

# Prospect and Sustainability of Property Development on Highland and Steep Slope Areas in Selangor-Malaysia: Re-Examining of Regulations and Guidelines

Anuar Alias<sup>1</sup> & Khairul Nizam Othman<sup>1</sup>

<sup>1</sup>Centre for Building, Construction and Urban Studies (CeBUS)  
Faculty of Built Environment  
University of Malaya, Kuala Lumpur  
Malaysia

Email: [anuar\\_a@um.edu.my](mailto:anuar_a@um.edu.my); [marxiz@yahoo.com](mailto:marxiz@yahoo.com)

## 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 and steep slope 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, the current planning, development guidelines and regulations have been evaluated as to examine the effectiveness of the current development mechanism in ensuring sustainable highland and steep slope development. Evidences from the case study have shown that the weaknesses lie in the decision making process, implementation and enforcement aspect of the property development process which have high influence in the property development growth and values. Besides, the study also revealed that property legislation setting should provide the implementation mechanism. Recommendations to ensure the prospect and sustainability of high land and steep slope 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.

## Keywords:

Highland, Legislations, Property Development, Steep Slope Areas, Sustainable.

## 1 Introduction

Malaysia has a complete, efficient and integrated guidelines and regulations thus; achievement of sustainable development should a non issue. 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, presevation of natural waterways, vegetation etc. However, those guidelines has weaknesses that need to be overcome such as on the implementation and the intensity of the provision in those guidelines. The remedial is crucial to ensure the achievement of sustainble development and economic, social and environmental friendly development.

Major concerns in implementing these guidelines and regulations 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.

Continuous Geo disaster incidents especially in high land and steep slope 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 high land and steep slope area. Basically public has lost their confident regarding to decision making which has been accommodated with planning and development tools, guidelines and regulation. The guidelines are not clear and some do not add value to safety, environmental protection and sustainability. Many issues are unclear and need improvement. The best thing is to get the local authorities to form a taskforce committee comprising professionals from the stakeholders who are familiar with hillside development to look at these issues and formulate clear and comprehensive guidelines and policies. Although there are existence of various regulations and guidelines for highland and steep slope development, issues such as geo-disasters, unsustainable development, public concern, effected development and economic growth remain unsolved. Based on the current development scenario and geo hazards incidents, it is foreseen that the development on high land and hill slope area requires a stringent legal and planning implementation procedure. Thus, it will affect the prospect for future property development in high land hill slopes area. It is crucial to search for the best approach and guidelines for sustainable high land hill slope development that is aligned with property development growth.

Economic Planning Unit (2002), defined high land 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.

## **2 Property Development in Highland and Steep Slope Areas**

### **2.1 Legal Framework**

In the development process, there are other related 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. Beside those laws there are guidelines such as planning guideline, environmental guidelines, buildings guideline etc. Furthermore, development plans are prepared under the Town and Country Planning Act, 1976 (ACT 172) base on National Development Planning Framework comprises of three level such as national, state and local level. These plans provide a integrated top down development plan and strategies focusing on physical, environment, economic and social aspects towards vision 2020 (national development objective) (Bruton, 2007)

The governmental machinery which lies on Federal Constitution provides further avenues of federal influence over the state governments. Such influence is exercisable over matters that

are even listed under the state list of the Constitution (Hamzah, 2009). The four other national councils, the National Council for Local Government (NCLG) under article 95A, the National Land Council (NLC) under Article 91, and the National Finance Council (NFC) under Article 108 and National Physical Plan Council (NPPC) under chapter 2, ACT 172 are chaired by the Prime Minister or his appointee. Representatives both from the federal and state governments sit in these committees (Bruton, 2007).

The governmental machineries has been further strengthened 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 pertaining to High Land and hill slopes development. National land Code, 1965 set the provision pertaining for land matters, whereby land matters is state matter and decision on the land development were made by the State Executive Committee (EXCO) (Bruton, 2007).

## **2.2 Highland and Steep Slope Development Scenario in Selangor, Malaysia**

The changes on the Malaysian geographical setting generally has effects on high land and hill slope development. It is showed that the geo disaster in Malaysia have started since 1919 and causes lost of life, properties and effected the economy. Major concern for high land and hill slopes development increased during the Highland Tower, Bukit Antarabangsa collapsed on 11 December 1993 and the geo disaster continues with higher fequency and nos. since 2004 to 2009. The New Straits Times reported on 12 June 2006, that eighty per cent (80%) of Hulu Klang is at risk of landslides and that a soil expert said a study done two years ago showed that some areas in Hulu Klang sat on "schist rock", the weakest rock on which to carry out any sort of development.

Previously the geological aspect seems to be neglected in planning development. The geological setting is among the most important aspect that need to take into account in examine any development. The awareness of geological and geographical setting that change upon climate changes and natural disaster is still lacking in the decision making. However, the State of Selangor has responded to the geo disasters incidents and issues, the state of Selangor government has taken action to ban the development on High Land and hill slopes that have class III and IV catogery in 2nd April 2008. The action was taken by the government to prevent and control more disaster from hapenning. However, it has effected the property development and economic growth as a whole. According to Hutchison, banning development on hillsides is a good measure because it will minimise the clearing of natural vegetation (Hutchison, 2009). On the other hand (LPHS, 2008) 136 development projects classified under class III and IV are on hold classified which had direct effect on property development growth. In lieu of the drastic decision,. Various parties such as REHDA, developers, investors have appeled to the state government to reconsider the decision to cater the development constraints problem in Selangor and the effects on the economic and development growth and property values. (State of Selangor, 2009). However, Kong (2009) argued that it is is unfair to developers because many have purchased land and have outstanding bank loans to service. With the ban, there are less available land to build on. and faced financial losses. There have been many misconceptions regarding such developments. Class 4 slopes (more than 35°) had been successfully developed in countries like Hong Kong and Taiwan (Gue, 2009).

