



THE NATIONAL SCP BLUEPRINT 2016-2030



The Pathways for Sustainable Consumption and Production
(SCP) in Malaysia

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Editorial note

During the period of the Eleventh Plan Malaysia will achieve the status of a high income nation. Higher affluence also means higher consumption and production. Inevitably more waste, pollution and carbon emissions would result, if current consumption and production patterns are not modified. Malaysia is at a parting of the way: either to hunt for the quick win at the expense of future prosperity or to be smart by carefully utilising natural resources, energy and water.

Fortunately, the concept of SCP provides the mechanisms to gain more prosperity with less resources, waste and emissions. The concept of SCP is convincing because it provides a triple-win perspective: for the people, for profit and for the planet. Practising SCP is a clear business case for industries and the best deal for consumers. SCP focuses on increasing productivity through efficient use of resources and on value for money through savings and quality. SCP supports return of investments in green products and technologies. With this irresistible prospect all Malaysians are invited to become part of the game change towards green growth.

The National SCP Blueprint was developed with the assistance of an expert team seconded to the EPU by the European Union. Dozens of ministries, agencies and hundreds of individuals have been involved over four years in consultations to connect the dots of a very crosscutting subject that is

relevant for all Malaysians and consequently for all government institutions. SCP was included in the Eleventh Plan which has requested the SCP Blueprint. This long-term plan is setting a benchmark in SCP policy making. The document is Malaysia's answer to the recommendation of the United Nations for a national SCP framework. The Blueprint places Malaysia in an excellent position to pursue the new Sustainable Development Goals (SDGs) until 2030 which contain SCP as a core goal.

Like with any plan, implementation is the most critical aspect. The collaboration of all government stakeholders will be necessary to reach out consistently to the people and business communities. The EPU will coordinate the process. Ministries and agencies will spearhead the distinct pathways.

The ten pathways of the SCP Blueprint are a set of strategies to communicate with the public through regulations, economic signals, education and information. These measures constitute a comprehensive and interlinked framework to gain more through less and will propel Malaysia to a sustainable future. The full adoption of SCP will require time and a comprehensive shift of mindsets. Therefore, the SCP Blueprint has a long-term planning horizon until 2030. But it is necessary to start now to achieve the set goals until then.



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LIST OF ACRONYMS



The rationale of the National SCP Blueprint

The National SCP Blueprint gives the direction on how the concept of gaining more through less shall deliver green growth in the transactions of consuming and producing through reduced pollution and wastage of resources. The Blueprint builds on existing efforts and is coherent with major national policies including the Eleventh Malaysia Plan 2016-2020 (Eleventh Plan) and international approaches towards sustainability. The concept of sustainable consumption and production (SCP) follows the life cycle of consumption and production, the value chain of economy. The main stakeholders are consumers and industries. The Government will guide the stakeholders through appropriate regulatory, economic and informational frameworks to change behaviour and to take advantageous actions over 10 pathways on the way forward until 2030.

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Setting the scene

The Eleventh Plan states that the Government will take the lead in establishing the SCP approach in Malaysia:

SCP in Malaysia coordinates the goals of economic growth, environmental protection and social inclusiveness into an integrated development concept. The main output is a national SCP blueprint, outlining measures and areas of priority to achieve green growth.

Sustainable consumption and production (SCP)

The Eleventh Plan defines SCP as follows: *Sustainable consumption and production (SCP) is a concept that promotes economic growth without compromising the environment or jeopardising the needs of future generations. This means efficient use of natural resources, minimising use of hazardous substances and reducing pollution and waste over the life cycle of products and services. Through this life cycle approach, SCP invites people to consider the environmental impact and ensures resource efficiency at both the production and consumption phases.*

Addressing the bigger picture

SCP is crosscutting and transcending jurisdictional boundaries. The Blueprint follows an innovative methodology of connecting the dots and setting the policy directions in support of SCP practices in daily life and business contexts.

SCP in Malaysia stands for gaining more through less!

Growth is a result of productivity and efficiency gains through the sustainable utilisation of resources. Developing and growing along these lines is beneficial for all.

Connecting the dots

SCP builds on existing efforts and supports the aspirations of Malaysia to become an advanced, inclusive and sustainable nation. SCP complements other national policies and the development priorities of the Eleventh Plan. The SCP Blueprint is the national fulfilment of international commitments to the United Nations SCP framework.

Focusing on action and added value

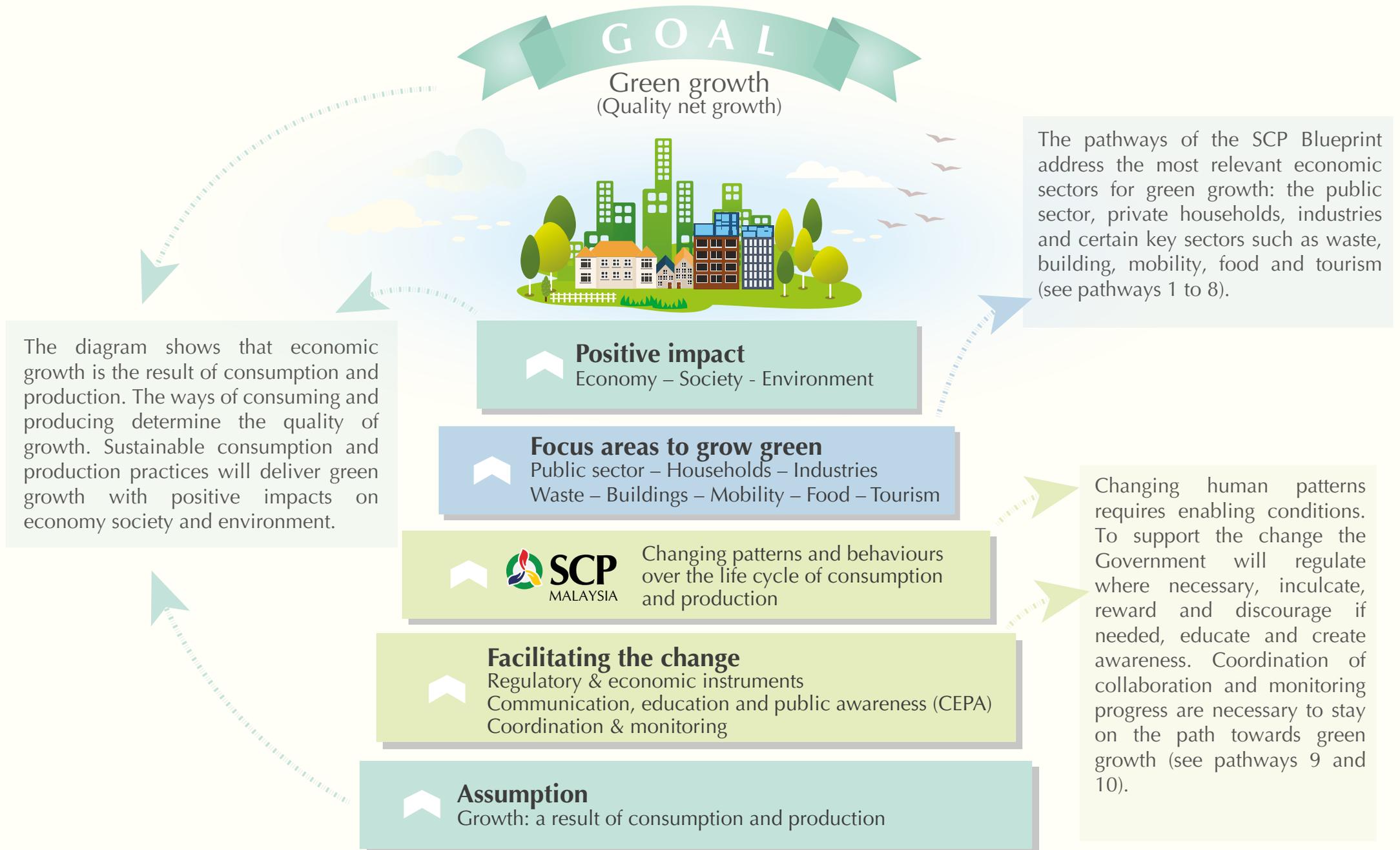
Consumers and industries are the focus of the SCP Blueprint. Changing their habits, behaviour and patterns over the value chain of our economy means to harness the big potentials of Malaysia for a better tomorrow.

Paving the way forward until 2030

The SCP Blueprint outlines the government initiatives to ensure that consumers and industries are able to conduct the change towards SCP practices in daily life and business contexts.



The intervention logic of SCP





SCP and green growth

Green growth is the game changer in bringing Malaysia towards a sustainable socio-economic development path, where improvements in quality of life are in harmony with the sustainability of the environment and natural resources. (Eleventh Plan)

Scenarios

There are two options: either to reduce wants and needs or to become more efficient and productive. SCP is the second option.

Economic growth will be primarily the result of gaining more through less to increase productivity. New business models and modern technologies will allow achieving higher value output with the least possible input. This means utilising capital, human and natural resources in an efficient manner. Pollution, greenhouse gas emissions, wastes and hazardous materials are minimised; the efficient use of resources will help to secure supplies and to protect nature and biodiversity.

Contrasting the business-as-usual scenario

The switch to green must be comprehensive and holistically encompassing the entire economy and society. Inefficient, low productive, carbon and resource intensive consumption and production practices must change. Economic growth has to be green in the long-term otherwise it would not happen at all.

Sectors to grow green

The SCP Blueprint addresses the most relevant sectors for green growth. These sectors account for a high percentage of Malaysia's gross domestic product (GDP) and also the impact on natural resources, water, energy, waste, emissions to soil, water and air including the climate. Greening these sectors will deliver a greener GDP and if the GDP grows, it will be green growth.



Public sector
23% of GDP

Applying government green procurement (GGP) will create a large green market.



Private households
52% of GDP

The majority of private household spending is accessible with SCP practices.



Industries
30% of GDP

Decoupling value output from resources input will lead to higher productivity.



Waste
50,000 tons
per day in 2020

This trend is a threat to environment and health and an enormous loss of values.



Building subsector
4.3% of GDP

Population growth provides ample space for building energy efficient in the future.



Transport subsector
3.3% of GDP

Mobility connects the people. Greening this sector will influence all sectors.



Food
19%
of household
expenditure

Sustainable food systems will positively affect security of supply and health of people.



Tourism
13.7%
added value
to GDP

Employment in tourism is 19% of total employment.



Stakeholders





Policy coherence

Linking SCP consistently with existing policies elevates SCP from a niche to a mainstream paradigm. The SCP Blueprint is complementary to national policies, development plans and international programmes. The SCP Blueprint particularly supports the objectives of the Eleventh Plan for the period 2016 to 2020 and reaches beyond until 2030. The time horizon of 2030 is in line with the international agenda of sustainable development.

Coherence with national policies

- Vision 2020
- Transformation programmes
- National sector policies along the pathways of the SCP Blueprint

Coherence with the Eleventh Plan

- Pursuing green growth
- Supporting various further objectives of the Eleventh Plan

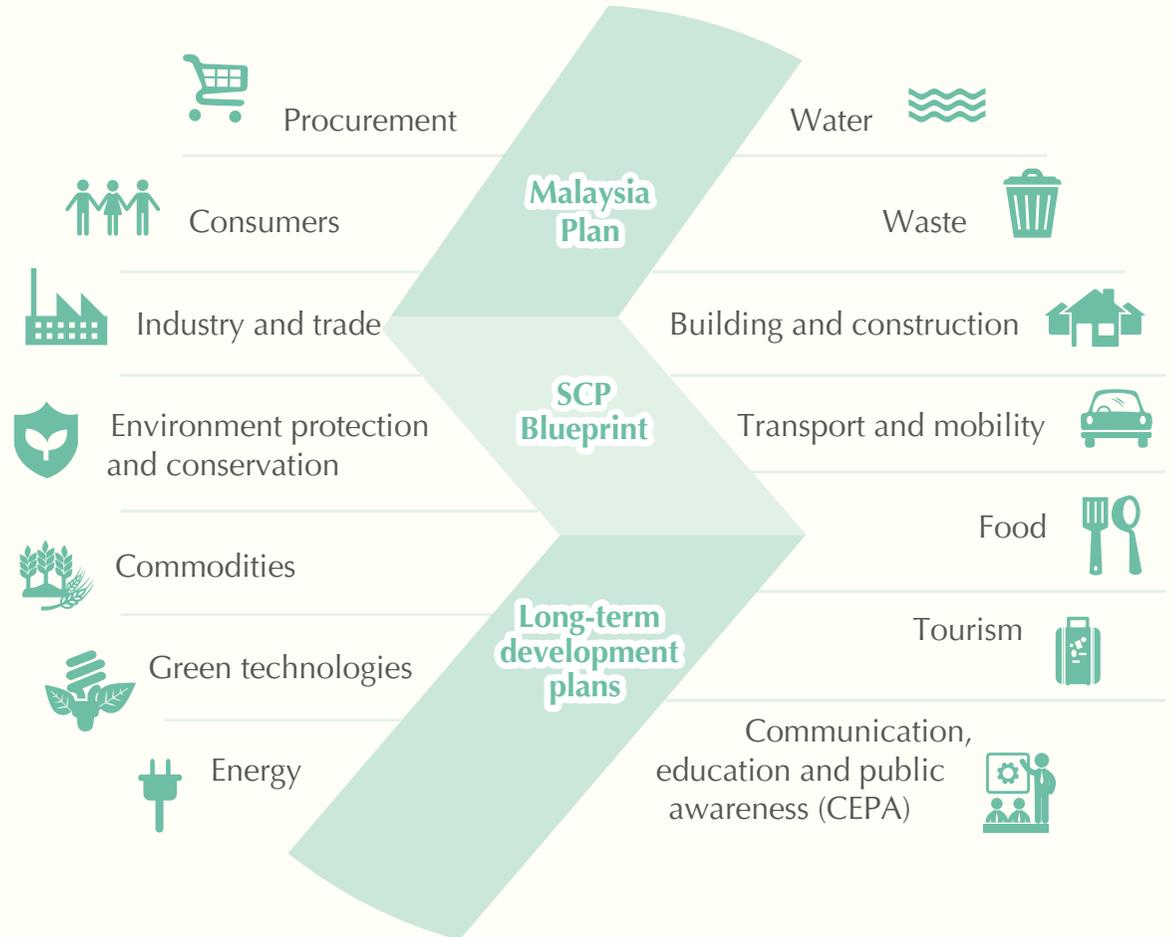
International coherence

- 10 Years Framework Programmes (10YFP) on SCP
- Climate change
- Sustainable Development Goals (SDGs)

Coherence with national policies

Malaysia is progressing to a high-income, developed nation that is inclusive and sustainable by 2020. The Government has initiated a number of national transformation programmes such as the Government Transformation Programme (GTP) and the Economic Transformation Programme (ETP). Other national policies have recognised the importance of promoting sustainable development. The SCP Blueprint refers over the pathways to existing frameworks in a complementary way (see details in pathways).

Alignment with national policy frameworks





Coherence with the Eleventh Plan

The Eleventh Plan addresses sustainability, green growth and SCP in a holistic manner. This page summarises how the SCP Blueprint contributes to green growth and various other objectives of the Eleventh Plan.



Pursuing green growth

SCP is a key mechanism for the green scenario, leading to strengthened security of supply with food, water, energy with lower environmental risks. Gaining more through less is the guiding principle of transforming the socio-economics. SCP will facilitate green growth to bring Malaysia to a leading position in green technologies and products, climate change mitigation and efficient use of resources.



Anchoring growth on people

SCP supports inclusive and sustainable growth as hallmarks of an advanced nation. The goals of SCP describe an increasingly knowledge-based future where development is rooted in talent, skills and innovation. SCP intends to leave no Malaysian behind in harvesting the benefits of SCP practices.



Macro-economic resilient growth

Future GDP growth shall come largely from productivity gains. SCP supports innovation in industry creating higher value-added products at competitive prices. It supports increased private consumption with savings of energy, resources and costs. SCP supports prudent public finance through GGP. The adoption of life cycle costing (LCC) will create efficiency gains on side of subsidy beneficiaries and will allow further rationalisation of subsidies.



Human capital development for an advanced nation

The future requires a well-prepared business community and informed people to make wise decisions. The CEPA component of the SCP Blueprint addresses the importance of SCP in school education. The virtual Malaysian SCP academy will serve as a lifelong learning platform for the twenty-first century.



Enhancing inclusiveness and wellbeing for all

SCP is for everybody and all income groups will benefit from sustainable practices. SCP focuses on the growing middle-class. Others will approach this level easier through SCP, for example through energy efficient social housing programmes. SCP in industry means an inclusive business model along sustainable supply chains.



Strengthening infrastructure

Malaysians will benefit from better infrastructure in the future. SCP is to ensure that this infrastructure such as for public transport is optimally used. SCP invites all people and businesses to become active parties in an advanced infrastructure for energy, water and waste: for example as net energy producing houses through renewable energy applications.



Re-engineering growth for greater prosperity

SCP supports the transformation of the economic sectors through knowledge-intensive and high value-added activities. SCP sets a better reporting and management culture as the starting point. Stricter domestic standards will provide a strong foundation for going global. Decoupling industry output from resource input will deliver productivity on a larger scale.



Transforming public service

The SCP Blueprint provides a role model for an efficient administration, which is collaborative and synergetic in pursuit of the objectives together with the private sector and the civil society.



Building Malaysia beyond 2020

The SCP Blueprint takes a long-term view until 2030. The positive imagination of the future is within reach through building on best practice and eliminating what did not work in the past.



International coherence

In 1992, the Rio Earth Summit recognised that unsustainable consumption and production patterns are a major cause of environmental degradation. In the consecutive years, various definitions translated this global concern into operational understanding.

The Oslo Ministerial Roundtable Conference on Sustainable Consumption and Production (Oslo Symposium) in 1994 provided the first definition

SCP is the use of goods and services that respond to basic needs and bring a better quality of life, while minimising the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardise the needs of future generations.

From the business perspective, the World Business Council for Sustainable Development defined SCP in 1997

... as efforts by various stakeholders in achieving environmental quality through efficient utilisation of natural resources, minimisation of wastes, and optimisation of products and services.

The European Union (EU) definition of sustainable consumption and production

Maximise business potential to transform environmental challenges into economic opportunities and provide a better deal for consumers. The challenge is to improve the overall environmental performance of products throughout their life cycle, to boost the demand for better products and production technologies and to help consumers in making informed choices.

10YFP on SCP

Ten years after the Rio Earth Summit, the Johannesburg World Summit on Sustainable Development in 2002 reiterated the concept of SCP. It was agreed to elaborate a 10-Year Framework of Programs (10YFP) on SCP through a global stakeholder process. Eventually, the Rio+20 Conference in 2012 adopted the 10YFP on SCP.

Malaysia's SCP Blueprint sets a new benchmark for national SCP policy making

Malaysia's effort to address SCP as part of developing the nation is a role model of policy making and in coherence with the Joint Statement on the Implementation of Sustainable Consumption and Production in ASEAN. The National SCP Blueprint covers all programme areas proposed by the 10YFP on SCP and is the fulfilment of Malaysia's voluntary commitment to this UN programme.

Mitigating climate change

The strategies over the pathways of the SCP Blueprint will help mitigating climate change. SCP is a very effective approach to create a low carbon economy. Malaysia's voluntary pledge to reduce the carbon intensity of the economy is redeemable only together with the SCP stakeholders, the consumers and industries. While climate change is a global issue, practising SCP means capitalising on options that will benefit the nation first.

Sustainable development goals (SDGs)

The SCP Blueprint is in line with the UN 2030 Agenda for Sustainable Development to transform the world through an action plan for people, planet and prosperity. Among the 17 SDGs of this post 2015 framework, goal 12 shall ensure sustainable consumption and production patterns. In addition, SCP effectively supports other SDGs such as security of supplies, healthy living, inclusiveness and access to adequate education, sustainable management of water, energy and natural resources, resilient cities, combating climate change and the protection of ecosystems and biodiversity.



The concept of SCP

SCP sits within the socio-economic reality, which appears in the form of the life cycle of consuming and producing, which is the economic value chain.

The life cycle of SCP

In simple terms, the life cycle of SCP starts with the extraction of natural resources. These are processed and converted into goods. Goods are distributed to consumers, who use and consume the value inherent in them. The use-value of goods and services including their quality determines the price.





Life cycle costing (LCC)

The life cycle makes apparent that goods have more than a purchasing or investment costs through operating costs. This applies for example to energy consuming items such as cars, homes and household appliances. Life cycle thinking directs attention to this aspect and leads to wise purchasing decisions.

Identifying the spots to gain more through less

At each stage of the life cycle options exist to achieve higher efficiency and productivity. SCP helps to repair the imperfections in the value chain to create the maximum of value with the minimum of resources. This can work in both directions, either by decreasing the input leading to efficiency or by increasing the output leading to productivity. Either less energy is required to cool a room (higher efficiency) or the same amount of energy can cool a bigger room (higher productivity).

Closing the loop of materials through a circular economy

The conventional linear model of taking - making - using - throwing has to be modified to a circular model where resources remain in the productive cycle once they are in it. This means to reduce, reuse and recycle wherever possible.

The benefits of life cycle thinking

Life cycle assessment (LCA)

The scientific approach to the life cycle assumes that each single product contains its own life cycle. What materials it consists of, how it is manufactured, how it performs and whether it can be recycled are expressible through a footprint. LCA can inspire industry in innovations and consumers in buying decisions.

Preventing rebound effects

Thinking along the life cycle helps to prevent rebound effects and green washing, where efficiency gains at one stage are cancelled out at another stage. This helps to avoid mere shifting of problems. For example, a shift to electric vehicles would contribute to climate change mitigation only, if the source of electricity is sustainable. An oversized home is not a good example of a sustainable life style, even if constructed with advanced technologies. The same goes for oversized cars or household appliances.

Visualising the upstream and downstream connections

The life cycle makes the intertwined aspects of the system transparent. All stages of the life cycle are connected upstream and downstream through supply chains, each stage influencing the other stage. Green products are impossible without sustainable sourcing, manufacturing, packaging, distribution and disposal.

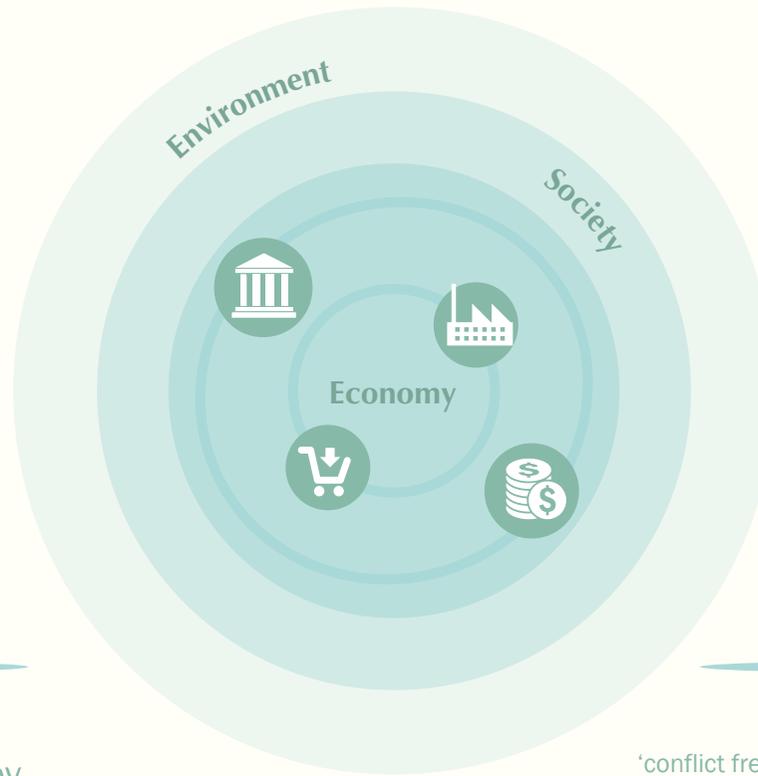
Expanded stakeholder responsibilities

The life cycle illustrates that consumers and industries, demand and supply, consumption and production are the two sides of the same coin. Both sides can drive the change, although demand has a stronger drive and industry will suit. This helps to contextualise SCP interventions.



The SCP universe and its stakeholders

SCP is at the very core of the universe. Economic activity happens within society. Both are confined by natural boundaries. In the centre of the SCP universe are consumers and industries who are conducting daily transactions within the given policy and market environment.



Stakeholder roles and potentials

Consumers and industries have specific sentiments and roles. Consumers make day-to-day decisions when moving, buying, using and disposing. If summed up, these decisions make a big difference. Changing consumer practices will also alter the supply of goods and services by industries and the upstream and downstream processes over the value chain.

standby power controllers
fridges
sensors
bathroom fittings
Energy efficient
CFL/LED bulbs
washing machines

Buying

Moving

Using
Switching off appliances and lights
preventing unnecessary running of water from taps
minimising food waste by cooking suitable food portions

Desired SCP practices by consumers

Walking cycling
avoiding unnecessary trips
maintenance of vehicles
better planning

Disposing
Separation of household waste
public transport
use of recycling and collection services to dispose of bulky items such as furniture
disposing of hazardous wastes
composting of organic waste

'conflict free' minerals for use in the electronic industry
textiles produced under fair working conditions
construction material free of asbestos
flammable chemicals
chemicals-free from heavy metals

Sourcing

Distribution
Reducing packaging requirements
take-back of product packaging
the use of energy efficient warehouses

Design of sustainable products and services such as energy and water efficient house hold appliances
water saving products
machinery and equipment which incorporate design for recycling features

Designing

Desired SCP practices by industry

Waste

Operation
Sustainable operation of business and manufacturing sites such as energy efficiency practices, material efficiency practices, cleaner production, emission control, waste water treatment, air emissions control, noise pollution control

Waste separation
treating and recycling of valuable materials
take-back of end of life products



Changing behaviour and patterns

Changing behaviour is a long-term mission. A comprehensive shift of mindsets is necessary that Malaysians adopt SCP as the norm by 2030.

The complexity of behaviour

Behaviour is more than a matter of carrots and sticks. Behaviour is rooted in conventions and traditions. It was educated and trained. It is guided by ethics, morals and values. It is based on attitudes, on culture and religious belief. Behaviour is driven by desires and expectations of the future. These aspects constitute challenging but also favourable conditions to guide Malaysians to respect the principles of SCP.

Inculcating behavioural changes

The Government will use the full portfolio of instruments to inculcate consumers and industries to practise SCP effectively.



