Along the shoreline and in the sea where limestone is in contact with the sea water marine erosion and weathering processes produced beautiful and unique seascape features such as sea-stack, sea-arch, sea-cave, sea-notch, promontory, remnant island, abrasion platform and magnificent rare mangrove forest growing on limestone bedrock. This phenomenon forms beautiful and unique scenery between limestone hills.

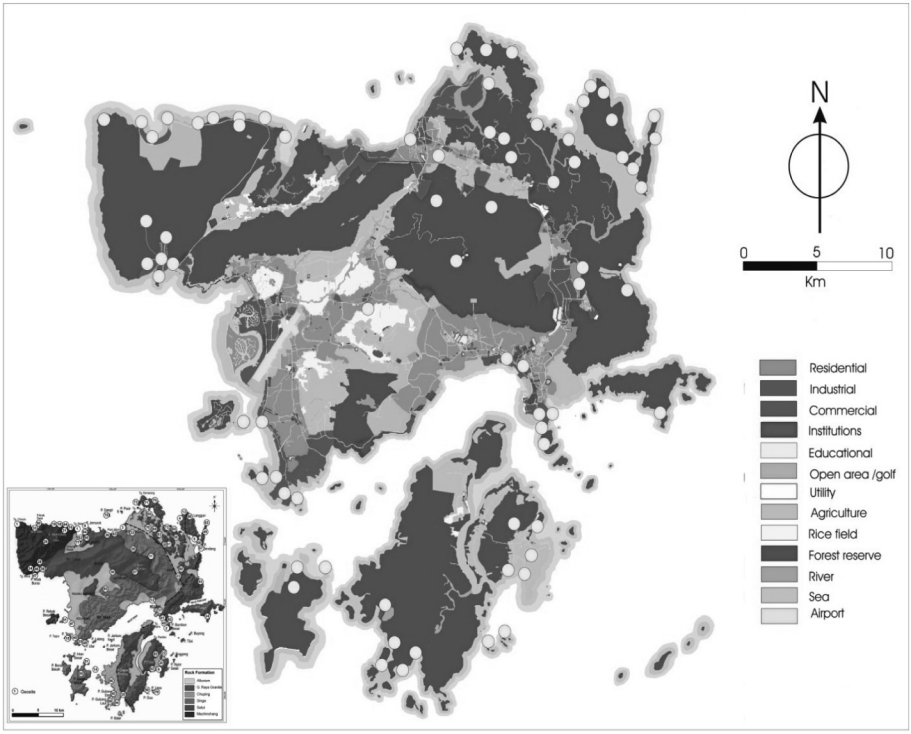
Apart from landscape features, limestone is also rich in fossils and other geological elements of high scientific value. Several fossil and mineralisation sites have been identified in Kilim-Kisap and Dayang Bunting areas.

IMPORTANCE OF GEOHERITAGE IN LANDUSE PLANNING AND THE NEED FOR CONSERVATION

As discussed above the geological heritage features at each geosite have taken hundred million years to be produced through very slow geological processes. A feature like the oldest piece of tronjehmite rock is found only on Pulau Tepur and should be well protected. Many other features of similar rarity and importance can be found in Langkawi and must be included in the list of national heritage. The sea-karst and island karst features are very rare and similar landscape can only be found in a few places in the whole world. The majestic Machinchang landscape is only found in the Machinchang range. These evidences tell us that they are priceless and should remain intact or with minimum disturbance in future.

Most of the beautiful geoheritage features and geosites as shown in Figure 5 are located in either geoforest parks or permanent forest reserve. There are more than 70 geosites within these forest reserves some of which are included in the three geoforest parks in 2005, namely Machinchang Cambrian, Kilim Karst and Dayang Bunting Marble Geoforest Parks. The concept of geoforest park was introduced by Ismail et al. (2004) as a new concept and approach for conservation which combine the importance of geological and biological elements found together within the forest reserves. Geosite protection is considered as an important agenda in Geoforest Park in ensuring sustainability of all natural resources and in adding more value and attraction to the park.

