PROCEEDINGS

SYMPOSIUM ON SUSTAINABLE PENANG

“Can Penang be Made Sustainable by 2030?”

Foreword

In the United Nations (UN) Summit held in September 2015, world leaders adopted the 17 Sustainable Development Goals (SDGs) of the 2030 Agenda for Sustainable Development. The Agenda calls for action by all countries to create a sustainable world. The SDGs, consist of 169 targets, later came into force in January 2016, aiming to stimulate action by all countries to promote prosperity while protecting the planet to achieve sustainable development that meets the needs of the present and future generations by 2030. In Penang, according to the Penang Paradigm, a state development plan introduced in 2013, sustainability has been a major element in the state development strategy. The 17 SDGs introduced in 2015 have called for a review on the state's development pathways, and strategies to enhance sustainability of Penang in the long run.

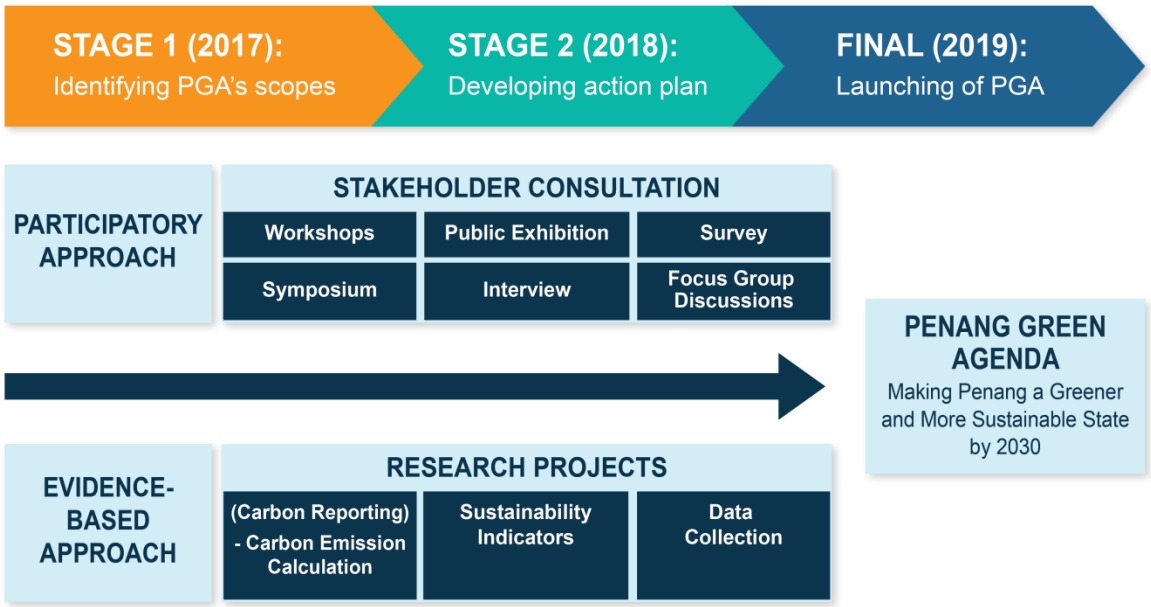
This symposium served as a platform for stakeholders - government agencies, academics, non-governmental organisations, local communities, and private sectors - to discuss approaches and initiatives that should be taken to make Penang a green and sustainable state by 2030 by incorporating the SDGs into the state's development strategies. Referring to the SDGs, this symposium focused on discussing current and future environmental challenges of Penang State; the targets of the SDGs that should be prioritised in Penang State to enhance the state's sustainability in the environmental aspects; and the roles of the stakeholders in making Penang a green and sustainable state.

This symposium generated inputs to develop the Penang Green Agenda, which will be documented as the strategies to make Penang a green and sustainable state by referring to the SDGs. The objectives of the symposium are:

- To discuss current and future environmental challenges that should be addressed in Penang State;
- To introduce SDGs to the stakeholders of Penang State;
- To suggest the targets and SDGs that should be prioritised to enhance the environmental sustainability of Penang State; and
- To foster a multi-stakeholder discussion on making Penang a green and sustainable state.

Scopes of the Penang Green Agenda:

Process in developing the Penang Green Agenda



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First session: Global Sustainability Challenges session

Strategic Considerations in the Development of Penang Green Agenda

By Leong Yueh Kwong

Editor: Penang Green Council

Sustainability is an international concern and global environmental crisis. We are unable to avoid some of the things, but for some things, we can take some steps to prepare or to develop some adaptations or resilience for the future of Penang. In Penang, sustainability is not a new movement and is more of an urgent task. This discussion will refer to the United Nations Global Agenda 21 as the basis of the discussion as it is a document agreed upon by all the participating countries who attended the Earth Summit. Agenda 21 has been accepted in practice, but there is a gap existing between what people say and what people do. Therefore, a study is needed to examine why some of the agenda are unable to be carried out. This study will also list out the barriers in the sustainable development.

There are a number of sustainability-related programmes in Penang. As an example, from 2001 to 2010, the state government came up with the second Strategic Development Plans based on sustainable principles. The Penang Blueprint and Penang Paradigm are also supposed to guide the development in policy and sustainability practices in Penang. There were also sustainable-related initiatives provided by the Penang State government, including banning of the use of plastic bags and Styrofoam usage as a part of everyday life in Penang, and also promoting recycling in Penang. However, there is still an uncertainty for Penang to achieve a sustainable state.

As a result of these concerns pertaining to forming a holistic view to work towards a sustainable development, the State Economic Planning Division, Penang Green Council and Penang Institute mooted the Penang Green Agenda, hoping to guide the Penang state towards a sustainable development. The approach of this study was to encourage public participation rather than producing a consultant report which would be documented and not practised.

In 2017, Penang Green Council appointed a team from the School of Social Sciences, Universiti Sains Malaysia as the consultant team for stage one of the Penang Green Agenda. Stage one of the Penang Green Agenda was to gather opinions and hopes from all the stakeholders in Penang before finalising the scopes for the Penang Green Agenda. The USM team carried out consultations with the stakeholders through workshops, focus group discussions, interview sessions, public surveys and public exhibitions throughout 2017. The second stage of the Penang Green Agenda will bring in technical experts and scientists to formulate the strategies that help solve future environmental challenges in Penang.

Of late, Penang has been plagued by the global environmental crises. The main crises in Penang are climate change issues; and depletion of natural resources - fuel, energy, land, and loss of biodiversity - clean water, air and so forth. There are also many other environmental issues are not being well understood and not been well-documented. If we allow these problems into our future, the effects then will be felt.

It is suggested that Penang look at the issues now and hypothesise three scenarios for better preparedness. The scenarios would be: the worst-case scenario (dangers on Penang); the most optimistic scenario (all problems can be solved/recovered); and the intermediate scenario on the rate of resource used. All steps should be taken within the state government to make sustainability integrated into various institutions as it is very important. The state government may want to carry out a scientific assessment on the real state of the environment in the world. The most comprehensive assessment would be the Millennium Ecosystem Assessment report and this involve nearly 1030 scientist for 95 countries whom are looking at the impact on humans on last 50 years. There is also a Malaysian, Professor Zakir Hamid who is prominently involved in this assessment process.

Sustainable development is a simple concept, yet easy to misunderstand as it involves technical knowledge. For the Sustainable Development, the most comprehensive reference may be referred to UN Agenda 21 (1992) First Summit, a 300-page document with 40 different chapters. It is a core agenda 21 because these are the issues that all countries have to look into in the 21st century. Malaysia has great

potential to practise sustainable development for very long time, but they have problem in reporting. One that is actually quite comprehensive would be New Urban Agenda (NUA) of the Habitat III as it covers most of the Malaysia's issues. One of the reasons for this is because there is an attempt to integrate the principles that the people will follow into the 11th Malaysia Plan as it will be implemented through this plan.

The Malaysian Environmental Performance Assessment shows that it is quite low. Malaysia ecological footprint is about 3.9. Placing this number in the Ecological Footprint of Malaysia which is an indicator of Sustainable Development, it will show that Malaysia is not sustainable and then, Penang would also not be in the list of sustainable as Penang will be using more resources and it is more urbanized, thus having greater impact. Upon the end of Millennium Development Goals (MDGs) in the year 2015, Sustainable Development Goals (SDGs) which is from 2015 to 2030 is where Penang Green Agenda is trying to fit in. The SDGs are being applied by most of the countries. Actually, the widely used definition of SDGs would be the kind of development that meets the needs of the present without compromising the future generation to meet their own needs. Sustainable development is not easy in terms of application. Currently, there are over 200 definitions for sustainable development. The two key concepts of sustainable development are the concept of needs and concept of limits to growth. We cannot have environmental sustainability without economic sustainability and social sustainability, which should be given equal importance. We need to measure sustainability using special measurements. This is among one of the objectives in the Penang Green Agenda which is to develop strategies and indicators for a sustainable Penang.

If you apply the standards of sustainability as in the ecological footprint, it is still unsure whether we will succeed or not. There are many measures that have been proposed to the National Sustainability, and the most widely used one is the ecological footprint. A significant ecological footprint by William Rease is that how much land is to support a person for food, shelter, goods and transport. Therefore, it is an easy way to evaluate land and people based on needs. Looking into the Ecological Footprint of Nations, India it is 0.91 which is considered sustainable but United States and most of Europe is not as it is because of the lifestyle and the use of resources. For the United

States of America, their ecological footprint is 8.0, 5.0 for Singapore and 4.8-4.9 for South Korea. Surprisingly, Malaysia's value, 3.9 is quite high nearly similar to Japan because energy usage, usage of personal vehicles and lack of public transportation usage. So looking into global resource use over the last 100 years, as the population increases, almost all resources have been overused. There is an unequal consumption where the rich countries are using 10 to 20 times more resources than the poor countries in terms of natural resources. We need to review and change the consumption pattern. If everybody lives according to the lifestyle of rich countries, then we will need to use two or three planets to supply our consumption needs. It is difficult to look into Penang's ecological footprint as national-scale data is easier to obtain which is by looking into UN data scale.

Why Malaysian aren't taking global issues seriously? Malaysia is quite lucky geographically as it does not experience natural disasters like typhoons frequently. Besides that, it can be said that Malaysia also has a favourable climate for agriculture as we do not have severe droughts or floods often. Another reason for people not taking it seriously is also because of normalcy bias. This means that these people could not imagine how things can be different assuming the future would be like present or past. Even as the world faces climate change, we still fail to expect the imminent changes that will eventually happen in Malaysia too. In psychology, normalcy bias is said to inherit in the human mind. For an example, when disaster strikes, most people will minimize it until it is too late to take an action.

One of the more interesting accounts of this limits to growth is based on the book written 40 years ago which meant to do a computer model of the world, comprising of three different scenarios to measure sustainability: the worst-case, best-case, and intermediate-case scenarios as future references. In this book, it is projected that we will see the start of the ecological collapse by 2030 in terms of water, resources and etc which will cause economic collapse. Besides that, an agriculturist also predicted that there will be an agriculture crisis as early as 2020 which is signed by the happening of drought and flood happening in many places. He also said that by the year 2050, the world will not be able to feed itself. Therefore, it is suggested to forecast what might happen to Penang by forming a group to look into creating three

different scenarios, gather info and finalise response for the worst-case, best-case and intermediate-case situations. With regards to that, Penang should be able to plan for better adaptation based on these findings.

Some people think that all the worst issues cannot be avoided now and it is too late for Sustainable Development. However, the strategy in planning is to look into how to reduce impacts on Malaysia and Penang. As such, the institutional requirement is very important for this effort to be successful. As a suggestion, all departments should have an officer working on sustainability. People from government agencies, politicians, academicians, non-governmental organisations, local communities, and private sectors need to further analyse these issues and brainstorm together to create a mutual understanding for the future and to build a more resilient community in Penang by 2030.

First session: Global Sustainability Challenges session

International Environmental Agreements and Declarations
and their Relevance to Penang

By Martin Khor and Meenakshi Raman

Editor: Penang Green Council

Mr Martin Khor is from the South Centre, an international organization something like the United Nations but only for developing countries. The aim is to help developing countries understand global affairs and international agreements so that they can negotiate better because many of this global agreement set the agenda and the legal framework on what to do nationally. This would be the reason for the set-up of South Centre which serves 130 countries governments currently. According to Dato Anwar Fazal, the heritage of Penang does not only look on the physical heritage, natural heritage or cultural heritage but also on the fact that Penang has been a centre for Malaysia, Asia and the developing world of citizens, excellence, and participation. That is the reason why in Penang, very often, there are people who think differently from the normal. Hopefully this heritage can be passed on to the young generation who are the most important of all. We must be proud that Penang and Malaysia had also contributed to international agreements. The SDGs were drawn out through the South Centre and Mr Martin Khor. In the very first committee meeting of the United Nations, Mr Martin was one of the panel to set-up the framework of what SDGs should be and they wrote a paper for the Group of 77 (the coalition of developing nations) in China or 130 countries on exactly how the SDGs should be. Now there is 17 SDGs, but previously there were 100 of topics. So the panels set-up the SDGs and the targets and also presented for each of the SDGs to the Group of 77. Then, they took it and carry it through and as a result, 80% of the written paper of the panels eventually became the SDGs.

In terms of Urban Agenda, Dato Maimunah has played a role by being in many of these conferences and of course most importantly, Dato is in-charging of the implementation worldwide. Besides that, Malaysia also played a crucial role in the Paris

Agreement of the UNFCC. They coordinated the group of developing countries to negotiate the Paris Agreement. With the role of Mr Gurdial Singh, a very famous lawyer and the spokesperson of the group to negotiate so well that the US, Europe and Japan were so afraid of him. Even the Minister praised Mr Gurdial saying that he is a representative not only from Malaysia but from worldwide.