Regulatory instruments

Command and control is the strongest intervention which a government can choose to influence behaviour. Regulatory instruments aim unconditionally at a desired behaviour of individuals or firms to achieve prescribed targets or performance standards. To abide with the law is compulsory and not complying is sanctioned. This is the main difference to other policy instruments where citizens are free to use incentives, information or guidance. Regulatory instruments are the most commonly used policy instruments in modern societies to ensure sustainable practices including the deployment of green technologies.



Economic instruments

Commonly used economic instruments are taxes, fees and financial support such as fiscal incentives, subsidies and soft loans. Economic instruments assume that a monetary cost or a monetary benefit will inculcate certain desired behaviours like saving energy or investments in green technologies. Critical is the assessment if the desired behaviours would continue once the economic instrument is removed. Economic instruments deploy their maximum effectiveness often in tandem with regulatory instruments. A prudent policy framework would internalise the costs of global and local environmental pollution via taxes. If market signals do not work, command and control instruments are necessary to prevent a degradation of natural capital.



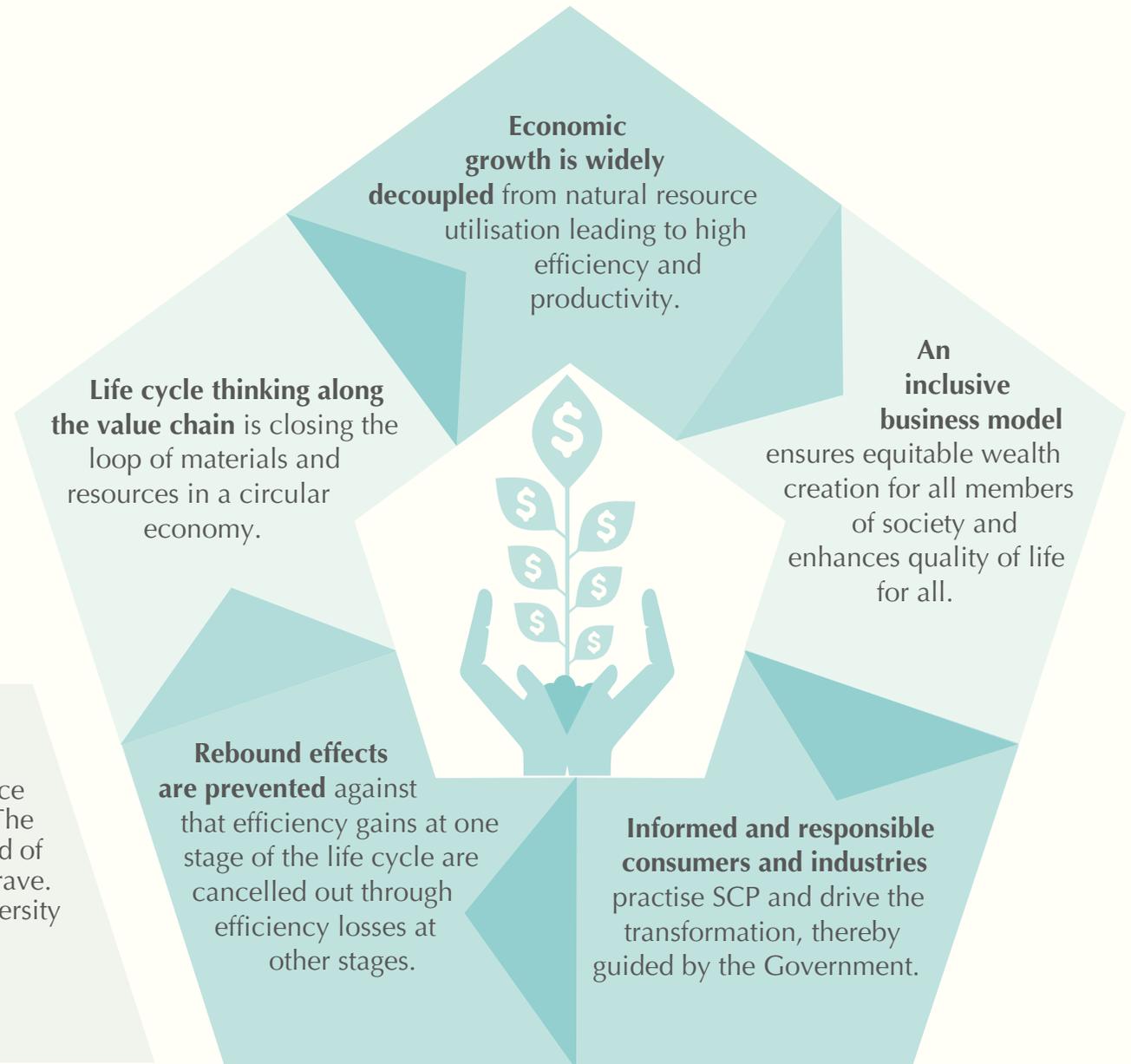
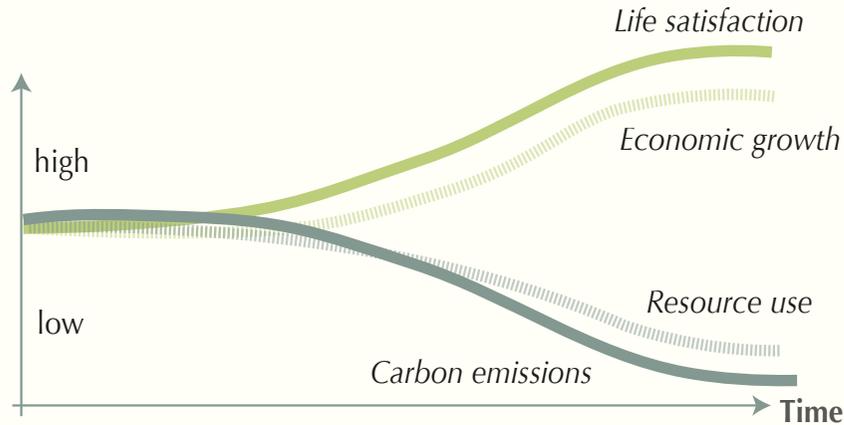
Communication, education and public awareness (CEPA)

The scenario is a well-informed society in which the members behave and act responsibly based on proper judgement. Transparency over the life cycle of consumption and production has to be established. It is important how information flows. Public awareness requires effective government campaigns. SCP communication needs collaboration between the information holders and the deployment of proper channels in cooperation with non-government stakeholders and the private sector. To prepare the young generation for active participation in SCP education must provide knowledge, skills and attitudes fit for the daily life.



The way forward

While life satisfaction increases and economy continues growing, the use of resources and the negative impacts on the environment decrease.



Positive imagination

By 2030, Malaysia's economic growth considers resource constraints, environmental limits and social outcomes. The system is competitive, inclusive and provides a high standard of living. The use of resources is efficient from cradle to grave. Ambitious climate change targets are within reach. Biodiversity and ecosystem services are protected, valued and restored.



Risks of business as usual

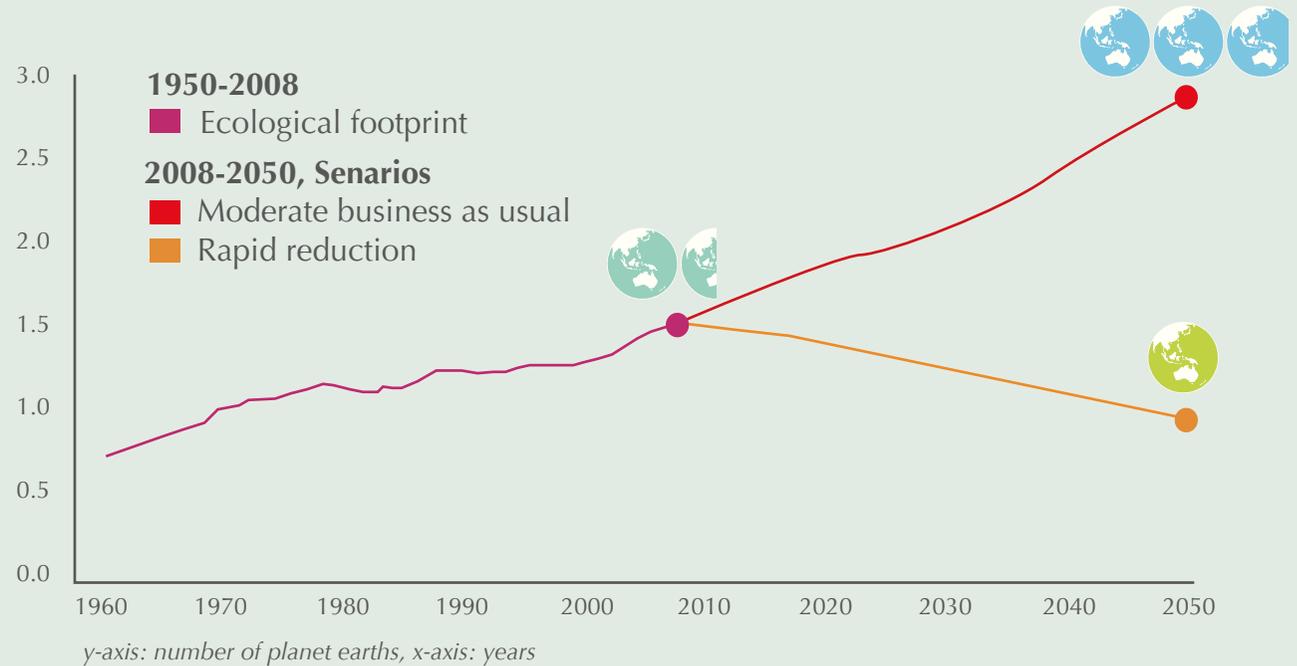
Malaysia is growing at a faster pace than other regions of the world. Consumption and production patterns are altering. Rising income is driving up demand for housing, energy, water, transport and consumer goods. Diets are changing, with people eating more meat and dairy products. These trends represent huge challenges for the security of supplies. Already today, Malaysia's energy use is about 30% higher than the average for upper middle-income countries. Carbon emissions per capita are higher than the average for the world as well as its peers in the upper middle-income category.

Overuse of natural resources and water, deforestation, inefficient use of fossil energies and increasing generation of waste and pollution over the life cycle of consuming and producing would cause severe environmental impacts that would affect the quality of life.

Malaysia is at a cross road: either to continue growing on costs of natural resources in the short term with devastating effects for the long term; or alternatively to embark on resource efficiency and increased productivity as the lasting green growth scenario.

We have only one planet and only one Malaysia

The Global Footprint Network forecasts that in 2030 two planets Earth would be required to secure our resource needs. In 2050 we would even need three planets. Already now the Earth's natural resources are exploited 1.5 times faster than the planet's capacity to reproduce these resources.



Source: <http://www.footprintnetwork.org/de/>

The ecological footprint is a measure of human demand on the Earth's ecosystems. The footprint can be contrasted with the natural resources that the planet is able to replenish. While certain resources such as biomass are renewable, productive soil and land are limited. The Global Footprint Network estimates that Malaysia's ecological footprint is 1.3 times of the natural capacity of the country.



A feasible plan for the way forward

The SCP Blueprint reaches until 2030. The plan is ambitious, yet realistic because it is based on feasibility principles and considers the long-term perspective.

Large-scale adoption of SCP practices is required. If only a few are practising SCP, no significant contribution to green growth would happen. Thus, the SCP Blueprint centres on those practices, which have significant potentials. Concepts and ideas that did not work in the past or that are

merely niche and elite approaches are eliminated or modified. The Blueprint consists without exemption of strategies that stand up to feasibility criteria.

Availability

A certain technology could be theoretically available and scientifically possible, but it lacks practical applicability. SCP Malaysia defines availability as being sufficiently mature and easily accessible by consumers and industries to be adopted in the large.

Economic viability

The perception was cultivated that green does not work without government funding, although efficiency strategies have a positive costs-benefits balance. The SCP Blueprint corrects this perception by emphasising the economic benefits of green practices. Green practices have to be decoupled from government financial support in the medium to long term.

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Social acceptance

Existing awareness of environmental challenges, health, safety and sustainable lifestyles, although at its infancy, provide good conditions to move towards action. The SCP Blueprint aims at removing the barriers, which have stigmatised the green agenda as costly, elite and burdening for industries and households.

Policy coherence

A corner stone of the SCP Blueprint is the alignment with the development agenda of the nation. Do the measures contribute to higher income? Are better and more jobs in the pipeline? Is the SCP scenario inclusive? Does it provide advantages for all members of the society and business community? Do measures provide real solutions or only a mere shifting of problems from one stage to the next? Is the framework consistent with already successfully established policies and instruments?



10 pathways to achieve the goals in 2030

PATHWAY

01

Leading by example through government green procurement (GGP)



GGP will increase the demand for green products and services and will encourage industries to meet green requirements. A national Long-Term Action Plan is targeting for selected product groups: 20% green procurement until 2020, 50% until 2025 and 100% until 2030.

PATHWAY

02

Transparency of SCP benefits for private households



Higher incomes of private households will give consumers power that can transform the market in the private household consumption clusters: housing, electricity, water, food, waste and mobility. The key mechanism is to ensure maximum transparency of SCP benefits.

PATHWAY

03

The business case of SCP in industry



Industry is fundamentally concerned about profit. SCP provides the business case to increase profitability. Improved reporting and management are the starting points to decouple industry output from resources and energy input and to create inclusive supply chains.

PATHWAY

04

Towards a circular economy waste system



All types of waste will be managed holistically with the life cycle approach extending beyond merely disposing of waste. Improved legislation will activate consumers and industries as the waste generators and holders. The ultimate goal is the phasing out of landfilling by 2030.

PATHWAY

05

Energy wise buildings



Buildings for the future consider the long-term economic and environmental consequences. Gaining more through less means savings in energy, reduced emissions and financial wins through a coordinated approach.



10 pathways to achieve the goals in 2030

PATHWAY

06

Connecting people through low carbon mobility



This pathway emphasises that low carbon options are the more attractive and convenient alternative to the individual car. The condition is better connectivity over the modal mix of transport.

PATHWAY

07

Sustainable, safe and nutritious food



Healthy and affordable food is an unnegotiable right of the people. Its delivery depends on improving productivity over the life cycle of food from farming over processing, distributing, consuming to reducing waste.

PATHWAY

08

Adding value to tourism through SCP



SCP practices across all forms of tourism will create the unique selling proposition of Malaysia as a sustainable tourism destination. This will lead to more tourist arrivals and higher tourist receipts.

PATHWAY

09

SCP communication, education and public awareness (CEPA)



Consistent CEPA will instil a sense of shared responsibility for the mission of SCP. Cross-agency programmes are the National SCP Portal, SCP in school education and the virtual Malaysian SCP academy.

PATHWAY

10

Coordinating and monitoring SCP implementation



The SCP Blueprint marks the beginning of a long journey. The last pathway describes the institutional setting for implementation and monitoring progress through the question-based MySCPI indicator system.



Monitoring progress

The delivery of SCP for green growth and sustainable development until 2030 will be monitored through the question-based Malaysian Sustainable Consumption and Production Indicator (MySCPI) framework (see pathway 10) with key policy questions and headline indicators such as:



Does SCP contribute to green and quality net growth?

- Indicators to measure growth in the key sectors and portion of growth in these sectors attributed to green
- Indicators to measure trends in resource, waste and emission intensity of growth and GDP
- Ecological footprint of Malaysia
- Indicators to measure quality of life such as the well-being index

Does SCP contribute to achieve the SDGs relevant for Malaysia?

- Indicators related to SDG 12 (sustainable consumption and production patterns)
- In addition, indicators related to other specific SDGs such as security of supplies, healthy living, inclusiveness and access to adequate education, sustainable management of water, energy and natural resources, resilient cities, combating climate change and protection of ecosystems and biodiversity

Conclusion

SCP means to communicate with the public through regulations, setting economic conditions and by informing, educating and increasing awareness about the importance of changing behaviours and patterns. The intention is to pick up the stakeholders in real life and business contexts. This differs from conventional approaches in the environment fields where policies are formulated along technologies, emissions and specific resources. The SCP Blueprint intentionally focuses on the actors of the socio-economic system: the consumers and industries. The typical environmental themes such as energy, water and waste cut across the whole SCP Blueprint. This pragmatic approach with the people in the centre will lead to action and will deliver quality of life and prosperity through better use of resources and lesser emissions and wastage.



PATHWAY 01

Leading by example through government green procurement (GGP)

The Eleventh Plan emphasises GGP as a corner stone of the green growth strategy. For selected product groups GGP will become mandatory for all public entities by 2030. GGP will increase the demand for green products and services and will encourage industries to meet green requirements. The successful experiences of a pilot phase from 2013 to 2015 led to a national Long-Term Action Plan (LTAP) that outlines ten strategies to full adoption of GGP until 2030.

The goal 2030

Positive imagination

Background of GGP in Malaysia

Best practices

Strategies and milestones for the adoption of GGP

The national LTAP: 10 strategic elements

- Consolidating the institutional framework
- Introducing obligatory measures
- Enhancing the scope of product groups
- Applying life cycle costing (LCC)
- Improving demand management
- Communicating GGP effectively
- Enhancing capacities
- Accelerating supplier development
- Advancing towards social responsible public procurement
- Public procurement promoting innovation

Monitoring progress

Conclusion



The goal 2030

Gradually, all national, state and local governments will apply GGP. The volume of green purchasing will increase up to 20% in 2020, to 50% by 2025 and to 100% by 2030 for selected product groups. GGP will be the norm in government procurement, further evolving into social responsible public procurement (SRPP) and public procurement promoting innovation (PPPI), which constitutes the most advanced wave of government procurement.



Positive imagination

Harnessing the purchasing power of the government for green will change the market irreversibly.

The Ministry of Finance (MOF) is spearheading the change in pursuit of smart and prudent spending. By 2030, government and linked companies have largely adopted sustainable criteria in procurement practices.

- The demand for sustainable products has created a growing domestic green industry, supporting the shift of industries and consumers towards cleaner technologies and products.
- GGP has improved Malaysia’s global competitiveness and increased employment and business opportunities in green sectors.
- GGP is providing value for money. Long-term economic benefits are resulting from total costs of ownership in procured products and services.
- GGP makes a significant contribution towards achieving a low carbon economy.
- The concept of GGP has been refined to include social factors in addition to green criteria.
- Government procurement is stimulating innovation and R&D efforts between academia and the private sector.



Background of GGP in Malaysia

The rationale of GGP is to use the huge purchasing power of the Government as the single largest consumer to establish a growing market for green products and services. GGP makes government procurement smart through improved durability of products, lower energy consumption and operating costs, lower disposal costs and less environmental damage. GGP requires including green arguments into the procurement process. Issues such as the readiness of domestic suppliers, the capabilities of procurement officers and cost-benefits have to be considered.

Piloting GGP in Malaysia

GGP gained momentum with the establishment of a steering committee in 2012. Chaired by the Ministry of Finance (MOF) and the Ministry of Energy, Green Technology and Water (KeTTHA) a short-term action plan (STAP) was launched in 2013. Six product groups have been selected including ICT equipment, cleaning services, cement, paint, paper and lighting. Guidelines for these product groups have been compiled in Bahasa Malaysia and English. The system has been tested with pilot tenders by Ministry of Education (MOE), Ministry of Home Affairs (KDN), Ministry of Health (MOH), KeTTHA and EPU. The outcome showed that GGP can even reduce procurement costs through the life cycle costing (LCC) approach. The total amount of GGP spending during the pilot phase was more than RM350 million.

More than 100 procurement officers have attended training courses by SCP Malaysia. Comprehensive training manuals served also for training of trainers. Suppliers have been supported to comply with technical specifications of green tenders. All materials are available on the SCP web portal www.scpmalaysia.gov.my.

Addressing challenges and issues

The implementation of the STAP has revealed issues that need attention to move from piloting and demonstration to full scale application of GGP. The institutional setting for GGP, technical and market issues, the development of expertise and suppliers' capacities will be crucial on the way forward.

- A firm institutional structure of GGP has yet to be determined, since the current division of responsibilities between MOF and KeTTHA is a temporary solution.
- GGP has yet to be linked systematically with other sectors such as building, mobility, tourism and industry (see respective pathways in the SCP Blueprint).
- A substantial change of mindset is needed at the decision-making and implementation levels. Prudent procurement is not buying the cheapest goods and services, but the economically most advantageous. Knowledge and awareness on these aspects is still low.
- The justification of GGP requires monitoring which is currently hampered by a lack of data.
- There is still little choice of genuine local green products in the market. Suppliers have difficulties to comply with green product criteria and certification requirements in the short term. During the pilot phase issues of green washing have been observed. It will be important to enhance the verification of green supplies through adequate tools.
- Communication and publicity of GGP have to be improved.

The experiences of the pilot phase have guided the formulation of a Long-Term Action Plan (LTAP), which rolls out the nationwide adoption of GGP until 2030. This approach is consistent with international best practice to advance GGP step by step.



Best practices

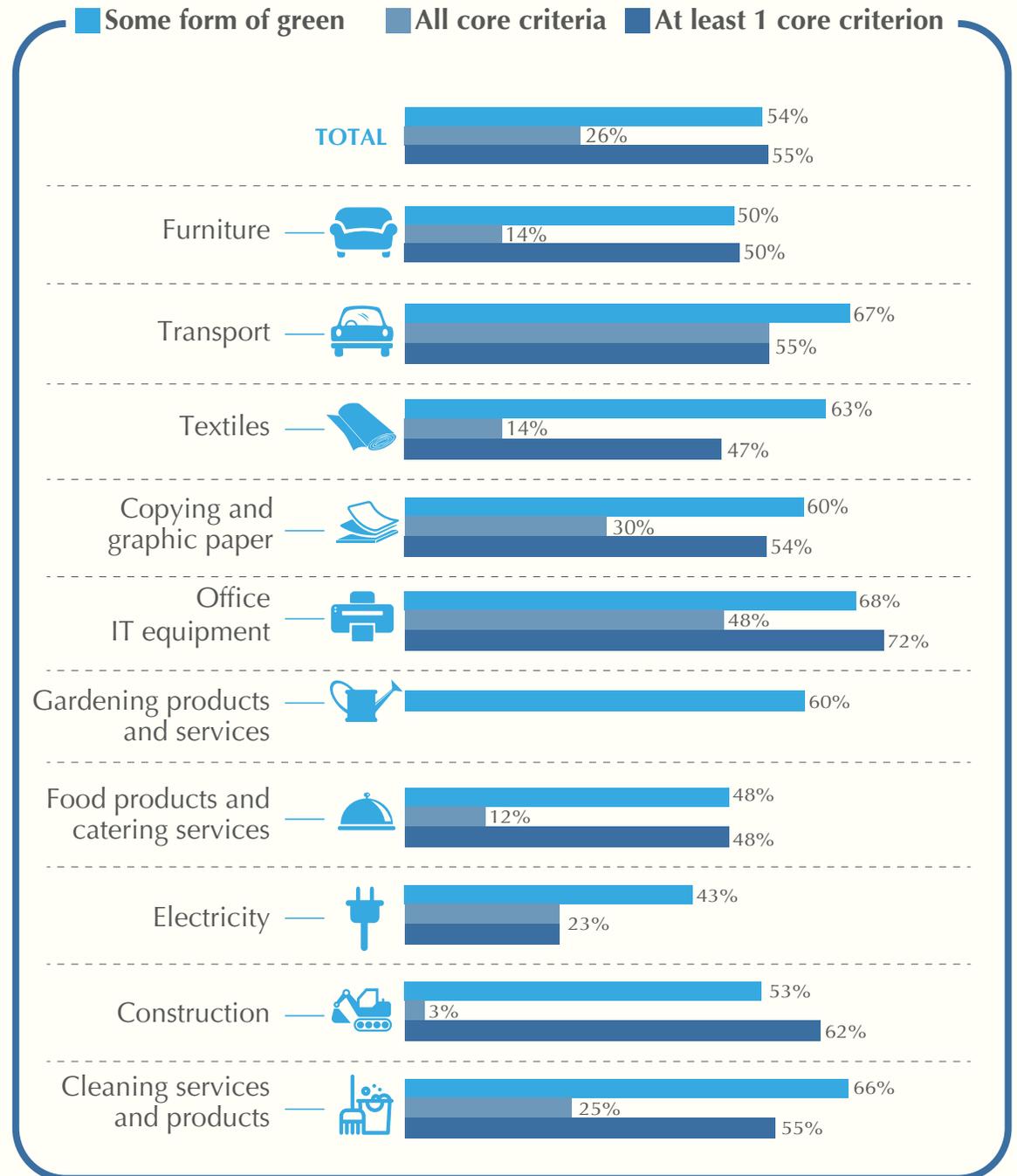
More than 40 countries worldwide are practising GGP with dedicated policies to support the creation of green markets. Introducing and advancing GGP is a pragmatic and selective approach that fits national circumstances and priorities.

In the European Union (EU), the use of green procurement is a flagship initiative for a resource-efficient Europe (EU strategy 2020). 22 of the 28 Member States of the EU have developed national action plans. These address GGP systematically for a stepwise enlargement of green procurement.

The latest study on GGP within the EU shows that 26% of government procurement contracts are green, including all green core criteria of the EU. About 55% of contracts include at least one green core criterion. 29% of contracts have some form of green criteria (see diagram). The uptake of GGP is increasing especially in office ICT equipment, transport and paper. Green criteria are covering about 38% of the total values procured.

GGP in Europe and other industrialised countries have triggered spill over effects into the private sector. A 2013 study surveyed 133 multinational companies and found that for 93% of the respondents, sustainable procurement is an important objective. In Europe, the main factors are client expectations and the avoidance of risks for a brand image that could be associated with poor social and environmental practices. Respondents in North America indicated compliance with new regulations and the reduction of costs as most influential.