FIGURE 5 : Distribution of Geoheritage Sites Superimposed on the Present Land Use Map to Show the Present Vulnerability of Some Geosites



Another approach to conservation is via the introduction of geological monuments and protected sites (Ibrahim Komoo and Kaderi Md Desa 2003; Komoo 2003). Geological monument is defined as a large site with several important geoheritage resources and outstanding landscapes. Two of the four geological monuments of Langkawi are related to limestone geoheritage and the other two are associated with the clastic sedimentary rock. They are Pulau Langgun and Pulau Singa Kechil Geological Monuments. Pulau Langgun is made of Setul limestone and protected within Kilim Karst Geoforest Park, while Pulau Singa Kechil bears Chuping limestone and is protected under the Protected Forest Reserve. Conservation strategy for other geoheritage sites located outside of the Forestry Department jurisdiction is still in its early planning stage.

Most of the geosites mentioned above possess very high scientific or cultural heritage values. Most of these geosites possess very significant scientific values and until now have been the subjects for research and education for local and international people. Some of these geoheritage features and geosites are not available anywhere else on earth

and can be regarded as national treasures and heritages. These geoheritage features are also non-renewable, which means that once they are damaged or wiped out they will be gone forever. These reasons justify that most of the geoheritage resources and geosites need to be urgently protected or at least given due consideration in the land use planning to ensure their sustainability. At present most of the geoheritage features identified at more than 90 geosites in Langkawi are located either in the three geoforest parks or Permanent Forest Reserve, but the rest remain vulnerable because they are not located in any conservation area (Figure 5) and can be easily wiped out for development (Tanot Unjah 2011). Realising this possibility the Malaysian Geological Heritage Group of Malaysia has submitted about 15 of the highly critical and most important geosites to the Heritage Department of Malaysia to be listed as national heritage.

Geoheritage conservation efforts under the geoforest park concept are not only very important to science but can also ensure the sustainability of geotourism activities in Langkawi Geopark. All the three geoforest parks have now become main tourism areas due to their rich natural attractions provided by the unique geosites combined with rich biological resources. In Kilim Karst Geoforest Park, tourists are coming in large numbers to experience the boat trail and to enjoy the beautiful scenery created by the combination of limestone karst landscape, mangrove forest and geosites found along this trail. For Dayang Bunting Marble Geoforest Park, the main attractions are its freshwater lake, the Pregnant Maiden island landscape and other beautiful smaller islands within the park. In reality the beautiful karst landscapes which were formed by geological processes over a very long period of time is actually the main attraction in these areas. Whilst in the Machinchang geoforest park the mountain landscape is already very majestic and magnificent even without other features. In reality Machinchang Geoforest Park hides so many highly valuable resources including the primary and sedimentary structures as well as beautiful ones of the oldest shallow marine sequence in this region. This aspect however was not known to many people before they have the basic geological knowledge to enable them to appreciate the importance of the geological features and factors in these scenic areas. While cruising along on the way to Dayang Bunting tourists can stop at several geosites in the Singa formations scattered on the several smaller islands.

Tourism data collected by Langkawi Development Authority (LADA) shows that tourist arrival to Langkawi is growing at about five (5) to seven (7) percent a year after the declaration of Langkawi as a global geopark in June 2007. The same trend is also observed in the limestone areas such as Kilim (Table 2). This increase in tourist arrival could reflect the increase in the level of understanding and awareness about geology among the tourists. Hopefully this increasing awareness will lead to increase in the sense of belonging among the local people and visitors for them to support all activities related to conservation of geological heritage resources not only in the fragile limestone ecosystems, but also in other parts of the country.

