

River Boundary Delineation under PUPR Regulation

28/PRT/M/2015 Land Ownership Implications

Nurani Cipta Putri^{1*}, Tunggul Anshari Setia Negara¹, Dewi Cahyandari¹

¹Faculty of Law, Brawijaya University Malang, Indonesia

*Corresponding Author E-mail nuranicipta7@gmail.com

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ABSTRACT

The research gap addressed in this study lies in the limited scholarship integrating the implementation of river boundary delineation with legal protection of land ownership rights through a comprehensive normative and empirical approach. This study aims to analyze the implementation of river boundary delineation under the Regulation of the Minister of Public Works and Housing Number 28/PRT/M/2015 concerning Land Ownership Rights and to examine the forms of legal protection available to affected landowners. The research employs a socio-legal method, incorporating statutory, sociological, and case approaches. Primary data were collected through interviews, while secondary data consisted of legal materials and relevant literature. The data were analyzed qualitatively using grammatical, systematic, and constructive interpretation. The findings indicate that river boundary delineation is supported by a valid legal basis of authority; however, its implementation continues to face significant challenges, including inconsistencies between land administration and spatial planning data, discrepancies between factual land occupation and juridical ownership, and weak inter-agency coordination. These issues ultimately create legal uncertainty for holders of land ownership rights. Based on these findings, the novelty of this study lies in proposing a legal protection model that integrates the harmonization of land administration and spatial planning data, strengthens institutional coordination, and establishes administrative mechanisms capable of ensuring legal certainty for certified land located within river boundary areas without compromising the ecological functions of rivers.

Keywords : River Boundary Delineation; Land Ownership Rights; Legal Protection; Legal Certainty; Spatial Planning.

1. INTRODUCTION

Land is a strategic natural resource that plays a fundamental role in supporting economic, social, cultural, and environmental needs. From the perspective of Indonesian agrarian law, land is not merely regarded as an object of individual ownership but also as a resource controlled by the State and utilized for the greatest prosperity of the people, as mandated by Article 33(3) of the 1945 Constitution of the Republic of Indonesia. This constitutional principle is implemented through Law Number 5 of 1960 concerning the Basic Agrarian Law, which stipulates that every land right carries a social function. Consequently, the exercise of land rights must maintain a balance between private interests and the public interest (Watofa, 2025). Accordingly, Indonesia's land law regime is designed not only to protect individual land rights but also to promote environmental conservation and sustainable development.

Rapid national development, urbanization, and increasing demand for land have intensified land use, including within riverbank buffer zones. This phenomenon has generated various



environmental challenges, including the conversion of protected areas, the reduction of groundwater recharge zones, increased flood risks, and the degradation of river ecosystems (Murhaini, 2021). Globally, land use within riparian areas has also become a significant concern because of its close relationship with environmental resilience, climate change adaptation, and sustainable water resource management (UNESCO, 2024). Therefore, regulating land use within riverbank buffer zones constitutes a critical instrument for achieving sustainable environmental governance.

As part of the State's constitutional authority over natural resource management, the Indonesian Government enacted the Regulation of the Minister of Public Works and Public Housing Number 28/PRT/M/2015 concerning the Determination of River and Lake Borderlines. This regulation aims to preserve the ecological functions of rivers, regulate land utilization, and provide legal certainty regarding protected boundary areas. It represents the implementation of Indonesia's water resources management policy, which designates riverbank buffer zones as protected areas whose utilization is restricted to safeguard the hydrological and ecological sustainability of river systems (Supriadi, 2022).

Nevertheless, the implementation of river boundary delineation continues to generate significant legal issues in practice. Many parcels of land that have been occupied by local communities for generations or are already registered under freehold title (Hak Milik) have subsequently been designated as falling within riverbank buffer zones following boundary determinations by the competent technical authorities. This situation imposes restrictions on land use, creates obstacles in land administration services, generates uncertainty regarding permissible land utilization, and may even diminish the economic value of privately owned land. These circumstances illustrate the tension between environmental protection objectives and the protection of private property rights enjoyed by landowners (Lestari, 2024).

