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Rethinking Property Rights Over Water-Based Constructions: Comparative Insight from Indonesia and Selected Jurisdiction

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Abstract:
Property rights over water-based constructions present a complex legal issue within Indonesia's agrarian law system. Existing regulations, including the Agrarian Law of 1960 and Government Regulation No. 18 of 2021 on Management Rights, Land Rights, and Land Registration, do not explicitly regulate the legal status of structures built above water surfaces. This regulatory gap creates uncertainty regarding ownership. The spatial control and the classification of such constructions within the existing land law framework are needed to examine. This study examines the legal framework governing water-based constructions in Indonesia through a qualitative doctrinal approach combined with comparative legal analysis. It evaluates relevant statutory provisions, legal concepts of land and spatial rights, and selected international practices to identify regulatory gaps and potential solutions. The comparative analysis draws on experiences from jurisdictions that have addressed similar issues, particularly in relation to the classification of floating structures and the separation between land rights and building rights. The findings indicate that the current Indonesian framework lacks conceptual clarity in addressing constructions situated above water, resulting in overlapping institutional authority and inconsistent regulatory practices. A key insight from the comparative analysis is the potential relevance of the horizontal separation principle (applied in jurisdictions such as Japan), which distinguishes between land ownership and building rights. This approach may provide an alternative model for regulating water-based constructions in Indonesia. This study concludes that clearer regulatory integration and inter-agency coordination are essential to ensure legal certainty, effective spatial governance, and sustainable development in water-based environments.

Keywords:
land-water relationship; land tenure; land rights; legal definition of land; legal certainty.

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Introduction

Land has long been regarded as a fundamental component of human civilization,[1] playing a pivotal role in economic, social, and spatial organizations.[2] In Indonesia, where a significant proportion of the population depends on land for sustenance, land serves not only as an

[1] Ridwan Ridwan, "Management of Abandoned Land in the Perspective of Islamic Law and National Law of Land," *AL-IHKAM: Jurnal Hukum & Pranata Sosial* 11, no. 1 (July 2016): 19–37, https://doi.org/10.19105/al-lhkam.v11i1.855.
[2] Martina Boschiero et al., "Comparison of Organic and Conventional Cropping Systems: A Systematic Review of Life Cycle Assessment Studies," *Environmental Impact Assessment Review* 102 (September 2023): 107187, https://doi.org/10.1016/j.eiar.2023.107187.

economic asset but also as the foundation for housing, agriculture, social activities.[3] Housing, in particular, constitutes basic human needs alongside food, clothing, education, and healthcare. The fulfillment of this need becomes more meaningful when supported by legal certainty through formal ownership or use rights, which provide protection against disputes and contribute to long-term social stability and welfare.[4] At the same time, patterns of human settlement continue to evolve in response to changing environments, economic, and demographic pressures, giving rise to new forms of habitation beyond conventional land-based structures.

Within this evolving context, the concept of property rights over water-based constructions can be understood as a set of legal entitlements governing the control, use, and ownership of buildings or structures physically situated above water surfaces, including coastal, marine, or inland aquatic environments. These rights raise fundamental legal questions concerning the classification of such constructions, whether they fall within the regime of land law, maritime law, or a hybrid legal framework, and how spatial control should be exercised in areas not traditionally categorized as "land." Unlike conventional property regimes, water-based constructions challenge the assumption that buildings are inherently attached to terrestrial land, thereby requiring a reconceptualization of property rights beyond land-centric legal paradigms.

Indonesia, as the world's largest archipelagic state with extensive coastal and marine areas,[5] presents a distinctive context in which such issues are both practically and legally significant. In several regions, residential structures are built on stilts or floating platforms, effectively situating them above water surfaces. However, Indonesian legal frameworks, particularly the Agrarian Law of 1960 and Government Regulation No. 36 of 2005 on Buildings, implicitly assume that all buildings must be constructed on land with clearly defined ownership status. These regulations do not explicitly address the legal status of constructions above water, thereby creating a normative and regulatory gap. This gap is further complicated by overlapping institutional authority among multiple government bodies responsible for land administration, marine spatial management, environmental protection, and construction regulation.

Existing scholarship has begun to explore aspects of water-based constructions, yet significant limitations remain. First, studies on floating architecture and climate-adaptive infrastructure often focus on technical and environmental dimensions, particularly in countries such as the Netherlands and the Maldives, without providing a comprehensive legal analysis of property rights classification.[6] Second, legal studies in jurisdictions such as the United States and Canada have addressed the distinction between floating homes and vessels,

[3] Agus Sekarmadji et al., "Legal Certainty of Registration of House Ownership Rights on Seawater," *Revista de Gestão Social e Ambiental* 18, no. 5 (July 2024): e07793, https://doi.org/10.24857/rgsa.v18n5-165.

[4] Rudy Haryanto and Lailatul Maufiroh, "An Waqf Land in Madura; Its Management and Typical Dispute Resolution," *AL-IHKAM: Jurnal Hukum & Pranata Sosial* 18, no. 2 (December 2023): 496–518, https://doi.org/10.19105/al-lhkam.v18i2.7570; Christiana Sri Murni, Bernadus Basa Kelen, and Sumirahayu Sulaiman, "The Legal Certainty of Land Ownership Right in Registration's Context," *International Journal of Law Reconstruction* 6, no. 1 (April 2022): 13, https://doi.org/10.26532/ijlr.v6i1.16422.

[5] Signe Veierud Busch, "Law of the Sea Responses to Sea-Level Rise and Threatened Maritime Entitlements," in *The Law of the Sea and Climate Change*, vol. 9 (Cambridge University Press, 2020), 309–35, https://doi.org/10.1017/9781108907118.014.

[6] Bawantha Rathnayaka et al., "Identifying and Prioritizing Climate Change Adaptation Measures in the Context of Electricity, Transportation and Water Infrastructure: A Case Study," *International Journal of Disaster Risk Reduction* 99 (December 2023): 104093, https://doi.org/10.1016/j.ijdrr.2023.104093.

primarily through judicial interpretation, but they remain context-specific and do not offer a generalized framework applicable to different legal systems.[7] Third, Indonesian legal scholarship has largely concentrated on land-based property rights within the framework of agrarian law, with limited attention to constructions situated above water surfaces as a distinct legal category.

Accordingly, there remains a lack of integrated analysis that bridges doctrinal property law, spatial regulation, and comparative legal perspectives in addressing water-based constructions. This article seeks to fill this gap by offering a comparative legal analysis that situates the Indonesian framework within a broader international context, including experiences from Malaysia, Finland, the United Arab Emirates, and Italy. The novelty of this study lies in three main contributions. First, it provides a conceptual clarification of property rights over water-based constructions as a distinct legal category that challenges conventional land-based frameworks. Second, it develops a comparative analytical model that identifies how different jurisdictions classify and regulate such constructions, particularly in relation to the distinction between immovable property and movable objects or vessels. Third, it proposes a contextualized legal framework for Indonesia, integrating insights from comparative practices with the principles of Indonesian agrarian law and spatial governance.

