



APPENDIX 2

Section 1 – Matrix

1. Based on the matrix below, rate (1 – 9, with 1 being the most important) your country’s area of priority in the development of a Sustainable City:

Matrix	Rating					
	BEC	IEM	PTC	IES	EIT	Total
Smart master and infrastructure system planning & concept design	3	6	2	1	1	13
Smart Wifi/IT system	1	9	1	2	9	22
Smart community	4	3	8	9	6	30
Smart public space	5	8	9	8	5	35
Smart transportation	8	2	4	6	8	28
Smart water management	2	4	3	7	4	20
Smart waste management	9	5	5	5	7	31
Smart building & construction	7	7	7	4	2	27
Smart energy	6	1	6	3	3	19

Section 2 – Plans, Concepts and Policies

2. Is there a central planning authority appointed to administer the Sustainable City planning in your country?
- o If yes:
 - a) Explain the organisational framework and its relationship to your overall Government organisation.
 - b) List the infrastructure systems from the other infrastructure department or entity supporting the Sustainable City master plan
 - c) Who are the regulatory agencies for these infrastructure systems?
 - d) Do the agencies report to their respective Ministry to seek approval or it could be approved by the Sustainable City authority?
 - o If no:
 - a) Explain the framework and how are the infrastructure work areas coordinated to support the Sustainable City master plan?
 - b) List the infrastructure systems supporting the master plan
 - c) Who are the regulatory agencies for these infrastructure systems?
 - d) Do the agencies report to their respective Ministry to seek approval or it could be approved by the Sustainable City authority?

