the Philippines, the belief in the traditional environmental knowledge as a way of living, communing with nature, and preventing disaster dates back from pre-Spanish time (years before 1521), when the country was still dotted by small independent tribal units called *balangay* (origin of the word *barangay*). Before the coming of the Spaniards, the early native settlers were close to nature and they believed in supernatural beings. They predicted the coming of disasters by observing the behavior of their natural environment. They prayed to *anitos* (spirits), *Bathala* (Almighty), and celestial bodies (i.e., sun, moon, and stars) for help in looming disasters. Artifacts from northern Luzon reveal that the tribal *Igorots,* who live in Abra, Apayao, Benguet, Kalinga, Ifugao, and Mountain Province (see their locations in on Figure 3) had early warning system (i.e., advice from the elderly) and preventive infrastructures (e.g,

stone walls, dams, canals). They also relocated when they felt they were in danger in their settlements (ADPC 2001: 3-4).

There are as many communal laws as there many ethnic communities in the Philippines. One could go around the country and find various communal laws. Two well-known documented cases illustrate how traditional environmental knowledge could serve as disaster mitigation strategies – the *pagdidiwata* (belief on spirits or deities) of the Bataks and Tagbanuas in Ulugan Bay, Palawan, and the *mayvanuvanua* of the *mataw* fishermen in the 10 small islands called Batanes (for locations, see Philippine map below).

Figure 3. Map of the Philippines

1. Ilocos Norte
2. Kalinga Apayao
3. Cagayan
4. Ilocos Sur
5. Abra
6. Mountain Province (Baguio)
7. Ifugao
8. Isabela
9. La Union
10. Benguet
11. Nueva Viscaya
12. Quirino
13. Pangasinan
14. Tarlac
15. Nueva Ecija
16. Aurora
17. Zambales
18. Pampanga
19. Bulacan
20. Bataan
21. Metro Manila (NCR)
22. Rizal
23. Cavite
24. Laguna
25. Batangas
26. Quezon
27. Camarines Norte
28. Camarines Sur
29. Catanduanes
30. Albay
31. Sorsogon
32. Occidental Mindoro
33. Oriental Mindoro
34. Marinduque
35. Romblon
36. Masbate
37. Northern Samar
38. Eastern Samar
39. Western Samar
40. Palawan
41. Antique
42. Aklan (Boracay)
43. Capiz
44. Iloilo
45. Negros Occidental
46. Negros Oriental
47. Cebu
48. Bohol
49. Leyte
50. Southern Leyte

51. Surigao del Norte
52. Agusan del Norte
53. Surigao del Sur
54. Zamboanga del Norte
55. Misamis Occidental
56. Zamboanga del Sur
57. Lanao del Norte
58. Misamis Oriental
59. Agusan del Sur
60. Lanao del Sur
61. Bukidnon
62. Davao del Norte
63. Davao Oriental
64. Maguindanao
65. North Cotabato
66. Davao del Sur
67. Sultan Kudarat
68. South Cotabato
69. Basilan
70. Sulu
71. Tawi-Tawi

Batanes Islands

Metro Manila

Philippine Travel Destinations Guide
http://www.philsite.net

Notes:
1. The Igorots live in six provinces in northern Philippines, namely: Abra, Apayao, Benguet, Kalinga, Ifugao, and Mountain Province (see nos. 2, 5, 6, 7, and 10).
2. The Tagbanua and Batak people live by the Ulugan Bay, Puerto Princesa, Palawan (no. 40 on the map).
3. The Mataw fisherfolks live on the islands of Batanes (see islands at the northernmost part of the archipelago).
4. Dagupan City is in Pangasinan Province (see no. 13).

The Bataks and Tagbanuas are two indigenous cultural communities which can be found in Barangay Cabayugan and Barangay Tagabinet in Palawan, an island on western Philippines. Both practice *pagdidiwata* which is a ceremony of incantations held in preparation for a particular season or economic activity such as gathering of honey. Because of their belief with spirits or deities, they are careful about the use of environment. They are careful in antagonizing spirits in nature which may cause disaster, tragedy, and death. Thus, trees are not cut down without asking for permit from the spirits. This, in turn, help in protecting the community from disasters caused by landslide, erosion, flooding, etc. (Bernardo and Rivera-Guieb 2001: 54-56)

On the other hand, the *mataw* fishermen in Batanes, the northernmost part of the Philippine archipelago, perform the *mayvanuvanua* as a sacrifice ritual to ask for favor from the supernatural beings of the sea for the protection of the groups of fishermen. When the ceremonies are over, the *vanu* (literally, "the passage between land and sea") becomes a sacred area. To keep the sanctity of the vanua, taboos called *dagen*, in the native dialect must be observed. Part of the *dagens* are: (1) prohibition to swim near the *vanua*, (2) prohibition on the use of hook-and-line, spear gun, or net for the duration of the fishing season, etc. This rituals and taboos prevent disaster by the preservation of the "natural state" of the *vanua* (Bernardo and Rivera-Guieb 2001: 56-57).