Based on these considerations, this study aims to analyze the legal framework governing water-based constructions in Indonesia, identify regulatory gaps and institutional challenges, and evaluate alternative approaches derived from comparative legal analysis. The findings are expected to contribute not only to the development of Indonesian property law but also to broader international discussions on property rights in non-terrestrial and hybrid spatial environments, particularly in the context of climate change, coastal urbanization, and sustainable development.

Method

This study adopts a qualitative doctrinal legal research design supported by a comparative legal analysis.[8] Rather than relying on prescriptive or normative assertions,[9] the study focuses on systematically examining existing legal frameworks governing property rights over water-based constructions and evaluating their coherence, scope, and practical implications. Three analytical approaches are employed. First, the statute approach examines relevant Indonesian legal instruments, including the Agrarian Law of 1960 and Government Regulation No. 18 of 20210 on Management Rights, Land Rights, and Land Registration, to identify how land and spatial rights are defined and regulated, particularly in relation to areas covered by water. Second, the conceptual approach[10] explores key legal concepts such as property rights, spatial

[7] Fen-Yu Lin, Otto Spijkers, and Pernille van der Plank, "Legal Framework for Sustainable Floating City Development: A Case Study of the Netherlands," 2022, 433–60, https://doi.org/10.1007/978-981-16-2256-4_27.
[8] Tunggul Ansari Setia Negara, "Normative Legal Research in Indonesia: Its Originis and Approaches," *Audito Comparative Law Journal (ACLJ)* 4, no. 1 (February 2, 2023): 1–9, https://doi.org/10.22219/aclj.v4i1.24855.
[9] Hiba Al Abiad and Ayman Masadeh, "Law Comparison as a Research Method in Legal Studies, and Its Importance in Promoting Uniformity in Legal Systems," 2024, 446–54, https://doi.org/10.1007/978-3-031-56121-4_42.
[10] Terry Hutchinson and Nigel Duncan, "Defining and Describing What We Do: Doctrinal Legal Research," *Deakin Law Review* 17, no. 1 (October 2012): 83, https://doi.org/10.21153/dlr2012vol17no1art70.

control, and the legal distinction between land, water, and airspace, drawing from established theories in property law and natural resource governance. Third, the comparative approach,[11] is used to assess how other jurisdictions regulate water-based constructions and classify floating or submerged structures. The comparative analysis includes selected jurisdictions, namely the Netherlands, Malaysia, the Maldives, Finland, the United Arab Emirates, the United States, Canada, and Italy. These jurisdictions were selected based on three criteria: their practical experience in developing floating or water-based constructions, the existence of relevant legal frameworks or judicial decisions addressing the classification of such structures, and their representation of diverse legal traditions, including civil law and common law systems. This selection enables a broader understanding of how different legal systems respond to similar regulatory challenges.

This study relies on secondary data, collected through systematic document analysis.[12] The data include statutory regulations and policy instruments, court decisions and legal precedents related to floating structures and property classification, and academic literature, including journal articles, books, and legal commentaries relevant to property law and spatial regulation. The data were analytzed using a qualitative legal analysis technique,[13] involving three stages. First is data classification, legal sources were organized based on themes such as property classification, spatial rights, and regulatory authority. Second is comparative interpretation, similarities and differences between Indonesian law and selected jurisdictions were identified and critically examined. Third is analytical synthesis, findings from the statutory, conceptual, and comparative analyses were integrated to evaluate existing legal gaps and to formulate coherent legal arguments regarding the regulation of water-based constructions.

Discussion

1. Granting Rights to Land Above the Water Surface Using a Comparative Approach

Government Regulation Number 18 of 2021 on Management Rights, Land Rights, and Land Registration, Article 1, paragraph 1, defines land as "the Earth's surface, encompassing both terrestrial and aquatic areas, including the space above and below, within specified boundaries where utilization and use are directly or indirectly related to the Earth's surface." Notably, this definition aligns with the 'earth' concept stipulated in the Agrarian Law of 1960, which broadly regulates agrarian frameworks by encompassing earth, water, airspace, and natural resources. Furthermore, the the Agrarian Law of 1960 conceptualization of 'earth' explicitly includes the Earth's surface (land), subsurface layers, and subaquatic areas.[14] In

[11] Gerhard Dannemann, "Comparative Law: Study of Similarities or Differences?," in *The Oxford Handbook of Comparative Law*, ed. Mathias Reimann and Reinhard Zimmermann (Oxford University Press, 2006), 382–420, https://doi.org/10.1093/oxfordhb/9780199296064.013.0012.
[12] Mark van Hoecke, "Methodology of Comparative Legal Research," *Law and Method*, 2015, 1–35, https://doi.org/10.5553/REM/.000010.
[13] Nasir Majeed, Amjad Hilal, and Arshad Nawaz Khan, "Doctrinal Research in Law: Meaning, Scope and Methodology," *Bulletin of Business and Economics (BBE)* 12, no. 4 (December 2023): 559–63, https://doi.org/10.61506/01.00167.
[14] Seventina Monda Devita, "Perkembangan Hak Pengelolaan Atas Tanah Sebelum Dan Sesudah Peraturan Pemerintah Nomor 18 Tahun 2021 Tentang Hak Pengelolaan, Hak Atas Tanah, Satuan Rumah Susun, Dan Pendaftaran Tanah," *Jurnal Hukum Lex Generalis* 2, no. 9 (September 2021): 870–88, https://doi.org/10.56370/jhlg.v2i9.130.

addition to the legal framework, soil is defined from geological perspective as a three-dimensional solid entity that forms part of the Earth's crust.[15]

In a similar vein, Arifin et al.[16] define soil within the agricultural context as a medium for plant growth originating from weathered rock mixed with organic matter and organisms. Beyond its solid components, soil also encompasses water and air. This is further supported by Hardjowigeno,[17] who characterizes soil as a collection of natural entities on the Earth's surface, arranged in horizons comprising a mixture of mineral and organic materials. Correspondingly, Wesley[18] explains that soil typically consists of two or three material phases, i.e., solid particles, water, and air. This technical perspective resonates with Das[19] who states that soil is a material composed of aggregates of non-cemented solid minerals and decomposed organic matter, with water and gases filling the voids between particles.

Transitioning from the physical properties of soil to modern spatial utilization, floating structures represent an innovative architectural and technological development that challenges conventional land-based construction paradigms. These structures, designed to float on water through principles of buoyancy and balanced load distribution, enable the utilization of aquatic spaces as alternative sites for development.[20] From a regulatory standpoint, their emergence introduces new dimensions in property governance, particularly in relation to spatial flexibility, environmental sustainability, and adaptive responses to climate change, including rising sea levels and flood risks. Consequently, floating constructions provide not only technical solutions but also normative implications for rethinking property rights beyond terrestrial boundaries.[21]

To examine these concepts in a comparative context, the implementation of floating structures can be observed in various global initiatives, exemplified by projects developed by *The Ocean Cleanup's Interceptor*.[22] This organization has introduced the Interceptor, a floating system designed to capture plastic waste in major rivers, including its deployment in the Klang River, Malaysia. As a large-scale environmental intervention, this system demonstrates how floating infrastructure can be functionally integrated into water-based environments to address ecological challenges. Ultimately, the project reflects a dual regulatory dimension. On one hand, it illustrates the practical utilization of water surfaces for infrastructural purposes; on the other hand, it highlights the necessity of legal frameworks capable of accommodating non-terrestrial constructions within environmental governance regimes.