The following are incidents of landslide which have been occurring regularly on and along the hills situated in Hulu Kelang :-

- i. 1985 - Taman Melawati, Jln G1
- ii. 1993 - Highland Towers
- iii. 1999 - Athenaeum Tower
- iv. 2000 - Bukit Antarabangsa
- v. 2001 - Taman Hijau
- vi. 2002 - Taman Melawati, Jln G1
- vii. 2002 - Taman Hillview
- viii. 2006 - Kpg. Pasir, Taman Zoo View
- ix. 2007 - Taman Melawati, Jln H1 and H5
- x. 2008 – Bukit Antarabangsa

(source : Mineral and Geosciences Department, State of Selangor, 2010)

### 2.3 Reviewing Guidelines for Hill Slope Development

According to a census carried out by Real Estate and Housing Developers Association (REDHA) in 2010, there is an estimated 1,800ha of hillside land in Selangor valued at about RM1.4bil. According to the Chief Minister State of Selangor, many developers have urged to reconsider and made a number of appeals to review the guidelines set earlier, where all Class 3 and Class 4 development was banned. (The Star, 2009)

There are fifth teen hillside housing estate in Ampang and Pandan areas which is next to Bukit Antarabangsa have been identified by the Selangor Government as being at risk of landslides. These areas will now come under continuous monitoring by local authorities. The areas identified are Bukit Antarabangsa, Ukay Heights, Taman Hijau, Taman Hillview, Dataran Ukay, Taman Melawati, Ukay Perdana, and Taman Kemensah. In the Pandan constituency, the risky areas are Taman TAR, Bukit Sungai Seputih, Bukit Teratai, Bukit Permai, Taman Saga, Taman Mega, and Bukit Segar.

State of Selangor topography consist of 47% of high land. Development on high land and hill slope area started in the middle of 1980's and grow rapidly in early 1990's and continues to present. The State of Selangor Planning and Development Direction has indicated land use distribution of the Selangor comprises of 39.7% for built up develop area, 30 % for forest 30% for agriculture and 21% for water body (2.1%). Thus, it limits the development area and has put pressure and demand for land which resulting violation on high land and hill slope as the best option to cater the demand. In light of the many hillside tragedy, Selangor state has drafted new development guidelines for Class 3 (more than 25-to-35 degrees) and Class 4 (35 degrees and above) slopes. Class 4 slopes, the most critical area with a combination of slope angles and located 150m above sea level or higher, are protected under the Land Conservation Act.

### 2.4 Development Issues on Highland and Steep Slope Areas

Chan (1998) mentioned that landslide and hill slope development are not new in Malaysia. The desire for rapid economic development in order to catch up with the developed world is often over-emphasized and this can lead to an unbalanced development strategy which often sacrifices environmental principles purely for the sake of economic gains. Chan (1998) indicated that forest clearance, whether due to logging, farming, housing or other environmentally damaging human land uses have significantly altered hydrological parameters. Chan (1998) also discovered in Malaysia, the natural elements, particularly the

weather elements, are highly erosive. Geomorphological processes such as rain splash erosion and surface run-off erosion have been shown to be extremely high in wet equatorial areas. Given the high intensity of our rainfall within short durations, the erosivity of rain and run-off are main causes for loosening the soil, weakening slopes and ultimately leading to mass movements of solid and semi-solid materials such as soil creep, landslips and landslides. Ooi, 2009 mentioned that the recent Bukit Antarabangsa high profile landslide also happened during a period of incessant rainfall with the failure of a 20-year-old tip-fill uncompacted slope. Poor drainage maintenance and tip-fill slopes were again the common factors that caused landslides.

Chan (1998) also discovered that cleared areas are not immediately replaced by concrete or other surfaces but left for considerably long periods before projects are finished. For example, the average duration of a housing project may take between a year to a few years. Thus, this leaves the cleared surface exposed to the elements of nature. Tan (2008) has further supported Chan's statement in light of the latest landslide tragedy at Bukit Antarabangsa in Ampang. Gue (2009) further added that the Highland Towers collapsed because the wall and slopes were not properly engineered and the drainage not properly done. The abandoning a hillside project would not necessarily make the place safe. 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. Faisal (2009) further added that features of unsaturated residual soils indeed very important. It is difficult to assess slope stability using analytical methods, as well as the use of vegetation for the prevention of slope failures. However, Ng, 2009 believes that zero maintenance is not the solution, as it may be very costly. All hills may end up as concrete hills as a result. Zakaria, 2009 agreed that deep cuttings would require high maintenance cost by the local authorities. Chen (2009), has pointed out that with the existence of so many agencies; everybody wants to be part of the solution. However, it seems to be running in all directions, thus he suggested that perhaps it should be centralised to one agency and monitored established panel of slope. Even if the houses have been given the Certificate of Fitness (CF) by the authorities, hillslopes are so vulnerable to the harsh realities of the Malaysian weather and all to frequent rainfall that would render the CF to be not worth the paper it's printed on (Bernama, 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. Five points to urge the authorities to consider implementing comprehensive measures for high land and hill slope development as follows (Ng, 2009):

