

Re-Examining the Control Mechanism for Sustainable Property Development on Highland Areas: A Case of Malaysia

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Abstract:

Governing property development has always requires a holistic approach in decision making. The legislations for property development that are in placed still could not ensure the sustainability of development pertinently on highland areas. These areas need more detail consideration and approaches specifically in the development process, implementation as well as the monitoring aspect. In lieu of that, development processes and legislations need to be re-evaluated to examine the effectiveness of the current development mechanism in ensuring sustainable highland development. Evidences from the focus group discussion (FGD) session have shown that the weaknesses lie in the affirmation decision making process, implementation and enforcement aspect of the property development process which have high influence in the property development sustainability. Besides, the study also revealed that property development process and legislation setting should provide the proper implementation mechanism. Recommendations to ensure the prospect and sustainability of highland development are emphasis on the needs in continuation of legislations and implementation procedures, monitoring actions as well as the necessity for the development players to collaborate and understand the important of sustainable development by establishing a comprehensive highland development system.

Keywords: Highland, Legislations, Property Development Process, Sustainable Development

1. Introduction

Malaysia has a complete, efficient and integrated guidelines and regulations. Thus, achievement of sustainable development should not be an issue. Continuous Geo disaster incidents especially in highland areas need to be addressed accordingly. Public has stated the issues and concern on safety, land use planning, law and regulation, management, maintenance, accountability, funding and professionalism pertaining to development sustainability on highland area. Basically public has lost their confident regarding to decision making which has been accommodated with planning and development tools and development legislations.

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It seems that the development legislations are not clear and some has no added value to safety, environmental protection and sustainability. Many issues are unsolved and need actions for improvement. Although there are existences of various regulations and guidelines for highland development, issues such as geo-disasters, unsustainable development, public concern, effected development and economic growth remain unsolved. The best thing is to get the local authorities to form a taskforce committee comprising professionals from the stakeholders who are familiar with highland development to look at these issues and formulate clear and comprehensive development system and legislations.

Major concerns in implementing these legislations are the actors in development such as government agencies, politician, non-governmental organisation, developer, businesses and the public. Achievement and success of the development implementation solely lies to the players. It needs a smart consideration on issues that arises during the implementation stage. Thus, knowledge, awareness, responsibility by all actors is crucial in order to achieve a balance development towards establishing sustainable development.

Based on the current development scenario and geo hazards incidents, it is foreseen that the development on highland area requires a stringent development system in the development procedures and implementation. Thus, it will determine the prospect for future property development in highland area. It is crucial to search for the best approach for sustainable highland development that is aligned with property development growth. The remedial actions is crucial to ensure the achievement of sustainable development and economic, social and environmental friendly development.

Economic Planning Unit (2002), defined highland as areas located at the height level of between above 150 meter from sea level. The definition was futher emphasised which emphasised on permissible development by National Physical Plan for Environmental Sensitive Area (ESA, 2005) as only areas with contour above 150 meter - 300 meter (ESA Rank 3) is permissible with controlled development where the type and intensity of the development shall be strictly controlled depending on the nature of the constraints.

This paper explores the needs to formulate mechanism for sustainable highland development. It starts by exploring the current mechanism including the legislations and development process for highland development and also issues that occurred. The analysis of findings and discussion was base on a Focused Group Discussion (FGD) findings and outcomes in determining the control mechanism, issues and recommendations for highland development.

2. Regulating Property Development Process for Highland Areas

In the development process, there are numbers of crucial laws such as Town and Country Planning Act, 1976, (Act 172) Local Government Act, 1976 (act 171), Environment Quality Act, 1984, Uniform Building By Law, 1984, Street Drainage and Building Act 1974 etc (table 2.1). Beside those laws, there are guidelines such as planning

guideline, environmental guidelines, buildings guideline etc. Furthermore, development plans (National Physical Plan, State Structure Plan and Local Plan) that integrate a top down development plan and strategies focusing on physical, environment, economic and social aspects based on the National Development Planning Framework comprises of three level such as national, state and local level towards vision 2020 (national development objective) (Bruton, 2007). These development plans were prepared under the Town and Country Planning Act, 1976 (ACT 172) provisions.