The issue becomes increasingly complex because the implementation of river boundary policies involves multiple institutions with distinct legal mandates, including the River Basin Authority, local governments, and the National Land Agency. In practice, inconsistencies in spatial data, differing interpretations of river boundary limits, and inadequate institutional coordination in integrating land administration and spatial planning data remain prevalent. Consequently, landowners frequently encounter legal uncertainty concerning the status and permissible use of their land, particularly where ownership certificates were issued before the formal determination of river boundaries. These conditions demonstrate that the implementation challenges are not merely normative in nature but also administrative, institutional, and sociological.



Previous studies have examined various legal issues concerning riverbank buffer zones. Widodo, Hermansyah, and Mahmudyah (2023) identified legal problems relating to the granting of land rights within the Barito Kuala riverbank area. Dea Justicia Ardha et al. (2025) demonstrated that communities residing in riverbank areas for generations continue to face legal uncertainty regarding the status of their land and buildings. Similarly, Rika Lestari (2024) identified administrative land law issues arising from river boundary determinations affecting land rights. However, these studies primarily focus on the legality of land rights, legal protection, or land administration as separate issues. They do not comprehensively explain the interrelationship among governmental authority in determining river boundaries, inter-agency coordination, land administration practices, and the effectiveness of legal protection for freehold landowners within a unified analytical framework.

This research gap is likewise evident in the international literature. In the Netherlands, riparian area management emphasizes the integration of spatial planning, flood control, and property rights protection through strong coordination among the central government, local authorities, and water management agencies. In Australia, riverbank management focuses on balancing environmental conservation with the recognition of private property rights through risk-based planning and community participation. In the United States, floodplain and riparian buffer management has been strengthened through the harmonization of environmental regulations, spatial information systems, and land administration to minimize land-use conflicts. These international experiences indicate that effective riparian protection depends not only on clear legal norms but also on integrated spatial data, institutional coordination, reliable land administration, and effective mechanisms for protecting individual property rights (UN-Habitat, 2024). By contrast, studies conducted in Indonesia remain largely confined to normative analyses of land rights legality and ownership status, without integrating legal, institutional, administrative, and socio-legal dimensions within a comprehensive analytical framework.

Accordingly, the research gap addressed by this study lies in the absence of comprehensive research examining the implementation of the Regulation of the Minister of Public Works and Public Housing Number 28/PRT/M/2015 concerning freehold land rights by integrating governmental authority, land administration practices, inter-agency coordination, community socio-legal conditions, and legal protection within a socio-legal perspective, while simultaneously drawing comparative insights from the governance of riparian areas in other jurisdictions. This gap indicates that the implementation of river boundary policies in Indonesia constitutes not only a normative legal issue but also an institutional and governance challenge that has not been comprehensively examined.



Based on this research gap, this study aims to analyze the implementation of river boundary regulations in the exercise and utilization of freehold land rights and to examine the forms of legal protection available to landowners affected by such policies. The novelty of this study lies in the development of a socio-legal analytical model that integrates governmental authority, land administration, institutional coordination, community socio-legal conditions, and legal protection in evaluating the implementation of river boundary delineation under the Regulation of the Minister of Public Works and Public Housing Number 28/PRT/M/2015. Unlike previous studies that address the legality of land rights or legal protection from a fragmented perspective, this research offers a more comprehensive analysis and proposes policy recommendations for harmonizing land administration, spatial planning, and water resources management in order to promote legal certainty, justice, and environmental sustainability.

2. RESEARCH METHODS

This study employed a socio-legal research method with a socio-juridical approach to examine the implementation of river border demarcation under the Regulation of the Minister of Public Works and Public Housing No. 28/PRT/M/2015 concerning land ownership rights from both normative and empirical perspectives. The research was conducted in 2026 in Kediri Regency, Indonesia, where the Brantas River Basin Authority has implemented river border demarcation that has affected land use and the legal certainty of community land ownership rights. The research objects comprised the implementation of river border regulations and the legal protection of land ownership rights. The research subjects included officials from the Brantas River Basin Authority, the Kediri Regency Land Office, local government representatives, and affected community members. Informants were selected through purposive sampling based on their authority and experience relevant to the research topic. A total of three informants participated in the study, consisting of one official from the Brantas River Basin Authority, one official from the Kediri Regency Land Office, and one community member holding land ownership rights. Data were collected through a literature review, semi-structured interviews, field observations, and document analysis using interview guidelines, observation checklists, and documentary review.

