



## Establishment of Land Rights on Lar Land in Critical Forest Areas as a Strategy for Sustainable Forest Management

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### Abstract

Land criticism in forest areas is a significant issue faced by many countries. This study analyzes the development of *Lar* land rights as a strategy for sustainable forest management in Sumbawa. Through empirical methods, the study shows that the integration of *Lar* with communal grazing and livestock can increase economic, ecological, and social growth. From a regulatory perspective, the implementation of *Lar* is supported by regional regulations and decisions of the Regent and Minister regarding forest areas. The study results indicate that the *Lar* scheme effectively deals with critical land while supporting sustainable forest management. As a next step, it is recommended that a more in-depth study be conducted on the long-term effectiveness of the *Lar* scheme, including its impacts on ecosystem sustainability and the active involvement of local communities in forest management.

### Keywords

Critical land, forest, *Lar*, sustainable

### Abstrak

*Kritik terhadap lahan dalam kawasan hutan menjadi permasalahan signifikan yang dihadapi oleh banyak negara. Penelitian ini menganalisis pengembangan hak atas lahan Lar sebagai strategi pengelolaan hutan berkelanjutan di Sumbawa. Melalui metode empiris, penelitian menunjukkan bahwa integrasi Lar dengan padang penggembalaan dan ternak komunal mampu meningkatkan pertumbuhan ekonomi, ekologi, dan sosial. Dari perspektif regulasi, penerapan Lar didukung oleh peraturan daerah serta keputusan Bupati dan Menteri terkait kawasan hutan. Hasil penelitian mengindikasikan bahwa skema Lar efektif dalam menangani lahan kritis sekaligus mendukung pengelolaan hutan yang berkelanjutan. Sebagai langkah lanjut, disarankan untuk melakukan kajian lebih mendalam terkait efektivitas jangka panjang skema Lar, termasuk dampaknya terhadap keberlanjutan ekosistem dan keterlibatan masyarakat lokal secara aktif dalam pengelolaan hutan.*

### Keywords

*Lahan kritis, hutan, Lar, Berkelanjutan*

### Introduction

Critical land has become one of the serious global challenges, mainly because its area continues to increase, and its impact is getting worse due to climate change (Khairani et al., 2020). Climate change caused by land degradation has broad implications for society's economic, social, and political aspects. The problem of critical land not only occurs on private land but also extends to state-owned forest areas (Conceição et al., 2021). Critical land on private land is often caused by changes in land use, such as land conversion from livestock to agriculture, which requires

large-scale logging of vegetation. Bajpai & Singh, (2020) define *critical land* as no longer productive due to inadequate management, especially failure to comply with soil and water conservation principles, resulting in land degradation and decreased ecological function.

In Indonesia, research by Porro & Porro, (2022) shows that in the early 2000s, there were around 23.25 million hectares of critical land, of which 15.11 million hectares were outside forest areas, and 8.14 million hectares were inside forest areas. Furthermore, report from Wijaya & Purnamawati, (2023) stated that the critical land area in Indonesia reached 14 million hectares. Nusa Tenggara Barat (NTB) Province is one of the regions with a significant critical land area. In 2022, it was recorded that NTB had 543,977 hectares of critical land in forest areas and 533,842 hectares outside forest areas (Aulia et al., 2024). This condition hurts the NTB Environmental Quality Index (IKLH), which only reached 56.53% (suboptimal category) in the same year (Poedjirahajoe, 2018). In addition, environmental damage and deforestation due to critical land also exacerbate annual disasters, such as flooding in Empang District and Sumbawa Regency (Anshori & Sf, 2020).

The Indonesian government has set a target to address critical land, aiming to rehabilitate 29% through domestic efforts under the Business as Usual (BAU) scheme and 41% with international assistance by 2030 (Winarsi & Moechthar, 2020). However, national and international policies have shown limited effectiveness in addressing critical land issues within forest areas. For example, the implementation of social forestry policies has sometimes disrupted traditional land rights that have been inherited for generations (Yulianto et al., 2017). Therefore, alternative schemes that replicate traditional environmental conservation concepts are needed, highlighting the state's recognition of indigenous knowledge in promoting environmental sustainability. One form of local wisdom still practised by the Sumbawa community is the concept of "*Lar*", a traditional livestock system in a particular area managed based on social consensus. This practice increases local communities' income and supports forest conservation (Porro & Porro, 2022).

Forest management based on local wisdom is becoming an increasingly important topic in environmental and forestry research. Previous studies have shown that land management based on local wisdom, such as agroforestry, provides significant economic and ecological benefits. Research from Salmah et al., (2021) states that agroforestry practices can increase land productivity while maintaining ecosystem balance. Furthermore, Septiadi et al., (2023) state that agroforestry can improve soil quality and provide sustainable income for farmers.

