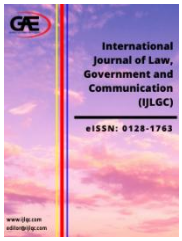
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A REVIEW ON THE DISPOSAL OF UNDERGROUND LAND IN MALAYSIA

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Abstract:

Underground land development is an alternative for maximising land use for sustainable urban growth in most countries, Malaysia included. In Malaysia, the National Land Code Act 1965 (NLC Act 828) was amended to incorporate provisions governing the disposal of underground land under Part Five (A) of the Code, with further support provided through the Circular of the Director General of Lands and Mines No. 2/2021. However, while statutory provisions recognise underground land disposal, legal challenges remain, and the growing demand for underground development may be hindered if these developing concerns remain unresolved. Accordingly, this article seeks to analyse the legal framework regulating the disposal of underground land as well as address the legal challenges associated with its implementation. Through thematic analysis of Malaysian land law, circulars and literature from previous studies, three interconnected aspects were identified, namely depth, surface-subsurface rights, and tenure security. The findings indicate that although Malaysian land law provides a statutory mechanism for underground land disposal, legal and administrative challenges remain in its implementation. Hence, the existing framework could be further strengthened to provide greater legal certainty and facilitate the effective underground land disposal.

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Introduction

The accelerated growth of urbanisation alongside technological progress has transformed land use, shifting from horizontal to vertical development as an alternative to maximise land use (Jalil & Arshad, 2020). Several countries have developed underground land space, such as Canada, which developed an extensive interconnected underground pedestrian network known as Montréal Underground City (El-Geneidy et al., 2011); China developed underground metro systems, transportation hubs and mixed-use complexes (Yu et al., 2023); Australia developed Melbourne's Metro Tunnel (Lagger et al., 2023), and Helsinki developed underground space for public utilities, transportation, parking space, storage and multipurpose facilities supported by the Underground master Plan (Vähäaho, 2014). Singapore introduced the Underground Master Plan and amended its State Lands Act to regulate underground land development (Ministry of Law, Singapore, 2015). Likewise, Japan introduced the Act on *Special Measures Concerning Public Uses of Deep Underground* to facilitate public infrastructure development in deep underground space (Stones & Heng, 2016).

In Malaysia, underground land development has been evident for nearly two decades, beginning with the construction of shop lots beneath Merdeka Square and later expanding through major infrastructure developments, including the Stormwater Management and Road Tunnel (SMART) as well as the Light Rail Transit (LRT) (Ghazali et al., 2000). In response, Malaysian land law was amended to recognise the disposal of underground land under Part Five (A) of the National Land Code 1965 (Act 828) which empowers the State Authority to dispose of underground land through alienation, lease or right to independent use and to facilitate the implementation of these amendments, the Circular of the Director General of Lands and Mines No.2/2021 was promulgated to provide administrative guidance. Although the existing statutory framework provides a legal basis for underground land disposal in Malaysia, several legal challenges remain, which have resulted in limited implementation. A study by Mohamed et al. (2025) indicates that fewer stratum titles to underground land have been granted, and further improvements to the legal framework are necessary to accommodate the increasingly complex nature of underground development (Zaini et al., 2017).

First, the concern of depth regulation arises as the prescribed minimum depth applies primarily to fresh alienation and does not extend to land that had already been alienated prior to the amendment. Though the depth offers a method of spatial demarcation of fresh alienation, it does not fully address the legal complexities brought about by the vertical division of proprietary interests. Second, the division between surface and subsurface rights creates an

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interdependent relationship, particularly regarding access, structural support, and potential liability, thereby increasing the risk of legal disputes. Even though the surface and underground land may be separately owned, the exercise of rights by one owner may affect the rights and interests of the other. This creates uncertainty concerning the extent of rights and responsibilities of both landowners if these matters are not clearly defined by legislation or registered in the title. Furthermore, although underground land may be formally registered, issues persist regarding the overall robustness of tenure security, especially in matters involving boundary precision and overlapping interests. Therefore, this study aims to review the legislation and circulars governing underground land disposal and to identify the key legal challenges associated with depth regulation, surface-subsurface rights separation and tenure security in Malaysia.

Legislation And Policy Of Underground Land Disposal

What Is "Disposal"?