TABLE 2 : Number of Tourist Arrival in Kilim Area, 2006-2009

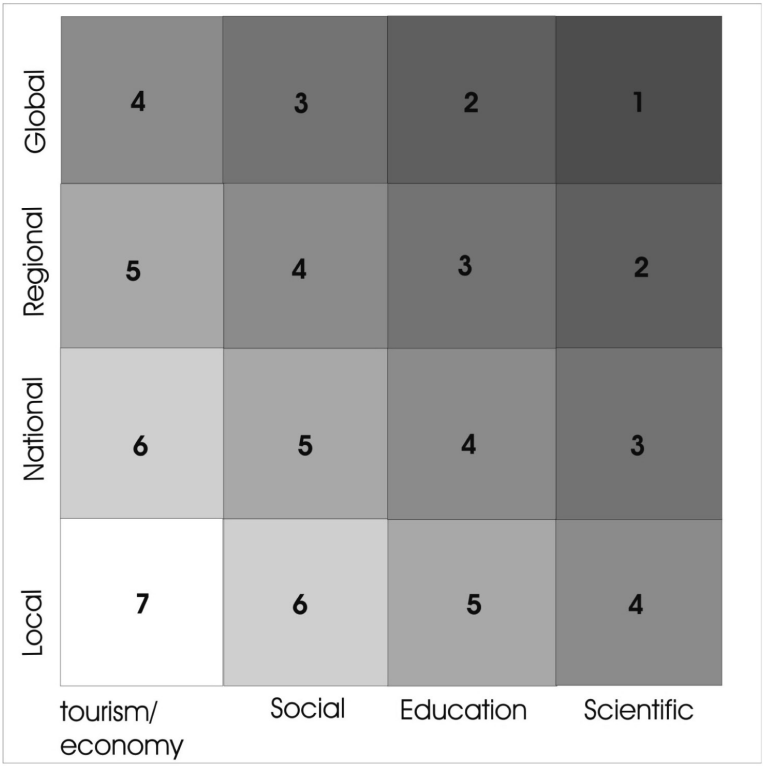
YEAR	TOURIST ARRIVAL AT KILIM
2006 (Langkawi Geopark was declared as national geopark in May 2006)	42,375
2007 (Langkawi Geopark was declared as a member of Global Geoparks Network in June 2007)	78,145
2008	167,142
2009	115,660 (up to September)

Source: Langkawi Development Authority 2009

RANKING THE GEOSITE FOR CONSERVATION

As had been shown all the geological heritage features and sites in Langkawi are very important. Those features and sites, which are very significant at the global or regional level need urgent protection. How they can be protected is another subject for discussion. At the same time there are quite a number of other features that look very similar and fall in the same category. Hence, a method to rank each feature or geosite is very important not only for it significance, but also for the purpose of management and protection. First and foremost all geosites in Langkawi need to be categorised accordingly such as based on rock type, mineralogy, fossil, geological structure, landscape, geological process, etc. Then the ranking processes can be done within the category, for instance, if there are five geosites that fall in the same category, each of them should be ranked to indicate exactly which geosite or feature is the most important and should be urgently protected by whatever means and the rest may be sacrificed for the sake of development. In order to do this a chart (Figure 6) is proposed and can be used as a guide to rank the geosites or stand alone geological features. This chart is a subjective assessment of the geosites based on the significance and the usage of the geosites. If a geosites is very important to science at the global level it carries the highest rank and so on as shown in the figure. Based on this which geosite is the most important and should be protected without compromise can be shown.

FIGURE 6 : Chart Showing the Significance Versus the Usage of a Geoheritage Site or Feature That Can Be Used as a Guide in Ranking It.



CONCLUSION

Langkawi has long been a treasure trove for geologists because it can be considered as a geodiversity hot spot of the country. Geoscientists come from all over the world to Langkawi to study its oldest sedimentary sequence as well as the most complete sequence of Paleozoic sedimentary rock. Its long and complex geological history makes Langkawi a very interesting place where geological diversity is so wide and rich with highly valuable geological features. All the geosites identified thus far have very special features some of which are so priceless as they are not found anywhere else in the world. Realising the importance of all these features and geosites, since 1996 the Geological Heritage Group of Malaysia has taken the initiative to increase awareness among the people and at the same time to promote the resources for long-term benefit through the concept of geotourism. Recently with the advent of the geopark initiative by UNESCO Langkawi was approved to join the Global Geopark Network and became

the first global geopark in Southeast Asia. This would not have been possible if not because of continuous research programmes that had unveiled the geological secrets of Langkawi and tireless public awareness programmes and promotion of the unique and internationally significant geological features found there. Even at this stage there is no guarantee that all the geological features found at more than 90 geosites will be sustained for over a long period of time. Rapid physical development and the needs for space might one day wipe out some of the most important geosites. These geosites are the main attractions in geo-eco-tourism for now and also in future. Protecting these geosites mean that protecting the future of Langkawi's tourism industry. To ensure the sustainability of geo-ecotourism industry these geosites need to be given due consideration in future land use planning. This consideration for land use planning would also mean a better-integrated city plan. For this purpose each geosite needs to be accurately zoned and protected or at least put under a management body that will look after its promotion and future development.

