

Exploring Nature Conservation Problems at Lore Lindu National Park Central Sulawesi, Indonesia

Marhawati Mappatoba *¹Lecture at Agribusiness Department,
Tadulako University Palu of Indonesia.**Saharia Kassa²****Hadayani Palebori²**
²Lecture at Agribusiness Department,
Tadulako University Palu of Indonesia.**Chairil Anwar**³Lecture at Economic Faculty, Tadulalo
University Palu of Indonesia.**Cherly E Tanamal**⁴Lecture at Economic Faculty, Atma Jaya
University Makassar of Indonesia.**Sahlan Ilyas**⁵Lecture at Law Faculty, Tadulalo
University Palu of Indonesia.*The research is supported by GTZ_TOEB Germany***Corresponding author email id: wati_chairil@hotmail.com*

Abstract – The case of the LLNP illustrates the challenge of National Park management, which has to deal not just with the ecological aspects of biodiversity and ecosystems, but also with the livelihood of local people. Based on this situation, the objective of this research is to explore the phenomena of current nature conservation problems that indicate the existing management has not significantly taken local aspirations and needs into consideration. In order to achieve the aims of the research, mostly qualitative analytical techniques were applied. A qualitative approach with descriptive analysis was used to overview the history, status and values of the Park, and also to explore the major conflict occurred related to the livelihood of local people. The result of exploring the major nature conservation conflicts are rooted in the different perceptions and interests of the various stakeholders, from the economic development perspective, the conservation and social ecology perspective. Meanwhile the 5 major problems found are: the demarcation of the Park boundary, Park encroachment by local people, illegal logging, lack of coordination, the Dongi-Dongi indigenous people movement. To be effective, the government regulation systems should have enough power to be able to be implemented under local conditions; when this power fails, many protected areas will be immediately exploited by local groups that conceive of no reason not to do so.

Keyword – Exploring, Nature Resource Problems, Protected Area, Livelihood of Local People.

I. INTRODUCTION

Indonesian archipelago contains the world's second largest area of tropical forest and is a mega-center for biodiversity, is home to at least 29375 species of vascular plants, of which 59.6% are endemic. According to a new report published in the Nature Climate Change Journal (2014) that "Indonesia now has the highest rate of deforestation in the world, it's clear that Indonesia's forest moratorium has not worked, law enforcement is weak, and even the country's national parks are being logged. The threats are numerous, ranging from large-scale industrial estate to small-scale clearance by family farmers to devastation by frequent fires, include at the Park areas (McCarthy, 2001). Basically, strategies of Park management have followed three essential elements of the world conservation strategy which consists of protection of life support systems, preservation of plant and animal species diversity and their ecosystems, and sustainable utilization of living resource and their ecosystems (Act No.

5/1990, Article 5).

The Central Sulawesi Province has nine protected areas, one of which is categorized as a National Park, namely the Lore Lindu National Park (LLNP) with a size about of 217.990 Ha, the management of the Park is guided and controlled by government policies. Even though, the nature conservation problems of the LLNP is still less severe compared to other Parks in Indonesia, but an increasing Park degradation has been observed in recent years (TNC, 2016). Biodiversity loss and the efforts to reduce this loss such as established the community agreements, declaration of Lore Lindu Biosphere Reserve, improving the degree of local responsibility. Through this decentralization policy, the province and regency levels hold responsibility of managing the Park under their authority, although natural resources of strategic relevance for the country will still be managed by the central government. The new Forestry Law (No. 41 of 1999) also foresees a larger role for the civil society and the local communities in forest management.

The case of the LLNP illustrates the challenge of National Park management, which has to deal not just with the ecological aspects of biodiversity and ecosystems, but also with the livelihood of local people. The Park area itself is characterized by a high ecological and socio-cultural diversity, therefore, the Park was declared as one of the seventh important national park in Indonesia (TNC, 2002). Leaving nature without interference from human beings may be the easiest management of Park area, however, it cannot be done. Active management is necessary to reach or maintain the objectives of park management. In supporting, park managers should have sufficient knowledge about social aspects and traditional cultures. Negotiation in conflict as well as coordination among related agencies is another crucial problem of park management practice. The essential elements of ecosystems can easily be vanished through lack of management, consequently the professionalism of the park management needs to improve (Mappatoba, 2016).