- i. The relevant authorities need to carry out a survey and classification on existing hill slopes nationwide on the development worthiness and identify those critical areas prone to erosion and landslide, and inform the public of the findings.
- ii. Concrete policy and regulation on how hill slope development should be regulated and implemented.
- iii. The authorities need to setup a specialised agency to oversee the formulation of policy rules and regulations on safe development and maintenance on hill slope development as well as the implementation and enforcement of these rules and regulations.
- iv. The developers have to ensure that any future hill slope development is safe for the habitation of house buyers.
- v. Responsibility and liability are currently insufficient. We want to make those culpable accountable, impose on them a stiffer penalty and imprisonment because we are

dealing with human lives.

Chan (1998), highlighted Malaysia's commitment towards environmental protection is clear, as there are policies, laws, regulations and EIA requirements in developments which can have an effect on the environment. Unfortunately, however, despite this commitment (and its international stance against environmental degradation),. Furthermore, Hutchison, 2009 finds that EIA reports that are very thick but are filled with all sorts of technical jargon and equations that do not being well understood, thus it seems uninformative. Many aspects of Malaysia's environment on the local front is still being exploited and degraded by irresponsible parties Chan (1998).

Ng (2009), pointed out that hill slope development today was not any safer than it was 16 years ago. As the guidelines consisting of the four classifications of slopes, Class 1-4 , was the only thing that we could access to. Furthermore, there were no other proper hill slope development guidelines that are accessible to the public. However, Dahlia (2009) pointed out that the Federal Department of Town & Country Planning places the development of programmes and community related to the conservation of natural resources, environmental protection and social stability as a priority. These priorities are translated into the National Physical Plan and also the National Organisation Plan, as well as the state level plans and district plans. These plans were based on policies and guidance for developmental procedures or planning commission procedures by the local planning authority. Zakaria (2009) expressed concerned about the development proposals of 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).

### **3 Objectives of the Research**

The research objectives are as follows:

- i. To examine the issues and problems of property development on high land and steep slope areas.
- ii. To evaluate the effects of current planning and development guidelines and legalisation on property development and property value for high land and steep slope development.
- iii. To examine the property development prospect and sustainability on high land and steep slope areas.

### **4 Methodology**

The research focused on the development issues, implementation problems and property development prospect pertaining to property development in highland and steep slope area. The analysis has been carried out on the provision of planning and development guidelines and development plan, physical development trend and property values. Data was collected from various technical department and government agencies such as Town and Country Planning Department, State of Selangor, Mineral and Geosciences Department, State of Selangor, Ministry of Federal Territory, Ministry Of Natural Resources and Environment,

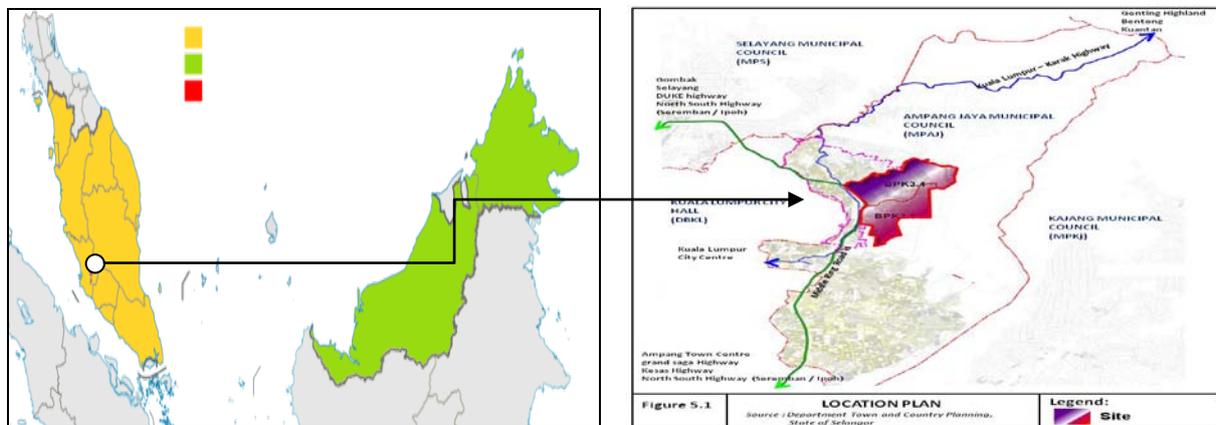
Malaysian Meteorology Department and Valuation Department, State of Selangor and Ampang Jaya Municipal Council of which will base on secondary data. The fundamental basis of data collection is referred to the case study in Bukit Antarabangsa, State of Selangor. The analysis was based on the study areas and other secondary data including government policy, development plan, property reports, planning regulation and guideline for high land and steep slope areas development.

## 5 Analysis of Findings and Discussion

The data is analysed and evaluated to measure the effects of the current guidelines and regulation on property development, property value and on high land and steep slopes areas.