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LAND USE PLANNING STATUTES FOR LANGKAWI GEOPARK CONSERVATION AND DEVELOPMENT

Sarah Aziz[1], Halimaton Saadiah Hashim[2] and Tanot Unjah[3]
Institute for Environment and Development (LESTARI)
UNIVERSITI KEBANGSAAN MALAYSIA

Rahimah Abdul Aziz[4] and Chan K. L. Geraldine[5]
School of Social, Development and Environmental Studies
Faculty of Social Sciences and Humanities
UNIVERSITI KEBANGSAAN MALAYSIA

Abstract
This paper takes off from the point that geoparks and land are intertwined, and that land use planning can serve as a means to enable effective conservation and development of geoparks. The focus lies on how existing land use related statutes could be put to use to capture the components and elements that make up a geopark, particularly in the case of Langkawi Geopark. Given that there are more than 120 statutes that can be linked to the various aspects and components that make up a geopark, this article has taken the liberty to only focus on a few statutes rather than all that has been identified. This is intentional so as to enable detailed discussion regarding where components that make up a geopark can converge in land use planning aspects, also about processes and procedures that are embodied in existing statutes.

Keywords: Langkawi Geopark, law, statutes, land, land use planning

[1]Fellow, Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia. e-mail: sarahaziz2000@yahoo.com
[2]Guest Editor, Principal Fellow, Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia 43600 Bangi, Selangor, Malaysia. e-mail: halima@ukm.my
[3]Fellow, Institute for Environment and Development (LESTARI), Universiti Kebangsaan Malaysia, 43600 Bangi. Email: tanotunjah@yahoo.com
[4]Guest Editors, Professor,School of Social, Development and Environmental Studies, Faculty of Social Sciences and Humanities, Universiti Kebangsaan Malaysia, 43600 Bangi, Selangor, Malaysia. e-mail: ikra@ukm.my
[5]Senior Lecturer, Faculty of Social Science and Humanities, UKM. kmchn21b@yahoo.com

INTRODUCTION

This article will begin by setting out the use of terms for the following key words, i.e., law, conservation, development and geopark, so as to facilitate a focused discussion that would lead towards determining options that can make law work for geopark conservation and development focusing on land use planning. This is essential as what is meant by the different terms and how they are used are diverse, and differ from one discipline to another. Here the terms used are contextualised, using the broadest sense of the word, so as to fit the many disciplines and interpretations available. A brief note is also about how statutes are chosen and matched with prerequisites in ensuring that conservation and development can be both made complementary, through existing regulatory mechanisms.

Without going into a protracted debate as to what is meant by law, or what is the concept of law, the 'law' as discussed here is taken in its simplest form, as being a set of rules set in statutes (written law as opposed to oral, customary law or judicial precedents) which are instruments of governmental power (Morrison 1997). It focuses purely on the systems and sets of rules that manifest or can be manifested through statutes of law, which controls human behaviours and actions. Laws are useful means to help establish mandates, jurisdiction, standards, procedures, processes and rules, as well as determine the scope of responsibility and accountability (Sarah Aziz et al. 2002). The emphasis is on the rules and regulations needed to effect conservation and development in a geopark setting, pinned to the fact that what constitutes on geopark and the focus areas of a geopark are predominantly related to land and how land is used.

The terms conservation and development gives rise to a challenge, as present statutes applicable in Langkawi do not clearly define what is meant by it. This article will borrow from Pinchot (1910), who suggests that among others, the principles of conservation stands for development, not just husbanding resources for future generations as it demands the welfare of the present generation first, then the following generation; secondly it stands for the prevention of waste and the destruction of natural resources; thirdly it stands for the development and preservation of natural resources. He further notes that conservation means the greatest good over the greatest number for the longest time. Conservation can also refer to two basic notions; using only the resources we need (frugality principle); and using resources efficiently (efficiency principle) (Chiras et al. 2006). It can also be taken as a philosophy of managing the environment in a way that does not despoil, exhaust or extinguish, whereby conservation is not an applied science, but a means that incorporates aspects of applied science (Jordan 1995). Noted also, is the perspective offered by Burek et al. (2008) that conservation can be taken to mean the active management of something to ensure its quality is retained.

Development, for the purpose of discussion will be taken to mean that which advances growth and fosters improvement of as well as for human wellbeing. Given that this article is slanted towards conservation and development in a geopark setting, it will be guided by what the WCED (1987) offers in terms of 'development':

> "… The word "development" has also been narrowed by some into a very limited focus, along the lines of "what poor nations should do to become richer," and thus again is automatically dismissed by many in the international arena as being a concern of specialists, of those involved in questions of "development assistance." But the "environment" is where we live; and "development" is what we all do in attempting to improve our lot within that abode."