The governmental machineries has been further strengthen by various agencies such as Ministry of Housing and Local Government (MHLG), Ministry of Natural Environment (NRE), Town and Country Planning Department (TCPD), Department of Geology and Mineral (DMG), Department of Environment (DOE), Department of Road and Work (DRW). These agencies and regulation are the tools to deal with development highland development. National land Code, 1965 set the provision pertaining for land matters, whereby land is a state matters and decision on the land development were made by the State Executive Committee (EXCO) (Bruton, 2007).

Table 2.1: Crucial Highland development laws in Malaysia

Act	Key Emphasis
National Land Code (1965)	The National Land Code provides regulation pertaining to land matters. It encompasses the determinations for allocation, administration, access to information and consent concerning on land use rights, interests and restrictions. It includes development approval and land use conditions, title creation, restriction and interest's creation.
Town and Planning Act 1976	Town Planning Act has been made for proper control of town and country planning in local authority areas. It is also stipulated that land development may be controlled and initiated through the formulation and identification of a structure plan and a local plan.
Land Conservation Act 1960	Specially to conserve highlands, prevent soil erosion and control salutation. The main provision of this act is relating to the declaration of areas as highland by the state authority and the provision prohibiting the use of highland for any purpose other than for limited agricultural purpose and mining.
Environment Quality Act 1974	The Environment Quality Act 1974 has emphasized the very important role in carefully controlling and facilitating the importance of environmental protection from being destroyed in the land development process.
National Forestry Act 1984	The purpose of this act is to classify every permanent reserved forest. The classifications lend themselves particularly to the protection of wildlife habitat, forest sanctuary, virgin jungle reserve, amenity forest, education forest and research forest.

Source: Alias A. et al, (2014)

The most crucial initial reference for development is the development plan which provides strategies and approaches in development with legalisation provision. It defined the allowable plot ratio, density, slope stabilisation requirement, mitigation, preservation of natural waterways, vegetation etc. However, those guidelines have weaknesses that need to be overcome such as on the implementation and the intensity of the provision in those guidelines.

The consideration in permitting development and its density as indicated in the current guidelines were based on the following variables:

- i. Development Suitability classes
- ii. Height / contour level
- iii. Slope gradient
- iv. Environmental Sensitive area (ESA) classes
- v. Risk Classification.
- vi. Technical report such as such as Development Proposal report, Geo-Technical Report, Erosion and Sediment Control Report, Environmental Impact Assessment Report and Earthworks Plan.

In April 2007, the Malaysian government under the Ministry of Housing and Local Government (MHLG) have initiated a One Stop Centre (OSC) for development application. The OSC is to improve the delivery system and procedures at all state municipalities (Figure 3.1) (MHLG, 2008). OSC is an independent body that acts as a facilitator for the development process for submission of development permission at the local authority. Currently, the OSC has being part of the local authority organisation in every state in Malaysia. Prior to the introduction of the OSC, submission for approval was done separately and in sequence (Abdullah et.al, 2011). All planning approvals are subject to the planning permission process referred under Section IV, Town and Country Planning Act, 1976 (Act 172). Generally, the local authorities would only offer an initial conditional approval.

For highland development apart from OSC there is a special committee held by the state government to pre-evaluate the development permission before final approval by the OSC committee. The committee was set under the provisions of the highland development guidelines. However, currently only three (3) states have these guidelines including State of Selangor, State of Penang and The Federal Territory of Kuala Lumpur. The guidelines is a new development control mechanism to oversee highland development activities through proper planning and control for implementing agencies, developers, property owners, contractors, engineers and the public as a guide in planning, developing and maintaining highland and the surrounding areas. The guidelines mentioned are as follows:

- i. Garis Panduan Perancangan Pembangunan Di Kawasan Bukit Dan Tanah Tinggi Negeri Selangor, 2010
- ii. Penang Guideline for Hill site Development 2012

iii. Garis Panduan Perancangan Pembangunan di Kawasan Bukit dan Cerun bagi Wilayah Persekutuan Kuala Lumpur 2010 (GPWPKL 2010)

These guidelines provide an administrative aspects, development control, and development process; and references in planning approval process. The main concern is of those guidelines are on the geo hazard risk, safety, management of environmental sensitive area, development feasibility. One of the bold steps stated in the guidelines in mitigating the process is the appointment of advisory body (TCPD Selangor, 2010) and safety measures (TCPD Pulau Pinang, 2012).