Regarding land rights, Law et al., (2021) emphasize the importance of regulating collective ownership in natural resource management that can encourage sustainable forest management practices. In the Sumbawa area, Nurmadiyah & Gunawan, (2024) stated that the use of *Lar* land as a grazing area supports forest conservation by providing a stable source of animal feed. The study above certainly still shows polemics because it specifically highlights the regulation of *Lar* land rights as a formal strategy in sustainable forest management. The focus on *Lar*'s legality and formal recognition and its impact on forest sustainability is still a research gap that has yet to be widely explored.

Thus, there is a strong foundation for conducting research, especially to explore the regulation of *Lar* land rights in a formal and legal context as part of a sustainable forest



management strategy. This study focuses on local wisdom-based management practices and examines the legality and policy aspects that support sustainable forest management.

Based on this context, this study aims to investigate how the forest management scheme using *Lar* land is implemented in Sumbawa Regency and to analyze the formation of *Lar* land rights in critical land areas in the forest zone as a sustainable forest management strategy.

## Method

This study employs a non-doctrinal, or empirical, research approach, as formulated by Hariyanto, who stated that "theory comes later, while facts and data are observed first" (Hariyanto et al., 2024). The main objective of this research, as highlighted by Bachtiar, is to uncover concepts related to the functioning of law and the process of legal formation within society (Sugiyono, 2018). This study uses a conceptual, regulatory, and sociological approach to obtain more comprehensive data to review existing problems. The references used are based on the approach presented by Abdulkadir Muhammad, which emphasizes the analysis of consistent, institutionalized, and socially legitimized behaviour in society (Sanudin et al., 2023). The data in this study focuses on secondary data containing literature reviews, regulations, and government reports. The data analysis used is based on the theory developed by Miles and Huberman, including data reduction, data presentation, and conclusion (Huberman & Miles, 2002).

## Result and Discussion

### Result

*Lar* land management scheme is a sustainable forest and land use in Sumbawa Regency term that has already deeply embedded in local wisdom. Combining livestock grazing in areas where crops can be grown seasonally thus forms a natural balance between the productive potential of agriculture and the maintenance of an environment. The *Lar* scheme, in contrast, operates based on informal social agreements of community involvement and collective decisions that differ from standard land management. The practice mentioned here provides local communities with a source of income due to their agricultural and livestock activities and contributes significantly to environmental conservation by integrating land use. The *Lar* system, recognized by local policies, is a unique model of resource management based upon traditional knowledge and modern conservation principles. It is also a practical model for sustainable critical and degraded land management. Table 1 shows Forest Management with the *Lar* Land Scheme in Sumbawa Regency.

Table 1  
Forest Management with The *Lar* Land Scheme in Sumbawa Regency

Research Aspect	Key Findings	Description and Implications
<i>Lar</i> Management	<i>Lar</i> land is utilized for livestock grazing and seasonal crop cultivation.	Supports the livelihood of local communities and boosts the economy through agricultural and livestock production.
	The management rights are referred to as "Hak Boat," with a tax obligation called "paboat aji" paid to the local leader (nyaka).	Ensures fair and sustainable land use based on social agreements.

Silvopasture Concept	The management practice resembles silvopasture: integrating trees, forage crops, and livestock on the same land.	Enhances land productivity and preserves environmental sustainability through integrated management practices.
Local Government Recognition	Several local government decrees (Surat Keputusan Bupati) were issued between 2009-2011 for areas like <i>Lar</i> Badi, <i>Lar</i> Limung, and Kuang Bira.	Legal recognition by the government strengthens the community's rights to manage customary land.
Utilization of Local Grassland	Grazing areas without woody plants are used based on social agreements among livestock owners (local wisdom).	Reinforces community solidarity and collective environmental stewardship.
Alternative Water Sources	<i>Lar</i> land serves as a water catchment area, such as at <i>Lar</i> Kuang Bira, which has an irrigation system from the Brang Anak Dam.	Ensures water availability for livestock and crops, enhancing environmental sustainability.
Forest Conservation in <i>Lar</i>	Livestock owners plant trees around water springs to protect the water source and provide shade for the animals.	This practice aids in environmental conservation and climate change mitigation.
Soil Fertility Enhancement	Grazing livestock helps enrich the soil through increased organic matter content.	Maintains ecosystem balance and improves soil quality for agricultural purposes.
<i>Lar</i> Ideology vs. State Ideology	<i>Lar</i> ideology emphasizes economic growth through livestock grazing, avoids excessive exploitation, and prioritizes social consensus.	Contrasts with the state forest ideology, which focuses more on conservation and controlled exploitation.
Implementation on Critical Land	Degraded land within production forests can be designated as <i>Lar</i> by applying to the relevant Ministry.	Offers a solution for rehabilitating degraded land through silvopasture and agroforestry approaches.