### 5.1 The Case Study Site

The case study site is located at the western part of Gombak District (Mukim Hulu Kelang) in the State of Selangor and is bounded by the Federal Territory (Kuala Lumpur City Hall) jurisdiction area). The study site is under the jurisdiction of Ampang Jaya Municipal Council. Ampang, State of Selangor and is an established development area consists of existing, committed development and preserve areas. Generally, the study site is a built up area, which dominantly developed with housing. The Major Land use for the study site is housing of various types commercial, agriculture and forest area in an area of 914 hectares (2,267 acre). 82% of the study site is developed. The rest of the site comprised of undeveloped land, patches forest (part of Ulu Gombak Forest Reserve) and agriculture area which is 18% of the total study site. The study site has been permitted for development mainly for housing and commercial. (Figure 5.1)



The study site is built up area and land for development is limited. The study site is located at a strategic location surrounded by developed area, major towns and highly accessible for major road and highways that connects locally and regionally. However, the study site generally in unstable position in physical development context due to numbers of geo-disasters occurs within and adjacent to the study site. Development for this area need to be monitored and considered based on stringent planning control. It requires continuous monitoring, maintaining and managing mechanism in the implementation processes. The crucial aspects that need to be focused are on safety, environmental preservation and development sustainability. Thus, planning and development guidelines need to be precised, stringent and implementable.

## 5.2 Planning and Development Guidelines and Regulations for Highland and Steep Slope Areas Development

Planning and Development Guidelines and acts pertaining to hill land and steep slope development has been developed since 1970's. Those guidelines and acts was formed in policy, regulation, legislation, guidelines and implementation procedures to ensure a sustainable high land and steep slope areas development. The current Planning and development Guidelines and legislations for High land and Steep Slope development has been developed since 1997 to 2010 are as follows:

- i. Ampang Jaya Draft Structural Plan 1995-2020, 1997
- ii. National Physical Plan, 2005
- iii. High Land Development Guidelines, Ministry of Environmental and Resources, 2005
- iv. Draft Guidelines for the Conservation and Development of Environmental Sensitive Area and its Surrounding Area, 2005
- v. State of Selangor Structure Plan 2020, 2007
- vi. Planning Standards Guidelines Selangor of Selangor, 2007
- vii. Ampang Jaya Draft Local Plan 2020, 2009
- viii. Development and Planning Guidelines for Hilly and High land Area, Ministry of Housing and Local Government, 2009
- ix. Development and Planning Guidelines for Hilly and High land Area, State of Selangor 2010

Planning and development guidelines and regulation regarding to high land and steep slope area has been developed since 1997 until 2010 either in policy form or implementation guideline form. There are 9 related planning and development guidelines for high land and steep slope area have been referred for permitting development. There are various emphasises and considerations on approaching the control mechanism for high land and steep slope area development. Thus, the current planning and development guidelines will give impact towards the property development and property value on high land and steep slope areas. It has been indicated that the guidelines has under gone an evolution in dealing with the development trend and approaches which led to the changes of the guidelines variables as well as it emphasising towards stringent and stricken development requirements. The changes are as shown in **Table 5.1- Appendix A**.

The consideration in permitting development and its density as indicated in the current guidelines was based on the followings 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.

Prior to 2005, the variables used was slope gradient and risk classification that allow high, medium and high density development in low laying areas and low and medium risk area. Restriction for development on high land and steep slope areas covers for steeper and higher risk area as well as emphasising on topographical preservation. In 2005, the policies and

guidelines for high land steep slope area has use more variables that emphasise on Development Suitability classes, height / contour level, slope gradient and ESA. However, the risk classification variables have not been taken into consideration. In term of policy making, NPP emphasise on ESA and height / contour level. It is foreseen that the concern is more towards environmental preservation and slope stability, and the direction was express in the policy. The policy indicated allowance for medium and high density development in low laying areas and low and medium ESA area. Restriction for development on high land and steep slope areas covers for higher and riskier area and emphasis on topographical preservation. For implementation wise, the guidelines changes the emphasis by using Development Suitability classes, Slope gradient, ESA require technical report. These guidelines allow for low and medium density development in low laying areas and low and medium ESA area. Restriction for development on high land and steep slope areas covers for steeper and higher ESA area and emphasis on topographical preservation. In 2007, the planning and development policy and guidelines has neglected the consideration of Development Suitability Classes and Risk Classification. For the policy making purpose, only slope gradient is used as the variable. The policy emphasised on slope stabilisation in the sustainable environmental context. This is use as a basis for further implementation of the guidelines. The implementation of the guidelines has incorporated height/contour level, slope gradient and ESA classes as the variable and also requires technical report submission. The guidelines permitted development for low, medium and high density development in low laying areas. Restriction for development on high land and steep slope areas covers for higher area and ESA area and emphasis on topographical preservation.