Pursuant to section 5 of the NLC Act 828, disposal refers to any disposition of land carried out by the State Authority through the exercise of any powers granted under section 42, or through any equivalent powers provided under previous land legislation. Section 42 further provides that State land may be disposed of through various methods, including alienation, leasing as reserved land, occupation of State land under a temporary occupation license, as well as the utilization of airspace on or above State land or reserved land.[1]

Underground Land Disposal

Malaysian land law was amended to recognise the disposal of underground land through Part Five (A) of the NLC Act 828. This provision grants the State Authority the power to dispose of underground land in accordance with sections 92B to 92G of the code, as outlined in Table 1 below. Underground land can be described using various terminologies, notably subsurface, underground space and subterranean space, often used interchangeably depending on the disciplinary context. Under Section 92A of the NLC Act 828, underground land is defined as land situated beneath the surface of the earth. Essentially, the disposal of underground land takes place in the form of a stratum, referring to a cubic layer of land located beneath the ground.

Table 1: Types of Underground Land Disposal

Alienation	Leasing	Independent Use
Stratum of underground land below any state land; section 92C(1) of NLC Act 828	Stratum of underground land below any reserved land; section 92F(1)(a) of NLC Act 828	Stratum of underground land below alienated land; section 92D(1)(a) of the NLC Act 828

[1] National Land Code: A Commentary Volume 1 2019 Desk Edition (Sihombing, 2019)

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Stratum of underground land below any specified depth; 92B(4) of the NLC Act 828	Stratum of underground land which is below any underground land under which a lease has been granted under section 92F(1)(a) or under section 92E; 92F(1)(b) of the NLC Act 828	Stratum of underground land below leased reserved land; section 92G of the NLC Act 828

Source: National Land Code (Act 828)

National Land Code (Underground Land) (Minimum Depth) Regulation 2017 is clearly specified in the Code (*previously known as National Land Code (Minimum Depth) Regulations 2006 PU(A) 414/2006*). The regulation highlights the minimum depth of underground land based on the respective land categories, which are agriculture, building and industry (refer to Table 2). The regulations highlight that the prescribed minimum depth applies exclusively to newly alienated land. As a result, any alienated land for which no depth has been determined may only be disposed of to the proprietor of the surface land (Zaini et al., 2014).

Besides that, the minimum depth is also not applicable in the case of surrender under section 197 and alienation under section 76 or surrender and re-alienation pursuant to section 204D of the NLC Act 828. Nevertheless, Circular No. 2/2021, released by the Director General of Lands and Mines, emphasizes that the state authority may specify a minimum depth lower than that prescribed by the regulations in the case of surrender under section 197 of the NLC Act 828 and alienation under section 76 of the NLC Act 828 or surrender as well as subsequent re-alienation under section 204D of the NLC Act 828. The stipulated minimum depth functions principally as a general benchmark, which may be modified according to the intended use of the underground land, the requirements of the proposed development, or any other pertinent considerations.

Table 2: Minimum Depth of Underground Land

Type of Land Use	**Minimum Depth (metres)**
Agricultural	6
Building	10
Industry	15

Source: National Land Code (Minimum Depth) Regulations 2017

Alienation of Underground Land

Generally, underground land development can take place either below state land or alienated land. If the development is below the state land, it can be easily alienated under section 92C(1) of the NLC Act 828 (refer to Figure 1). Meanwhile, in the case of alienated land, two situations need to be considered before alienation. First, the underground land beneath alienated land may only be disposed of pursuant to section 92B (4) of the NLC Act 828 if the depth is specified as shown in Figure 2.

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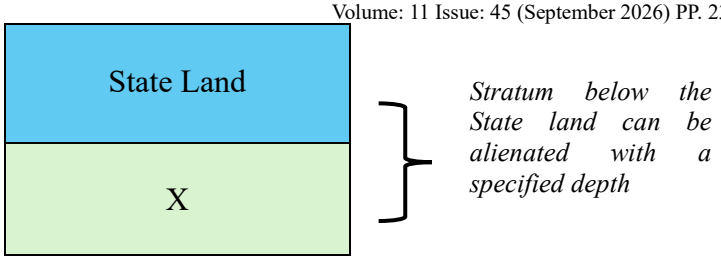