What is meant by geopark, is taken from the concept mooted by the Global Geopark Network (GGN) that grounded the designation of an area with clearly defined boundaries and a large enough area for it to serve local economic and cultural development (particularly through tourism) (GGN April 2010). An area designated as a geopark would be made up of a geographical area where geological heritage sites are part of a holistic concept of protection, education and sustainable development, that facilitates the synergy between geodiversity, biodiversity and culture, highlighting sites of ecological, archaeological, historical and cultural value (GGN April 2010).

The proposed context for the use of terms as put forward earlier, would serve to structure and guide the discussion regarding the role played and can be played by statutory law. The discussion will focus on the link between existing statutory provisions, the prerequisites for geopark conservation and development and land use planning. This article borrows from the arguments advanced by Moroni (2010), in that social-spatial order can exist only if it has been deliberately thought out and constructed, in this case, an order in which the system of rules and order of actions will match up. He further quotes Patrick Abercrombiei, who states, "… planning occurs when mankind…makes a definite and conscious attempt to model or mould his environment …". This is the point of departure, in that how can statutes be used to help better mould human behaviour in a geopark setting.

GEOPARK CONSERVATION AND DEVELOPMENT: BUILDING BLOCKS FOR CONSIDERATION

As mentioned earlier, there are at least four key aspects to be considered once an area has been designated as a geopark for inclusion into the Global Geopark Network (GGN). These are: the designation of a clear boundary and area; clear designation of authority either as a singular body or through a partnership; means to ensure sustainable tourism and sustainable economic development; and regulative measures that will effect conservation of the geological, biological and cultural heritage and area (GGN 2010).

Taking each aspect, fundamental questions will have to be set out to aid identification of statutes and statutory provisions available and options required to ensure that the four aspects are addressed. From the research undertaken on Langkawi Geopark Governance and Langkawi Geopark Management Plan funded by Universiti Kebangsaan Malaysia (UKM) research grant and Langkawi Development Authority (LADA) respectively, it was determined that a statutory profile is necessary to enable clearer understanding of what mandates are available in so far as managing a geopark is concerned. In addition, both studies also set out to detail the various required mandates to govern Langkawi as a geopark. This necessitated the breaking down of the component that constitutes and serves as the key focus of a geopark. In this article, the exercise is referred to as identification of geopark building block.

The main focus of the statutory profiling component and mandate identification, was finding out the true sense of any form of words (Singh 2004) therein a statute. In order to do that, the keywords intended to be sought need to be identified first, then an approach is adopted to aid profiling, focused on the purpose of the statute, or purposive approach which is the favoured approach here in Malaysia, as expounded by the Interpretation Act 1948 (revised 1967), section 17A, which states that in the interpretation of a provision of an Act, a construction that would promote the purpose or object underlying the Act (whether that purpose or object is expressly stated in the Act or not) shall be referred to as a construction that would not promote that purpose or object. From this exercise more than 120 statutes were identified based on the key aspects of what constitutes and can be linked to a geopark. For the purpose of this article, the examples shared herein, focus on the key aspects of geopark, conservation and development, which will later be used to establish the link between law and land use planning.

An essential requirement under the GGN guidelines for inclusion of an area as a geopark under the list (GGN 2010) is the determination of a clear boundary and area pegged to protection, education and sustainable development. From a statutory perspective this brings forth three fundamental questions:

- Which governmental entity has the mandate to determine the boundary and area?
- Which statutory provision provides the processes and procedures required to establish such boundary and area?
- How can the law be used to make sure that aspects of geological, biological and cultural heritage and diversity are 'captured' when a boundary is determined?

Determining which statutory provision matches or can be used to match, will be dependent on keywords such as boundary, area, establishment, determination, delineation and demarcation.

The second aspect touches on the designated authority or partnership of authority to conserve and develop a geopark. Statutory law figures heavily here, as it serves as the basis for which mandates can be set out and the identification of jurisdiction of specific components that make up a geopark. Essentially, geopark conservation and development can be divided into two parts: the components or 'things' that make up a geopark, and the activities that can be directly or indirectly linked to a geopark, including the ensuing impact (positive and negative). Taking this simplistic point of view, the identification of government authority and relevant statutory provisions can be divided into these two sectors to aid preliminary profiling of the 'who's' and 'what's'.