These phenomena of nature conservation problems indicate that the existing National Park management has not significantly taken local aspirations and needs into consideration. In other words, the management practices gave no sufficient benefits to the local people. As described by Caldecott and Lutz (1998), to be effective, the government regulation systems should have enough

power to be able to be implemented under local conditions; when this power fails, many protected areas will be immediately exploited by local groups that conceive of no reason not to do so. This general observation also applies to LLNP. In the wake of the economic and political crisis that struck the country from 1998, small peasants, poachers, and illegal loggers have increasingly encroached the Park by illegally converting parts of it into plantations. A statement of the head office of BTNNL underlines the problem of park encroachment: "Since wood supply for sawmill industries in Palu which came from the area of the LLNP are no more available, encroachment for gardening cocoa and valuable vegetables commodities couldn't be avoided". Therefore, a proper research on exploring conservation problems accrued at LLNP is interesting.

II. RESEARCH METHODS

A. Selection of Research Villages

The Park is located in two regencies, the regencies of Sigi and Poso, and there are approximately 135 villages in the vicinity of the Park. Half of these villages are located close to the Park and several are enclaves inside the Park. A large part of the heterogeneous population, including migrants and indigenous Kaili people, live along the Park's border, and constitutes a problem for forest protection. Selection of research villages used purposive sampling method, 2 villages selected. Since this study has an explorative character, the village selection did not attempt to reach at a representative village sample, but rather to identify interesting conservation problems.

B. Collection of Primary Data

Collections primary data were developed, survey with using guide line questionnaire and direct observation. The guide line questionnaire was pre-tested in the villages closed to the Park. Meetings were held with members of the administrative organizations and sub-district leaders to familiarize them with the research project. Meetings were also held in the village in preparation of the research. The interviews were conducted together with two enumerators and research team, and however, the author directly conducted most of interviews. Editing was completed in the field location, therefore if any of the answers were incomplete; it was easy to collect additional information. Data collection was done in two phases; the first phase covered three months, then second phase for completing the data which finished by April 2017.

C. Focus Group Discussion in Provincial Level

Focus Group Discussion (FGD) at the provincial level were conducted in Bappeda which facilitated by the head office. The most important stakeholder was BTNNL (Balai Taman Nasional Lore Lindu), the National Agrarian Land (Department Badan Pertanahan Nasional-BPN), the Forestry Department, and Natural Resource Conservation Board (Balai Konservasi Sumber Daya Alam-BKSDA), NGOs, and academician from Tadulako University.

D. Stakeholder Interviews in Village Level

Stakeholder interviews were also conducted to gather information from key informant in the village selected.

Five stakeholders were interviewed in this village, starting with the village headman. Other interview partners were identified using *the snowball system method*, e.g., by following the recommendations of former interview partners (Bryman, 2001: 98-99). The guideline questionnaire was used in this interview. At this stage, interviews were held to get impression concerning the major conservation problems.

E. Collection of Secondary Data

This data was collected from relevant agencies at regional and local level in Central Sulawesi Province.

F. Data Analysis

Related to the aims of the research, mostly qualitative analytical techniques were applied. A qualitative approach with descriptive was used to analyze the history of park establishment, resources and interests of the local communities in order to explore the major resource problems. It was also important to explore the driving factors behind the encroachers of the park areas. This analysis can be classified as a situational analysis focusing on a particular event as well as an observational case on conservation issues.

III. RESULTS AND DISCUSSION

In order to understand the conservation problems in the Lore Lindu National Park, it is useful to explore and consider the history, status and dynamics previous to the designation of this area as a National Park. Furthermore, the following description covers the important values of the park from the perspective of conservation and the local communities. The problem of deforestation is caused by many reasons, including economic pressure, cultural practices of the local people, as well as the inappropriate government policy. All have a connection with the history of establishing the Lore Lindu National Park in Central Sulawesi Province.

