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Sustainability: Linking Built and Natural Environment

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Abstract: Sustainable is allowing something to continue for a period of time, and sustainability denotes the noun for the effort, to continue. Relating this term to the natural environment, would means the ability of earths various systems including human cultural systems and economies to survive and adapt to changing environmental conditions. Built and natural environment exist in the same space and time. The earth has existed about 3.7 billion years ago; and through several major global changes has managed to retain harmony between living and the non-living components. With the arrival of human being estimated some 350,000 years ago, global changes become more intense and unpredictable. Human activities have impacted on the ecosystem equilibrium and negative effects are being felt by people: global warming, increase in pollution level and rate of biodiversity erosion are some issues frequently quoted. As people race to achieve socio-economic development ranking, they lose sight of their role as stewards of the environment. Being created divine, equipped with brain and *aqal* human could still turn back, learn some lessons and move forward to better the earth, not only for themselves but the future generations. This paper will discuss how to simulate some sustainability principles from nature to guide and assist people in handling built environment, to achieve sustainable living, in the Malaysian context. Examples given are often at micro-level: activities that could be carried out by a single human being, which when accumulate may produce substantial changes. Before too late, it is time to learn and copy how nature sustains itself to help guide in managing our built environment, to achieve sustainable living.

Keywords : sustainability principles, built environment, natural environment, stewardship, ecology

1. Introduction

The world is facing severe environmental problems in all forms. Climatically and physically, excessive carbon dioxide and other greenhouse gases emission and accumulation in the atmosphere trap heat and are causing an increase in global temperature. This in turn, affects several other natural bio-geochemical cycles resulting in unpredictable intense drought and flood; and melting of ice. Such phenomena cost life and properties. Chemically, resources such as air, water and soil are polluted affecting human health and causing discomfort and stress. Biologically, the loss and degrading quality of habitats are increasing rapid erosion of biodiversity, which would disrupt ecosystem equilibrium leading to ecological havocs and instability. People and the governments of the world are now attempting to take charge of the world, to enable survival for human beings. Scientists and to a certain extent the general public are now seriously looking into the causes and effects of these problems; the link between the built environment, the natural environment and human activities.

Then the term sustainability makes an appearance and today it is a household jargon: Sustainable development, sustainable living. In Cambridge dictionary [1] the term sustainable means *allowing something to continue for a period of time.* Focusing on environment, it further *clarifies that sustainable means causing little or no damage to the environment therefore, it is able to continue for a long time.* As for Miller [2] sustainability is the *ability of earth's various systems including human cultural systems and economies to survive and adapt to changing environmental conditions*.

Following the proposed pathway [2] there are five steps to achieve sustainability in the built environment. The first step: understand the components and importance of *natural capitals* (natural resources living and non-living and the ecological services). The second step: recognize that many human activities degrade natural capital by using normally renewable resources faster than nature can renew them. An example in the Malaysian context could be degradation of once prime forested land by excessive and clear cutting of trees and no replanting. The third step: search for solutions to environmental problems and in Malaysia we are doing this aggressively, since lately. The fourth step: in trying to solve environmental problems there is a need to make trade-offs or compromises. The fifth step: to consider individuals, as each individual matters. Every single person on this earth could contribute, either by individually giving ideas to solve environmental problems or by collective decisions to bring about

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political or social changes that could facilitate managing environmental problems better.

But how could sustainability be translated into practical actions and activities that could be useful for the masses as well as individuals to help slow down the propagations of even more new environmental problems, and reduce the consequent compounding effects of existing environmental problems?

After so many years, only now that the negative effects of human activities on the environment is realised. There seems to be little progress on how to address the problems. Looking back to 1975, the Montreal Protocol called for consideration be given by world governments to reduce environmental problems. Bruntland Commission Report 1987 defines sustainable development as that which "seeks to meet the needs and aspirations of the present without compromising the ability to meet those of the future" [3]. Five years later, in 1992 at the world summit in Rio de Janeiro, more than 200 world leaders vowed that central to progress and development, humans should take charge and be responsible for events occurring around them. Kyoto Protocol, Convention on Biological Diversity and many other international agreements were drawn up, calling upon the global communities to take responsibility for their actions. Well, many more international meetings and agreement may happen but if the individual lack sense of responsibility and urgency on what is happening around him/her, the earth will head towards global calamities!