In the first half of 2010, the planning and development guidelines concentrated on Development Suitability classes, height / contour level and slope gradient as the variables. However, on the second half of 2009 and first half of 2010 the guideline strongly emphasis on the development Suitability classes, height / contour level as the variable and requirement for technical report submission. The guidelines permitted development for low, medium and high density development in low laying areas. Restriction for development on high land and steep slope areas covers for higher area and Class IV area and emphasis on topographical preservation. It was revealed that the major concern in high land and steep slope development is the topographical preservation towards safety, environmental and physical sustainability. Changes in variables indicated the importance of the development suitability classes and height / contour control. The verification development suitability classes are taken into consideration the geological setting, slope stabilisation, risk and environmental consequences, thus it is a comprehensive variables. It is seems that the changes shows some inconsistency in approaches of controlling for high land and steep slope area development. Generally low, medium and high density development is permissible on low lying area. For high land and steep slope areas, low and medium density is permissible. However, for higher land especially categorize as class III, low density is permissible with stringent requirement for technical report such as Development Proposal report, Geo-Technical Report, Erosion and sediment Control Report, Environmental Impact Assessment Report and Earthworks Plan to be submitted for development evaluation. For Class IV and higher land level, any kind of development is not permissible except for infrastructure such as road, tunnel, bridge, telecommunication & electric tower. Even then, the development guidelines should be amended whereby it needs to take a holistic consideration of all variables used during the changes to avoid mislead and to confirm for best development control on high land and steep slope area.

### **5.3 Physical Development Trend and Encroachment**

Early development in the study site began in highlands and steep slope area. The early development approaches were low and medium density development with no reference on development and planning guidelines. It shows that development issues has not emerged and does not effecting the environment, physical, economic and social sustainability. The need for planning and development guidelines is seemingly less important by looking at the development growth in 1990 to 1993 that encroaches to highland and steep slopes areas. The highland tower incident in 1993 shows some indicator for the need of planning and development guidelines especially concerning on safety, mitigation, slopes maintenance, geological inputs etc. As highlighted, there were no development activities in 1994 to 2004. Thus, Ampang Jaya Structure Plan 1997 was in place which imposing policies and guidelines pertaining to highland and steep slope development with consideration of those factors.

Various development plans, planning and development guidelines were in place in 2005-2010. However, those guidelines are varies on the emphasis aspects and variables. The common concentrations of those guidelines were on the environmental sustainability and topography preservation. Those guidelines are incrementally to be more stringent in permitting development and impose various technical reports to ensure development's sustainability. Having those guidelines, the development has growth rapidly in 2002-2010. However, there were doubts regarding to the guidelines efficiency and effectiveness as refer to the 4 geo disaster events happen in the study site in 2004 to 2010. The pertinent issues that need to be address is the allowable development density and mitigation measures for high land steep slopes development. It is foreseen other aspects should be the main concern such as monitoring, maintenance, enforcement, responsibility, liabilities etc that need to be imposed to stakeholders on highland and steep slope development. It is shown in **Figure 5.2 – Appendix B**.

## 5.4 Impact on Property Development and property value in high land and steep slope areas

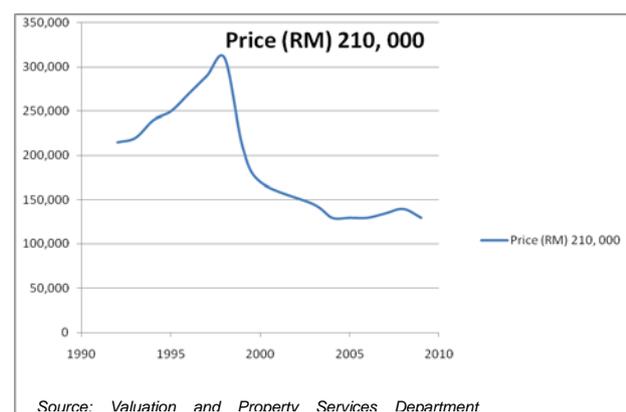
### 5.4.1 Fluctuation in the property prices in lieu of the geo-disaster (landed and strata)

The geo-disaster events have given a huge impact on the property prices in Bukit Antarabangsa particularly to the affected areas such as Bukit Antarabangsa, Taman Hillview and Taman Bukit Mewah. The analysis below demonstrated the fluctuation of property prices in those areas for strata as well as landed property.

#### 5.4.2 Strata property – *Puncak Athenaeum Condominium (Bukit Antarabangsa)*

Puncak Athenaeum is a 340 unit of condominium housed in two towers of 21-storey. Located in Jalan Wangsa, Bukit Antarabangsa, the condominium was collapse in 1999 which caused 4 deaths.

It was shown that the prices of Puncak Athenaeum starting from year 1991 were appreciated until the year of 1998. Unfortunately, the values of the condominium unit were fall off on the following year due to the geo-disaster tragedy. The percentage of fall is approximately 30% from the preceding years (1998) due to the fear factor as well as the tragedy that scared potential



purchasers and investors away for security reason. The condo prices were continued to fall until year 2000. As shown, there were no transaction recorded between year 2001 and 2002 as purchasers has no confident to buy the condo in lieu of the tragedy and the possibility of the geo-disaster to repeat within the short period of time. The property value for the said condominium was badly hurt. Nevertheless, purchasers' confidents were started to grow as there were transaction recorded in the year of 2003 but with depreciate price. The prices of the condo unit were stagnant up to year 2006. Year 2007 and 2008 recorded an appreciation of price for approximately 4%-8% of the preceding year. The recent data transaction (2009) recorded the depreciation of the condo price. This is assumedly due to the 2008 Taman Bukit Mewah tragedy as purchaser and potential were scared that the same tragedy will again happen to Puncak Athenaem Condominium.

**5.4.3 Landed Property – Terrace Houses (Taman Ukay Bistari)**

The Kg. Pasir tragedy that occurred end of 2006 has slightly impacted its surrounding property such as Taman Ukay Bistari that located at the southeast boundary of Kg. Pasir. The fluctuation of property prices particularly landed property i.e. terrace houses are as shown below.