A. Explore History and Values of the Park

The establishment of the National Park involved a lengthy consultation process, but with very limited participation of local communities. The creation of a national park in these forest areas was first proposed in a FAO document, published in 1977 and was attributed "Protection and Tourism Forest" status by the Indonesian government. In a follow-up report written in 1981, the WWF made initial recommendations in keeping with those of the FAO, outlining ways in which the park could be set up. It was conceived as a composite of the two existing reserves onto which a large northern extension would be added, which excluded two enclaves (Helmi, 2001) as follows:

1). Wildlife Sanctuary of Lore Kalamanta

This Wildlife Sanctuary set up by The Ministry of Agriculture on October 20th, 1973 with Decree No. 522 Kpts/Um/10/1973 was the original conservation area. This sanctuary focused on the protection of the fauna of Sulawesi, particularly the island's endemic species. It covered an area of 131,000 ha, or 60% of what is currently presents as LLNP.

2). Protection and Tourism Forest Danau Lindu

This protected area was established by The Ministry of Agriculture on January 25th, 1978 with Decree No. 46/Kpts/Um/1/1978. This area, which covers 31.000 ha and accounts for approximately 15% of LLNP, originally had two functions, which are still relevant today, the Lindu Lake which acknowledged as having a high tourist potential, and protection areas.

3). *Wildlife Sanctuary of Lore Lindu*

This sanctuary was established by The Ministry of Agriculture on December 10th, 1981 with Decree No. 1012/Kpts/Um/12/1981, following a recommendation for a Management Plan made in 1977 by FAO and WWF. The area for inclusion, however, was reduced in size from that suggested.

Considering the historical background of Park promotion (with area of 217,991 ha) mentioned above, it appears that the central government was the only single powerful institution that played a central role in designing park area and setting up management activities of the LLNP. Under such conditions, particularly in the “**demarcation of the park boundary phase**”, local people were left behind. As elsewhere, local people were mainly seen as an enemy of sustainability of biodiversity within the protected area (Ghimire and Pimbert, 1997).

In exploring the values of the LLNP, even is considered small as compared to many other national parks in Indonesia, however, there are important values of the LLNP, which can be divided based on two types of interests (conservation livelihood interests), as follows:

- 1) The conservation interests consists of water catchment area, Lore Lindu Biodiversity Reserve, tourism and recreation, intrinsic values and cultural significance of historic sites, Education, Scientific Research site and Carbon storage.
- 2) The perspective of the local communities, the process of establishing the LLNP largely neglected local interests, and traditionally, the livelihoods of the local people had a close relation to their forests, and as a source of livelihood and contributed to the household income.

Without any compensation, the local people had to obey the national regulation to leave their gardens and customary land, which was converted to the national Park. According to the interviewed stakeholders at the village level, the process of these land occupations occurred in line with the implementation of several government development projects such as transmigration and reforestation.

B. Explore of the Major Resource Use Problems

Conflicts concerning the National park are rooted in the different perceptions and interests of the various stakeholders. First, from an economic development perspective, forest products are economic resources, which can be exploited for accumulating capital to contribute to community development. Replanting or reforestation is seen as a solution for sustainability. Second, the conservation perspective emphasizes the importance of conserving natural resources for future generations. The third, a social ecology perspective looks at the role of social groups or communities to protect natural resources,

emphasizing the ability of customary communities to manage resources in a sustainable way. Not surprisingly, conflicts and misunderstandings between agencies and local people cause of some of the most serious failures in the management of protected areas (Lewis, 1996).

1) The Demarcation of the Park Boundary

As mentioned above, the process of establishing the LLNP resulted from the integration of two wildlife sanctuaries and a natural preservation area, and took about 20 years (explain above). Due to the centralized system of establishing the park boundaries, various conflicts between the government and the local people emerged. Land that belonged to the local communities of different ethnic groups (Kaili, Lindu, Pekurehua, Bada) was determined to become part of the Park without compensation. Among the local communities, the indigenous people who have depended mostly on the forest are the most effected. They are no longer allowed to collect wood, rattan, bamboo, medicinal herbs, or to cultivate coffee, which had long been their practice. Without a clear explanation, the staff of the Forestry Department directly set up the boundary stakes (*patok sebagai batas*) for the boundaries of the Park, even though it was inside the customary community land. Some of the stakes were even behind the people's houses. In this area, coffee trees, which have been established before the delimitation of the Park, are easily found.