The legal materials consisted of primary, secondary, and tertiary legal sources selected based on their binding authority, academic credibility, currency, and relevance to the research issues. Data validity was ensured through source triangulation and methodological triangulation by comparing information obtained from the Brantas River Basin Authority, the Kediri Regency Land Office, local government institutions, and affected community members, while corroborating interview findings with field observations, documentary evidence, and the literature review. All



data were analyzed qualitatively through data reduction, data display, and conclusion drawing, supported by grammatical, systematic, and constructive legal interpretation. This study adhered to research ethics principles by obtaining informed consent, ensuring voluntary participation, and maintaining the confidentiality of informants' identities. Ethical committee approval was not required because the research involved neither human intervention nor experimental procedures.

3. RESULTS AND DISCUSSION

Implementation of River Borderline Provisions under Minister of Public Works and Housing Regulation No. 28/PRT/M/2015 in the Exercise and Utilization of Land Ownership Rights

Implementation of river boundary delineation under the Minister of Public Works and Housing Regulation No. 28/PRT/M/2015 demonstrates that the Government has lawful authority to designate protected river corridors as part of national water resources management. This authority is attributed by Law No. 17 of 2019 on Water Resources and implemented through Government Regulation No. 38 of 2011 on Rivers and the Minister of Public Works and Housing Regulation No. 28/PRT/M/2015. In Kediri Regency, the technical responsibility rests with the Brantas River Basin Authority, while the Land Office performs only land administration functions based on the established river boundaries without authority to determine them. This institutional arrangement is consistent with the theory of governmental authority, which requires that every administrative action derive from statutory authority (Hadjon, 2023). Although no normative overlap of authority exists, the study identified coordination problems among institutions, resulting in inconsistencies in spatial data and delays in synchronizing technical and cadastral information (Santoso, 2019).

The findings further indicate that the implementation of river boundary delineation has not fully reconciled environmental protection with legal certainty of land rights. Field observations and interviews revealed that Brantas River Basin Authority has conducted inventories, field surveys, technical measurements, and boundary marker installation to regulate land use. However, these results have not been fully integrated into the land administration system, creating discrepancies between physical conditions and juridical records maintained by the Land Office. Consequently, uncertainty arises when privately owned or certified land is later identified as falling within the designated river boundary. An interview with the Coordinator of the Surveying and Mapping Division of the Kediri Land Office confirmed that the Land Office merely administers the boundary determinations issued by Brantas River Basin Authority and has no authority to establish them (Fauziah, 2026).



To provide greater clarity regarding the empirical findings of this study, a summary of the interview results with the Coordinator of the Surveying and Mapping Division at the Kediri Regency Land Office is presented in Table 1 below.

Table 1. Summary of Interview Findings on the Implementation of River Border Delineation

No	Aspect Examined	Interview Findings	Implications for the Study
1	Authority for determining river border lines	The determination of river border lines falls under the authority of the Brantas River Basin Authority in accordance with the applicable laws and regulations.	This demonstrates that the authority is attributed by law and does not fall within the jurisdiction of the Land Office.
2	Role of the Land Office	The Land Office is responsible only for administering the river border determinations issued by Brantas River Basin Authority in the provision of land administration services.	The National Land Agency has no authority to determine river border lines; therefore, its role is purely administrative.
3	Effect on land ownership certificates	Land ownership certificates that have already been issued remain legally recognized as valid evidence of ownership unless revoked pursuant to a court decision or other applicable legal provisions.	The determination of river border lines does not extinguish ownership rights over the land.
4	Land utilization	Land use within the river border area is subject to restrictions in accordance with river protection functions and spatial planning regulations.	The legal consequence is a restriction on land use rather than the revocation of land ownership rights.
5	Implementation challenges	Coordination between Brantas River Basin Authority and the Land Office has not yet been fully optimized, and discrepancies in spatial data remain.	These conditions create uncertainty in land administration and highlight the need for integrated spatial data management.
6	Legal protection for the community	Members of the public are advised to coordinate with the relevant technical	This indicates the need for clearer coordination

		agencies when their land parcels are located within designated river border areas.	mechanisms and stronger legal protection for affected landowners.
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Source: Interview with Ulayya Fauziah, Coordinator of the Surveying and Mapping Division, Kediri Regency Land Office, 2026.