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[15] Abdil Hafizh Arrofiq, Lusmeilia Afriani, and Iswan Iswan, "Pengaruh Variasi Waktu Pemeraman Terhadap Nilai Uji Kuat Tekan Bebas Pada Tanah Lempung Dan Lanau Yang Distabilisasi Menggunakan Kapur Pada Kondisi Optimum," *Jurnal Rekayasa Sipil Dan Desain* 4, no. 3 (June 2016): 447–58, https://doi.org/10.23960/jrsdd.v4i3.427.

[16] Mahfud Arifin et al., "Pengaruh Posisi Lereng Terhadap Sifat Fisika Dan Kimia Tanah Pada Inceptisols Di Jatinangor," *SoilREns* 16, no. 2 (February 2019): 37–44, https://doi.org/10.24198/soilrens.v16i2.20858.

[17] Sarwono Hardjowigeno, *Ilmu Tanah* (Jakarta: Akademika Pressindo, 2010).

[18] Laurence D. Wesley, *Fundamentals of Soil Mechanics for Sedimentary and Residual Soils* (Canada: John Wiley & Sons, 2010).

[19] Braja M. Das, *Mekanika Tanah Jilid 1* (Jakarta: Erlangga, 1995).

[20] Sisca Ainun Nissa, "Menyelami Konsep Struktur Terapung," Kursussipil.id, 2025.

[21] Nissa.

[22] Selangor Maritime Gateway, "The Interceptor in Klang River," Selangor Maritime Gateway, 2024; Emilia Gontarek-Castro et al., "Utilization Routes of Plastic Waste from the Marine Environment: A Review," *Waste Management* 210 (January 2026): 115221, https://doi.org/10.1016/j.wasman.2025.115221.

Figure 1. Interceptor Interface



Source: the Ocean Cleanup[23]

Figure 2. The Ocean Cleanup Interceptor Interface



Source: the Ocean Cleanup[24]

More broadly, the global expansion of floating technologies underscores the increasing relevance of water-based constructions in addressing environmental degradation and resource constraints. The use of such structures in pollution control, urban development, and climate adaptation illustrates their multifunctional character.[25] However, these developments simultaneously expose the limitations of traditional property law frameworks, which are predominantly land-oriented. .[26] As such, comparative experiences indicate the need for more flexible legal approaches that can accommodate the unique characteristics of floating structures, particularly in defining ownership, usage rights, and regulatory jurisdiction over constructions situated above water surfaces.

[23] The Ocean Cleanup, "The Ocean Cleanup, Together With Partners, Celebrates the Official Deployment of Its Cleanup Technology in Thailand for the First Time," 2024, https://theoceancleanup.com/press/press-releases/the-ocean-cleanup-together-with-partners-celebrates-the-official-deployment-of-its-cleanup-technology-in-thailand-for-the-first-time/.
[24] The Ocean Cleanup, "Interceptor 019: Bangkok, Thailand," 2024, https://theoceancleanup.com/media-gallery/interceptor-019-bangkok-thailand/.
[25] Molly Michelson, "The Ocean Cleanup," Calacademy, 2016.
[26] The Ocean Cleanup, "Cleanup 90% of Floating Ocean Plastic by 2040," Department of Economic and Social Affairs Sustainable Development, 2022, https://sdgs.un.org/partnerships/cleanup-90-floating-ocean-plastic-2040.

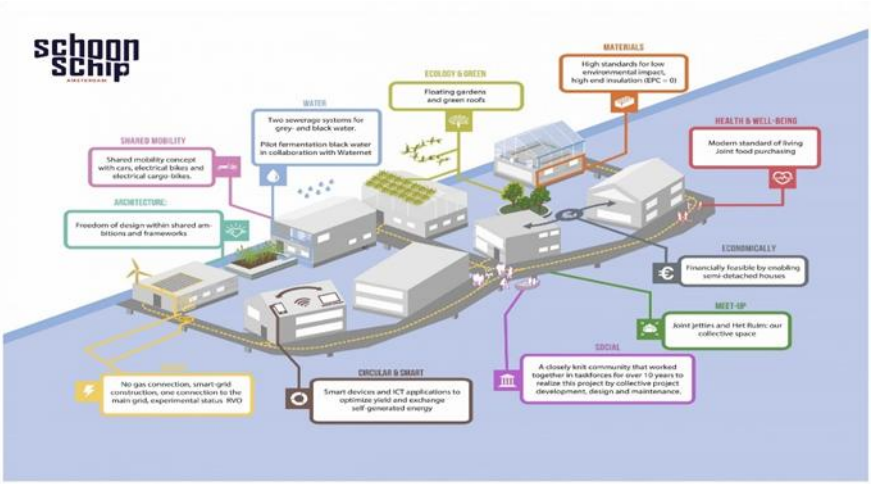
Figure 3. Schoon Schip Amsterdam



Source: Rinnovabili[27]

A further comparative illustration can be drawn from the Netherlands, a jurisdiction characterized by its geographical vulnerability to flooding and progressive approach to water-based spatial development. One of the most prominent examples is the Schoon Schip project in Amsterdam, a floating residential community that integrates sustainable energy systems and advanced water management infrastructure.[28] Situated in the Johan van Hasselt Canal within the Buiksloterham district, this development demonstrates how floating housing can be systematically incorporated into urban planning frameworks. The project consists of multiple floating dwellings accommodating dozens of households, reflecting not only architectural innovation but also a broader regulatory acceptance of water-based habitation.[29]

Figure 4. Metabolic Schoon Schip



Source: Cutieru [30]

[27] Rinnovabili, "Schoonschip: The Floating Sustainable District of Amsterdam Self-Sufficient in Everything," 2022, https://www.rinnovabili.net/environment/sustainable-district-schoonschip-amsterdam-self-sufficient-in-everything/.
[28] Schoonschip Amsterdam, "The Most Sustainable Floating Neigbourhood in Europe," Schoonschip Amsterdam, 2024; Jeroen Mens et al., "A Typology of Social Entrepreneurs in Bottom-up Urban Development," *Cities* 110 (March 2021): 103066, https://doi.org/10.1016/j.cities.2020.103066.
[29] Amsterdam, "The Most Sustainable Floating Neigbourhood in Europe."
[30] Andreea Cutieru, "Circular Economy in Urban Design: Sustainability and Community Involvement," Arch Daily, 2022, https://www.archdaily.com/977900/circular-economy-in-urban-design-sustainability-and-community-involvement?ad_medium=gallery.