The placement of the stakes for the boundary was a similar process to almost all of villages in the vicinity of the Park, which done by the Forestry Department without much resistance, the villagers did not know exactly the function of these stake borders. The local people were involved as wage labors to bring and set up these stakes according to the instruction of the Forestry officials. After the border stakes were established, the national regulation was then applied in 1993, which left no more room for the local people to collect forest products from their customary lands. This restriction become a crucial issue, particularly for the local communities in the enclaves of Behoa and Kulawi, due to their dependence on forest resources, as an example, coffee trees inside the Park. On the other hand, the forest guards had to perform their duty, although sometimes it was against their wishes. Therefore, disputes between park guards and local communities become common in the vicinity of the Park, and villagers even faced with the police and were arrested in Palu.

2) Park Encroachment

From the perspective of conservation, the cultivation inside the Park is classified as “*park encroachment*”, even if it occurs on customary land. There are many driving forces that pushed villagers to do so. The experience of several villages in the Bada valley area of sub-district South Lore showed that the people had no more land for extending their agriculture except going to the Park. Sangaji and Lumeno (2011) mention the percentage of landless farmers in this area as relatively high: In Kolori Village, 22 % of 114 households, in Kengkeka 22 % of 152 households, and in Tuare Village 62 % of 104 households. Parts of the customary land in these villages had been converted to the LLNP.

Along with the general development, the land acquisition by migrants changed the land ownership structure in some villages surrounding the Park. Sugiharto and Aryanto (2002) assert that in one hamlet in Tomado in the Sub-district Kulawi, 7 Bugis households occupy 82 ha of agricultural land, even though this village is categorized as a remote area. It is only accessible on foot or by horse, and the land concentration may increase with infrastructure development. The results of SCP (Site Conservation Plan) in the area of the Park by TNC in 2001 also show that local people who settled around the forest and depended on forest products were the major group involved in forest encroachment.

The change of land ownership may be responsible for a wider park encroachment. Sangaji (2001) identifies several mechanisms of change in land ownership in the vicinity of the Park. Firstly, trade mechanisms based on debt. Secondly, land administration mechanisms with regards of paying taxes and other land administration fees (other obligations). Thirdly, the perennial plantation mechanism, particularly cacao due to the attractive price of cacao has caused the increase of land conversion.

Similarly, the interview results of several village leaders revealed that in the past, the local people in the vicinity of the park perceived an abundance of land resources, under a collective regime of land ownership. As indicated above, the arrival of migrants, particularly from South Sulawesi, initiated the change in the land tenure system. It was supported by an increasing habit of indigenous people to sell their land for covering the expenses needed for customary events such as funeral and marriage events. A norm restricting land transfers to members of the same ethnic group might have prevented large-scale land sale, but factually such a norm did not work, because there are no significant numbers of wealthy indigenous households who tended to purchase land, in contrast to the migrants, who already had accumulated the means to purchase land at any time. Mappatoba (2004) observed that the migrants from South Sulawesi, particularly the Bugis people, are one of the most active ethnic groups in seeking economic opportunities.

3). *Illegal Logging*

Illegal logging can be defined as the harvesting of logs in contravention of laws and regulations. These laws and regulations were designed to prevent the overexploitation of forest resources and to promote sustainable forest management. At the present situation, illegal logging is still an economic activity by local communities in the vicinity of the national Park in certain area, in small volume. This contradict with 10 years ago, however, there are a number of timber use permits (IPK), some of which are in forests that have a border with the Park. In order to fulfill the demand for raw material of the sawmill industries in Palu, the IPK holders started to collect timber from any forests, and they facilitated logging operations inside the Park. At the same time, several local youths were also interested in finding ways to exploit the lucrative opportunities offered by logging operations. According to the interviews with various stakeholders, family members of the village leaders also became

involved. As a consequence, the number of local people involved as illegal loggers increased significantly. The involvement of village leaders made it more difficult for the police to act. Nevertheless, there were cases where the illegally harvested timber was confiscated and transported to Palu (Discussion with FKKM branch Palu members in the monthly meeting, June 2016). In line with Mappatoba (2004), she found that the widespread incidence of illegal logging at the vicinity of the Park is supported by three factors: the higher demand of timber for sawmill and carpenter industries in Palu, parts of which are operating illegally and the weakness of law enforcement for the legal processes in prosecuting cases of illegal logging such the transported of timber without the proper transportation permits appeared to be extremely slow.

