An evaluation of Dumagat/Remontado tribe as potential forest resource managers: the case of upper Marikina River basin Protected landscape, Philippines

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Abstract. Dumagat/Remontados belong to an indigenous community in Rizal Province, Philippines. Being the original inhabitants of the forest they have built strong ties to their lands as a result of living in the forest for generations. However, despite their rich knowledge in conserving and protecting their lands, these communities are still considered as an unimportant community in decision makings by lawmakers. Modern technology has made some of these communities leave the forest and settle in urbanized areas to find a better life. This research stresses the important role of Dumagat/Remontado’s Tribe living in the upper Marikina river basin protected landscape, in managing and conserving the forest. The study involves interviews with the Chieftains of five selected villages and members of Dumagat/Remontado’s tribe, site visits, and photo-documentations. Findings revealed all the communities still have strong ties to their traditional beliefs but communities that are still living in the forest and in their ancestral lands have stronger connections to their ancestral lands, traditional beliefs, and practices which have resulted in better management of the forest and its resources.

1. Introduction
Indigenous people are the original inhabitants of the forest. Forest for them is not only a source for their livelihood practices but it shapes their culture, identity, and spiritual values one of the indigenous communities in the Philippines is Duamagat/Remontados of Rizal. These communities are a mixture of Dumagat Tribes and Remontado Tribes. Dumagat meaning “gubat” (forest) or “hubad” (naked). They call themselves “taga-bundok” (from the mountains) or “remontrar” (Spanish verb for to go back or to flee back to the mountains) and were later called Remontados.

Forest has been the home of these communities for the last decades and therefore the importance of safeguarding the forest and its resources for these communities is undeniable they are historically linked to these areas, accustomed to using the natural resources in a sustainable way for subsistence and livelihood and using their traditional knowledge which was passed to them through their ancestral.

However, the pressure of modern living and technological advances that dominates our everyday lives have threatened forest land its resources and over the years, destruction population growth, land conversion, and illegal logging have made some of these communities who were moved and displaced from their ancestral lands to lose their properties and culture as the result of this action.

This vulnerability will link the loss of interest in younger generations to protect their ancestral lands and move to lowlands and urban areas to find better life and opportunities. Dumagat/ Remontado tribe
define land with all the existing elements on it from mountains, rivers to trees and plants, and for these indigenous communities like all indigenous communities, the land is an integral part of their lives and with their vast knowledge about forest and its resources, they are still invisible by decision-makers. Therefore there is a need to address this issue with the aim of recognizing indigenous knowledge systems in protecting the forest. This research explores the role of Dumagat/Remontado’s of Rizal as a potential model for forest resource management by looking into forest resource management and cultural resource management of selected communities.

The main research objective is to determine the potential role of Dumagat/Remontado tribe in sustainably managing the forest environment and its resources by engaging their knowledge system in their daily life practice. The specific objectives of this study are:

a. To develop a framework for the effective forest resource management by Dumagat/Remontado tribe in Upper Marikina River Basin protected landscape.

b. To evaluate the forest resource management of the Dumagat/Remontado tribe.

c. To establish a model for forest resource management based on landscape characteristics, forest utilization, and belief system of Dumagat /Remontado tribe in Upper Marikina River Basin Protected Landscape.

2. Methods

2.1. Research framework

The research was carried out in upper Marikina River basin protected landscape in Rizal Province and it was divided into three categories which were determined thru the following steps:

| Step               | Description                                                                 |
|--------------------|-----------------------------------------------------------------------------|
| First step         | Upper Marikina River Basin topography map                                  |
| Second step        | The highest elevation which is 1252 masl was subtracted to the lowest elevation level which is 100 masl. 1252 masl -100 masl = 1152 masl |
| Third step         | The answer was divided by 3 to determine                                    |