The components 'sustainable tourism' and 'sustainable economic development' are not as easily determined, given that there is a wealth of literature on the subject matter. The United Nations Environmental Programme and World Tourism Organisation, in their *Making Tourism More Sustainable: A Guide for Policy Makers* (2005), provides some insight as to what sustainable tourism could mean:

> "…Sustainable tourism is not a discrete or special form of tourism. Rather, all forms of tourism should strive to be more sustainable…Making tourism more sustainable is not just about controlling and managing the negative impacts of the industry. Tourism is in a very special position to benefit local communities, economically and socially, and to raise awareness and support for conservation of the environment. Within the tourism sector, economic development and environmental protection should not be seen as opposing forces - they should be pursued hand in hand as aspirations that can and should be mutually reinforcing…It must be clear that the term 'sustainable tourism' - meaning 'tourism that is based on the principles of sustainable development' - refers to a fundamental objective: to make **all** tourism more sustainable. The term should be used to refer to a condition of tourism, not a type of tourism…"

Drawing from this, it would seem that the law should focus on ensuring that conditions are in place to ensure that tourism activities are sustainable, based on principles of sustainable development. The laws should be structured to facilitate tourism activities that benefit local activities and environment, in this case local communities and geopark components in Langkawi.

The GGN guidelines (GGN 2010) states that one of the main strategic objectives of a geopark is to stimulate the local economic activity, fostering development that is culturally and environmentally sustainable, improving human living conditions and the environment, focusing on "pride of place", which in turns aids protection of geological heritage. Eder et al. (2004) suggests that geological heritage sites, if properly managed, can generate employment and new economic activities. A geopark should contribute

through the enhancement and promotion of a certain image related to the geological heritage and the development of tourism with related actions that have a direct impact on the territory influencing its inhabitants' living conditions and environment (McKeever et al. 2005). It should also take into consideration the sustainable resource utilisation, provision of infrastructure and local socio-economic development (Sharina Abdul Halim et al. 2011). The essential consideration here would be how the law could be used to structure provisions that would enable the fostering of local economic activities that in turn would serve both human and environmental well being.

The fourth building block to be considered is the conservation and development of the geological, biological and cultural heritage and area. This trigonal dimension, interlinking biodiversity, geology and culture adds further challenge, in that each aspect will have to be broken down then regrouped based on commonalities. The term biodiversity, as defined in the United Nations Convention on Biological Diversity 1992, literally blankets the biological kingdom and its ecological processes, which covers a wide variety of plants, animals and microorganisms as well as ecosystems. The Millennium Ecosystems Assessment Report (2005), also refers to it as being a multi-dimensional term that also includes the complexity and interdependency of living organisms and humans, forming the foundation of ecosystems services to which human beings are intimately linked ; a layer of living organisms through the collective metabolic activities of its innumerable plants, animals and microbes physically and chemically unites the atmosphere, geosphere and hydrosphere into one environmental system, which is the manifestation of the workings of life.

This would mean, in so far as conservation and development had been simplified in context, biodiversity offers a three-layered focus area. The first encompasses the living and complex organisms, which include humans, plants, animals and microbes. The second layer looks at habitat and ecosystems, while the third layer looks at ecological services. What would be of primary consideration is the various species that make up the biodiversity family, including the sub-species; the areas, habitats and ecosystems where these species reside (focus being on non-human species); and lastly, the components of ecological services. In Malaysia, the term biodiversity is contextualised in the National Biodiversity Policy 1998 as encompassing three levels, genetic diversity (within species, measured by variations within genes of individual plants, animals and microorganisms, both within and between populations of species), species diversity and ecosystem diversity (this covers habitats, biotic communities and ecological processes in the terrestrial, marine and other aquatic environment).

As far as the law here is concerned, in relations to biodiversity, the emphasis would be on who and what mandates are available to regulate matters pertaining to all of the above, be it the identification, determination, listing, protecting, rehabilitating, the actual conservation or development of the material, species, sites, areas or systems.