Pictures 1a-1c: Tagbanua, Batak, and Mataw

Picture 1a. A Tagbanua Family

Source:
http://www.google.com.ph/search?um=1&hl=en&biw=1280&bih=645&tbm=isch&sa=1&q=mataw+batanes&oq=mataw+batanes&gs_l=img.3...11373.11995.0.12380.2.2.0.0.0.0.0.122.220.1j1.2.
0...0.0...1c.1.14.img.DJiDRNxvMc8#facrc=_&imgrc=nC1TVRD4q4p1CM%3A%3Bv5B-
7eICvveciM%3Bhttp%253A%252F%252Ffotolatitudes.files.wordpress.com%252F2012%252F04%252Ftumblr_m23ygki7nj1qlja3wo1_1280.jpg%253Fw%253D691%2526h%253D518%3Bhttp%2
53A%252F%252Ffotolatitudes.wordpress.com%252F2012%252F04%252F%3B691%3B518

Picture 1b. A Batak Family

Source:
http://www.google.com.ph/search?hl=en&biw=1280&bih=645&site=imghp&tbm=isch&sa=1&q=batak+philippines&oq=batak+philippines&gs_l=img.3..0i24l2.12500.14501.0.14631.12.4.0.8.8.
0.127.427.1j3.4.0...0.0...1c.1.14.img.zZUPGrh9XjY#facrc=_&imgrc=LFEOtFYzL95aCM%3A%3BdmVVm4EQVJj3dM%3Bhttp%253A%252F%252Fjbellegaribay.com%252Fwp-
content%252Fuploads%252F2011%252F02%252F11.jpg%3Bhttp%253A%252F%252Fjbellegaribay.com%252F%253Fcat%253D6%3B3264%3B2448

Picture 1c. A Mataw Fisherman

Source:
http://www.google.com.ph/search?hl=en&biw=1280&bih=645&site=imghp&tbm=isch&sa=1&q=mataw+batanes&oq=mataw+batanes&gs_l=img.3...3222.4243.0.4330.8.8.0.0.0.0.121.496.5j2.7.0...0.0...1c.1.14.img.OHc0uL4cTQg#facrc=_&imgrc=nC1TVRD4q4p1CM%3A%3Bv5B-7elCvveciM%3Bhttp%253A%252F%252Ffotolatitudes.files.wordpress.com%252F2012%252F04%252Ftumblr_m23ygki7nj1qlja3wo1_1280.jpg%253Fw%253D691%2526h%253D518%3Bhttp%253A%252F%252Ffotolatitudes.wordpress.com%252F2012%252F04%252F%3B691%3B518

How does the country's new law on DRR consider communal law or traditional environmental knowledge? As a matter of public policy, the new disaster management law encourages all to be sensitive to indigenous knowledge system. As stated in its Section 2 (j) (Declaration of Policy):

> "Ensure that disaster risk reduction and climate change measures are gender responsive, **sensitive to indigenous knowledge systems**, and respectful of human rIghts;…" (emphasis by the author)

However, the law is not clear if these indigenous knowledge systems should be taken into consideration when planning for disaster risk reduction or incorporated as an approach to disaster mitigation.

III.   Case Study: Barangay Mangin in Dagupan City

Barangay Mangin (see Picture 2) is located in Dagupan City, which in turn, is within Pangasinan Province in northern Luzon (see map on Figure 3). The *barangay* has a total land area of 126.80 hectares which is about 2.8% of the total land area of the city (4,446 hectares).