BEC	<p>Yes.</p> <p>The National Council for Sustainable Development (NCS) is an inter-governmental body who plays the coordination role with key line ministries such as Ministry of Land Management, Urbanization and Construction (MLUC) as well with other ministries and local authorities in preparation the Sustainable Cities master plan and supporting mechanism. NCS and MLUC are the key players in formulation of Regulations and policies related to sustainable cities theme, providing strategic plan and methodologies in development of sustainable cities plan for cities and provinces. MLUC is the implementing agency in the field of land and urban management as well as sustainable cities policies.</p>
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<p>IEM</p>	<p>There are various government agencies and corporations that administer the sustainable city planning in Malaysia.</p> <ul style="list-style-type: none"> • Ministry of Natural Resources & Environment (NRE) • Ministry of Energy, Green Technology and Water (KeTTHA) • Ministry of Transport Malaysia • Solid Waste and Public Cleansing Management Corporation (SWCorp) • Malaysian Green Technology Corporation (MGTC) • City Council for various states <p>These governmental organisations act as the regulatory agencies for the infrastructure systems to ensure and speed up the implementation to achieve the status of the leading and excellent world class city.</p> <p>In particular, Malaysian Green Technology Corporation also known as GreenTech Malaysia is an organisation under the purview of the Ministry of Energy, Green Technology and Water Malaysia (KeTTHA). Established in 2010, our mandate is to spearheading the development and promotion of green technology as a strategic engine for socio-economic growth in line with Green Technology Master Plan 2017-2030.</p> <p>As a result of the formation of a new government agency in the solid waste management namely the Solid Waste and Public Cleansing Management Corporation (PPSPPA) on 1st Jun 2008, the responsibilities in all aspects of solid waste and public cleansing management along with other related matters has been transferred from Kuala Lumpur City Hall (DBKL). This agency was formed under the jurisdiction of the Ministry of Housing and Local Government (KPKT). The roles of PPSPPA are to ensure that the management of solid waste and public cleansing become more efficient, integrated other than providing more satisfaction to consumers in delivering the service of solid waste and public cleansing management.</p> <p>Kuala Lumpur City Council, in contribution to the Sustainably Cities planning, has played an important role as follow:</p> <ul style="list-style-type: none"> • To provide services in the cleaning up and disposal of garbage. • To provide public health services and control pollution. • To engage in beautifying the city. • To build and maintain roads, provide a transportation infrastructure and to manage the traffic system. • To build and maintain the drainage and river system. • To plan and control urban development. • To build and manage public housing. • To manage, control and resettle squatters. • To manage and control affairs regarding hawkers and small businesses. • To issue and control business licenses. • To plan and implement sports, cultural and tourism activities. • To provide, manage and maintain public facilities (stadiums, sports complexes/community centres, mosques/surau, recreational parks, markets, hawker centres, libraries, bus stops/taxi stands, cemeteries and crematoriums) <p>Specifically, Kuala Lumpur City Hall or Dewan Bandaraya Kuala Lumpur (DBKL) has its Vision and make Kuala Lumpur a world class city by the year 2020. This vision was manifested in the Kuala Lumpur Structure Plan 2020 as the foundation for the physical development of Kuala Lumpur other than to contribute towards achieving the national agenda to become a developed nation by the year 2020. This development plan has been detailed through the establishment of the Local Plan or the Kuala Lumpur City Plan (PBRKL) that is a visionary planned programme which takes into consideration the interests and needs of stakeholders in achieving the vision of putting Kuala Lumpur at par with other cities in the world in various sectors including possessing good governance.</p> <p>In putting together a follow-up action in implementing the physical plans, DBKL has drafted a Strategic Plan for a duration of 10 years. In drafting this Strategic Plan, DBKL has placed the Government’s policies and programmes such as the New Economic Plan, the National Development Plan, The Government Transformational Plan and the National Key Result Areas (NKRA) and also the Ministry of the Federal Territory Strategic Plan as the basic framework in ensuring that its implementation conforms with the Government’s aspirations.</p> <p>DBKL’s Strategic Plan 2010-2020 is based on the vision, mission, shared values and the goals which is then translated to become the core strategic elements and the strategy in gearing up the formation of action plans. The implementation of the action plans is divided into to three stages namely short- term, mid -term and also long- term.</p> <p>DBKL users strategic indicators to measure the achievement levels in the implementation of the Strategic Plan so as to make sure that the core strategic elements and action plans that have been planned and implemented will meet the goals in ensuring the prosperity of the city residents.</p> <p>In implementing this Strategic Plan, DBKL will constantly cooperate with other parties that are of interest to Kuala Lumpur City and its future.</p>
<p>PTC</p>	<p>Yes.</p> <ol style="list-style-type: none"> a) Newly created Dept. of Information and Communication technology b) Master Plan being crafted. c) DICT, NTC, DPWH d) Report to DICT (sustainable city authority)
<p>IES</p>	<p>Yes.</p> <ol style="list-style-type: none"> a) The central planning authority is the Urban Redevelopment Authority (URA) who would do land use planning, master planning and coordination with all the infrastructural agencies to incorporate into the master plan.

	<p>b) All the public utility authorities - water, electricity, waste/sewage, wifi system, transportation system</p> <p>c) All these utilities authorities are statutory boards set up in the different ministries in charge of these infrastructure provisions</p> <p>d) All the utility authorities would interface directly with the Urban Redevelopment Authority, the utility authorities would have sought clearance from their own ministries.</p>
EIT	<p>No.</p> <p>a) Department of Public Works and Town & Country Planning has the master plan of which area can be developed for the specified land usages</p> <p>b) Mass Rapid Transport, Railway, Expressway</p> <p>c) Department of Public Works and Town & Country Planning</p> <p>d) The agencies are the regulators, so they can approve within their organization</p>