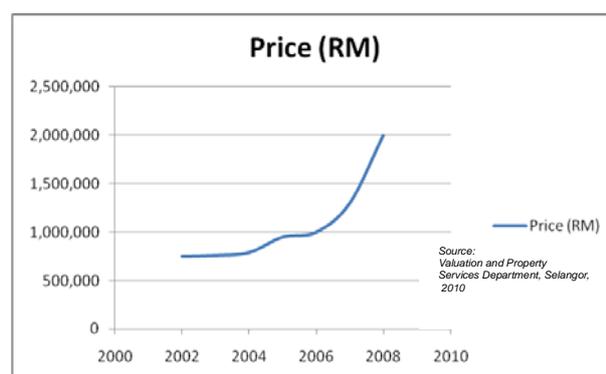


The price of the terrace houses in Taman Ukay Bistari for the year 2006 was recorded before the tragedy which was around RM320, 000. The following year after the tragedy recorded a slight fall approximately 6% of the price for the preceding year. An approximately 13% growth in price were recorded in 2008. It shows that the Kg. Pasir tragedy does not give a significant impact towards property prices in its adjacent neighbourhood. The latest transaction (2009) recorded a further increase for the terrace houses in Taman Ukay Bistari as the confident level of the potential purchaser and investors toward that area has restored.

**5.4.4 Landed Property – Semi-D (Taman Beverly Heights)**

Another most famous landed property in Bukit Antarabangsa area apart from terrace and

bungalow is semi detached house. Taman Beverly Height is chosen a this area is located further away from any geo-disaster area that have occurred in Bukit Antarabangsa such as Taman Bukit Mewah, Kg. Pasir, as well as Taman Hillview (not included in the study area). Taman Beverly Height which was approved in 2002 sold its semi-d at RM750,000. The transaction data in the following year recorded an increase to RM760,000. As shown in the above table, the price of semi-d houses in Taman Beverly Height was continuously increased up to the latest transaction recorded in 2008 for RM2.0 m. It is obviously shown that the price of semi-d in the said area was not affected by any geo-disaster tragedy in Bukit Antarabangsa i.e. Kg. Pasir and Taman Hillview (not included in the study area) which occurred in 2006. Thus, it can be concluded that not all geo-disaster that

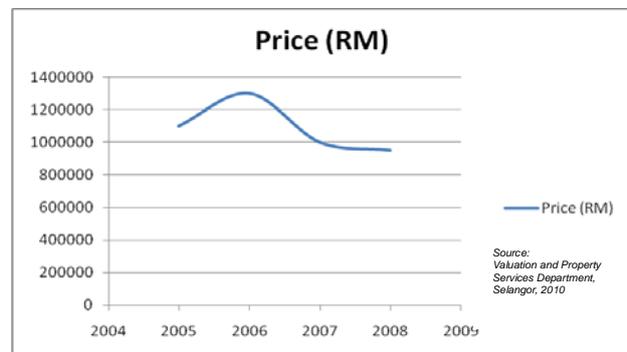


occur in Bukit Antarabangsa area would affect all property prices within the vicinity, some may still appreciate depending on the safety and confident level of the potential purchaser and investors.

#### 5.4.5 Landed Property – Bungalow (Taman Bukit Mewah)

Taman Bukit Mewah tragedy in late 2008 has raised many speculations and issues in lieu of the safety for development in hill side and hill slope area. Tragedy that killed 5 people has resulted to the review as well as enforcement of additional guidelines pertaining to hillside and hill slope development.

The price of bungalow prices in Taman Bukit Mewah was recorded at 1.1 m in the year 2005. There were increments approximately 18% in the following year (2006). The sale prices were declining in the year 2007 was due to the Kg. Pasir and Taman Hillview (not included in the study area) tragedy which gave fear to the residents especially to bungalow residents. The prices were continued to decrease to 950,000 in 2008 as the confident level were still low. The Taman Bukit Mewah tragedy which occurred during end 2008 has worsened the scenario. There were no transactions recorded in 2009 as the tragedy that has snapped up 5 lives is still fresh in everyone's memory.



## 6 Conclusions and Recommendations

Generally, the present legislation, development and planning guidelines are relevant and friendly to the property development specifically for the high land and steep slope 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. As at 2009, the development and planning guidelines has consistently aligned and uniformed all variables and provisions required in permitting development which strictly emphasised on environmental sustainability, topographical preservation, safety and mitigation aspect. However, the improvement and remedial actions need to be concentrated in implementing development continuously. Therefore, sustainable high land and steep slope development could be achieved as well as to safe guard the property value.

The present development guidelines for highland and steep slope area do not give a huge impact on the development growth as evidenced by the development trend in the study area. The analysis also revealed that the property value in the study area are still maintained and sustained throughout the year even though the current development guidelines has outlined certain restriction as well as imposing stringent development control for certain area on highland and steep slopes development. The only concern that threaten the property value on the above said area is the unforeseen geo-disaster events that beyond human control. In lieu of the unpredictable of climate changes, there are many unimaginable disasters that may happen especially to disaster-prone area such as Bukit Antarabangsa.

Nevertheless, those depreciated property value will not last longer. This is a result of the revision of the existing planning and development guidelines pertaining to highland and steep slope area especially after each tragedy, and we can see that the mushrooming of new development on the surrounding areas (i.e. tragedy area) right after the enforcement of those

new guidelines.. Therefore, it can be concluded that, the present planning guidelines pertaining to high land and steep areas development specifically to the study area are suitable and generally sufficient to sustain and to boost up the existing development prospect.