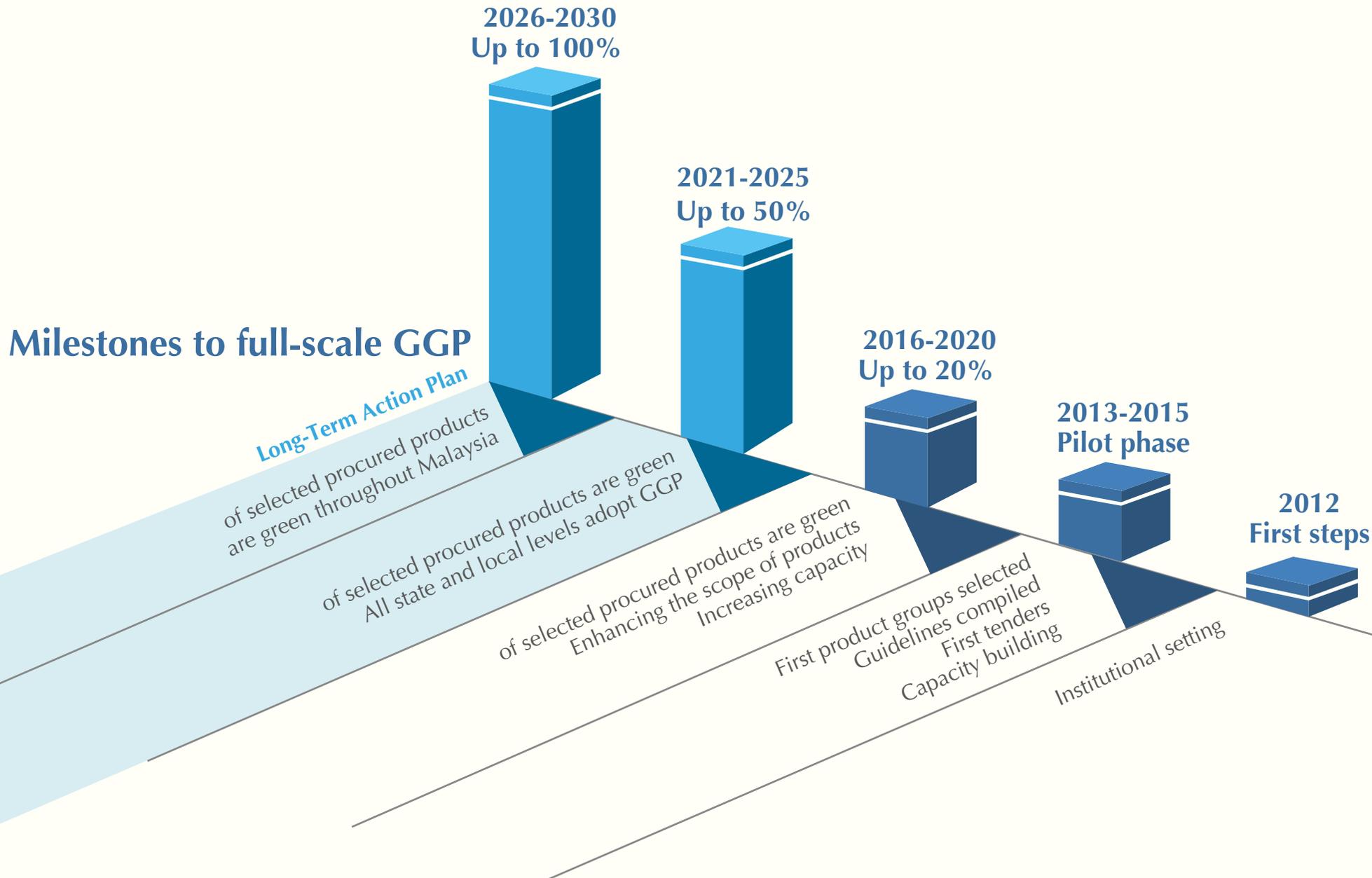
Sources: UNEP (2014), COM (2010), SEC (2011), Centre for European Studies (2012), Ecovadis and ATKearney (2013)



Source: Centre for European Studies (2012)

Strategies and milestones for the adoption of GGP

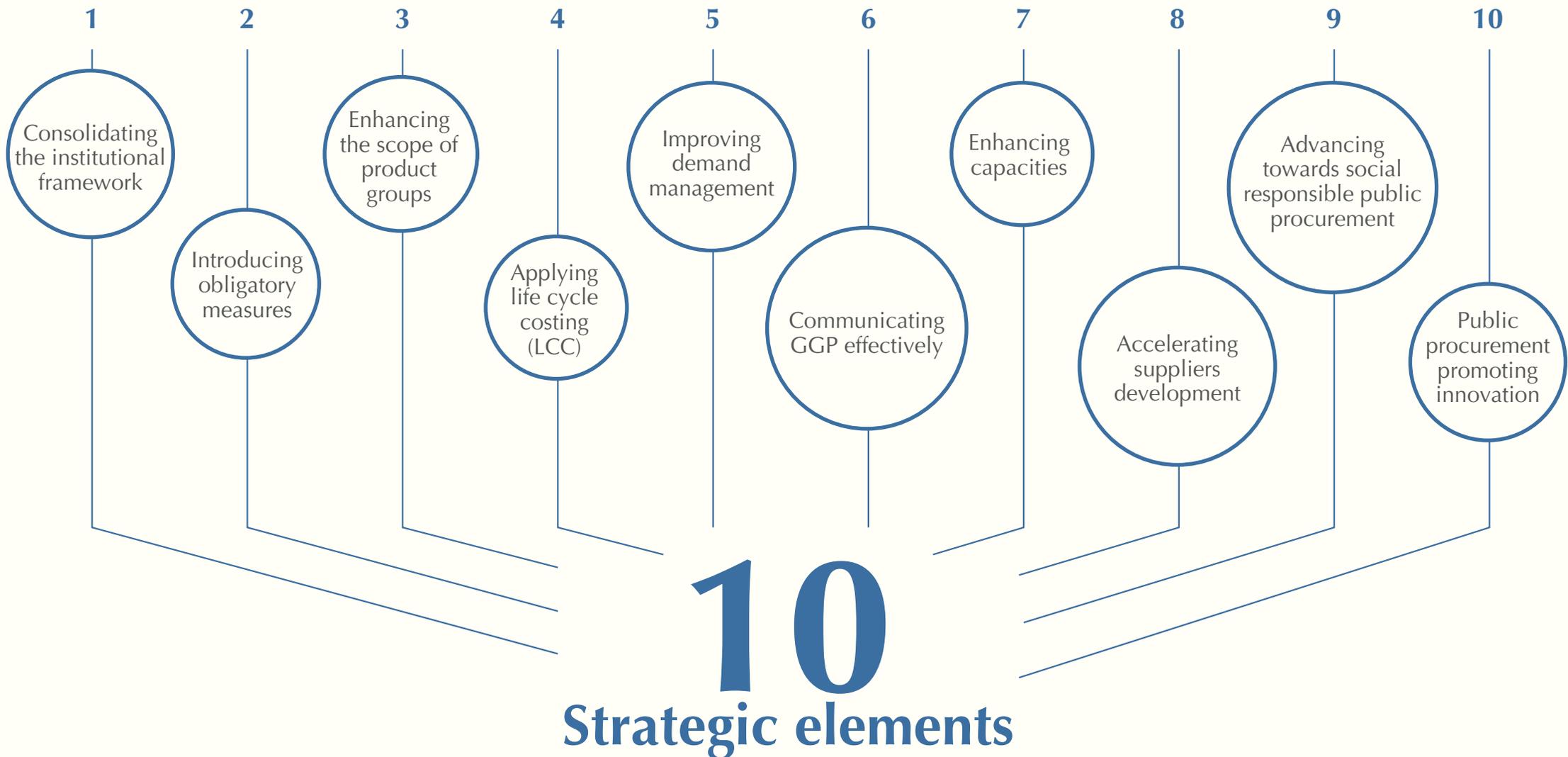
GGP implementation will follow a national long-term plan. Step by step the scope and scale of GGP will increase until 2030.





The national Long-Term Action Plan for GGP

The LTAP is the national masterplan to create a green market through advanced government procurement practices. The process will create synergies with other sectors such as building, transport and energy. Commitment, training, communication, supplier development, innovation and monitoring will lead to full-scale adoption of GGP in Malaysia. The plan consists of ten strategic elements.





1 Consolidating the institutional framework

GGP implementation will be coordinated through the already established GGP Steering Committee and the GGP Working Committee. MOF will spearhead GGP implementation with technical support of KeTTHA, relevant agencies and subject matter experts.

2 Introducing obligatory measures

MOF has already issued a circular on GGP and will review it periodically along with the growing scope of product groups and dynamically adjusted green criteria. Any future revision of the overall legal procurement framework will position GGP as one of the guiding principles.

3 Enhancing the scope of product groups

The scope of already selected products and services such as paper, ICT, cement, paint, lighting and cleaning services, will be expanded to textiles, furniture, apparel, food containers, photocopiers, air-conditioning, hotel services, facility management and others. The list will grow over time. The selection will be based on the impact to the local economy, environmental relevance, spending power, applicability, value for money and coherence with the National SCP Blueprint. Green product criteria should be simple for a start and focus on core aspects to ease the uptake.

4 Applying life cycle costing (LCC)

LCC can minimise costs and optimise performance of products and services. It takes into account the acquisition cost plus other costs for operation, maintenance and disposal over the life cycle of products, services and work. Practical considerations and best value for money will guide the scope of LCC. The approach will align with other sectors of the SCP Blueprint for example energy efficient building and energy consuming devices.

5 Improving demand management

Procurement departments will be encouraged to assess the needs prudently. This can result in fewer products procured, reduced frequencies of services hired or the substitution of goods. It includes efficient use of energy, better maintenance and waste management. For example GGP will support the transformation towards a circular economy (see pathway 4) by including aspects of waste disposal, take back systems and use of recycling materials in technical specifications.



6 Communicating GGP effectively

GGP is the Government's own pathway of gaining more through less. Consistent communication will establish awareness among top management and procurement officers at all government levels. GGP communication will reach out to all public bodies and the private sector to promote green procurement practices. The National SCP Portal will serve as a one-stop-shop for relevant information such as guidelines, tools, best practices and training possibilities.

7 Enhancing capacities

Implementing GGP is easy once knowledge and confidence in GGP procedures and tools is established. All procurement officers in Malaysia will undergo systematic GGP training. Train-the-trainers modules will increase the institutional capacity to provide training. GGP training modules will be in the scope of the virtual Malaysian SCP academy (see pathway 9).

8 Accelerating suppliers development

GGP is the strongest economic incentive. It creates a real market for green products, services and technologies. GGP encourages local industry to venture into this green market. Training programmes under the umbrella of the virtual SCP academy will help SMEs to become actors of a growing green market.

9 Advancing towards social responsible public procurement

Growing to an advanced and developed nation will increase the awareness of ethical issues over the supply chains such as working conditions. The Government will lead by example through the gradual inclusion of social criteria in procurement tenders.

10 Public procurement promoting innovation

Government procurement can be a strong engine for innovation. The Government will encourage industries to supply innovative products and services when no suitable commercial solution exists yet. The Government will map future needs and requirements. Smart funding of R&D programmes will link academia with industry to commercialise innovative products.



Monitoring progress

For selected product groups, the strategies for GGP anticipate growing shares of green procurement from 2016 to 2030: targeting 20% until 2020, 50% until 2025 and up to 100% until 2030. The question-based MySCPI framework (see pathway 10) will monitor the trends towards these targets.



Is the Government increasingly procuring green products and services?

- Number of agencies at national, state and local level practising GGP
- Number of selected product groups
- Share of green contracts for selected products and services (%)
- Total expenditure on green government procurement (RM)

Conclusion

GGP is the strongest economic intervention by the Government to create green markets. The big purchasing power of the Government will create demand for green products, services and technologies. Malaysia will follow the best international practice by using the green argument to develop the market regarding efficiency and competitiveness. The LTAP rolls out the steps from initial efforts to full-scale implementation of GGP. Following this plan will improve prudent spending at all government levels. It will make a difference to the perception of green. Leading by example will stimulate the buy-in from the private sector and households.



Transparency of SCP benefits for private households

Every citizen is a consumer. Private households contribute half of the GDP. More than 60% of private household expenditure is directly accessible through SCP practices with tremendous benefits for the households, the economy and the environment. The Government will leverage on these potentials with a few decisive interventions. The existing policy framework for consumer rights provides a perfect entry point. Trust building and a set of unambiguous tools to create transparency of SCP benefits will pave the way for substantial behavioural changes among households.

The goal 2030

Positive imagination

Background of SCP in Malaysian private households

Consumption trends of Malaysian private households

Strategies to sustainable private households

- Spearheading sustainable consumption
- Building trust
- Tools for transparency of SCP benefits

Monitoring progress

Conclusion



The goal 2030

Private households are highly aware of their rights and responsibilities as consumers and practise SCP with passion. Maximum transparency of SCP benefits is convincing consumers to change behaviour and patterns. Consumers are well-informed and demand best prices for high quality products and services.



Positive imagination

Malaysians from all walks of life enjoy a high quality of life in world-class cities and thriving rural areas with better access to infrastructure and services. Private consumerism has remained a strong engine for the economy. Altered consumption patterns are a major factor for green growth.

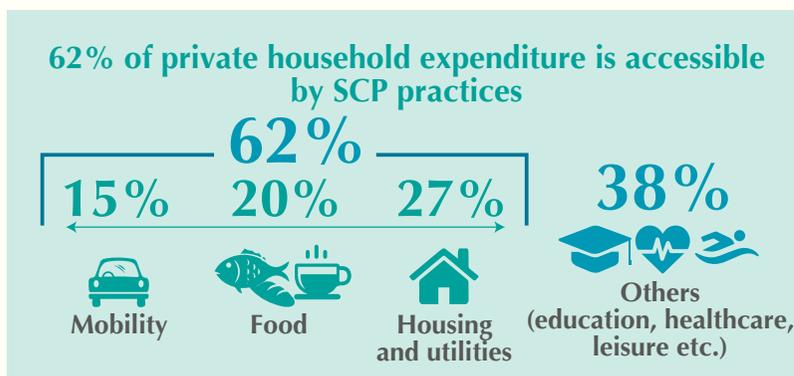
- Private consumption has grown steadily until 2030.
- A growing middle-class society reflects greater income equality. The Malaysian Wellbeing Index meets the target of a 1.7% increase annually.
- Private households are passionate about gaining more through less. Efficiency in energy and water, wise decisions on housing and mobility, responsible food consumption and waste management practices have reduced living expenses.
- The preference for green products and services has directed industry towards meeting this demand.
- At the macro level, the ecological footprint and carbon emissions of Malaysia have decreased. There is better security of supply in water, energy and food. The changed lifestyles have led to better health and quality of life.

These developments are the result of behavioural changes in the major consumption clusters of housing, electricity, water, food, waste and mobility.



Background of SCP in Malaysian private households

Accumulated statistics show that more than 60% of private household expenditure can be directly influenced by SCP. Existing frameworks for consumer rights address SCP already.



Respecting consumer characteristics and sentiments

With rising affluence, Malaysian consumers embrace modern lifestyles. Consumer buying behaviour is shaped by international retailers and media. Urban consumers shop at foreign-owned hyper and supermarkets. Rural consumers still use traditional grocers, mini-marts and fresh markets. Malaysian consumers across all groups share similar sentiments: they are sensitive to rising prices, value-conscious, seeking everyday low prices and convenient shopping, but also increasingly health-conscious and concerned with wellbeing and safety.

Capitalising on consumer rights and responsibilities

SCP is a clear match with the National Consumer Policy and the UN Guidelines on Consumer Protection. Consumers have rights to safe products and services, accurate and reliable information, product choices, a healthy environment and consumer education. They have responsibilities to be aware about the performance of products and services and the social and environmental impacts of consumption. Empowering the society to execute these rights and responsibilities requires well informed people. Smart consumption is based on trustful decisions and supported by a maximum transparency of SCP benefits. Misconceptions that green is just more expensive have to be converted to positive arguments such as value for money, better quality, savings and influence to the market.

Policies in direct or indirect support of the SCP concept

The Eleventh Plan and other people-centric policies provide an excellent framework for SCP in private households.

Consumer protection - The Consumer Protection Act 1999 (Act 599) and the National Consumer Policy (2002) under the Ministry of Domestic Trade, Co-operatives and Consumerism (KPDNKK) refer explicitly to sustainable consumption.

Wellbeing and quality of life - Several programmes promote these such as the Malaysian Family Wellbeing Index of the National Population and Family Development Board and 1Malaysia People's Housing (PRIMA) programme under the Ministry of Urban Wellbeing, Housing and Local Government (KPKT).

Inclusiveness - This includes programmes like Program Bantuan Rumah, Program Perumahan Rakyat, Rumah Mesra Rakyat 1Malaysia and Bantuan Rakyat 1Malaysia.

Healthy lifestyles - The Ministry of Health (MOH) promotes healthy lifestyles with programmes such as Healthy Communities Mighty Nation (KOSPEN); the National Nutrition Policy of Malaysia (2005) promotes healthy eating. The Malaysian Good Agricultural Practices (MyGAP) programme under the Ministry of Agriculture and Agro-based Industry (MOA) promotes the purchase of fresh produce.

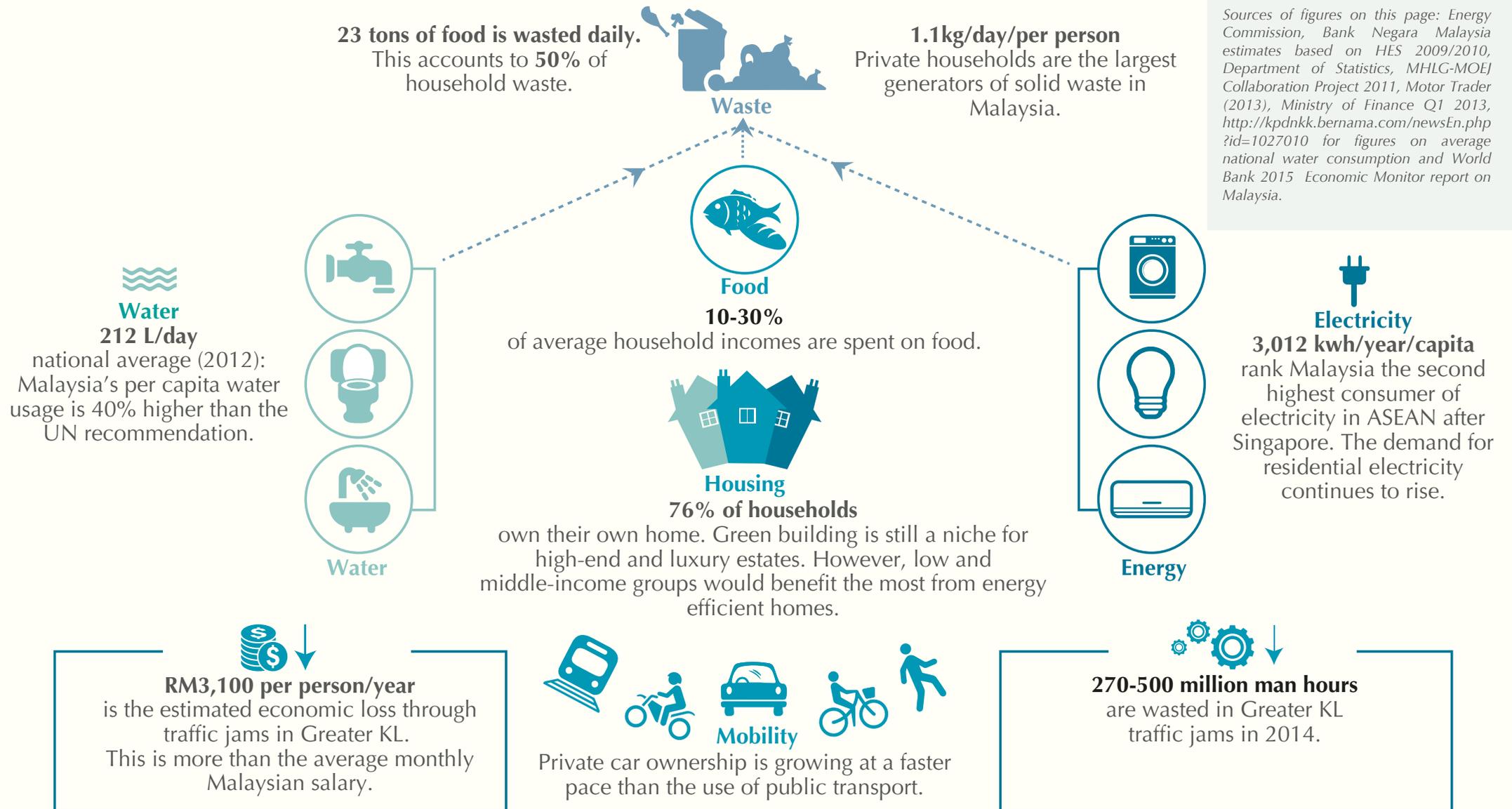
Consumer education - Several agencies and consumer NGOs run education and awareness programmes covering the household consumption clusters energy, water, waste and food.

Responsible citizens - The Malaysia Education Blueprint 2013-2025 aims at the development of universal values, a strong Malaysian identity and Malaysians to become global citizens.



Consumption trends of Malaysian private households

A sustainable lifestyle means saving energy and water, using low carbon mobility, eating healthy and producing less waste. The current trends show that there is ample room for improvement.





Strategies to sustainable private households

The way towards resilient and sustainable private households requires institutional collaboration. Trust building and transparency of SCP benefits are vital.



Spearheading sustainable consumption

The SCP Blueprint is reiterating consumer rights and responsibilities stipulated by the National Consumer Policy (2002) such as accurate and reliable information for making informed consumer decisions.



Building trust

An independent and trustworthy institution shall evaluate and compare products and services in the market.



Tools for transparency of SCP benefits

Sufficient transparency of SCP benefits will be provided via a set of tools including branding, footprinting, rating, benchmarking and planning.



Spearheading sustainable consumption

The SCP Blueprint builds on Malaysia's consumer policy. KPDNKK will spearhead the advancement of sustainable consumption in private households and will coordinate with other ministries and agencies which are responsible for the six consumption clusters housing, energy, water, food, waste and mobility.

- Coordinated and consistent CEPA will be requested to guide consumers to action based on understanding and awareness of the benefits of SCP behaviour and the cost of non-SCP behaviour (see also pathway 9).
- Independent comparative testing and appraisal of products and services will build trust from consumers.
- Transparency on SCP will be supported by tools including water metering, energy rating, energy and waste benchmarking, building energy intensity disclosure, food footprints, carbon intensity of cars and others as deemed useful on the way to 2030.



Tools for transparency of SCP benefits

A range of tools will allow consumers to differentiate, to compare, to benchmark and to choose the most beneficial product, service or practice in the relevant context. The tools shall help consumers to understand the benefits of SCP which appear over the life cycle of buying, using and disposing.



Sustainable use

- Lower maintenance cost
- Durability and compatibility
- Savings on energy and water expenditure

CONSUMPTION BEHAVIOR



SUSTAINABLE LIFESTYLE



Sustainable buying

- Value for money
- Quality and safety
- Guarantee
- Trusted mark



Sustainable disposal

- Cleaner environment
- Reduced waste quantity
- Reduced waste disposal cost
- Earnings from recycling



1. Branding

Consumers are confronted with an abundance of labels that praise products and services as green, sustainable, eco-friendly, ecological and so on. Recognising distinctive marks and brands associated with sustainability will help to reduce confusion and misconception.

Relaunching MyHIJAU Mark as the national brand for green



MyHIJAU Mark was a Government effort to register green products. The programme intended to endorse products, systems and service providers that have been already certified by other brand or label owners. This led to little response in the market. A fee for the label on top was unattractive to industry.

The Government will relaunch MyHIJAU Mark as the trusted national brand with a new standard operating procedure. The MyHIJAU secretariat will negotiate with relevant original label owners on the conditions to use the MyHIJAU Mark without running through a redundant certification process. A producer will be granted the direct right to brand products with the MyHIJAU Mark under established guidelines and if the original label meets criteria that are eligible. This will create a choice of green products and services with one common brand which can be identified by consumers.



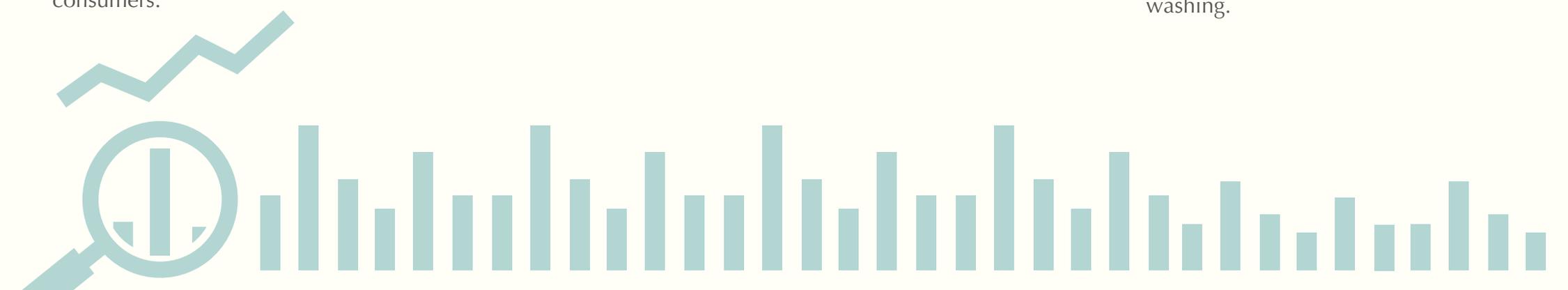
2. Footprints

The conventional types of green labels do not tell that a labelled product is better than a non-labelled product. This sets such labels into a weak situation against the price of a product which remains the convincing argument. A new generation of ecolabels in the form of footprints will allow for direct comparison based on life cycle assessment (LCA). SIRIM is working on this system in Malaysia. The use of footprint labels could become mandatory for selected products and services in the future.

Excellent	★	★	★	★	★
Very good	★	★	★	★	☆
Good	★	★	★	☆	☆
Fair	★	★	☆	☆	☆
Poor	★	☆	☆	☆	☆

3. Rating tools

The Minimum Energy Performance Standard (MEPS) of the Energy Commission is such a rating tool. MEPS will be updated periodically and applied to currently not yet rated products such as electric motors, cars with respect to carbon emissions and indirect energy consuming products such as building materials. Only those rating domains will be selected which can be compared easily with meaningful units. Ratings which involve subjective or qualitative aspects tend to be misused for green washing.





4. Benchmarking tools

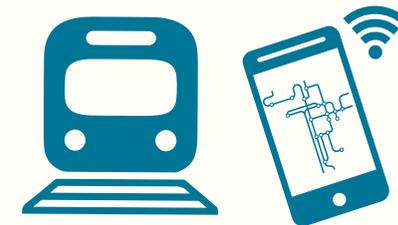
Benchmarking is a powerful tool to monitor performance over time, towards a target or with best performing peers. This applies to energy and water consumption and waste generation. The Government will mandate utility companies to provide benchmarking information to households. It will include complementary information on improvement potentials. Examples include the best and worst performing months and information on consumption by peers in the neighbourhood. Smart metering will allow consumers to get accurate real-time information on electricity consumption.