The forest management strategy using the *Lar* land scheme in Sumbawa Regency demonstrates a sustainable utilization of natural resources according to the local's wisdom. In this practice, which has been informed by the silvopasture concept of combining livestock grazing with cultivating productive crops in one area, podsols are reclaimed, primarily through the double rotation. According to these social agreements, livestock owners have used large, private, communal, and forest land. However, the existence of *Lar* land was not formally regulated by an established written law, as the local government had recognized the existence of *Lar* land with several recent decrees. This scheme yields economic benefits for the community in the form of animal feed and serves as a water catchment area, ecosystem stabilizer, and forest conservation tool. This practice depends a lot on government support in the form of regulations acknowledging the existence and use of *Lar*. In the proper policy implementation, *Lar* can be a sustainable forest management solution, especially for critical lands located in forest areas.

Table 2  
 Regulations Governing The *Lar* Land Management in Sumbawa Regency

No	Regulation/Decree	Description
1	Article 33, Paragraph 3 of the 1945 Constitution	The state controls the land, water, and natural resources within, utilizing them for the maximum benefit of the people.
2	Government Regulation No. 45 of 2004	Governs forest protection, including provisions for livestock grazing locations within production forests to prevent forest damage.
3	Regional Regulation (Perda)	Manages livestock farming in Sumbawa Regency, including



No. 12 of 1999 (Sumbawa Regency)	designating grazing areas such as <i>Lar</i> .
4 Regent Decree No. 126 of 2009	Designates <i>Lar Badi</i> as a general grazing area in Lopok District.
5 Regent Decree No. 650 of 2009	Designates <i>Lar Limung</i> as a grazing area in Limung Hamlet, Pungkit Village, North Moyo District.
6 Regent Decree No. 1766 of 2010	Designates Kuang Bira area in Motong Village, Utan District, for cattle farming development.
7 Regent Decree No. 1016 of 2011	Designates <i>Lar Malayan</i> as a livestock farming area in Berora Hamlet, Lopok District.

Table 2 presents different total regulations and decrees regarding the sustainable *Lar* land management in Sumbawa Regency, which introduced the constitution regulations, national regulations, regional regulations, and local government decrees. These regulations are the formal recognition of the *Lar* practice and the use of this practice as a strategy for conservation resources and economic improvement towards local communities.

## Discussion

### *Forest Management with The Lar Land Scheme in Sumbawa Regency*

Immediately, the *Lar* land is private, communal, and forest areas. In each area of the three types (privately owned, communal, and forest), there is forest land that is a source of fodder, water and shelter for livestock (Hidayah et al., 2020; Nugraheni, 2019). For generations, the Sumbawa community have traditionally used *Lar* land as a grazing area for livestock. *Lar* is a member of the public land or customary land in tanah umain (Dianto & Gunawan, 2024), which can be planted with workable crops during specific periods. The productive crops include rice, corn, and soybeans. The *Lar* area livestock grazing timing is decided by their nyaka, the ruler or leader of the *Lar*.

*Lar* practice follows Porro et al., (2015). The integration of trees, forage crops, and grazing livestock deliberately on the same land is referred to as Porro et al., (2015). The community sometimes uses *Lar* land by grazing livestock and planting productive crops during other seasons. It is known as 'hak boat,' or the management rights. It grants the management rights to the community in *Lar* only for the benefit of the community (as a grazing area for livelihood and economic growth). *Lar* investments would be funded by the collection of a 'boat aji' (tax), paid by the community, which channelled the nyaka to cover expenses such as repairing the fences around the *Lar*. In addition, the community is given oversight over water sources and the safety of the *Lar*. While *Lar* land has no formal rules maintained regarding the land relationship, the rules were based on the informal agreements between the local livestock owners managing the *Lar* land.

*Lar* land is about the same as communal land, and it has been managed according to a community with a centuries-old livestock grazing culture (Hrib et al., 2021). In the Sumbawa Regent Decrees from 2009 to 2011, *Lar* land can be recognized by the Sumbawa Regency Government.