Backing up this group would be the South Centre and Third World Network of which Ms Meenakshi Raman is a representative. She played a very major role in getting this group together and to make it into force otherwise the Paris Agreement would look very different or may not even have taken place. Next, the Green Climate Fund is needed because at the end of the day, a change was needed to create new job paths for people to go into the green area to plan and implement. This fund hopefully will be getting 100 billion US dollars a year. It is still far from that amount for now as the fund just receives 10 billion US dollars currently. This fund was set up because of the demands made by the Group of 77 in China together with the South Centre and the Third World Network. They gave the ideas, proposals and the negotiating strengths for the Green Climate Fund. Ms Meenakshi Raman was the first NGO representative to be positioned in the Green Climate Fund. So, many people from Penang and Malaysia had actually helped to draw out many international agreements and their implementation. The international agreements and declarations are important because we have committed ourselves to these agreements and we are supposed to follow through with them. If we do not follow through with these agreements, we will land up in a crisis. We should have a strong enforcement capability for these environmental agreements.

The problem with our system is that we have divided the economics and environment as two separate sectors not knowing that they belong together. This is because, if we don't handle the environment properly, the economy will collapse. It is us who should be making the environment as the main framework and then put the economy inside the environment according to the capabilities of the economy. That is the proper way to do sustainable development. The SDG was created two years ago by UN. There are several goals that are important for Penang Green Agenda. Goal 6 (Water), shows the importance of us having water based environments in future apart from improving water qualities and reducing pollutions. Goal 7 would be Sustainable

Energy for all which is very important as well. In Goal 9, Resilient Infrastructure, we have to upgrade infrastructure and retrofit the industries to make them sustainable mainly those in Penang. As for Goal 11, Sustainable Cities is an important goal as Penang is densely urbanized. Actually, it is the civil society who should decide on the priorities and the public agendas for the politicians to follow. It is important that the state creates the structure and mechanism where civil society participates and campaigns for the sustainable issues. Other goals that are important for Penang are goal 12, goal 13, goal 14, goal 15, goal 16 and goal 17

The next environmental agreement and declaration is the New Urban Agenda (NUA). NUA originated from the UN Habitat III Conference. This agenda, enshrined in the Quito Declaration on Sustainable Cities and Human Settlements for All, is an Implementation Plan, and a detailed list of the local aspects of SDGs. The agenda has a shared vision - envisaging cities that fulfil their social functions, are participatory, build resilience to disasters and climate change, and 'protect, conserve, restore, and promote their ecosystems and natural habitat; and minimise environmental impact'. NUA has three main principles and commitments: leave no one behind; ensure sustainable urban economies; and ensure environmental sustainability. The environmental principle calls for promoting clean energy and sustainable land use, protecting ecosystems and biodiversity, promoting sustainable consumption and production, building urban resilience, reducing disaster risks, and taking climate action.

The role of political leaders can be summarised as 'committing ourselves to work towards an urban paradigm shift'. The role can be achieved through three actions: redress the way we plan, finance, develop, govern and manage cities; recognise the roles of national, subnational, and local governments and of civil society; and adopt urban policies and actions based on drivers of change, stressing institutions or mechanisms that empower and include urban stakeholders. The implementation plan has many sections, including social inclusion, poverty, economy, disaster management, housing, transport, energy, waste and cultural heritage.

New Urban Agenda (NUA) also covers the environmental aspects for a better and sustainable world. The mission is committed to sustainable urban and territorial planning, and to preserve ecological function of land so that the ecosystem's regenerative capacity is not exceeded. The agenda also encourages sustainable land use and prevents unnecessary land-use change and loss of productive land as well as fragile ecosystems. NUA also commits to urban planning by incorporating water resources planning. The agenda hopes for the global society to commit to promoting the conversation and sustainable use of water, minimise water losses, and increase water storage, retention, and recharge. Additionally, the agenda also focuses on tackling and adapting to the world climate change. The agenda hopes for the society to commit to subnational and local climate action, support all local stakeholders as important implementers, and form adaptation plans and actions including ecosystem-based adaptations.

The other important environmental declaration is the Paris Agreement (PA). The Paris Agreement was concluded in 2015 and is considered historic as all countries will now have to implement their Nationally Determined Contributions (NDCs) effective from 2021. All parties of the PA agreed to do their NDCs every five years. As the NDC is the global response to climate change, all parties are to undertake and communicate ambitious efforts towards covering mitigation, adaptation, finance, technology transfer, capacity building, and a transparency framework with the view to achieve the purpose of the Paris Agreement.

The latest UNEP Emissions Gap Report shows that current pledges under the PA will only deliver a third of what is needed to stay in the safety zones of the PA and the window of opportunity to meet the 2° Celsius target may close in 20 years or less. There may be only five years to bend the emissions curve towards 1.5°C. In mitigation planning, Malaysia has declared the intention to reduce its ratio of Gross Domestic Product (GDP) to Green House Gas (GHG) emission by 45%, by 2030, from the levels in 2005. The total emission in 2005 was 288,663 Gigagrams of CO_2. Malaysia has stressed the need for adaptation and highlighted efforts to build resilience in its development plans. Mitigation refers to actions that reduce or remove emissions of GHGs. Adaptation relates to adjustments in the natural or human systems in response

to expected climatic effects. For example, building flood defences such as sea-walls and protecting coastlines like planting mangrove forests.

In 2009, Malaysia pledged to reduce the carbon emission intensity of its GDP under the United Nations Framework Convention on Climate Change (UNFCCC) by 40%, by 2020 as compared to the levels of emission in 2005. In 2000, the GHG emission was 229,990 Gg CO_2eq while the removal was 249,780, showing that Malaysia's emission was a net sink, or more removals than emissions. By the year 2011, Malaysia became a net emitter, meaning that the emission increased to 290,230 Gg CO_2eq while removal was 262,946 – making emissions more than removals.

Green Climate Fund

Parties have agreed to set up the Green Climate Fund (GCF) in Cancun under the UNFCCC in 2010 upon the insistence of developing countries. In 2011, the GCF was launched as the operating entity of the financial mechanism in UNFCCC. GCF mainly funds the strategic mitigation impacts and strategic adaptation impacts. The strategic mitigation impacts are to reduce emissions from energy generation and access, transport, buildings, cities, industries and appliances, forests and land use. The strategic adaptation impacts are to increase the resilience of health, food and water security; livelihoods of the people and communities; ecosystems and ecosystem services; and infrastructure and the built environment.

Opportunities for Penang

Penang should submit proposals to fund projects via an existing international accredited entity for climate-proof ventures to support new initiatives. Any Malaysian entity with required capacities can apply for accreditation to directly access to GCF's resources. Penang is already facing climate changes - for example, the prolonged drought in the year 2016. More frequent and intense rainfall have become a new normal condition for the Penang society. Penang is also a small island, apart from Seberang Perai, therefore Penang is especially vulnerable to climate impacts like sea level rise, storm surges, vulnerable coastlines, and many more. Economic development, job creation and other development aspects are important, but they need

to be balanced with environmental concerns and a quality of life for a better and sustainable future. The ecology and life quality must be prioritised in the state planning process and reflected in the Penang Structure Plan, local plans, density and plot ratios, hill and coastal conservation and transportation policies. The recent severe floods and landslides in Penang were evidences of both climate change effects and imbalances in urban development. Penang really needs to review policies and rebalance priorities to achieve a truly green agenda.

The take home messages are as follows:

- Economic development is important and has to be balanced with the environment.
- Next, the ecology and life quality have to be prioritized in the state planning processes and reflected in the new Penang Structure Plan.
- The recent severe floods and landslides in Penang are evidence of climate change effects. Thus, there is a need to review the policies and rebalance the priority to achieve a truly Green Agenda.
- When the environment is damaged, we have to repair the damage such as rehabilitate eroded slopes, conserve the soils, regulating the water supply.
- Prevention is better than cure. It is better to conserve the hills, catchment areas, and mangrove areas before facing destruction.
- All the international agreements stressed the importance of strong and effective engagement of stakeholders especially public participation.

First session: Global Sustainability Challenges session

The Barriers to Sustainable Development in Malaysia

By Hezri Adnan

Editor: Penang Green Council

Sustainable development is the convergence of social floor and planetary boundaries which are our basic needs and environmental limit for growth. However, it is not an overnight process. Human spent 2.5 million of years living as hunter-gatherers and then 12,000 years as agrarian society. While human's industrial age last less than 200 years but its damage to the environment, including the change of the entire landscape, will take a longer time to recover.

The first barrier is the society's culturally-entrenched disregard of the environment. Malaysia is green but is hardly clean. Malaysian like to go into nature to enjoy the beautiful sceneries, but they leave behind lots of rubbish, pollutions and environmental problems due to habits and attitude. Only in Malaysia, Leptospirosis cases, due to littering, are common at these places of nature. These places are not just about aesthetics but public health, wildlife, and drainage systems. In conclusion, the ethics of Malaysians are still lagging with regards to the love and protection of the environment. Our society needs guidance to address sustainability in a coherent manner.

The second barrier for a sustainable development in Malaysia is that our policies are not supported with requisite resources. Reported by a group of NGOs in Malaysia, there is no action from the Rio+10 although all the policies are well-written. Economic, social, and environment policy statements are in abundance, but not widely known even by government departments. Meanwhile, government expenditure or the allocation for Ministry of Natural Resources and Environment (NRE) is merely 1%. The allocation is mostly for salaries, resulting in the lack of money to carry out programs related to sustainable development. The allocation for Ministry of Energy, Green Technology and Water (KeTThA) increased since 2013. Government sees the

potential of investing in green technology to generate future income for the country. However, environment protection is still seen as costly and cannot generate visible income. In addition, the judiciary did not put much emphasis on environmental values. Former Chief Justice of Malaysia, Tun Ariffin Zakaria, recognized that our values are misplaced when it comes to environmental issues. He said that there is a need to include environment into our Federal Constitution.

The third barrier is anti-ecological land use. We consistently lost our forests since the 50s. In Peninsular Malaysia, we used to have more than 80% of forests in the 50s but it is now down to 42%. In some Permanent Forest Reserves, there are no forest because logged forest will only regenerate itself in 70 years. The reduction of forest also affects the provision of ecosystem goods and services. Five states of Malaysia: Perlis, Kedah, Penang, Selangor and Melaka, are water-deficit states. Loss of forest is a security threat. In TN50 youth survey, environment is listed as the 6th highest concern of youth. We need to rethink our framing of environmental problem. Urbanisation will keep on happening in Penang. In order to cater the global needs of around 9.4 billion people in 2050, the world have to increase food production by 60-70% and energy production by 40%. By 2030, the world will face water deficit of about 40%. How can Penang prepare itself from these situations? Especially on water supply issue, Penang still depends on Sungai Muda. If logging of Ulu Muda Forest Reserve still goes on, we have to think of other ways to sustain water for Penang. Other anti-ecological land use is the iron ore extraction around Tasik Chini, Malaysia first UNESCO Biosphere Reserve. 11 iron ore licenses were given out to powerful people. These licenses were EIA-qualified by just a few meter square smaller. Tasik Chini also faced threat from plantation, logging, dam construction, ecotourism, and untreated sewage from National Service Camp. All these destruction to the environment consistently and systematically paralyse the ability of sensitive areas that provide ecosystem services.

This ambiguous development profile is the fourth barriers for a sustainable development in Malaysia. Our federal constitution is partly responsible for the increased ecological footprint in the country. We do well in reducing poverty rate and increasing GDP per capita but our ecological footprint increased. We still cannot claim

to the world that we have the convergence of the 3 SDG pillars: economic, social, and environment. Business-as-usual is not an option. We need to decouple economic growth with environmental impact.

The fifth barrier is the outdated federal-state institutional arrangement. The Malaysian constitution has failed to put any obligation into the state to protect the environment. Land is a state matter, so the environment should be a state issue as well. Our neighbour countries, Thailand and Philippines, authorized their states to protect environment. The Reid Commission, which drafted the Report of the Federation of Malaya Constitutional Commission, discovered in 1956 that Peninsular Malaysia is already facing soil degradation along river and hillside due to agricultural and mining activities. Even till now, we are still facing the consequences from soil degradation. Referring back to this original constitution draft, we need to relook at the balance of power between federal and state on environmental issues.

The sixth barrier is the self-censorship in Malaysia's academia. Acquiescence of Malaysian scientists perpetuates environmental neglect. Throughout the years, Malaysian academics' publication on sustainable development, forest, and energy have increased. Although we have a lot of research institutions, allocation, and training opportunities in Malaysia, studies on the state of the environment is still lacking. We need to have a comprehensive look at some of the key, strategic environmental issues for the country.

The last barrier is the absent of political will in protecting environmentally sensitive areas such as forest and water catchment areas. Deforestation is still happening all around forest reserves in Malaysia. For instance, Cameron Highlands was degazetted as wildlife reserve in the 60s' and then illegal clearing and development of land happened since then. Then, there is the destruction of Tasik Chini that will soon cause its disappearance by 2030. The law contains many escape clauses and decision-making always favours the elites. In 2016, Puan Sri Shariffa Sabrina from PEKA was remanded for speaking on behalf of the indigenous people on environmental issues, just because she criticised the elites. The elites should care and beautify the environment, not destroy it and antagonize the environment protector.

As a conclusion, while sustainability shift is a long-term agenda, but we must break down the barriers now. There is an urgency to fast track the agenda now. If we do not protect the environment now, the cost to build other infrastructure to cater our needs is much higher. This is not a viable future for our children. These issues demand an urgent response from individuals, industries, and governments.

First session: Global Sustainability Challenges session

Discussion session

Moderated by Anwar Fazal

Editor: Penang Green Council

Spade for sustainability

To achieve sustainability, we should understand and demand our rights towards a sustainable life. For instance, 70% of the state fund should be channelled to drainage management, and from it, 40% should go to the flood management. Besides funding, education for sustainable development is very crucial to build a more organised and educated society for a sustainable future. Besides the young generation and students, civil servants can also be trained to become a sustainable community.