Figure 1: Alienation of Underground Land Below State Land Under Section 92C(1)
Source: Illustrated From The National Land Code Act 828

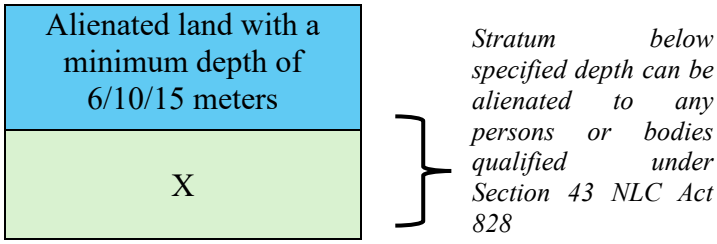


Figure 2: Alienation Below Alienated Land with Minimum Depth
Source: Illustrated From The National Land Code Act 828

In the case of alienated land where no depth has been specified (as shown in Figure 3) any stratum beneath the surface land may only be disposed of to the registered surface proprietor under section 92C(1),92D(1)(b) or for independent use under section 92D(1)(a) of the NLC Act 828. Pursuant to section 44(1)(a) of the NLC Act 828, the surface proprietor is entitled to the sole entitlement to lawfully utilise and enjoy both the airspace above and the land below the alienated land in a lawful manner. Nevertheless, section 92D(1) allows the proprietor to submit an application to utilise underground land situated beneath the alienated land for a separate purpose that does not arise incidentally from the lawful utilisation of the surface land. By doing so, the proprietor is deemed to have relinquished the rights conferred under section 44(1)(a), thereby acknowledging that the original alienation does not extend beyond a specific stratum of the surface.[2] However, the use of underground land cannot be undertaken without the consent of any registered interest, if any.

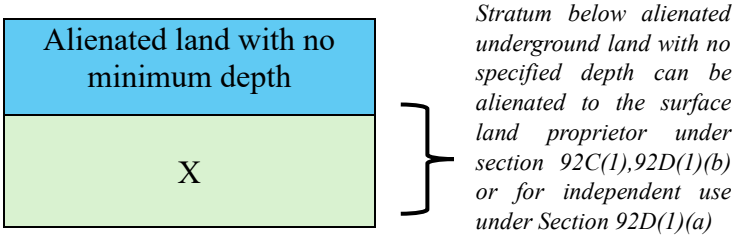


Figure 3: Alienation Below Alienated Land with No Minimum Depth
Source: Illustrated from the National Land Code Act 828

Lease of Underground Land

State Authority may dispose of a stratum of underground land by leasing it to any individuals or bodies. Leasing can only be done for any stratum of underground land situated beneath

[2] National Land Code: A Commentary Volume 1 2019 Desk Edition (Sihombing, 2019)

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reserved land pursuant to section 92F(1)(a) of the NLC Act 828, or any stratum of underground land beneath reserved land that has been leased under section 63 as provided under section 92F(1)(b) of NLC Act 828. Similar to alienation, if the depth is specified in the lease, other individuals or bodies other than the lessee of the reserved land may submit an application for the lease under section 92F(1)(refer to Figure 4).

