Local wisdom application of Tobelo dalam community in its relation with a national parks in North Maluku, Indonesia

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Abstract. Local wisdom and local knowledge are very influential on the life of the Tobelo dalam community in the role of forest management and conservation, especially in the context of forest conservation in Aketajawe Lolobata National Park. We observed that there is a strong relationship within the community still rely on forest resources for subsistence, medicine, and livelihoods. We used observation and in-depth interview to describe the particular forms of local wisdom in forest management and its relation within forest conservation in Aketajawe Lolobata National Park. We particularly observe how the community interact with the particular management of Aketajawe block in the park, or local community in the Tayawi Village on managing their land-use system, the system of labor, and utilization of non-timber forest products in the context of making informal collaboration. The results showed that the existence of local wisdom on forest management is manifested by enforcing rules and sanctions. The belief system is inherently manifested through informal collaboration between the government and the Tobelo community. The involvement of the local community on the park’s tourism activities is also one example. They contribute as the local guides and play a role in the aspects of security and cleanliness of tourist activities.

1. Introduction
There are some studies on Tobelo communities such as Parker’s thesis [1] on investigating the system belief anthropology, however it is very rare literature investigating livelihood aspect related to forest management, particularly for Tobelo dalam community. In the context of anthropology that interprets local wisdom as knowledge that is from a unique society, has a long history of relationships with nature, adapted to the local ecological system, is dynamic and always open with additional new knowledge [2]. As one form of human behavior, local wisdom is not a static thing but changes over time, depending on the order and socio-cultural ties that exist in society. As well as local wisdom found in a community located in the eastern part of Indonesia, the Tobelo community inside lives around the Tayawi River. Tobelo dalam community is a semi nomadic community that lives in the buffer zone of the Aketajawe Lolobata National Park area whose lives are still largely dependent on forest products [3].

The government through the forestry ministry has opened access to local communities for possible forest utilization, especially those who live in or around forest areas to manage and utilize their own forest areas [4,5]. Local government commitment in terms of community empowerment, as well as provincial and city / district spatial planning policies, will be the key to achieving community-based forest management goals.

Aketajawe Lolobata National Park, located on Halmahera Island. This national park is appointed based on the Decree of the Minister of Forestry No. 397 / Menhut-II / 2004 on 18 October 2004, for support and recommendations from the regional government, namely the Regent of East Halmahera, Regent of Central Halmahera, Mayor of Tidore Kepulauan, and North Maluku Governor. The
designated Aketajawe Lolobata National Park covers an area of 167,300 hectares, which is a change in forest function. Previously the area was in the form of protected forests (91 percent), limited production forests (5 percent), and permanent production forests (4 percent). The park area is divided into two forest area blocks, namely the Aketajawe block (77100 hectares) and the Lolobata block (90,200 hectares). The Aketajawe Block is located at the intersection of four large peninsulas on Halmahera Island, which are administratively located in the Tidore Islands City Region (Subdistrict of North Oba, Central Oba, and Oba), Central Halmahera District (Weda Subdistrict), and East Halmahera District (Wasile Selatan Regency). The important thing in collaborative management is that the community is actively involved in the entire flow of forest management activities [6]. Respecting community rights in every decision-making process, so that the best formulations on how to manage forest resources can be obtained.

Hence, this paper analyze how the local wisdom of Tobelo dalam community manifested into collaboration within the park management especially in the particular area in the Aketajawe block

2. Research methods

2.1. Method protocols
We delivered our field observation during February 2018 to May 2018 in Aketajawe Lolobata National Park, particularly on Aketajawe Block. This block management is located in Koli Village, Tidore Islands, North Maluku Province. The data obtained is then analyzed according to the research objectives. Data analysis used in this study is Descriptive Analysis. The purpose of descriptive analysis is to make a systematic, factual and accurate description, description, or painting of facts, traits and relationships between the phenomena being investigated, namely to describe facts based on existing information trends. His analysis is directed to describe the forms of local wisdom in forest management in the Aketajawe Lolobata National Park, especially in the Aketajawe Block, Dusun Tayawi, which includes land use, the system of labor, and utilization of non-timber forest products and directed also to illustrate how the collaborative management model Aketajawe National Park is based on local wisdom [8]. Data collection was carried out through observation, interviews and documentation studies which we describe below.