The study also confirms that river boundary designation does not extinguish existing ownership rights. Land ownership certificates remain valid and constitute strong legal evidence unless revoked through lawful procedures. Nevertheless, land use becomes subject to restrictions because owners must comply with the ecological function of river corridors in accordance with the social function principle of land rights under Article 6 of the Basic Agrarian Law. These restrictions therefore constitute limitations on land utilization rather than deprivation of ownership. This finding supports Khayati's view that the social function of land rights requires a balance between individual interests and the broader public and environmental interests (Khayati, 2022).

The implementation of this policy also produces legal, economic, and social consequences. Several parcels previously used for housing, agriculture, or commercial activities have experienced a reduction in their effective utilization after being designated within river boundary areas. Landowners are also restricted from constructing permanent buildings, changing land use, or expanding economic activities, despite retaining legal ownership. These findings reinforce those of Widodo, Hermansyah, and Mahmudyah, who argue that river boundary regulations frequently generate tensions between environmental protection objectives and private land rights, particularly where administrative systems remain poorly integrated.

From the perspective of legal protection theory, these conditions indicate that protection for landowners remains inadequate. Legal protection should encompass not only recognition of ownership certificates but also clear administrative procedures, transparent information, effective inter-agency coordination, and accessible mechanisms for objections and dispute resolution. The findings reveal that limited public outreach, fragmented spatial data, and differing institutional interpretations continue to undermine legal certainty. Accordingly, implementation of the Minister of Public Works and Housing Regulation No. 28/PRT/M/2015 requires stronger administrative governance to ensure both preventive and repressive legal protection, consistent with Hadjon's concept of administrative legal protection.

Compared with other jurisdictions, river boundary regulation generally pursues the same objective of preserving river ecosystems while safeguarding private property rights. In the Netherlands, the Room for the River program combines ecological restoration with legal certainty through compensation schemes, public participation, and strong coordination among national, regional, and water management authorities. Similarly, Australia integrates riparian land-use

restrictions directly into spatial planning and land administration systems, ensuring that changes in protected areas are promptly reflected in land records. By comparison, Indonesia continues to face challenges related to fragmented spatial data, weak institutional coordination, and the absence of specific administrative procedures for certified land affected by river boundary designation.

Overall, the study concludes that the implementation of river boundary delineation under the Minister of Public Works and Housing Regulation No. 28/PRT/M/2015 is supported by a clear legal mandate and is consistent with Indonesia's national land law framework. However, its effectiveness remains constrained by institutional coordination, the integration of spatial and cadastral data, and the availability of adequate legal protection for affected landowners. Strengthening regulatory harmonization, improving spatial data integration between Brantas River Basin Authority and the Land Office, enhancing public participation, and establishing clearer administrative procedures for certified land within river boundary areas are therefore essential. The findings answer the research question by demonstrating that river boundary designation does not eliminate ownership rights but lawfully restricts land use as a consequence of the social function of land rights and environmental protection, thereby requiring stronger governance to ensure legal certainty.

Legal Protection of Land Ownership Rights within River Borderline Areas under Minister of Public Works and Housing Regulation No. 28/PRT/M/2015

The findings indicate that legal protection for land ownership within river buffer zones is not intended to revoke private ownership but to regulate the exercise of property rights in accordance with the social function of land as stipulated in Article 6 of Law No. 5 of 1960 on the Basic Agrarian Principles. Under the implementation of Minister of Public Works and Housing Regulation No. 28/PRT/M/2015, holders of land ownership certificates remain legally recognized; however, the use of their land must comply with river buffer zone regulations to preserve ecological functions, mitigate flood risks, and ensure sustainable water resource management. Evidence from Kediri Regency shows that these restrictions primarily affect land utilization rather than the legal status of ownership. This reflects a legal protection model that balances private property rights with the public interest through the principle of the social function of land rights (Philipus M. Hadjon, 2021).

Interviews with the Kediri Land Office revealed that the National Land Agency has no authority to determine river buffer boundaries. Its role is limited to administering land records based on technical determinations issued by the Brantas River Basin Authority. This institutional division of authority is consistent with the principle of legality in administrative law. Nevertheless, inconsistencies between cadastral spatial data and river buffer zone data continue to create legal



uncertainty for landowners. These findings suggest that effective legal protection requires not only lawful institutional authority but also integrated land administration and spatial planning systems to prevent overlapping authority and conflicting datasets (Ridwan HR, 2023).

