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Energy, Water and Environmental Resources

Rio+20 - The Future We Want?
Back to Rio: 1992-2012

With more than 190 heads of government attending, this was indeed the ultimate event to determine the future and survival of our planet. And what did we get out of this event? A high series of 'R' words document called, 'The Future We Want' – Recognise (the word appeared 148 times in this 253 paragraphs of affirmations and entreaties), 'Reaffirm' (59 times), 'Resolve' (16 times) and 'Renew' (10 times). The document is just full of 'RhetoRics'! Indeed the *United Nations Conference on Sustainable Development* also known as the Rio Earth Summit, was doomed to fail long before all the world leaders gathered and restated to save planet Earth. Europe is in deep economic crisis, USA, who is not a signatory of the Kyoto Protocol (or other such agreements) is in election fever, China (the largest greenhouse gas emitter) is still hiding behind the garb of 'we are a developing nation and are victims of policies of developed countries' rhetoric, and India is still sticking to the "common but differentiated responsibility" clause of Rio 1992, whereby developed countries are to cut back on emissions and transfer funds/ technology to developing countries to check the problem. On the whole, leaders of all (most) are embroiled in their own domestic issues and are fighting for their own political survival. What more the survival of the planet!

UN Secretary-General Ban Ki-moon stressed that, "At Rio, we must begin to create a new one (model) - a model for a 21st century economy that rejects the myth that there must be a zero sum trade-off between growth and the environment."

In reality, is this conceivable? Before the Rio Earth Summit planet commenced, the list of priorities for the ailing planet was determined for debate. Looking at the list, can growth and the environment co-exist? The top 10 issues that was in the priority list included the following:

1. Deforestation
2. Overpopulation
3. Endangered Species
4. Climate Change
5. World Hunger
6. Water Scarcity
7. Global Poverty
8. Renewable Energy
9. Oceans
10. Air Pollution

Nonetheless, a more disturbing aspect of all these mega summits is the derailment of any commitments by the developing countries. Shifting the blame to the developing countries without actually looking at the per capita impact seem the easy way out for these rich developed nations while boosting the growth of their economies at the cost of nature and its resources.

Hence, 'Green Economy' is the buzz word. The concept of green economy has been put forward to bring growth and development in a sustainable manner, bringing social equity and well-being without affecting the balance in the environment and ecology. But is this going to be another pipe dream if maximising profits at the cost of anything seems to be the agenda for all private corporates. Can the Heads of Government play a more effective role to abate the problem we are all facing as inhabitants of this planet?

As Malaysia accelerates to become a fully developed nation by 2020, guided by the Economic Transformation Programme (ETP), the impact that the nation may be creating on the carbon footprint is intense although it may not be as impactful as compared to the other more developed and developing nations especially when compared with the per capita income (see Table 1) in page 3.

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RIO+20

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Environmental Resources: Finding the Right Equilibrium

Post Rio+20 Summit, developing countries like Malaysia needs to understand what makes our country liveable and attracts investors and also tourists. What exactly makes one city more liveable than another?

In the recent announcement of the most liveable cities 2012 (see Table 1), it was interesting to see many of these cities are in Australia. The Economist Intelligence Unit (EIU), an independent forecasting and advisory business within the Economist Group, defines liveability by the following criteria – stability, health care, education, infrastructure, culture and environment. Hence, environment is one of the criteria that is important to rank the liveability of a city. The humidity/temperature rating (adapted from average weather conditions) and the discomfort of climate to travellers (EIU rating) is used to rate the environmental dimensions. In short, the right equilibrium between development and sustaining the environmental resources is critical for a liveable city.

Table 1: Global liveable cities 2012 ranking

Top 10 cities				Bottom 10 cities			
Rank	Country	City	Rating	Rank	Country	City	Rating
1	Canada	Vancouver	98.0	130	Senegal	Dakar	48.3
2	Austria	Vienna	97.9	132	Sri Lanka	Colombo	47.3
3	Australia	Melbourne	97.5	133	Nepal	Kathmandu	47.1
4	Canada	Toronto	97.2	134	Cameroon	Douala	43.3
5	Canada	Calgary	96.6	135	Pakistan	Karachi	40.9
6	Finland	Helsinki	96.2	136	Nigeria	Lagos	39.0
7	Australia	Sydney	96.1	137	PNG	Port Moresby	38.9
8=	Australia	Perth	95.9	138	Algeria	Algiers	38.7
8=	Australia	Adelaide	95.9	138	Bangladesh	Dhaka	38.7
10	New Zealand	Auckland	95.7	140	Zimbabwe	Harare	37.5

Source: Economist Intelligence Unit's Liveability Survey (EIU, 2012)