2.1.1. Observation. We deliver our observation to obtain a valid information on a general picture of the forms of local wisdom in forest management in the Tobelo dalam community and investigate the existing collaboration model or efforts on managing Aketajawe Lolobata National Park.

2.1.2. Interviews. In these activities were conducted through direct meetings with respondents to obtain various information that became aspects of this research. In-depth interview activities focused on two issues of the research objectives, namely: (a) describes in general the local wisdom of the Tobelo community in forest management in Aketajawe Lolobata National Park in Tayawi Hamlet, Oba District, Tidore Island, North Maluku Province, which includes the daily activities of the Tobelo community inside in meeting their daily needs, both in the form of hunting, agriculture and utilization of non-forest products wood. (b) Explain how the community establish a collaboration model on managing the Aketajawe Lolobata National Park

The population and sample in this study were all households of the Tobelo dalam community related to forest management in Aketajawe Lolobata National Park in the Aketajawe Block, Tayawi Hamlet. Determination of data or samples is done by purposive sampling method, which is a sampling method that is intentionally following the requirements of respondents (samples) needed. Respondents (samples) required for this study can be seen in the respondent (sample) in Table 1.

| No | Respondents                                             | Amount |
|----|---------------------------------------------------------|--------|
| 1  | Forestry service of north maluku province               | 2      |
| 2  | Aketajawe lolobata national park management agency      | 5      |
| 3  | Koli village chief                                     | 5      |
| 4  | Chieftain (people in the Tobelo dalam community)       | 3      |
| 5  | Members of the Tobelo dalam community                  | 15     |
2.1.3. **Document analysis.** The documentation study in this study was conducted to obtain supporting data in a collaborative model of the park’s management. For this purpose, the data collected can be in the form of documents or reports that support the research, as well as the results of previous studies related to this research [8].

3. **Results and discussion**

3.1. **The origin of the Tobelo dalam community in Tayawi hamlet**

The general public generally refers to the Tobelo dalam community as "Togutil". The Tobelo dalam community also identifies themselves in daily relationships as "O Hongana Ma Nyawa" or people who live in the forest, as opposed to "O Barera Ma Nyawa", namely people who live and live in coastal areas mentioning the term togutil for the Tobelo Dalam community is less pleasant, because it means a wild, cruel and dirty life. From the results of the interview, the Tobelo dalam community felt more valuable by mentioning the term, because in their daily lives they were used to their ancestors and settled in the forest.

Tobelo dalam people who inhabit forests on Halmahera Island in certain areas are not indigenous to the region, as the Tobelo dalam community in the Tayawi region is not an indigenous Tayawi community this can be seen from the language used daily using the Tobelo language, so this shows that the closer relationship between the Tobelo dalam community comes from Tobelo rather than Tayawi. The things that make the Tobelo dalam community settle around the Tayawi river because it starts from nomadic behavior or moves around in order to hunt and gather to meet their life's needs. During the process of moving, it came to the Tayawi river area which still had abundant potential forest products and the Tayawi river was not in the control of other communities, so the Tobelo dalam community in Tayawi hamlet decided to stay and settle around the Tayawi river and then become ruling tribe of the Tayawi river area.

3.2. **Forms of Local Wisdom of Tobelo Community in Natural Resource Management**

The forms of local wisdom of the Tobelo dalam community in natural resource management include: Local wisdom in maintaining forest products, local wisdom in maintaining forest areas (Sago) and local wisdom in harvesting arrangements (buko).

3.2.1. **Maintaining forest products.** One form of local wisdom in maintaining forest products carried out by the Tobelo community is that Tobelo people do not take forest products arbitrarily or excessively, Tobelo in utilizing forest resources according to their needs, with the aim that the existing forest resources remain sustainable and can be used continuously, both timber forest products and non-timber forest products, use of timber forest products is used to build houses while non-timber forest products are in the form of plant species used as food, fruits, vegetables and medicines.