Funding for Sustainability

The Green Climate Fund has already a lot of templates for proposal and information but navigating through the website is hard. We need to have an entity which is already accredited to the Green Climate Fund in order to have access to the resources. So far there is no Malaysian entities that have registered with the Green Climate Fund. We can go through other entities like United Nations Development Programmes (UNDP), Asian Development Plan and etc. So, we can use international entities to have access to the fund with detailed procedures.

Educating Young People About Environmental Protection

One effective way to reduce sustainability challenges is by involving young people in environmental programmes. Throughout history, changes often begin with the young. Young people look at the world with fresh eyes.

All over the world, youths are regarded as the future leaders of the society. This is not a misplaced or wishful thinking as this class of energetic citizens possesses enormous and multi-dimensional talents, powers and creative abilities which, if moulded and harnessed in a fit and proper procedure, can translate to generational wellbeing in the social, political and economic life of the society.

Environmental education is among the key areas in educating young people in environmental protection. The educational approach might be through a sustainable club in school or environmental workshop at the university.

Steps for Green Vision in Penang - Penang Green Agenda

In the wake of the threats of climate change and evolving paradigm for sustainable development, cities must realise the urgency for environmental sustainability. One of the main visions of the Penang Green Agenda is to study forthcoming threats of sustainable development, and to develop, adopt strategies and policies to reduce its impact on the population. The agenda emphasises sustainability and takes into consideration a broader, longer-termed and more integrated method of practising sustainability.

Sustainable development is still a new for Malaysia and also Penang as we lack understanding and technical knowledge of sustainable development. We also lack in technology transfer, public involvement and political support in developing an environmental policy. In this agenda, everything is connected - technical group engagement, public involvement and political support. Everyone must be involved in developing this two-year policy planning project to build resilient communities in Penang by 2030.

Details of the symposium speakers and moderator

SESSION 1: Global Sustainability Challenges session

	Topic	Speaker
	Strategic Considerations in the Development of Penang Green Agenda	Keynote Speaker 1: Dato' Dr. Leong Yueh Kwong *(PGC Director & Chairman of Penang Green Agenda Advisory Committee)*
Global sustainability Challenges session		
 	International Environmental Agreements & Declarations & their Relevance to Penang	Plenary Speaker 1: Mr. Martin Khor & Ms Meenakshi Raman *(Executive Director of the South Centre & Legal Advisor Third World Network)*
	The Barriers to Sustainable Development in Malaysia	Plenary Speaker 2: Dr. Hezri Adnan *(Appointed Member of the United Nation's International Resource Panel)*
	Panel Discussion and Q&A session	Moderator: Dato' Anwar Fazal *(Chairman of Think City)*

Second session: Sustainable Planning session

What is Sustainable Planning and its Importance to Penang?

By Chow Kon Yeow

Editor: Penang Green Council

A sustainable planning is important since we face numerous challenges resulting from climate change. As shown in the media, changes to the climate impacts the whole world, just like how snow is falling in the dessert. Climate change has arrived at our shores and has impact on our livelihood. Climate change is a natural phenomenon and nature slowly adapts to the global climate changes. Climate change is a much bigger trap to us today due to rapid warming caused by human activities. This situation has serious implications for the stability of the earth's climate.

Many scientific researches indicate that climate change is real an impending disaster due to the intensification of human activities. Rapid urbanisation, industrialisation and deforestation have all contributed to the rise in temperature. Climate change has resulted in a drawn out and unprecedented weather phenomena such as the heavy rainfalls and strong winds Penang experienced recently. A few years back, the drought was so long that levels in various reservoirs and dams in Penang were recorded as low. However, today, the dam level has exceeded 100%, and excess water has to be released to the spillway. It is a matter of time, in one or two years, that a starkly different situation may occur, as our weather patterns have been erratic. As a member of the state government and local stakeholder, we strive to achieve a sustainability to address these climate impacts.

Lately, Penang has been affected by excess rainwater and water management is one of the key areas of our state's sustainable planning. Sometimes, when we need water, there will no rain in that particular area. But in Penang, several heavy rainfalls caused floods in many areas of the state in the past months.

The Drainage and Irrigation Department (DID) recently reported that they are commissioning a water balance national study to ensure that during rainy season, Penang will be able to keep excess water instead of channelling it into the sea. The Penang state government, through Perbadanan Bekalan Air (PBA) did a study on this principally because water sources are very crucial to ensure the survival of all living beings. When there is excessive water from flood events, water can be stored and saved for future use during drought. This will ensure that there will be enough water in the reservoir and dam, and water will be released slowly during dry seasons. September, October, November and December are the wet months; while January, February, March, and April are the driest months in Penang. However, Penang is likely to experience increases in rainfall this January. The weather has become unpredictable and this is becoming the new normal to us.

Water management

Water management and flood mitigation are among the important areas for Penang. Almost 90% of our water supply comes from Sungai Muda in Kedah. That is why water management is not only seen as a state matter because it is transboundary. As our water source is dependent on the Ulu Muda catchment in Kedah, whatever happens in Ulu Muda would have great impact on Penang too, especially logging activities in that area, as reported in The Star paper today. It is important for Penang to have discussions with the Kedah state government and also the federal government to stop illegal logging and deforestation as it affects Penang.

The Penang local government has finally decided to not release water for the agriculture sector. Affected farmers in the Kepala Batas are aware of the state government's decision to not release water to the paddy fields. This is to ensure that sufficient water is being pumped to the water treatment plant and enough supply for the whole state.

A proposal was made to Perbadanan Bekalan Air (PBA) to conduct a state-wide campaign meant to pressure the federal and state government of Kedah into

ensuring that deforestation at Ulu Muda will not deteriorate into a worst-case scenario with severe implications to our water supply. Meanwhile, a tunnel from Perak River is being built provide an alternative source of water supply. However, negotiations with other states are not as favourable. Following in Singapore's footsteps, PBA is also trying out the salination process in Pulau Aman and the island next to it. Since water sources are a major problem to Penang, we have to plan very well to sustain all water sources in the future.

Flood Mitigation

Flood mitigation is an area that needs to be planned out by combining engineering and environmental science knowledge. After the November 4th and 5th floods, everybody now seems to be very fearful of dark clouds forming. It is very important to find solutions on how to manage water runoff and how to design a sustainable urban drainage system to ensure that water is retained and released slowly into the river and drainage system. Good drainage will ensure that water does not cause flooding and create large social consequences for the people.

Urban settlement

Another area is the need for a smart and sustainable public transport system which is well-planned by identifying the peak hours, lighting stations, trips and smooth exchanges between different modes of transportation. Although Penang has begun working on its Transport Master Plan, there are members of the public who question the sustainability of the Penang Transport Master Plan due to the huge cost involved in building the public transport system which amounts to more than RM 20 or 30 billion. This is one area that needs to be focused in terms of traffic congestion.

Solid waste management

The next area that needs focus is the solid waste management. In fact, the Penang Local Government spends most of their time looking at the solid waste management problems in Penang. Many initiatives have been carried out which

includes the Pulau Burung landfill. The Pulau Burung landfill site began operations since 20 years ago but it was not designed as a sanitary landfill, and faces a lot of challenges over the past ten years. Since the problems of phase 1 and phase 2 of the Pulau Burung landfill have been resolved, the Jelutong and Ampang Jajar landfills have been closed down. The Pulau Burung landfill is already more than 30 meters high and has a danger of collapsing in phase 1 and 2. Phase 3 will begin in February and will be ready in April to receive waste. Meanwhile, we hope that the existing landfills will not collapse since there have been many incidences in countries all around the world - especially in the Philippines where scavengers were killed in such landslides. The Penang Local Government has achieved little success in terms of integrated solid waste management system. Penang has achieved the highest recycling rate in the country and household composting is slated to begin by next year.

The Penang Local Government will keep working for a better and sustainable Penang by 2030. The Cleaner Greener Penang initiative is the road map for Penang to restore the living environment and deliver a cleaner and greener city which will improve the quality of life.

Second session: Sustainable Planning session

Eco City to Eco State

By Dato Maimumah Mohd Sharif

Editor: Penang Green Council

Penang has a population of 1.7 million people and an annual population growth rate of 2.11%. To further develop, Penang refers to the 17 Sustainable Development Goals (SDGs) and links them to the state council's roles in achieving and strategically aligning with the state council's efforts on the ground consciously. The state council must consciously link the SDGs and the New Urban Agenda (NUA) because from now onwards, it will be the mantra for a new era and development.

There are 17 SDGs and 195 paragraphs in the NUA. The SDGs and NUA must be consciously linked and integrated into our daily activities. Of the 17 SDGs, 8 SDGs are listed in the Penang Green Agenda. If we want a sustainable Penang, we have to embrace all of the 17 SDGs. All the SDGs are very important in developing a sustainable Penang by 2030. SDG 17 which is the Partnership goal is very important to achieve the sustainable development goals. All SDGs are important and interrelated. For Penang to become an eco-state, sustainable, liveable with a good quality of life, these things are important: good governance, environmental awareness (education and communication in topics like solid waste management, water waste management, air quality, etc), culture and leisure, information and communication technology, community engagement and social enrichment.

Without good governance and management, it is very difficult to develop a sustainable Penang. Moreover, environmental awareness is not limited to only the government servants, NGO and other bodies - everybody must be involved and has to be aware of its challenges. We can raise environmental awareness through education and communication – the earlier, the better – starting from kindergartens.

Making Penang sustainable does not happen within five or ten years, we have to look beyond that. Environmental awareness is not only environmental, but also economic, social and physical. Innovation and creativity are very important to sustain Penang, including the small and medium enterprises, local economic development and human development. In Penang, culture is very important not only because of tourism, but also in terms of sustainability where impact can be achieved through environmental awareness.

Information and communication technology in Penang should involve E-government, data centres, broadband, wireless, e-payment, digital economic, etc. Information and communication technology is important to achieve a sustainable Penang. The infrastructure in Penang should focus on developing more roads, highways and Telco structures, including mobility and connectivity. How can we connect and how can we mobilise from one point to another?

Community engagement in Penang is very important, although we are living in one particular state in Malaysia, we should take the trouble to know about everything that happens in the country. Therefore, it is important to obtain information and attend small workshops since they are the pillars of success. Community engagement also includes community participation. Penang is now moving in the direction to engage two-way participation, and engagement is a longer process than just participation. There must be monitoring, enhancement, reviewing and meeting of goals as these processes lead to a sustainable future. The health aspect is also important for a sustainable future in Penang. It involves safety, security, social integration, cohesion, and of course peace.

Penang can be holistic when we talk about a sustainable Penang. This is because a city belongs to its people and a city is an engine of growth. SDG 11 is to make a city more human-settlement inclusive, safe, resilient and sustainable. How do we translate this into our day-to-day life as the state council of Penang? This is the challenge: how do we translate the city into a more human-settlement inclusive, safe, resilient and sustainable in our small, big and medium projects?

Consciously translating the 17 SDGs and 195 paragraphs of NUA into a day-to-day activity of the local authority is a challenge. While there is talk about the regional office, sub-regional office and sub-national office, local government participation is absent. Without the local government, the SDGs can be just SDGs. The local governments are the ones who translate the NUA and SDGs into its capacity. As such, there must be an integrated and holistic urban planning policy. In other words, this is how it can be formulated to improve the policy. The challenges are community inclusiveness. From the 17 SDGs, there are 169 targets but we are focusing too much on the outcome, not the output. We must have a key focus when we talk about the outcome-based issues. Are we really implementing a policy for the outcome? Or do we implement them to boost outputs? This is important and that is why we need to have a review of our policies.

When constructing the structure plan, local plan and other state policies, state agencies need to review to see if all these policy plans are connected and integrated. With reference to sustainable countries like Singapore, the agencies in that country are guided by only one policy plan for every development in Singapore. The policy plan is an investment plan, a guide plan, and development plan for all the agencies. If Penang wants to talk about having a holistic and integrated plan, all Penang agencies must have the same plan. As Penang is now in its final stages of the Penang Structure Plan, every agency, either private or public should only talk about only one structure plan.

As a conclusion, the agency, either private or public in Penang should promote and implement the 4Ps - Public, Private, People and Partnership - in order to develop a sustainable Penang by 2030. This 4P process framework embraces the bottom-up participative strategies which makes public engagement clearly visible in the infrastructure planning and policy making. With this newly developed framework and associated engagement strategies, decision-making power can deviate from policy makers, meaning those who traditionally hold the ultimate decision and authority can no longer do so as citizens will also have their opinion heard through proactive engagements. Such strategy can help improve the development process by moderating the risk of unforeseen oppositions, building clear responsibilities and rights and creating opportunities for public inputs.

Second session: Sustainable Planning session

Is Singapore Sustainable?

By Sophianne Araib

Editor: Penang Green Council

Singapore today has a vibrant and green economy, well-developed infrastructure, water completely accessible and clean, and high population density. Singapore has achieved a certain level of development that they enjoy today. About 50 years ago in the 1950s to 1960s, Singapore city had poor infrastructure, squatters and pollution - nothing could live in the Singapore River. The population in the 1950s to 1960s was 2 million and 1.3 million of the population actually lived around the river.

Today, Singapore is a city-state that has 5.6 million population and a land area slightly smaller than Penang - about 720sq kilometres area. In terms of density, Singapore has one of the highest population densities in the world. However, unlike Penang, Singapore has very limited natural resources. At the same time, Singapore must accommodate everything that a country requires such as the defence ministry, and basic needs like a water supply catchment area and many more. These are among the challenges that Singapore faces in development. Meanwhile, the other challenges include climate change and demographic diversity. The Centre for Liveable Cities (CLC) is a government think tank that was created under the Ministry of National Development and Environment. CLC was recognised as a centre to pull together Singapore's development experience and encourage personalities in the fourth leadership to work on sustainability and liveability; not just in Singapore but also internationally. Singapore liveability framework came out of the CLC research through Singapore's own development experience. The research is about creating strategies to achieve a liveable and sustainable city in Singapore. The main principle for sustainable planning in Singapore, and any city, is to achieve a high quality of life and a competitive economy in a sustainable environment.

