Common-Pool Resource (CPR) Conservation and Management Perceptions of the Indigenous People in the Taguibo Watershed

Jessa Marie B. Sabado, MS

Instructor, College of Forestry and Environmental Science

Caraga State University

Joseph Ian B. Sabado, MPA, JD

Instructor, Social Sciences Division

Father Saturnino Urios University

Abstract

The Taguibo Watershed, a key biodiversity area in the Caraga Region, provides fresh drinking water to Butuan City. In 2009, a Certificate of Ancestral Domain Title (CADT) was issued to the indigenous cultural community, aiming for robust local institutions through decentralized resource management. This study, using a descriptive-qualitative method, explores the community's perceptions of current conservation practices. Data were gathered via surveys, key informant interviews, field observations, and validated through focus group discussions. The study highlights that natural weather systems, such as storms and typhoons, frequently damage the watershed, making the communities vulnerable to disasters. Despite this, respondents believe the watershed is in good condition, though some worry about its future. They think that continued direct management by the indigenous community can achieve sustainable outcomes. Many respondents affirm good

management practices and emphasize the importance of active participation by all actors to influence sustainable outcomes.

Key Words: Common-pool resource; Conservation; Environmental management; Indigenous Peoples; Perception; Taguibo watershed

1. Introduction

A common-pool resource (CPR) is "a natural or man-made resource system that is sufficiently large to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use" (Ostrom 1990). As a natural resource system, the governance of CPR is directly affected by biophysical conditions and attributes of the community where it is located (Ostrom, 2011). Each person's use of such resources subtracts benefits that others might enjoy, hence the need for cooperation. In the Philippines, watersheds and forest reserves are considered crucial CPR, the protection, conservation, and management of which have gathered considerable attention.

Environmental governance in the Philippines can be described as "multi-sectoral, multi-level, and problem-focused" (Magallona and Maglayang 2001). This has been shaped by the country's vast experience of colonization and decentralization, which created a changing trend in natural resource management over time. Indeed, one significant and perhaps the most sweeping, trend of natural resource management in the country is decentralization (Catacutan, et al. 2001; Pulhin 2002; Sugimoto 2011; Pasicolan and Pasicolan 2005; Contreras 2000), setting its form with local communities as partners for environmental protection and conservation in the uplands. The increasing concerns for sustainable management and utilization of natural resources "has led to a reappraisal of local people's environmental knowledge and resources management skills" (Prill-Brett 2007).

Decentralization of CPR governance entails loosening up the traditional hold of regulation, monitoring, and control over natural resources in favor of local communities (Kappor, 2001; Blaike, 2006), banking on the "equity, empowerment, conflict resolution, knowledge and awareness, biodiversity protection,

and sustainable utilization" the local communities have a competitive advantage with (Kellert et al., 2000: 705). The field research of Garcia-Lopez (2013) in the community forest of Durango, Mexico, for instance, proves that forest associations in communities "can be crucial for the provision of services, goods and infrastructure related to the protection and enhancement of community forests, the economic development of community enterprises, and the political representation of these communities."

Despite the arguments for decentralization of natural resource management, many authors cautioned against the swift treatment to simplify local problems. For instance, in one study, it was found that while "national governments in almost all developing countries have begun to decentralize policies and decision-making related to development, public services, and environment…most analyses, especially where environmental resources are concerned, have been less attentive to the political conditions that prompt decentralization and the role of property rights in facilitating the implementation of decentralized decision making" (Agrawal and Ostrom 2001). The study

concluded that the understanding of local conditions is necessarily essential for the decentralization procedure to commence. Decentralization in CPR management works on the assumption that given improved autonomy to manage natural resources, the local institutions are in a better position to ensure sustainability (Sabado 2015; Kellert et al. 2000).

The recognition of the rights of the local communities to manage local CPRs came in full force and effect with the passage of Republic Act 8371, or the Indigenous Peoples' Rights Act (IPRA) in 1997. The said decree was trailblazing as it "signaled a legal breakthrough that recognized the rights of the more than ten million indigenous peoples (approximately fifteen percent of the country's total population of around seventy million) to claim their traditional lands" (Ballesteros 2001). To a certain degree, this landmark piece of legislation addresses the perceived historical injustice (Sabado, 2015), which is relatively advanced compared to neighboring countries (Prill-Brett, 2007), and thereby serves as a recognition of local communities' de facto resource management activities (Guiang and Castillo, 2006).

Ancestral lands, in relation to ancestral domain, have to be understood under the light of the indigenous concept of ownership characterizing it as "private but community property which belongs to all generations and therefore cannot be sold, disposed or destroyed," and "likewise covers sustainable traditional resource rights" (Sec. 5, RA 8371). More importantly, these rights are recognized regardless of whether the indigenous communities concerned formalized their title through an application for, and issuance of, Certificates of Ancestral Domain Titles (CADTs) (Sec. 11, RA 8371). Ballesteros (2007) made a gist of these rights: "to claim ownership over lands, bodies of water traditionally and occupied by ICCs/IPs, sacred places, traditional hunting and fishing grounds, and all improvements made by them at any time within the domains; develop, control and use lands and territories traditionally occupied, owned, or used, and the natural resource therein; to stay in the territory and not be removed therefrom; regulate the entry of migrant settlers and organizations into the domains; access to safe and clean air and water, and of access to integrated systems for the management of their inland waters and air

space; resolve land conflicts by customary laws of the area where the land is located" (p.40).

In 2009, the National Commission on Indigenous Peoples (NCIP) issued a Certificate of Ancestral Domain Title (CADT) to Indigenous people known as the Manobo where huge portions of the Taguibo watershed are located. The Manobos, a Hispanicized form for "people" (Felix and Leny, 2004), are one of the most populated indigenous communities in the Philippines, clustered in various parts of the Mindanao archipelago with distinct cultural traditions and medicinal practices (Dapar et al, 2020).

This preliminary study aims to gather and analyze the views and perceptions of the Manobo indigenous cultural community on the status, conservation, and management practices within the Taguibo watershed.

2. Methodology

This research follows a descriptive design with qualitative and quantitative methods of gathering and interpreting data. It undertakes a careful description, recording, analysis, and

interpretation of the perceptions of the indigenous institutions in the Taguibo watershed.

The study area comprised of eight (8) *sitios* of barangay Anticala (Bungadman, Dugyaman, Zigzag, Suong, Sinaka, Mahayahay, Tagkiling, Iyao) and portions of barangay Pianing, all within the Taguibo watershed in Butuan City, Philippines. Barangay Anticala has a coordinate of 9.0040, 125.6472 (9° 0' North, 125° 39' East), and an estimated elevation above sea level of 73.5 meters (241.1 feet). Barangay Pianing has a coordinate of 8.9870, 125.6413 (8° 59' North, 125° 38' East), with its corresponding estimates of elevation above sea level at 46.5 meters (152.6 feet).