Therefore, the elevation map was designed with elevations according to lowland 100-484 masl, Midland 484-868 masl, and Upland 868 -1252 masl and after defining the map, the indigenous community’s distribution in each elevation was determined. The next step was to select the site with the most varied and interesting landscape and unique features were selected. The result was the lowland area of Upper Marikina River Basin Protected Landscape at the elevation of 100-484 masl with different and diverse landscape characteristics and in this area, five (5) communities were identified. These communities were categorized into five (5) villages. They are Village One, Two, Three, Four, and Five. The task was to choose the potential model for forest resource management among the five villages. These communities living in the elevation of 100-484 masl are settled in particular areas and have the highest population, unlike other elevations, most of the communities are still mobile communities and they travel from one area to another.
2.2 Research method
The methodology used by the researcher was descriptive, based on data collected through household interviews, direct participation, and mainly observational method. The needed information was provided with the help of the chieftain tribe of the villages in low land. Due to missing data/maps for the research, site visits were the most important research method.

Dumagat/Remontado tribes are a sensitive and conservative community. Thus, the informal interview technique was used to interact with the households and members of the community. The importance of photo documentation was vital for the mapping and evaluation of each village.

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**Figure 1.** Research framework.
3. Result

3.1. Location

The Upper Marikina River Basin Protected Landscape figure (1) is located in the Province of Rizal. In the northeastern part, the highest elevation is about 1252 meters above sea level and the ridgeline gradually goes down to 100 meters above sea level in the south area. The soil within the area is clay loam with a clayish texture while in some areas sand is dominant. The study area covers five villages of indigenous people living at the elevation of 100-484 masl in Upper Marikina River Basin Protect Landscape. Upper Marikina River Basin Protected Landscape is located at the upper part of the Marikina watershed which is an important source of water figure (2).

Based on the resources, site visits, and interviews, the majority of the Dumagat/Remontado communities live in the lowland. Table 2 shows that in low land there are five villages with 242 households which have the highest concentration of population. In upland, there are no permanent settlements since they are nomadic communities and each village in low land has different characteristics. The lowland landscape characteristic is varied from agricultural to primary forest, while midland and upland are covered mostly by forest and grasslands.
### Table 2: Sub-Watershed Description

| Land Classification | Elevation | General Landscape Characteristic | Dumagat/Remontado’s Forest Resource Use | Distribution         |
|---------------------|-----------|----------------------------------|----------------------------------------|----------------------|
| Upland              | 868-1252 masl | Primary Forest                   | Hunting for personal consumption       | No permanent settlement |
| Midland             | 486-864 masl | Secondary forest, Slash and burn farm, Grassland Bamboo thickets, Primary forest | Commodity Product, Lifestyle Consumption | 2 Villages, 79 Households |
| Lowland             | 100-484 masl | Agriculture land, Slash and burn farm, Grassland Bamboo thickets, Secondary forest, Forest over limestone formation, Primary forest | Commodity Product, Lifestyle Consumption | 5 Villages, 242 Households |

### 3.2. Survey result

Low land as a base site for this research was chosen and with the help of volunteers from the Dumagat/Remontado tribe, 5 villages in the lowland area were studied with 100-484 masl elevation in Upper Marikina River Basin Protected Landscape was studied. In order to better understand the communities’ relationship with the forest management, their impacts on the forest and the current states of the forest, and typology of each village was studied. Village typology was characterized as forest utilization, character of house, and landscape analysis.
### Table 3. Village typology description.

| Village | Forest utilization | Landscape characteristic and the character of the house |
|---------|--------------------|--------------------------------------------------------|
|         | Commodity Products | Lifestyle Consumption                                   |
| Village 1 | Timber Products  | Charcoal making                                    |
|          | Rattan harvesting | Fishing                                                 |
|          | Wood harvesting   | Slash and burn farming                               |
| Area: 1012.46 hectares |                  |                                                        |
| Population: 199 |                |                                                        |

| Village 2 | Timber Products  | Slash and burn farming                               |
|          | Rattan harvesting| Fishing                                                 |
|          | Agriculture      | Charcoal making                                       |
| Area: 729.95 hectares |      |                                                        |
| Population: 585 |                |                                                        |

| Village 3 | Timber Products  | Farming                                                 |
|          | Rattan harvesting| Charcoal making                                       |
|          | Wood harvesting  | Slash and Burn farming                                |
| Area: 1337.03 hectares |          |                                                        |
| Population: 205 |                |                                                        |

| Village 4 | Rattan harvesting | Hunting                                                   |
|          | Wood harvesting   | Fruit Collecting                                        |
|          |                   | Gathering wild plants                                   |
| Area: 1169 hectares |          |                                                        |
| Population: 64  |                |                                                        |

| Village 5 | Non-Timber Products  | Hunting                                                   |
|          | Honey harvesting     | Fruit Collecting                                        |
|          |                       | Gathering wild plants                                   |
|          |                       |                                                        |
| Area: 1450 hectares |          |                                                        |
| Population: 102 |                |                                                        |