5. Planning tools

Guides and gadgets that help consumers to plan better and to decide on the best available options will become common with the further progress in internet and online technologies.



MYTEKSI is a smart app for hiring taxi services. Such applications will become comprehensive route planners and gadgets to organise mobility.



Some major world cities provide comprehensive online services that people can plan a trip within the city to the minute through a combination of public transport (subway, tram, bus, train) with taxi and walking. Vienna is one of the few cities in the world where individual motorised traffic is continuously decreasing.





Monitoring progress

SCP practices at the household level shall deliver higher quality of life with lesser strain and pressure on the environment. Efficiency gains in the main household consumption clusters shall be recognisable. The question-based monitoring framework MySCPI (see pathway 10) will observe the progress towards 2030.



Is private household consumption showing sustainable trends?

- Indicators to measure consumption trends in housing, electricity, water, food, waste and mobility

Are private households effectively directed to SCP practices?

- Indicators to measure the penetration of the market with green products and services
- Indicators to measure the uptake and perception of transparency tools
- Establishment of trust building mechanisms and their scope
- Indicators to measure pricing trends of green products in comparison to conventional products

Conclusion

Increasing incomes of private households give consumers huge power in the market. The bigger part of private household expenditure concerns few consumption clusters that are directly accessible by SCP practices. The current trends in these clusters show large potentials for efficiency improvements. Capitalising on these potentials will lead to lower cost of living and a smaller ecological footprint of Malaysia. Gaining more through less at household level is a good deal for consumers. It is a matter of building trust and creating concern through sufficient transparency of SCP benefits.

The business case of SCP in industry

SCP cuts across all industries with principles valid for all sectors. The chapter sketches the strategies how Malaysian industries will become more productive by gaining more through less. The precondition to identify the business case of SCP is internal reporting and benchmarking. Good housekeeping helps harvesting low hanging fruits. Decoupling energy consumption from value output will increase the profit margin. Inclusive supply chains shall link large with small and medium sized enterprises. Green directories shall connect industries with consumers in a green market. Local commodities such as timber could be refined to high-end products with added value.

The goal 2030

Positive imagination

Background of SCP in Malaysian industry

Strategies for the business case of SCP

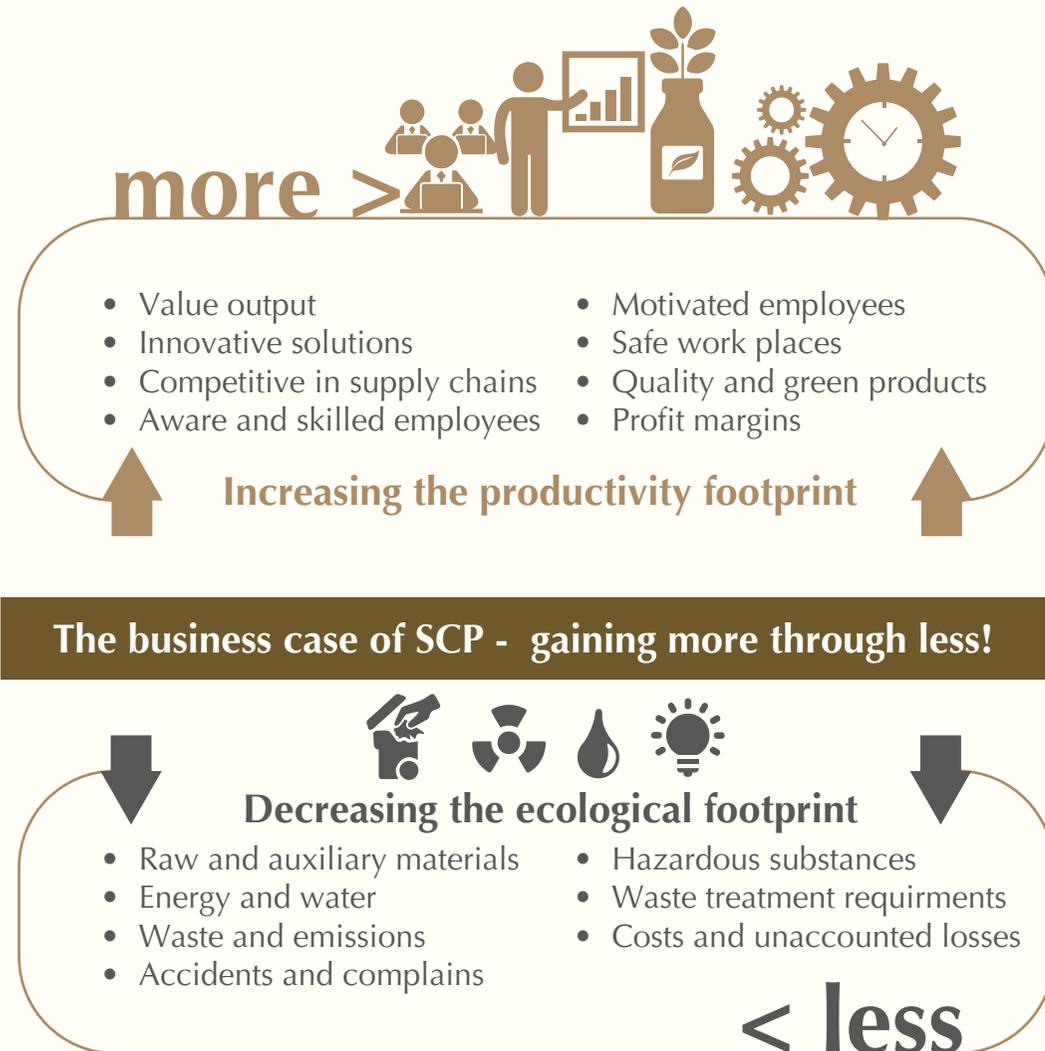
- Reporting and benchmarking
- Good management practices
- Decoupling energy from industrial output
- Inclusive supply chains
- Adding value to local resources

Monitoring progress

Conclusion

The goal 2030

Malaysian industries are knowledge driven and value-oriented. The pursuit of gaining more through less is resulting in higher productivity, resource and energy efficiency. Industry meets domestic and global consumer demands for sustainable products and services. Supply chains are inclusive and transparent. Local resources are refined to high-value end products.



Positive imagination

By 2030, SCP has constituted a win-win solution for entrepreneurs, the environment and the society. SCP practices over the industrial life cycle provide a strong business case for a fundamentally profit oriented sector.

- Malaysian companies pursue higher productivity through optimised use of capital, human and natural resources. Dedicated reporting systems help to locate the SCP business case. Benchmarking has become a routine practice. Firms are harvesting the most profitable low hanging fruits through cleaner production and good housekeeping.
- Industry has become more energy efficient and has decoupled value output from energy consumption through energy management and energy efficient equipment. Malaysia’s energy security and resilience to global fossil fuel price fluctuations is strengthened.
- Small businesses are linked with big industries in an inclusive business model through up and downstream supply chains. Companies cope with global trading conditions, have minimised supply chain interruptions and reduced the cost of insurance and financing. Made in Malaysia is advancing to a premium brand for high quality and sustainable goods.
- Smart entrepreneurs are pursuing SCP as part of a successful business strategy. These industries can afford to pay higher wages to skilled and motivated labour forces that benefit from healthy, safe and clean working conditions.
- Commodities are commercialised to high-end products with added value through innovation and R&D.



Background of SCP in Malaysian industry

The World Business Council for Sustainable Development defines SCP as efforts in achieving environmental quality through efficient utilisation of natural resources, minimisation of wastes and optimisation of products and services. SCP aims at enhanced productivity and competitiveness of industries. SCP practices apply to each stage of the industry life cycle to maximise value output with the minimum resources input. The business case of SCP in industry is compelling and has to be mainstreamed.

Overcoming global challenges

Malaysia's economy faces challenges such as low cost competition from emerging economies, declining total factor productivity, fluctuating global commodity markets and large numbers of low-tech SMEs. SCP supports industry to overcome these challenges. SCP instils innovation and product differentiation. SCP practices can improve the reliability and resilience of industry supply chains. Few large enterprises dominate the supply chains in Malaysia; green procurement practices by these peers would coerce their thousands of SME suppliers towards higher production standards.

Increasing productivity and competitiveness

Some Malaysian industries are already practising SCP through environmental reporting, energy management, cleaner production and emission prevention. They are benefitting from these practices with higher profits. The responsible use of resources reduces waste and emissions. Safer and better working environments increase productivity and retention of employees. Good management practices improve credit standing and access to finance. These industries demonstrate the effectiveness of SCP to meet the export requirements of competitive global markets.

Building on strong foundations

Over a dozen agencies are involved with industries through policies and initiatives covering the industry life cycle. Regulations exist for pollution control, energy management and occupational health and safety. There are over 6000 voluntary industry standards in Malaysia. Publicly listed companies are mandated to provide sustainability reports. Tools to raise productivity of SMEs have been successfully tested in pilot and demonstration projects. Economic support is plentiful: over 50 financial incentive programmes support SCP related areas.

SCP in industry over the life cycle

Procurement



- Commodities from sustainable sources
- Conflict free minerals
- Green products and supplies
- Sustainable construction material
- Avoidance of hazardous materials



Operation

- Good housekeeping
- Energy management
- Water management
- Cleaner production
- Lean processes
- Emission control



Distribution

- Sustainable packaging
- Take-back of packaging
- Energy efficient warehouses
- Logistics optimisation



Waste management

- Closing of material loops
- Recycling
- Material re-use
- Waste exchange
- Take-back systems





Strategies for the business case of SCP

Malaysia's industry is already equipped with a comprehensive policy environment that aims at developing, regulating and incentivising. Specific policies address green technologies and innovation. The Eleventh Plan pursues green growth that shall be largely achieved through efficiency gains in various sectors. The SCP Blueprint puts forward a few additional strategies that will complement existing policies. The intention is to change industrial patterns to deliver higher outcomes, value and profit through sustainable practices without burdening enterprises.

1

Reporting and benchmarking

Evidence-based management is daily routine of large corporations and successful SMEs. A wide range of management tools exist including ISO standards for environmental, energy and quality management. The majority of smaller enterprises are lagging behind and is challenged with sophisticated approaches. The SCP Blueprint advocates a simplified approach to ensure basic reporting in SMEs.

2

Good management practices

International best practices are recorded in the best available techniques (BAT) reference documents of the Industrial Emissions Directive of the European Union. They show that around 60% of improvements in industry concern good management practices that are no or low cost. The SCP Blueprint emphasises cleaner production, good housekeeping and maintenance to harvest the low hanging fruits of gaining more through less.

3

Decoupling energy from industrial output

The existing Efficient Management of Electrical Energy Regulations (EMEER) provides a good starting point to advance energy management and to capitalise on the planned Enhanced Time of Use (ETOU) framework. The Minimum Energy Performance Standards (MEPS) regulation shall include motors and other energy intensive industrial devices.

4

Sustainable supply chains

About 300 big Malaysian enterprises and international global players are dominating the supply chains in Malaysia. The SCP Blueprint aims to pull in the many thousands of SME suppliers through an inclusive business model. This will include tightening domestic standards against low quality foreign competition.

5

Adding value to local resources

Malaysia is rich with natural resources. Refined commodities add value to the domestic economy as demonstrated with palm oil and rubber products. The SCP Blueprint describes a scenario to commercialise timber as a high-value and sustainable building material.



1. Reporting and benchmarking

What is not counted cannot be managed! Counting through reporting is the requisite for benchmarking to manage improvement. The SCP Blueprint advocates a system fit for purpose for SMEs.

Multiple reporting formats

International and Malaysian standards provide guidelines for environmental, energy, quality and sustainability reporting. Large companies are mandated to present reports in specific contexts. These include sustainability reports requested by Bursa Malaysia and energy reports for enterprises subject to the EMEER regulation. The MyCarbon system to disclose carbon emissions to the Ministry of Natural Resources and Environment will become mandatory for larger enterprises. Most reporting schemes are voluntary. They are not directed to the disclosure of data. Their purpose is to instil a routine to benchmark performance and to identify areas for improvement. The rationale is that smart entrepreneurs will take action once evidence on performance issues is provided.

The mechanism of benchmarking

A benchmark is a reference point. Benchmarking is the process of comparing cost, time and quality; in the case of SCP for example of energy consumption, materials use and waste. Benchmarking has the following sequence.

1. Internally over time: how does the performance develop? Are internal targets achieved?
2. Externally against other companies: how is the performance against competitors and peers?



If the target is energy efficiency, the current energy consumption would be the baseline and best values over time or best practices in the sector are the benchmarks. The result of comparisons is often a business case for performance improvements. Such a process requires adequate reporting to understand the individual situation. 90% of benchmarking is to understand the own performance better.

Asking the management questions

Most SMEs are unable to cope with sophisticated reporting standards, though better reporting would help them. The SME Corporation Malaysia (SMECorp) will approach SMEs with SCP through the framework of the SME Competitive Rating for Enhancement (SCORE). SCORE is a diagnostic tool to raise and enhance competitiveness of SMEs. A simple one-page set of management questions will serve to address SCP in this context.



What are the main materials in use?



Percentages of purchased materials that are turned to value products or to waste?



Is energy and water consumption increasing or decreasing over time?



Is the expenditure for materials, energy, water and waste adequately accounted?



Are staffs trained and aware about the importance of good housekeeping?



Have there been complaints from the market or regulatory authorities?



Are actions taken to periodically review and improve the environmental performance?

Contexts of reporting requirements

The management questions template will be required in certain contexts such as the SCORE assessments, when applying for incentives, licensing of operations and any conflict with regulations and insurance incidents. Banks could use the template as part of the credit standing assessment of SME clients.



2. Good management practices

How industrial sites are managed and production processes operated is critical for the performance of an enterprise and for workplace safety. Cleaner production and good housekeeping can help to reduce mistakes and defects.



Cleaner production

The concept of cleaner production (CP) aims to reduce waste and emissions at the source of industrial processes. The ideal scenario is to avoid them to reduce the costs of end-of-pipe technologies to deal with waste and emissions. The methodology of CP is straightforward. It consists of a sequence of investigative tasks along industrial material, energy and water flows. The causes why waste and emissions occur are identified, including how these issues could be resolved at the source. Since all material flows can be expressed in monetary terms, the business case of CP becomes apparent. More than 20 years of CP in industry have shown that the majority of solutions are no or low cost with immediate effects to the profit margin of an enterprise. The Department of Environment (DOE) has conducted several pilot and demonstration projects to prove this fact.

Spearheaded by the Green Industry Virtual Centre under DOE and using the synergies under the roof of the virtual SCP academy (see pathway 9) a simplified and sector neutral help-to-self-help approach will allow outreach to more companies compared to the past.



Best practice for expanding beyond pilots:

ECOPROFIT®

ECOPROFIT® was designed in 1992 in Graz, Austria. From there it spread out to other Austrian and European cities and further to Eastern Europe, Latin America, South Asia and China. During this outspread the programme names have changed but the idea remained: to address businesses where it matters, namely to make profit. The methodology refers to the in-house capacity of a company and provides help to self-help instead of alienated external consulting. Joint workshops with a group of companies replace case-by-case consulting. It is sector neutral and works for all types of companies. The programme includes public appreciation of the participating entrepreneurs which is organised with administrative support of local authorities.



Good housekeeping, maintenance and inspection

Good housekeeping refers to general care, cleanliness, orderliness and maintenance of industry sites and workshops. It leads to safe and healthy workplaces, avoidance of accidents and emergencies. Floors free of spilled liquids and debris, water hoses shut, lights fixed and windows clean, machinery and equipment kept neat and in order, production materials and hazardous substances stored properly: this will attribute to businesses that are open-minded to gain more through less. The SCP Blueprint reiterates the importance of respective regulations under the Occupational Safety and Health Act 1994 (Act 514).



3. Decoupling energy from industrial output

Reducing the energy intensity per unit of industrial output is a corner stone of energy demand side management, leading to higher productivity, energy security and reduced carbon emissions. The Government will reinforce the regulations on energy management and minimum energy performance standards.

National energy intensity of GDP (1990-2013)

Malaysian industrial energy intensity has been increasing from 49.43 tonnes of oil equivalent (toe) per million RM to 63.71 toe per million RM (National Energy Balance 2013). This indicates that the industrial sector is consuming more energy to generate the same amount of revenue for the country. Malaysia has recognised the need to reduce its energy intensity and is a signatory to the ASEAN Plan of Action for Energy Cooperation 2016-2025 (APAEC) which aims to reduce energy intensity in ASEAN by 20% until 2020.

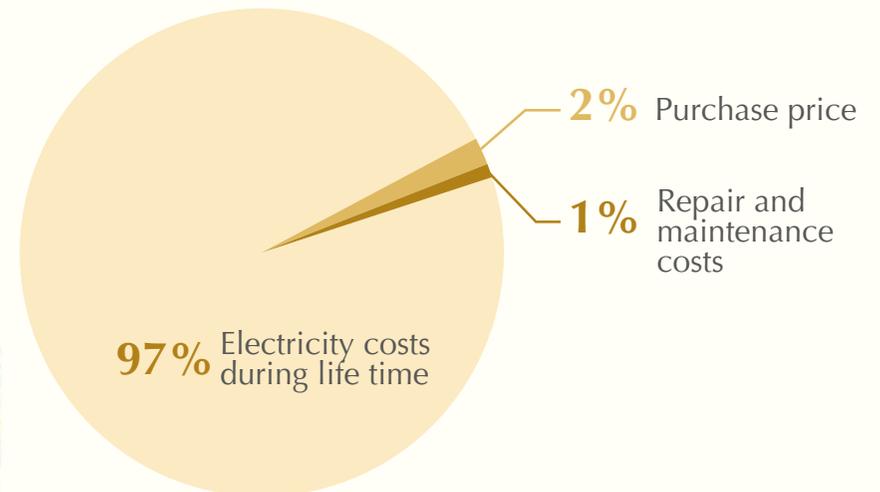
Revised EMEER

A revised Efficient Management of Electrical Energy Regulations (EMEER) will include thermal energy consumption: approximately 40% of the energy used in manufacturing industries is thermal energy. EMEER shall apply to installations consuming at least 3 million kWh equivalents per year (electricity plus thermal energy). This threshold will be gradually reduced in line with global best practices. The energy management reports submitted to the Energy Commission (EC) annually will have to comprise implemented energy efficiency measures based on internal benchmarking. The qualification requirements for energy managers will be reviewed to include qualified personnel with experience that might already exist in companies. The revised EMEER will also apply to licensing of new industrial operations. Compliance with EMEER will be a condition to receive financial support.

MEPS for industrial appliances

Electric motors and motor systems account for over 70% of electricity use in industries. Motors drive core industrial processes like presses or rolls and auxiliary systems like compressed air generation, ventilation and water pumping.

Electric motors will be included in the Minimum Energy Performance Standards (MEPS). The efficiency of electric motors is rated as international efficiency (IE). The codes IE1, IE2 and IE3 refer to the generation of motors with IE3 representing the premium standard. Studies show that the purchase price of a more expensive IE3 rated motor is only 2% of its life cycle costs.



**Life cycle cost of AC-motor:
IE3 motor, 11kW, 4000h, 15years**

Source: Anibal T, de Almeida, Joao Fong, Hugh Falkner: Best Practices in Energy

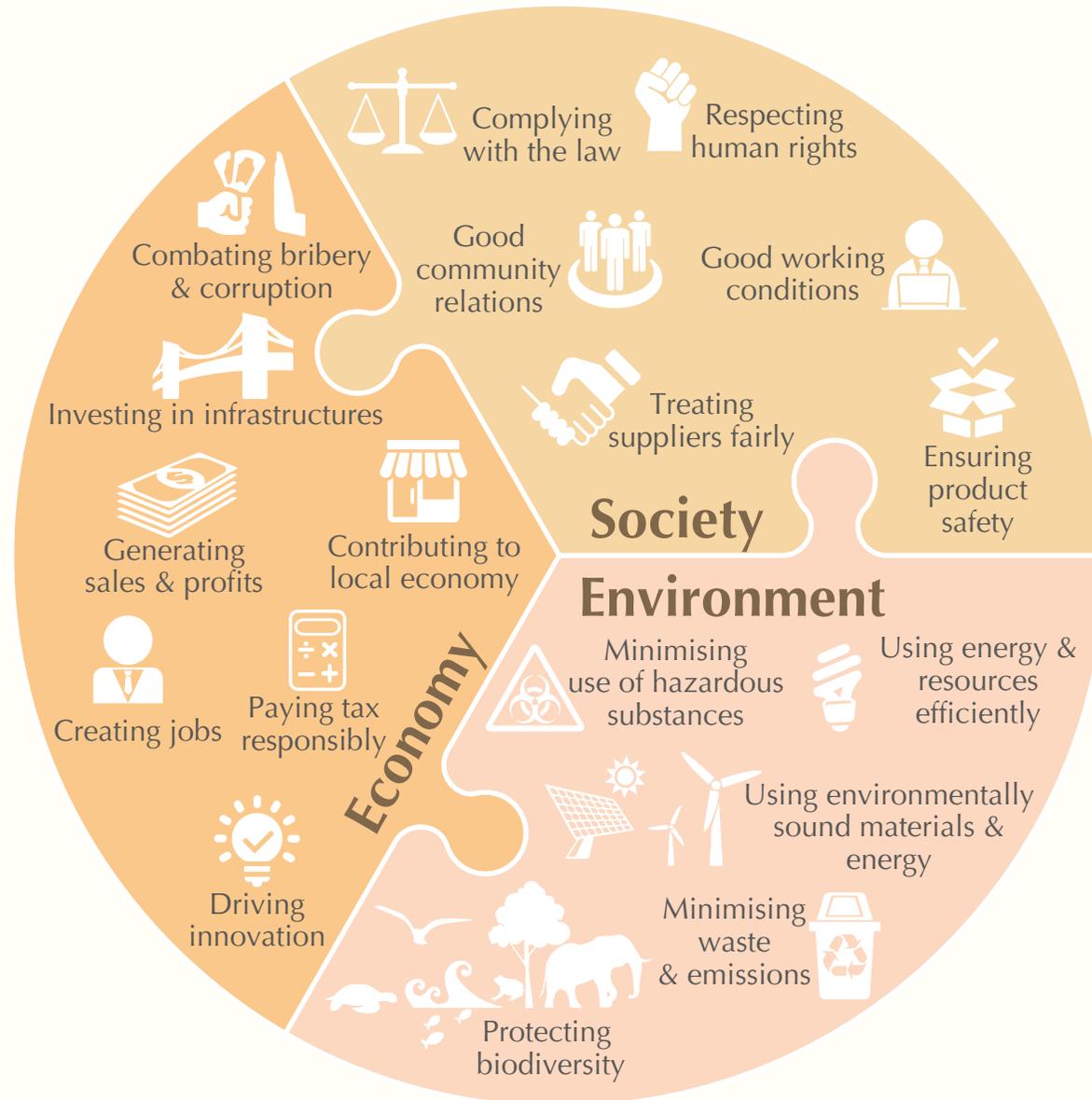
Legislation all over the world is setting minimum standards for motors. In the European Union, Japan and in China the use of IE3 motors will become mandatory from 2015 to 2017. Malaysia will adopt IE2 first and with a grace period until 2020 the IE3 standard.

Other devices such as boilers, furnaces and industrial ventilation, air-conditioning and cooling (VAC) systems will be added to the MEPS regime in line with international trends and best available technology.



4. Inclusive supply chains

Sustainable supply chains integrate environmentally and socially responsible practices to an inclusive business model, which connects big with small and medium sized companies fit for international and domestic green markets.



MOU with big industry players

Approximately 300 big industry players account for nearly 70% of Malaysia’s business output. The large purchasing power of the big players shall become instrumental to green the supply of the thousands of SMEs. The government will encourage big corporations to voluntarily apply green purchasing criteria analogous to government green procurement (see pathway 1). This will enlarge the green market significantly. A mechanism for the public recognition of the subscribers to the MOU will be developed.

Mandatory standards for the domestic market

A sustainable supply chain requires throughout sustainable chain links. Developed countries are providing with mandatory standards a level playing field for domestic industry to erase unfair competition with sub-standard imports and local produce. Higher standard in the domestic market will create authenticity for the export business. Malaysia will have to match the social and environmental benchmarks of developed countries to remain competitive. Stricter minimum standards for the domestic market will increase gradually to levels in developed countries. The Department of Standards and the Standard Users will in consultation with industries tighten the regime of production and product standards for automobiles, chemicals, food, timber, garments, electrical appliances, plastics, packaging and other product groups. Red listed substances which are harmful for health, environment or climate will be banned with adequate grace periods.

Green directories

Green directories are an interface between supply and demand. Information on green products is currently scattered across various directories such as the MyHIJAU directory, the green pages of the Malaysia Green Building Confederation and the green directory of the International Green Purchasing Network. A platform to connect these directories would multiply their effect.



5. Adding value to local resources

Malaysia has a tradition to increase the value of natural resources by refining them to higher value products. Examples are Malaysia's market share in palm oil and the world leadership in medical care rubber products. A new brand could emerge from integrated building systems (IBS) based on engineered timber from Malaysian sustainable forestry.

Building tall with timber

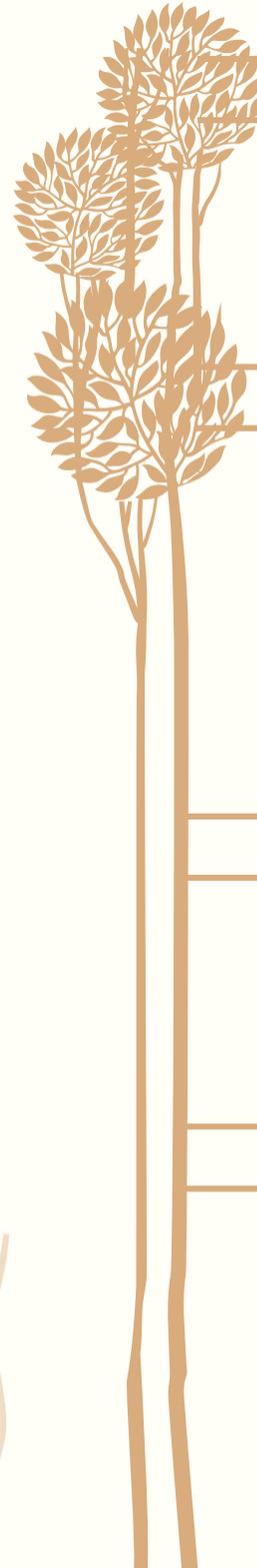
A tentative roadmap to the commercialisation of timber as building material: Malaysia could become the competence centre for engineered timber production, construction and R&D in Asia.