- a) Sumbawa Regent Decree No. 126 of 2009 concerning the Designation of *Lar Badi* as a Public Grazing Area in Lopok Subdistrict.
- b) Sumbawa Regent Decree No. 650 of 2009 concerning the Designation of *Lar Limung* in

Limung Hamlet, Pungkit Village, North Moyo Subdistrict, as a Grazing Area.

- c) Sumbawa Regent Decree No. 1766 of 2010 concerning the Designation of the *Kuang Bira* Livestock Area in Motong Village, Utan Subdistrict, as a Cattle Breeding Business Development Area.
- d) Sumbawa Regent Decree No. 1016 of 2011 concerning the Designation of the *Lar Malayan* Livestock Area in Berora Hamlet, Lopok Subdistrict, as a Livestock Business Development Area.

The management of forest areas with the *Lar* land scheme in Sumbawa Regency is conducted through various methods, including.

#### 1. Utilization of Grassland with Local Wisdom

Woody plants are absent from the *Lar* (Rahman et al., 2022), which compares with temperate grasslands termed 'prairie' in the New World and 'steppe' in the Old World. The social consensus of livestock owners forms the basis of using grasslands communally for livestock grazing. It is a means for a community to practice environmental sustainability while handling natural resources sustainably. The community can achieve maximum productivity by applying local wisdom towards all grazing practices without destroying the ecosystem.

It also enhances solidarity and cooperation among the stock owners who use the available land. This local wisdom-based approach presents some economic benefits and yields an ecological advantage. Working together to manage communal grazing lands helps the community conserve the ecosystem and use the natural resources sustainably. The livestock owners also unite and show great solidarity amongst one another, which undergoes excellent social and cultural connotations in the local community. These practices are vital to preserving and facilitating long-term benefits, and teaching the values and essence of local wisdom to the younger generation is necessary.

#### 2. *Lar* as an Alternative Water Source

Forests function as water catchment areas characterized by grasslands with large trees and forest cover. Mesra et al., (2022) opines that water discharge from the river increases as the catchment area increases. When *Lar* becomes the water catchment area, it has considerable advantages in maintaining the amount of water for the surrounding environment. A Preserved *Lar* ecosystem also helps conserve the flora and fauna in it. Furthermore, *Lar* can be used by the local community as a recreational and educational site.

For instance, the *Lar Kuang Bira*, as designated by the Sumbawa Regent Decree No. 650 of 2009, is a water catchment area spanning 113 hectares. It serves as a preferred grazing location for livestock owners from five villages, including Motong and Karang Tengah. Approximately 70% (74 hectares) of Kuang Bira is enclosed by living fences, while 30% (39 hectares) is open land. Despite being unfenced, it is not unclaimed. During the dry season, the water source in *Lar Kuang Bira* relies on a pipeline delivering water from the Brang Anak Dam, located about 7 kilometers south of the area. The management of *Lar Kuang Bira* involves several livestock groups, with four major groups relying on the area for grazing, thus demonstrating a collective commitment to maintaining the sustainability of the *Lar*.



### 3. *Lar* in Forest Conservation

*Lar* livestock owners plant trees around water springs to preserve water sources. They understand that if the forest in the *Lar* area is damaged, there will be no shelter for livestock from the sun and rain. Water springs are critical as they provide essential drinking water for livestock. As a result, *Lar* farmers strive to maintain the forest within the *Lar* area by avoiding tree cutting. Environmental conservation efforts are positively affected by the community's awareness. The community helps protect the environment by practising traditional methods, including sustainable agriculture and forest management. Climate change-related impacts can be mitigated through mass reforestation and tree-planting initiatives that improve air quality, bring about ecosystem balance, and much more. The preservation of forests in the future generation depends on everyone's active participation.

### 4. *Lar* Enhancing Soil Fertility

If vagrant livestock are cleared to graze in *Lar*, environmental conditions will improve. By eating organic residues in a given environment, the *Lar* helps regulate balance in the ecosystem instead of becoming waste accumulation as in other organisms. It has a good effect on the local environment and influences human health. In addition, the *Lar* plays an essential part in the food chain as a food for numerous animals. Thus, the *Lar* is essential within the framework of a natural balance. Finally, Sumbawa's *Lar* lands show that communal resource management and conservation were deeply rooted. *Lar* areas continue to provide economic and ecological benefits to the region through social, local wisdom, and government recognition. These practices must be preserved on an ongoing basis to maintain harmony between human activities and the natural environment.