Furthermore, the expansion of floating residential developments in areas such as IJburg illustrates how environmental constraints (particularly sea-level rise, land scarcity, and infrastructural limitations) have driven the institutionalization of floating architecture in the Netherlands. [31] These developments are supported by technological advancements, including the use of durable materials and adaptive construction systems designed to ensure structural resilience. The work of Olthuis[32] further highlights the evolution of floating structures from isolated projects into integrated urban concepts, encompassing residential, commercial, and hybrid amphibious designs capable of functioning across both land and water environments.

Figure 5. Floating Villa designed by Waterstudio.NL in Dordrecht, the Netherlands



Source: González [33]

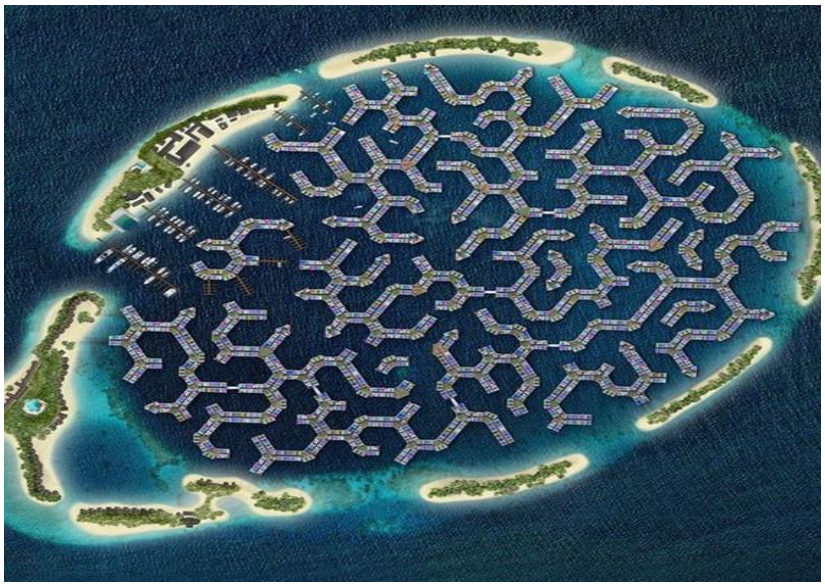
In addition to the Dutch experience, comparable patterns of water-based urban adaptation can be observed in other jurisdictions. For instance, Venice represents a longstanding model of human settlement integrated with aquatic environments, albeit through traditional construction methods anchored to submerged land. Contemporary architectural forums such as the Venice Architecture Biennale have further expanded this discourse by showcasing experimental floating structures as responses to climate change and rising sea levels. [34] From a legal perspective, these comparative developments indicate a shift toward recognizing water surfaces as viable spaces for habitation and infrastructure, thereby necessitating regulatory frameworks that extend beyond conventional land-based property regimes. The Dutch model, in particular, illustrates how legal and policy systems can adapt to environmental realities by accommodating floating constructions within spatial planning and property governance, offering a relevant reference point for jurisdictions such as Indonesia in addressing similar challenges.

A further comparative example can be observed in the Maldives, a small island developing state that faces acute vulnerability to sea-level rise due to its low-lying

[31] Jacob Shamsian and Chelsea Pineda, "The Netherlands Is Building Houses That Float on Water," Business Insider, 2024.
[32] Jacob Shamsian and Pineda.
[33] Miquel González, "These Houses Have the Ultimate Water View," The New York Times, 2018, https://www.nytimes.com/2018/05/24/arts/design/architecture-floating-houses.html.
[34] Sam Lubell, "These Houses Have the Ultimate Water View," The New York Times, 2018; Stefan Huebner, "Coastal Urban Climate Adaptation and the Advance onto Aquatic Surfaces Using Floating Solutions: Historical Challenges and Potential Future Benefits of Floating Homes and Similar Structures," *Ocean & Coastal Management* 261 (February 2025): 107433, https://doi.org/10.1016/j.ocecoaman.2024.107433.

topography.[35] In response to these environmental challenges, the Maldivian government has initiated the development of the Maldives Floating City, an innovative urban project designed to ensure long-term human habitation in marine environments[36] This project adopts a modular floating infrastructure, organized in a hexagonal grid pattern, reflecting a planned and adaptive approach to climate-induced spatial transformation.

Figure 6. Maldives Floating City



Source: Delbert[37]

From a regulatory perspective, the Maldivian approach demonstrates a proactive integration of environmental risk mitigation with spatial and housing policy. Floating urban development is not treated as an exceptional or temporary measure but as a strategic component of national resilience planning. This reflects an implicit recognition that conventional land-based property regimes may be insufficient in contexts where territorial land is physically diminishing. Accordingly, the development of floating settlements necessitates legal frameworks capable of accommodating habitation, infrastructure, and resource utilization within water-based environments.[38]

In comparative terms, the Maldives model underscores the growing need for legal systems to anticipate and respond to climate-driven changes in land availability. It illustrates how state policy can evolve to legitimize and regulate constructions above water surfaces as part of long-term spatial governance. For Indonesian jurisdictions, which share similar geographical and environmental characteristics, this example provides a relevant reference for rethinking property rights frameworks to ensure both legal certainty and adaptive capacity in the face of rising sea levels.

[35] Caroline Delbert, "The World's First True Floating Island City Could Reimagine Survival," Popular Mechanics, 2021, https://www.popularmechanics.com/science/environment/a36231724/maldives-floating-city/.
[36] Ahdha Moosa, Khoa Do, and Emil Jonescu, "Design Response to Rising Sea Levels in the Maldives: A Study into Aquatic Architecture," *Frontiers of Architectural Research* 9, no. 3 (September 2020): 623–40, https://doi.org/10.1016/j.foar.2020.04.002; Nissa, "Menyelami Konsep Struktur Terapung."
[37] Delbert, "The World's First True Floating Island City Could Reimagine Survival."
[38] Delbert.

Figure 7. Burj Al Arab Terrace



Source: Condé Nast Traveller[39]

A further comparative illustration is reflected in the development of large-scale floating infrastructure, such as the Burj Al Arab Terrace in Dubai. Completed in 2016 by Admares, this project consists of an artificial platform constructed off-site and subsequently installed at sea, forming an integrated extension of the Burj Al Arab complex. The structure, anchored to the seabed, demonstrates how floating or semi-floating constructions can be engineered as permanent installations and functionally incorporated into high-value real estate developments.[40] From a legal perspective, such projects highlight the increasing need to classify and regulate hybrid constructions that are neither purely maritime objects nor conventional land-based property.