4) *Lack of Coordination in the Buffer Zone Development*

Buffer zone development is one of the important programs of the park management in relation to socio-cultural problems, may include villages in the vicinity of parks, watershed forests in the surroundings of the park, or administrative units in which the protected area is located. At present, there is lack of coordination among development sectors, even though there are mechanisms to share information among development agencies through BAPPEDA at regional, provincial and the national level. At some levels, this mechanism sometimes turns into a formality, and is ignored in practice. As the stakeholder interviews have shown, there is a lack of integration in the implementation of development programs among related agencies around the LLNP, and each development sector tends to pursue its own interest without considering other institutional interests. In a situation where the development agencies lack an aspiration for conservation goals, most of them use production targets as their standards of achievement.

The development of plantation estates and transmigration settlements have led to a competition of land use practices among the villagers in the buffer zone of the park, in the course of which the local people in certain villages were marginalized. Similar problems occurred with regard to the social resettlement project of Dodolo to Toe Jaya Village, which according to the village headman, all villagers have to consume specific medicine regularly, since this area is still identified as a focus area of schistosomiasis (*cacing hati*), which is known as a deadly disease, if untreated (Mappatoba, 2004).

5) *The Dongi-Dongi Problem*

The name of Dongi-Dongi, which describes a region inside and in the vicinity of the National Park, became suddenly famous, when the indigenous people from four villages started to cut forest. The area is recognized by the customary community of Sedoa, but it had been become part of LLNP. From interview stakeholder says "within a period of 12 months, an estimated total area of 4000 ha became deforested, and more than 1.035 households had settled in the area". The people involved in the encroachment of Dongi-Dongi belong to the ethnic groups of Da'a and Kulawi. They lived in villages nearby the Park

after they were resettled due to their original living area was declared as protected forest, and their living conditions proved to be difficult, a huge flood destroyed their lands and homesteads, at the same time, population growth aggravated the situation. About 60% of the population of the four villages had no land, it was common that several generations of the families stayed together in one house Mappatoba (1999).

After two decades of uncertainty and lacking attention from the regional government concerning their resettlement proposal, the villagers decided to take action. Their strategy was not to re-claim their former lands because they expected that this might lead to conflicts among the communities. The villagers were aware that in the reform era, the local government has authority over forest management. At the same time, they knew that according to the new forest policy the local people have rights to participate in forest management, however, they did not observe a change in the park management. Therefore, under coordination of several NGOs, the local people changed their target from reclaiming land to the occupation of the Dongi-Dongi area.

Mappatoba (2004) reported that in the beginning of June 2001, the villagers started to cut forest on the left side of the road from Palu in the area where this road crosses the National Park. They built small temporary houses for staying overnight. There was no significant reaction from government because of this deforestation, except a strong complaint from the National Park authority BTNLL. The NGO Forum FKTNLL also protested, the park guards also destroyed these houses. As a consequence, the villagers came to BTNLL office to look for the park guards who had tried to stop their activity in Dongi-Dongi. At the same time, the customary community of Pekurehua in North Lore directly reacted and refused the occupation of Dongi-Dongi through the TNC. At the present situation, this area is proposed to acknowledge as enclave village, a heroic lesson learned concerning culmination of conflict which couldn't be solved through negotiation due to people power movement.

IV. CONCLUSION

Exploring the major nature conservation conflicts concerning the National park are rooted in the different perceptions and interests of the various stakeholders. First, from an economic development perspective, forest products are economic resources, which can be exploited for accumulating capital to contribute to community development, and replanting is seen as a solution for sustainability. Second, the conservation perspective emphasizes the importance of conserving natural resources for future generations. The third, a social ecology perspective looks at the role of social groups or communities to protect natural resources, emphasizing the ability of customary communities to manage resources in a sustainable way. In other words that in exploring the problems concerning park management, there are 5 major problems, started from the demarcation of the Park boundary, encroachment by local people, illegal logging,

lack of coordination, the Dongi-Dongi indigenous people movement. The wise strategies are to empower the local people since they are be the victim of several regulations, and the government regulation systems should have enough power to be able to be implemented under local conditions; when this power fails, many protected areas will be immediately exploited by local groups that conceive of no reason not to do so.