The same watershed area also situates the ancestral domain of the Manobo indigenous cultural community (ICC), covered by CADT 135. At present, about 2,510 individuals and 647 households are under the same ancestral domain, covering both barangays Anticala and Pianing in Butuan City. The map below shows the political boundaries of the two barangays, where CADT 135 overlays (see Figure 1).

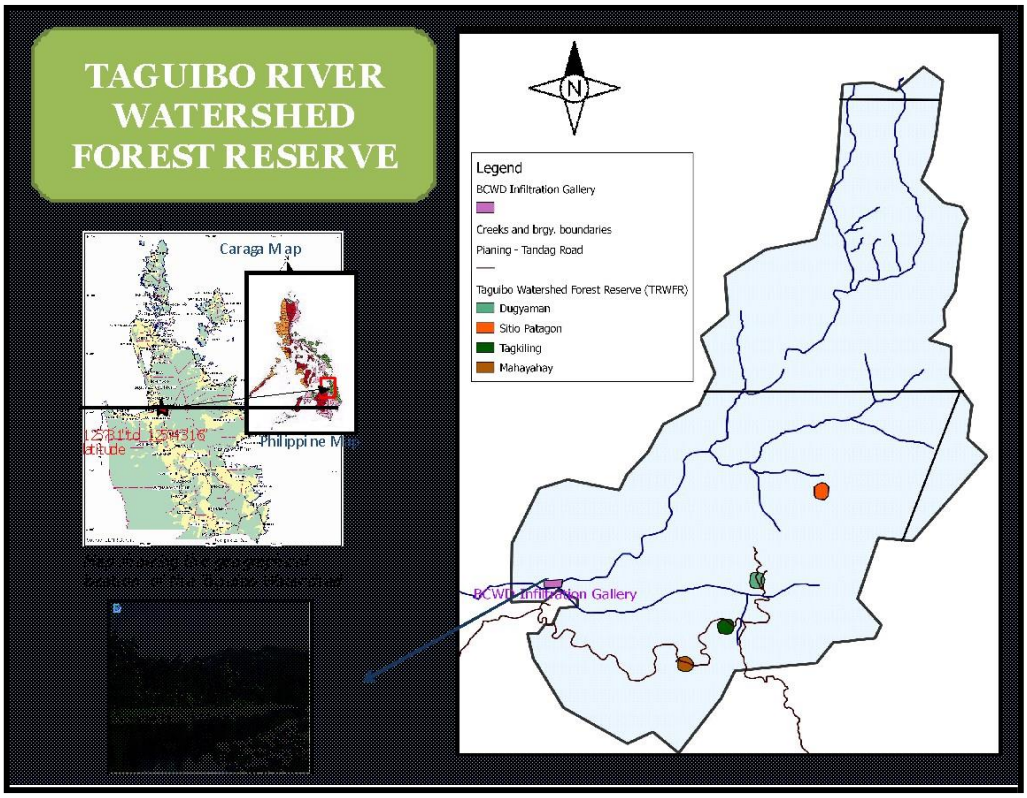

Figure 1: Map Showing the Location of Taguibo Watershed.

Source: BCWD Watershed Symposium Presentation

The respondents of the study were members of the Manobo indigenous cultural community under CADT 135 within the Taguibo watershed. Using purposive sampling, there were three hundred twenty-three (323) identified respondents for the guided interview or exactly 12.8% of the total population of the members of the Manobo under CADT 135. The same sample constitutes around 49.9% of the total households in the area.

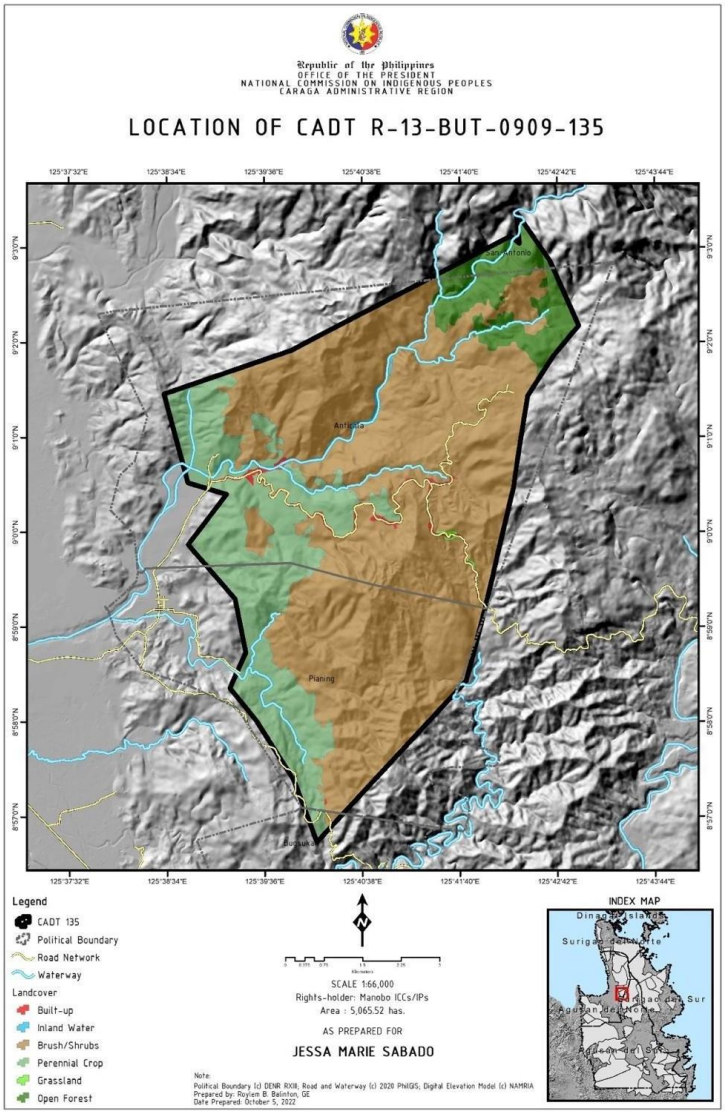

Figure 2. Location of sampling area Barangay Anticala and Barangay Pianing, Butuan City. Source: National Commission on Indigenous Peoples (NCIP) - Region XIII Regional Office

Primary data were gathered from field observations, surveys, interviews, and focus group discussions conducted from March until April 2022. The researchers conducted interviews

with the respondents using a guide questionnaire. The guided questionnaire was structured into three parts, and the same was also translated into the Bisayan dialect. The first part reflects the informed consent of the respondents, while the second part focuses on their demographic profile. The last part touches on the perception of the respondents concerning the conservation and environmental management practices within the Taguibo watershed. To validate and provide a deeper analysis of the responses, the researchers conducted key informant interviews (KII) and focus group discussions (FGD). The researchers identified seventeen (17) respondents for the KII, comprising of barangay and community leaders. After the data gathering, focus group discussions were conducted with the indigenous community leaders for the data validation. Specifically, the researchers conducted the FGDs during the monthly meeting of the Anticala Tribal Council of Elders and Leaders Association, Inc. (ATRICELAI).