These three components - high quality of life, competitive economy and sustainable environment are important outcomes that drives the city and country. It is very important to have a sustainable economy that is able to sustain a lot of activities in the city and at the same time, track sustainability. There are many plans and policies that cities implement for trying to achieve these outcomes. However, what is critically important is how to get there. Two key principles in Singapore as a sustainable city or state are the integrated master plan, development and also dynamic urban governance. Singapore has managed to capture all of the United Nations Sustainable Development Goals (SDGs) in the planning and development. Singapore wants to ensure that even under the high quality of life related with liveability; they must adopt a broad range of SDGs as an example. The goals were translated into actions and policies that were put in place and implemented in Singapore.

The integrated master plan is about long-term planning and development. The plan is put in place for 50 years and is called ‘beyond 50 years’. These are some of the principles in the integrated master plan and development. Meanwhile, the dynamic urban governance is about working with the stakeholders, leading with vision and pragmatism, building the right institution and the right kind of value system that the institution can work with to implement the plan. Most importantly, it is about the community and knowing how to work with markets in the private sector.

Sustainable planning and development in Singapore

Singapore has a concept plan, master plan and development plan for the foundational plan. The concept plan is actually the blue print that sets up strategic rules for the direction and land use needed for every direction that we can see more than 40 to 50 years. This plan is always renewed every 10 years. The concept plan then translates into what is called the master plan. Therefore, this five-year strategy plan is more granular. It is more detailed as it guides land-use intensity and development in the medium term. The plan is also translated into the other plans in Singapore over the years.

Environmental issues have high priority in independence. The leaders had the foresight to understand the environment: green, clean, sustainable and prosperous. Without green, clean, and sustainable environment, Singapore was not going to prosper. Hence, right from the onset, the environment was placed high in the political and policy agenda. Former Prime Minister Lee Kuan Yew set a challenge for the water and environment agency: in ten years, he wanted to see fish and people swimming in the Singapore River and that is what Singapore achieved today. Singapore River was polluted but was cleaned up within ten years. In 1977, a challenge was issued and by 1987 the clean-up was completed.

The second challenge was given to the water agency to make the Singapore River a reservoir or a fresh water reservoir. Today, the Singapore River is among the biggest water catchment area and reservoir, and a tidal dam that serves multiple purposes: keeping the water in reservoir, reducing climate change impact, mitigation and adaptation.

Greening has been a main part of Singapore's development project. A lot of emphasis is placed for greening in Singapore. Between 1969 and 2010, Singapore managed to grow the green cover from about 35% to almost 50% despite population growth. While it is a continuous struggle to maintain and to even increase it, there was a lot of effort in terms of policy and regulation to keep that percentage up since Singapore recognises that the greening is important to stabilise climate change effect.

Water sustainability and security is important to Singapore and placed very high in the agenda since the early days. In the philosophical framework for ensuring water, Singapore has four steps: domestic source, imported water, new water or clean water and desalinated water. This is a strategy to ensure sufficient water in Singapore. Singapore also encourages its citizens to collect every drop of rain water and recycle the water to be used in daily life. We believe that, to deal with heavy, intense rainfall as a result of climate change, we need to slow down runoff by trying to go back to nature.

Singapore has a sustainability master plan which was created in the 90s. We review every few years and the latest permutation would be the Sustainable Singapore Blueprint which was launched in 2015 for the sustainable development and recognise that the economy still needs to grow because it is critical to Singapore. At the same time, community's role in it is also taken into account to realise the vision in that. There are five focused areas in the blueprint: eco-smart endearing towns, a 'car-lite' Singapore, towards a zero-waste nation, leading green economy and an active and gracious community. In the sustainability blueprint, Singapore sets the target to be achieved by 2030. The targets are the sustainability targets from a variety of areas and domains. While Singapore looks at the greenery space mobility, Penang focuses more on energy, air quality, and services.

For the eco-smart endearing town, Singapore tries to translate it into residential towns with high development in terms of residential-incorporating technology. Technology helps to improve the daily lives of the residents. A lot of sensors are being built into residential towns which functions to measure energy usage and also to measure people's movement so that there is better planning of transport routes. All these are aimed to improve the lives of citizens.

In the second focus, Singapore is putting a lot of effort into 'car-lite' by focusing to target a ten-minute walk to a train station for every eight to ten houses. Singapore also has a national cycling master plan. There are also many pilot tests for electric and autonomous vehicles.

Singapore's third focus is going towards zero waste as Singapore is an island that has no more landfill in the mainland. Singapore only has a landfill offshore and that landfill is filling up. Singapore has been reducing, reusing and recycling essentially cutting down the amount of waste. At the same time, we are trying to close up the loop like a circular economy. Whatever waste generated, we are trying reap the nexus between the waste, water and energy by closing that cycle and harnessing the benefit from there.

The fourth focus is leading green economy that is basically about fostering and nurturing a kind of a new area of urban solutions that is able to contribute towards the economy. Big living labs are set up in the Singapore's industrial areas to test green initiatives and green buildings. Singapore is big on solar energy as solar panels cover as much space as possible - even our reservoir is covered by solar panels.

The fifth focus in the Singapore Sustainable blueprint is the most important - an active and gracious community to encourage stewardship of the environment. They create 'space' programmes to get the community to make sustainability a way of life. There is a big movement among the youth and young for things like upcycling and others. People are going around making statements about reducing car parking and converting space for better community uses. Finally, it is also about sharing or communicating the knowledge about sustainability and liveability not only to Singapore, but also to international platforms like in World Cities Summits.

Singapore has given an important focus to the United Nations Sustainable Development Goals 11 on Sustainable Cities which was one of the points of focus for Singapore for 2015. Singapore's involvement and contribution in the World Cities Summit in 2015 Mayor's Forum, they lobbied the mayor of 112 cities around SDG 11.Thus, we recognize that cities are the one who are going to chart the future of Singapore. Cities are the one going to have solutions and action that can be taken rather than at the national and country level. So local government, city government and mayors are actually those are the ones to rule the world. That's the new urban agenda that Singapore also contributed towards better future. Talking at the World Cities Summit is a platform in Singapore that happens every two years and it is happening again, this year. The cities' leaders and experts have gathers in Singapore to talk about liveability and sustainability. These should be discussed from time to time to create a liveable and sustainable world.

Second session: Sustainable Planning session

What are the Future Visions and Planning for Penang?

By Dato Hj' Mohd Anuar Maidin

Editor: Penang Green Council

Penang state's vision is to develop Penang as a smart city featuring international status and harmony. To make Penang a pure and prestigious state in Malaysia involves completing an efficient network of infrastructure, developing competitive human capital and generating a dynamic economy with an efficient stable management in line with technological developments towards creating a clean, safe, and healthy environment. The question is on the implementation, interpretation of this vision, role, plan and action.

Penang Structure Plan 2020 was gazetted in 2007 and reviewed in 2012. The vision is "As a State Continued and Achieve Vision 2020," while the directions are to create "Penang as Harmony, International, Intelligent City or State" in Penang Structure Plan 2020. When going through all the strategies in the Penang Structure Plan 2020, a lot of things pertaining to the sustainable development are already considered, especially the land use, environment, society, economy, history and heritage aspects. However, we must accept that Penang is already in the phase of fast growth of developments and it will become the fastest growing state in Malaysia, with the highest Gross Domestic Product (GDP). At the same time, Penang also faces challenges in the development and environment when discussing about sustainable development. Among the issues in Penang to ponder upon would be sustainability of economics, cost of living, environmental issues, conservation issues, protection of agriculture area and biodiversity, human development resources, social amenities and governance.

Penang Structure Plan 2020 is among the relevant policies in Penang because the policy is able to cover the following important matters in the planning: regional and international cooperation as well as the Northern Territory's Main Growth Centre; human population growth and sustainable human resources; fundamental and strong domestic economic outlook; competitive industries; main trade centre in the tourism sector; flourishing modern agriculture and agro-based industries; equitable development of land and environment; providing quality housing and community amenities; communication and transportation systems; and world class infrastructure.

Penang state government gazetted the Penang Structure Plan 2020 in 2007 which is more than 10 years now. Therefore, we must relook the spending and planning for a better future of Penang. Ever since 2012, the Penang state government has been reviewing the structure plan. It is in the process right now and we are already at the final stage of preparing the draft structure plan for 2030.

There are many issues on the implementation or action to start this study especially when we must integrate this study with the new development plan like the National Physical Plan, National Urban Policy, National Rural Physical Plan and Five Years Economic Plan. Other than integrating this study with the new plan, we have to consider new state policies and all of the committed development that has been passed after gazetting the 2020 Structure Plan. We also need to check the implementation of the policies - whether it complies, and the extent of achieving these targets in the Structure Plan. We must also check the plan with the sectors policies, by looking into future challenges, reviewing for prospects and preparing for new targets for various sectors by 2030.

<u>The draft for Penang Structure Plan in preparing for the year of 2030</u>

To draft the sustainable development and planning of Penang 2030, the proposed amendment to the Penang Structure Plan 2020 or better known as the Draft of Penang Structure Plan 2030 outlines the vision of making Penang a smart, harmonious, and global state. The Draft of Penang Structure Plan 2030’s mission is to make Penang the best home base in the country by completing an efficient

infrastructure network, developing competitive human capital and generating a dynamic economy with an efficient management in line with the technological advancement towards creating a competitive, clean, green, safe and healthy Penang.

The Penang Structure Plan must be adhered as the direction for the state since we are still struggling with our economy. Penang can be strengthened as the Northern Territory Growth Centre for the Peninsula through the development of a competitive, high-value and global economy, perfect and orderly physical development plan. The following lists the outline for the draft structure plan for Penang: George Town as a global city; Butterworth as a Regional Hub Centre; annual GDP remains at 4% until 2030; provide sufficient Industrial Area by maintaining an annual growth of 2.67%; the Industrial Revolution 4.0 is applied; the retention of 80% of Small Industries, targeting tourist presence of more than 7 million in 2030; and Butterworth as a State Tourism Hub in addition to strengthening the current tourism hub around George Town.

Main thrusts in the Draft of Penang Structure Plan 2030

Thrusts in the Draft of Penang Structure Plan 2030 include: building world-class infrastructure and strengthening connectivity; sustainable development, environmentally friendly, empowering and being empowered; building human capital, enhancing creativity and innovation; and ensuring good government governance.

To build world-class infrastructures and strengthen connectivity in Penang, the implementation of the Penang Transport Master Plan; upgrading Penang International Airport to accommodate 12 million passengers by 2030; increasing Butterworth's Port to 2.9 million TEUs (twenty-foot equivalent unit – a in exact unit of cargo capacity) and upgrading Swettenham Pier Cruise Terminal to accommodate 12 thousand passengers. Northern Region Development Strategy Blueprint by NCER (Northern Corridor Economic Region), and Butterworth - Penang Sentral will strengthen the existing connectivity between the region and the state, and further boost development in the Seberang Perai area. This northern region strategy framework by NCER

emphasizes two project catalysts: Butterworth terminal and Batu Kawan eco-cities as a major economic development or catalyst for Butterworth and Penang as a whole.

To create a sustainable, developed, environmentally friendly, entitled, and resilient Penang by 2030, the percentage of the existing built-up areas on the island of Penang in 2015 is expected to reach 40% by 2020. The 2030 target of the DRSNPP (Draft Rancangan Struktur Negeri Pulau Pinang) built-up areas is at the level of 46%, which means that 64% will be maintained as natural areas, agriculture and rural settlements. The state government through the State Assembly sitting in November last year has taken the decision to maintain the RSNPP (Rancangan Struktur Negeri Pulau Pinang) 2020 policy which does not allow the development over land that has a height of above 76 meters or 250 feet. We also target to accommodate 2.45 million residential and communal facilities by 2030, with a projected 30% of the 223 thousand affordable housing owned by locals. There has also been a reduction of agricultural land since 2015, from 47,440 hectares to 43,280 hectares by 2020, DRSNPP 2030 will maintain an area of 36,400 hectares of land without sacrificing the KSAS (Kawasan Sensitif Alam Sekitar) area. Paddy output is expected to increase from 287.67 thousand metric tonnes in 2015 to 505 thousand metric tonnes in 2020 by supporting the continued use of modern and creative technologies in line with the National Food Security Policy. Inactive paddy fields are being developed to become new settlements causing a slight reduction to the paddy fields area.

To build human capital and enhance creativity and innovation, the Draft of Penang Structure Plan 2030 has been drafted to improve knowledgeable, skilled, and semi-skilled workers by maintaining the competitiveness of the state and strengthening the human capital of the population. The tertiary educated population is expected to increase from 25.9% in 2010 to 30% in 2020. The RSNPP 2020 is projected to reach 35% by 2030 with an increase of 1.48% per annum. More skills and training institutions, especially IT-based institution and Industrial Technology 4.0 will be emphasized by the government with the support of the private sector and industry players.

In order to ensure good governance in Penang, Penang Structure Plan 2030 will try to implement the New Municipal Policy Agenda as a blueprint for executives, especially city administrators and stakeholders to implement and support the Sustainable Development Agenda in ensuring inclusive, safe, resilient and sustainable cities for all levels of the population. The New Urban Agenda also emphasises a responsive approach to urban development to involve multiple target groups, promoting people centric planning and inclusivity by considering the interests of all levels of the population. The cooperation of all parties whether the government or the public is urgently needed to ensure that the engagement process for the Development Plan can be finalized and implemented. The Development Plan can then be gazetted immediately and implemented by all agencies. Following that, cooperation and understanding between the State Government and the general public must be formed to prevent confusion with the policy direction so that the implementation achieves the set vision and mission.