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Marhawati Mappatoba.

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nowadays. She was involved in the Makassar Coastal Areas of Losari Beach Tourism Development Centre. Current research interests are the Economic Impact of Developing Potential Coastal Areas for Tourism and involved in the skim collaboration research of Agriculture Acceleration in Global Value Chain.

Sahlan Ilyas. He was born in Makassar South Sulawesi, Indonesia on April 2, 1960. He graduated his Doctoral Program at Gajah Mada University, Yogyakarta-Indonesia by 2011. His work experience was the First Vice Dean of Law Faculty-Tadulako University Palu. He also active in accelerating Local Forest Policy concerning local wisdom of indigenous people at the upland rain-forest. Nowadays, he work at Law Consultant under Tadulako University for empowering teaching staff concerning human right. Current research interests are designing Forest Conservation Model based on Local Wisdom, and Exploring the Impact of Land Pawn Practicing as Sources of multi-dimension Poverty in Rural Areas in Indonesia.

AUTHORS' PROFILE



Marhawati Mappatoba, she was born in Camba Maros of Indonesia on May 2, 1959. She finished her Ph.D Program at Institute of Rural Development - Goettingen University of Germany at the end of 2004, with skim of Indonesian-German Research Program STORMA (Stability of Rainforest margin in Indonesia). Her work experiences are the head Commission of Tadulako University Professor for Evaluating Credit Point of Professor Candidate, and the head of Women Study Centre. The book published "Agribusiness Management of Prime Shallot Commodity" by UNTAD Press, 2016. Current research interest is "Developing Integrated Farming System to Improve Livelihood of Marginal Community" at the Rural Areas.

Saharia Kassa. She was born in Palopo South Sulawesi, Indonesia on May 2, 1957. She finished her Doctoral Program at IPB Bogor Indonesia by 2009. Her work experience is the Head of Agribusiness Department of Agriculture Faculty, and the Secretary of Quality Assurance at Agriculture Faculty nowadays. She was involved in the Student Services of Tadulako University and member of CRC Research Collaboration. Current research interests are the Economic Analysis of Agro-forestry and Shifting Cultivation of the Local Communities in Upland Rain-forest of Central Sulawesi. She also involved in the research of Agriculture Development in Global Value Chain.

Hadayani. She was born in Enrekang South Sulawesi, Indonesia on December 7, 1959. She finished her Doctoral Program at Mulawarman University Indonesia by 2012. Her work experience is the Head of Agribusiness Department of Agriculture Faculty, and the Secretary of Doctoral Program at Tadulako University nowadays. She is also the Head of Agriculture Extension Commission of Central Sulawesi Province. Current research interest is the Analysis of Agro-forestry in Potential Dry-land, and also involved in the research of Agriculture in Global Value Chain and Food Security.

Chairil Anwar. He was born in Makassar South Sulawesi, Indonesia on November 17, 1957. He finished his Ph.D in Population and Environmental Management-Flinders University of South Australia 2004 under ADB-Indonesia Funding. His work experiences are the head of Population Studies and Human Resources Development and the head of Labour and Human Resources Concentration in Economic Faculty of Tadulako University. He was a counterpart work with STORMA Reserach in Lore Lindu National Park Indonesia, 8 years. Two books published "Labor Mobility in Dynamics of Construction Industry Labour Market, Cuvillier Verlag Göttingen, and Migration and Urban Labour Market in Makassar Indonesia, UNTAD Press 2012. Current research interest is Population Projection and the need of waste facilities management of Palu City, Indonesia.

Cherly E Tanamal. She was born in Makassar South Sulawesi, Indonesia on January 13, 1959. She finished her Doctoral Program at Hasanuddin University Indonesia by 2006. Her work experience was the Dean of Agribusiness Faculty-Atma Jaya University Makassar, and the Head of Research and Services Centre of Atma Jaya University