3. What are the policy issues that are considered important in your country, in the development of a Sustainable City?

BEC	<p>Solid and waste water management, public space, green space, public transport, green building, heritage conservation and energy efficiency are the issues considered important here.</p>
IEM	<p>New Economic Policy (NEP) was a social re-engineering and affirmative action program formulated by the National Operations Council (NOC) in the aftermath of 13 May Incident in Malaysia. This policy was adopted in 1971 for a period of 20 years and it was succeeded by the National Development Policy (NDP) in 1991. This article looks into the historical context that gave rise to the formulation of this policy, its objectives and implementation methods as well as its impact on the Malaysian economy in general.</p> <p>The New Economic Policy (NEP) which began with the Second Malaysia Plan (1971-1975), and lasted until the Fifth Malaysia Plan (1986-1990), had three main objectives, namely:[1]</p> <ul style="list-style-type: none"> • To achieve national unity, harmony and integrity • Through socio-economic restructuring (of the society) • To minimize the level of poverty in the country (poverty eradication) <p>The NEP was conceived as a two-pronged strategy for eradicating poverty for all Malaysians as well as reducing and subsequently eliminating identification of race by economic function and geographical location. The Policy sought to achieve its objectives through rapid expansion of the economy over time and set its target of substantially reducing the incidence of absolute poverty by 1990. To achieve this, the Policy called for aggressive improvement of economic status and quality of life for all Malaysians through:</p> <ul style="list-style-type: none"> • Access to land • Physical capital • Training • Public facilities <p>Concurrently, the Policy also called for fairer distribution of opportunities to participate in the widening range of economic activities. The Policy opined that the core problem that stood in the way of national unity was compartmentalization of racial groups by economic function; particularly the association of Malay and other indigenous races with subsistence agriculture. To dissociate Malay and other indigenous races with traditional agriculture, the Policy called on the Malaysian Government to provide assistance to all Malaysians in:</p> <ul style="list-style-type: none"> • Finding employment • Securing participation in economic activities • Acquiring ownership in various economic sectors <p>As Malay and other indigenous races progressed in the modern economic sector, other Malaysians were encouraged to introduce modern agriculture to eliminate the identification of Malay and other indigenous races with subsistence agriculture. The overarching principle of the Policy was the creation of "a socio-economic environment in which individual Malaysians find self-fulfillment within a system which provides for proportional participation, management and control in the economic life of the nation".</p> <p>National Development Policy was a Malaysian economic policy introduced by Mahathir Mohamad, then Prime Minister of Malaysia, with the objective of achieving economic growth, while ensuring that accrued benefits reach all sections of society.[1] The National Development Policy replaced the Malaysian New Economic Policy (NEP) in 1990 but continued to pursue most NEP policies of affirmative action for bumiputera. The Malay share of the economy, though substantially larger, was not near the 30% target according to government figures. In its review of the NEP, the government found that although income inequality had been reduced, some important targets related to overall Malay corporate ownership had not been met. Both Mahathir and the Tunku had expressed concern that the Malays remained too reliant on the Chinese economically. National Vision Policy is an extension policy of National Development Policy which under the cover of 8th and 9th Malaysia Plan. It is a 10 years policy which established during year 2001 and ended by 2010 to fulfill the Third Outline Perspective Plan (OPP3) of Malaysia. Besides, it also under the second phase of Vision 2020 to continue strengthen the basic transformation of Malaysia to a fully developed nation. This policy was to help Malaysian's economy face the challenges of the globalization and liberalization as well as the rapid development of technology, especially for the information</p>