As a conclusion, Penang Structure Plan 2030 needs to be worked on intensively as time is a factor and it is very limited. Penang needs a holistic plan to guide the state growth beyond 2030. It is unnecessary to comprehensively complete the plan since studies can be reviewed every five years and changes are bound to happen.

Second session: Sustainable Planning session

Discussion session

Moderated by **Lawrence Lim Hua Kwang**

Editor: Penang Green Council

Land Usage for Food Production in Singapore

Singapore heavily relies on imported food (80%) which is not resilient. Singapore tries to shift the percentage of the self-sufficiency forward by investing in Research and Development for food production technologies. Whatever land they afford to set aside for food production, they do it intensively using technology and increase self-sufficiency. An example would be the high-rise farming, many companies and research institutions did testing on varying methods for high-rise farming which one of the local company manage to come up with a low-cost mechanical system to produce 10 times more productive conventional soil farming, and also mostly researching on the genomes for agriculture (rice, vegetables) and aquaculture (fish) to be farmed on high rise conditions using technology. The ongoing findings are quite promising.

Non-recyclable waste in Singapore

All non-recyclable waste in Singapore will go to the incinerator and the incinerated ash will then be transported to the landfill although that it is not sustainable. Nowadays, Singapore emphasises to makes sure to recycle as much as they can through programmes, plans and policy. At the same time, Singapore had also came up with Waste To Energy Plan of which they try to reap as much energy produced by the incinerator and minimize the ash produced since it is not sustainable for Singapore.

Banning Additional Car Coming into Singapore: Physical Mobility and Work Life Balance

Controlling the growth of car – no more growth in terms of cars on the road – Singapore have a complex system in terms of car growth. They want to reduce the number of cars on road because space and land for roads takes up to 12% of Singapore's land comparing it with housing which takes up to only 15%. If the growth of vehicle continues, it will not be sustainable because they will have more roads than land for housing. The Singapore Land Transport Authority has a system which they formulated a formula where the number of new cars/vehicle coming onto the road is a factor of how many cars decommissioned. This is to move towards zero growth in terms car population. This is not banning but managing the growth of the car numbers.

Possible Solution Regarding a Plan like Singapore

It is possible because as far as planning is concerned, Singapore has Town Country Plan, and Malaysia has National Physical Plan which encompasses the whole country. The government also came up with more detailed plans last year with the National Urbanization Plan and National Rural Plan and those plans should be 'the plan' in the State Structural Plan because it includes various agencies as committee members working together as a team. All state agencies should only use the same plan as this is the translated version of The National Plan, Urbanization Plan, Rural Plan and State Structural Plan. At the local level, we also translate the State Structural Plan into Local Plan.

Virtual Singapore Plan or 3D City Model

Virtual Singapore is a new initiative tied to the smart nation's vision where a lot of planning is going digital. The land authority has gone into a big leap using GIS, using big data analytics to help facilitate planning in Singapore. Most of the data are online and virtual domain which helps the planner to plan (e-planner) in a more granular fashion and is more responsive to citizens and eco-living.

Future or Current Sustainable Moonshot Goals in Singapore

How can Singapore create more land be it underground, increasing intensity or creating physical land to meet land constraint? So the challenge that have been put up currently is that how can Singapore without expanding their physical and terrestrial land, create a lot more space to meet Singapore's need. A lot of stuff is happening for us to go underground and also a lot is happening in the virtual space taking in consideration land uses can actually become virtual.

Comparison between Penang and Singapore Vision Moonshot Goals in Term of Sustainability

States in Malaysia are subjected to national laws and regulations. Meanwhile, the state or local government would like to see how far they can adhere to the national laws. Therefore, compared to Singapore, Penang is given the freedom and liberty to adapt in both total and not in total, like taking a middle approach that it suitable locally by adopting what is relevant to the state. Sometimes, a few variations arise due to the political differences between the state and national government, but it is believed that Penang can still adopt good practices and initiatives from other countries for its local government.

Roles of Gender Equality and Women Empowerment towards Penang Sustainability

Equality should not be focussed solely on male and female, but on broader views, like the different ages, education and ability to live inclusive. For gender equality, Penang already has the Key Performance Indicator on gender equality in the state. To achieve the sustainability in Penang, gender should not be the barrier for a better and sustainable Penang by 2030.

Operational Way to Choose Sustainable Development Goals for Penang

There is a paradigm shift to where the environment is the central point. The environment is not only about ‘pollution’, but also involves physical, economic, social, and psychological environment. All policies and SDGs should touch on environment and give importance to the four pillars; physical, economic, social and psychological. The way we derive decision must take into consideration the impacts on the four pillars: physical, social, economic and psychological. The word ‘environment’ actually brings about wider scope than normal word.

Other options rather than hillside development and land reclamation in Penang

Penang Island has demand for housing/economic growth. Actually, in Penang, less than 11% of Penang land is state land. Most of these lands are gazetted as forest reserve, paddy land, parks and public spaces which the state cannot touch. A few options would be redeveloping old flats like Singapore and increase the density, affordable housing and old areas (old cities) which can be rejuvenated into new cities. This can improve the livelihood. As for the hill land, there is a structure plan and also the local plan in Pelan Dasar. The hill land that being developed at the moment actually already shown as a development area in our Pelan Dasar 1996. Those are the areas that being allowed to develop. Land reclamation is already in the Structure Plan 2020 which was gazetted in 2007 which is an indicator to indicate land reclamation.

Government Way in Dealing with Private Bank Owners

The local government should integrate the environment being developed by strengthening the rules. Some of the development must go through the Environmental Impact Assessment evaluation.

Possibilities of Penang To Benefit Local Economies And Help People To Generate Income From Waste

Actually in Penang, we have policy involving Local Action 21 which consists of 20 programmes with the community. An example of programme that is being conducted by MPSP is awarding schools with money by them collecting a certain amount of recyclable items. A maximum of RM400 will be awarded if the schools carry on the project properly. This programme not only increases the income of environmental education awareness but also helps out in economic development. As for the community level programme, upcycle programme would be one good example currently. The state council will give the recyclable items for free to community and the community get to re-create the item into new items and sells it to others and generates income even online making the trash to cash. There are also projects like Green School Award, Sustainable Community Award, composting programme, and also giving out projects in terms software and hardware.

Wastage on the Environment upon the Evaluation by the Planner or Policy Makers

When planners or policy makers are deliberating on an application for zoning, they consider various issues because the applicant wants to put out housing, commercial, and industrial facilities as compared to the existing land use such as agriculture. Planners or policy makers are accepting the application due to inactive paddy planting area. Consideration is made by the committees as a sacrifice to provide better accommodation. It is a great opinion to the government to keep that in mind.

Penang Transport Master Plan: Public Transport and Traffic Problem

The state government has recognised since 2008 that there are three main challenges which are cleanliness, congestion and clamp. After a ten-year effort from local authorities and community, we have achieved and transformed Penang towards a cleaner place. However, the clamp is restricted under the police jurisdiction. Under local authorities are initiatives like installing Closed Circuit Television (CCTV), installing lighting, putting up mirrors, and constructing pedestrian walkway to provide

a safe environment. Authorities have been working on the Transport Master Plan for a few years to find feasibility and suitability of the proposals regarding the congestion issue. The revolutionary Grab and Uber makes some sectors said that there is no need for a transport project because everyone will be using Uber and Grab and not their own car anymore which is an optimistic view of how to handle traffic congestion. Penang Island does not have a proper highway or well-developed road network compared to Seberang Perai which has the North-South highway, Butterworth-Kulim expressway and Federal Route 1. So currently the government is trying to work for three mega road projects; Zenith Consurtium,SRS Consortium (highway project) and railway options which is still waiting for an approval due to the lack in authoritative power. In terms of the solution for road congestion, the local government is focusing more on what we can do like road widening and increasing road capacity by changing them to a single-direction flow road, trickling traffic lights and so on for short and medium-term solution for Penang.

Local authorities at Seberang Perai started with urban regeneration and urban rejuvenation project; Northern – Butterworth, Central – Bukit Mertajam and South – Eco-town Batu Kawan. The power of small project increases the mobility because it is still under the local authority. The local government also encourages people to walk by focusing good infrastructure at one place. In state level – improving walkways, improving area like Chai Leng Park, trying to persuade community to not block the pathways. At federal level - the Penang Sentral, a transportation hub in Butterworth and the Electric Train Service (ETS) or express train services. Thus, this proves that small projects will bring high impacts.

Details of the symposium speakers and moderator

SESSION 2: Sustainable Planning session

Sustainable Planning Session		
	What is Sustainable Planning and its importance to Penang?	Keynote Speaker 2: YB Chow Kon Yeow *(Penang State EXCO Member for Local Government, Traffic Management & Flood Mitigation and Vice Chairman of Penang Green Council)*
	Eco City to Eco State	Plenary Speaker 3: Dato' Maimunah Mohd Sharif *(Mayor, Penang Island City Council)*
	Is Singapore Sustainable?	Plenary Speaker 4: Ms Sophianne Araib *(Director of Research and Corporate Strategy at the Centre for Liveable Singapore)*
	What are the future visions and planning for Penang?	Plenary Speaker 5: Dato' Hj Mohd Anuar Maidin *(Director of PLANMalaysia@Pulau Pinang)*
	Panel Discussion and Q&A session	Moderator: Dato' Ar. Lawrence Lim Hua Kwang *(PGC Director)*

Third session: Climate Change session

Reversing March of Penang's Sustainability Follies

By Gurmit Singh

Editor: Penang Green Council

Sustainability has been around for ages, but it was only fully conceptualised by Brundtland Report in the 1980s. Sustainability requires balancing between economic, environmental, and social development. However, the balance remained skewed in favour of economics even after the Malaysian Independence Day. American historians described how follies have been repeated in the past in many countries. Sustainability follies are common and that is why Penang should make a start for a better change.

Environmental issues in Penang

Environmental pollution of Sungai Juru, Penang, in 1960s were due to sewage discharges on beaches. The same can be said with the Sungai Jelutong problem. Besides the increasing noise pollution from vehicular traffic, overdevelopment on the island should be given an important consideration for a better future of Penang. Additionally, there are also land mismanagement on hill slopes and repeated coastal reclamation. Penang showed poor urban development through erratic local plans and mismatched accessibility through wrong mobility actions such as tram track removal, low public transport usage, and neglected ferry services. Rushed low-tech industries in Penang are also generating occupational hazards. There is only little public consultation regarding developmental issues and fluctuating public accountability of ministers. Focus for development should be on the mainland. Other main issues in Penang that should be addressed are: affordable housing for poor community; emerging possibility of reactivating cable car to Penang Hill; shrinking green lungs; and waste disposal issues. Penang also faces environmental challenges like soil erosion and silting-up of drains and rivers which lead to major flood events. Governance and institutional issues are also hindering sustainable development.

These situations are not only affecting the society in Penang but are also becoming a threat to the locals and tourist sites in Penang.

Therefore, Penang requires a fundamental shift in thought and action to reverse these sustainability follies. Sustainability must be the driving force at all levels and public accountability should prevail. It is suggested to establish sustainability teams to produce annual sustainability reports with measured indicators. The policies and practices in Penang should be focused on minimizing ecological footprints, eliminating all forms of wastage, and optimizing energy efficiencies. It is time for Penang to switch extensively to renewables in daily life. The environmental policy in Penang should also cover efficient, clean, and affordable public transport, organic farming, clean technologies, and Life-Cycle Assessment (LCA).

Penang also should give an importance to the conservation of all vital natural resources, eliminate hazardous wastes and products, and reduce greenhouse gas emissions. It is encouraged for Penang to have more public participation, accountability, and transparency in the state policy decision-making. Sustainable Penang also need to have high environment quality. To address environmental stress, we need to look at the causes of environmental problems. All consumers need to be responsible conservers. We need to ensure healthy ambient air, water, and noise levels. Malaysia still lacks healthy ambient air quality standard. We also need to have extensive implementation of cradle to cradle technologies. National Green Technology Master Plan fails to mention cradle to cradle technologies which is the way forward for green technology.

There are many sustainable options for entities in achieving a sustainable Penang: observe diligently the environmental management plans wherever they exist and develop own initiatives; be responsive to any complaints from workers, occupants or residents of neighbourhood; insist on vendors or suppliers to observe good environmental practices; publish detailed CSR reports and ensure adequate distribution; and take pride in environmental performance and care. Meanwhile, the

sustainability focus in Penang urban areas should be on: housing - from the ordinary terraces to the bungalows and condominiums; heritage - especially of its built environment; transportation - with regards to its optimised accessibility; and buildings - ranging from offices to factories and malls.

Sustainability options for Penang

To achieve a sustainable Penang by 2030, Penang should also place importance towards a number of sustainability initiatives such as: design and construction of energy-efficient and cool buildings; retrofitting of existing buildings; integration of good mobility in new towns; improvement of public transport in major cities; sustainable transportation; organic farming; energy conservation after audits; better landscaping and adequate green lungs; biodiversity conservation especially in nature parks; sustainable logging; and reducing water consumption.

Sustainable transport need to be emphasized in Penang. The design of public transport needs to address accessibility to serve the maximum number of residents. Non-motorised transport such as bicycle can be transformed into daily transport need rather than recreational activity. Eco-mobility should be introduced and implemented extensively in Penang. Eco-mobility means travelling through integrated, socially inclusive and environmentally friendly transport options, including integrating walking, cycling, wheeling, and car sharing, and bring focus back from auto-mobile centred development to human needs and liveable cities.

Other sustainable options in developing the environmental policy in Penang include: strategizing and promoting options like clean, efficient, integrated, and affordable public transport and efficient engines, equipment and appliances; and facilitating user participation in policy-making and implementation. Transport planning and implementation should be brought under a single ministry which has effective coordination with all relevant sectors and local authorities should run ground operations.