The earth and its habitants are created by Allah *swt*. For the past almost perhaps 3.7 billion years (God knows best) earth survived on its own with flora and fauna, appearing and disappearing, harmoniously, as He pleases. He has laid rules and regulation of which people recognize as the law of nature, where the ups and downs balances out to form the so called ecological equilibrium.

Then about 350,000 years ago (God knows best) Adam and Eve were thrown out from heaven and multiplied to give rise to other *Homo sapiens* (human being) filling up spaces between the flora and fauna. As people are equipped with brain that enable them to think, they began to progress. From being hunter and gatherer they become farmers, and later on developers and manufacturers. In doing so, much of the existing resources were used, at times excessively. Let us not forget that Allah has also equipped human being with *Aqal*, the ability to make judgment and consideration, and to use their brain and *Aqal* together. The consequences of such situations' is obvious. Excessive use of resources especially non-renewable resources such as fossil fuel and minerals has led to the lack of them. The manner how renewable resources were exploited ended making it now non-renewable (eg. Logging of a forest turning in to degraded land), has decrease the opportunity for further future use. In addition, the wastes from these activities are affecting the earth negatively. Poor management and untreated, excessive accumulations of wastes cause pollution to air, water and soil, inevitably affecting human welfare and producing ecosystems instability.

Looking back, since a very long period of time (3.7 billion years) mother nature has been able to keep in harmony, between the earth and the environment. Perhaps we should learn from mother nature how it has maintained itself. Though more thinking could be put into it, lets make a short cut by looking at what is available by referring to the thinking of Miller [2]

2. Principles of Sustainability: Linking natural to built environment

According to Miller [2] there are four principles of sustainability in nature and for each of the principles, he proposes how people could learn from it and suggests actions that could be taken by people to simulate the natural principles. The principles are shown in Table 1.

Table 1 The four principles of sustainability in nature and how each could be simulated by people

Miller's 2006 ideas:	
1.	Nature runs on renewable solar energy.
2.	Nature recycles nutrient and wastes. There is little waste in nature.
3.	Nature uses biodiversity to maintain itself and adapt to new environmental condition.
4.	Nature controls a species population size and resource use by interactions with its environment and other species.
How people can simulate:	
1.	Rely mostly on renewable solar energy.
2.	Prevent and reduce pollution and recycle and reuse resources.
3.	Preserve biodiversity by protecting ecosystem services and habitats and preventing premature extinction.
4.	Reduce human birth and wasteful resource use to prevent environmental overload and depletion and degradation of resources.

Each of the proposed simulation looks sufficiently generic to encompass situations in most areas of the world. However, to further enhance these proposed simulations, and to cater for the local scenario in Malaysia, each of these will be discussed separately taking into account the local practicality and socio-economic perspective. For practicality, factors involved include resource: time, money and expertise. From the social perspective, culture will be considered. Although, Malaysia is a plural society with several ethnicities and cultures, there are certain norms that thread through the cultures. With regard to economic perspective, undeniably Malaysia is heading into 2020, the landmark when Malaysia would be recognized as a developed high income nation.

3. Nature Principle of Sustainability 1: Nature runs on renewable energy

Definitely Malaysia is blessed with solar energy, biomass and hydropower potential; all of which are renewable energy sources. Plants, received solar radiation, necessary for photosynthesis, convert the energy to manufacture biomass, and release oxygen. The abundance of energy from the sun, and its consumption by the plants for photosynthesis is sustainable, and thus solar radiation, and its effect on the plant by producing biomass, and as well as providing energy for precipitation for hydropower energy is renewable and sustainable and is a good example how nature runs it system.

On a human time scale, renewable energy can be replenished fairly rapidly through natural process. For Malaysia, blessed with plenty of sunlight, daily, and throughout the year, she is able to utilize such an abundant resource.

In year 2000 Dalimin et al.,[4] reported their achievement in providing electricity to a small remote village in Sabah called Marak Parak. Using 2000 solar modules, the central village system was able to provide electricity to the village community, consisting of 109 families, and a total population of 627; a small school, and community religious center and several facilities including water pump and telephone. In 1995, when the system was first installed, it was the largest in Southeast Asia, operating efficiently and providing 100kWH of electricity energy for 24 hours a day to the villagers. Since then, there are more systems installed in Malaysia, especially in remote areas of the country, as more and more development is carried out for sustainable supply of energy.

The presence of hydropower, in Peninsular Malaysia, in Sabah and the largest in Sarawak, are also examples of sustainable use of energy, although for large hydro development, its effect on the ecological system needs to be observed.