3. Development Issues on Highland Areas

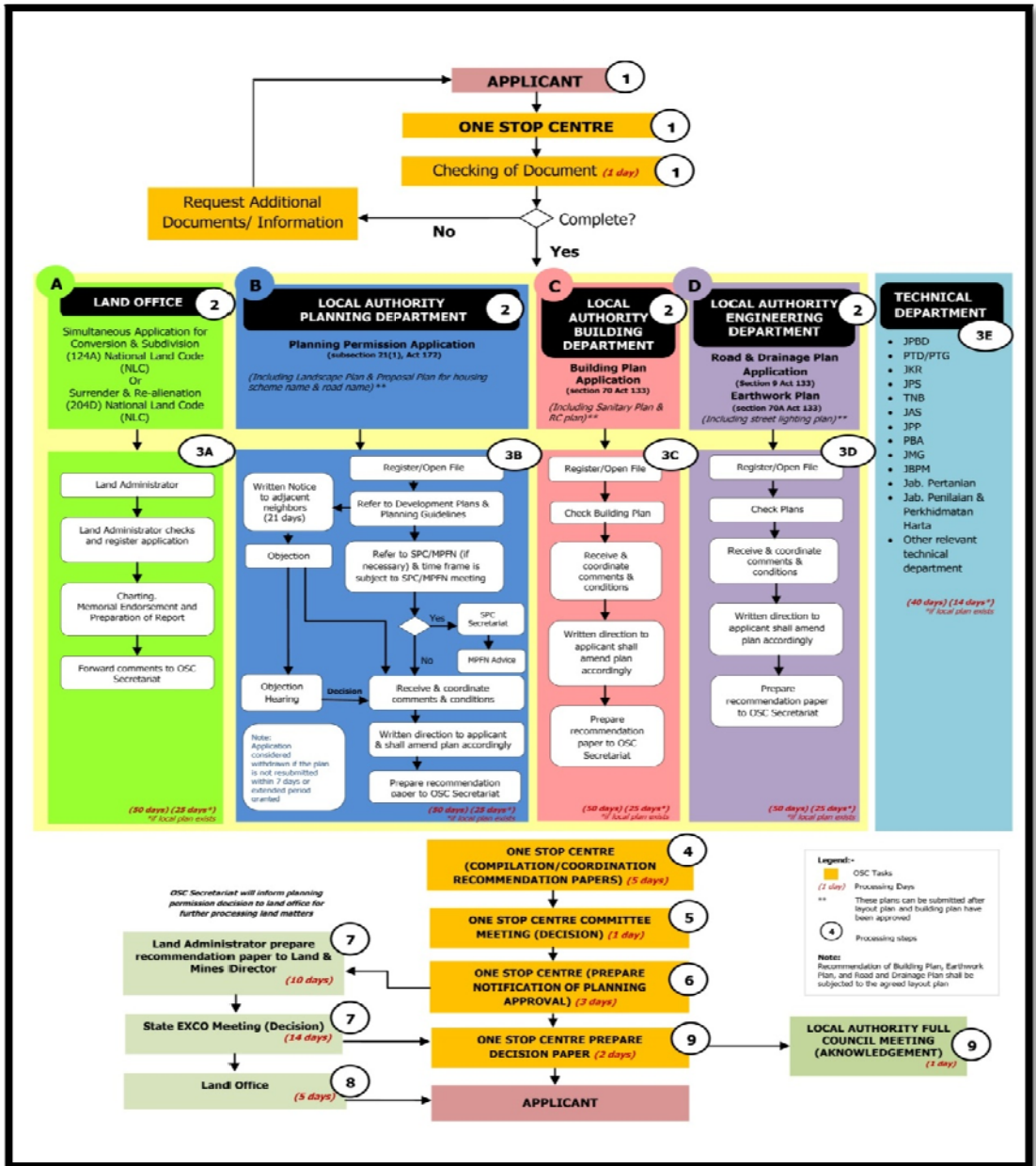
There are many issues that need to be addressed and overcome pertaining to highland development especially on the development control aspect and the development legislations. Apart from that, the roles of stake holders need to be well defined in order to have a sustainable development. Although there are existence of various legislations and guidelines for highland and steep slope development, geo-disasters, unsustainable development, public concern, effected development and economic growth remain unsolved.