As a conclusion, local councils and state agencies in Penang should: initiate sustainability teams in all departments and start assessing performances using the Sustainable Development Goals (SDGs) or producing an annual sustainability report; restructure the city council into separate councils; reduce water consumption per capita; share decision-making at the top; support all claims of sustainability by third party verified data; elect and not politically appoint local councillors; shun arrogance and inefficiencies; stop green-washing; admit deficiencies; and banish nepotism and corruption. The senior officials and leaders must show reduction in their personal ecological footprints as leadership examples and make public accountability a cornerstone of Penang. To overcome the sustainability challenge, we need to have common holistic vision at all levels, consistency and fair implementation especially at the grassroots, as well as adequate and meaningful participation of citizens in the decision-making process. In terms of governance, we need to allow independent evaluation of sustainability efforts. Local councils should move towards eco-mobility at community level. Most importantly, all these efforts will ensure resources for future generations are not frittered away.

Third session: Climate Change session

Weird Weather Patterns in Malaysia

By Yap Kok Seng

Editor: Penang Green Council

Monsoon seasons determine the weather. Disaster management and risk reduction in Penang are needed during the inter-monsoon period between October and November when weather extremes occur. The weather in Malaysia is the reinforcement of two natural phenomena which is weak La Nina (more rain) and weak Polar Vortex (cold air released from polar region down to tropics and sub-tropics region). The two phenomena caused China's winter got colder and as a result, our region is getting more cloud. Raining is prolonged because of intra-seasonal effects (Madden Julian Oscillation occurred where clouds flared up at Bay of Bengal region and slowly moves towards Malaysia). It is believed that the weird weather patterns in Malaysia are among the effects of global climate change. Climate change is caused by the anthropogenic emission of greenhouse gases which warm the atmosphere. This in turn made weather patterns more extreme.

Observational records in Malaysia show rising temperatures at a mean of 0.24-degree Celsius per decade due to rapid deforestation and urbanisation. The temperature trend shows that some places with more deforestation and more urbanisation are warming at a higher rate. One-degree change does not sound much but it impacts a lot on the atmosphere. The hottest days revolve around the El Nino caused heat stress among the people and its last occurrence was in 2016. Meanwhile, Malaysia is experiencing weather extremes where the warm periods are becoming hotter as compared to before, the dry seasons are becoming dryer, and also more rain during rainy season. Rainfall is also controlled by natural variability and climate change. Although mean rainfall over the years did not change much, each episode of rainfall is getting heavier. The record shows that rainfall during Malaysia's northeast monsoon keeps increasing while the southwest monsoon is getting dryer. Penang is also

experiencing heavier rainfall during inter-monsoon season. The high intensity of rainfall affects the drainage system that caters to relieve excess surface water.

It is predicted in 2050 that Malaysia's temperature will increase by an average of 1.5-degree Celsius. Although annual rainfall in 2050 will not change much, but weather extremes will increase much more than that. Since the sea level also will rise about 0.21m for Malaysia, developments must to take into consideration the rise in sea level and other extreme weather. To develop an environmental policy, Penang should address climate change issues. Rising sea levels affect drainage flow especially in urban areas. This makes it very important to figure out how to manage the flow of water to the see during high tide and heavy rain in Penang. The discussion and decision-making should involve policy makers and also private developers. For example, Singapore has policy whereby coastal reclamation have to be at 4 meters above sea level at the highest tide. Since coastal reclamation is a long-term development, Penang state government need to have similar policy as Singapore. Record shows that frequency of 300mm rainfall period is increasing and each rainfall is getting more intense. The east coast of Malaysia was badly affected by extreme rain in 2014, proving that extreme weather is indeed happening in Malaysia and this can definitely be attributed to climate change.

Disaster Preparedness and Management in Penang

Predicting extreme weather is dependent on weather forecast skills. Judging from previous records, the predictions have been fairly accurate. However, accuracy of prediction will drop over time. It depends on how those predictions are interpreted in order to coordinate and plan for disaster management. Disaster management should be developed at the federal, state, and district level separately. The management should involve the national disaster management committee, state disaster management committee and operation flow to evacuation centres. Government bodies including the police and firemen should collaborate and work closely with the disaster management committee. The chain of command involving these agencies is important to ensure rapid deployment of assets. Being well-prepared ahead and being familiar with flood-prone or risk areas enhances risk reduction and

disaster preparedness. Penang should carry out specific studies in each of these risk areas. Disaster preparedness and management should not be handled on case-to-case basis, it needs to be planned for longer term and sustainability.

There is a need to continually integrate and mainstream disaster risk reduction as well as adaptation to climate change into developments. The momentum can begin from upgrading the old infrastructures in Penang. Support from leaders and governments should be aligned with the momentum. There is always a possibility to improve risk management for a better and sustainable Penang by continuing to raise awareness among the population on climate change.

Third session: Climate Change session

Sustainability Challenges from a Changing Climate:
Food and Water Security for Penang

By Kam Suan Pheng

Editor: Penang Green Council

Food security is defined by the Food and Agriculture Organisation (FAO) as: everyone, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Global Food Security Index takes into account many criteria: affordability, availability, quality concerns and base line score. Malaysia scored 66.2 for the global food security index in 2017, showing a decrease of 3.2 from 2016. Meanwhile, Malaysia is ranked at 41 for food affordability rank and 43 for food availability. The additional criteria on natural resources and resilience also provide adjustment to the base line score. After the adjustment, Malaysia's natural resources and resilience adjustment score dropped to 52. There is no specific value for the food security in Penang. However, Penang probably does better than national level on food consumption as share of household expenditure but possibly does worse in terms of supply sufficiency, agriculture research and development expenditure, and agricultural infrastructure. This means that Penang food availability score is much lower compared to the country's average. With limited agricultural resources and as an urbanised state, Penang's natural resources and resilience adjustment score is probably even lower than national score.

Most food stuff in Malaysia have negative balance of trade, meaning that we import more food than we export. Our food footprint is also geographically widespread over the world and these areas have extensive exposure to climate change. We are not susceptible in terms of local food production and will be affected greatly if climate change affects food production of other countries we import from.

Agriculture contributed little to Penang state GDP but occupied one-third of Penang's land. Most of the agriculture area are planted with cash crops, such as oil palm and rubber. Major food crops in Penang consist of rice and vegetables. For non-plant food production, Penang contributed substantially to national brackish water agriculture production and swine production.

Climate Change Impact

The climate change impacts on food imports are availability and price, on local agriculture for food production. The climate changes as the weather becomes increasingly warmer and rather unexpected. There will be warmer, wetter (some place drier) and weirder weather patterns. Climate change also affects coastal and ocean events like rising sea levels, extreme coastal events and ocean acidification. It has been predicted that there will be more typhoons occurring over the South China Sea. It is also due to global warming and sea surface temperature rise, coral bleaching has become more severe all over the globe. With these situations occurring, biotic stresses, such as pests and diseases, reduce productivity and affect human health.

El Nino Southern Oscillation influenced rainfall patterns over Southeast Asia. This phenomenon, worsened by global warming, caused extreme temperatures in Southeast Asia. For example, the worst drought happened and badly affected Asian crops production in 2016. As a result, Vietnam cut off its rice export and rice price increased that year. Similarly, in a 2050 projection of climate induced percentage change in production of rice in Asia, we will see a drop of rice productivity. Volume of export of these major rice exporters is going to reduce and hence, price of rice will increase.

Since the 2000s, Malaysia has greatly increased its rice import. Our rice productivity for self-sufficiency is still low and is still far from the National Agricultural Policy target. Paddy yield is considered quite high for the paddy fields managed by Sekinchan, IADA Penang, and MADA. However, paddy yield is still low on a national scale due to the other under-performing paddy fields. Paddy yield in Penang is quite high but we still depend on flood irrigation which requires a lot of water. Penang is already a water-stressed state as 80% of its water is obtained from Kedah's Sungai

Muda catchment. As Penang is heavily dependent on this catchment area, the current logging activities here adds to its risk value. Penang's water usage is 75% for agriculture and 25% for consumers. As such, the water shortage will be bad for the agriculture sector. On top of food productivity, we have to look at how to grow more rice with less water. Irrigation technology, such as alternate wetting and drying, together with good irrigation management and water control are needed for the agriculture and food production in Penang. Penang may refer to the irrigation infrastructure in China, Vietnam and Taiwan for better food production and agriculture. The irrigation in Sekinchan, Selangor is a good reference for Penang's future irrigation technology. Although Sekinchan has yet adopted water-saving technologies, they have the potential to improve further. To achieve where Sekinchan is currently at, Penang's agricultural sector still needs more investment.

We have to rethink agriculture for better food security, food safety, resource use, and conservation. Converting industrial crop land (oil palm, rubber, etc.) to food crop land have land ownership issues as not all of the landowners are willing to convert. There are also policy implication if we are to convert rice to higher-value food crops. Penang can adjust our own food production policy according to our needs. To ensure that we can produce more food per unit area, we need to switch from monoculture to integrated farming or crops system. On the other hand, it is also very important for Penang to concentrate on agriculture in urban environment especially by giving impetus and incentives to urban farming experts.

Penang already have an emerging organic food movement whereby civil society is promoting healthy food practises like farming and direct selling, organic farming and peri-urban agriculture. We need to put more emphasis on agro-technology hubs to promote sustainable agriculture. These agro-based innovations need institutional support and policies that are pro-safe food, pro-organic. Entrepreneurship opportunities for young organic farmers should be encouraged in Penang just like Taiwan's organic farming industry. Support from leaders, governments, business groups, locals and youth are very important as they enhance agricultural activities and food production.

Ecosystem services helps in securing food production. Healthy soils contribute to water conservation whereas mangroves, mudflats, and seagrass beds are breeding and feeding grounds for marine life and seafood sources. Penang has the second largest sea-grass beds in Malaysia, situated in the middle bank. Therefore, it is very important to focus on the habitat protection of these sea-grass beds to ensure that the sustained marine life and ocean is able to secure Penang's future food supply.

Referring to the message from DYMM Paduka Seri Sultan Nazrin Muizzudin Shah, Sultan of Perak, 2014;

"The transitions in mindset… from the paradigm of production to one of preservation, from the paradigm of resource ownership to one of stewardship will be one of the greatest tests of our time. Indeed, successfully recalibrating our collective worldview may even take a generation, but it will be a cause which is worth fighting, and a cause which is worth winning."

There is still time to strengthen the agriculture sector policy statements in the Penang Structure Plan 2030 and enhance the water resources, agriculture activities and food production in Penang in order to overcome future climate change impacts for the future generation.

Third session: Climate Change session

Discussion session

Moderated by Aileen Tan Shau Hwai

Editor: Penang Green Council

Adaptation to Climate Change

In Malaysia, the Ministry of Natural Resources and Environment has carried out scoping study for National Adaptation Plan for climate change but the outputs are yet to be seen. Once the scoping study is done, they will apply the plan through Green Climate Fund (GCF) in order to do a full-scale NAP. A state to state consultation must be done to develop the plan.

Regarding flood mitigation measures, the state needs to focus on non-structural flood mitigation that stresses on preventive, ecosystem-based, and community-based approaches. These non-structural measures, especially on ecosystem regeneration, needs interstate cooperation. Because of this, it is very important to get national recognition and political wills from federal government. Non-Governmental Organisations (NGOs) play an important role in conducting continuous awareness programmes regarding flood issues and adaptation to climate change. However, flood mitigation has to deal with development issues which depends on the developers, not community. As such, those awareness programmes also need to focus on economic generators like developers and business groups to ensure that continuous information is being delivered to the whole community. Laws also needs to be changed so that developers can be accounted for longer term to take care of the sensitive areas where they built their projects.

Cooperation between many types of agencies is needed for land mismanagement in Malaysia because there is no enforcement on regulations. Since we are already committed to some level of climate change, responding to climate

change involves a two-pronged approach: reducing emissions of and stabilizing the levels of heat-trapping greenhouse gases in the atmosphere - which is mitigation; and adapting to the climate change already in the pipeline - that is adaptation. However, it is more important to focus on the adaptation in Malaysia or Penang, rather than mitigation. Adaptation and mitigation present some notable differences, particularly in their objectives. Mitigation addresses the causes of climate change - accumulation of greenhouse gases in the atmosphere, whereas adaptation addresses the impacts of climate change.

It is predicted by 2050, sea level will rise 0.2 m at the west coast of Peninsular Malaysia. This will certainly affect the heritage area in Penang. City councils should look into rejuvenating old drainage infrastructure and ways to relieve water into the sea if there is a high tide during heavy rain.

Warning Status for the Climate Natural Disaster like Flood

There is always a risk of flood occurring. Information to the public is lacking as there is not much information delivered. Malaysia does not have a TV channel for weather throughout the critical period. It has been suggested that the social media platform can be used for warning and delivering information as it is fast and convenient. However, there are more disadvantages rather than advantages. The disadvantages are mainly due to false news, misinterpretations and reuse of old data and information to the public.

Needed Mitigation Plan for Habitat Conservation

Despite the effects of climate change, the major threat for habitat conservation in Malaysia is habitat fragmentation. Habitat fragmentation usually occurs because of human activities such as new roads, parking lots and housing developments. Wildlife need their specific habitat for survival and fragmentation is a leading threat to many terrestrial animals. For instance, the habitat for the elephants is destroyed and changed into oil palm plantation as humans cut down trees. The wildlife is losing their own habitat, and this affects species conservation for flora and fauna. As wildlife cannot recognize forest reserve boundaries, development projects need to assess its

impact beyond these boundaries. This is why forests are really important in mitigating habitat loss and destruction in Malaysia. In order to conserve the flora and fauna, each of the future habitat fragmentation needs to be considered carefully.