Nature with structure

Wood is an excellent building material. It can be combined with other materials in hybrid systems. It closes the carbon cycle and helps to mitigate climate change. Engineered timber meets fire protection standards, is extremely durable and provides comfort and healthy indoor conditions for the occupants.

Advantages of engineered timber systems

- Build one storey a day and save construction time and costs
- 90% CO₂ reduction
- 50% energy savings
- 50% resource savings for equipment, formwork, fuel, power and water
- 90% less noise and dust
- 30-50% of the weight of conventional buildings (foundation savings)
- Higher comfort for occupants: the wooden environment reduces for example the heartbeat rate in stress situations



2016

The commercialisation of timber as construction material starts with a strategic technology partnership with the global leader in engineered timber systems. R&D on engineered timber is kicked off. Leading by example, the Government selects pilot projects in Peninsula Malaysia, Sarawak and Sabah.

2020

Revised regulatory frameworks enable the new green growth sector. First public projects are completed. The private sector has followed the example. The first timber buildings serve as showcases and are inspiring to use engineered timber also for residential buildings and transit homes. A series of further public buildings based on timber IBS are included in the Twelfth Malaysia Plan. Universities have offered full-grade courses on timber construction and release the first batch of graduates. Local manufacturing of timber IBS has been initiated.

2025

The local engineered timber industry is mature enough for first export projects. The Government issues a circular that function buildings such as schools have to be constructed with timber because of the health and comfort benefits. Malaysia is close to harvest own timber from sustainable sources, cutting the requirement of imported wood.

2030

A fully-established engineered timber industry is operating in Malaysia. Many schools, universities, offices, community buildings, transportation nodes and shelters, footbridges and even fire stations are built in engineered timber. The private sector uses timber for both affordable and high-end housing and shopping, hotel and recreational buildings. Malaysian universities, planners and engineers are exporting their services and adding to inflow of funds to Malaysia. The timber IBS export industry is flourishing.





Monitoring progress

The SCP Blueprint anticipates that by 2030 Malaysian industries are knowledge driven and have adopted the principles of SCP. Evidence will be the continued economic growth with less resource intensity. The trends will be monitored by policy questions and best needed indicators according to the question-based MySCPI framework (see pathway 10).



Has Malaysia moved towards a knowledge based economy?

- Ratio of growth per sectors
- Total factor productivity
- Compensation of employees

Have Malaysian companies adopted reporting, benchmarking and good management systems?

- Level of reporting among large enterprises and SMEs
- Number of cleaner production companies

Has the Malaysian industry decoupled energy intensity from its output?

- Trends in industrial energy intensity
- Industrial devices regulated by MEPS

Has Malaysian industry adopted an inclusive business model through sustainable supply chains?

- Big corporations subscribing voluntary agreement
- Green products listed in consolidated green directories
- Number of compulsory industry standards

Has Malaysian industry progressed in branding added-value products based on local resources?

- Indicators on high-value commercialisation of commodities such as biomass and timber

Conclusion

SCP is a smart concept with many options for industries to gain more through less. Soft pushes by the Government will facilitate the uptake of this business case by the Malaysian industries. Enhancing reporting is a first step to identify potentials for productivity improvements. Technical assistance programmes for SMEs need organisational concepts to reach out better than in the past. Existing regulations provide an extendable fundament for energy efficiency and decoupling. It will be vital to engage the main industrial players to pull in the many thousands of SMEs in domestic and global supply chains. Standards have to be at par with international requirements. The vast natural resources of Malaysia will require value-added and sustainable use to last for the future generations.

Towards a circular economy waste system

The Eleventh Plan requests that all types of waste will be managed in a holistic manner based on a life cycle approach which extends beyond merely disposing of the waste. The chapter outlines the strategies to achieve this objective through enhancing the legal framework. The responsibilities of consumers and industries as the waste holders and waste generators have to be mobilised. The ultimate goal is the phasing out of conventional landfilling by 2030. This will require the full-scale adoption of waste reduction, reuse and recycling measures.

The goal 2030

Positive imagination

Background of waste management in Malaysia

Objectives of circular economy

Strategies for a circular economy waste system

- Defining waste and responsibilities
- Packaging waste
- Managing e-waste
- Hazardous wastes
- Construction waste
- Keeping track of industrial waste
- Industrial symbiosis and national waste grid
- Organic waste
- Phasing out direct landfilling
- Formalising the informal sector
- Leading by example

Monitoring progress

Conclusion



The goal 2030

Economic growth is increasing incomes allowing higher consumption and production of goods. This will cause also more waste. However waste management in Malaysia is at par with the most advanced nations.



Positive imagination

The understanding of waste has altered along with clear consumer and producer responsibilities. The application of the polluter pays principle has secured stable financing of the waste management system. Economic loss through wastage is minimised. A prosperous waste management industry contributes to green growth and jobs.

- The concept of the circular economy has replaced the linear model of taking – making – using – throwing. Waste re-enters the biosphere safely after being treated or circulates at high quality through recycling and reuse without entering the biosphere.
- Although avoidance of waste may show limited progress, the pressure on the environment and health is considerably lower. Material recycling rates of solid household wastes are close to 50%.
- Electrical and electronic waste (e-waste) and hazardous wastes are completely returned to professional hands and do not impose harm to the biosphere and health.
- Agricultural, mining, industrial and construction wastes are managed at source and fed back to the productive cycle. A national waste grid uses the symbiosis between sectors that generate waste as by-products of their operations and other sectors that use these wastes as raw materials for innovative products.
- Due to recycling, composting and incineration 90% of waste are diverted from landfills. The direct disposal of waste in conventional landfills is phasing out in Malaysia by 2030. The negative impact of waste on the environment is minimised and the loss of economic value is as low as possible.



Background of waste management in Malaysia

The amounts of wastes of all types increase steadily. Recycling rates are low. The use of clean technologies for waste treatment is at an infant stage. Most wastes are dumped untreated in landfills. The institutional framework to manage waste is scattered. The regulatory framework is incomplete. A clear hierarchy of waste management and the role of consumers and industries have yet to be determined.



Growing amounts of waste

The Solid Waste Management and Public Cleansing Corporation (SWCorp) estimates that the daily solid waste generation will reach almost 50,000 tons in 2020. This is sufficient to cover the Kuala Lumpur area of 243 square kilometres under a one meter high blanket of waste within less than three years. The current recycling rate is only 10.5%. Insufficient infrastructure for waste segregation at the source is the result of the weak engagement of industry. Hazardous wastes and e-waste are not collected systematically. Large amounts of residues from agricultural and industrial operations are underutilised for productive purposes. The current practice of dumping all sorts of untreated waste into landfills is a threat to health and the biosphere. It is a loss of value because discarded materials are withheld from the value chain.

Overcoming fragmentation in favour of a holistic approach

Most developed countries and a number of developing countries have established waste management under a single government body. The institutional setting for waste management in Malaysia is scattered. Several agencies deal with the various waste types within narrow jurisdictional mandates. SWCorp is responsible for solid wastes of all sorts in Peninsula Malaysia based on the Solid Waste and Public Cleansing Management Act (2007), which has transferred waste management responsibilities from local governments to the national level. At the time of publishing this document, this was adopted by six states. Sarawak and Sabah have own policies and agencies. E-waste, scheduled waste and clinic waste fall under the Environmental Quality Act (EQA 1974). Radioactive waste from laboratories and hospitals is controlled by the Atomic Energy Licencing Board (AELB) under MOSTI. Sewerage is handled by SPAN. Agricultural and mining wastes have separate legislations. The Ministry of Energy, Green Technology and Water (KeTTHA) is pursuing waste technologies and waste exchange through a national waste grid. Other important stakeholders are informal waste collectors and waste concessionaires. There is ample space to improve collaboration among these stakeholders.

In reaction to these deficiencies the Eleventh Plan has requested a holistic approach following the principles of circular economy. A national committee will be spearheaded by the National Solid Waste Management Department (JPSPN) and the SWCorp to harmonise the frameworks for waste management.

Addressing regulatory gaps

A waste-lab by PEMANDU in 2015 listed issues and gaps of the current situation. Only few regulations fit the new paradigm of holistic waste management. Almost two dozen further regulations would be necessary to complete a circular economy waste system. Certain important provisions like take-back systems, direct billing, separation and controlling packaging waste at source are insufficiently enacted. Low public awareness of the actual economic, social and environmental impacts of waste is a barrier to the enforcement of the polluter pays principle. This is causing unstable revenues to finance the system. Waste technologies such as waste segregation, composting and incineration are readily available in the market but their uptake is slow due to regulatory gaps.



Objectives of circular economy

A circular economy waste system prioritises environment and health protection and encompasses holistically all types of waste and stakeholders.

Health and environment

The main purpose of waste management is protecting people’s health through hygienic and healthy lifestyles. A circular economy recognises the harmful effects of chemical reactive wastes in landfills, which is a danger for humans and the biosphere, the climate relevance of dumped waste through methane emissions, the lack of landfill space, the growing amounts and changing composition of waste and the literal waste of resources and economic values.

Closing the loops of materials and resources

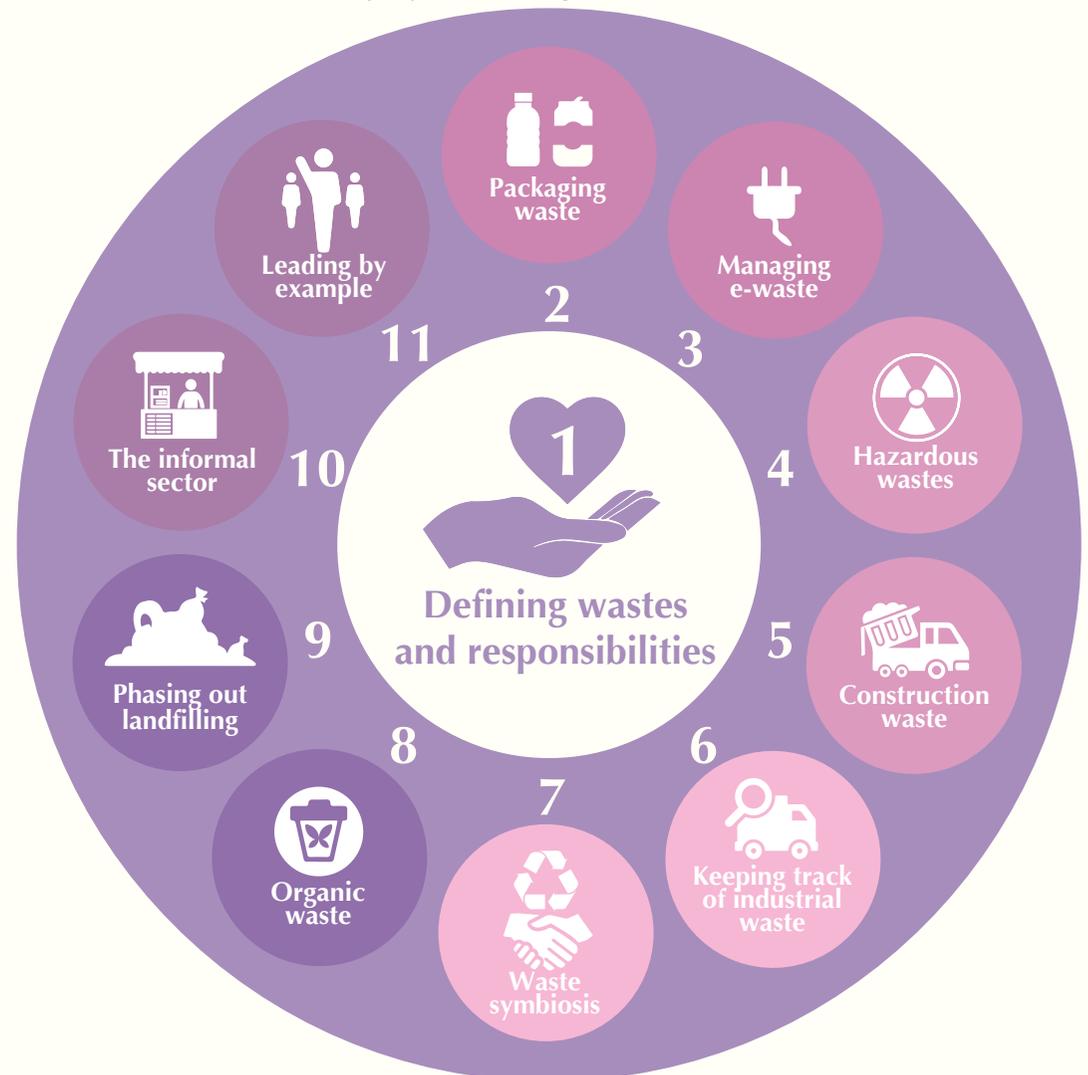
A circular economy waste system considers all types of waste and the whole spectrum of waste management: generation, storage, collection, haulage, recovery, treatment, disposal and post disposal of wastes. The overall goal is to keep all materials in the productive cycle either through reuse, recycling or converting waste to energy. The ideal scenario is zero waste or a status that comes close to it.

The instruments of circular economy

The most important aspects of a circular economy waste system are the policy and regulatory frameworks. Organisational and technological solutions have to build on clear responsibilities of consumers and industries as the waste holders and waste generators. This emphasis on consumers and industries makes holistic waste management a core subject of SCP.

Strategies for a circular economy waste system

The SCP Blueprint outlines the rationale and key elements of a circular economy waste system. The strategies follow the types of waste and the allocated responsibilities of consumers and industries as the waste stakeholders. International best practices see effective waste management mainly as a matter of strong legislation and clear regulations. They provide reliable conditions for all involved stakeholders to play their designated roles.





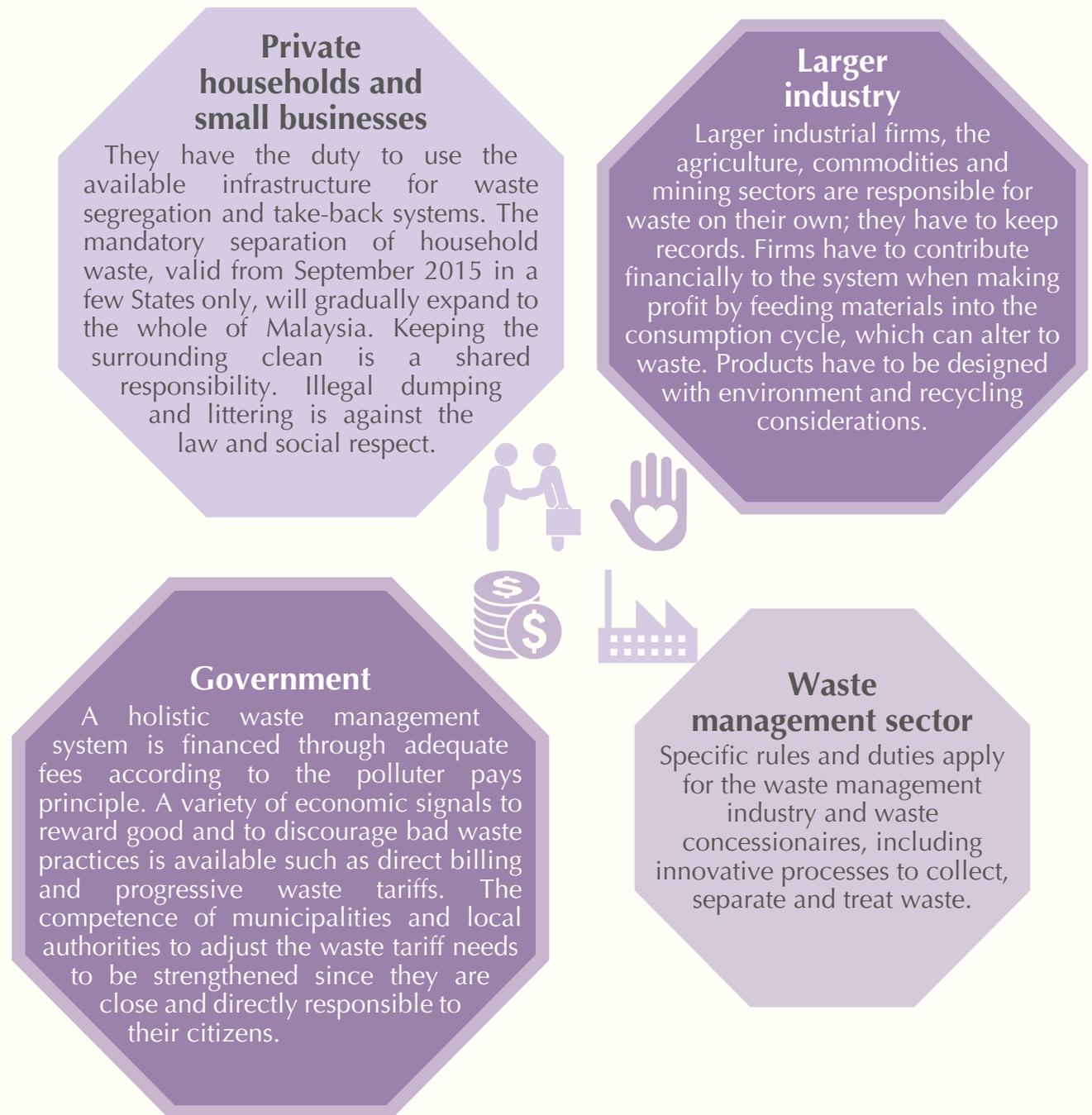
1. Defining waste and responsibilities

A circular economy defines waste pragmatically and determines the roles of consumers and industries as the waste generators and waste holders. The idea of waste needs an operational definition to engage the stakeholders. Legislation has to be clear in this respect:

Wastes are objects that the holder discards or intends to discard. The disposal has to be done in a controlled way. The proper collection, storage, treatment and final disposal of wastes are of public interest.

The generators and holders of wastes are responsible to meet this public interest. Industries and consumers each have extended responsibilities beyond producing, purchasing and using of goods at the end of the life cycle. Modern waste management and legislation aims to enforce these responsibilities. There are many international best practice examples, which Malaysia can easily adopt and adapt to the specific context.

Responsibilities of consumers, industries and government





2. Packaging waste

A large part of solid waste is paper and packaging materials such as plastics, glass and metals including aluminium and light metals. Recycling of such materials makes economic sense; a variety of technologies and recycling routes exist.

Best practice

The European Union has set a goal to circulate a minimum of 50% of packaging waste back into the productive cycle by 2020. Some countries like Austria and Germany exceed this target with recycling quotas of more than 60%.

Waste paper, plastic and scrap metal are high value commodities. Malaysian plastic producers even need to import plastic waste from other countries to comply with export market requirements that new packaging plastics have to contain a share of recycled plastic.

Glass has to be collected separately because shards of glass can lead to self-incineration at landfills.

Prevention and recycling of packaging waste

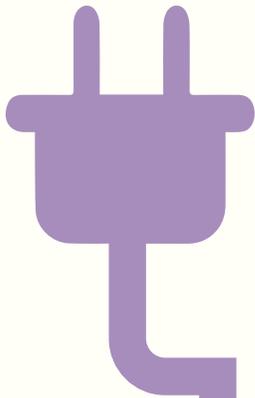
Enforcing the Solid Waste and Public Cleansing Act (2007) will increase recycling rates in Malaysia. A rollback of sales, conversion and transport packaging will include the obligation to either reuse or recycle packaging.

- Industry will have to set up and finance the system to meet the return and recycling obligations of packers and distributors including packaging of imported goods. They can use a third party to establish a nationwide collection and recycling system.
- Consumers have to separate wastes such as paper, glass, metals, plastics and compounds at the source and to use the collection points provided.
- Recycling will be made easier by specifications on packaging materials, for example through labelling packaging with the potential to be recycled.
- Certain materials will be banned for packaging purposes; the size of packaging and the number of packaging compounds can be limited.

Awareness of waste holders

Communication, education and public awareness (CEPA) programmes will educate and inform the public about effortless waste separation. Local authorities in collaboration with the recycling industry will conduct the CEPA programmes. Both parties benefit economically from a proper system: either through reduced costs for waste collection or through security of supply with recycling materials.

The no-free-plastic-bag-day will be expanded to seven days a week which will stimulate good habits to avoid waste.



3. Managing e-waste safely means a 100% return rate to qualified hands

Waste electrical and electronic equipment (WEEE) or e-waste refers to discarded electrical or electronic devices. They contain contaminants such as heavy metals. Recycling and disposal of e-waste involves significant risk to workers. Leaking heavy metals in landfills cause serious damage to the biosphere.

Obligatory take-back system

Conventional collection cannot provide a 100% return rate. E-waste holders have to return it to the selling points of goods that can turn to e-waste. Article 102 of the Solid Waste and Public Cleansing Act (2007) already contains a provision to establish such take-back systems:

- The manufacturer, assembler, importer or dealer shall take specified products or goods back after use and shall be obliged on their own account and cost to recycle or dispose of any products or goods taken back in a specified manner.
- Any person shall deliver specified products or goods to the manufacturer, assembler, importer or dealer.
- Any dealer of specified products or goods shall receive and store specified products or goods to be taken back.

Insufficient recycling capacity for e-waste in Malaysia shall not be a hindrance. Even developed countries export their e-wastes, frequently to China, which processed 70% of the global e-waste in 2014 in a few strictly controlled and specifically licensed factories. One tonne of discarded mobile phones contain thirty times the gold of one tonne of average gold ore.

4. Hazardous wastes are materials that have one or more of four hazardous traits: ignitability, reactivity, corrosivity and toxicity

A legal subset of hazardous waste is scheduled waste under the EQA 1974. The normative list of items under this legislation will be updated periodically. It contains hazardous wastes from industrial sources and clinic waste. Other specific hazardous wastes such as radioactive waste and waste from mining are regulated by respective jurisdictions.

Private households and small businesses are frequently discarding items containing hazardous substances such as batteries, accumulators, chemicals, energy saving lamps and outdated drugs. Like in the case of e-waste, the take-back obligation by the distributors is the most effective way to prevent hazardous substances entering the biosphere. Article 102 of the Solid Waste and Public Cleansing Act (2007) would apply also to this waste fraction:

- Any person shall deliver specified products or goods to the dealer.
- Any dealer of specified products or goods shall receive and store specified products or goods to be taken back free of charge.





5. Construction waste

Every construction project including new building, retrofitting and demolition inevitably comes with waste. About 85% of construction waste can be recycled and used for secondary building materials. (SWCorp)

Provision on dealing with construction waste

For larger construction projects the specified rules shall apply already in the licensing phase and a waste management plan has to be provided:

-  Construction companies have to provide proof of trained and well instructed workers and suppliers involved in a construction site.
-  Construction companies have to separate waste on site and convey it to recycling facilities. It must be conveyed in single varieties to the landfills, where the waste can be stored properly including the option for later reuse or landfill mining.
-  Construction companies have to keep records about the amounts and types of accumulated waste and how they have been discharged. The authorities will request such records when a construction is commissioned.
-  Non-compliant dumping of construction waste is strictly prohibited and will be penalised.

The building owners or occupants will be ultimately responsible for contracting work and services to qualified service providers and for ensuring that the contracted construction company meets the requirements.

The biggest fraction of construction waste is wood waste, which makes up more than 50%. Wood is organic material and for construction purposes frequently impregnated with chemical substances. Specific rules will apply for this type of waste.



6. Keeping track of industrial waste

While small businesses are similar to private households, larger corporations having more than 100 employees or conducting specific operations have the responsibility of taking care of the proper on-site handling of waste.

Provision for waste records

Proof that industries meet this obligation is required. Industries will have to disclose their waste management system to authorities on request, during random checking or in the context of licensing and commissioning of operations. The records will comprise:

- Types and amounts of waste accumulated
- Methods of disposal, for example by certified concessionaires
- Any measures undertaken by the firm according to the 3R principle

For corporations with critical material and waste flows online reporting can be imposed.

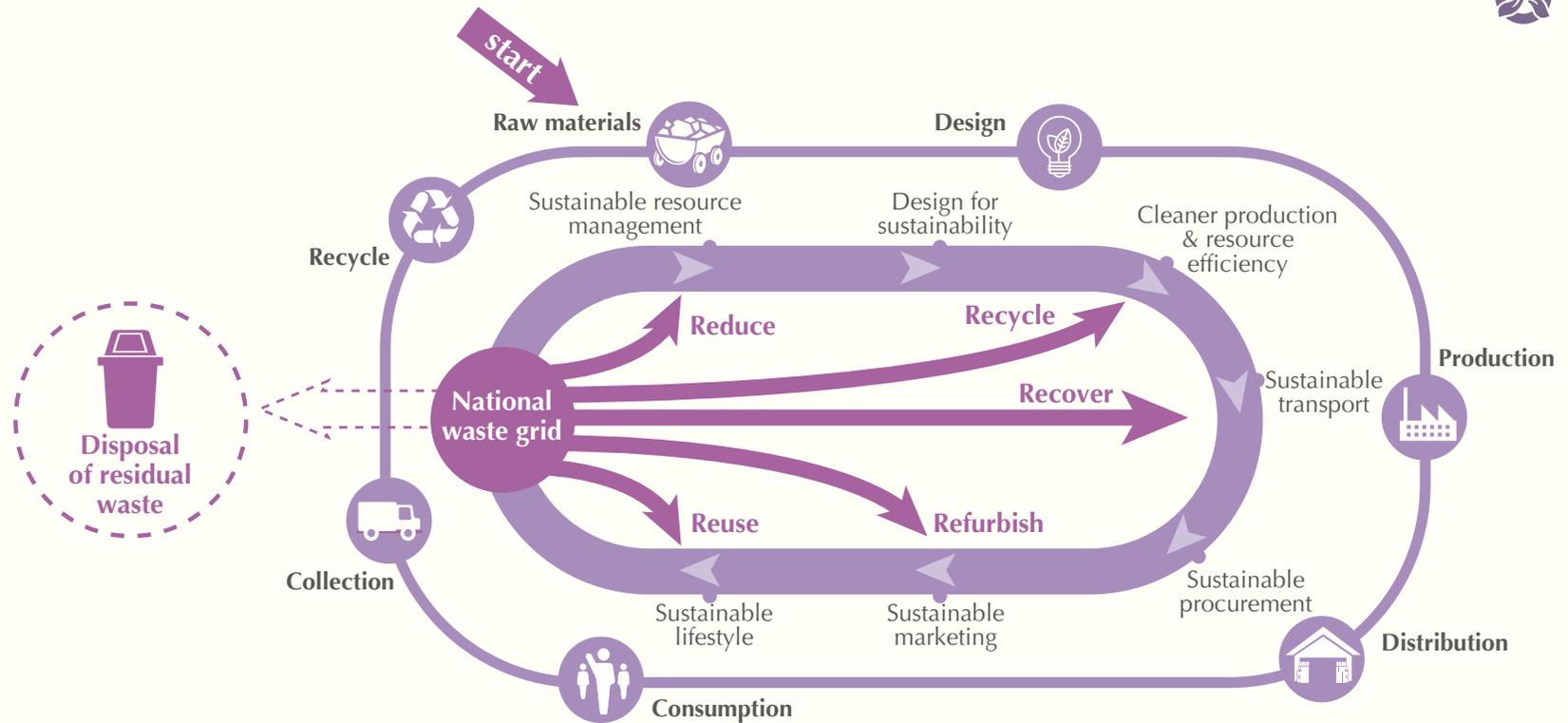
Industrial waste reporting will be confidential and no production specific information will be provided by the authorities to the public. Waste management reports could be combined with other reporting obligations of industries (see pathway 3).