The development encroachment towards highland and steep slope area has created massive development issues which occur from geo disaster incidents such as landslide and debris fall. Alias, N. et al (2014) added that the geo-disaster tragedies generally give an impact to the depreciation and appreciation of property values. Chan (1998) indicated that forest clearance, whether due to logging, farming, housing or other environmentally damaging human land uses have significantly altered hydrological parameters. Another factor that seems does not being emphasised is the natural elements, particularly the weather elements, are highly erosive. Hill slopes are vulnerable as Malaysian weather has frequent rainfall (Chen, 2009).

Ooi (2009) added on the issues during construction of a development that were not to the specific standard that later cause the geo-disaster such as incompacted slope which has caused the high profile landslide at Bukit Antarabangsa, Selangor. Furthermore, Chan (2008) mentioned that treatment on cleared surface has not being done accordingly which exposed construction to elements of nature as development period may take few years. Gue (2009) further added proved of misconduct during construction such as wall and slopes were not properly engineered and the drainage not properly done has resulted on the Highland Towers collapsed. Hutchison (2009) quoted that engineered slopes are never 100% safe as it lies on layers of sandstone and mudstone sitting on overlying limestone and rainfall volume.

As maintaining a slope will be very costly, Ng (2009) believes that zero maintenance is not the solution and all hills may end up as concrete hills as a result. Furthermore, Zakaria (2009) added high maintenance cost by the local authorities is required when deep cuttings activities for development is done. Furthermore, abandoning a hillside project would not necessarily make the place safe (Ng, 2009).

Figure 3.1: One Stop Centre Development Process Flow Chart



(Source: MHLG, 2008)

Ooi (2009) has mentioned on the existence of too many agencies that involved in highland development and created issues on governing the development in highland areas. The issues are mainly on the overlapping of power and unclear authority in

governing the highland development. Thus, he suggested that perhaps it should be centralised to one agency and monitored by established panel for highland areas development.

Chan (1998), highlighted Malaysia's commitment towards environmental protection is clear, as there are policies, laws, regulations and EIA requirements in developments which can give impact to the environment. However, many aspects of Malaysia's environment on the local front is still being exploited and degraded by irresponsible parties Chan (1998). Zakaria (2009) expressed concerned about the development proposals for very steep and very high cut slopes that do not include comprehensive study on site assessment. It also need further emphasised on the important to look at upstream and downstream development as well, and come up with something comprehensive Chen (2009). Kwan (2009), urged that there must be a proper policy, legislation and regulation governing hill-site development to make it sustainable which a stronger political will, a holistic approach and the involvement of professional and industrial players. Continuous Geo disaster incidents need to be addressed accordingly. Public has stated the issues and concern on safety, land use planning, law and regulation, management, maintenance, accountability, funding and professionalism pertaining to development sustainability on highland and steep slope areas. Too Eric *et al*, (2011) added, although many regulations and guidelines have been formulated to govern and protect hillside development, the problems associated with such developments have continue to arise. There is a range of triggering and contributing factors of landslide in hillside development.

4. Analysis of Findings and Discussion

The data is analyzed and evaluated to determine the control mechanism, approaches and important aspects for highland development. The data set was collected from FGD session held in Georgetown, Penang with cross-sectional of 39 participants from government and private sectors in various disciplines including planner, engineer, architect, lawyers, geologist and academician. The FGD found that there are three (3) main aspects that need to be adhered to ensure sustainable development on highland areas comprises of planning affirmation, legislations and guidelines review; and engineering and slope safety mechanism. These aspects should be comprehensively integrated in the implementation and monitoring of highland development. There are numerous actions to be carried out and formulated.

4.1 Planning Affirmation

Planning affirmation means that development must be carried out according to the planning framework. In ensuring the affirmation there are need to impose best planning practices in ensuring the sustainability of the development area and its surrounding. It is proposed that a special area plan for highland area which emphasised on the green development concept and low density development should be in place before development can be carry out. As highland development needs a continuous observation, a Development Monitoring System should be set up at federal, state and local government level.