As for now, Department of Wildlife and National Parks relocates wildlife from fragmented forest areas. However, the relocation faces many issues and problems, and eventually this affects the counting of wildlife and the monitoring of habitat conservation. Malaysia is good at formulating policy but is still lacking in implementation. One example is the Central Forest Spine Master Plan that was formulated to protect forests in Peninsular Malaysia from fragmentation. The plan was well-written but lacked execution and implementation.

Monitoring Agricultural Area

Brackish aquaculture in Penang, especially caged culture and pond culture, has caused pollution. The density caged aquaculture has increased rapidly in density. This high density caged aquaculture will lead to spread of diseases among the marine livestock. Aquaculture licensing needs to be controlled and monitored to prevent this.

While a lot of rice fields in Penang are wetlands that support a lot of wildlife, around 20 ha of rice land in Penang does not benefit from good irrigation infrastructure and some are even inactive. These underperformed rice field can be turned into vegetables farms without sacrificing the wetlands.

Details of the symposium speakers and moderator

SESSION 3: Climate Change session

	Reversing March Of Penang's Sustainability Follies?	**Keynote Speaker 3:** **Mr. Gurmit Singh** *(Chairman, Centre for Environment, Technology and Development Malaysia)*
	Climate Change Session	
	Weird weather patterns in Malaysia	**Plenary Speaker 6:** **Dato' Dr. Yap Kok Seng** *(National Project Manager, Environmental Management and Climate Change Division-NRE)*
	Sustainability challenges from a changing climate: food and water security for Penang	**Plenary Speaker 7:** **Dr. Kam Suan Pheng** *(Geospatial Consultant and Expert)*
	Panel Discussion and Q&A session	**Moderator:** **Prof Datuk Aileen Tan Shau Hwai** *(Director, Centre for Marine and Coastal Studies, USM)*

Fourth session: Green Economy session

What is Green Economy and its Importance to Penang?

By Phee Boon Poh

Editor: Penang Green Council

Green economy can fulfil the definition to improve human well-being and social equity while significantly reducing environmental risks and ecological scarcities. In the future, the environment will be referring to the four pillars. The first pillar is the economy - it should not destroy the environment. The economy and environment should benefit stakeholders (social). The fourth pillar is the institution where the government must play an important role to connect the other three pillars altogether. The purpose of the Green Economy Initiative (GEI) is to assist governments in "greening" their economies by reshaping and refocusing policies, investments and spending towards a range of sectors such as clean technologies, renewable energies, water services, green transportation, waste management, green buildings, sustainable agriculture and forests, and food security.

Role of Government

The government plays a vital role in developing green economy. In developing green economy in Penang, the state government set environmental objectives and targets, Green Industry Environmental Standards and design environmental programmes. The state government also allocated resources for environmental programmes which will eventually lead to the implementation of an environmental performance evaluation system.

Role of Private Sectors

Meanwhile, private sectors, especially manufacturing sectors have an important role to play in developing the green economy. One of the ways is to resolve the environmental problem. We are asking them to reduce packaging materials. They

have to rethink about how to go about it. An example might be to select non-polluting and non-toxic materials, use recyclable material whenever possible and use product design and assembly. They should also allocate funds for research and development for new innovations that promote a higher ease in disassembling for recycling, longer lasting and adaptability to a variety of needs. This is one of the main policy outline and we are now at the stage of considering the Waste Generators Pay Principle mechanism.

With regards to the green economy, the private sectors can focus on the product life cycle analysis. This analysis uses the concept of 'cradle to grave' or the old production to disposal concept. At the end of a product cycle, every component can have a new life since no part is considered waste. This is one of the examples for zero-waste model and we should believe that every waste is our treasure. This model also closely related to a circular economy. The private sectors should also consider green supply chain, green production, sustainable product distribution, practicing green accounting and practicing Extended Producer Responsibility (EPR) such as taking back or buying back policy. The buy-back policy is a major issue that the state is trying to get federal government's attention. Private sectors also need to green the workforce by understanding the value of an eco-friendly workforce. This can be done by creating human resource policies linked to sustainable job performance, recruiting, training, and retaining personnel with green talents, and finally, aligning human resource practices to overall corporate sustainability goals.

Reasons for Going Green

Dwindling limited natural resources and raw materials is closely related to the production and supply sector. Pollution is increased through non-sustainable practices which also creates wastes. The operations are getting increasingly expensive due to an increase in labour and other costs. Meanwhile, for human capital, people need to be trained, creating competitions in the labour force among different sectors. These kinds of situation increase more costs and energy in the production and supply and at the same time, increase demands to be green by the consumers, stakeholders, and investors while conforming to the international green standards. All these are reasons

for the production and supply sector to go green. There are many sectors that should be involved in the green economy. The main potential sectors are renewable energy, green buildings, sustainable transport, water management and waste management.

Penang's commitment to green economy

The Penang government is fully committed to the transformation of Penang State's economic, social and cultural development to improve the quality of life of its citizens through environmentally sound and sustainable principles based on the CAT principle - Competency, Accountability and Transparency.

Penang also aspires to be a regional hub that will build, upgrade, attract, and retain international talent. Manufacturing is a major economic sector in Penang. Penang aims to be a green state and a green manufacturing hub. Penang wants to attract the talented workforce which is socially and ecologically cognizant or eco-savvy, preferring a desirable workplace over money. Penang should focus on eco-preneurs or green eco-savvy talents when developing the green economy in the future.

Referring to the demographic of Penang as the second smallest state in Malaysia, it should be among the reasons for Penang to focus on green economy for a better future. Penang faces issues like limited land or land constraint, and at the same time, the number of people in Penang is increasing due to population growth and a popular destination for retirement. So, it is very important for Penang to consider the redevelopment plan in the state. Additionally, the increase of service industries and waste generators are among the reasons for Penang to extensively develop the green economy for society's well-being. When developing a sustainable green economy, Penang should focus on the global economy crisis like the exhaustion of resources especially food. As Penang is experiencing large flow of rural-urban migration, urban infrastructures of the city like energy and water need to be focused on.

Types of Green Economy

There are many types of green economy that Penang can work on for a better and sustainable future by 2030. One of the green economy is recycling of used oil into biofuel. The recycling need to follow some regulations on recycling. Other types of green economies include venturing into recycling green waste or wood waste generated from trees trimming around the states into refused-derived fuel (RDF) for boilers, converting virgin sawdust into activated carbon for filtration system, converting glass waste into polywool for insulation, recycling constructions and demolition waste into interlocking bricks, water harvesting at high-rise buildings, and converting food waste into biogas or fertilizer. Penang is also looking into renewable energy industries especially solar energy. The interlocking bricks design is still waiting for EIA approval, and will be launched in Penang soon after that. This design is suitable for Penang as the interlocking bricks pavement can now retain water instead of discharging water as surface run-off. This is especially useful for flood prone areas.

There are a lot of young people involved in waste recycling business. The richest women in China – Zhang Yin, is involved in waste paper trading. Green economy is possible in Penang. To develop the green economy in Penang, the responsibility should not be put onto only one organisation as the effort requires the cooperation and support from everyone in Penang for better results. Everyone needs to join and cooperate together in this journey for the future generation. Despite our differences, we share the same sunlight and energy. Hence, we should be able to share the same passion for a better tomorrow.

Fourth session: Green Economy session

How can we Develop Green Economy in Penang?

By Negin Vaghefi

Editor: Penang Green Council

There is no established definition of green economy. UN Environment defined green economy as economy that results in the improvement of human well-being and social equity, significant reduction in environmental risks and ecological scarcity by the United Nations. Generally, green economy refers to encouraging economic development that prioritises sustainability in the economic, social and environmental aspects. It is defined by six key sectors: renewable energy, green building, clean transport, water, waste and land management. The hierarchy of the green economy concept begins from the new green deal which catalyses a green growth. Green growth is different from green economy as the former focuses on economic and environmental aspects but not on social aspect. However, green economy focuses on all three pillars of sustainable development. This contributes to the green economy and in return, achieves a sustainable development.

The main future challenge we will face is population growth. GDP and GNP over the last 20 years showed that our standard of living is increasing. With both these factors, consumption of resources will increase. We will have higher demand for energy and at the same time we will face water scarcity. We will also generate more waste, especial industrial waste. All these are related CO_2 emission which eventually leads to increased environmental concerns. The concern for environment also means that there will be more fossil fuel restriction.

The Gross Domestic Product (GDP) is the measurement of economic growth and living standard. Penang's GDP and GDP per capita has improved by an increase of 5.7% to 6% respectively over the last five years. Penang is indeed doing well in terms of economic growth. However, is this economic growth sustainable? Penang's

population has increased by 31% in the past 17 years and is predicted to increase further. The population growth also causes high demand for water consumption. In 2015, Penang had the highest water consumption in Malaysia. Penang's rice production per capita has also increased - the second highest state in terms of yield - yet the paddy field areas have decreased. Besides this, we have challenges for demand which include food security, changing patterns of food demands, and growing pressure from bio-fuels. Challenges for supply include limited land availability, water scarcity, mineral shortage, labour shortage, climate change, and pre-harvest and post-harvest losses. The marine fish production in Penang has increased by 72% in ten years from 2005 until 2016. However, the Penang government has done a good job in controlling overfishing.

For fuel-type sector in Malaysia, the Total Primary Energy Supply is expected to increase from 92,486 ktoe in 2014 to 130,000 ktoe in 2030. The final energy consumption for Malaysia in 2014 was about 52,209 ktoe and it is expected to increase to 93,000 ktoe in 2030. The industrial and transport sectors have the highest energy consumption compared to other sectors. The culprit contributing highest risks to the environment is climate change. CO_2-emission per capita in Malaysia has increased by 23% in ten years from 2004 to 2014 and has shown an upward trend in the last two decades. The Malaysia Meteorological Department predicts that the temperature will increase around 2°C to 3°C by 2100. It is proven that we need a greener economy and sustainable economic growth.

The vision for inclusive green economy includes the objectives in line with the United Nations Environment (UNEP) objectives. One of the main objective is to reduce environmental risks and ecological scarcity which covers the key areas to improve the measurement and evaluation of natural capital; promote the internalization of negative externalities and the sustainable use of natural capital; and enhance ecosystems and ecosystem services as part of the ecological infrastructure. Other objective is to have enhanced economic progress by shifting consumer behaviour towards sustainable consumption patterns; developing clean physical capital for sustainable production patterns; and promoting green and fair trade. Next, is improving human well-being and social equity by increasing green and decent jobs while developing the necessary

human capital; improving access to services, healthy living and well-being; and promoting public participation and education for sustainable development. The grand vision should be supported by a green economy policy framework which is the most important part of balancing economy, development and environment.

The challenging part in shifting to green economy is to identify indicators and data availability. With these indicators, we can then come up with strategies and policies that will be implemented eventually. It is very important to have measurement framework of the impact of specific green economy policy. We also have to measure some of the transformation issues like equality and environmental-economic interaction.

Penang has already moved towards green growth and sustainable development, but it still needs a comprehensive vision, policy, framework and indicators for green economy. To green the economy, it is imperative to refocus policies, investments, and spending towards a range of sectors, such as clean technologies, renewable energies, water services, green transportation, waste management, green buildings and sustainable agriculture and forests. The actual value of our natural resources need to be measured to recognize their economic and social value. Based on this measurement, we can enable prices to better reflect their environmental value, while ensuring access to basic goods and services. For example, water consumption in Penang is the highest in Malaysia but water price is the cheapest. By increasing water tariff, we can help conserve water. The increase in price will also need to take poorer community into consideration and make sure that they will also have the access to this basic need. Government will also need some policy instrument to regulate the market especially on pollution issues.

In conclusion, we need to keep in mind that green can only bring result in long term. Economic growth might be slower at the first few years, but the growth will be faster in the future.

Fourth session: Green Economy session

The Role of Business in Sustainable Development

By Amarjit Kaur

Editor: Penang Green Council

Business Council for Sustainability and Responsibility Malaysia (BCSRM) is an organisation comprising of business leaders from various industries interested in responsible and sustainable practices in line with the global sustainability agenda. BCSRM was formed in 2011 and re-registered in 2017. They are a regional network partner with the World Business Council for Sustainable Development (WBCSD). WBCSD is an organisation formed by big businesses and led by CEOs from companies such as Sime Darby Malaysia. BCSRM is driven by one shared commitment which is sustainable development. Its mission is to advocate, facilitate and influence the sustainability agenda in the Malaysian business environment. BCSRM adopted WBCSD's ideas, activities, research and works in order to promote sustainability among businesses in Malaysia. In 2018, BCSRM will carry out outreach programmes such as breakfast talks on sustainability with companies' CEOs, seminars, and universities and colleges outreach programmes.

A business sustainability journey starts from giving out donations and formalizing it to philanthropy, then moving on to Corporate Social Responsibility (CSR) like building schools, and then further enhance their journey of sustainable development. Commitment is important in establishing sustainability in businesses. These companies then starts to implement their own standards or strategies before embedding sustainable practices into their businesses to realise its values.

There is no definite definition on sustainability, but it is basically defined as the economy, society and environment moving together in tandem in the long-term. Sustainable development and creating shared value are concepts of sustainability and Corporate Social Responsibility (CSR) is the term used in business. Banking sector,

Bursa Malaysia, and investors use the term Environmental, Social, and Government (ESG) for sustainability. However, businesses think that governments are not part of sustainability but on how businesses are carried out. Hence, in recent years, Bursa Malaysia has moved from ESG to EES - Environmental, Economy and Social.

Businesses are also impacted by climate change although they created it at the first place through anthropogenic greenhouse gases. As a result of raised global temperature, businesses' production reduced. World Economic Forum (WEF) reported that climate change and man-made disasters reoccur year after year. Therefore, companies cannot operate business-as-usual anymore. Business now need to consider how to use finite natural resources to support its continuous growth without causing damage and ensures the balance of social-economic development.