4. Nature Principle of Sustainability 2: Nature recycles nutrient and wastes. There is little waste in nature

An example that could be discussed in the context of resource saving is water. Water demand increase with development and populace has become careless about the use of water [5]. Water supply is not only a prerequisite for human development but economic advancement [6]. The world is facing several issues related to water: shortage of water during drought, intense flooding and pollution. Malaysia is blessed with high amount of rainfall, some 3000mm annually and from 190mm to 450mm average monthly during monsoon season [5], However, some states face problems with shortage of water supply. For example Selangor has surpassed its natural demand for water. On the average a person in Selangor consumes 226 liters of water per day – far greater than many developed countries, as shown in Fig. 1 quoted from [5]; and for the average Malaysian, the consumption is about 172 liters of water per day. Md. Azizul et al., [5], suggested the breakdown of domestic water use to be as in Table 2. Despite the abundant rainfall, during dry spell Malaysians are faced with problem of lack of water. This is because most of our water supply depends very much on rivers, and once this river dries out there would be no water for the supply system. Deforestation in or near watersheds would affect the water table and thus the source of water for the river. Some serious thoughts have to be put into firstly making use of rainwater by proper and efficient harvesting and storage techniques; and secondly recycling of waste water at point sources; and this is currently one of the most practical ways to save water. From the management aspect Md. Azizul *et a.l* [5] noted the difficulty to recover revenue from water produced and underinvestment also produces degradation of the water distribution system.

Fig. 1 Consumption of water per capita in Selangor as compared to several countries in the world [5]

Table 2 Sources and consumption of water in Malaysia with breakdown for domestic use [5]

Sources	
1. Direct extraction from river	- 67%
2. Storage dam	- 32%
3. Ground water	- 1%
Total production	4,785,201,801m^3
Consumption	
1. Non-revenue (leakages, under water registration, pilferage)	- 39%
2. Domestic	- 40%
3. Non-domestic (industrial, commercial operation, amenities etc)	-21%
Total consumption	4,044,629,052m^3
Breakdown of domestic use (40% ~ 1,619,851,621m^3. On average a Malaysian uses 172litre of water per day)	
Toilet	30% (per Malaysian ~ 52litres/day)
Bath or shower	28% (per Malaysian ~ 48litres/day)
Clothes washing	20% (per Malaysian ~ 34litres/day)
Cleaning	15% (per Malaysian ~ 27litres/day)
Cooking and drinking	4% (per Malaysian ~ litres/day)
Leaks	2% (per Malaysian ~ 3litres/day)
Total consumption of water (domestic) for Malaysian	172litres/day

Looking at another item, wastes, yes definitely Malaysia has turn into a wasteful nation. The disposable attitude has really dominated the life of Malaysians. Buy – use – throw: a slogan practiced by all even at the lower income group. The style is seen as elegant, modern and progressive – a trademark of current global civilization. Fortunately, some 15-20 years ago, perhaps triggered by what is happening globally, and the desperate need for more landfills, Malaysians had started thinking and considering the effects of our increasing daily solid wastes. Today, more and more people are aware of recycling. The key word however is sorting – a process unfortunately, usually, associated as a menial activity – those that could be recycled and reused and those that need to be disposed off. From a study by Maryati & Ahmad [7], of waste sorted from the Lok Kawi landfill in Sabah, showed that 13% of domestic waste was plastic and 63%, organic wastes. The issue of plastic waste can only be solved when people can reduce or stop using plastic which requires a change in the mindset and attitude. Plastic does not biodegrade and will remain in a landfill for years to come. As for the huge percentage of organic wastes, today, several methods are available and could be useful – examples including vermi-composting (using worms; [8,9] and using microbes such as Effective Microorganism (EM). Products of these processes could be useful as natural or organic fertilizers. Some high calorific organic wastes could also be aggregates for building materials such as fired clay bricks (Aeslina, 2012 – *pers. comm*.)

5. Nature Principle of Sustainability 3: Nature uses biodiversity to maintain itself and adapt to new environmental condition

Biodiversity-wise, Malaysia ranks as the 12 mega diverse nations in the world. The tropical rainforest of Malaysia is estimated to house about 15,000 species of vascular plants (compared to 250,000 worldwide). Table 3 shows how rich Malaysia is. Despite having only 0.2% of land area of the world, Malaysia have 3 to 30% global species and taking care and try maintain these biodiversity the existing natural stability or ecological balance could sustain. However, Malaysia needs to prosper and progress, and envision to be recognized as an industrialized nation in 2020. For this, forested lands (where most of the biodiversity is) are converted to other land-uses : agriculture, mainly planting single crop on large scale plantations and infrastructural development for urbanization.