	<p>and communications technology (ICT). Besides, NVP was to enhance the competitiveness of the economy and strengthen economic resilience by improve the total factor productivity and develop a knowledge-based economy</p> <p>Several official documents inform Malaysia’s social, political and economic development. Written in 1991, Wawasan or Vision 2020, for example, envisions Malaysia as a fully developed country economically, socially, politically and spiritually by 2020. A key part of Vision 2020 is Kuala Lumpur, Malaysia’s premier city that would play an active role. The visions and goals for Kuala Lumpur have been formulated with the aim of creating a sustainable city. The city council has attempted to balance between the competing goals of physical, social and environmental development. The Tenth Malaysian plan (2011-2015) addresses four points:</p> <ul style="list-style-type: none"> • Improving the standard and sustainability of quality of life; ensuring effective sourcing and delivery of energy and developing a climate resilient growth strategy. • Improving quality of life for Malaysians through better access to healthcare, public transport, electricity and water. Initiatives should be designed to create a caring society and promote community wellbeing. Economic development will also be based on sustainability principles to ensure that the environment and natural resources are preserved so that growth will not come to a cost to future generation. • To ensure sustainable development with green growth, the government has focused on land use, climate change and green technology. Land use regulation is governed by the National Physical Plan (NPP) and National Urbanization Policy (NUP). The National Policy on Climate Change was conceptualized to mainstream climate change through resource management and environmental conservation, leading to the strengthening of economic competitiveness and improved quality of life. Also road maps are framed for the reduction of Green House Gas (GHG) emissions. • To promote green technology through initiatives such as the National Green Technology policy. Specific action areas are identified under ‘Strategic thrusts’ to provide a conducive environment for green technology development and to promote public awareness. Various tools were created to measure and evaluate the sustainability of cities and their associated areas through the usage of urban indicators. <p>Other initiatives include:</p> <ol style="list-style-type: none"> 1. Public participation for better planning in the process of preparing development plans. 2. Inclusion of strategic environmental assessment (SEA), social impact assessment and sustainability assessment in sustainability studies. 3. Releasing guidelines for activities in land development, environment sensitive areas, and green neighborhoods.
PTC	Policy still being crafted by the newly created Department of Information and Communication Technology (DICT)
IES	To maximize land use, because of the small size of the country. To make the country greener and also to provide IT systems for public use and to increase the use of IT systems for public transactions with government.
EIT	<ol style="list-style-type: none"> 1. Waste Management 2. Water Management 3. Flood Management 4. Transportation & Infrastructure

4. Are there any significant challenges faced (master planning and/or national policies) in the development of a Sustainable City in your country?
- If yes, explain what are the challenges and how is your country addressing them?
 - If no, what is your country’s next step towards a Sustainable City?

BEC	There are several challenges in the development phase such as lack of both technical and financial resources. The context of sustainable city is quite a new concept being applied while most of the cities are very much interesting this new concept. Since some cities are still developing their basic master plan, it can be a challenge for the development, but also it can be considered as opportunity for the timing in integration sustainable cities concept into their basic master plan. However, in practice, some cities are already adopting sustainable city concept by implementing several aspects such as creating public parks, promoting investment in green transportation, energy efficiency by installing clean energy and renewable energy sources such as solar pv etc.
IEM	<p>THE CHALLENGES OF THE IMPLEMENTING THE NEW URBAN SUSTAINABILITY POLICY :</p> <ul style="list-style-type: none"> • Needs changes in the government organization that are designed to bring about greater co-ordination and interdepartmental co-operation. • Needs decentralization and reorganization of government administrative departments to cope with the “holistic” approach that an understanding of eco-systems’ demands. • Needs policies that will “empower” the regional and local levels through budgetary and decision making capacity at urban and local level. • Needs “soft planning” deploy types of Societal Capital in the education sector (infrastructure in place) Universities. Technical

	Higher education, training. Change “people’s attitude” - generational change.
PTC	Yes, there many challenges and these are being address by the newly created agency, DICT
IES	Yes. To maximize land use by stringent development guidelines on high plot ratio development and are comprehensive developments to serve the needs of people.
EIT	Yes. 1. People mindset for the sustainable concept must be taken into consideration 2. The authorizes & regulators must force the concept of land use and waste management