Picture 2. Locational Map of Barangay Mangin in Dagupan City
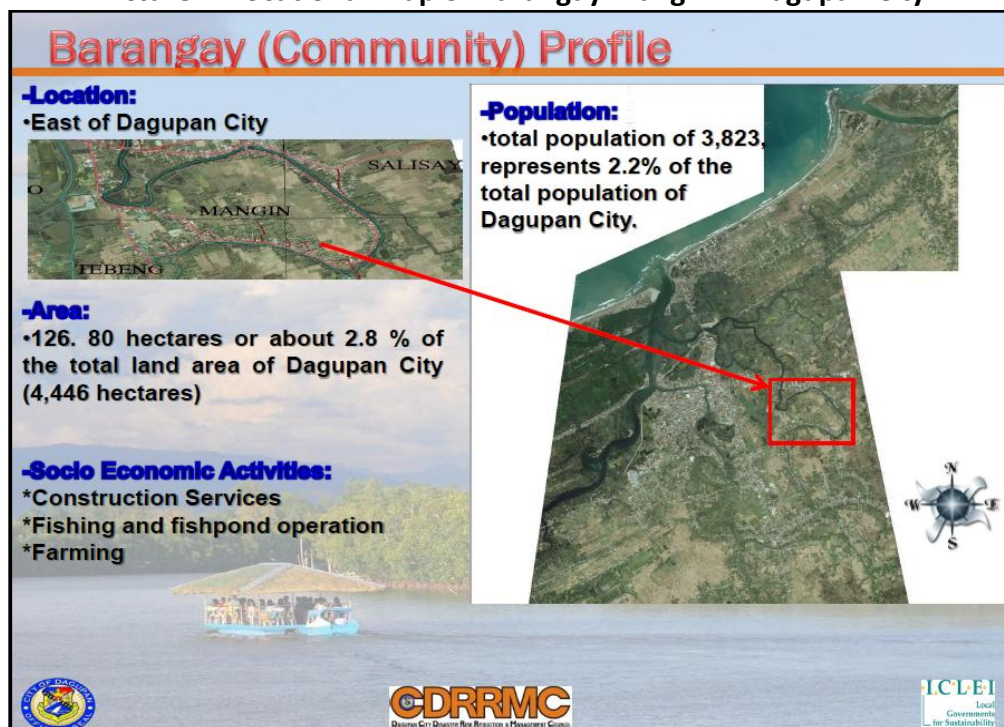
Source: Office of the City Administrator, Dagupan City, 2012.
Note: Taken from a PowerPoint presentation in PDF version.

Barangay Mangin is flood prone just like the most parts of the city. Floods occur whenever one or a combination of the following happens: (1) storm surge/strong typhoons, (2) prolonged rains, (3) high tide in the river systems, and (3) runoffs from the Agno River which traverse the

river systems in the city and empty itself in the Lingayen Gulf. From records, the city had experienced three ravaging floods in 1935, 1972, and 2009. The 1935 floods flooded the whole city; in 1972, agricultural crops, fishponds, and properties were damaged; and in 2009, majority of the city area were flooded causing PhP200 million (US$4.7 million) worth of damages. In the 2009 floods caused by a typhoon, the water's reach was between 0.60 meters to 2.50 meters (DCDCC Manual 2010: 31).

Barangay Mangin was just one of the eight pilot barangays[2] selected in 2006 to undergo intensive training on disaster management by the Asian Disaster Preparedness Center (ADPC) through its local counterpart, the Center for Disaster Preparedness (CDP) based in Quezon City through its activity called, "Program for Hydro-Meteorological Disaster Mitigation in Secondary Cities in Asia" which is popularly known in its acronym PROMISE.

The over-all aim of PROMISE is "enhanced preparedness for and mitigation of the destructive impacts of hydro-meteorological events on the vulnerable urban communities and the economic infrastructure" (USAID and ADPC PROMISE 2010: 1).

The over-all management of PROMISE was given to CDP and Dagupan City Government as co-implementors. CDP, under a memorandum of understanding, was tasked to supervise all activities of PROMISE[3], provide technical guidance, disburse and control funds, report the

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[2] The other seven pilot barangays were: Bacayao Norte, Bacayao Sur, Lasip Chico, Lasip Grande, Pogo Grande, Salisay, and Tebeng

[3] USAID Philippines Office representatives helped the ADPC supervise PROMISE project implementation activities.

progress of projects to ADPC, and document accomplishments. On the other hand, the tasks of the Dagupan City government, as a "City Partner," were to cooperate with CDP; create a technical working group; supply data or information needed; provide personnel, logistical, office space, and counterpart funds; account for the expenses – the MOU identified very specific tasks/expectations from the city government:

In the course of implementing PROMISE, CDP got support from local and national government agencies. These were: Department of Education (DepEd), Department of the Interior and Local Government (DILG), NDCC/OCD, Agno River Basin Flood Forecasting and Warning Center (ARBFFWC). The Department of Education (DepEd) provided information on the structural integrity of schools in Dagupan City; the Department of the Interior (DILG) assisted in coordinating the activities of PROMISE within the city; the then National Disaster Coordinating Council/Office of Civil Defense (NDCC/OCD) supplied information on hydro-meteorological hazards in the city; and the ARBFFWC also provided information on the hazards of runoffs from the basin, and their early warning systems (USAID and ADPC PROMISE 2010: 2-5).