Another important aspect is to adhere the development legislations provisions in the decision making. Thus, the development process for highland development needs to be standardised and centralised. The development process should be through from the pre development, during development and post development process. The continuity of affirming development requirements, monitoring development and enforcing the incompliance and misconduct in the development should be carried out continuously.

4.2 Legislation Reviews

The development legislations should allocate a stringent enforcement and close-monitoring measures as an ultimate aspects that should be implemented in disaster-prone area within the ESA especially highland and hilly area. Beside, comprehensive guidelines are needed to suit the highland development area that taking into consideration between flexible planning and development guidelines; and trade off in complying with development provision. There are also needs for legislations reviews in considerations of flexibility and trade off aspects in lieu with economic, social and environmental gains.

Legislation review should take into account the relationship between the proposed developments and the development capacity of the area. It is suggested to review on these legislations:

- i. Streets, Drainage and Building Act ,1974 (Act 133)
 - a. Section 70B(1-15) : review on safety and stability during building construction and enforcement before, during and after construction.
 - b. Section 85A(3)Order on maintenance review after construction.
 - ii. Planning application for highland areas must fall under Starta Title ACT 318 (section 6 (1) Gated and Guarded scheme.
 - iii. Develop By Law on Controlling of Hillside and Slopes refers to Hong Kong Dangerous Hillside Order Section 27a.
 - iv. National land Code 1960 to enclose owners takes responsibility for slope safety.

4.3 Engineering, Geology and slope safety Mechanism

The geological aspect seems to be neglected in planning and development process. There are numerous of geo hazards such as landslide, rock fall, debris fall etc caused by land development or natural forces. These geo hazard risk need to be adhered in development evaluation. Currently, numbers of documents are assisting the development evaluation such as:

- i. Development Suitability classes
- ii. Height / contour level
- iii. Slope gradient
- iv. Environmental Sensitive area (ESA) classes
- v. Risk Classification.
- vi. Technical report such as such as Development Proposal report, Geo-Technical Report, Erosion and Sediment Control Report, Environmental Impact Assessment Report and Earthworks Plan.

It is crucial to emphasis on geotechnical inputs that is highly important for Highland development. A Geotechnical input is important for highland development in order to:

- i. Improve Slope Safety Standards
- ii. Ensure Safety Standards of New Slopes
- iii. Rectify Substandard Government Slopes
- iv. Maintain all Government Man-made Slopes
- v. Enhance the Appearance and Aesthetics of Engineered Slopes

5. Summary of Findings

The crucial facts revealed from the analysis were the needs for compressive development system for highland development as it needs a continuity of precise and prudent monitoring action. Thus, the legislation framework should accommodate the needs for development process, monitoring and enforcement implementation. To ensure a sustainable highland development, it is crucial to consider a monitored based system on stringent development process.

6. Recommendations

The highland development requires continuous monitoring, maintaining and managing mechanism in the implementation processes. The crucial aspects that need to be focus are on the safety, environmental preservation and development sustainability. Thus, the development system is needed to facilitate the land management and early identification of potential geotechnical constraints in the planning and development process.

The recommended remedial action shown in table 5.1 is the basis to formulate the Sustainable Highland Development Framework (Figure 5.1). The framework which integrates various components in the highland development will be to base in formulating a comprehensive highland development system.