Table 3 Biodiversity in Malaysia and comparison worldwide [10, 11, 12]

Organisms	No. of species in Malaysia	% of world species	No. of species in the world
Mammals	286	6%	4327
Birds	736	8%	9672
Reptiles	268	4%	6500
Amphibia	158	3%	5000
Marine fish	4000	30%	13321
Freshwater fish	449	5%	8411
Invertebrates	150000	15%	1000000
Flower Plants	15000	6%	250000

6. Nature Principle of Sustainability 4: Nature controls a species population size and resource use by interactions with its environment and other species

It is natural that interactions which happen between living things-living things and living things-

non-living things will result in stability to the ecosystem. Thus, in controlling population sizes and resource use by certain organism could be achieved through interactions between the species of organism with other living things and/or non-living things; and this is ecology. This aspect is very much related to maintaining biodiversity because for interactions to occur many species are needed and this is one of nature's law. But human actions and activities are now identified as one of the factors that expedite erosion of biodiversity. The main challenge now is how to maintain biodiversity whilst racing into achieving ranking in socio-economic development. Dahiya [13] points out that global biodiversity is changing at unprecedented rate and the most important drivers being: land conversion, climate change, pollution, unsustainable harvesting of natural resources and introduction of exotic species. Dahiya [13] also suggests that the ultimate causes of biodiversity loss are human population growth, together with unsustainable patterns of consumption, increase production of wastes and pollutants, urban development, international conflicts, and continuing inequities in the distribution of wealth and resources.

In Malaysia, biodiversity is found in our tropical rainforest and the vast marine ecosystem. Despite rapid progress to turn Malaysia into a developed country come 2020, the loss of biodiversity is a major concern. Policies and legislations are in place and to name some, at the national level, Malaysia has formulated its own National Policy on Biological Diversity 1998, and at the state level Sabah and Sarawak has their own Enactment on biological diversity. Interestingly however, the public generally is not aware of what biodiversity is and why it is important [14]. To enable principle of sustainability number 4, more awareness on what is and why is biodiversity crucial to people (thus to built environment) should be exposed to the Malaysian public, in particular to highly specialized and professionals. Thus, at UTHM nature conservation courses are being taught to the engineering students [15].

7. Are we living sustainably in Malaysia?

Sustainable living in the Malaysian context may be worded in this manner "wise use of resources in manners that will not cause degradation to the environment and replenishing them, to ensure that the next generation may have the opportunity to use it too". With enough food to eat, nobody die of hunger or due to lack of water; our children goes to school, our spouses shops till they drop, indicating an affluent society, the evidence is showing otherwise. But somewhere in the corner of our heart we know we are not being sustainable. Our utility bill, grocery bill, mortgage or rental rates are increasing, and even environment is hotter than usual. For those who could afford, they turn on the air conditioner to a lower temperature; for those who could not afford will at least have a fan. The air is no longer fresh, and the water supply systems are failing. Nature around us is hitting us from all directions. Stress builds up and more anti-stress pills are swallowed. Sustainable living is a very subjective matter, but is shown that amount of energy used per capita, Malaysia is definitely above several other developing countries (see Table 4).

Table 4 Some examples of energy consumption per capita [16]

Country	Amount of energy used per capita
Bangladesh	214W
Australia	7,622W
Argentina	2,097W
Angola	807W
Canada	11,055W
Malaysia	3,087W
Vietnam	718W

Energy intensity (used per person) in Malaysia is higher than the global average (energy intensity is measured in tonnes of CO_2 emitted from the use of energy to produce a unit of GDP (US$1,000), Malaysia emission per capita is 6.7 tonne CO2 per person (world average 4.35) and the emission intensity in Malaysia is 1.3 tonne (world average is 0.73) of CO2 per US$1,000 GDP (Source: [17]) Can Malaysia not try, to at least, reduce the energy consumption? In order to compare the present scenario in Malaysia, the description below is about the world's most sustainable city. Perhaps, from the description Malaysian, and Malaysia could learn some lessons.