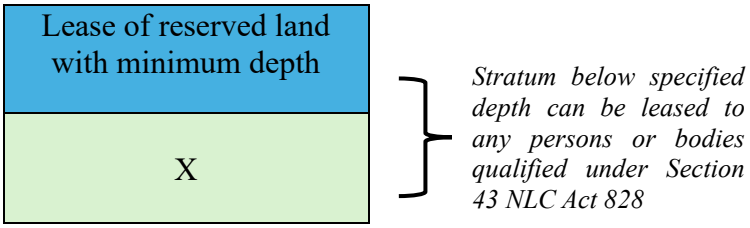


Figure 4: Lease of Reserved Land with Minimum Depth

Source: Illustrated from the National Land Code Act 828

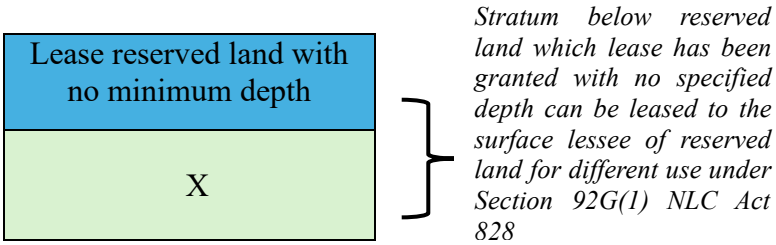


Figure 5: Lease of Reserved Land with No Minimum Depth

Source: Illustrated from the National Land Code Act 828

However, in circumstances where no depth has been specified, section 92G(1) provides that a lessee of reserved land held under lease may submit an application to the State Authority to utilise underground land extending beyond the vertical extent allowed under section 44(1)(a), provided that such use is independent of and not constitute an ancillary use of the surface land in accordance with the law. At present, the regulations do not prescribe any specific depth for reserved land or the lease of reserved land. Nevertheless, the State Authority has the power to enforce it under section 92E of the NLC Act 828(refer to Figure 5).

Challenges In the Disposal of Underground Land

Depth Regulation

In underground land development, depth is a critical factor in establishing a legally defined boundary between surface as well as underground land development. It helps determine the extent of ownership of the surface as well as underground landowners (Zaini et al., 2021). The extent of land use as dictated by laws and regulations defines the land use depth that determines the boundary of underground land ownership by the land rights holders, as pointed out by Perwitasari et al. (2023). This principle is reflected in the minimum depth regulation in the Malaysian context to support the disposal of underground land. The minimum depth regulation is mostly used in fresh alienation, where the vertical depth of ownership can easily be specified. Under such circumstances, the disposal of underground land or stratum can be carried out more effectively. However, for land alienated before the 2007 amendments, solely the surface

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proprietor is entitled to seek the underground land space. This constitutes a limitation on the State Authority's power to dispose of underground land concerning land with no depth specified to the third party. Even though the circular No.2/2021 highlighted that minimum depth lower than that prescribed regulation can be implemented in the case of surrender under section 197 of the NLC Act 828 and alienation under section 76 of the NLC Act 828 or surrender and re-alienation under section 204D of the NLC Act 828, the State Authority lacks of power to require a proprietor to surrender and re-alienate the land solely for the purpose of specifying the depth, as this process should be proprietor-initiated and voluntary in nature. Consequently, if the proprietor refuses to do so, they may be required to obtain the land pursuant to the Land Acquisition Act 1960 (Act 486) before proceeding with the disposal of the underground land.

Unlike some regulations, Malaysia has no maximum depth limit. For instance, Singapore implements a single cut-off point at the underground space 30 meters below the Singapore Heights Datum, which represents the maximum depth that can be claimed by the surface landowner even if the title is silent (Chew, 2017). However, restricting the rights of surface landowners to utilise their underground land may give rise to legal challenges under Section 44(1)(a) of the NLC Act 828, which acknowledges the proprietor's entitlement to the exclusive enjoyment and possession of the land, including above and underground space. Plus, it is only feasible for fresh alienation. Hence, governance of underground land in Malaysia becomes more complex, especially when development involves two different parties, as in the case of the Mass Rapid Transit (MRT) project (Zaini et al., 2014). This is because the surface landowner would have an exclusive right to their ownership of property and may prevent unreasonable interference with their enjoyment of it. On the other hand, a standardised minimum depth regulation is not specified for the lease of the underground land situated beneath reserved land. Without such a prescribed requirement, the State Authority may encounter difficulties in granting leases over underground land beneath reserved land unless provisions are established under the respective State Land Rules. As a result, there may be a lack of uniformity in depth regulations governing such leases across the states.

Collectively, the depth regulation plays an important role in defining the legal boundary between surface and subsurface ownership in underground land disposal. In spite of the fact that the minimum depth requirement offers a mechanism for facilitating underground land disposal, its implementation remains limited, especially on alienated land before 2007 and on reserved land. The disposal of underground land must be in volumetric parcels with both horizontal and vertical boundaries that are clearly defined to distinguish the extent of each ownership interest (Tan et al., 2009; Karabin et al., 2018). Since the regulation of depth in Malaysia remains flexible and depends on circumstances such as depth conditions, it may be difficult to define surface and subsurface ownership, which in turn complicates the effectiveness of underground land disposal.