Conclusions

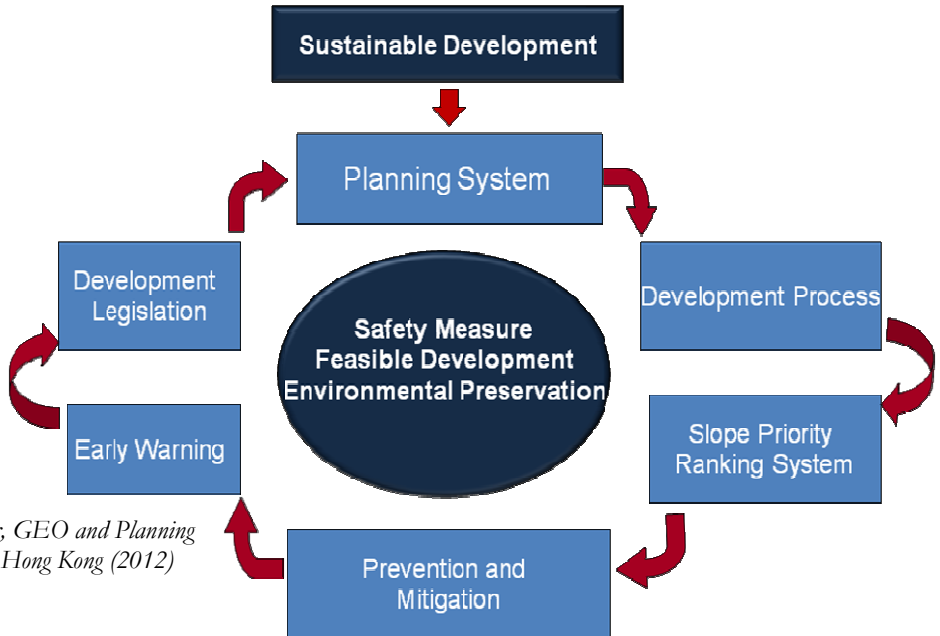
Highland development need a special consideration as it is a sensitive area which is prone to geo disasters. A holistic planning and development should be adhered to ensure readiness of highland areas to be developed. It needs a mechanism to facilitate land management and early identification of potential geotechnical constraints in development planning and geotechnical input is crucial to be embedded in the development process. Generally, the present legislation, development and planning guidelines are relevant and friendly to the property development specifically for the highland development. However, the main concern is on the inconsistency of variables used in the guidelines that neglecting important aspect such as environmental sensitivity and category of allowable development of which does not strictly emphasised on environmental sustainability, topographical preservation, safety and mitigation aspect.

The development process and legislation should be stringent, comprehensive and enforceable.

Table 5.1: Recommendation for Remedial Actions

No	Development Aspects	Remedial Actions
1	Legislation	i. Restructure current legislations and produce new legislation in order to set comprehensive legislations for highland development ii. Impose stringent legislation in development control. iii. Definition on technical and engineering aspect should be emended in the legislation. iv. Establish stakeholder’s responsibility liability in the legislation provisions.
2	Development Process	i. Review the advisory committee and monitoring committee functions ii. Require a professional endorsement for development applications documentations iii. Compulsory site evaluation iv. Imposed detail and stringent development approval conditions
3	Governing Institutions	i. Identify specific agency/department that responsible for highland development by appointing a centralise agency.
4	Implementation of enforcement	i. Construction quality ii. Enforcement and punishments iii. Monitoring and maintenance

Figure 5.1: Sustainable Highland development Framework



Source: After, GEO and Planning Department, Hong Kong (2012)

There are crucial issues in complying with the legislation and development condition. Remedies on the legislations, development guidelines and development process should be undertaken in consideration with of geo hazard risk, safety, management of environmental sensitive area, development feasibility and safety measures. These considerations should be embedded in the monitoring actions (pre, during and post development), enforcement, maintenance, financial funding, organisation structure and responsibility and liabilities. Besides, comprehensive guidelines are needed to suit the hillsides and steep slope development area by taking into consideration between flexible planning and development guidelines; and trade off in complying with development provision.

The Sustainable Highland Development Framework (Figure 5.1) has formulated further enhancement for comprehensive development system which focused on continuous monitoring, maintaining and managing mechanism in the development implementation processes as to ensure the achievement of sustainable highland development.