8. Curitiba, Brazil : One of the world's most sustainable major city[2]

Transportation : Mass transits : world best bus system, each day carries 60% of >2.5mill population through express lane dedicated to buses, only high-rise apartment buildings are allowed near major bus routes, and each building must devote its bottom two floor to stores, a practice that reduces the need for residents to travel. Bike paths run throughout most of the city. Cars are banned from 49 blocks of the city's downtown area which features a network of pedestrian walkways connected to bas staions, parks, and bike paths. The system relies less on automobiles, uses less energy per person and has less air pollution, GHG emission and traffic congestion. Trees planted throughout the city. No tree can be cut down without a permit and two trees are planted for each one harvested. City recycles 70% of its paper and 60% of its metal, glass and plastic – sorted by household for collection three times a week. Recovered materials are sold to mostly city's more than 500 major

industries which must meet strict pollution standards. Most of these industries are located in industrial parks outside the city. A major bus line runs to the park, but many of the workers live nearby and can walk or bike to work.

Use old buses as roving classroom to give poor people basic skills needed for jobs. Others are used as children classroom, health clinics, soup kitchen and day-care centre. Day-care open 11 hours a day and free for poor parents.

The poor receive free medical, dental and child care and 40 feeding centres available for street children. City has do-it-yourself system that gives each poor family a plot of land, building materials, two trees and an hour consultation with an architect.

Virtually all household have electricity, drinking water and trash collection. 95% citizens can read and write, 83% adults have at least high school education. All school children study ecology.

Two goals of government: sought solutions; simple, innovative, fast, cheap and fun to problems; and second vowed to be honest, accountable and open to public scrutiny

As suggested [2], an exciting challenge during this century is to reshape existing cities and design new ones to be like Curitiba that have more livable and sustainable and have lower environmental impact.

9. Some factors affecting sustainable living in Malaysia

Looking at the Malaysian scenario, there are factors that could have been making us shift away from achieving sustainable living. These are called negative factors. On the other hand, there are several others that could help us align our track for sustainable living, and these are positive factors. Some of these are discussed below.

a. Cultural aspect - Traditional knowledge

Being a nation believing in God, our common belief is that the earth and all its habitants are God's creations and we are created to submit to Him and be His stewards to look after His creations (the nature). Traditionally, the indigenous people of Malaysia respect nature and they have vast knowledge on how to live harmoniously with the environment. As an example, for alternative water supply – gravity fed systems, tube well and rainwater harvesting [5] are common practice for the ethnics of interior Sabah and Sarawak since time immemorial.

Involvement of local people in managing the environment has substantial positive impacts. An example is quoted from Sabah where community was involved in the management of water resources. After going through the exercise, it shows that community workshop can enhance local community participation in the planning and management process, one way to reduce gaps in system between communities and management of land and water resources. Involvement should be from the beginning and knowledgeable members of communities were asked to participate fully and effectively in the whole process and whenever possible the whole community. Local community should be given space and time according to their own process as well. Once part of the process, representatives should have equal access to information and not just endorse management plans and other development activities. Such involvement is considered important incentives to communities [18].

b. The mass population

When one considers planning and implementing sustainable living for communities, one should target at the majority of the population. Income wise, in 2009 in Malaysia 40% of households had a total income level of less than RM2,300/month. There were a total of 2.4 million households in this category; with 1.8% of household within the hardcore poor group, 7.6% within the poor group and the remaining 90.6% within the low income household group. Only 20% of the Malaysia populace is of high income earners, the rest 80% are middle and low income earners [19]. For implementation of practical approaches and logical, simple measures this 80% populace would be the target group. For the 20% high income earners, who presumably are using more energy would require additional further sophisticated and complicated tools and gadgets. Once the mind set of this large group changes, it would be an easier task to implement many other efforts to organize sustainable living.

c. Degree of awareness related to level of education and willingness to change

Although, in Malaysia the adult literacy rate is around 92%, universal primary education enrolment and with one of the fastest growth rates in secondary school enrolment [19], awareness on environmental issues and problems are lacking. A survey carried out among at least secondary school educated engineering students in UTHM however revealed a good 90% knows about environmental problems such as increase in global temperature, glass house effect, pollution etc. However, missing on the biological discipline, a very low less than 5% of the respondents know what biodiversity is and they could not relate biodiversity to environmental problems [15]. Another survey involving 122 engineering students also a similar low 5% knowing about biodiversity and it is much accounted for by the poor way science is being communicated to people; despite having sufficient information and expertise [14].