3.2.2. **Maintaining forest areas (Sago).** One form of local wisdom of the Tobelo Dalam community to maintain its forest area is to preserve the sago area. Tobelo Dalam people are very dependent on sago plants because sago is a staple food as a fulfillment of carbohydrates for the Tobelo Dalam community.

3.2.3. **Harvesting arrangement (Buko).** The local wisdom of the Tobelo Dalam community in the arrangement of harvest (buko) is the local wisdom that has been applied since their ancestors. Buko is a term that explains that there is a prohibition to harvest agricultural products or forest products in certain areas at the same time. The buko culture for the Tobelo Dalam community is indirectly useful in managing the forest so that the existing forest resources are maintained. The buko are generally carried out in areas or areas that are private or jointly owned. An area that has been subjected to Buko is usually marked with a special sign such as the presence of a certain tree that is hung by a bottle with a piece of cloth or other special mark.

3.3. **Zoning Management System for Aketajawe Lolobata National Park Area AKetajae Block**
Basically, there is no specific method in the national park zoning management system. In the Minister of Forestry Regulation No. 56 / 2006 concerning Guidelines for National Park Zoning Preparation, it is not specifically explained about the method of zoning compilation, only explained about the criteria and process in its preparation. However, in Government Regulation 28/2011 concerning KSDA / KPA Management, it is explained that in the preparation of zoning / block uses ecological sensitivity and socio-economic sensitivity approach, without further elaboration on guidelines for obtaining ecological sensitivity data and socialization of economic sensitivity. Aketajawe Lolobata National Park The zoning block of the zoning management system in the Aketajawe Block is a manifestation of efforts to manage the potential of biodiversity and ecosystems within the Aketajawe Block area in an effort to achieve the effectiveness of national park management, which can be seen in the zoning map below.

From the pictures above, it can be seen that the management system for determining the zones of the national park is akkajawe lolobata aketajawe block, there are five zones which are the core zone (zI), utilization zone (zp), forest zone (zri), traditional zone (ztr) and rehabilitation zone (zre) with each area that can be seen in the following table:

| Zone           | Code | Area (Ha) | % Area |
|----------------|------|-----------|--------|
| Core           | ZI   | 30709.60  | 39.83  |
| Utilization    | ZP   | 2703.50   | 3.51   |
| Rehabilitation | Zre  | 3408.62   | 4.42   |
| Jungle         | Zri  | 37573.05  | 48.73  |
| Traditional    | ZTr  | 2705.23   | 3.51   |
| **Total**      |      | **77100** | 100    |

From the table above explains that the management system of zoning division in the national park aketajawe lolobata aketajawe block has the largest area, namely in the forest zone with an area of 37573.05 or 48.73% while the zone with the smallest area is the utilization zone with an area of 2703.50 or 3.51%.

3.4. The existence of the Tobelo Community in the Zonation Area at Aketajawe Lolobata National Park Aketajawe Block
The Tobelo Dalam community found in the zoning area of the national park will be the lolobata aketajawe block located in the utilization zone, for more details, see the picture below.

The description above shows that the existence of the Tobelo dalam community in the zonation of the national park is akin to lolobata aketajawe block in the utilization zone, for more details can be explained in the following Table 3.