As mentioned above, the current planning and development guidelines are generally friendly to the current development and so far, it has taken into consideration all important technical aspects pertaining to highland and steep slopes development by requiring all technical reports that assure that the proposed development are align with the carrying capacity for that particular area before development can be approved. Nevertheless, the main concern now are on the implementation, enforcement, as well as continuous monitoring of those guidelines as well as on the flexibility of those guidelines to new development concept such as SOHO, Superlink house, etc.

The crucial facts revealed from the analysis of the study site was the needs for sustainable development which emphasis that the development for highland land and steep slope area need to be considered and monitored based on stringent planning control. The geo-disaster tragedies generally give an impact to the depreciation and appreciation of property values. Thus, the development for this area requires continuous monitoring, maintaining and managing mechanism in the implementation processes. The crucial aspects that need to be focused are on the safety, environmental preservation and development sustainability. Therefore, planning and development guidelines need to be précised, stringent and implementable as recommends in Table 6.1:

Table 6.1: Suggestions for Better Monitoring of Highland and Steep Slope Areas:

No	Suggestion	Explanation
1.	Development Monitoring System	The authorities need to form a monitoring system for high land and steep slope development which will monitor, evaluate and enforce any misconduct of development implementation. The monitoring system should be supported by information technology (IT) such as inventories high risk development, geo-disaster prone area, slopes area, property ownership and etc.
2.	Flexible Planning and Development Guidelines	The planning and development guidelines should be amended and incorporates flexibility aspects. The flexibility should be given for new development concept and approaches such as the usage of high technology material and system that will ensure the development's safety and sustainability. Therefore, the permissible density for instance can be upgraded
3.	Trade off in Complying to Development Provision	Development provision should be considered in giving allowance for trade off. For instance, since class III is only permitted for low density and needed for high financial and class IV is restricted for any kind of development, the provision to accommodate low cost houses should be forfeited and leverage on expatriates ownership.
4.	Legislation Review	As the environmental sustainability and topographical preservation is a crucial aspect to be considered in permitting development, review on the enforcement of the current legislation need to take place. For instance, the provision for trees and topographical preservation as indicated in section V, Town and Country Planning Act, 1976. However, in previous development, the implementation of the provision has not been implemented. Therefore, the said provision should be embedded in the earthwork approval and the trees and topography need to be inventories. Another aspect that need to be embedded in the legislation is the property's owner responsibility towards slope maintenance as well as to effected neighbouring lot from the property development activities. This responsibility should be stated in the land or property title and in should be for perpetuity.
5.	Propose Best Planning Practices for Sustainable High Land and Steep Slope Development	Demand for sustainable development is increasing nowadays. Challenges in dealing with sustainable development implementation are mainly on safety assurance, environmental preservation and physical environmental stability. Thus, the emphasis in planning and development is on the environmental control, natural topography, greeneries, natural waterways and best living environment. Best planning practices

		should be implemented to ensure development implementation sustainability.
6.	Special Area Plan	High land and steep slope area need to be developed systematically and continuously monitored. It is suggested that the Special Area Plan which is a comprehensive plan is mandatory to be prepared for high land steep slope development. It indicated a suitable development area and development implementation approaches. However, the special area plan needs to be enhanced by incorporates financial projection, construction methods, enforcement provision and geological requirements.
7.	Green Development Concept	Highland and steep slope development should impose green development concept which emphasis on natural physical environment and bio-diversity. The important development component is the soft landscape consist of matured trees (existing trees in the development land should be preserve as referred to section v, Town and Country Planning Act, 1976), preservation on natural water ways, scrubs and etc. It should also incorporate the new development technologies such as the green building, energy saving design and appropriate building materials that blends with the natural environment.
8.	Low Density Development	Development on highland and steep slope area should strictly allow for low density only. The development layout must accordance to the topographical terrain and design for minimum earthwork. The new development concept that maximise development plot which is the of balance plinth area, single loading entrance, contemporary and traditional design should be encouraged and to be blended with greeneries components.

In a nutshell, there are always a huge prospect for property development growth and sustainable and increment in property value on highland and steep slopes area in relation to the reviewed planning and development guidelines.

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**APPENDIX A**

**Table 5.1: Guidelines and Regulations Variables Changes**

Year	1997				2005				2005				2005				2007				2007				2009				2009				2010											
Guideline	AJSP				NPP				HLDG, NRE				GBDESA				SSP				PSGS				AJDLP				DPGHL, MHLG				DPGHL, SGR											
Development Density	L	M	H	R	L	M	H	R	L	M	H	R	L	M	H	R	L	M	H	R	L	M	H	R	L	M	H	R	L	M	H	R	L	M	H	R	L	M	H	R				
Development Suitability Classes	N/A				N/A												N/A				N/A																							
Class I																																												
Class II																																												
Class III																																												
Class IV																																												
Height/Contour	N/A								N/A				N/A				N/A								N/A																			
<150 m																																												
>150 m-300m																																												
>300m-1000m																																												
>1000m																																												
Slope Gradient					N/A				N/A																N/A				N/A															
<12°																																												
>12°-20°																																												
>20°-30°																																												
>30°																																												
ESA	N/A								N/A								N/A								N/A				N/A				N/A											
Class 1																																												
Class 2																																												
Class 3																																												
Classified Risk					N/A				N/A				N/A				N/A				N/A				N/A				N/A															
Low Risk Zone																																												
Medium Risk Zone																																												
High Risk Zone																																												
Condition																																												
Technical report																																												
Topographical preservation																																												