The training of *barangay* personnel, including those of Barangay Mangin, was made through the City Agriculture Office (CAO) whose director reported directly to the mayor and the City Disaster Coordinating Council (CDCC). CAO was chosen to assist in training the officials of the eight pilot *barangays* for two reasons: (1) it had touched base with *barangay* residents due to its function to check their agricultural livelihoods, and (2) it had manpower to assist CDP

undertake the Community-Based Disaster Risk Maagement (CBDRM) sessions at the *barangay* level (Molina 2012).

In conducting CBDRM and participatory risk assessment (PRA), CDP and Dagupan City used the consultative participatory approach. CBDRM and PRA were introduced through a workshop in March 2006. The aim of the workshop was to train the core trainers, who, then trained other trainers at the *barangay* level, specifically at the eight pilot barangays (USAID and ADPC PROMISE 2010: 5).

Following the four areas of concerns of PROMISE, CDP focused also on four core components, namely: CBDRM, DRR mainstreaming, DRR awareness raising, and knowledge capture and knowledge product development (USAID and ADPC PROMISE 2010: 3).

CBDRM was the strategic core activity of CDP. By passing knowledge and skills on CBDRM to core and *barangay* participants, all other ensuring activities for the other components were identified. For the CBDRM component, they were able to identify and implement small-scale structural economic disaster mitigation projects (e.g., *barangay* solid waste recycling facility, improvement of the emergency operations centers in some of the piloted *barangays*, pavements elevation, etc.) (USAID and ADPC PROMISE 2010: 2-5).

For the DRR mainstreaming component, the city council passed an ordinance establishing a permanent city's emergency operation center (EOC) in 2007. Aside from creating the EOC, the

same ordinance expanded the meaning of hazards which now include tsunami, earthquake, drought, and man-made hazards. Last, to standardize DRR operations throughout the city, a disaster operations manual was developed in the same year for use in times of emergency (USAID and ADPC PROMISE 2010: 8-10).

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To raise the DRR awareness level of residents and neighboring local governments, the city government mandated the observance of "Disaster Safety Day" in the city every July 16. IEC materials in the form of calendars and bookmarkers were distributed to students and residents. Audio-visual presentations and orientation seminars were also held even in non-piloted *barangays.* Perhaps, the greatest achievement in DRR awareness raising was the signing of a covenant among 42 representatives from various municipalities, cities, and provinces in Region 1 in April 2008 which was spearheaded by Dagupan. The covenant urged the local chief executives and signatories to promote and mainstream DRR into their local government plans and programs (USAID and ADPC PROMISE 2010: 8-10).

Lastly, in the area of DRR knowledge capture and knowledge product development, CDP developed a manual on disaster management for communities in 2009. It also organized the *First LGU Course on Governance and Disaster Risk Reduction* in Dagupan City in April 2008. In keeping with its mandate to document its Dagupan experiences, CDP published best practices case studies and articles, and produced a video-documentary in 2008 (USAID and ADPC PROMISE 2010: 8-10).

Now, the *barangay* is operating its own disaster management system complete with vision, targets, and personnel. It has identified officials and members of its Barangay Coordinating Council with specific duties and tasks spelled out. The Council has also specified protocols for the activation of its Barangay Disaster Operations Center (BDOC) for the following disaster periods: pre-impact, impact, and post-impact.

There are also persons-in-charge for evacuation of people, animals, and vehicles in the pre-identified evacuation sites. In addition, there are pick-up points, evacuation routes, and evacuation center management system (see Barangay Mangin CBDRM Plan).

One significant accomplishments of the Barangay Mangin's disaster management system is the creation of the color-coded flood marking system used in activating the evacuation protocols (white – 1 foot and below – normal; yellow – 1-2 feet – alert; orange – 2-4 feet – preparatory phase for evacuation; red – 4-6 feet – full evacuation; and green – more than 6 feet – forced evacuation) (Barangay Mangin CBDRM Plan).

Aside from the use of high-technological gadgets, radio, and church bells, Barangay Mangin also used its *kanongkong* as an early warning system made from locally-grown bamboo to serve as a bull horn to warn neighbours of impending floods (see picture) (Barangay Mangin CBDRM Plan).