Getting the Right Equilibrium

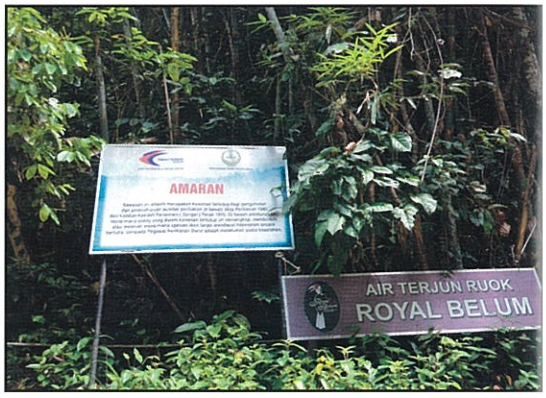
But how do we ensure we get the right equilibrium and at the same time ensure sustainable development. According to the Food and Agriculture Organisation (FAO) in their landmark 1995 publication, "Planning for sustainable use of land resources: Towards a new approach", two major aspects are important:

Natural Resources

In the context of 'land', it is taken to be those components of land units that are of direct economic use for human population groups living in the area, or expected to move into the area. These are near-surface climatic conditions, soil and terrain conditions, freshwater conditions, and vegetational and animal conditions in so far as they provide produce (food). To a large degree, these resources can be quantified in economic terms. This can be done irrespective of their location (intrinsic value) or in relation to their proximity to human settlements (situational value).

Environmental resources

These are taken to be those components of the land that have an intrinsic value of their own, or are of value for the longer-term sustainability of the use of the land by human populations, either in local or regional and global. They include biodiversity of plant and animal populations; scenic, educational or research value of landscapes; protective value of vegetation in relation to soil and water resources either *in loco* or downstream; the functions of the vegetation as a regulator of the local and regional climate and of the composition of the atmosphere; water and soil conditions as regulators of nutrient cycles (C, N, P, K, S), as influencing human health and as a long-term buffer against extreme weather events; occurrence of vectors of human or animal diseases (mosquitoes, tsetse flies, blackflies, etc.). Environmental resources are to a large degree 'non-tangible' in strictly economic terms.



Nonetheless, the distinction between natural resources and environmental resources may not be as important when defining an integrated and holistic land use planning. Environmental resources are normally part of the natural resources. What is more important to understand is how the tangible and intangible components need to be balanced out to enjoy the direct and indirect benefits at the local level.

Economic Value

That brings us to another important concept of 'economic value' that is critical in managing environmental resources. The economic value expresses the degree to which a good/product or service satisfies individual preferences (Freeman, 1993). In the case of environmental resources, the goods/products are the natural resources – flora, fauna, environment and the people. Services include all those industries that are using the environmental resources i.e. tourism, agriculture, etc.

Thus, the economic value of environmental resources can be measured by the amount of money an individual (tourist/guest) is willing to pay for a good or service or the amount of money an individual is willing to accept as a compensation for forgoing the good or service. Willingness to pay (WTP) and willingness to accept (WTA) are measures that can be revealed in exchange.

Benchmarking the Threshold of Environmental Resources

Finding the right balance in development that will not totally wipe out your natural resources is critical in Post Rio+20. That is indeed the essence of the 'sustainable development' concept. But realistically finding the 'magic number' for carrying capacity may sometimes seem preposterous!

For example, in the field of tourism, the concept of tourism carrying capacity can be used when seeking and selecting 'appropriate' types of tourism developments in these sites. The physical and socio-economic carrying capacity can be determined for environmental resources. Carrying capacity in tourism has a direct relationship to sustainable tourism development. The concept of carrying capacity is one which exemplifies the need to maintain development and activities at a level that is both ecologically and socially sustainable. Primarily it aims to avoid environmental degradation and thus, evade social conflicts. Hence, carrying capacity would define limits on tourism development in a place, such as the maximum number of people that may visit a tourist destination at the same time, without causing environmental destruction and hence resulting in an unacceptable decrease in the quality of visitor satisfaction.

Thus, limiting 120 divers per day at diving destinations like Sipadan Island in Sabah as the carrying capacity point may seem non-scientific. Does that mean if you have 121 divers, you will get environmental degradation or if you have 119 divers, your corals are safe and sustainable? Certainly not! Thus, the weaknesses in finding these magic numbers that do not exist.

Trailing from the idea of carrying capacity is another more acceptable visitor management concept called 'limits of acceptable change' (LAC) that is important in environmental resource management. Determining the threshold number before a destination is destroyed is not as important as having a good management system to determine if the destination is negatively impacted. Hence, the LAC concept describes the level of allowable variations in the quality of the environment before irreversible degradation is likely to occur. Environmental management rather than development control is of much greater importance in managing the finite environmental resources.

The LAC framework to manage the environmental resources is frequently summarised into a nine step process:

1. Identify area concerns and issues.
2. Define and describe wilderness recreation opportunity classes.
3. Select indicators of resource and social conditions.
4. Inventory existing resource and social conditions.
5. Specify standards for resource and social indicators for each opportunity class.
6. Identify alternative opportunity class allocations.
7. Identify management actions for each alternative.
8. Evaluate and select preferred alternatives.
9. Implement actions and monitor conditions.

Hence, for the LAC model to work in environmental resource management, all processes must: (a) contain standards that express minimally acceptable conditions; (b) require monitoring capable of determining whether standards have been met; and (c) base management prescriptions on evaluations of whether or not standards have been met.

In conclusion, finding the right equilibrium between development and sustaining the environmental resources is critical for the survival of mankind. In years to come, the next World War is not on who controls the fuel (oil) but it will be on who controls the energy, water and environmental resources.

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