### ***Determination of Land Rights on Critical Land in Forest Areas as a Sustainable Forest Management Strategy***

According to Abraham Maslow's theory, which has been integrated into economic theory, forests are viewed as resources (Adiele & Abraham, 2013). Indonesia's forests rank as the third Largest globally after Brazil and the Congo. The rural communities of Indonesia heavily depend on these forests for their livelihoods. It is conservatively estimated that the livelihoods of at least 65 million rural people are dependent on forests (Domínguez & Luoma, 2020). According to data presented by Kusmana, there are 31,957 villages located within and directly adjacent to state forest areas. This includes 1,305 villages within forest areas, 7,943 villages bordering forest areas, and 22,709 villages surrounding forest areas (Winarsi & Moechthar, 2020).

Currently, Indonesian forests are facing significant issues, particularly the increasing extent of degraded land within forest areas. Although various concepts have been proposed to address degraded land, they have not yet effectively resolved the problem. The sustainable forest management concept, which includes the establishment of "*Lar*" land rights within forest areas, offers a potential solution. As indicated by the research of Dianto & Gunawan, (2024), *Lar* has three forms of land rights status: customary rights, private ownership, and state-owned and individually-owned lands. Thus, critical state-owned lands classified as forest areas can be designated as *Lar* without altering the primary function of the forest area.

Numerous strategies for sustainable forest management have been proposed by researchers, eventually becoming state policies. However, not all of these policies address the

issues of forestry, especially concerning degraded land. This article examines two fundamental aspects as the basis for sustainable forest management concepts: forest ideology and the system for addressing degraded land.

The ideology of the forest is crucial because it forms the essence of policy-making. The ideologies can be categorized into several groups: (1) Technocentric Cornucopian Ideology, which views the environment as an external entity, leading to highly exploitative behavior towards natural resources without regard for environmental degradation (Ngongo et al., 2022). (2) Technocentric Accommodating Ideology, characterized by less enthusiasm for exploiting natural resources and not prioritizing economic growth, but strictly controlling environmental degradation (Astutik et al., 2024). (3) Ecocentric Communalist Ideology, which emphasizes both economic and population growth. According to Samsul Bahri, a fair forest ideology in Indonesia would include: (a) Ecocentric Deep Ecologist for Nature Reserves and Wildlife Sanctuaries; (b) Ecocentric Communalist for National Parks, Forest Parks, Biosphere Reserves, and Protection Forests; and (c) Technocentric Accommodating for Production Forests (Samsul Bahri, 2016). These three ideologies reflect the categorization of forest areas in Indonesia. Despite limitations on economic growth and exploitation, there are still significant gaps for potential forest degradation.

The *Lar* ideology differs from the state's perspective on forest ideology. The *Lar* ideology focuses on sustainable forest management by promoting economic growth through livestock grazing, strictly limiting the exploitation of natural resources, and fostering social development through the implementation of social consensus among herders. This ideology can be termed *Ecopasture Communal*.

The integration of the *Lar* ideology in addressing degraded land within forest areas serves as the foundation for a sustainable forest management concept. How is *Lar* implemented on degraded land within forest areas? According to Government Regulation No. 45 of 2004 on Forest Protection, Article 15 states that in production forest areas, livestock grazing locations may be designated to prevent and limit forest damage caused by livestock disturbances. The establishment of grazing areas in production forests is regulated by Ministerial Decree, as outlined in recent social forestry policies.

Additionally, Sumbawa Regency has regulations on livestock management, specifically Regional Regulation No. 12 of 1999 on Livestock Management. However, this regulation states that it is the community that must propose areas to be designated as *Lar*. For degraded land within forest areas to be designated as *Lar*, it is essential for local governments to actively propose this designation to the relevant Minister. This proposal resembles the silvopasture and agroforestry approaches, which offer sustainable food production while contributing to climate change mitigation and adaptation. Putu, (2017) is rooted in sound ecological principles and requires skill in managing complexity. Addressing research gaps in this area will help enhance not only the economic and environmental sustainability of these systems but also their social acceptance (Dianto & Gunawan, 2024).

## Conclusions

The study concludes that, first, forest management using the *Lar* scheme is implemented through: 1) *Lar* integration, combining grassland with communal livestock grazing; and 2) the





establishment of *Lar* land rights within forest areas, which serves as a suitable solution for sustainable forest management because: 1) Ideologically, the *Lar* scheme promotes economic growth, strengthens ecological balance, and fosters social development. 2) From a regulatory perspective, Sumbawa Regency already has a Regional Regulation (Perda) governing *Lar*, which is established through a Regent's Decree for local areas and a Ministerial Decree for *Lar* located within forest areas. The findings of this study indicate that both ideologically and from a regulatory standpoint, the *Lar* scheme is highly appropriate as a strategy for addressing degraded lands in forest areas while also supporting sustainable forest management.

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