Surface-Subsurface Rights

In the disposal of underground land, many parties may be involved, yet the relationship between rights and limitations of surface and underground land ownership remains ambiguous. This absence of an explicit definition of rights, restrictions and responsibilities between surface and subsurface property owners generates legal ambiguity and possible land conflict between surface land owners and underground developers, in particular, unless the depth is clearly specified (Zaini et al., 2015; Abdul Jalil & Mohd Arshad, 2020; Adi et al., 2022). Section

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44(1)(a) of the NLC Act 828 states that any persons or bodies to whom land has been disposed of are entitled to the exclusive use and enjoyment of the land, encompassing both the airspace above and the area beneath the surface, subject to the extent reasonably required for its lawful use (Maidin & Syed Abdul Kadir, 2022). This provision reflects the principle of land ownership. However, conflict may arise when the code allows the State Authority to dispose of underground land independently of the surface land, particularly where the rights, restrictions and responsibilities associated with surface and underground land ownership are not clearly defined in the land title. This is because when underground land is disposed of to the third party, the absence of a clear definition of rights and restrictions concerning the scope of underground space usage may interfere with the enjoyment of the surface land, especially in terms of the safety and psychological well-being of surface landowners.

As an example, in the case of *Villa Putra Management Corp v Mayland View Sdn Bhd*[3], the defendant, a developer responsible for the construction of the Regalia condominium on neighbouring land, unlawfully intruded upon the plaintiff's land by tarring an existing road on the plaintiff's land, constructing drainage systems and installing underground structures such as telecommunication manholes, electrical cables and so on without consent. The plaintiff sued for trespass to land, damages and removal of the structures. The court decided that the trespass was established and the defendant should compensate the plaintiff with damages, according to the market rent and should clear the drainage and underground structures. This case points out that any installations, including underground pipes or cables installed without permission, may constitute trespass. The legal interest of the surface land owner is to be safeguarded through seeking their consent prior to construction (Aditya Karina et al., 2021). This case illustrates the potential interference with land rights that may happen if the extent of rights, restrictions and responsibilities between surface and underground landowners is not clearly defined during the disposal process. Hence, this legal issue should be taken into consideration when disposing of underground land to avoid potential legal disputes that may impede the exercise and enjoyment of rights over underground land.

Section 44(1)(b) of the NLC Act 828 states that any persons or bodies to which, by alienation, lease or temporary occupation, land has been disposed of have rights to support by adjoining land. In the context of land disposal for underground land development, such as tunnelling or utilities projects, excavation works may be used to remove the soil, which can cause subsidence and encroachment of land, especially if both surface and underground development occur simultaneously (Chew, 2017). These dangers underscore the need to clearly stipulate the rights and restrictions that build ground support in underground land disposal. However, the disposal or acquisition of underground land does not necessarily indicate that the stratum landowner would be granted the right of access, the right to provide services, or the right of support for the pre-existing building, where applicable (Abdul Jalil & Mohd Arshad, 2020; Saeidian et al., 2021; Zaini et al., 2017). Past research suggests that the accessibility of the underground land from the surface land is generally not a concern when the surface land and underground land are held by the same individual owner. However, when the rights belong to diverse parties, it is more likely that conflicts will occur because the right of access to the underground space must be established to ensure legal certainty (Zaini et al., 2015; Zaini et al., 2017; Riyadi et al., 2020). Those rights must be negotiated, contractually agreed upon, or established through legal instruments recognised under the NLC Act 828. Although a contractual agreement provides a mechanism to regulate these rights, reliance on freedom of contract may somehow create

[3] *Villa Putra Management Corp v Mayland View Sdn Bhd [2015] 9 MLJ 779*

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inequality when parties have different bargaining power, especially when one party urgently needs access to land. This may result in incomplete agreements, potentially leading to disputes in underground land development (Abdul Jalil & Mohd Arshad, 2019). Furthermore, when the land is transferred to a third party, registered encumbrances remain attached to the title and bind the new proprietor. However, if the access right or encumbrance is not registered and endorsed on the title, the new proprietor may have no notice of its existence, thus creating legal uncertainty.