7. Industrial symbiosis and national waste grid

Waste generated by one industry can be a valuable resource or raw material for other industries. The rationale is to identify such waste streams and to close the loop of materials.



Unlocking the vast waste resources

Big volumes of waste are conveyed daily to dump sites. Better data on types and amounts of wastes within catchment areas and from compulsory industry records will allow estimating the business case for the use of waste in industrial processes for recycling products or as alternative fuels. KeTTHA is planning a national waste grid. The information about waste streams shall allow industries to source these materials. The ideal scenario would be a market place in which wastes are traded like other raw materials.

Advancing programmes at the end of the life cycle

The concept of a national waste grid looks at the generator, the treatment and the final disposal stages of wastes.

Generator stage

A circular economy waste system addresses the responsibilities of industries as the original waste generators. The intention is to divert waste right at the point of generation. The enforcement of waste segregation through industry supported infrastructure and take-back obligations (see sections before) will secure a stable reverse flow of materials for industrial processes. To stimulate waste exchange between enterprises residing in economic zones and industrial parks, waste management units will be requested. International best practices in developed countries and in emerging economies use industrial symbiosis to improve security of supply with raw materials.

Treatment stage

The waste management industry has developed treatment and recycling processes that can convert wastes to valuable products such as biogas to transportation fuel, palm biomass to green chemicals, paddy husk to packaging or paddy straw to building materials. Waste is also used to build eco transit homes for disaster victims. The Government will support such initiatives through industrial waste parks.

Disposal stage

With phasing out of landfills rehabilitation of landfills and landfill mining will provide new opportunities for industries.



This fact is reported by the SWCorp based on the analysis of waste delivered to landfills. Organic waste such as food waste, tree cuttings or vegetation is biodegradable and causes chemical reactions in landfills during the rotting process. This leads to dissolving, potentially leaking heavy metals and emissions of the greenhouse gas methane. Wet organic waste causes problems in incinerators because humidity reduces the heat value. The technologies to treat organic waste such as composting, bio-gasification and bio-liquefaction require the separate collection of organic waste at the source.

Separation of organic waste



The Government will accelerate the landfill diversion programme, including a plan for food waste management by MOA and MOH. A provision will request the separate collection of organic waste, if it is not composted by the waste holder. Concessionaires will handle the collection and further processing. The system will be financed through the waste tariff. Fiscal incentives and soft loans will support the establishment of treatment facilities. The useful by-products such as compost, biogas and biodiesel will find a market as fertilisers and fuels.

9. Phasing out direct landfilling

The negative impacts of landfills to the biosphere, the climate, human health and the take up of space are well recorded. Scientists estimate that a sanitary landfill will continue its harmful chemical reactions for not less than 300 years. It is irresponsible to leave behind such a legacy for the future generations.

Malaysia will put a stop to the conventional practice of landfilling. All materials and substances which are chemically reactive will be banned from direct landfilling. This rule is the strongest lever to turn the wheel of upstream measures of reducing, reusing, recycling and treating waste. Clean technologies such as composting and incineration will destroy the reactive agents contained in waste.

Waste incineration

Waste incineration is the state of the art in developed countries.

Sweden (2015)

- Achieved landfill rate 2%, targeting 0%
- Profitable waste-to-energy industry; importing 700,000 tonnes of neighbouring countries' waste as fuel stock for electricity generation
- 32 waste-to-energy plants produce heat for 810,000 households and electricity for 250,000 homes

By 2020 a masterplan will roll out how many incinerators are needed in Malaysia and where to locate them strategically to meet demand and logistics including the utilising of energy output. Another option is the co-incineration of wastes in industrial cement kilns. Materials stored in existing landfills can be mined and conveyed to recycling and incineration routes.



10. Formalising the informal sector

The informal business model is common in developing countries among the very poor and vulnerable members of society. These people fulfil an important function.

Worldwide, millions of waste pickers earn their living under unacceptable and dangerous health and safety conditions. The UNIDO estimates that waste pickers in developing countries are collecting between 50% and 100% of urban wastes.



Informal waste collectors exist also in Malaysia, with the positive effect that the unofficial recycling quotas are higher than the official rate of 10.5% in 2013. Unfortunately no reliable data exist.

Study and reform of the informal sector

SWCorp will commission a study on the informal waste sector to estimate the size of the sector, families involved and their actual working conditions. The study will assess the flow and amounts of waste, socio-economic dimensions, benefits for industries and budget saved by the Government through the informal sector's contributions. The Government will take measures to convert the informal sector on the way towards an advanced and developed nation:

- Formalisation of the informal sector through the establishment of collectives and concessions
- Banning the dealing in hazardous wastes to prevent health and environmental hazards
- Providing vocational training



11. Leading by example

The Government will take the lead by incorporating circular economy criteria into its green procurement guidelines to stimulate industries to waste reduction and recycling. Technical specifications in tender documents will request products and services with low waste influence over the life cycle:

- Reduced packaging and ability to recycle materials
- Goods that contain a certain percentage of recycled materials
- Take-back obligations

For more details on the mechanism of government green procurement (GGP), see pathway 1 of the SCP Blueprint.



Monitoring progress

The SCP Blueprint anticipates that Malaysia will fully adopt a circular economy waste system. This shall ensure robust waste management to respond to the higher consumption and production of goods and amounts of wastes. This is evidenced by increased diversion of waste from landfills. The question-based monitoring system MySCPI (see pathway 10) will observe the progress closely.



Has Malaysia moved towards a circular economy and recycling society?

- Trends in waste generation by types of waste
- Material recycling rate targeting 22% until 2020 (Eleventh Plan) and 50% until 2030
- Percentage of waste diverted from landfills
- Percentage of e-waste and hazardous wastes returned to professional hands

Have effective steps been taken to advance waste management in Malaysia?

- Stipulation and enforcement of legal provisions
- Arrangements with the private sector
- Scope and capacities of waste segregation and treatment facilities
- Formalising of the informal sector
- Inclusion of waste criteria in the GGP framework

Conclusion

Waste can serve as a resource but it remains wastage of resources and values. Avoidance, reduction, reuse and recycling of waste can reduce the loss of values. Mindful waste management can provide a business case for the waste management industry. A holistic circular economy approach is the condition to realise this business case. Waste technologies are expensive and can prosper only if the society is ready to pay for it. The bill goes inevitably to the waste generators and waste holders. Waste is a pressing problem of growing consumerism and industrial production. There is a great deal at stake: the biosphere, the health of the people and the wellbeing of future generations.

Energy wise buildings

The chapter outlines the goals and strategies for energy efficiency (EE) in the building sector. Energy wise buildings consider long-term economic and environmental consequences. Buildings have a long life cycle which can lock in high carbon emissions for decades if not designed for wise energy use. To gain more through less means savings in energy, the reduction of emissions and financial wins. A coordinated approach shall bridge policy to market. Building energy performance will become tradeable in the building transactions of selling and renting. A sectorial programme by the Government will instil the decarbonisation of the whole building sector in combination with significant socio-economic benefits.

The goal 2030

Positive imagination

Background of EE buildings in Malaysia

EE building according to MS1525

Strategies to bridge policy to market

- Policy rationalisation for EE and RE
- Data repository to define the baseline
- Determine building codes and standards
- MEPS for building appliances
- Strengthening EMEER for buildings
- Improving enforcement of regulations
- Building energy intensity disclosure
- Solar power and net metering
- Facilitating financial access
- Government leading by example

Monitoring progress

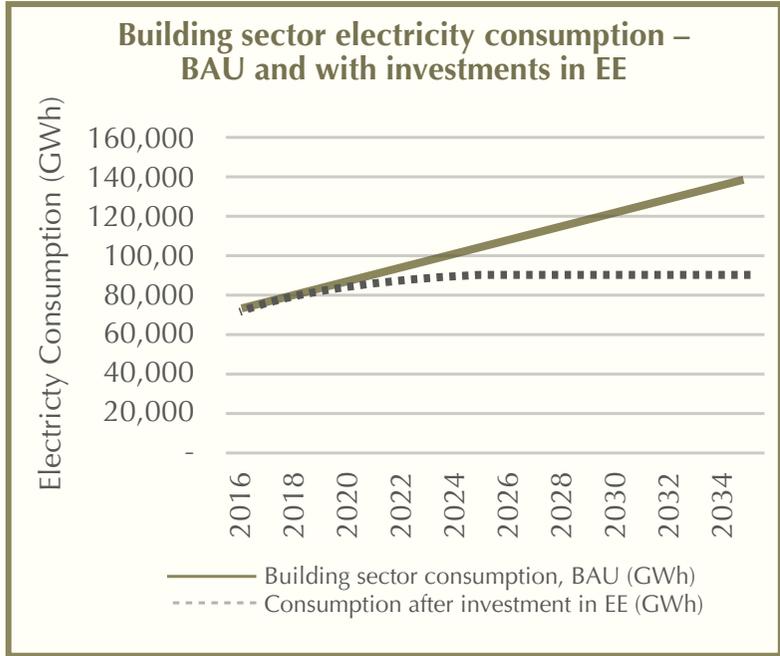
Conclusion



The goal 2030

By 2030 the gross consumption of electricity from the building sector has decreased by 25% from business as usual with a levelling off in 2023. Building energy intensity (BEI) has decreased and generates savings between RM80 to RM90 billion. The resulting cumulative carbon reduction exceeds 180 million tonnes. Zero energy and even net energy generating buildings look achievable in the longer perspective.

Building energy intensity (BEI) is the total energy consumption of the occupied or net floor area of a building per year (kWh/m²/year).



Source: BSEEP (UNDP/JKR, 2015)

Positive imagination

The projected growth in energy consumption from the building sector has been reversed through ambitious targets.

The BEI in all building segments has been reduced until 2030 by 30 to 60% from 2015 levels.

The landmark policy of BEI disclosure and benchmarking has embedded EE in property values and transactions.

Building codes and standards are reviewed and published at regular frequencies to drive technology innovation.

Minimum Energy Performance Standards (MEPS) for energy consuming appliances are regularly updated to the state of the art and strictly enforced.

Solar power is largely applied in residential buildings. 40% of low rise properties generate renewable energy (RE) on the back of new and improved PV technologies, storage solutions, net metering and smart-grid integration. Through these measures affordable homes have become even more affordable for the occupants.

A central agency oversees and coordinates the various stakeholders. There is seamless integration with state and local government enactments for full deployment of energy wise building design and retrofitting codes.

Government leadership has transformed the majority of government buildings, reducing annual energy expenditures by 20% from 2015 levels. Social and affordable housing projects have been constructed or retrofitted to meet BEI targets.

All strata of society are supporting the pursuit of energy conservation towards a fossil fuel free future that will allow the gradual phasing out of energy subsidies without negative socio-economic effects.

Innovative financing facilities provide acceptable repayment periods of EE and RE investments secured by energy savings and competitive interest rates.

Licensed energy service companies (ESCOs) with certified personnel are supporting their clients in the business case of EE building through innovative solutions to building design, retrofits and finance.



Background of EE buildings in Malaysia

The focus on the supply side of energy in the last 50 years has distracted from the equally valuable aspect of energy efficiency to secure energy sufficiency. The importance of demand-side energy management and RE has been reiterated in the Eleventh Plan. The building sector is a key area to

realise these objectives. The technology progress in EE and RE provides the opportunities to transform the building market until 2030, if current gaps and loopholes in the institutional and policy frameworks are closed.

The socio-economic relevance of EE building

The Malaysian building sector offers significant opportunities for EE and RE, low cost emission reductions and of energy related expenses with substantial social benefits. In contrast, business as usual would lead to serious negative consequences. Many buildings have yet to be constructed in Malaysia. By 2030 electricity consumption could double to between 100,000 to 110,000 GWh, corresponding to 75 to 82 million tonnes of carbon emissions. Without sufficient efficiency compensation, the dismantling of energy subsidies would cause adverse socio-economic consequences for the affected consumers. Foreign direct investments would be diverted to neighbouring countries which see EE and RE as part of the business strategy of the twenty-first century.

Rapid technology development

Costs of EE technologies in buildings such as lighting, insulation or cooling have decreased considerably over the last years. Solar power will soon be the cheapest form of electricity. Already now, the generation cost of solar power in Malaysia is lower than the electricity price per kWh currently paid by households. However, green technologies in the building sector have not seen a significant uptake so far by the Malaysian market and are locked in the pilot and demonstration trap. Green technologies need a specific purpose when deployed which has to be determined in the form of clear EE and RE targets.

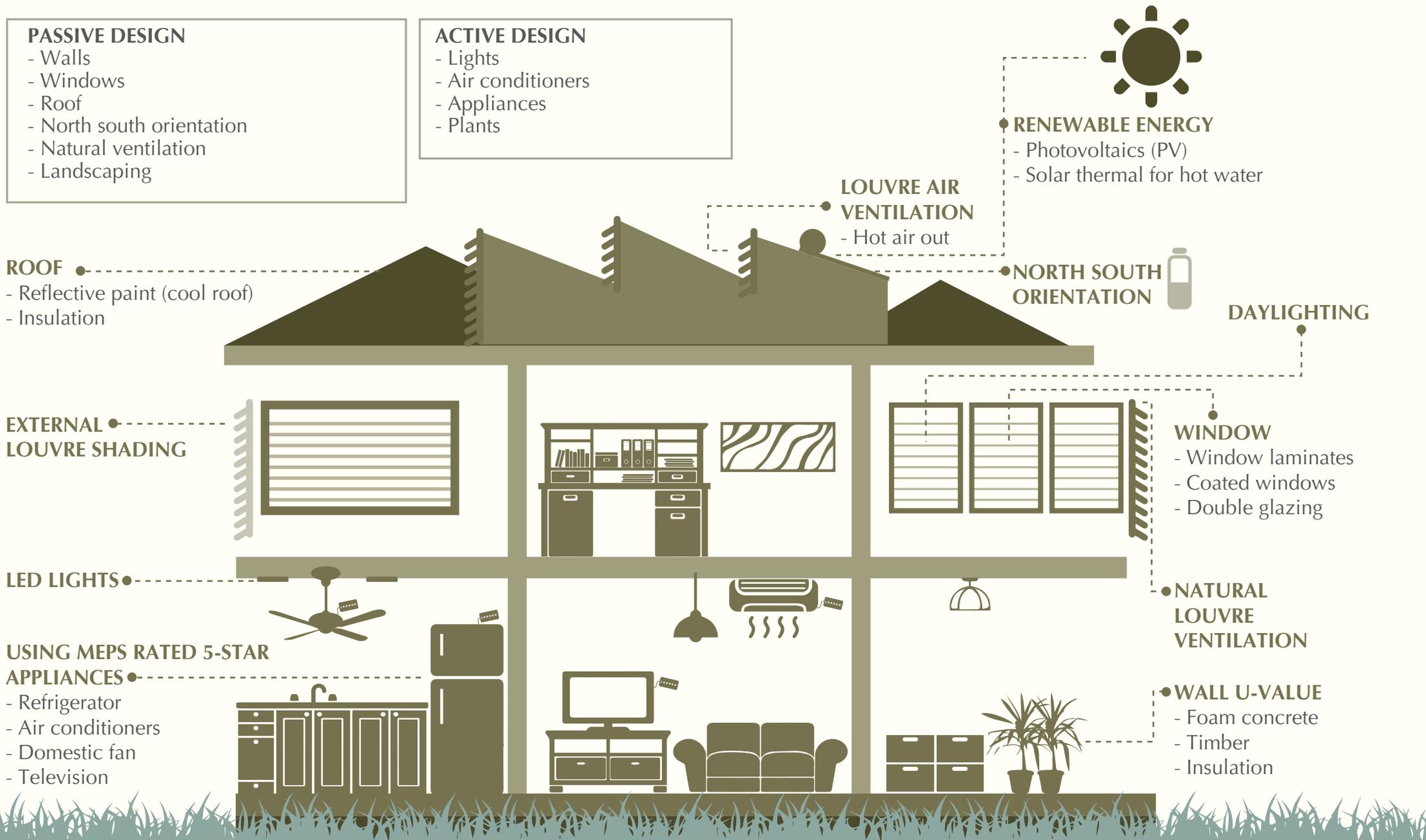
Pending issues and gaps

EE in the Malaysian building sector has been left to voluntary initiatives in an elite niche. Initiatives by the Government are temporary and not mainstreamed. To apply EE at least in government controlled building segments is not realised. Tangible results in terms of large-scale EE improvements in the national building sector have yet to be seen. The move to EE building in Malaysia will require a comprehensive and consistent approach like in developed countries.

- EE and RE have to be prioritised to achieve energy security for a growing building sector.
- Robust data for EE planning are widely missing. The current institutional fragmentation has to be overcome by central coordination.
- Building codes and standards have to be reviewed and completed for all building sectors and applied compulsory in designated contexts.
- The frameworks for energy management and minimum performance standards for electricity relevant appliances and building elements need enhancement and regular updating.
- Tools for energy audits and calculation of BEI require harmonisation as the condition for BEI disclosure in building transactions in the medium term.
- The capacities of the implementing agencies have to be adjusted to secure adequate enforcement of the regulatory frameworks.
- To enable a wide use of PV technologies, net metering has to become available for all building owners.
- Although EE is a business case, financial access to bridge initial investments has to be improved.
- The Government will have to lead by example in accordance with the principles of GGP to initiate a larger scale EE building market.



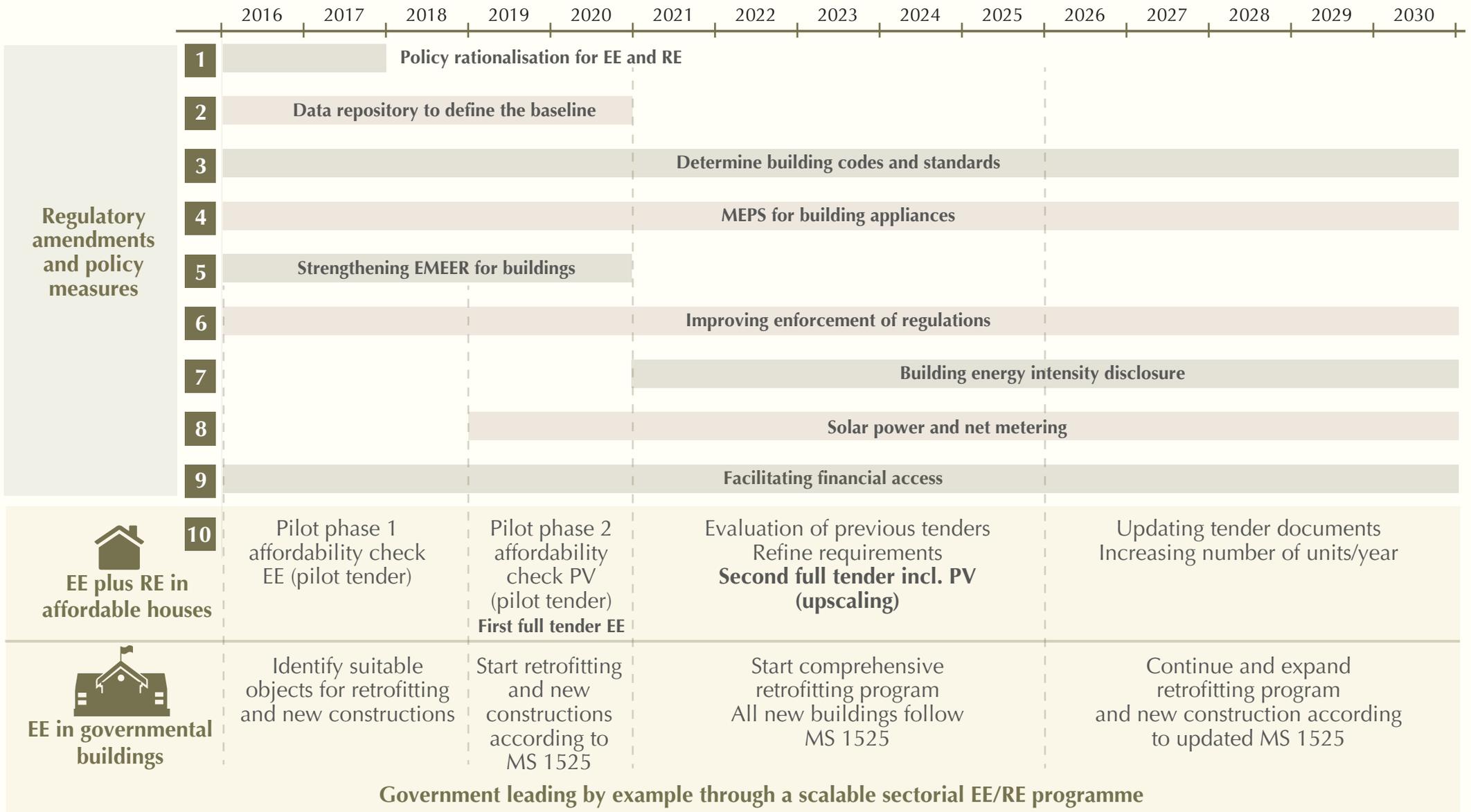
EE building according to MS1525





Strategies for bridging policy to market

The diagram provides an overview how regulatory interventions and government leadership will spur EE building and RE in Malaysia. Regulations will mandate ambitious targets, codes and standards to incorporate EE in building design and operations. Comprehensive data disclosure will monetise EE performance. Financial access tied to outcomes will make obsolete blanket subsidies. In parallel the Government will lead the decarbonisation of the building sector and the uptake of green building technologies.





1. Policy rationalisation for EE and RE

The Government recognises the importance of EE to secure energy sufficiency. The superior economic value of EE will be prioritised in the energy planning of the country. The rationale is given by the much lower costs (only a third) of saving one kWh through EE measures compared to the generation of one kWh in conventional power plants. In addition, every saved kWh avoids carbon emissions while every conventional generated kWh releases carbon emissions.

The Government recognises the large potentials to generate power at viable costs through solar technologies on the way forward to a fossil fuel free energy future at least in the building sector. PV technologies and efficient electricity storage technologies will constitute energy autonomous homes in combination with EE building design and operation. Through net metering homes will become even power producers for the country.

2. Data repository to define the baseline

Energy as a universal resource and the building sector are governed under the jurisdiction of a wide range of ministerial agencies. Currently, the various initiatives of ministries and agencies are not connected sufficiently. This has resulted in isolated, narrow-scoped, short-term initiatives with often unknown effects and a serious data insufficiency. Without robust data, long-term energy planning and target setting for energy security and climate change mitigation is impossible. A prime reform step will be amending data collection and analysis systems.

The benefits of robust data

A comprehensive building energy performance database will be a powerful planning tool for policy makers, authorities and the public.

- Robust data will help to establish the long-term national targets and intermediate sectoral targets. The targets can be established as gross consumption targets and sectoral BEI targets for more effective focus. There will be a single database housed under a single agency which will eliminate the existing problems of disparate and disconnected data. There are readily available databases with full analytical functions for this purpose. They can be easily populated with the energy consumption data for all connections from TNB and the property data from the local authorities.
- Policy makers can test out various policy options and their impact on the consumption trends to determine the best mix of policy and financial instruments. The data can be tracked and trended to provide the policy makers with assurance in reviewing targets and inserting intervention measures when necessary.
- The same database can be utilised by the Energy Commission (EC) to enforce the mandatory reporting for large consumers.
- The database has additional functionality in creating widespread awareness of EE by making BEI disclosure mandatory for property transactions. This will increase the value of EE properties which the property owners and developers will appreciate when they are able to monetise the EE value. A methodology for defining BEI will be established for the purpose of disclosure, which will allow it to be universally used by the various building rating systems that are marketed in Malaysia.



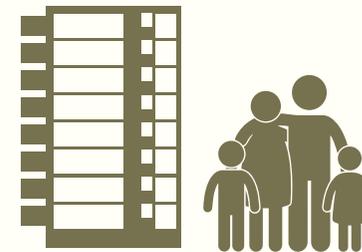
3. Determine building codes and standards

EE in buildings is dictated by the design and its operation. Both can be effectively influenced by mandatory building codes and appliance standards according to best practices in all countries pursuing EE in buildings.



Government and commercial buildings

The Malaysian standard on Energy Efficiency and Use of Renewable Energy for Non-Residential Buildings (MS1525) has been adopted so far by only two states; adoption by local authorities is yet to begin. All states and local authorities are expected to fully adopt the MS1525 directly or as incorporated element of the Uniform Building Bylaw (UBBL) by 2016. Local planning approval documents will include this requirement and it has to be attested by the Principal Submitting Person. The Government will assist local authorities to adopt the requirements and will disapprove new gross floor areas, which do not comply. To be at level with the state of the art, the MS1525 will be revised every five years for immediate adoption in the UBBL.



Residential buildings

Currently missing building codes for residential buildings including multi-family, high-rise and low-cost will be released. Residential housing projects including affordable and low-cost housing that are contracted, financed or co-financed by the government will be obliged to apply this standard without exemption.



4. MEPS for building appliances

The existing Minimum Energy Performance Standards (MEPS) Regulation covers already some categories of appliances and equipment, but the uptake is currently slow. In the medium term MEPS will be expanded to more appliance categories such as motors (see also pathway 3) and building materials, which affect energy consumption indirectly.