Consideration will also have to be made regarding whether the act of conservation and development is conducted *in situ* or *ex situ*, as the means to regulate would then vary. Geodiversity (Gray 2008), is the abiotic equivalent to biodiversity, and includes the natural range of geological (rocks, minerals and fossils), geomorphological (land form and processes) and soil features, which also include their assemblages, relationships, properties, interpretation and systems. Gray also breaks them down into four categories, features, processes, sites and specimens. With regard conservation, Sharples (1993) offers a perspective worth considering in that, geoconservation aims at conserving the diversity of the Earth features and systems and allowing the ongoing processes to continue to function and evolve in a natural fashion. Gray (2008) also cites the principle upheld in the Australian Natural Heritage Charter 1996 (updated in 2002), which states that conservation is based on respect for biodiversity and geodiversity, and should involve the least possible physical intervention to ecological processes, evolutionary processes and Earth processes. Almost similar to biodiversity, the focus would also be on 'who' and 'what' can be used to regulate matters pertaining to the conservation and development of features, processes, sites and specimens.

Without going through the debates on what constitutes culture, this article will look at what culture means based on the definition given by Edward Burnett Tylor in his book *Primitive Culture* (1871) (in Jokilehto 2005).:

> "Culture ... is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society."

The link that binds all three components, i.e. biodiversity, geodiversity and culture would be heritage. Based on the World Heritage Convention (1972), they would fall within two distinct groups, cultural heritage and natural heritage (geodiversity and biodiversity). The United Nations Educational, Scientific and Cultural Organisation (UNESCO), at its webpage http://whc.unesco.org/en/about/ states that "… heritage is our legacy from the past, what we live with today, and what we pass on to future generations …". The geopark concept focuses on the heritage aspect, which cuts across the trigonal components that make up a geopark. For cultural heritage, the main aspects are monuments and, groups of buildings (both are judged for their outstanding universal values from the point of view of history, art or science) and sites (to be judged for their outstanding universal value from the historical, aesthetic, ethnological or anthropological point of view). Natural heritage also has three key aspects i.e. natural features consisting of physical and biological formations or groups of formation (to be judged from the point of outstanding universal value from the aesthetic or scientific point of view); geological and physiographical formations that constitute habitats of threatened species of animals and plants (to be judged on the outstanding universal value from the point of view of science or conservation); and natural sites or precisely delineated areas (judged on its

outstanding universal value from the point of view of science, conservation or natural beauty).

In Malaysia, the National Heritage Act 2005 (NHA 2005) interprets natural heritage to include any features of any area in Malaysia, which may consist of earthly physical or biological formations or groups of such formations, geological or physiographical features, mountains, streams, rock formation, sea shore or any natural site of outstanding value from the point of view of nature, science, history conservation or natural beauty including flora and fauna. The NHA 2005 further interprets cultural heritage to include tangible and intangible forms of cultural property, structure or artefacts and may include heritage matter, object, item, artefact, formation structure, performance, dance, song, music that is pertinent to the historical or contemporary Malaysians' way of life, on or in land or underwater cultural heritage or tangible form but excluding natural heritage.

What is prevalent here, is that there is a need to identify, from the present statutory regime, who and what can be used to determine a heritage, what would be the criteria used, and what should be done should a 'heritage' is identified or determined. This is critical to ensure that such interpretation, definition or contextualisation is adopted for usage by all parties concerned, and reflected either through a legal instrument such as a statute, rule or regulation or through accepted practices, either through administrative orders or circulars. It is also important to take into account that the NHA 2005 on heritage refers to national heritage, not local heritage.

The cursory deconstruction of what constitute the building blocks that make up a geopark is crucial. This is to enable the profiling of the 'statutory needs' to facilitate the conservation and development of a geopark. The main intent of establishing a geopark, is for the protection of and to highlight the geological heritage, within the synergistic relationship of biodiversity, geodiversity and cultural heritage. It should also provide for education on the environment, training and development of scientific research in the various disciplines, enhancement of the natural environment and sustainable development policies (Eder et al. 2004). If biological, geological and cultural heritage are put together, perhaps the aims raised for geological heritage (Sharples 1995) could be used as a guide, as it would be pinned to aspects, which are of significant value to the people so long as their intrinsic values are not decreased, be it for purposes of education; scientific research; aesthetics and inspiration; recreation; cultural identification and development as well as a sense of contribution to a sense of place as experienced by people.