Before engaging with the community, the researchers obtained the informed consent of the respondents and the leaders of the indigenous community, with the assistance of the

National Commission on Indigenous Peoples (NCIP). Their spiritual leader performed a traditional ritual before the start of the data gathering.

3. Results and Discussions

The surveys were conducted from March 25 to April 27, 2022 in barangay Anticala (sitio Bungadman, Dugyaman, Zigzag, Suong, Sinaka, Mahayahay, Tagkiling, and Iyao) and barangay Pianing. There were three hundred twenty-three (323) respondents from the indigenous cultural community who filled out the survey questionnaire and seventeen (17) of them also were the respondents for the key informant interviews. Data collection continued to take place even while the pandemic was in full swing (COVID-19 or Coronavirus disease 2019). Due to strict movement regulations, researchers faced challenges in obtaining data collection permission. In addition, some of the identified respondents declined to participate in the survey. Lastly, huge portions of the watershed area are difficult to access. Even though the houses of the respondents are vastly dispersed, the researchers continued the data-gathering activity, putting in

mind the wise words of the Manobo chieftain: (in vernacular transcribed to English) *"Do not go any further stay on the road and always have a companion (Manobo) for your own safety."*

3.1. Demographic Profile

The pie graph below shows the distribution of the total respondents from the barangay Pianing and eight sitios of barangay Anticala (see Figure 3).

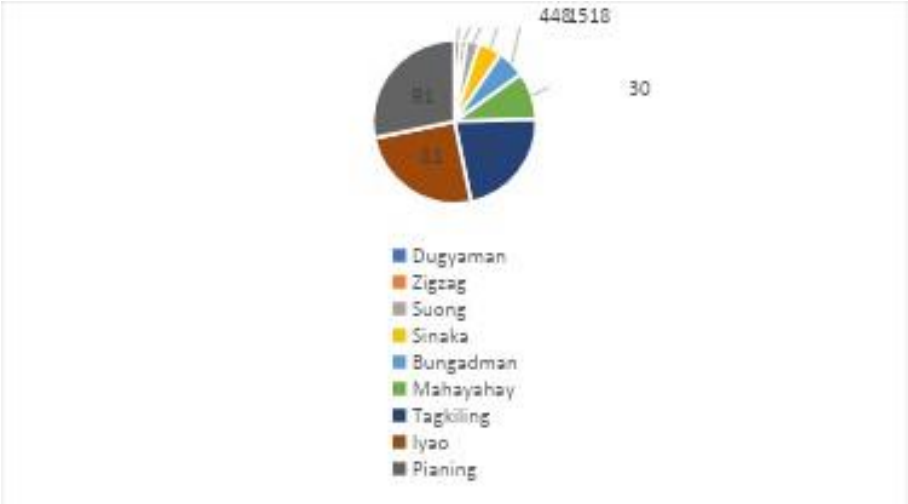

Figure 3. The total number of respondents distributed in the Pianing and sitios of Anticala

As shown in *Figure 3* above, ninety-one (91) of the respondents come from barangay Pianing (28%), followed by the eighty-one (81) respondents from Sitio Iyao in Barangay Anticala

(25%), seventy-three (73) respondents from Sitio Tagkiling (22%), thirty (30) respondents from sitio Mahayahay (9%), eighteen (18) respondents from sitio Bungadman (6%), fifteen (15) respondents from sitio Sinaka (5%), and eight (8) respondents from sitio Suong (2%). Lastly, both sitios Dugyaman and Zigzag were represented by four (4) respondents each (1%). The majority of respondents reside in Brgy. Pianing and sitio Iyao, which explains why those two places have the highest response rates in the graph.

Figure 4 below shows the apportionment of respondents in terms of gender. Most of the respondents were female (n=218, 67%).

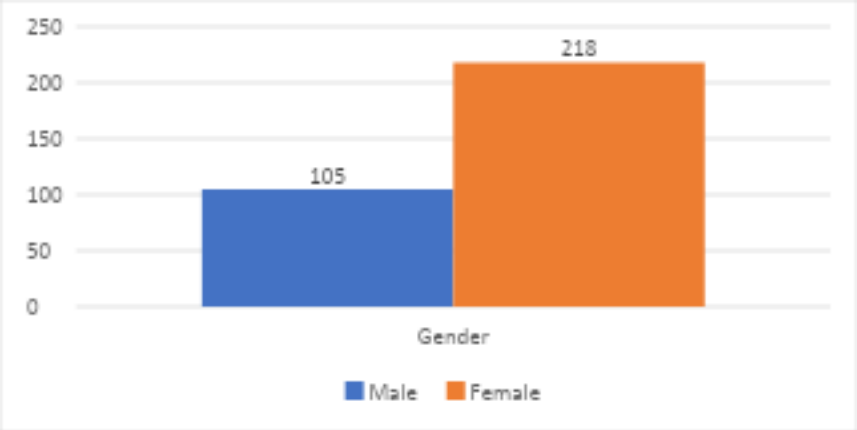

Figure 4. The gender distribution of respondents

The bar graph in *Figure 5* below shows the age distribution of the male and female respondents. When ranked, respondents

with ages 20–30 took the first spot (n=110, 34%), followed by respondents with ages, 31–40 with a total of 74 (23%), then respondents with ages 41–50 with a total of 60 (18%), then similar rank for ages 51–60 with the total of 41 (13%), and lastly, ages 60–up with the total of 38 (12%) respondents. Despite having different numbers, they responded to the survey with the same answers. Some of them possess the necessary knowledge to properly respond to the survey's questions, especially the elders of the community. Within their community, they frequently discussed their involvement in Taguibo watershed management and conservation.