The MEPS will be reviewed regularly every five years to stay at par with technology progress and international benchmarks to avoid Malaysia becoming a dumping ground for low efficient equipment. The International Energy Agency (IEA) has shown that EE standards and rating programmes have immediate effects on product efficiency (up to 30% improvement) while national benefits outweigh programme costs by a ratio of at least three to one and do not increase product costs.

5. Strengthening EMEER for buildings

The Efficient Management of Electrical Energy Regulations (EMEER, 2008) mandates energy management by bigger energy consumers, but less than half of the designated companies comply. Therefore, the EMEER and associated guidelines will be amended (see also pathway 3):

- Mandatory reporting of large consumers to be progressively expanded to customers with at least 3 million kWh/year
- Establishing mandatory reduction targets for the large consumers
- Rationalising the commercial and domestic tariffs
- Enhancing and enforcing the roles, functions and competency of energy service professionals and companies

6. Improving enforcement of regulations

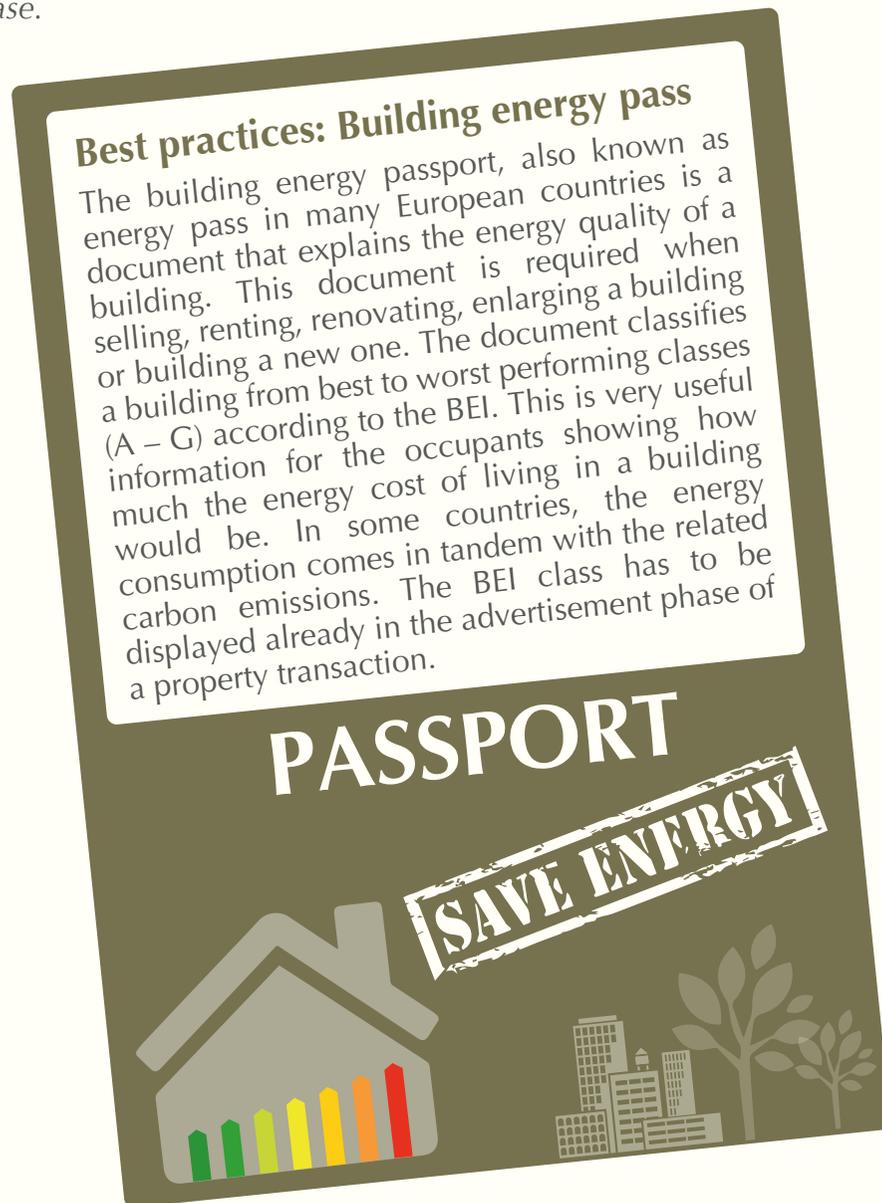
Progress in EE building in developed countries is a matter of strict regulations and consequent enforcement. In Malaysia, the human resources to effectively enforce EE building are almost inexistent. This bottleneck needs to be addressed with a transparent cost-benefits analysis and the recognition that regulations that are not enforceable are eroding the authority of the Government. The huge socio-economic benefits of EE building will justify investing in human resources and institutional capacities.

The EPU Energy section will spearhead and orchestrate the policy to market delivery by coordinating the ministries to deliver accountability of the national EE strategy. A separate implementing agency focused on EE building may be established. Ministries and agencies will be sufficiently resourced with the manpower needed to accomplish the tasks.



7. Building energy intensity disclosure

The energy performance of buildings becomes a tradeable asset. A full-fledged EE building system will use market mechanisms to excel. The requirement is sufficient transparency of the BEI in its actual occupancy phase.



Two steps to BEI disclosure

The establishment of a similar system for Malaysia will require two important steps.

Step 1: A single rating tool

Currently, competing building rating systems are confusing the market. In addition to internationally recognised systems such as the US LEED, there are MyCrest by CIDB, GreenRE by REHDA and the private sector Green Building Index for luxury and high end estates. A single tool will be extracted and agreed under coordination of the EPU to deliver the BEI calculation and verification to make all buildings comparable according to the same measurement.

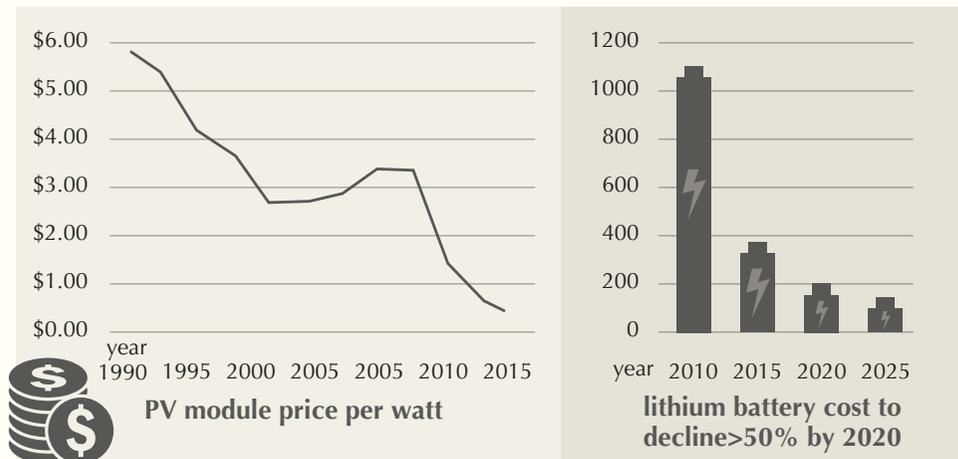
Step 2: Public disclosure

The BEI is a transparent indicator that will enhance the value of EE properties and raise awareness of building owners and occupants. It will be requested by regulation to include the BEI of all buildings in property transaction documents (lease and S&P) including low-rise landed residential property with a grace period. The public disclosure mechanism is expected to drive EE uptake more rapidly as building owners seek to capitalise on the value gain. BEI disclosure is a benchmarking system that can be used in lending criteria such as creating new mortgage financing mechanisms that favour lower BEI and for building sector awards.



8. Solar power and net metering

In 2015 the generation costs of solar power in Malaysia amount to RM0.39/kWh, which is just 75% of the electricity price per kWh currently paid by households. It is estimated that the costs of PV and storage technologies will further drop which will make solar power the cheapest energy source.



Source: Tesla, Umicore, UBS. Cost estimates are for the battery pack (€/kWh)

Providing net metering

The Government plans that net metering becomes applicable in 2018, at the latest. Net metering is a policy designed to foster private investment in solar power. Unlike a feed-in tariff (FIT) which requires two meters, net metering uses a single, bi-directional meter that can measure current flowing in two directions. Electricity generated by a building is delivered to the local utility and offset against power provided by the utility to the consumer during a billing period. This in combination with dropping PV prices makes it attractive for building owners to become power generators.

9. Facilitating financial access

Market delivery beyond mandatory minimum standards depends on the access to finance. A range of financial instruments will address the needs of the entire range of energy users.

Seed funding

Government funding will be limited to initial seed funds and credit guarantees to launch measures in the specific building segment. Incentive schemes will be tied to building energy performance to drive the market towards the EE scenario in 2030. The criteria for incentives will be progressively tightened and limited to funds for energy audits, RE and partial support for EE retrofits.

Energy efficiency fund

EE in public buildings will lead to substantial energy cost savings and a reduction of electricity subsidies. These revenues could be used to set up an ear-marked EE fund for retrofitting and supporting the construction of new energy EE public buildings and in the residential sector including PV installations. Such funding shall support the long-term business case of advanced projects and will be restricted to measures that clearly excel minimum standards.

On-bill financing

Energy utilities could become vital partners in the EE transition by providing on-bill financing facilities for EE upgrades of appliances and electrical equipment.

Energy performance contracting

Energy performance contracting will become a standard requirement for large government building retrofits. The private sector will follow suit as the business case becomes clearer with proven projects as well as the collective influence of the building codes, tariff adjustments, mandatory targets and property valuation.



10. Government leading by example

Along with the enforcement and further development of the regulatory framework and of supportive structures (see strategies 1 to 9 above), the Government will demonstrate the economic viability and the social and

environmental advantages of EE building. A scalable programme in the building subsectors under direct control of the Government will lead to a reduction of energy demand and related public expenses in the long term.

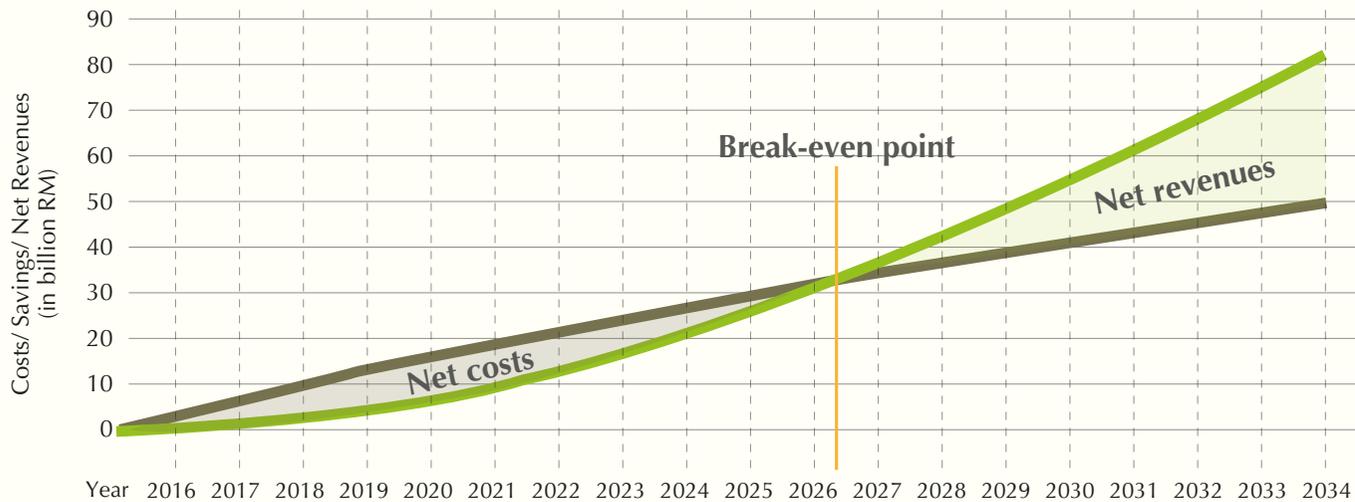
Programmes in governmental buildings and affordable houses

The application of EE and PV in these building sectors will contribute to major goals specified in the Eleventh Plan: green growth, inclusiveness and wellbeing, effective sourcing and delivery of energy and decarbonisation to mitigate climate change. The program will effectively create a domestic EE building market and stimulate investments from the private sector.

Substantial savings, revenues and social benefits

The implementation of EE and RE in these building segments will provide substantial energy and cost savings. These revenues will cover the initial investment costs. A prefeasibility study conducted by SCP Malaysia in 2015 found a clear business case for the Government:

- Accumulated energy savings of almost 250,000 GWh up to 2030 would reduce Malaysia’s future electricity demand.
- Government investments of about RM39 billion can produce RM49 billion of government revenues: through the reduction of electricity costs, subsidies to life bands and reduction of profits forgone at Petronas resulting from subsidised gas supply to TNB for electricity generation.
- There are co-benefits for affordable homes such as reduced utility expenses and the possibility to earn income from supplying solar power to the grid. This will make affordable homes even more affordable.



— Accumulated Governmental Costs (in billion RM) — Accumulated Governmental Savings (in billion RM)

The business case of EE in government controlled building segments



Monitoring progress

By 2030 buildings shall contribute significantly to a low carbon society and to Malaysia's aspirations to reduce carbon intensity. The benefits of lower BEI shall lead to net economic benefits to consumers and the Government. The progress towards this scenario will be closely observed by the question-based MySCPI framework (see pathway 10).



Have the EE building policy measures been established as planned?

- New and upgraded regulations and standards
- Disclosure of BEI
- Uptake by national, state and local levels
- Rationalisation of financial support

Are electricity consumption and carbon emissions decreasing in the building sectors?

- Gross electricity consumption reduced by 25% from business as usual by 2030
- Share of conventional power replaced by solar power
- Carbon reduction up to 270 million tonnes cumulative until 2030

Is the business case of governmental programmes for EE building delivering?

- Energy savings
- Savings on subsidies
- Reduction of profits forgone
- Co-benefits for affordable homes

Conclusion

Building with quality is an expression of confidence of a nation in the future. The building stock has a turnover of 50 years and more. Almost half of the buildings that will be in 2030 have yet to be constructed. The majority of existing buildings will last for decades and will cause tremendous life cycle costs in the operation. These important aspects will be addressed with a comprehensive framework and a strong policy commitment to EE and RE. Effective regulations and enforcement, state of the art standards and market-based instruments will create a green building market. Government leadership will convince consumers and industries that energy wise building provides a clear business case.

Connecting people through low carbon mobility

The Eleventh Plan aims at low carbon mobility through the enhancement of infrastructure for public transport, the advancement of energy efficient vehicles (EEV) and a gradual change to low emission fuels. The SCP Blueprint outlines the strategies for the effective uptake of low carbon mobility through improving modal connectivity and the change of mobility patterns. The objective is to prove that low carbon mobility is an attractive and convenient alternative.

The goal 2030

Positive imagination

Background of low carbon mobility in Malaysia

Smart city connectivity and low carbon mobility

Strategies for low carbon mobility

- Evidence-based mobility planning
- Changing work patterns and lifestyles
- Walking and cycling
- Public transport within and between cities
- Water transport
- Managing individual motorised traffic
- Partnerships for low carbon mobility

Monitoring progress

Conclusion



The goal 2030

Low carbon mobility will have improved the quality of life for millions of people. Cities are not merely a collection of roads and buildings but a place of interaction, new opportunities, partnerships and a pleasant life. Ideas are born here and matched with consumers and producers. The ease of doing so depends on convenient mobility and public space for interaction, the chance of meeting, which leads to economic or social activity: that is the magic of the city.

Positive imagination

Low carbon mobility connects people in daily life and business contexts and is the focus of transportation planning and infrastructure. Far-sighted policies, strong incentives and disincentives have created sustainable transportation systems by 2030. A range of measures have formed a comprehensive, multi-sectoral solution to change mobility patterns in the cities and throughout the nation.

- Low carbon mobility extends to every sphere of life and impacts business, individual opportunities, living patterns, tourism and health. Urban centres are dynamic and less car-oriented. They are friendlier towards residents, consumers and visitors with attractive public spaces and safety for pedestrians and cyclists in old and new areas.
- Carbon emissions, toxic and fine dust particles, noise pollution, wasted time in traffic jams and accidents caused by individual motorised traffic are significantly reduced.
- Public transport has taken over as the major form of mobility. Smart solutions are bridging the first and last kilometres to train and bus stations through safe walking and cycle lanes, mini-bus, taxi services and park & ride facilities. Trains and buses are connecting urban centres.
- Tickets are affordable and hassle-free available through on-line ticketing and ticket apps for all public transport services. Smart route planning allows on-time travel.
- Low carbon mobility is financed through dedicated taxes on fossil fuels, reductions in subsidies on hydrocarbons and savings of environmental and social costs because of avoided pollution, health problems and accidents. In major cities a higher road tax increases revenues which are invested in the public transport system and park & ride facilities.
- Cars are more efficient and operated with low emission fuels. The introduction of compulsory annual inspections for motorised vehicles has significantly increased public awareness on maintenance, safety and the real costs of individual motorised traffic. Car sharing has become a trend among the younger urban population.

Looking back, this positive scenario has required a change of mindsets that providing hard infrastructure and technologies is only one side of the coin. The second side is to combine hard and soft infrastructure holistically to meet the needs of the users of the system.

**LOW CARBON
EMISSIONS**



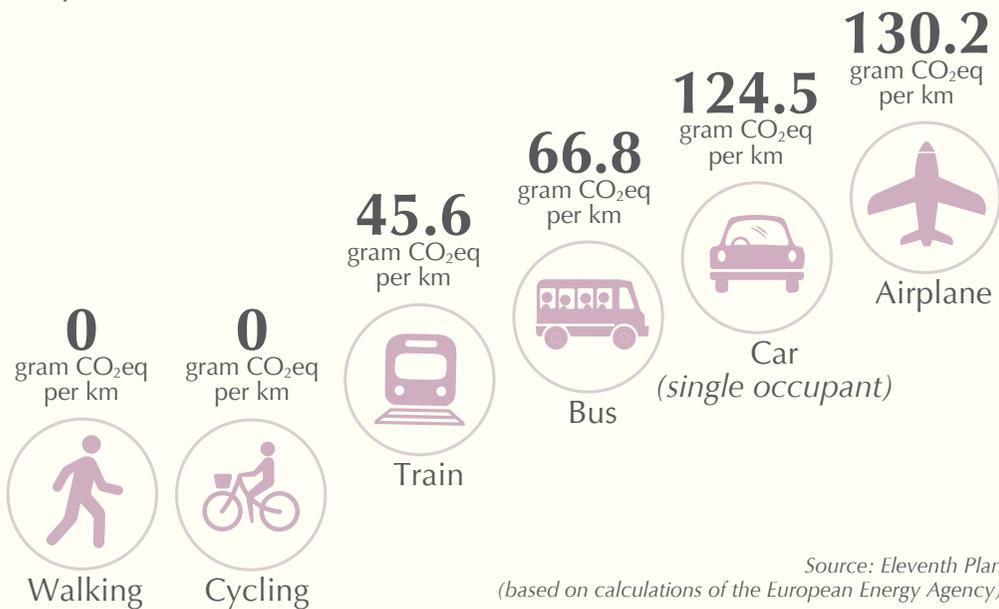


Background of low carbon mobility in Malaysia

Low carbon mobility has the dual objectives of minimising environmental pollution including carbon emissions and of reducing congestion, both mainly caused by individual motorised traffic.

Comparing mobility options

There is a sliding scale of mobility options depending on their sustainability. EEV are more fuel-efficient in comparison to standard vehicles, but they still contribute to traffic congestion. Diesel buses use less fuel per passenger than private vehicles. Electric trains, trams and electric buses are the best public transport solutions. The most sustainable mobility choices are cycling and walking. Since every mode in itself is limited to achieve the mobility demands in most cases, low carbon mobility requires a combination of transport modes to conveniently reach a desired destination with the least possible carbon footprint.



Promoting low carbon mobility

The transport sector has been so far not successful in becoming low carbon and less resource intensive. Current trends in Malaysia show that the number of private motor vehicles could increase exponentially which will cause massive pollution, traffic jams and road bottlenecks. More land space will be required for parking and additional roads and highways. The Eleventh Plan addresses these threats by promoting low carbon mobility through utilisation of EEV and public transportation as elements of the green growth strategy. The target is a modal split of 40% public transport in greater Kuala Lumpur and of 20% in other major cities.

Moving people instead of cars

International experiences show that promoting public transport without discouraging travelling by private vehicle has little prospects of success. To serve as an attractive alternative to the car, public transport has to be affordable and convenient. Connectivity and easy change between transport modes is vital. There is ample space for improvements within the major transportation hub of the Klang Valley regarding connectivity and interchange between commuter lines, buses and taxis. Waiting times for buses are sometimes unpredictable. Walkability is limited and crossing streets sometimes dangerous in front of bus and rail stations. A largely car-oriented system causes daily congestions.

Building on existing plans

The Land Public Transport Commission (SPAD) has published in 2013 the National Land Public Transport Master Plan (NLPTMP), which takes a calibrated approach to transformation, balancing quick-win initiatives with long-term structural changes. There are several public transport plans at state level such as the Penang Transport Master Plan and the Iskandar Malaysia Transport Vision. The reconciliation of national and state planning will lead to better connectivity. Although the National Automotive Plan 2014 (NAP14) assumes an unrestricted growth of motor vehicles, this shall also include EEV.





Smart city connectivity and low carbon mobility

As more Malaysians live in urban areas, cities are starting to face pain points such as congestion, pollution and inefficient urban services. Smart cities are a next generation approach to urban management with solutions that address these issues and improve the quality of life of urban dwellers. A smart city provides convenient connectivity through low carbon mobility.

Holistic and integrated planning to make switching between transport modes easy

To reach a low carbon modal split in transport, infrastructural change must be coupled with changing the mobility behaviour of convenience seeking travellers. Modal transport systems encompass all forms of transport including pedestrian, cycling, public transport, car-sharing systems and energy efficient vehicles. The seamless integration of transportation systems in urban settings makes it easy to switch between transport modes. When planning a trip, an individual can choose from a multitude of travel modes and all their combinations. This requires a holistic view in planning and operation of transport infrastructures, rather than dealing with each single mode in its own right.

Urban features

New commercial, residential and social developments will grow around major public transport corridors creating new living spaces and job opportunities for hundreds of thousands of people. Productivity will depend on reducing wasted time in traffic jams and changing working patterns. From the perspective of urban planning an integrated and well-thought-out set up of urban structures is important, which is capable to optimise the functional, social, economic and overall performance of the city. There are three main urban characteristics in Malaysia:



Compact city

Optimising high densities to improve social interaction and business synergies; minimising and strictly controlling conversion of greenfield land; reducing consumption of resources, thus catering for an efficient, synergetic urban metabolism and energy flow



Connected city

Providing an efficient, interlinked and rapid transit network, capable to connect urban fabric within an effective and convenient movement system



Poly-centric city

Smart, coordinated distribution of multi-functional conglomerations within metropolitan areas, providing its citizens with excellent local services and amenities, overlapping with fast and efficient choices of low carbon mobility

The benefits of smart city connectivity and low carbon mobility

Mobility that is organised conveniently over an attractive modal split will result in numerous benefits by gaining more through less.



More individual and social benefits

- » More flexibility for people
- » More time for people
- » More comfort for people
- » More emphasis on public health
- » More safety and security
- » More public space for people to meet and interact and for recreation



Less costs and negative impacts

- » Less environmental pollution
- » Less noise
- » Less energy consumption
- » Less carbon emissions
- » Less costs for people
- » Less space and costs incurred by individual motorised transport



Strategies for low carbon mobility

A national plan on low carbon mobility will complement existing transportation and mobility plans by emphasising non-motorised mobility and the use of public transport.

1 Evidence-based mobility planning

A low carbon mobility strategy is including all possible transportation means (pedestrians, public transport, cars and trucks) based on robust evidence.

- Data collection and analysis with real-time technologies and innovative analysis methods such as mobile communications data
- Analysis of mobility patterns and associated influencing factors
- Multi-modal modelling and simulation of transport and land use
- Multidimensional impact assessment of the mobility supply on traffic, safety, the economy and the environment
- Forecast scenarios under assumption of possible measures to influence mobility behaviour

Changing work patterns and lifestyles

A mobility breakthrough will be the reduction of physical movement of people. Shopping online, working from home and video conferencing will reduce the need to travel. The penetration of video conferencing will be as deep as smartphone access; government agencies will switch to this mode for most of their meetings as the norm in the multimedia super corridors. Even large conferences will use remote meeting technologies unless physical presence is essential. These practices will be adopted also by the private sector to maximise savings in travel time and costs.





3 Walking and cycling

It will be normal to walk or cycle the first and last hundreds of metres of a trip. Dedicated lanes will allow safe movement. Socially responsible employers will provide office-based shower and changing facilities. All new developments including commercial and industrial space shall have safe lanes for walking and cycling. Existing housing and commercial areas will be improved. Shading of walking routes will be standard and overall pedestrian areas will increase. Guidelines will help local authorities to establish dedicated cyclist and pedestrian lanes in towns and future urban developments.

4 Public transport within and between cities

By 2030 Malaysians will prefer public transport. It has better infrastructure, good connectivity and reliability, delivering time and financial savings compared to the use of private cars. Public transport ridership will gradually rise due to extended bus services in the major urban areas of Peninsula Malaysia, Sarawak and Sabah. The intra-town bus service will be improved and trams will be used in major towns if possible. Anyone living in urban areas shall be able to take a minibus or cycle and walk to and from public transport stations. State capitals in the Peninsula will be better linked by bus and train. More goods are switched from road to rail.

All public transport shall operate according to a fixed schedule and arrival and departure times shall be displayed at each stop. Smart apps will ensure that journeys can be planned on time. Most of the main buses will operate on dedicated lanes and will be powered by compressed natural gas (CNG). One ticket system will apply to all public transport services.

That public transport infrastructure down to the transit stops and vending machines is adequately maintained will be featured in all procurement and operating documents and rigorously monitored by SPAD and local transport authorities.





Water transport



Coastal areas will expand ferry services and water taxis. For major rivers regular ferries and boats shall connect river-based communities. Engine sizes of river boats will be regulated to limit river bank erosion and noise generation.



Managing individual motorised traffic

Better drop zones and park & ride facilities will ease the transfer from the private car to public transport modes.

New private vehicles will have to use energy efficient and Euro5 engines in line with the introduction of Euro5 diesel until 2020 and Euro5 petrol until 2025; the Euro6 standard will apply to new cars in the late twenty-twenties. Renewable energy sources like solar power and possibly solar-generated hydrogen will be subjects of technology innovation and life cycle assessments.