In the North American context, the regulatory treatment of floating structures varies across jurisdictions, reflecting differing environmental and legal considerations. For instance, in Seattle, restrictions on floating homes have been imposed due to ecological concerns, particularly their impact on indigenous salmon habitats. Conversely, regions such as the San Francisco Bay Area, Vancouver, Key West, and Portland have experienced significant growth in floating residential developments, indicating a broader acceptance of water-based habitation within urban planning frameworks. This divergence illustrates how environmental protection considerations may directly shape the permissibility and regulation of floating constructions.[41] At a broader level, the global expansion of floating housing across Europe, North America, and parts of Asia and the Middle East underscores a structural shift in spatial development patterns. The Netherlands, in particular, represents a leading example, with a substantial population residing in floating communities, especially in areas such as IJburg. These developments are driven by a combination of land scarcity, environmental pressures, and technological advancement, reinforcing the need for adaptive legal frameworks capable of accommodating non-terrestrial forms of property.[42] Collectively, these comparative experiences demonstrate that the legal classification and regulation of constructions above

[39] Delbert.
[40] Lubell, "These Houses Have the Ultimate Water View."
[41] Davide Deriu, "Skywalking in the City: Glass Platforms and the Architecture of Vertigo," *Emotion, Space and Society* 28 (August 2018): 94–103, https://doi.org/10.1016/j.emospa.2017.05.005.
[42] Lubell, "These Houses Have the Ultimate Water View."

water surfaces are increasingly shaped by functional, environmental, and spatial considerations. This reinforces the argument that rigid, land-centric property regimes are insufficient to address contemporary developments, thereby necessitating more flexible and integrative legal approaches within national systems.

2. Granting Construction Rights on the Water Surface Using a Statutory and Case-based Approach within Indonesian Law

The concept of "land" *(tanah)* or "earth" *(bumi)* as stated in the Indonesian Constitution holds profound and complex meanings. This concept primarily refers to land rights, which constitute a fundamental aspect of natural resource governance and spatial management in Indonesia.[43] Land rights in Indonesia are comprehensively regulated by various legal frameworks, including Government Regulation No. 18 of 2021. According to Article 1, Clause 4, land rights are defined as legal entitlements arising from the legal relationship between the rights holder and the land, including the space above and/or below the land, granting the right to control, own, use, utilize, and maintain the land, as well as the space above and beneath it.

This definition underscores that land rights go beyond mere physical ownership; they encompass legal dimensions that govern the interactions between individuals or entities and the land they control. Furthermore, land rights extend to the subsurface and aerial space.[44] This implies that rights holders are not only entitled to use and benefit from the land's surface but also to manage and utilize resources located beneath it, such as minerals or groundwater. This legal framework plays a crucial role in ensuring the sustainable and responsible management of natural resources. The primary objective of land control, ownership, use, utilization, and maintenance is to ensure that land and its associated resources are effectively managed, providing benefits to society while maintaining ecological balance.[45] Consequently, land rights are not merely individual entitlements but also encompass social and environmental dimensions that must be taken into account. In practice, the regulation of land rights in Indonesia involves multiple aspects, including land registration, spatial planning, and dispute resolution.[46] This highlights the necessity for collaborative efforts among the government, society, and other stakeholders to establish a fair and sustainable land management system.

[43] Aristyowati Aristyowati, Evawani Ellisa, and Ahmad Gamal, "An Investigation of Socio-Spatial Equality in Blue-Green Space at the Setu Babakan Area, Jakarta," *City and Environment Interactions* 22 (April 2024): 100137, https://doi.org/10.1016/j.cacint.2023.100137.
[44] Yevheniya Volchko et al., "Subsurface Planning: Towards a Common Understanding of the Subsurface as a Multifunctional Resource," *Land Use Policy* 90 (January 2020): 104316, https://doi.org/10.1016/j.landusepol.2019.104316.
[45] Salvör Jónsdóttir and Guðrún Gísladóttir, "Land Use Planning, Sustainable Food Production and Rural Development: A Literature Analysis," *Geography and Sustainability* 4, no. 4 (December 2023): 391–403, https://doi.org/10.1016/j.geosus.2023.09.004.
[46] Try Widiyono and Md Zubair Kasem Khan, "Legal Certainty in Land Rights Acquisition in Indonesia's National Land Law," *LAW REFORM* 19, no. 1 (August 2023): 128–47, https://doi.org/10.14710/lr.v19i1.48393.

When compared to English law, the law of real property, commonly referred to as land law, pertains to land, rights in or over land, and the processes of establishing and transferring such rights.[47] The definition of land in English law can be found in Section 205(1)(ix) of the Law of Property Act 1925, which states that:[48]

> *"Land" includes land of any tenure, and mines and minerals, [49] whether or not held apart from the surface, buildings or parts of buildings (whether the division is horizontal, vertical or made in any other way) and other corporeal hereditaments; also a manor,[50] an advowson, and a rent and other incorporeal hereditaments, and an easement, right, privilege, or benefit in, over, or derived from land.*

In accordance with Harsono's delineation of the land tenure hierarchy,[51] individual land rights occupy the fourth tier, reflecting the regulatory framework governing land in Indonesia, as codified in the Agrarian Law of 1960. This hierarchical structure encompasses four distinct levels. Firstly, the national right of the Indonesian people, possessing both public and private dimensions (Article 1), signifies that land ownership in Indonesia is fundamentally vested in the collective populace, necessitating land governance and utilization that prioritize public welfare.[52] Article 1 underscores land as a resource mandated for the populace's prosperity. Secondly, the state's right of control, characterized by its public aspect (Article 2), empowers the state to regulate and administer land for public benefit.[53] Article 2 implies the state's authority to manage land for developmental and public welfare objectives, while upholding order and equity in land tenure. Thirdly, the communal rights of indigenous legal communities, exhibiting both public and private facets (Article 3), acknowledge the ancestral land rights of indigenous groups who have historically managed and inhabited their territories.[54] Article 3 emphasizes the integral role of communal rights in land governance, advocating for their respect and protection, given the pivotal contribution of indigenous communities to environmental and cultural preservation. Fourthly, individual land rights, which are predominantly private (Article 4), represent personal land tenure rights that can be exercised within legal boundaries and without infringing upon public interests. Article 4 articulates that these rights are subject to legal constraints and must align with broader societal objectives. Harsono's land tenure hierarchy illustrates that land ownership in Indonesia transcends individual interests, encompassing public welfare and indigenous communal rights. Each hierarchical level is interconnected, contributing to the sustainable and equitable management of land resources.

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[47] Martin Dixon, *Modern Land Law* (London and New York: Routledge Taylor & Francis Group, 2016).

[48] Oemar Moechthar and Ardian Firmansyah Arifin, "Penerapan Konsep Trust of Land Dalam Sistem Hukum Agraria: Suatu Perbandingan Hukum Antara Indonesia Dan Britania Raya," *Media Iuris* 5, no. 3 (October 2022): 351–80, https://doi.org/10.20473/mi.v5i3.34969.

[49] The meaning of "mines and minerals" includes every layer or layer of minerals or substances in or under the ground, and the authority to work and obtain them.

[50] Manor includes a lordship, and reputed manor or lordship; and "hereditament" means any real property which on an intestacy occurring before the commencement of this Act might have devolved upon an heir.