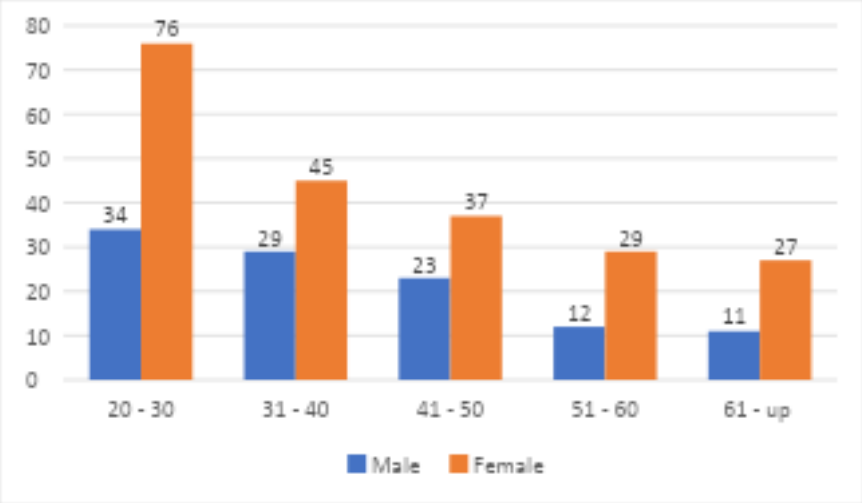

Figure 5. The age range of the respondents

The researchers conducted fieldwork during the day when male household members typically went to their farms or performed other daytime jobs. Meanwhile, the wives and other female family members stayed home to care for the house, children, and elderly. This schedule led to a notable disparity in respondents' age and gender distribution. Responses varied by age group: most 20-year-olds lacked knowledge about the community and relied on the household head's opinions, while the majority of 40-year-olds responded well but without much insight. In contrast, elders (aged 51 and above) provided detailed accounts of their experiences in managing and conserving the watershed. Despite these differences, KII respondents offered valuable information for all survey and interview questions.

Figure 6 below shows the demographic profile of the respondents in terms of educational attainment:

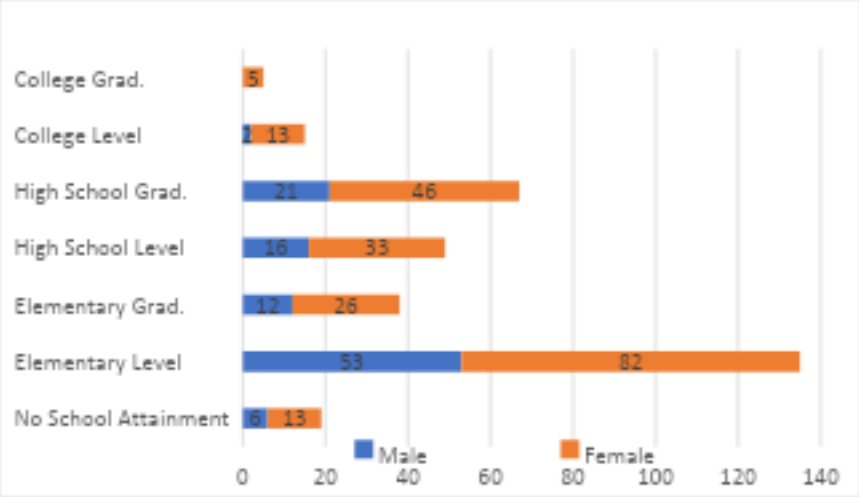

Figure 6. Highest Educational Attainment

As indicated, the highest educational attainment of the respondents is mostly elementary level (n=135, 42%), followed by high school graduate (n=67, 20%), and high school level (n=49, 15%). Several respondents indicated that they are elementary graduates (n=38, 12%), followed by no school attainment (n=19, 6%). Very few respondents indicated that they are College level (n=15, 4%), or that they are college graduates (n=5, 1%). Since the indigenous cultural community is dependent on agriculture and forest plants as the primary source of livelihood and income it showed that 70% of the respondents are farmers while 30% of them are business and public/private employees such as

barangay officials, labor, driver, guard, army, and nurse as shown in the very small percentage of college graduates of the members of the tribe (1%).

Most middle-aged to elderly respondents are in the elementary school grade levels; they based their answers on the expertise, knowledge, and beliefs that they inherited from their ancestors, while most college-level to college-graduate respondents are in their 20s; they based their answers on knowledge from school. Additionally, because the KII respondents were middle-aged or older, their responses were very detailed as opposed to the generalizations made by respondents in their 20s. They may differ on the source of the information, but they share the same views on the value of conservation and good management in preserving the sustainability of the Tagiubo watershed.

3.2 Perceptions on the overall state of the Taguibo Watershed

In the middle of December 2021, the Taguibo watershed experienced the most recent damage to its biophysical conditions during the onslaught of typhoon Odette. The area was placed under Typhoon Signal No. 2. According to the five (5) KIIs,

after typhoon Odette several trees were uprooted, huge landslides were observed, and the river stream was filled with *bajri* or river sand, causing excessive turbidity to the water sourced from the Taguibo. Because of this, the water users of the Butuan City Water District (BCWD) suffered waterless days for almost two months. Table 1 below shows the summary of the respondents' views on the Taguibo watershed.

A key informant stated: (in dialect transcribed to English) "*We need to evacuate from our home for safety in high grounds since the water from Taguibo river is so high and some parts of the mountain got a landslide. The situation during that time was very dangerous, after that the situation of the Taguibo watershed was very poor and damaged, and the entire Butuan City was affected.*" Typhoon Odette left a huge negative impact on the Taguibo watershed, this can be shown by the summary of the responses in Table 1 below.

About four months after typhoon Odette, *Table 1* below shows the summary of the perceptions of the respondents on the physical condition of the watershed in its current state, and for ten or twenty years after:

Table 1. Summary of Perception in the Taguibo Watershed

	Current State of Taguibo watershed	Percentage (%)	Taguibo watershed in 10 years	Percentage (%)	Taguibo watershed in 20 years	Percentage (%)
Very poor	42	13	9	3	9	3
Poor	40	12	27	8	19	6
Fair	109	34	78	24	45	14
Good	93	29	152	47	119	37
Very good	39	12	57	18	131	40

In its current state, most of the respondents believe that the condition of the Taguibo watershed is just fair (n=109, 34%), as compared to the increasingly good condition (n=57, 18%) in ten years after, and very good condition (n=131, 40%) in twenty years after. This is better illustrated by *Figure 7* below:

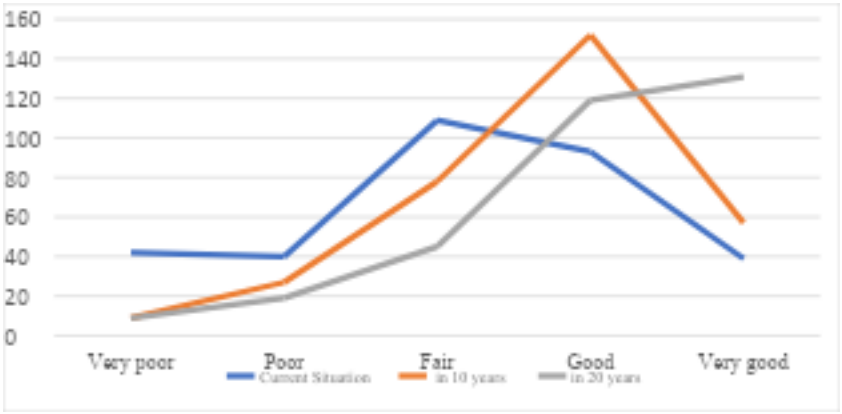

Figure 7. Summary in perception for the condition of the Taguibo watershed

The key informants believe that the Taguibo watershed will be in good condition, more than the current situation, especially if they continue the conservation and protection efforts, and have good environmental management practices for the next ten to twenty years. According to Key Informant 1 (in dialect transcribed to English*): "The cooperation in government agencies is a big help to improve the management strategies of managing the Taguibo watershed."* Key Informant 8 also stated (in dialect transcribed to English): *"It is important to advocate the Manobo tribe regarding conservation in flora and fauna to protect the endemic species. Advocacy in waste disposal and waste segregation will help Taguibo watershed to have clean and healthy water."*

Global deforestation such as illegal logging, illegal trade in wildlife, and kaingin causes serious environmental problems that can lead to degradation of biodiversity, lowering of water quality, and unsustainable forest management (Reboredo, 2013). Accordingly, these illegal activities affect the optimum utilization of the natural resources found within the Taguibo watershed. The

table below shows the responses of the respondents to the effect of illegal activities.

Key Informant 17 stated that (in dialect transcribed to English) *"illegal activities like illegal logging, hunting of endemic species, and deforestation cause loss of biodiversity that can affect both flora and fauna including us the consumer, our health, and livelihood."* Key Informant 6 succinctly put it: *"every living organism in the ecosystem have roles to play, excessive utilization and overexploit them leads to the extinction of species".*

Despite threats of CPR degradation, studies have shown that humans can collectively organize, develop robust institutions, and sustainably manage the commons. Over the years, environmental degradation has become an important political discourse concerning sovereign nation-states sharing a common space called Earth (Sabado, 2015). At the world stage, this has been a critical governance agendum, given prime importance with the popular articulation of the term 'sustainable development' (Sabado 2015). From the 1987 report of the World Commission on Environment and Development (WCED) entitled

"Our Common Future", societies and human institutions are recognized to possess the ability to address overarching issues of sustainable development, proclaiming that "humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED 1987). It has then propelled high hopes for humans and its institutions to organize and engage in governing commons and shared ecosystems (WCED, 1987), now commonly termed as 'common-pool resource' (Sabado 2015).

This high hope for humanity to solve environmental degradation manifests in the case of the Taguibo watershed. *Figure 8* below shows some alternative ways to solve environmental degradation within the Taguibo watershed according to the respondents. When ranked together, reforestation obtains the highest responses (n=132, 41%), followed by stopping illegal logging (n=95, 29%) and implementation of new rules (n=49, 16%) concerning conservation and management. Other responses include advocating clean-up

operations, waste segregation, conservation, preservation, and protection activities (n=47, 14%).

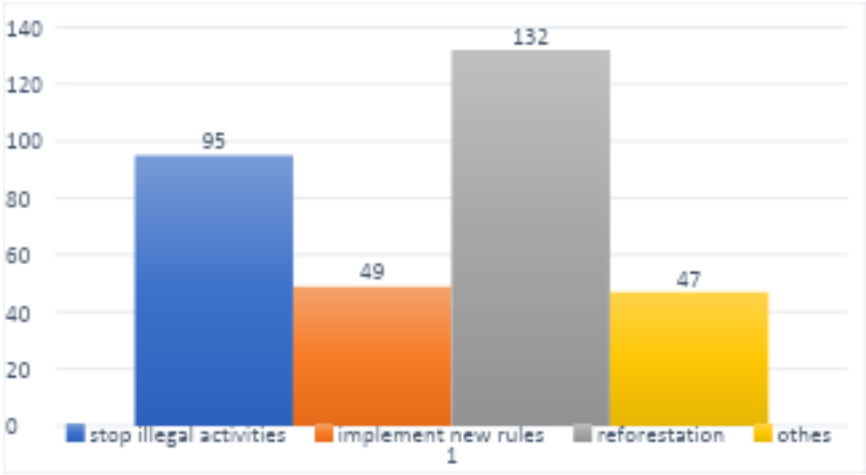

Figure 8. The Solution for Illegal Activities

According to Key Informants 6, 9, 12, and 14 (in dialect transcribed to English): *"Illegal activities cause landslide and flooding in our land, and decrease the number of species that live in the forest because of illegal hunting of endemic species. Illegal activities should stop and rules and regulations to secure the natural resources must be followed."* Key Informants 2 and 8 said: *"It is important to advocate the people, especially the Manobo, the proper waste disposal and segregation to have clean water, air and environment".*

3.3 Perceptions on the Management of Taguibo Watershed

Water resources have been widely managed and used for all kinds of utilities, such as drinking, food production, flood control, energy, industry, nature, and recreation. These management and utilization have subsequent effects on water quantity. In recent years, the importance of watershed management and water resources development has become crucial in both developed and developing countries. This shift is due to the growing awareness that the long-term sustainability of water projects is vital for human welfare (Biswas, 1990) *Figure 9* below shows the respondents' perception of the management by the community leaders of the Taguibo watershed.