Taking cue from the land use aspect, and the brief discussion of what entails from each building block discussed above, from a legal perspective, there is a need for clear identification, description, characterisation and classification of materials and sites, both in situ and ex situ. In addition there is a need to also identify and structure what is needed to conserve the various specimens, materials and sites identified, particularly the

processes and procedures. Guided by the discussion above, Table 1 links biodiversity, geodiversity and cultural heritage components with the key aspects for consideration in geopark conservation and development, particularly when reviewing current statutory regime. The items listed in the conservation and development aspects columns have been drawn from the literature listed in the Reference section of this article.

TABLE 1 : Factors for Consideration when Reviewing and Determining Statutory Needs for Geopark Conservation and Development

<table>
<tr><th>Geodiversity</th><th>Components
Biodiversity</th><th>Cultural</th><th>Legal
Prerequisites</th><th>Conservation
Aspects</th><th>Development
Aspects</th></tr>
<tr><td>Natural
features
(rocks,
minerals &
fossils)
Geomorphological
features
Soil features</td><td>Species
Habitats
Ecosystems</td><td>Property
Structure
Artefact
Object
Item
Sites</td><td>Mandate
(Responsibility/
Accountability)

Jurisdiction
(Subject matter/
Scope)</td><td colspan="2">Information
Approach
Methods
Techniques
Tools
Programmes
Activities</td></tr>
<tr><td>Specimen
Sites
Features
Formation</td><td rowspan="2">Ecological
Services and
Processes
(Terrestrial,
marine
and other
aquatic
environment)</td><td>Formation
Structure
Monuments
Buildings</td><td rowspan="2"></td><td rowspan="2">Characterisation
Classification
Categorisation
Designation
Delineation
Listing
Demonstration
Planning
Protection
Conservation
Rehabilitation
Evaluation
Assessment
Monitoring
Reporting
Review
Revision
Education
Communication</td><td rowspan="2">Identification
Determination
Investment
Planning
Evaluation
Assessment
Monitoring
Reporting
Review
Revision
Communication</td></tr>
<tr><td>Assemblages
Processes
Systems</td><td>Performance
Dance
Song
Music</td></tr>
</table>

From a legal point of view, using the land use approach can help address the points for consideration raised for each building block identified. The emphasis then would be on the need to balance the use of land, and the control of land use. More importantly the

planning of how it should be used becomes the primary point of departure. Considerations will have to be made regarding what is on the land (the materials and sites of interest and significance); what is the condition, state and status of the land; what are the existing and planned activities on the land; what are the development directions (as evident in policies); and what are the existing regulatory measures in place. What is important is how land use planning measures are to be used to control, restrict and permit activities within a designated geopark. For that the following must be made clear:

- The aspects to be conserved (sites, specimens, materials, etc.);
- The types of activities that will have to be controlled, restricted and permitted;
- The key threats and impacts to the site, specimen, material, etc. as well as actions to be undertaken to address them;
- Competing and conflicting interests in relation to the land, site or material or specimen on or in the location that has been identified for either conservation or development; and
- Land status, with special focus on rights to land or site or material or specimen etc., and the scope to modify or restrict or vary such right accorded to the owner or occupier.

AUTHORITY OVER AND IN RELATION TO LANGKAWI GEOPARK

Langkawi archipelago, has been declared a geopark, and has undergone its first assessment in June 2011. In the earlier mentioned series of studies on Langkawi Geopark Governance and formulation of a Langkawi Geopark Management Plan, it was noted from the exercise conducted in profiling the statutes that can be linked to the geopark, the one aspect that came through was the need to determine the appropriate mandates and means to link the different mandate holders to ensure that the governance structure and system for Langkawi Geopark is made clear. This would then contribute to a partnership setting where authority is concerned (as recommended by the GGN guidelines), as Malaysia adopts a federated system of government guided by the provisions of the Federal Constitution of Malaysia 1957. This simply means that in Langkawi, there is three tiered government system in place, i.e. Federal government, State government and Local Authorities. Each level of government is represented by their respective agencies or designated authority, drawing their mandates form existing legislative provisions.

The Federal Constitution 1957 ("the Constitution"), being the supreme law of the land (Article 4), sets out the matters over which the levels of government will have jurisdiction, both in its legislative capacity (specific to Federal and State governments) and executive capacity (again, specific to Federal and State governments). This can be seen in Articles 73 to 81, as well as Articles 92 to 95 of the Constitution. The Local Authorities draw their mandates from either Federal or State government mandates.