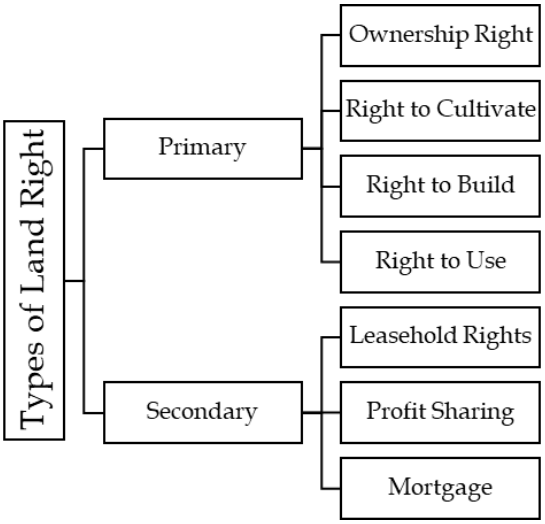
[51] Boedi Harsono, *Hukum Agraria Indonesia, Sejarah Pembentukan Undang-Undang Pokok Agraria, Isi Dan Pelaksanaannya* (Jakarta: Penerbit Universitas Trisakti, 2013).

[52] Urip Santoso, "Eksistensi Hak Pengelolaan Dalam Hukum Tanah Nasional," *Mimbar Hukum* 24, no. 2 (October 2012): 275, https://doi.org/10.22146/jmh.16130.

[53] Evi Djuniarti, "Hak Menguasai Tanah Oleh Negara Dalam Penggunaan Tanah Untuk Investasi," *Jurnal Penelitian Hukum De Jure* 23, no. 4 (December 2023): 483–94, https://doi.org/10.30641/dejure.2023.V23.483-494.

[54] Asnawi Mubarok et al., "The Relationship Of State Law And Customary Law:," *Jurnal Jurisprudence*, December 2023, 188–204, https://doi.org/10.23917/jurisprudence.v13i2.2914.

Figure 8. Types of Land Rights



Source: Harsono[55]

In the land ownership and tenure system under the Agrarian Law of 1960, land rights are categorized into two main types. The first category consists of primary rights, which include all rights granted directly by the state. The second category comprises secondary rights, which refer to rights acquired from other landowners through contractual agreements. Land held under primary rights includes the ownership rights *(hak milik),* the cultivation rights *(hak guna usaha),* the building rights *(hak guna bangunan),* and the usage rights *(hak pakai),* all of which are granted by the state. These rights provide landholders with full control over land use and management, subject to applicable regulations. Conversely, secondary rights do not originate directly from the state's inherent authority over land but rather derive from the rights granted by primary right holders. Examples of secondary rights include the lease rights *(hak sewa),* the profit-sharing rights *(hak bagi hasil),* and the mortgage rights *(hak gadai),* which enable third parties to utilize the land based on agreed-upon contractual terms.[56] Existing legal provisions enable individuals or legal entities to apply for land ownership, subsequently granting specific land rights.[57] This land ownership has significant implications, particularly in the context of land acquisition, in which these rights must be respected by other parties requiring the land.

The concept of construction on water surfaces represents an innovative approach in architecture and engineering, aimed at optimizing the use of limited land resources. With increasing population and the demand for residential and infrastructure space, water-based construction is gaining popularity. Projects such as floating houses, bridges, and public facilities built on water not only provide alternative living spaces but also create new areas for various social and economic activities. The implementation of water surface construction necessitates meticulous planning and advanced technology. Building structures must be

[55] Harsono, *Hukum Agraria Indonesia, Sejarah Pembentukan Undang-Undang Pokok Agraria, Isi Dan Pelaksanaannya*.
[56] Harsono.
[57] Ida Aju Pradnja Resosudarmo et al., "Indonesia's Land Reform: Implications for Local Livelihoods and Climate Change," *Forest Policy and Economics* 108 (November 2019): 101903, https://doi.org/10.1016/j.forpol.2019.04.007.

designed to withstand loads and environmental challenges such as waves, currents, and weather changes.[58] Materials used must be corrosion-resistant and withstand wet conditions to ensure long-term durability and building safety.[59] Environmental aspects are also crucial considerations, including the impact on aquatic ecosystems and efforts to balance development with nature conservation. The success of this concept depends not only on technical aspects but also on public acceptance and government policies. Public education and socialization about the benefits and potential of water-based construction are essential to garner necessary support. Through collaboration among architects, engineers, and other stakeholders, it is expected that water surface construction projects can develop effectively, providing sustainable solutions to increasingly complex urbanization challenges.

In the context of Dubai, a legal dilemma arises concerning the classification of floating villas as either real estate property or ships. A significant legal precedent in Dubai established that floating villas are classified as real estate properties, not vessels, as defined by the United Arab Emirates (UAE) Maritime Code. This determination stemmed from a developer's failure to complete and deliver a project, attributed to its innovative nature and delays in securing the requisite No Objection Certificate (NOC)[60] from relevant authorities, which were not deemed Force Majeure events. On December 30, 2015, the Plaintiff executed Sale Purchase Agreements with a prominent Dubai developer (Defendant) for two floating villas within the Iconic Worlds Project, agreeing to a total payment of United Arab Emirates Dirham (AED) 12 million, of which 80% was remitted. The project, initially scheduled for completion by March 1, 2017, remained unfinished by late 2019, with ownership of the villas not transferred. Consequently, the Plaintiff initiated legal proceedings in the Dubai Court, seeking termination of the Sale Purchase Agreements and restitution of the down payment with accrued interest. In defense, the Defendant contended that the floating villas were legally categorized as vessels, thus precluding the Dubai Real Estate Court's jurisdiction. Furthermore, the Defendant argued that the project's non-registration with the Dubai Land Department, predicated on its vessel classification, further substantiated their jurisdictional claim. Conversely, the Plaintiff asserted that the villas did not satisfy the criteria for vessels under UAE Maritime Laws, lacking self-propulsion capabilities, and therefore should be classified as real estate under applicable UAE Real Estate law. In adjudicating this dispute, the Court of Instance ruled in favor of the Plaintiff, ordering the termination of the Sale Purchase Agreements and directing the Defendant to refund AED 7,400,000, plus 5% interest from the case's filing date, along with all court costs. Dissatisfied with this ruling, the Defendant appealed to the Court of Appeal, which affirmed the initial judgment. Subsequently, the Defendant challenged the Court of Appeal's decision before the Dubai Court of Cassation. The Court of Cassation upheld the First Court of Instance's ruling, rendering it final and enforceable against the Defendant.

[58] Tianzhen Hong et al., "Ten Questions Concerning Thermal Resilience of Buildings and Occupants for Climate Adaptation," *Building and Environment* 244 (October 2023): 110806, https://doi.org/10.1016/j.buildenv.2023.110806.

[59] Ali Akbar Firoozi et al., "Emerging Trends in Sustainable Building Materials: Technological Innovations, Enhanced Performance, and Future Directions," *Results in Engineering* 24 (December 2024): 103521, https://doi.org/10.1016/j.rineng.2024.103521.