As a whole, it denotes that the interrelation between the surface and underground land rights is still tricky when it comes to underground land disposal. The NLC Act 828 recognises certain rights, but the disposal of underground land is not always accompanied by the grant of other ancillary rights such as access, the supply of services or support of structures. While the State Authority may, under section 92B(1)(c) and 92E(1)(c) of the NLC Act 828, impose express conditions to regulate such rights, the practical implementation of these provisions remains an important issue, particularly in determining how the rights, restrictions and responsibilities associated with separately held surface and underground land are defined and coordinated during underground land disposal.

Tenure Security

Tenure security is an essential component in the administration and disposal of underground land. Broadly, land tenure security describes the degree to which rights of the owner of land to utilise the land and derive economic benefits from it are recognised by others and safeguarded against infringement or conflict by various systems, including formal legal systems, as well as informal or customary land management (Halid & Hassim, 2024). Previous studies highlight that secure tenure encourages investment, protects landowners, enables land to be used as collateral security, enhances land value and facilitates the development of an efficient land market (Barnest & Enemark, 2020). Underground land disposal is even more critical in terms of tenure security since underground development occurs within vertical layers of land, which may involve various parties. In the absence of clear and secure arrangements of tenure, underground development projects might have legal uncertainties, delays and diminished investor confidence (Zhi et al., 2017). These concerns show a legal challenge in ensuring that the rights and interests associated with different vertical layers of land are clearly defined and protected during the implementation of underground land disposal.

According to previous studies, properly defined three-dimensional (3D) property rights and a strong system capable of capturing the volumetric land parcels via an integrated registration system are essential for ensuring tenure security of stratum land ownership (Tan et al., 2009; Karabin et al., 2018; Saeidian et al., 2021). The NLC Act 828 provides that the disposal of underground land should be in a cubic volume of land and the Department of Survey and Mapping Malaysia (*Jabatan Ukur dan Pemetaan Malaysia*, JUPEM) provides technical advice on the preparation of 3D plan. However, a comprehensive guideline that seeks to cover the full utilisation of the 3D cadastral survey of stratum land has yet to be developed (Mohamed et al., 2025). The absence of such an integrated framework may lead to uncertainties regarding ownership boundaries and, consequently, affect tenure security. The registration of rights and restrictions plays a vital role in enhancing tenure security by providing legal certainty to both surface and underground land proprietors (Halid & Hassim, 2024; Aditya Karina et al., 2021; Perwitasari et al., 2023). In Malaysia, the tenure security in underground land development could be upheld by issuing stratum titles and endorsing express conditions that guide the

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utilisation of the underground land (Ghazali et al., 2000; Abdul Jalil & Mohd Arshad, 2020; Zaini et al., 2021; Zaini et al., 2017). However, the study indicates that relatively few stratum titles for underground land have been granted. At the same time, the existing legal framework has yet to comprehensively address the balance between the rights of surface and underground landowners (Mohamed et al., 2025). This may affect tenure security and indicates a limitation in the practical implementation of underground land disposal in Malaysia. Therefore, ensuring tenure security is crucial in the disposal of underground land, as the process of alienation or leasing stratum land parcels must clearly define ownership boundaries, rights and restrictions to avoid land disputes between surface and underground land interests.

Discussion

The interrelationship between depth, surface-subsurface rights and tenure security essentially influences the disposal of stratum land. Figure 6 illustrates the interconnected relationship among three key factors associated with the disposal of underground land. Based on Figure 6, the critical factors influencing the effective disposal of underground land are clearly illustrated. Issues concerning depth and surface-subsurface rights, such as extent of ownership, right of access, as well as support between surface land and underground, are significant and require further consideration (Zaini et al., 2015; Abdul Jalil & Mohd Arshad, 2020).

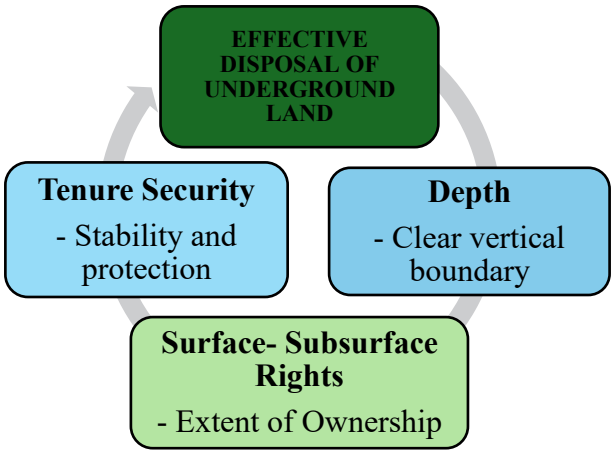


Figure 6: Interconnected Factors in the Disposal of Underground Land
Source: By Author (2026)