**Picture 4. The Use of *Kanongkong* as an Early Warning Device
in Barangay Mangin, Dagupan City**

Source: Office of the City Administrator, Dagupan City, 2012.
Note: Taken from a PowerPoint presentation in PDF version.

While PROMISE was still being implemented in Dagupan, three typhoons passed through the city, namely: Typhoon Halong (17 May 2008), Typhoon Pharma (8 October 2009), and Supertyphoon Megi (18 October 2010). Expectedly, they brought damages to houses, buildings, infrastructures, crops, and fishponds through the torrential rains and floods. However, direct casualties from the three typhoons were near or actually zero. What was remarkable, and never before seen, was that city residents, including those in Barangay Mangin, took the initiative to approach first the city government to have them evacuated to safer grounds. Those in the eight *barangays*, especially the model Barangay Mangin, followed their evacuation plans and routes and had with them their emergency supplies and equipments before the onslaught of the typhoons. There were instances that the residents of the piloted *barangays* even helped

the city government in rescue and relief operations in other *barangays* (USAID and ADPC PROMISE 2010: 43-45).

For having well-established DRDD plans, protocols, and relatively well-equipped, Dagupan City and Barangay Mangin, the model *barangay*, received two *Kalasag* (in English, it means "Shield") Awards each either from the Region 1 Disaster Coordinating Council and the National Disaster Coordinating Council from 2007 to 2009 (USAID and ADPC PROMISE 2010: 43-45).

IV.   Conclusions and Recommendation for Further Study

A. *Conclusions*

The research questions of this paper are now answered in this part. These questions are: First, what are the roles of community and communal law in disaster management? Second, under what conditions does community involvement result to effective disaster management? Are they affected by local conditions (i.e., biophysical conditions and geographical terrain, local socio-economic and political conditions, and culture and traditions)? Third, what roles do various stakeholders (residents, experts, academe, NGOs, local authorities, donor institutions) play in community-led disaster management?

The literature review and case study reveal that communities have important roles in disaster management, i.e., information dissemination, consultation, collective decision-making, service

provision, and making officials accountable. The extent of their responsibility gradually increases as soon as they are able to identify the root cause of the problem and the corresponding solutions. More importantly, the case study has shown that communities need technical assistance from other entities to be able to provide effective disaster management services, hence, the term "co-management." As shown on Figure 2 above and by the case study, "co-management" need not always be associated between government and the community and need not end until project termination, i.e., the partnership between Barangay Mangin and the NGO (Center for Disaster Preparedness) ended when the former has already organized its own disaster management council, written its manual and protocols, assigned personnel, and obtained equipment.

In the Philippines, communal law is associated with traditional environmental knowledge which exhorts man to commune with nature which in a way, helps to protect the environment. It is usually associated with belief with the supernaturals, i.e., spirits, deities, etc. As a consequence, it is believed that in respecting the law of nature, mankind is protected from the wrath of the latter, i.e., natural disaster. The new law on Disaster Risk Reduction and Management of the country, as a matter of policy, exhorts all to be sensitive to indigenous knowledge systems but is not clear whether this should be incorporated in local disaster risk reduction and management planning or not.

The review literature and the case study reveal that the level of disaster awareness, community development, and participatory governance affect the extent of involvement of communities in disaster management. The disaster awareness of the people is a function of biophysical conditions and geographical terrain, i.e., the more hazards that visit them because of their biophysical and geographical conditions, the more the people are concerned with their safety. However, this does not automatically translate to action. The case study points out that it took an NGO's intervention for the community to act even though the *barangay* has long been suffering from floods. The NGO organized first the *barangay* into a functional disaster management team through capability building. With encouragement from the local government, i.e., the Dagupan City government, the *barangay* participated actively in establishing its own disaster management council and evacuation teams.

The case study pointed to the fact that the assistance of the NGO to Barangay Mangin and to Dagupan City as a whole was not a one-man act. Each sector of the society contributed what they do best – scientific and technical assistance (academics, and national government agencies), political and administrative assistance (local government), and information dissemination (local media). Bilateral financial institution and regional organization like USAID and the Asian Disaster Preparenedness Center provided financial and technical assistance, respectively. Lastly, the residents of the *barangay* cooperated/volunteered during the formative years of their council and team, and during actual evacuations after their village was visited by three super typhoons in 2008-2010 which led to almost zero casualty.

B. Recommendation for Further Study

Due to time constraints, this paper has been limited to one case study. The findings and conclusions could have been strengthened with a more comprehensive review of literature and more case studies of communities in both rural and urban settings.

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