Thus, creating awareness and educating the general public on environment and its problems could be considered as the main item to be planned and carried out, to persuade Malaysian to change and be willing to participate in looking after the environment. Several factors have to be considered when trying to

create awareness and educate the various target groups in Malaysia, some of which are : age groups, level of education, ethnics, gender and economic level. Changing mind set and living style is never easy, but every effort has to begin with the first step and that has to start today, if as individuals or as a nation want to bring positive changes in their living environment, and share with other global community.

d. Individual matters : Sustainable living at home

When sustainability principles for both built and natural environment are considered, as mentioned above, one of the factors that must be taken into account is the mass population, and for Malaysia it is a good 80% of the 27 million populace. In step five proposed by Miller, [2] towards sustainability for built environment, it was pointed out that individual matters – either individual actions that could lead to sustainable practices or collectively to cause political or social changes. As to do activities that make use of resources like water, energy and biodiversity one has to think of, firstly, amount used and secondly, the effect or waste produced as the results of its use.

A Malaysian individual needs about 172 litres of water every day. Of that about 52 litres (30%) is needed for flushing the toilet. A small experiment carried out by the authors showed that 1.2 litre of water used for each oblution could be collected at home in simple bucket/pail placed under the running tap. For a Muslim five times oblution would result in 6 litres of water collected daily. And this may contribute to the daily need for the toilet.

A 5-6 minutes shower will collect about 3 litres of water, thus daily bath of two times would yield 6 litres of water, again could contribute to the toilet need. In a simple flush toilet system every toilet flush needs about 5.5 litre for refill in the cistern. During a medium intensity rain, for a one hour rainfall water collection, from a roof top of 20m x 10m would collect about 8 litres of water sufficient to water 10 potted plants for five days.

Showering using hot water for 5-6minutes would cost about 35 cents. But if one could boil 2 litre of water and dilute in 6 litres of cold water to achieve 40^{o}C (temperature of bathing water) it will only cost about 10 cents.

Switching on a 20Volt bulb for 30 minutes during both the morning and evening cleaning would cost some money, but if a daylight roof is provided some of this cost could be reduced.

There are numerous ways and means that one could think of making all the differences towards achieving sustainability. If one person can save a certain amount, we could easily understand the magnitude when cumulative effect is estimated for 80% of a total of 27 million people in Malaysia. This is what thinking globally and acting locally means.

10. Way forward to sustainable living in Malaysia

Education plays an important role to inculcate values in people. Modern ICT like internet may not be widespread, especially among the rural people. Nevertheless, mass media like television, newspaper, popular magazine are available to the mass in Malaysia. Unfortunately, news and reports on the environment are still not a must-read for the laymen. And on the other hand as mentioned by Walia [20] editorials of mass media have not prioritized environmental issues. People have to be educated, to know the impact of human activities on the environment globally and locally, and one way is through reading of mass media.

Many issues and challenges faced by human today is very people based – attitudes and action; and journalists have a big role to change people mentality by reaching out [21].

Formally, the young Malaysians have to be equipped with formal knowledge of the environmental situations with subjects such as environmental education or ecology or sustainable development, whichever suits the policy makers best. To date there are unending tussle for such subjects to be introduced in the Malaysian school syllabus. If we care to compare and emulate, all children in Curitiba, Brazil, the most sustainable city in the world, learns ecology in school (Miller, 2006).

Being believers, Malaysia should be more susceptible to sustainability of the environment issues. The concept of stewardship is adopted generally in almost all religions in Malaysia. Believing and practicing are two separate things. Perhaps it is now time to be practicing and not just believing since environmental problems are now realities. To change mind set will take time especially for such big target group of 80% of the population. Efforts have to be planned, implemented and monitored to ensure that what is planned is achievable and sustained.

There is so much that built environment can learn from nature. If nature could maintain ecological harmony for the very long time before the arrival of people, surely how that was possible could be learnt. It is a matter of whether Malaysians are willing to do it whole heartedly or not.

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Both authors wish to thank UTHM for inviting us to present our views on sustainability : linking the natural and built environmental. As servants of Allah our intention is to remind others and ourselves of our responsibility to be good *khalifah* or stewarts of God's earth. Human beings are created to serve him and to be his *khalifah*. Let us go back and alight ourselves. In developing ourselves as a responsible citizen of Malaysia as an individual, Gods servant should not forget the generations to come and target for sustainable development by living sustainably. There

is no way to avoid linking up the natural and built environment since both occur temporal and spatially together – let our determination and action to sustainably link the built to the natural environment.

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