Based on the analysis, depth functions as the main legal boundary that determines the vertical extent of land ownership, separates surface and subsurface rights and interests, including the right to utilise the land, the rights of support from neighbouring land and rights of access. In the absence of a specified depth, underground land development will become more complicated (Zaini et al., 2015). Overlapping uses, interference and uncertainty relating to the right of support and access may cause legal conflicts between the parties. The absence of a clear definition of the rights, limitations, as well as obligations of surface and underground landowners may create legal uncertainty and consequently result in land conflict between the respective parties (Zaini et al., 2015; Abdul Jalil & Mohd Arshad, 2020; Adi et al., 2022). Such conflicts can have a direct bearing on tenure security, which promotes legal assurance and protection of land rights. Strong tenure security can be achieved if the vertical boundaries are clearly identified, as well as the rights and interests are well defined and properly registered in the land title. Strong tenure security is important because it helps to encourage investment,

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protect the landowners, enables land to be used as collateral security, enhances land value, facilitates the development of an efficient land market and protects urban dwellers. Therefore, when land lacks tenure security, these potential benefits to landowners may be adversely affected (Barnes et al., 2020).

In the context of underground land disposal, tenure security promotes legal certainty, protects the interests of both surface and underground landowners and enhances confidence in underground land development. It also protects the rights of surface and underground landowners provided under section 44(1)(a) and (b), section 92B as well as section 92E of the NLC Act 828. Pursuant to sections 92B and 92E of the NLC, the State Authority may prescribe express conditions governing such rights, such as determining the depth, specifying the use or purposes for which underground land may be utilised, granting rights of access and support, as well as stipulating any other conditions that the State Authority considers appropriate. Once an express condition is endorsed on the land title, the registered proprietor is legally obliged to observe and fulfil the condition imposed on the land, as any breach may lead to enforcement proceedings, potentially resulting in forfeiture pursuant to section 129 of the NLC Act 828. When depth is clearly defined and the rights between surface and underground landowners are properly allocated, it may reduce the possibility of overlapping interests and thus promote strong tenure security. However, although these statutory mechanisms empower the State Authority to regulate underground land disposal, the implementation depends on how depth boundaries and the associated rights, restrictions and responsibilities are specified and reflected in the registered title. A clear administrative mechanism is therefore needed to give practical effect to these statutory provisions.

Although the Malaysian land law recognises the disposal of underground land, the legal challenges remain in determining and coordinating the depth as a legal boundary and the separation of rights between surface and subsurface interests. These challenges may subsequently affect the practical implementation of underground land disposal, especially when the respective rights, restrictions, and responsibilities are not clearly specified. These critical factors must therefore be expressly defined and properly registered in the land administration system to ensure strong tenure security. In this context, further study is necessary to examine these legal and administrative challenges and to develop a more coherent framework that facilitates the effective disposal, proper registration and administration of stratum land titles in the future.

Conclusion

In conclusion, various legal issues concerning the underground land disposal remain unresolved, especially in relation to underground land rights. Although underground land development in Malaysia is not yet widely utilised, proactive preparation is essential, considering the rapid pace of urban development and technological advancement. The NLC Act 828 confers powers on the State Authority to determine rights in respect of underground land upon alienation, lease or independent use, including the specification of the depth to which the underground land directly and immediately beneath alienated or reserved land may be utilised, as well as the different depths for different parts of such underground land. Nevertheless, challenges remain in addressing key issues relating to depth regulation, the allocation of surface-subsurface rights and tenure security. Therefore, the existing framework could be further strengthened through clearer allocation of rights, limitations and obligations between surface and subsurface landowners, providing more precise delineation of vertical

boundaries and depth, alongside reinforcing tenure security through improved coordination among the legal, administrative and cadastral mechanisms governing the disposal of underground land. Future studies are necessary to identify legal provisions capable of addressing these challenges. Such efforts should contribute to the development of a more extensive and consistent legal framework for the efficient as well as sustainable underground land disposal in Malaysia.

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