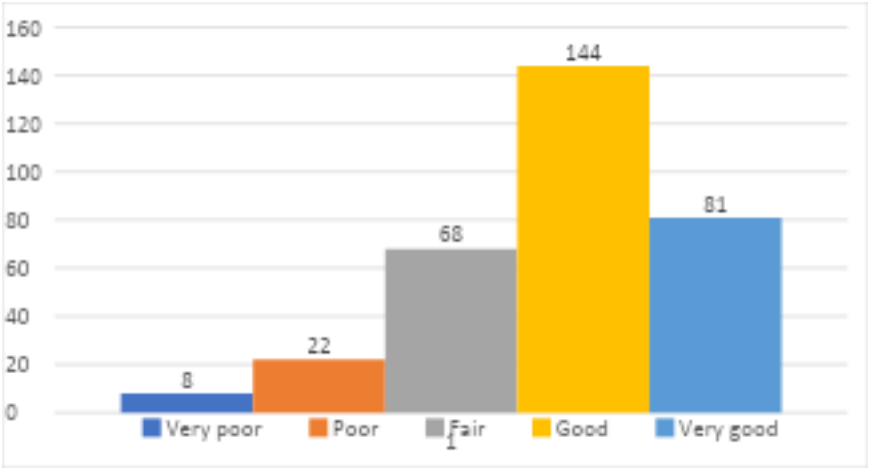

Figure 9. The management by community leaders of the Taguibo watershed

The figure above reveals that several respondents perceive good management (n=144, 45%) by the community leaders of the Taguibo watershed, followed by responses "very good" (n=81, 25%). According to Key Informant 10 (in dialect transcribed to English), *"the management of the leaders in Taguibo watershed is not perfect, but they are trying to do their best to continue the preservation in the area and to conserve the flora and fauna around the watershed. There are activities such as tree planting and clean-up operations to have clean water and environment. With this, everyone can influence and help the condition of the Taguibo watershed."*

According to Ostrom (1990), sustainable CPR management entails the ability of local institutions, that are affected by the operational rules, to participate in modifying and improving the same set of operational rules. A related study argued that local institutions within the Taguibo watershed have developed rules governing the common-pool resource over time (Sabado, 2016). These rules, it can be observed, are both direct and subtle responses to the biophysical conditions of the resource system, as well as reflective of their community practices. Accordingly,

there is little showing of autonomy in implementation, when placed together with the externally sanctioned and imposed rules by the government (Sabado, 2015). For instance, the selection of plant species, planting design, and even the selection of leaders are not isolated from impositions from government agencies. While they have supplied operational rules, they only have little autonomy (choice and constitutional rules)to change these operational rules that fit the peculiarity of local settings and experience (Sabado, 2016).

Leadership and autonomy truly matter for watershed management. Understanding the human-nature relationship is an interdisciplinary concept because it concerns the various issues to human activities affecting the natural environment, from natural resource extraction and environmental hazards to habitat management and restoration (Seymour, 2016). Watershed management helps to control pollution of the water and other natural resources in the watershed by identifying the different kinds of pollution present in the watershed and how those pollutants are transported, and recommending ways to reduce or eliminate those pollution sources. The implementation

of land use and water management practices to protect and improve the quality of the water and other natural resources within a watershed should be done comprehensively. (DEEP, 2021).

Figure 10 below shows the responses of respondents when asked who among the stakeholders can better influence the conditions of CPR management:

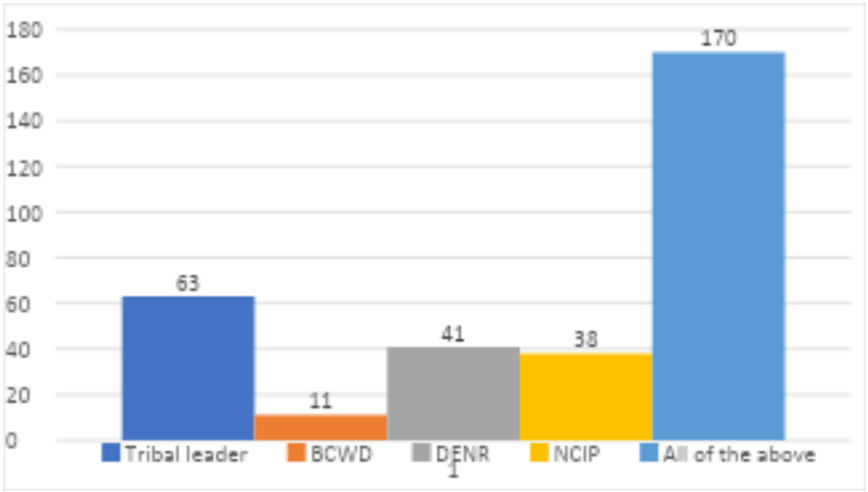

Figure 10. Stakeholders who can influence the condition of natural resources

The responsibility to sustainably manage the Taguibo watershed must be shared by every actor, especially those who possess influence in the management and outcome of the

watershed. The figure above shows the stakeholders who can influence the condition and management of the Taguibo watershed. Overwhelmingly, one hundred seventy (170 or 53%) of the respondents believe that all actors – whether government, community, or civil society – can influence and affect not only the current and future condition of the Taguibo watershed but also its sustainable management. Sixty-three (63 or 19%) of the respondents said that the leaders of the indigenous cultural community influence the condition and the sustainable management of the watershed. The respondents also identified the Butuan City Water District (BCWD) (11 or 3%), the DENR (41 or13%), and the NCIP (38 or 12%) to possess the influence in the condition and sustainable management of the Taguibo watershed. Thus, the figure above reveals that all of the identified stakeholders are perceived to influence the condition of CPR management.

Thus, the figure above clearly reveals that all of the identified stakeholders are perceived to influence the condition of CPR management. These findings emphasize the need for an inter-sectoral approach to managing the Taguibo watershed

CPR. It must be stressed that while the Taguibo watershed was declared a protected area for protection, maintenance, and improvement of the water yield for the people of Butuan, the same forest cover is vital for community forest farmers under the Community-based Forest Management (CBFM) program of the Department of Environment and Natural Resources (DENR) (Sabado 2016). This program is a social forestry program of the national government, where utilization and protection of the forests are decentralized to local communities, while the state retains ownership. It must also be remembered that the same forest was also claimed by the *Manobo* indigenous cultural community (ICC) as part of their ancestral domain. Under the contemplation of the Indigenous People's Rights Act of 1997, the said ICC has been granted autonomy and exclusive right to exploit, manage, and utilize resources found within their ancestral domain by their customs and traditions (Ballesteros 2001). To sum it up, the Taguibo watershed is a case where one particular shared ecology cuts across many tenurial instruments and has been directly managed by different institutions, and supervised by different government agencies with varying

operational rules. These operational rules are often ambiguous and conflicting (Sabado 2016).

As one study puts it, the course of the relationship among different local institutions in the area is heavily affected by exogenous institutions, i.e. government agencies, and non-government organizations (Sabado 2016). The formation, organization, and operation of these local institutions are always attached to the objectives and mandates of government institutions that foster them. Operative and structural qualities of institutions are superimposed by a larger whole of the community; where institutions are held completely by attributes of the community, operative and structural qualities of institutions, as fueled by interventions of government agencies, are somehow diluted and are easily interfaced into the consciousness of the community (Sabado 2016).