The study further found that administrative legal protection under Ministerial Regulation No. 28/PRT/M/2015 is implemented through preventive measures, including public dissemination of policies, disclosure of river boundary information, technical field verification, and inter-agency coordination before boundary designation. These mechanisms are consistent with Philipus M. Hadjon's concept of preventive legal protection, which emphasizes providing affected parties with opportunities to obtain information, understand administrative decisions, and raise objections before legal consequences arise. However, their implementation remains inadequate because public outreach is limited, and many landowners lack sufficient information regarding the legal implications of river buffer designation (Philipus M. Hadjon, 2021).

In addition to preventive protection, the study identified repressive legal remedies through administrative objections and judicial review before the Administrative Court for parties adversely affected by government decisions. These mechanisms uphold the principles of due process of law and the rule of law by ensuring that administrative actions remain subject to legal scrutiny. In practice, however, most affected communities prefer resolving disputes through coordination with relevant agencies rather than litigation due to limited legal awareness, litigation costs, and lengthy judicial procedures. Consequently, the effectiveness of repressive legal protection largely depends on public access to justice and the availability of simple, efficient, and affordable dispute resolution mechanisms (Marbun, 2022).

The legal analysis demonstrates that the primary challenge lies not in the substance of Ministerial Regulation No. 28/PRT/M/2015 but in its administrative implementation. Although the regulation provides a clear legal basis for establishing river buffer zones as an instrument of spatial control, the absence of integration among land administration, spatial planning information systems, and hydrological data frequently results in inconsistent interpretations of boundary limits. As a consequence, landowners face uncertainty when legally certified land is technically classified within a river buffer zone. This situation illustrates the gap between formal legal certainty and practical legal certainty, which should be avoided under the principles of good governance (Tunggul Anshari Setia Negara, 2023).

From the perspective of progressive legal theory, legal protection extends beyond procedural compliance and should ensure substantive justice for communities affected by public policy. Although the state has a legitimate obligation to protect rivers as part of the public interest, restrictions on property rights must be implemented with due regard to procedural certainty,



transparency, and the protection of lawfully acquired ownership rights. Therefore, Ministerial Regulation No. 28/PRT/M/2015 should be viewed not merely as a restrictive instrument but as a spatial governance policy that maintains a balance between environmental protection and the constitutional rights of citizens (Satjipto Rahardjo, 2021).

The study further concludes that legal certainty can only be achieved through institutional harmonization among the Brantas River Basin Authority, the Land Office, local governments, and spatial planning agencies. Integrating spatial and cadastral data into the land registration system is essential to ensure that river buffer zone determinations are consistently reflected in land administration. Without such integration, administrative conflicts, overlapping authority, and land disputes are likely to persist. This finding reinforces the need for transparent, accountable, and coordinated administrative governance to strengthen legal certainty while supporting sustainable water resource management.

Overall, the findings indicate that legal protection for land ownership within river buffer zones under Ministerial Regulation No. 28/PRT/M/2015 has not yet been fully effective. While land ownership remains legally recognized, the exercise of ownership rights is restricted by the social function of land and environmental protection objectives. The principal challenges include inadequate inter-agency coordination, inconsistencies between cadastral and river buffer zone data, limited preventive administrative protection, and ineffective dispute resolution mechanisms. Accordingly, stronger regulatory harmonization, integrated land administration and spatial planning systems, greater public participation, and improved administrative objection procedures are required to balance environmental protection with legal certainty for landowners. These findings support the legal protection framework proposed in this study, emphasizing institutional harmonization, integrated land administration, and tiered dispute resolution as key elements for achieving equitable legal certainty.

4. CONCLUSION

The implementation of river border line determination under the Minister of Public Works and Housing Regulation Number 28/PRT/M/2015 is normatively supported by a clear legal framework. The authority to determine river border lines is vested in the water resources management agency, while the Land Office is responsible only for integrating the established river border line data into the land administration system. In practice, particularly in Kediri Regency, the implementation of this policy does not extinguish private land ownership rights but instead restricts land utilization in accordance with the social function of land rights and the protection of river border areas. Nevertheless, its implementation continues to face several challenges, including



suboptimal inter-agency coordination, the lack of integration between land administration data and river border line data, differing interpretations regarding river border boundaries, and limited public awareness. These issues contribute to legal uncertainty concerning land use and increase the potential for land disputes.