[60] Referring to the Dubai Development Authority, that NOC is a permit issued by the Government of Dubai, which contains various permits, including: excavation permit; mobilisation permit; piling permit; sub-structure permit; final building permit; fit-out permit; renewal of Fit-Out permit; temporary construction permit; maintenance permit; demolition permit; permit to work within R.O.W.; dewatering permit. Accessed via the page https://dda.gov.ae/en/planning-development/construction/permits-nocs

Parallel to the legal discourse in Dubai, a comparable judicial scenario has unfolded in Washington. As documented by Savage[61] in the Los Angeles Times, the United States Supreme Court has determined that a stationary, non-self-propelled floating residence constitutes a domicile, not a vessel. This ruling aligns with state legislation in California, Washington, and other jurisdictions, which stipulate that floating homes, affixed to the shoreline and devoid of navigational capabilities, are subject to local real estate regulations rather than federal admiralty laws governing ships and boats.[62] Subsequently, Breyer of the Supreme Court provided a restrictive interpretation of the term 'ship,' delineating it not as 'anything that floats' but as an entity 'actually used for transportation.' This judicial interpretation arose from the case of Lozman, who moored a two-story floating residence in a Riviera Beach, Florida marina. City officials initiated eviction proceedings and subsequently filed a lawsuit under federal admiralty law, citing unpaid docking fees. Ultimately, the city seized and demolished the structure, classifying it as an abandoned vessel. A federal judge and the U.S. Court of Appeals in Atlanta affirmed this classification, asserting that the floating residence qualified as a vessel due to its inherent capacity for aquatic movement and its documented history of towing, including a voyage of 200 miles. Lozman appealed this ruling, contending that his residence should have been afforded protection under standard real estate regulations and was improperly classified as a vessel subject to seizure.

In the judicial precedent established by *Lozman v. City of Riviera Beach*, the Supreme Court adjudicated that a 'reasonable observer' would classify the plywood box structure as a domicile rather than a vessel. This determination was predicated on the structure's lack of practical design for maritime transportation of persons or cargo. Notably, it lacked essential navigational components, including a rudder, steering mechanism, and propulsion system. Consequently, the Supreme Court remanded the case to the Florida judicial system, thereby enabling Lozman to pursue the restitution of the $25,000 deposit forfeited prior to the structure's seizure and demolition.

The court's ruling on reasonable observers has implications for hundreds of residents across the state who live in homes that are designed to remain stationary and are attached to the land through electrical and other utility connections. Breyer also noted that a ship, once moored, can lose the legal status that defines it. For example, an owner might take a structure that is actually a ship and permanently attach it to the land to use, say, as a hotel. However, Sotomayor and Kennedy dissented on the reasonable observer standard, which could cause confusion in the lower courts. The constitutional foundation of land governance in Indonesia is rooted in The 1945 Constitution of the Republic of Indonesia, particularly Article 33 (3), which mandates that the land, water and space natural resources are controlled by the state and utilized for the greatest prosperity of the people.[63] This provision establishes the doctrine

[61] David G. Savage, "Supreme Court Upholds State Laws on Floating Homes," Los Angeles Times, 2013.
[62] Under California, Washington and other state law, floating homes that are attached to the shore and do not travel are governed by local laws applying to homes, not by federal admiralty law regulating ships and boats.
[63] Abd Syakur et al., "Tata Kelola Wakaf Dalam Meningkatkan Kesejahteraan Masyarakat Di Kabupaten Jember," *AL-IHKAM: Jurnal Hukum & Pranata Sosial* 13, no. 1 (July 2018): 73–96, https://doi.org/10.19105/al-lhkam.v13i1.1187; Regine Wiranata Agus Sekarmadji, Sri Hajati, Oemar Moechthar, Noraida Harun, "Data Synchronization Model to Improve the Supervision of Land Ownership for Citizens Towards the Indonesian Agrarian Reform Agenda," *Psychology and Education Journal* 58, no. 2 (February 2021): 1673–80, https://doi.org/10.17762/pae.v58i2.2323.

of state control *(hak menguasai negara),* which is further elaborated in the Agrarian Law of 1960. Under this framework, the state exercises regulatory authority as a public legal entity representing collective national interests, rather than as a private rights holder.[64] However, the application of this doctrine becomes legally complex in the context of constructions situated above water surfaces. The issue raises questions regarding institutional competence, particularly whether such authority lies exclusively with the Ministry of Agrarian or intersects with other sectoral authorities. In practice, regulatory competence is fragmented across multiple ministries, reflecting the multidimensional nature of water-based constructions.

The Ministry of Environment and Forestry is responsible for environmental governance, including pollution control and the management of hazardous waste, which are directly relevant to aquatic constructions. Concurrently, the Ministry of Marine and Fisheries exercises authority over marine spatial management, including the supervision of marine resource utilization and spatial conformity within coastal and marine areas. In addition, the Ministry of Public Works and Public Housing oversees the technical and administrative aspects of building construction, including housing policy and construction standards. Meanwhile, the Ministry of Agrarian retains primary authority over land rights administration, spatial planning, and land registration, including the determination and allocation of land rights. This overlapping distribution of authority demonstrates that the regulation of construction rights above water surfaces cannot be addressed through a single institutional framework. Instead, it requires an integrated and coordinated regulatory approach that reconciles land law, marine spatial governance, environmental protection, and construction regulation. Such coordination is essential to avoid jurisdictional conflicts and to ensure legal certainty in the recognition and administration of rights over water-based constructions.

Referring to the explanation above regarding the granting of land rights, it should remain with the Ministry of Agrarian. However, the big question is, if the building is located above the water surface, it will be ambiguous, whether it is the authority of which ministry. This is considering that, for the aspect of land rights, it is indeed the authority of the Ministry of Agrarian. However, if we look at it from another aspect, it cannot be separated from three other ministries, including: first, the Ministry of Environment which has the authority related to controlling pollution and environmental damage; second, the Ministry of Maritime and Fisheries which has the authority related to the management of marine space; and third, the Ministry of Public Works and Public Housing also has a role, considering that it has the authority in terms of building people's houses.

The Ministry of Marine and Fisheries has a policy related to the obligation of legal subjects to register the Compliance of Marine Space Utilization Activities (*Kesesuaian Kegiatan Pemanfaatan Ruang Laut* - KKPRL) with the Minister of Marine Affairs and Fisheries for non-business activities. This is in accordance with the provisions of the Regulation of the Minister of Marine Affairs and Fisheries Number 28 of 2021 on the Implementation of Marine Spatial Planning, every person who carries out marine space utilization activities in coastal

[64] Fatimah Al-Zahra, "Melacak Landasan Hukum Pengelolaan Aset Tanah Negara Melalui Konsep Bank Tanah," *AL-IHKAM: Jurnal Hukum & Pranata Sosial* 12, no. 2 (January 2018): 405–28, https://doi.org/10.19105/al-lhkam.v12i2.1306.

waters, water areas and/or jurisdictional areas permanently in part of the Marine Space for at least 30 days must have a KKPRL. This provision is a technical provision of Government Regulation Number 21 of 2021 concerning the Implementation of Spatial Planning. KKPRL is a basic requirement for business licensing and/or issuance of non-business permits. The submission is made through the e-SEA service. The e-SEA service is a Ministry Electronic System managed and organized by the Ministry of Marine and Fisheries for the implementation of KKPRL and Submission of Annual Reports of KKPRL Holders. The submission is made through an electronic application via the *Sistem Elektronik Perizinan* KKPRL page.[65] KKPRL registration is carried out by the Applicant by submitting an application for approval for business activities through electronically integrated Business Licensing or online single submission OSS; and/or for approval for non-business activities or confirmation through an electronic system organized by the Ministry in this case e-SEA.