As all of the stakeholders can influence CPR management, the boundaries delineating access, use, and management become unclear. This is the popular articulation of the commons

or common-pool resource: since everybody owns it, then nobody owns it. However, the Taguibo watershed exists within various ranges of appropriations. On one hand, the indigenous community and the farmers extract resources directly from the watershed forest and, therefore, enjoy proximate gains. On the other, the rest of the Butuan population are water consumers benefiting from the clean water produced by the watershed. One can also imagine disproportionate concern, and a varying degree of vigor in protecting the watershed (Sabado 2016). For groups with high stakes in managing commonly shared ecology, the burdens of conserving resource systems outweigh the benefits (Lebel et al. 2008). Differing appreciation and degree of concern created strain between different users (Sugimoto 2011). A previous study made this observation:

> "In one reforestation program, implementers identified one partner group to become the main end-receiver of engagement funds. While there is a default appropriation of financial and technical resources to all institutions, various exogenous actors pooled together supplemental resources for the appointed people's

organization. Considering that all institutions have identical costs entailed for each seedling production, site preparation, out-planting, maintenance, and enrichment planting, the said people's organization gains a considerable advantage. This is being practiced in a condition where all institutions, could enjoy virtually equally and fairly from the benefits later on. Inequality in production cost caused by the introduced incentives of the exogenous institutions produces identical gains for similarly situated actors. This condition is conducive to rent-seeking and free-riding behaviors. The presence of exogenous institutions changes the rule structure of the scenario in terms of incentives and distribution of economic gains and costs." (Sabado 2016)

Some authors argue that the unequal allocation of resources from commonly managed ecology is not a by-product, but a necessary consequence of institutional sustainability (Agrawal 2003). After all, engagements to sustainably manage

shared resources are but an expression of an idealized, eccentric, and simplified construction of reality (Sabado 2016). Supplying incentives to one group, arbitrarily or otherwise, cut shortly the mechanism for fairness and equality of sharing risks and benefits, thus propelling non-cooperative, defect-oriented strategies of action.

4. Summary, Conclusion, and Recommendation

This study is a preliminary research engagement conducted to describe the perceptions of the members of the Manobo indigenous cultural community on the current management and conservation practices of the Taguibo watershed. Using a descriptive qualitative and quantitative approach, semi-structured survey interviews were conducted between as well as the interview were carried out between March and April April 27 in the year 2022, with three hundred twenty-three (. The questionnaire for the survey was translated into Cebuano, and semi-structured interviews were also conducted. There have been 323) people who respondents coming from the indigenous cultural community. The number of respondents in the survey represented 13% of the IPs living

under in CADT 135, are 12.8% of the total population of the Manobo tribe, and representing fifty percent (5049.9%) of the total householdshave at least one ation per household.

The study revealed critical fragilities of the common-pool resource to the natural calamities and disasters. Typhoon Odette, which occurred between December 12 and 22, 2021, had negatively impacted the biophysical condition of the Taguibo watershed. In effect, ~~This information was provided by the respondent.~~ the high level of turbidity in the Taguibo watershed can be attributed to the presence of Bajri, also known as river sand and silt, which can be found throughout the watershed during the onslaught of the typhoon. At the time, the situation of the Taguibo watershed was described by respondents as "very poor." The study also reveals the vulnerability of the local community to natural disasters, as people hugely depend on the resources found within the CPR.

Despite the current condition of the watershed, the community remains hopeful for an improved management and

conservation of the Taguibo watershed. During the survey, the in the current situation of the Taguibo watershed, but respondents were steadfast in their view that the Taguibo watershed will be in good condition in the coming ten to twenty years.

The community closely linked the sustainable management and conservation of the Taguibo watershed to the leadership of the community and the influence of engaged stakeholders. While recognizing the efforts of their tribal leaders, they also put a premium on the influence of all stakeholders within and outside the watershed. of managing the Taguibo watershed. Following good management with 144 (45%) of the respondents voting for very good management with 81 (25%) votes from the respondents, fair management with 68 (21.05%) of the respondents voting for it, poor management with 22 (7%) of the respondents voting for it, and in last place very poor management with 8 (2% of the votes from the respondents). The management of the Taguibo watershed is an essential responsibility of all Butuanons. It is essential to understand the connection between human activity and the natural world because human activity can affect, whether positive or negative,

the natural resources, especially those shared resources. This study reveals that the tribal leaders, BCWD, DENR, and NCIP have a strong potential to influence the Taguibo watershed in terms of managing, conserving, protecting, raising awareness, and providing livelihood, among others.

As a preliminary study, it reveals a positive outlook for the sustainable management of the Taguibo watershed in the coming years. However, natural weather systems, such as storms and typhoons, have frequently posed serious threats and caused damage to its environs. The study also highlights the perception of the respondents that the active and direct management of the watershed by the ICC can result in sustainable and robust outcomes. This is grounded on the belief that all actors must actively participate in conservation efforts, especially when the can influence sustainable outcomes.

In conclusion, certain aspects of CPR management must be delineated. The individuals or communities authorized to withdraw resource units from the CPR must be clearly defined, as must the boundaries of the CPR itself. The Taguibo watershed cannot be partitioned and detached from the indigenous

community that directly utilizes and conserves it. The same community is capable and has the proximate motivation to sustainably manage and conserve the CPR.

The researchers recommend the conduct of quantitative research on the conservation and environmental management practices in the Taguibo watershed. The quantitative research should focus on comparing primary and secondary data including geophysical and satellite images using remote sensing technologies. The goal of this comparison is to provide information and reliable resources for readers and future researchers on sustainable management and environmental conservation.

As a final note, this study echoes the call of the previous work of one of the researchers. We argue for the respect and integrity of the ecology. The treatment of the 'people' and 'community' within a shared natural resource system should be as a collective whole. It should not be disintegrated into different institutions, cooperatives, groups, etc. The ecology cannot be partitioned and detached from the people who directly utilize

and conserve it. The ICC should not only change the operational rules but also revise the constitutional and choice rules.

All deliberative discourse on the Taguibo watershed must confront the challenge of complexity head-on. The danger of putting aside the puzzle of complexity is that it dilutes the beauty and plethora of analytic space for dissent. It leads one to think that nothing can be done about it, thus, legitimizing the silence as superficial acceptance and repose. A good starting point is recognizing and accepting that the Taguibo watershed does not exist in isolation, and that its appreciation does not solely rest to appease our ecological guilt. A good start is to be conscious of other valid discourses and always put them into the equation.