Legal protection of land ownership rights within river border areas has not yet provided full legal certainty. Certificates of ownership remain legally valid evidence of land rights unless revoked through lawful judicial or administrative procedures. However, the absence of administrative integration between river border line data and the land administration system continues to create inconsistencies and data dualism. Therefore, stronger synchronization among the National Land Agency, the Brantas River Basin Authority, and local governments is necessary, accompanied by enhanced institutional coordination, greater public dissemination of regulatory information, and the prioritization of mediation as a dispute resolution mechanism before litigation. This study is limited to Kediri Regency; therefore, its findings cannot be generalized to other regions. Future research is recommended to conduct comparative studies in different jurisdictions and to evaluate the effectiveness of integrating land administration systems with river border line determination.

REFERENCES

- Ardha, D. J., Saputra, M. A., Akbar, F., & Zhafira, H. (2025). Perlindungan hukum atas kepemilikan rumah panggung di sempadan sungai Desa Pemulutan Kabupaten Ogan Ilir. *Jurnal Ilmu Hukum Humaniora dan Politik*, 5(4).
- Fauziah, U. (2026, June 23). Coordinator of the Surveying and Mapping Section, Kediri Regency Land Office. Personal interview. Kediri, Indonesia.
- Hadjon, P. M. (2021). *Perlindungan hukum bagi rakyat di Indonesia*. Gadjah Mada University Press.
- Hadjon, P. M. (2023). *Pengantar hukum administrasi Indonesia*. Gadjah Mada University Press.
- Indonesia. (1945). *The 1945 Constitution of the Republic of Indonesia*.
- Indonesia. (1960). Law Number 5 of 1960 concerning the Basic Agrarian Principles (State Gazette of the Republic of Indonesia of 1960 Number 104, Supplement to the State Gazette of the Republic of Indonesia Number 2043).
- Indonesia. (2011). Government Regulation Number 38 of 2011 concerning Rivers (State Gazette of the Republic of Indonesia of 2011 Number 74, Supplement to the State Gazette of the Republic of Indonesia Number 5230).



- Indonesia. (2015). Minister of Public Works and Public Housing Regulation Number 28/PRT/M/2015 concerning the Determination of River Borderlines and Lake Borderlines (State Gazette of the Republic of Indonesia of 2015 Number 772).
- Indonesia. (2019). Law Number 17 of 2019 concerning Water Resources (State Gazette of the Republic of Indonesia of 2019 Number 190, Supplement to the State Gazette of the Republic of Indonesia Number 6405).
- Khayati, S. (2022). Perlindungan hukum perubahan fungsi sosial hak milik atas tanah di Kendari. *Arus Jurnal Sosial dan Humaniora*, 2(2).
- Lestari, R. (2024). Problematika penetapan garis sempadan sungai terhadap hak atas tanah. *Jurnal Rechtsvinding*, 12(1).
- Marbun, S. F. (2022). *Peradilan administrasi negara dan upaya administratif*. UII Press.
- Murhaini, S. (2021). *Hukum pertanahan: Alih fungsi tanah*. LaksBang Justitia.
- Rahardjo, S. (2021). *Hukum progresif: Hukum yang membebaskan*. Kompas.
- Ridwan HR. (2023). *Hukum administrasi negara (Revised ed.)*. Rajawali Pers.
- Santoso, U. (2019). *Pendaftaran dan peralihan hak atas tanah*. Kencana.
- Setia Negara, T. A. (2023). *Ilmu Negara*. Sada Kurnia Pustaka.
- Supriadi. (2022). *Hukum agraria*. Sinar Grafika.
- United Nations Human Settlements Programme. (2024).
- UNESCO. (2024).
- Watofa, Y. Y. R. (2025). *Hukum agraria*. CV Bravo Press Indonesia.
- Widodo, H., Hermansyah, N., & Mahmudyah, H. A. (2023). Analisis yuridis pemberian hak atas tanah di kawasan sempadan Sungai Kabupaten Barito Kuala. *Jurnal Hukum*, 11(2).