Section 3 – Design and Competency

5. Is it important to share the direction of sustainable systems?
- o If yes, why?
 - o If no, why?

BEC	Yes. However, with individual cities situation, it is better for each city to address their needs in promoting sustainable system and expecting achievements. A proper and regular monitoring mechanism during the process of implementation should be formed with enough of both technical officials and sufficient of financial support.
IEM	It is important to share the direction of sustainable systems to gain more awareness and feedbacks. Malaysia started its journey towards sustainable development in the 1970s, when the New Economic Policy (NEP) to eradicate poverty and restructure societal imbalances was launched. All subsequent five-year national development plans have underscored the elements of sustainable development, encompassing sustainable economic growth; growth with equitable distribution to all sections of society; balanced development; access to basic infrastructure and utilities; access to education and healthcare services; and mainstreaming of environmental conservation. In 2009, Malaysia formulated the New Economic Model (NEM) which further cemented its commitment to pursue sustainable development based on three goals, namely, high income, inclusivity and sustainability. These mirror the three elements of the 2030 Agenda for Sustainable Development (the 2030 Agenda), encompassing economic, social and environmental elements. The NEM provides the basis for Malaysia’s development plans until 2020. The current plan, the Eleventh Malaysia Plan 2016–2020 (11MP), is thus premised on the three goals of NEM. The 11MP theme is “Anchoring Growth on People,” where people are the centrepiece of all development efforts, complemented by ensuring that no section of society is left behind in participating and benefiting from the nation’s development. Critically, the 11MP is aligned to most of the global Sustainable Development Goals (SDGs). Therefore, Malaysia is not starting anew on its pathway to sustainable development, but is building on a process already in motion for decades.
PTC	Yes. By sharing best practices can be adopted by each economy.
IES	Yes. So that experiences in design and competencies can be shared among countries so that the people can be better served.
EIT	Yes, sustainable concept is for everyone in the world, not just the people in their own country. So, the sharing of the success stories and the challenging stories will let others to faster develop the sustainable systems for everyone.

6. Is human resource training crucial in the country’s development of a Sustainable City?
- o If yes, why and what sort of training?
 - o If no, why?

BEC	Definitely yes. As mentioned in earlier questions, capacity building in this area is very much needed. Starting from policy formulation level to implementation work, human resource training both at national and sub-national level are crucial as we are listing this need in our highest priority among the others.
IEM	Human resource training is crucial in the country’s development of a Sustainable City due to the following: <ul style="list-style-type: none"> • Integrate and assess environmentally friendly attitudes in our training programmes. • Merge/Integrate environmental awareness and sustainability skills with the critical employability skills. • Make sustainable development all inclusive (All levels of society, all programmes).

	<ul style="list-style-type: none"> Establish a mechanism to review. <p>Human resource systems and sustained competitive advantage:</p> <ul style="list-style-type: none"> A competency based perspective, interrelated activities, functions, and process that aims to attract, develop, and maintain a firm's human resource. Organizations generally organize HR practices into systems that are consistent with their culture and business strategy. We can say that Sustainable City initiatives included in HRM manifesto is a part of corporate social responsibility in the long run. Today, organizations are implementing and integrating Sustainable City initiatives in their agenda with the help of their human resource. Managers make sure that their HR is utilizing green human resource practices in appropriate manner. As an addendum to the statement, several authors have suggested that it is important to promote a great deal of technical and management skills among all employees of the organization in order to implement an effective corporate Sustainable City management system in companies. Organizations across the world are incorporating and working toward implementing Sustainable City practices to gain competitive advantages among the corporate world. Complete adoption and integration of Sustainable City in business is not impossible but requires a changed approach toward the existing HR practices on part of both the management as well as employees simultaneously. A key role for HR environmental executives could be to guide line managers in terms of gaining full staff co-operation toward implementing environmental policies which means HR needs to nurture supporters and create networks of problem-solvers willing to act to change the current status quo. There are numerous issues related to Sustainable City that is to be taken into account by HR department before implementing Sustainable City initiatives and, all of them can be not contained within a single document.
PTC	Yes. As in any new technology, the implementation of it is crucial and depends on the knowledge/knowhow of the human resource implementing the new technology/system
IES	Yes. It is crucial to have people trained in master planning and infrastructural provisions so that they can produce good sustainable cities master plan for the benefit of people.
EIT	Yes, to build the sustainable city mindset. The training may include the real case study to make the city more sustainable.