3.2.1. Forest resource management
Dumagat/Remontados who live in the forest or near the forest highly depends on natural resources of forest for their living. To be able to understand their level of understanding and capability of protecting and conserving the forest, forest resource management was accomplished covering the commodity products, lifestyle consumption, and sustainable livelihood.
Table 4. Forest resource management evaluation.

| Rating | Lifestyle Consumption | Sustainable Livelihood | Commodity Product: Basic Resources and Agricultural Products |
|--------|-----------------------|------------------------|------------------------------------------------------------|
| 1      | Very high impact      | Very high impact       | Very high impact                                           |
| 2      | High impact           | High impact            | High impact                                                |
| 3      | Moderate impact       | Moderate impact        | Moderate impact                                            |
| 4      | Low impact            | Low impact             | Low impact                                                 |
| 5      | Very low impact       | Very low impact        | Very low impact                                            |

Figure 4. The bar chart shows that village 5 has the highest score in forest resource management.

3.2.2. Cultural resource management

Indigenous knowledge systems (IKS are oral-based, often passed from generation to generation through stories). It is often difficult to transmit ideas and concepts to those who do not share language traditions and cultural experiences. Thus when language is threatened or diminished the cultural transmission of IK is jeopardized (Warren 1991 Gurung and IUCN 1997). When a community of indigenous people loses their identity, they will lose their interest in protecting their lands; therefore it was important to study the composition of each village, spirituality, and language of each village.

Table 5. Cultural resource management evaluation.

| Rating | Village composition | Spirituality | Language |
|--------|---------------------|--------------|----------|
| 1      | No Dumagat/Remontado| Everyone practices religion | No one can speak Dumagat |
| 2      | Mix of Dumagat/ Remontado and Tagalog but dominated by Tagalog | Dominated by practitioners of religion | Dominated by Tagalog |
| 3      | Equal mix of Dumagat/ Remontado and Tagalog | Equal practitioners religion and animism | Can speak both Dumagat and Tagalog |
| 4      | Mix of Dumagat/ Remontado and Tagalog but dominated by indigenous people | Dominated by practitioners of animism | Dominated by Dumagat speakers |
| 5      | Purely Dumagat/ Remontado | All animist | Everyone can speak and write Dumagat |
The Dumagat/Remontados of Village five has achieved the highest score in both evaluations the comprehensive forest resource management which cites that the forest dwellers of this village are capable of being the potential model for being the potential model in forest resource management. They have obtained their traditional knowledge and transferred their knowledge to younger generations which its reflection can be seen in their landscape culture and their community which helped them in planning and protecting the forest.

4. Conclusion
Dumagat/Remontados tribe live in harmony with nature, with loss of forest which is home for all the indigenous people, they will lose their culture, identity traditional practices, and their rich knowledge. The well-being of indigenous people is related to forest issues. Therefore it was necessary to study both, indigenous people’s issues and forest issues to be able to select the potential model for the Upper Marikina River Basin protected landscape.

Developing the framework assisted to select the potential model by studying the landscape characteristic, forest utilization, and belief system. Hence it can be concluded that among five (5) villages, sense of responsibility for protecting land and forest was at a very high level among Dumagat/Remontado tribe of village five (5), members of this community are very well aware of protecting the forest by using forest resources in a balanced way and by their sustainable practices that will not harm the forest. Effective methods of harvesting the forest products were observed as a good example of sustainable practice by these communities. However it is believed if chances are given to these communities to manage their ancestral lands and forest environment, it can be the quote that they are all the potential forest resource managers and at the same time trying to adapt to modernization while protecting their ancestral lands.

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