References

Articles In A Print And Online-Only Journal

Agrawal, Arun and Elinor Ostrom (2001). Collective Action, Property Rights, and Decentralization in Resource Use in India and Nepal. In *Politics and Society.* Vol. 29, December 4, 2001. 485-514 Sage Publication

Ballesteros, A. G. Ancestral Domain Recognition and Community Based Forest Management: Two Sides of Different Coins. *Philippine Natural Resources Law Journal*, Vol. II No. 1, November 2001.

Béné et al. 2009. Power struggle, dispute and alliance over local resources: analyzing 'democratic' decentralization of natural resources through the lenses of Africa inland fisheries. *World Development*, 37(12), 1935-1950. DOI: 10.1016/j.worlddev.2009.05.003.

Blaike, P. 2006. Is Small Really Beautiful? Community-based Natural Resource Management in Malawi and Botswana. In *World Development*. Vol. 34, No. 11, pp. 1942–1957, 2006. Elsevier Ltd. Retrieved July 15, 2014 from www.elsevier.com/locate/worlddev

Catacutan, D., D. Garrity and C. Duque. 2001. Governance and natural resource management: key factors and policy implications: emerging lessons from ICRAF- SANREM collaboration in the

Philippines. Paper presented to the *SANREM CRSP Research Synthesis Conference*, November 28-30, 2001, Athens. Retrieved August 8, 2014, from http://www.worldagroforestrycentre.org/sea/ph/02_pubs/papers/04_tech/gov_01.pdf

Dapar, M. L. G., Alejandro, G. J. D., Meve, U., & Liede-Schumann, S. (2020). Quantitative ethnopharmacological documentation and molecular confirmation of medicinal plants used by the Manobo tribe of Agusan del Sur, Philippines. Journal of ethnobiology and ethnomedicine, 16(1), 1-60.

Felix, M., & Leny, E. (2004). Exploring the indigenous local governance of Manobo tribes in Mindanao.

Garcia-Lopez, G. 2013. Scaling up from the grassroots and the top down: the impacts of multi-level governance on community forestry in Durango, Mexico. In *International Journal of the Commons*. Vol. 7, no 2 August 2013, pp. 406–431. Igitur publishing.

Retrieved March 19, 2014, from http://www.thecommonsjournal.org

Kapoor, I. 2001. Towards participatory environmental management? A revised and expanded version of a paper bearing the same title and written for the *United Nations Office for Project Services* (UNOPS), Rome in May 2000. From http://yorkspace.library.yorku.ca

Kellert, S., J. Mehta, S. Ebbin and L. Lichtenfeld. 2000. Community natural resource management: promise, rhetoric, and reality. *Society and Natural Resources*, 13:705–715, 2000. Taylor & Francis. From http://dx.doi.org/10.1080/089419200750035575

Larson, A., and Ribot, J. 2004. Democratic decentralization through a natural resource lens: countering central resistance, fostering local demand. *European Journal of Development Research*, 16(1). DOI: 10.1080/09578810410001688707

Pulhin, Juan (2002). Trends in forest policy in the Philippines. *Policy Trend Report*. Retrieved July 13, 2014 from http://aboutphilippines.ph/filer/Trends-in-Forest-Policy-Philippines.pdf

Sabado, Joseph Ian (2016). Complexities of Governing Shared Space and the Crisis of Politicizing Ecology: Perspectives from the Taguibo Watershed. *The Light Journal*. Vol. 15, No. 1 (2016). ISSN 1656-586X

Santillan, J. R., Marqueso, J. T., Makinano-Santillan, M., & Serviano, J. L. (2016). Beyond flood hazard maps: Detailed flood characterization with remote sensing, GIS, and 2D modeling. The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, 42, 315.

Sugimoto, A. 2011. Decentralization and ignored local dynamics: a case study on CBFM in the The Philippines. A conference paper presented during "Sustaining Commons: Thirteenth Biennial Conference of the International Association for the Study of the Commons, January 10-14, 2011, Hyderabad, India

Pasicolan, P. and S. Pasicolan. 2005. Creation of a multi-sectoral partnership in watershed management: Philippine Experience. Paper presented during the *Water Governance Conference in Southeast Asia*. Siem Reap, Cambodia, November 29-December 2, 2005. Retrieved from https://khmerstudies.org/download-files/events/Water/Pasicolan.pdf

Prill-Brett, J. 2007. Contested domains: the Indigenous Peoples Rights Act (IPRA) and legal pluralism in the northern Philippines. In The *Journal of Legal Pluralism and Unofficial Law*, 39(55), 11-36. doi:10.1080/07329113.2007.10756606

Chapter In Book

Contreras, A. P. 2000. "Rethinking participation and empowerment in the uplands". In Forest Policy and Politics in the Philippines. Edited by P. Utting. Quezon City: Ateneo de Manila University Press.

Dañguilan-Vitug, M. 2000. "Forest policy and national politics". In Forest Policy and Politics in the Philippines. Edited by P. Utting. Quezon City: Ateneo de Manila University Press.

Electronic Book

Guiang, E.S. & Castillo, G. (2006). Trends in forest ownership, forest resources tenure, and institutional arrangements in the Philippines: are they contributing to better forest management and poverty reduction? *In* Understanding forest tenure in South and Southeast Asia FAO: Rome.

Thesis

Sabado, Joseph Ian (2015). Institutions and the Common-Pool Resource: Governance, Collective Action, and Property Rights in the Taguibo Watershed. An unpublished graduate thesis. The Graduate School, Father Saturnino Urios University: Butuan City, Philippines.

Web Articles

Magallona, Merlin and Ben Malayang III (2001). Environmental Governance in the Philippines. In Environmental Governance Project. Institute for Global Environmental Strategies. Retrieved: October 16, 2014, from http://pub.iges.or.jp/modules/envirolib/upload/817/attach/eng_part3.pdf

Monteverde, Ma. Cecilia A., Alejandro Jesuitas , Romeo M. Pelagio , Rommel P. Yutuc , Oscar D. Cruz. (2006). Flood hazard and vulnerability mapping of Butuan City. DOST Union Catalog. Retrieved from http://scinet.science.ph/union/ShowSearchResult.php?s=2&f=&p=&x=&page=&sid=1&id=Flood+hazard+and+vulnerability+mapping+of+Butuan+City&Mtype=REPORTS

National Economic and Development Authority. (2020). Master Plan for the Sustainable Urban Infrastructure Development in Butuan City. Retrieved from https://nro13.neda.gov.ph/wp-content/uploads/2021/10/Master-Plan.pdf