In the Government Regulation and Ministerial Regulation, it is explained that the sea is a water space on the surface of the earth that connects land to land and other natural forms, which is a geographical and ecological unity along with all related elements, and whose boundaries and systems are determined by international laws and regulations. Then coastal waters are seas that border land covering waters as far as 12 nautical miles measured from the coastline, waters connecting the coast and islands, estuaries, bays, shallow waters, brackish swamps, and lagoons. Utilization of space is an effort to realize the spatial structure and spatial pattern in accordance with the Spatial Plan through the preparation and implementation of programs and their financing, while KKPRL is the conformity between the marine space utilization activity plan and the Spatial Plan. The existing utilization of Marine Space includes fisheries capture, aquaculture, salt production, tourism, oil and gas mining, mineral and coal mining, shipping lanes, undersea pipes and/or cables, marine biota migration routes, Marine Conservation Areas, national defense areas at sea, ports, moorings, Buildings and Installations at Sea, areas managed by Customary Law Communities, and locations of sunken ship cargo. Regulation of the Minister of Marine Affairs and Fisheries Number 28 of 2021 concerning the Implementation of Marine Spatial Planning, it is stated that every person who carries out Marine Spatial Utilization activities in Coastal Waters, water areas, and/or jurisdictional areas permanently in part of the Marine Space is required to have a KKPRL. Part of the Marine Space includes the sea surface, water column, and/or seabed. Permanent Marine Spatial Utilization activities are Marine Spatial Utilization activities that are carried out continuously for at least 30 days. Thus, the KKPRL is issued with a certain area and coordinate points.

For the Ministry of Public Works and Public Housing, it should be noted that as stated in the provisions of Article 8 paragraph (1) of the Building Law of 2002, it is stated that every building must meet administrative requirements which include: first, land rights status, and/or utilization permit from the land rights holder; second, building ownership status; and third, building construction permit in accordance with applicable laws and regulations. Regarding building ownership requirements, the Ministry of Public Works and Public

[65] Kementerian Kelautan dan Perikanan, "Sistem Elektronik Perizinan KKPRL," 2026, https://e-sea.kkp.go.id/.

Housing has a policy related to building approval or better known as PBG *(Persetujuan Bangunan Gedung)*. This licensing service can be accessed via the *Sistem Informasi Manajemen Bangunan Gedung* page.[66] Building Approval is a permit issued by the government to the owner of a building or his representative to start construction, renovate, maintain, or change the building according to plan. This PBG can be issued if the submitted technical plan meets the technical standards according to laws and regulations. Therefore, to find out whether the technical plan meets technical standards or not, a consultation process is needed involving experts who have the ability and expertise related to building construction. The experts in question can come from professions, or from universities. This PBG has the following functions: first, to ensure that the construction of the building has legal status; second, to ensure that the implementation of the building meets standards that guarantee safety, comfort, health, and convenience for its users; and third, to record the existence of the building plan. This PBG is valid once in the lifetime of the building in question.

In addition to PBG, a Certificate of Functional Worthiness (SLF/*Sertifikat Laik Fungsi*) is also required, a certificate issued by the government to the owner of a building or his representative as a statement that the building in question is functionally worthy and can be used properly according to plan. SLF can be issued if the condition of the proposed building meets the technical standards according to the provisions of laws and regulations, to find out whether the building meets the technical standards or not, an inspection process is required involving experts who have the ability and expertise related to building construction. The experts come from a profession that has the ability and expertise to carry out physical inspections, or from the Government who have similar abilities. SLF has the following functions: first, to ensure that the building is safe to use; second, to ensure that the building meets standards that guarantee safety, comfort, health, and convenience for its users; and third, to record the physical existence of the building. SLF is valid periodically, with the age of this SLF being: 20 years for residential buildings; and 5 years for other buildings. If it has expired, the SLF must be extended before the building can be used again.

Therefore, regarding the issue of granting rights to construction above the water surface, the four ministries should coordinate before being able to issue a right to a construction building above the water surface. This is considering the concept of land mentioned in Government Regulation No. 18 of 2021, in its development also includes land covered by the water surface. As stated in the provisions of Article 1 number 4 of the regulation which states that land rights are rights obtained from a legal relationship between the rights holder and the land, including space above the land and/or space below the land to control, own, use and utilize, and maintain land, space above the land and/or space below the land. The concept of land in the provisions of Article 1 number 1 of the regulation states that land is the surface of the earth, either in the form of land or covered by water, including space above and within the body of the earth, within certain limits, the use and utilization of which are directly or indirectly related to the use and utilization of the earth's surface. With the concept mentioned

[66] Kementerian Pekerjaan Umum Republik Indonesia, "Sistem Informasi Manajemen Bangunan Gedung," 2026, https://simbg.pu.go.id/.

in the regulation above, the land in question also includes the surface of the earth covered by water.

Conclusion

This study has examined the legal uncertainty surrounding property rights over constructions above water surfaces within the Indonesian legal system. It finds that existing regulations, particularly the Agrarian Law of 1960 and Government Regulation No. 18 of 2021 on Management Rights, Land Rights, and Land Registration, conceptually extend the definition of land to include areas covered by water, yet do not explicitly regulate buildings constructed above such surfaces. The current practice of granting *the building rights (hak guna bangunan),* over water-based constructions demonstrates a pragmatic but legally problematic approach, as it stretches the doctrinal foundation of land-based rights. Comparative analysis reveals that several jurisdictions adopt more flexible frameworks, particularly through the separation of land rights and building rights, as exemplified in Japan. Judicial practices in other countries also emphasize functional interpretations, distinguishing floating structures as immovable property rather than maritime objects. In Indonesia, the absence of clear statutory provisions and judicial precedents contributes to legal ambiguity and inconsistent administrative practices. Furthermore, the governance of water-based constructions involves multiple institutions with overlapping authority, including the Ministry of Agrarian, the Ministry of Marine Aand Fisheries, the Ministry of Public Works and Housing, and the Ministry of Environment and Forestry. This institutional fragmentation further complicates the establishment of legal certainty. Overall, the study underscores the need for a coherent legal framework that recognizes the unique characteristics of constructions above water surfaces.

To address these challenges, this study recommends the development of a distinct regulatory framework that clearly separates building rights from conventional land rights, potentially by adapting the horizontal separation principle into Indonesian law. Strengthened inter-ministerial coordination is essential, particularly in aligning land administration, marine spatial planning, building regulation, and environmental protection. The use of alternative legal instruments, such as building ownership certification independent of land rights, should also be considered to provide clearer legal status for water-based constructions. At the same time, this study has several limitations. It primarily relies on secondary data and normative-comparative analysis, without incorporating empirical fieldwork or stakeholder perspectives. In addition, the comparative scope is limited to selected jurisdictions and does not cover all possible legal models. Future research is therefore encouraged to include empirical studies, broader comparative analysis, and interdisciplinary approaches to support the development of a more comprehensive and implementable legal framework.

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