Anita Roddick, founder of The Body Shop, said that there is no more powerful institution other than businesses in the society - it is not about money or private greed but responsibility and public wellness. Many organization incorporate sustainability in businesses to protect brand value, image and reputation; improve businesses and performances by improving operational efficiency results; conform to strict international agreements or standards and national legislation; and address stakeholders' or investors' demand. For example, BP, an oil and gas company, lost more than 48% of its market value in just two months because of an oil spill at Gulf of Mexico. Other than that, companies can save cost by practising sustainability in terms of energy efficiency and reducing environmental damage. On top of that, Bursa Malaysia has made sustainability report compulsory for all the listed company. Meanwhile, international agreements in other parts of the world will also affect businesses in Malaysia because of the global supply chain. Moreover, investors are getting smarter and are more willing to invest in company with credible ESG profile. So, the keyword in business is still sustainability.

The benefits of sustainability are competitive advantage, enhanced brand reputation, increased employee retention and recruitment, improved financial and investment opportunities, lower risky legal proceedings, compensation, and

rehabilitation, increased productivity, lower costs, increased efficiency and drive the innovation in the sector. For example, Puma embarked on their sustainability journey years ago by just thinking of becoming a more ethical company. And then, they incorporate Sustainable Development Goals (SDGs) into their corporate mission. The most inspiring part about Puma is that despite coming up with an Accounting Profit and Loss statement, they also produce an Environment Profit and Loss statement that tracks the economic costs of its value chain's environmental impact. A local example of how sustainable development is emphasised in company is Iris Corporation Berhad. They built homes at rural areas that are energy efficient and environmentally friendly using Integrated Building System and good materials. The rural families are also offered employment through selling rock melons. This project was built to serve as an example of how to address rural poverty issues by promoting environmental sustainability with technology.

Businesses adopt United Nations SDGs by forming partnership with government. Businesses play important roles as the engines of employment, technology and innovation, and source of finance. A study by the United Nations reported that CEOs believed that SDGs provides a clear framework to structure sustainability efforts and provide opportunities to rethink approaches to sustainable value. Businesses will be the most important actor in delivering the SDGs. Meanwhile, the implications of SDGs for businesses are risks of inaction, capturing the opportunities, governance and transparency and the collaboration between companies. For organizations at individual level, WBCS encourages them to stay informed until policy level. An example of company that practice Creating Shared Value (CSV) is Nestle Malaysia. Nestle transferred technology and knowledge to farmers that plant chilies to improve yield and crop quality and bought those chilies at a mutually agreed price for Nestle chili sauce. Sustainability is a win-win situation.

Fourth session: Green Economy session

Discussion session

Moderated by Hamdan Abdul Majeed

Editor: Penang Green Council

Potential green business for Penang future

Bursa Malaysia Berhad is an exchange holding company approved under Section 15 of the Capital Markets and Services Act 2007. It operates a fully integrated exchange, offering the complete range of exchange-related services including trading, clearing, settlement and depository services. Nowadays, Bursa Malaysia fully encourages businesses to work on sustainability. There are groups that review sustainability reports, however, the goals are not relevant to the local organisations since sustainability is in its infant stages in Malaysia. Nonetheless, Bursa should be applauded for getting the ball rolling so that public listed businesses are forced to include sustainability as part of the annual report.

Potential Investor for Green Economy in Penang

Although Malaysia is still attractive to a good number of investors, these investors are not concentrated in Penang. There are zones allocated in Penang for building factories, yet, foreign labour and its social impact in the state continues to be an issue. If Penang's economy improve, employers need not evade paying levy for their workers, hence reducing the number of illegal workers. A lot of money has been spent to relocate foreign workers, but their numbers are still large in Penang. The key to solving this is stricter enforcements in Penang and Malaysia. The state government could budget to support the economy by setting up resource centres and green schools and raising more awareness programmes in the community including the business group.

Reducing Waste from Industries in Penang

On the topic of reducing plastic packaging, bio-degradable plastics use should be encouraged in the Penang industry. However, not all industries are able to invest in the bio-degradable packaging. As for now, all industrial sectors need to use the standardised packaging with the same colour, size, and materials. Therefore, Malaysia should generate money from recycling and processing the plastic that was sent back to Malaysia.

Zero discharge system should be implemented not just on industries but also on building projects. The state government is looking at ways to convince developers to adopt at least 30% of recycle material in construction and reduce cemented area to prevent surface water run-offs. Enforcement of regulations is important to make sure that polluters from industries pay for what they have damaged. Adopting green practices in industries will be slightly expensive but comparing it to the cost to restore the environment, it is cheaper.

Penang as the Model State for Solving Environmental Issues

Penang had its own policy which is to build a cleaner, greener, safer, healthier, and happier state since 2009. The state has banned Styrofoam and plastic bag. The local authority realizes that only education starting from the primary school and awareness can change the conditions. Thus, Penang Green School programme is set up. The Seberang Perai Municipal Council also plans to reduce 50% of waste to the dump site by 2022. The government is also looking into water harvesting in high-rise building and effective waste management infrastructure to move towards zero-waste society. The economic sector must protect the environment, and the institutional and political view will support the effort.

To be sustainable, we need competent people who understand the concept of sustainable businesses or green economy. The budget for local universities has been cut so much and this has also affected the quality and quantity of local graduates.

Education is a good start to help businesses through institutionalisation. Business effectiveness has been proven if policies support sustainable businesses. For the future of Penang, there must be better policies so that the economy and environment can work together. This effort is not limited to one party, but rather, a jigsaw puzzle. Everyone needs to play their part for it to work and walk the sustainability talk.

Becoming a model state to tackle environmental issues is not only about setting the target, but also involves implementation and monitoring to evaluate efficiency. Cooperation from the business groups and industries is really important in this matter. Institutional reform of the government and private sectors is necessary to review the current policies and improve the system.

Details of the symposium speakers and moderator

SESSION 4: Green Economy session

Green Economy Session		
	What is Green Economy and its importance to Penang?	**Keynote Speaker 4:** **YB Phee Boon Poh** *(Penang State EXCO Member for Welfare, Caring Society and Environment Committee Chairman cum Vice-Chairman of Penang Green Council)*
	How we can develop Green Economy in Penang?	**Plenary Speaker 8:** **Dr. Negin Vaghefi** *(Senior Analyst of Economic Studies, Penang Institute)*
	The role of business in Sustainable Development	**Plenary Speaker 9:** **Ms Amarjit Kaur** *(Alternate President of Business Council for Sustainable and Responsible Development Malaysia from SHEMSI Sdn Bhd)*
	Panel Discussion and Q&A session	**Moderator:** **Mr. Hamdan Abdul Majeed** *(Director, Khazanah Nasional Berhad)*

Fifth session: Youth Forum

By Bernard Eng, Rexy Prakash, Sri Vaitheki Ramasamy, Sakiinah Mahamad Hakimi & Mohamad Shaiful Md Yusuff

Moderated by Lee Lik Meng

Editor: Penang Green Council

What makes Penang valuable?

Penang can be called as a five-minute island since Penang is located near both nature and city. People in Penang can walk or drive, within a mere five minutes to access nature, showing the convenience of Penang's location. It is very important to protect the beautiful hill or green areas as Penang is blessed with natural green lungs. Among the strategic locations are Cherok Tokun and Pulau Jerejak. While America needs to specially develop a central park for their people, Penang is blessed with Penang Hill as the natural park for Penangites.

Apart from having natural forests that have been around for about 130 million years old, Penang also has beautiful beaches, idyllic island life and green spaces, making its natural ecosystem a major tourist attraction. Penang is also valuable because of George Town is a town that combines the past and the future - a town to meet up with the older generation and learn from their experiences. Hawkers can promote culture and become more than just being a hawker – by promoting culture and heritage as part of their routine. Penangites also have very strong sense of community. Local old folks are usually full of interesting stories that makes Penang unique and special. The people of Penang should be grateful with what they have, understand individual roles and keep supporting and cooperating with the government and other agencies for a better future together.

Jobs opportunities in Penang

In the electronic industry, Penang has better career opportunities compared to the other states. Young people who seek job opportunities in the electronics and engineering sectors will find that Penang is among the best places to be in Malaysia. As Penang has lots of scenic places and tourist spots, workers can relieve their stress through nature and food. Penang people do have a better-quality life as compared with other states.

However, there is no market for green industries in Penang. The local market for green business in Penang is very difficult to run as the people of Penang are still calculating the high price of green products rather than to shift to a more sustainable daily practise. While there are good opportunities for other types of engineer, environment sustainability engineer may find it difficult to find a job in Penang. The demand for green expertise is still low in Penang. The creation of green jobs and publicity for green market are important to achieve a sustainable Penang by 2030.

Can you imagine a world without cars?

If we look at the other countries like the Netherlands, they have been working towards becoming a bicycle city. While in Singapore, they have designed their city to allow citizens to cycle or walk in the city. As the price of cars and petrol are becoming more expensive, there is a possibility for the world to be designed without cars in the future.

However, if Penang were to have a design which allows citizens to cycle or walk, there are some points to consider. First is gender equality. To avoid any sexual harassment in public transportation, a special compartment for women is needed. Secondly, public transport services must improve so that more people will forgo the use of personal transport in the future. It is necessary to improve public transportation if we were to increase car prices.

Thirdly, the mentality of the people in Penang has not been primed to cycling. A paradigm shift in the way of thinking is important: cycling is part of our daily

commuting rather than a leisure. As for youngsters and the social media, cycling has caught up as a trend. Youths love following trends. Here is an opportunity to change public perception using social media to influence the population.

How is the education in the future?

Looking at the trend nowadays, parents want their kids to experience nature such as living in a rainforest tree house. Some parents are also willing to pay high prices for these experiences. For example, in Finland, they have developed an education system that places importance to the environment. In international schools in Malaysia, they send students to the forest so that they experience and appreciate nature. This kind of trend should be brought into Malaysian government schools and education system.

Penang society needs to think about how nature helps them sustain and preserve the beautiful forests in Penang to protect our natural resources. Schools need to engage knowledgeable people to connect nature to the classroom. People who co-exist peacefully with nature should be part of the decision-making, preserving and conserving green areas in Penang.

Malaysia should have an environmental-oriented education linked with the technology as the youngsters tend to be technology savvy. The future Penang should have strong community-based power or platform that is able connect with the government in handling the environmental issues. Penang should also focus on smarter and more effective city in the future. Penang should encourage business groups for them to compete in developing more green businesses in Penang. This situation will create job opportunities to the students who are passionate and educated about the environment and sustainable development.

Besides formal education in school, environmental education should continue until the tertiary education at college or university. For instance, Universiti Sains Malaysia (USM) conducts a natural farming workshop for students and public every week. This kind of effort can become a platform for the society to learn and apply the

sustainable and green lifestyle in their daily lives. In Japan, there are edible gardens at schools to help students and the public learn and appreciate the environment and food sources. Development in Penang should not be too idealistic or perfect as it will delay and postpone the process. Positive changes should start with baby steps and be realistic in order to achieve a sustainable and green Penang by 2030.

Future vision for technology, politics, and economy of Penang

Climate change should become the focus as the impacts of climate change affects the environment and humans. Young people should think more of themselves as climate refugees and business passions to solve environmental issues. Green entrepreneurship is the way forward. From time to time, businesses solve environmental issues and problems. As for now, more and more business groups are passionate to solve environment issues. We need to work together and not individually for the future of Penang.

For the future vision, the use of artificial intelligence (AI) plays an important role to mitigate environmental issues. The world is changing because of climate change. A solution is needed to mitigate the aftereffect of this issue. However, we must reskill ourselves if our job is taken from us.

Penang must be aware of the impact of online businesses that has become the trend nowadays. Online businesses enables customers to purchase their goods online and then send the goods directly to their homes. This method effectively helps to cut waiting time and traffic congestion. However, it can kill the local businesses like how hypermarkets changed the local business landscape. These situations show that for a sustainable future, Penang must empower the local businesses so that they are able to be prepared for any challenges they may face.

The water bill is expected to increase if logging cases in Ulu Muda are not solved. The only way to solve the water crisis is by getting water supply from Perak River. Other more expensive way is through desalination of sea water.

Compared with previously, people are now more aware and more concerned about the environment. However, they do not have any practical ideas to start off with and implement it in their daily lives. It is very important to have local planning for each district in Penang to develop a sustainable lifestyle. The local planning might include creating organic farming community and natural farming society. The local planning should encourage local green jobs, shift industries to a better waste management, certify green procurement like other countries and consider the cycle of industrial materials for a better and green economy in Penang.

Bottom-up approach and decentralised system are very much needed in Malaysia, especially in Penang. It is important to have community engagement involved in the local decision-making and to implement solutions via community participation at the state level. Empowering local communities to protect nature is the best way to do it as they are emotionally connected to their own surrounding.

Details of the symposium speakers and moderator

SESSION 5: Youth Forum

Dr. Lee Lik Meng
Retired Professor of Town Planning from USM & PGA Advisory Committee

Bernard Eng
(Malaysian Youth Ambassadors in 6th World Youth Congress by United Nations in Rio de Janeiro, Brazil & Aspiring Green Consultant)

Rexy Prakash
(Electronic Engineer at Motorola Solutions and played a pivotal role in co-founding the Penang Hills Watch (PHW) initiative)

Dr. Sri Vaitheki Ramasamy
(Senior Analyst of Urban Studies Programme in Penang Institute and the PGA Advisory Committee)

Sakiinah binti Mahamad Hakimi
(Project Designer ECOPRO @ USM, Ecoprocess Technology Research Group, School of Industrial Technology, USM)

Mohamad Shaiful Md Yusuff
(Research Associate of Water and Carbon Cycles in Tropical River Basin of Malaysia)

Appendix :

Symposium poster