7. Are there opportunities for sharing sessions with the agencies in your country?

- If yes, how can we plan on structuring for one?
- No

BEC	Actually we do these sharing sessions existing here. NCSD provides opportunities to related ministries as well as non-governmental organizations to share their knowledge and thought in this area. Workshops, seminars and meeting are evolving various stakeholders locally and internationally. We are opening the floor for regional and international partners to provide supports and jointly organize.
IEM	IEM has MoU with governmental agencies and City, there are always opportunities for sharing session with the agencies in Malaysia.
PTC	Yes. We can have forums/ symposium/seminars/lectures in each economy interested to adopt to the new and emerging technology.
IES	In principle, yes. This could be looked into and arranged, subject to details.
EIT	Yes, when the working group has the direction of the cooperation of the agencies from all countries.

8. Do you recommend the need to form a technical committee to deal with the infrastructure matters relating to the detailed design and competency aspect of sustainable development?

- Yes, what would be the area you would recommend?
- No

BEC	In practice, we do have several existing mechanism, as I may not be able to count them, dealing with infrastructure related to detailed design and competency aspect of sustainable development. For the national level, we have Technical working group under NCSD for dealing with policy formulation, and that also included stakeholders from sub-national level with possibility to invite experts from non
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	–governmental bodies as well.
IEM	There are more than 36 Technical Division and Special Interest Group in IEM that deal with various aspects of the Sustainable City and infrastructure matters related to the detailed design and competency aspect of sustainable development
PTC	Yes, however, before any committee be formed, all economy must first understand what is “SMART CITY”. We must have a common definition of the smart city. What are the basic ingredients to be called smart city, best practices, standard, parameters, etc.
IES	Yes. Preferably in all the infrastructural works required for integration with the master plan to develop a sustainable committee.
EIT	Yes, it would be nice in overall.

Section 4 - Institutional Members serving on the Sustainable Cities Committee

9. Are your members of the engineering institution represented in the Sustainable City development committee?
- Yes. What are those committees that your members are sitting in as representatives of your institution?
 - No

BEC	N/A
IEM	<ul style="list-style-type: none"> • Agricultural and Food Engineering • Building Services • Chemical Engineering • Civil and Structural Engineering • Consulting Engineering • Electrical Engineering • Electronic Engineering • Engineering Education • Environmental Engineering • Geotechnical Engineering • Highway and Transportation Engineering • Information and Communications Technology Special Interest Group • Marine Engineering & Naval Architecture • Mechanical Engineering • Oil, Gas and Mining Engineering • Project Management • Public Sector Engineers Special Interest Group • Tunneling and Underground Space Engineering • Water Resources Engineering • Seniors Special Interest Group • Urban Engineering Development Special Interest Group
PTC	No, as the government still on the planning stage
IES	Yes. In Singapore, members of the IES, either in their individual capacity or as a representative are serving in the government agencies.
EIT	No.

10. What is the recommended approach by your institution on the best way to develop Sustainable City in terms of organisation and manpower?

BEC	N/A
IEM	<p>The Institution of Engineers, Malaysia (IEM) was established in 1959 and its primary function is to promote and advance the science and profession of engineering in any or all of its disciplines and to facilitate the exchange of information and ideas related to engineering.</p> <p>To support the multidisciplinary needs of engineering practice, there are 16 Technical Divisions and 4 Special Interest Groups to look after and to organize activities for the different disciplines.</p> <p>In terms of developing Sustainable City, IEM</p> <ul style="list-style-type: none"> • Promote sound professional engineering practice in support of the socio-economic development objectives of the nation. • Service the needs and interests of its members and the public and uphold the social standing image of the engineering profession. • Contribute towards nation building and shall strive to enhance society's consciousness of science and technology.
PTC	None at this point in time. See item 9
IES	At the government level, to have a strong central planning authority which is able to get the support of all the infrastructural agencies to provide inputs to support the integrated master plan.
EIT	<ol style="list-style-type: none"> 1. Provide the training course 2. Publish the articles 3. Cooperate with the Department of Public Works and Town & Country Planning