| No | Zone | Area (ha) | % | Location | Purpose of determination | Consideration of determining zones | Potency | Activities that can be done |
|----|------|-----------|---|----------|--------------------------|------------------------------------|---------|-----------------------------|
| 1  | Core | 30.70     | 9.60 | Spread in the Aketajawe Forest Block area | Protection of life support systems and preservation of biodiversity | 1. Flagship habitat of Bidadari Halmahera species (Semioptera wallacei) and other protected species, including: White Cockatoo (Cacatua alba), Mandar Gendang (Habroptila wallacei), Paok Halmahera (Pitta maxima) 2. Existence of Karst Ecosystems 3. The condition of the area that is prone to disasters (landslides) and as a protective function of the water system 4. Ex-protected forest areas that were before the National Park were designated | 1. Habitat Research and Behavior of Angels bird of Halmahera and Other Bird Species 2. Research on the potential functions of biodiversity and environmental services from the karst ecosystem | 1. Research and development 2. Protection and security 3. Inventory of biodiversity |
| 2  | Jungle | 37.57 | 3.05 | Spread in the Aketajawe Forest Block area | As a buffer for the core zone | The location, condition and potential can support conservation interests, core zones and utilization zones | 1. Habitat Research and Behavior of Angels bird of Halmahera and Other Bird Species 2. Research on the potential of biodiversity and the function of environmental services from natural forest ecosystems and secondary swamp forests 3. The development of limited natural tourism for the | 1. Penelitian, pendidikan, wisata alam terbatas, pemanfaatan jasa lingkungan 2. Perluasan dan pengamanan 3. Inventarisasi khayati 4. Pembinaan habitat |
| No | Utilization | Size (Ha) | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. |
|----|-------------|-----------|----|----|----|----|----|----|----|----|----|
| 3  | Block Binagara (657.24 Ha) | Natural tourism destination and cultivation on areas of indigeneous and local communities that have been running since the TNAL area was established. | Having a unique nature and potential natural tourist attraction and the importance of traditional use by the community in the Aketajawe Lolobata National Park because of its historical dependence on natural resources in the TNAL area. | 1. Development of various limited natural tourism businesses, including birdwatching, cave trails, natural beauty of waterfalls, lake, river, and natural forests typical of Halmahera Islands. | 2. The existence of land cover in the form of gardens and road access. |
|    | Block Tayori (799.68 Ha) |                      |                     | 1. Protection and security | 2. Research, education, natural tourism, utilization of environmental services and supporting cultivation | 3. An imaginary inventory |
|    | Block Worekobe (132.06 Ha) |                      |                     | 4. Habitat development | 5. Exploitation of natural tourism and utilization of natural tourism services / facilities | 6. Construction of natural tourism facilities |
|    | Block Zalanga (708.85 Ha) |                      |                     | 7. Hunting for animals to meet the needs of the traditional community of the Tobelo Dalam Community | 8. Utilization of Non-Timber Forest Products by the Tobelo Dalam Community | 9. Research and development |
| 4  | Block Binagara (275.65 Ha) | Cultivates areas for indigeneous and local communities that have been running since the TNAL area is designated. | The importance of traditional use by the community because of its historical dependence on natural resources in the TNAL area. | 1. Protection and security | 2. Research and development | 3. Healthy inventory |
|    | Block Worekobe (575.82 Ha) |                      |                     | 4. Habitat development | 5. Cultivation of mixed gardens without damaging natural forest ecosystems | 6. Limited harvesting of non-timber forest products without damaging the original ecosystem |
|    | Block Bukit Durian (637.73 Ha) |                      |                     |                          |                           |                          |
|    | Block Kulo (653.76 Ha) |                      |                     |                          |                           |                          |
|    | Block Sidanga (107.91 Ha) |                      |                     |                          |                           |                          |
|    | Block Pintatu (702.35 Ha) |                      |                     |                          |                           |                          |
| 5  | Block Bukit Durian (880.46 Ha) | Forest and Land Rehabilitation (RHL), ecosystem restoration and habitat development. | Area in the form of land cover with bush density and cover. | 1. Area in the form of land cover with bush density and cover. | 2. Ex-logging area. | The area has easy accessibility and a relatively flat topography. |
|    | Block Sidanga (1005.65 Ha) |                      |                     |                          |                           |                          |
|    | Block Kulo-Woda (955.40 Ha) |                      |                     |                          |                           |                          |
|    | Block Tabadama (132.08 Ha) |                      |                     |                          |                           |                          |
|    | Block Pintatu (211.72 Ha) |                      |                     |                          |                           |                          |

source: secondary data 2012

From the table above, it can be seen that the existence of the Tobelo Dalam community in the national park is akin to lolobata aketajawe block in the utilization zone with an area of 2703.50 ha or
3.51% which is allocated in the Tayawi block (779.86 ha) seen from the zoning determination is as a place for natural tourism and the cultivation area of indigenous and local communities that have been running since before the national park area, aketajawe lolobata is appointed, the consideration of zoning determination is the uniqueness of nature and the potential of natural tourist attraction and the interests of traditional use by the people in the national park aketajawe lolobata because its welfare has a dependency on natural resources in the aketajawe lolobata national park area, as well as activities that can be done on zoning utilization, namely:

a. Protection and security
b. Research, education, natural tourism, utilization of environmental services and supporting cultivation
c. An imaginary inventory
d. Habitat development
e. Exploitation of natural tourism and utilization of jasling conditions (public space and business space for the provision of natural tourism services / facilities)
f. Development of natural tourism facilities
g. Animal hunting to meet the needs of the traditional community / Tobelo Dalam Community
h. Utilization of non-timber forest products by the Tobelo Dalam community
i. Research and development

3.5. The Government Collaboration Model and the Tobelo Community in the Management of National Parks

The pattern of forest resource utilization and management in Aketajawe Lolobata National Park involves several stakeholders who have different influences and interests, consisting of the local government and the Tobelo dalam community. This management system provides opportunities for local governments and local communities who directly understand the natural resource potential in the park.

With these conditions, a management is needed that can balance the roles and positions of stakeholders who have different interests related to the development and management of natural resources. in the Aketajawe Lolobata National Park to be able to walk side by side. Proper management in such conditions is a collaborative management model [9] which is in this context is described as the multiple actors is collaborated on supporting utilization zoning. This can be seen in the Table 4.

| No | Zoning | Activities Permitted By TNAL | Activities undertaken by the Tobelo dalam community | Collaboration Model |
|----|--------|-----------------------------|---------------------------------------------------|---------------------|
| 1  | Utilization | a. Protection and security  
b. Research, education, natural tourism, utilization of environmental services and supporting cultivation  
c. An imaginary inventory  
d. Habitat development  
e. Exploitation of natural tourism and utilization of ecosystem service conditions (public space and business space for the provision of natural tourism services / facilities)  
f. Development of natural tourism facilities  
g. Animal hunting to meet the needs of the traditional community / Tobelo dalam community  
h. Utilization of non-timber forest products by the Tobelo dalam community  
i. Research and development | Hunting, gathering, gardening and settle down | Propose that the existing Tobelo dalam house is used as a home stay for tourism purposes  
Activities performed:  
1. Community training to become a tour guide (as a spokesperson)  
2. Community training is a means to maintain national parks  
3. Community training becomes a cleaning service  
4. Economic counseling and regional boundaries  
5. Monitoring and security together with the Tobelo dalam Community. |
From the table above, it can be seen that some forms of the Inner Tobelo Community are located in the utilization zones in the national park, namely lolobata aketajawe blocks, namely; hunting, gathering, gardening and settled deemed to have violated the rules set by the manager of the national park Aketajawe Lolobata Aketajawe block.

So that the form of collaborative model management in this utilization zone is, existing community houses are used as a place to stay for tourists (home stay) for tourist purposes. To support the management of tourist attractions in this area, the national park manager Aketajawe Lolobata needs to pay attention to other tourism supporting infrastructure, and conduct training for the Tobelo Dalam community to become tour guides, security, and cliing service. This needs to be done so that the activities of the Tobelo dalam community in this utilization zone such as gathering, hunting, and gardening can be minimized. Other things that need to be done are forestry counseling and regional boundaries as well as joint monitoring with the Tobelo dalam Community.

4. Conclusion

The conclusion of the research results is as follows the Tobelo dalam community that lives around the Tayawi river is not from the original community of the Tayawi hamlet, the forms of local wisdom of the Tobelo dalam community in natural resource management include (1) local wisdom in maintaining forest products, (2) local wisdom in the use of sago areas, (3) local wisdom in harvesting arrangements (buko). The collaborative model in this utilization zone is that the existing community house is used as a tourist residence (homestay) for tourist purposes. The initial phase of the collaboration between Tobelo dalam community needs to be strengthen by keep the trust each others. The collaboration should bring mutual understanding. Tobelo dalam is the essential part of the parks, therefore the management should sustain the collaboration.

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