Bibliography

- Alias, A., Othman, K.N., .Mohamad, Z., Ali, A.S. (2014). *Land Development On Highland And Steep Slope Areas: Process Mechanism And Legislation Issues – A Study Of Malaysia And Hong Kong* Proceedings of 7th International Real Estate Research Symposium 2104 (IRERS): Unlocking the Potential of Real estate, Putrajaya
- Bruton, M. J. (2007). *Malaysia The Planning of a Nation*. Malaysia: PERSADA (Persatuan Pegawai Perancang Bandar dan Desa MALAYSIA).
- Chan, N.W. (1998), *Responding to landslide hazards in rapidly developing Malaysia: a case of economics versus environmental protection*, *Journal of Disaster Prevention and Management*, Vol.7 (No.1), pp. 14-27.
- Chua Chai Guan, Suvarna Ooi and Ir. Sridhar Krishnan, *Report on 'Safe Hill-site Development' Seminar, 2009*, Geotechnical Technical Division, The Institution of Engineers, Malaysia
- Civil Engineering and Development Department (CEDD)(2012), *Environment and Sustainability Services*, Special Administrative Region, The Government of the Hong Kong
- Department of Town and Country Planning, Selangor (2005), *Environmental Sensitive Area (ESA), Hilly and Highland Development*, Department of Town and Country Planning, Selangor Darul Ehsan
- Department of Town and Country Planning, State of Penang (2012), *Penang Guideline for Hillside Development*, Penang
- Department of Town and Country Planning, State of Selangor (2010). *Garis Panduan Perancangan Pembangunan Di Kawasan Bukit Dan Tanah Tinggi Negeri Selangor*, Selangor
- Eng. Kwan Foh Kwai, Master Builders Association Malaysia (MBAM), 2009
- Kuala Lumpur City Council, (2010), *Garis Panduan Perancangan Pembangunan di Kawasan Bukit dan Cerun bagi Wilayah Persekutuan Kuala Lumpur*, Kuala Lumpur
- Meteorology Department of Malaysia (2009), *Seismic and Tsunami Hazards and Risks Study in Malaysia*, MOSTI (2009)
- Ministry of Housing and Local Government, Malaysia (MHLG) (2008). *Upgrading of the Procedure on the Delivery System and Development Plan Process and the Implementation of the One Stop Centre* (2nd edition). Pusat Bandar Damansara, Kuala Lumpur, Malaysia.
- Othman, K.N., Alias, A. & Ali, N.H. (2011). *Property Development Prospect on Highland and Steep Slope Areas- A case Study in Bukit Antarabangsa*, Proceedings of Asian Conference of Real Estate 2011 (ACRE 2011), Johor.
- Othman, K.N., Jumaat, Z., Alias, A. & Ali, N.H. (2012). *Planning And Sustainable Development: Issues And Disputes : A Case Study Of State Of Selangor Appeals Board*, Proceedings of UTM-IBIMA International Real Estate Conference 2012 (INTEREC) , Kuala Lumpur.
- Tan, R., (2008), *Bar Council Tackles Hillside Development*. Retrieved February 7, 2010, from www.rtkm.com

- The Geotechnical Engineering Office (GEO)(February, 2013), *Landslide Studies by the Geotechnical Engineering Office*, Hong Kong
- The Geotechnical Engineering Office (GEO)(June, 2008), *The Landslip Preventive Measures (LPM) Programme*, Hong Kong
- The Geotechnical Engineering Office (GEO)(April, 2010), *Landslide Risk Management and the Role of Quantitative Risk Assessment Techniques*, Hong Kong
- Ting Wen Hui, (2009), Institution of Engineers Malaysia.
- Too Eric, G., Adnan, N., Trigunaryyah, B. (Ed.). (2011). *Project Governance in Malaysia Hillside Development*. Proceedings of Sixth International Conference on Construction in the 21st century: Construction Challenges in the New Decade, Kuala Lumpur.
- University Technology of Malaysia (2008), *Seismic Hazard and Risk Study in Malaysia*, Meteorology Department of Malaysia, MOSTI, & UTM, 2008
- UPEN & JPBD, (2007), *Selangor Development Planning Direction 2025*, Selangor Economic Planning Unit (UPEN) & Department of Town and Country Planning, Selangor, Malaysia.
- Wai, W.K. (2009), *Expert: Hillslope development guidelines need fine-tuning*. Retrieved February 7, 2010, from The Edge Property.com:-<http://www.theedgeproperty.com/multimedia/audio/688.html>
- Zakaria bin Mohamad, (2009), Mineral & Geosciences Department Malaysia (JMG),

Acts of Parliament

- Laws of Malaysia, Local Government Act, 1976 (act 171), International Law Book Services, 2006
- Laws of Malaysia, Environment Quality Act, 1984, International Law Book Services, 2006
- Laws of Malaysia, Uniform Building By Law, 1984, International Law Book Services, 2006
- Laws of Malaysia, Street Drainage and Building Act 1974 International Law Book Services, 2009
- Laws of Malaysia, *National Land Code (Act 56 of 1965)*, International Law Book Services, 2009
- Laws of Malaysia, Town and Country Planning Act, 1976, (Act 172), International Law Book Services, 2010