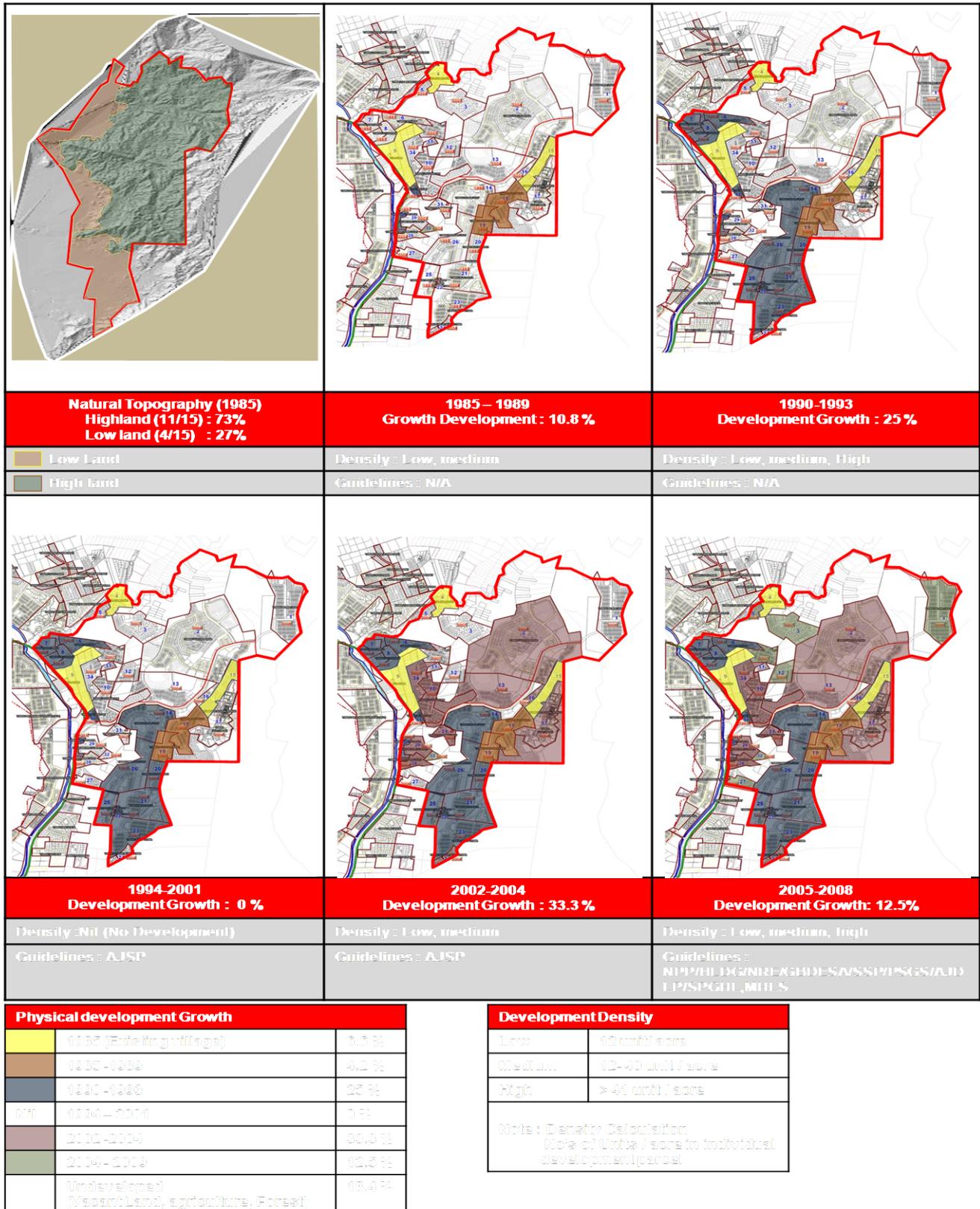
Low	L
Medium	M
High	H
Restricted	R
	Variable

No.	Guideline	Short Form
1	Ampang Jaya Draft Structural Plan 1995-2020	AJSP
2	National Physical Plan	NPP
3	High Land Development Guidelines, Ministry of Environmental and Resources	HLDG, NRE
4	Draft Guidelines for the Conservation and Development of Environmental Sensitive Area and its Surrounding Area	GBDESA
5	State of Selangor Structure Plan 2020	SSP
6	Planning Standards Guidelines Selangor of Selangor (2007)	PSGS
7	Ampang Jaya Draft Local Plan 2020	AJDLP
8	Development and Planning Guidelines for Hilly and High land Area, Ministry of Housing and Local Government,	DPGHL, MHLG
9	Development and Planning Guidelines for Hilly and High land Area, State of Selangor	DPGHL, SGR

Source : Department of Town and Country Planning, Selangor (2010), MPAJ (2010)

**APPENDIX B**

**Figure 5.2: Development Growth Based on Permissible Densities**



Source : Department of Town and Country Planning, Selangor (2010), MPAJ (2010)