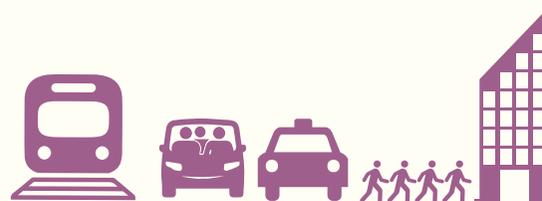


Partnerships for low carbon mobility



Public-private partnerships

The public sector will provide the infrastructure while private firms will operate the services such as plans under the MyBas scheme. Licence applicants will have to comply with EEV requirements.



Public-public partnerships

Civil society and NGOs are important partners at the community levels to promote a better use of public transport. Low carbon mobility communities will be established in more towns as a joint effort between local authorities and NGOs.



Monitoring progress

Towards 2030 the concept of low carbon mobility is supposed to connect Malaysians conveniently in cities and throughout the nation. The outcome is a switch of preferences from own motorised vehicles to travelling with public transport, walking and cycling. The transformation will be gradual and needs close monitoring through the question-based monitoring system MySCPI (see pathway 10).



Is mobility in Malaysia shifting to low carbon transport modes?

- Indicators to measure mobility per transport mode
- Trends of the carbon intensity of the car fleet

Is the connectivity between transport modes improving?

- Indicators to measure quality and quantity of low carbon transport services
- Indicators to measure perception and satisfaction of citizens

Conclusion

Low carbon mobility will remain a theoretical concept without a holistic approach. All transport modes have to be connected for easy switching and interchange. Holistic planning based on evidence is the condition for effective low carbon mobility solutions. Reliable data for mobility planning have to be established. Malaysia can learn from model cities with good low carbon mobility systems such as Amsterdam, Vienna, Hong Kong or Singapore. These cities are leading in global quality-of-life rankings. They have in common an excellent public transport system and a low carbon modal split. A combination of offering low carbon alternatives and making individual motorised traffic less attractive will lead to the decarbonisation of the transport sector and will secure the resilience of urban areas. With more citizens living in urban areas, changed mobility patterns will improve quality of life and urban wellbeing in Malaysia. Local authorities will have to play a strong role in promoting and adapting the concept of low carbon mobility to the local context.

PATHWAY 07

Sustainable, safe and nutritious food

This pathway aims to ensure sustainable, safe and nutritious food along the supply chain from the farm to the table. A sustainable food system delivers security of supply through sustainable producer and consumer practices including farming, processing, distributing, food intake and avoidance of food losses and waste to close the life cycle of food.

The goal 2030

Positive imagination

Food systems of the future

Background of food in Malaysia

Strategies for sustainable, safe and nutritious food

- Linking with existing policies
- Reiterating the importance of sustainable food
- SCP over the life cycle of food
- SCP practices to reduce the 'foodprint' at home

Monitoring progress

Conclusion



The goal 2030

Malaysia is well prepared for one of the biggest challenges of the twenty-first century: to secure a sufficient supply of food for all. Food is safe, high quality, healthy, nutritious, available and affordable. It is efficiently produced, processed, distributed and consumed within the recommended dietary intake and with minimal wastage.

Positive imagination

Quality and efficiency across the life cycle stages of food have increased tremendously.



Food secure nation

Malaysia is a food-secure nation, where at all times everyone has physical and economic access to sufficient, safe and nutritious food to meet dietary needs and food preferences.



Highly productive farming

Farming productivity has increased significantly with Malaysian Good Agriculture Practices (MyGAP) as the norm. Land, water, energy and chemicals are used efficiently turning to higher profits for farmers.



Vibrant cottage industry

The cottage industry offers an abundance of food varieties which reflect Malaysia's cultural diversity. The proximity of these home based industries to urban centres reduces food miles.



Modern urban farming

The Eleventh Plan has promoted urban farming to supply food to urban dwellers. Modern techniques have allowed bringing food closer to the cities where the majority of the population lives.



High consumer confidence

Domestic and international consumers have confidence in food produced in Malaysia due to high quality standards, safety and traceability.



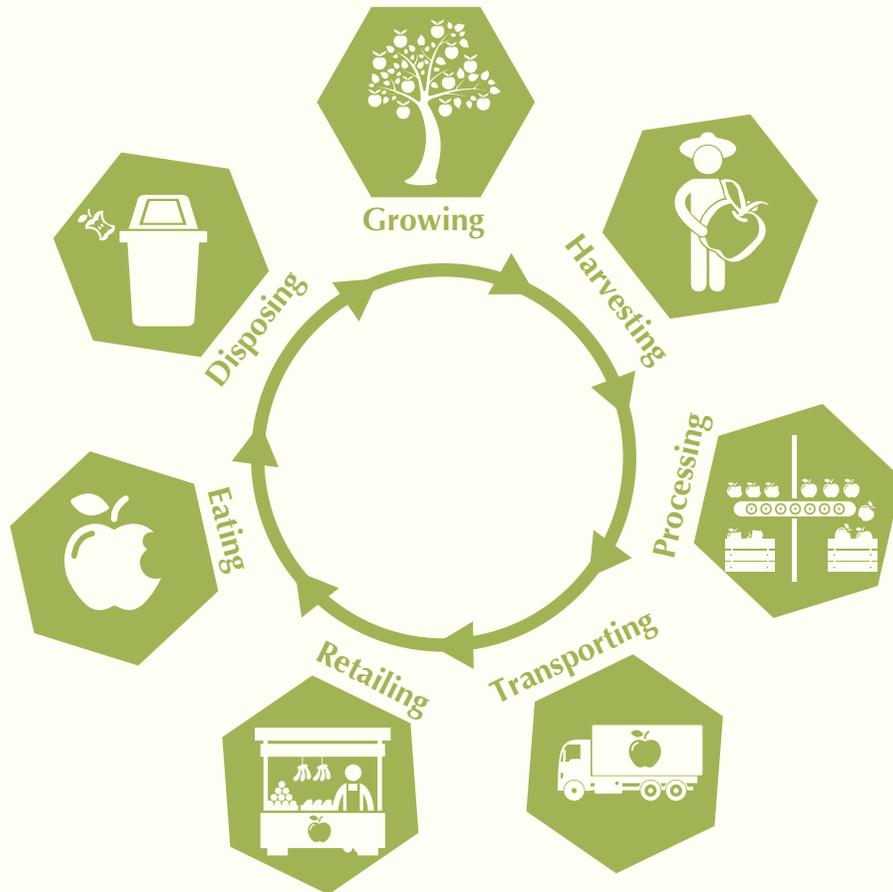
Health-conscious consumers

Malaysians are aware and responsible consumers. They plan food purchase and preparation to minimise waste. Through healthier diets, diseases such as obesity, diabetes and cardiovascular illnesses have decreased.



Food systems of the future

A food system is a combination of processes, infrastructure, organisations and resources involved in feeding a population. A food system consists of a number of life cycle stages as visualised in the diagram.



Terms and definitions

Sustainable food systems cover all stages of the food life cycle to ensure safe, nutritious, healthy, high quality and varied food to the consumers. Sufficiency of supply and affordability to the consumer purchasing power are ensured. Food losses and wastage are reduced to a minimum.

Makanan Selamat Tanggungjawab Industri (MeSTI) Certification is a food safety assurance programme initiated by Ministry of Health (MOH) to meet the requirements of the Food Hygiene Regulations 2009. It involves a system of planned and documented practices and control records which cover premises, operational procedures and traceability.

Good Agricultural Practices (GAP, MyGAP) consider environmental, economic and social sustainable farming processes that result in safe and quality food and non-food agricultural products (FAO COAG 2003).

Hazard Analysis and Critical Control Point (HACCP) Certification is a Malaysian scheme for the identification, assessment and control of hazards for safe human food consumption (MS1480).

Good Manufacturing Practices (GMP) Certification is a Malaysian scheme for the operational control of food processing to produce safe food (MS1514, FSQD 2011).

Cottage industry is the home based creation of products in contrast to factory based production.

Urban farming is the growing of plants and raising of animals within and at the perimeters of cities.

Healthy diets are the balanced intake of food in the right quantities from all food groups to live a healthy life.

Halal food certification in Malaysia is defined by MS1500 (2004) and covers production, handling, storage and preparation of food according to the ethical requirements of Syariah.

Food miles describe the distance from the source of food production to the table.



Background of food in Malaysia

Malaysia can build on existing institutional and regulatory frameworks. Food security, food safety and quality, pricing and branding are the priorities.

Security of supply

The Ministry of Agriculture and Agro-based Industry (MOA) and the Ministry of Plantation Industries and Commodities (MPIC) emphasise self-sufficiency, food security and high-value food production as the priorities through the National Agro-Food Policy (2011-2020) and the National Commodity Policy (2011-2020). This includes a whole set of measures such as land use planning, pest and disease control, soil management, farming modernisation, promotion of traditional crop varieties, planting material for high and sustainable yields.

Food safety, quality and nutrition

As the leading agency for sustainable, safe and nutritious food the Ministry of Health (MOH) is responsible for:

- Food safety and quality to protect the public against health hazards and fraud in the preparation, sale and consumption of food. Existing legislation includes Food Act 1983 (Act 281), Food Regulations 1985, Food Hygiene Regulations 2009, Food Analysts Act 2011, Food Analysts Regulations 2013, Food Regulations 2009 and Food Irradiation Regulations 2011.
- The implementation of the National Nutrition Policy and the National Plan of Action for Nutrition of Malaysia, the Malaysian Dietary Guidelines and the Code of Ethics for the Marketing of Infants Foods and Related Products.

Pricing

The Ministry of Domestic Trade, Co-operatives and Consumerism (KPDNKK) controls prices and food subsidies to ensure equitable consumer access to food.

Branding

The Federal Agriculture Marketing Authority (FAMA) oversees branding of food products including Malaysia's Best, Produce of Malaysia, Made in Malaysia through the FAMA Act 1965 (Act 141) and FAMA (Grading, Packaging and Labelling of Agricultural Produce) Regulations 2008.

Standards

Standards Malaysia, with the support of SIRIM Berhad, Standard Users and others develop voluntary food standards for Malaysian domestic and export markets.

Requirements for sustainable food systems in Malaysia

A number of challenges have to be considered such as:

- Raising the security of supply of food through local produce
- Increasing yields without jeopardising ecological capacities
- Enhancing knowledge and skills for good agricultural practices such as MyGAP and MyOrganic
- Expanding capacity of agriculture training centres and field schools to meet the training needs of farmers
- Keeping young generations of farmers in the agro-business
- Improving processing of food and uptake of important food safety assurance schemes such as MeSTI, GMP, HACCP and other requirements such as Halal
- Securing traceability of food from farm to plate, to increase trust in safety and quality of local produce
- Reducing food miles and packaging waste
- Changing consumer habits towards healthier diets
- Developing awareness on planning food purchasing and preparation to reduce waste





Strategies for sustainable, safe and nutritious food

1. Linking with existing policies

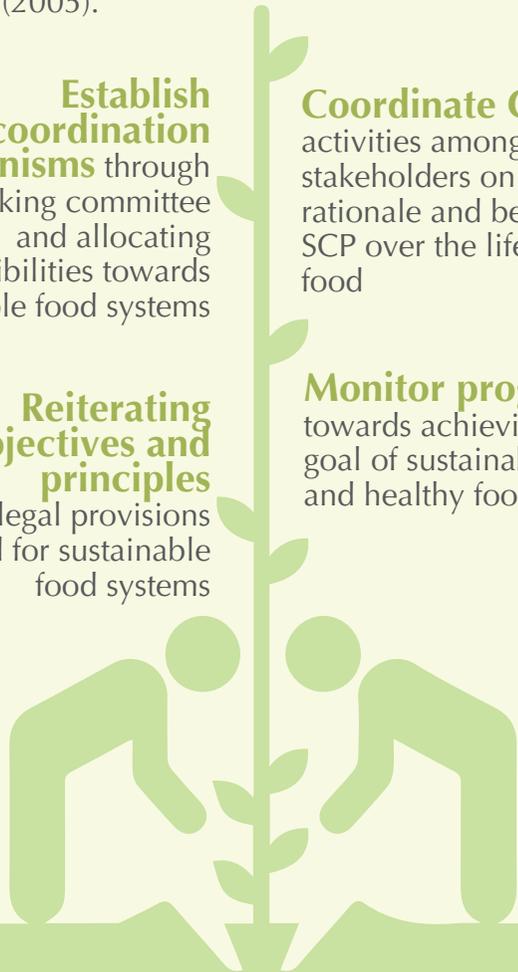
The National Food Safety and Nutrition Council was established in 2001 and acts as the highest advisory body to the Government in food safety, quality and nutrition. It monitors the implementation of the National Food Safety Policy (2008) and the National Nutrition Policy of Malaysia (2005).

Establish coordination mechanisms through a working committee and allocating responsibilities towards sustainable food systems

Coordinate CEPA activities amongst stakeholders on the rationale and benefits of SCP over the life cycle of food

Reiterating objectives and principles through legal provisions required for sustainable food systems

Monitor progress towards achieving the goal of sustainable, safe and healthy food systems

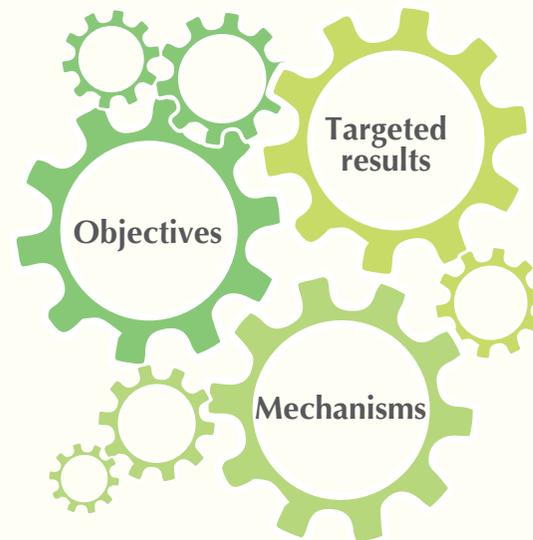


2. Reiterating the importance of sustainable food

The objectives, principles and mechanisms to achieve sustainable, safe and nutritious food systems will be reviewed in the existing policy framework and provisions will be reinforced accordingly.

Objectives

Future food systems are providing consumers with safe, high quality, healthy, affordable and conveniently accessible food. Full transparency and accountability over the life cycle of food is established. The agro-food sector is transformed through knowledge and skills for productivity and efficiency.



Targeted results

Enhanced food safety and security is the result of increased productivity over the food life cycle. This is achieved through greater efficiency, reduced waste and improved supply chain management. Enhanced capacity of human resources enables producers to apply methods such as MyGAP and MeSTI. Malaysian agro produce has improved its brand image in domestic and global markets.

Mechanisms

An image will be created that carries a clear message for sustainable, safe and nutritious food. Branding with appropriate food labelling schemes shall promote local foods that can be trusted. Campaigns for healthy and balanced diets and trust in local produce will be conducted. Reliable and up-to-date national data for accurate food life cycle assessment (LCA) will be established. Financial support will target innovation, training and good practices.



3. SCP over the life cycle of food

Advancing farming

Regulatory and economic instruments will be better linked. Following best practices in developed countries, the chemical subsidies system will be combined with social criteria to keep farmers in the agro-business. Upskilling farmers will lead to MyGAP compliance and savings in agro-chemical subsidies.

Increasing viability of cottage industry

Due to a shorter supply chain, cottage industry reduces food miles and packaging. The initiatives of FAMA and SME Corporation Malaysia to increase the viability of homemade produce will be strengthened including assistance to supply safe food. Urban infrastructure for fresh food markets will be secured.

Strengthening processing standards

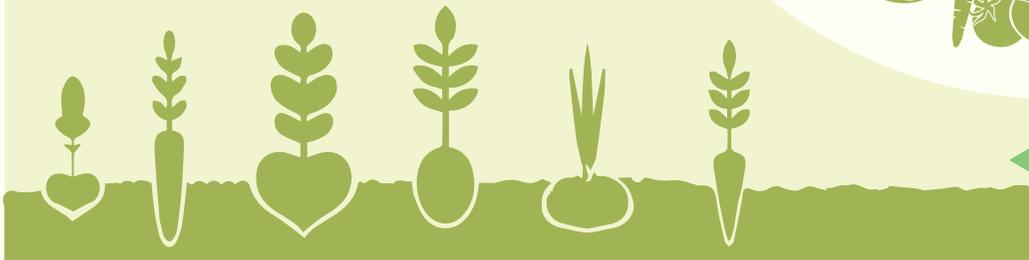
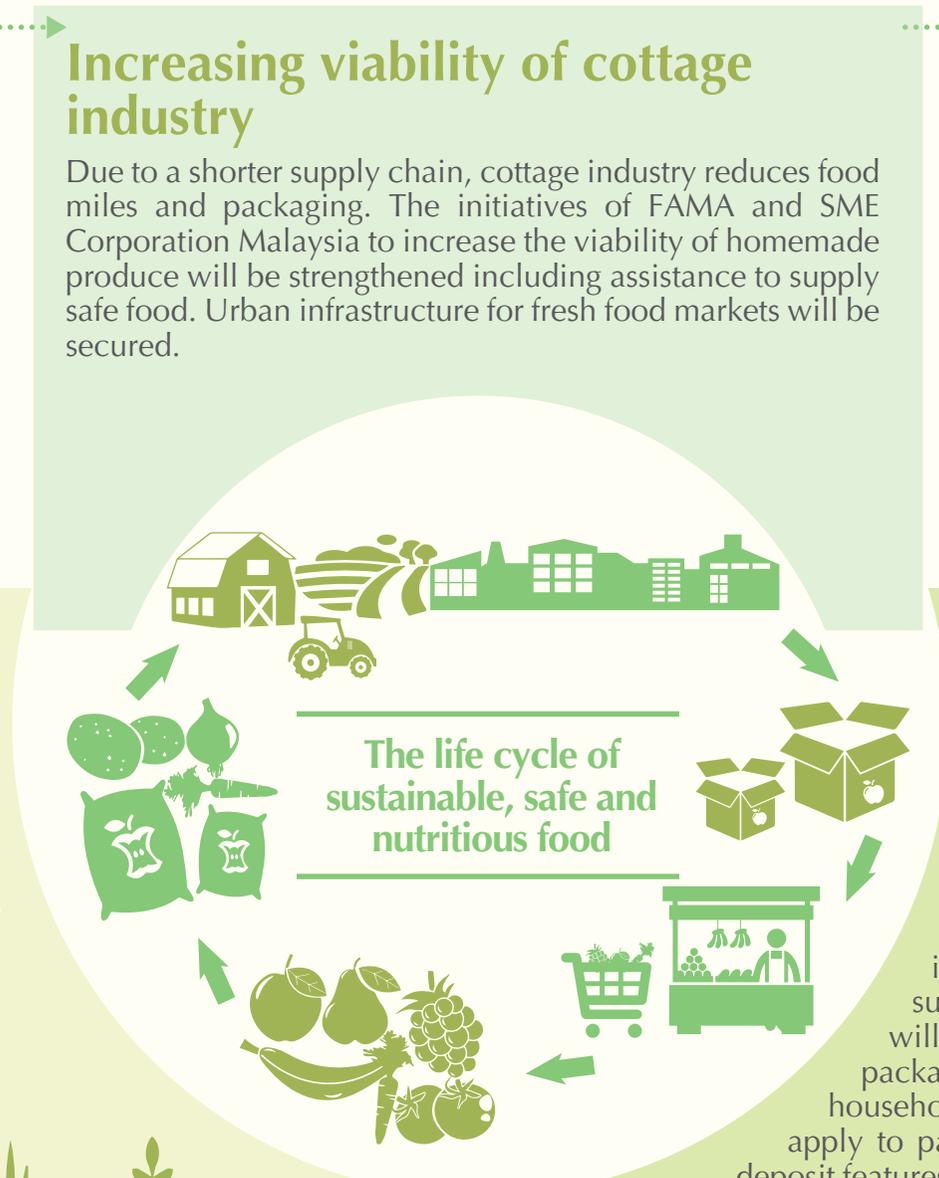
The adoption of MeSTI, GMP and HACCP will be strengthened. Mandatory standards will be gradually introduced for key food products to improve processing efficiency of energy, materials and water.

Promoting healthy diets

CEPA on the benefits of sustainable and local food products will guide sustainable food consumption at homes and improve literacy on food safety, nutrition, labelling and branding (see pathways 2 and 9).

Improving packaging and retailing

Standards and mandatory requirements for labelling, packaging, storage and transportation will be gradually strengthened to ensure safety, high quality and nutrition of food. Labelling will provide consumers with reliable information on origin, contents and sustainability attributes of a product and will allow branding of local produce. Food packaging constitutes a large part of household solid waste. Legal provisions may apply to packaging size, materials, take back and deposit features as deemed appropriate (see pathway 4). Wholesale markets, food depots and national food terminals will be equipped with up-to-date logistics. An inclusive business model will pull in the large number of SME suppliers into the supply chains of large retailers (see pathway 3).





4. SCP practices to reduce the 'foodprint' at home



1

Prepare and serve right portion sizes. Plan how much to cook and serve suitable portion sizes to avoid left-overs and food waste. Try using all parts of a food item such as fruit peels when possible.



2

Make the best of left-overs. In Malaysia, inviting guests to take remaining food home, or tapau, after a house party is a neighbourly gesture. Celebrity chef Jamie Oliver turns left-overs to gourmet meals with the objective to shop smart, cook clever and waste less without compromising on food safety.



3

Treat the best-before date as a guideline. Understand that best-before dates are usually manufacturers' suggestions for peak quality. If stored properly, food can still be consumed for several days past the best-before date. Instead of relying on the expiry date, apply sensory tests: if a food looks, smells and tastes okay, it should be fine.



4

Try canning and pickling. Pickling can capture the tremendous flavours of crops and allow you to relish them year-round.



5

Shop smart and realistically so you know that your food comes from a sustainable, safe and high quality source. Use apps and gadgets to navigate towards safer, nutritious and more sustainable sources of food.



6

Try to make composting a choice. Composting keeps food out of the landfill. However, composting should only come after getting started on reducing food waste.

Kuala Lumpur beyond 2030: an edible city

Looking at my morning breakfast: a fruit salad and a kale smoothie, I have a sense of comfort from knowing that every ingredient on my table is grown in my city Kuala Lumpur. With Malaysians realising the importance of healthy food, there came a trend among urban communities to grow their own food on balconies and rooftops. With technology advancement in fertigation, hydroponics and vertical farming it became possible to grow more crops per square foot of soil.

What started as a trend became a business. Soon enough, KL became almost self-sufficient in food. The costs of transporting food from far are greatly reduced. We get our food straight out of the farm on the same day. This is as fresh as food can get. The food waste is used as organic fertiliser for city farming. We live in the confidence that the days of depending on imports and doubting the quality of food are behind us.

Freely adapted from 'The World We Made: Alex McKay's Story from 2050' (Jonathon Porritt, 2013)



Monitoring progress

The SCP Blueprint anticipates that by 2030, Malaysia is well prepared to master one of the challenges of the twenty-first century: to secure a sufficient supply of safe and nutritious food for all. The life cycle of food has become more sustainable through production and consumption practices that utilise resources more efficiently. The progress towards sustainable, safe and healthy food systems will be monitored by the question-based MySCPI framework (see pathway 10).



Is Malaysia enhancing food security and safety?

- Indicators on agriculture production, population needs and self sufficiency level (SSL)
- Indicators on traceability levels and quality standards across the food life cycle

Is the environmental impact of food production and consumption in Malaysia decreasing?

- Indicators measuring GHG emissions across the food life cycle, acidifying gases and ground level ozone precursors

Is the adoption of sustainable food production, processing and distribution increasing?

- Indicators with regard to standards (MyGAP, GMP, HACCP, MeSTI), urban farming and its output, cottage industries, local fresh markets and their share in the food market

Are Malaysians switching food consumption to sustainable and healthy patterns?

- Indicators measuring average purchase of domestic food products, average purchase of imported food products, preferred brands, preferred diets, average food consumption quantities, food consumption patterns across major food groups, share of fast food products as a proportion of total food consumed and food waste

Conclusion

Safe, nutritious, sufficient and affordable food for all is a basic right of the people. Its delivery depends on quality and productivity over the life cycle of food: from farming to processing, distributing to consuming and reducing waste. Improving all stages of the food life cycle is the key to gain more through less and fulfil basic rights of the people. Connecting the dots of the existing policies, frameworks and initiatives under one guiding concept will deliver the desired results.

Adding value to tourism through SCP

This chapter charts strategies to maximise SCP adoption in hotels, homestay and tourism sites. The strategies aim to strengthen existing instruments with regard to global megatrends in tourism where sustainability will play an increasingly important role. SCP practices across all forms of tourism will create a unique selling proposition for Malaysia as a sustainable tourism destination. It will enable the tourism industry to add more value using fewer resources.

The goal 2030

Positive imagination

Tourism megatrends and the importance of sustainability in tourism

Background of sustainable tourism in Malaysia

Strategies towards adding value in tourism through SCP

- Integrating SCP criteria in the existing hotel rating system
- Towards a certification system for homestay accommodation
- Benchmarking site management on best practices

Monitoring progress

Conclusion



The goal 2030

Malaysia's tourism industry is sustainable and contributing to economic growth, social inclusiveness and environmental protection.

What is sustainable tourism?

According to the United Nations World Tourism Organisation (UNWTO), sustainable tourism takes full account of its current and future economic, social and environmental impacts, thereby respecting the needs of visitors, industry, the environment and host communities.



The principles of sustainable tourism are applicable to all segments of tourism

Positive imagination

Malaysian tourism industry is creating a unique selling proposition by integrating SCP practices across all forms of tourism from luxury to budget.

- Hotels and registered homestay operators have become smarter businesses, maximising their profit through SCP practices. They are amongst the most resource efficient in the region. The use of water, energy and materials per tourist night is decreasing.
- Local communities are part of an inclusive business model which provides accommodation, local goods and services. Safeguarding of cultural heritage and traditions creates additional income.
- Careful management of tourism sites secures the touristic assets. Malaysia is a showcase for cleanliness, nature conservation and cultural heritage preservation.
- Malaysia attracts more tourists that are willing to pay for the experience of sustainable tourism. These tourists stay longer and spend more per day. Malaysia fits the global trends of tourism in the twenty-first century.

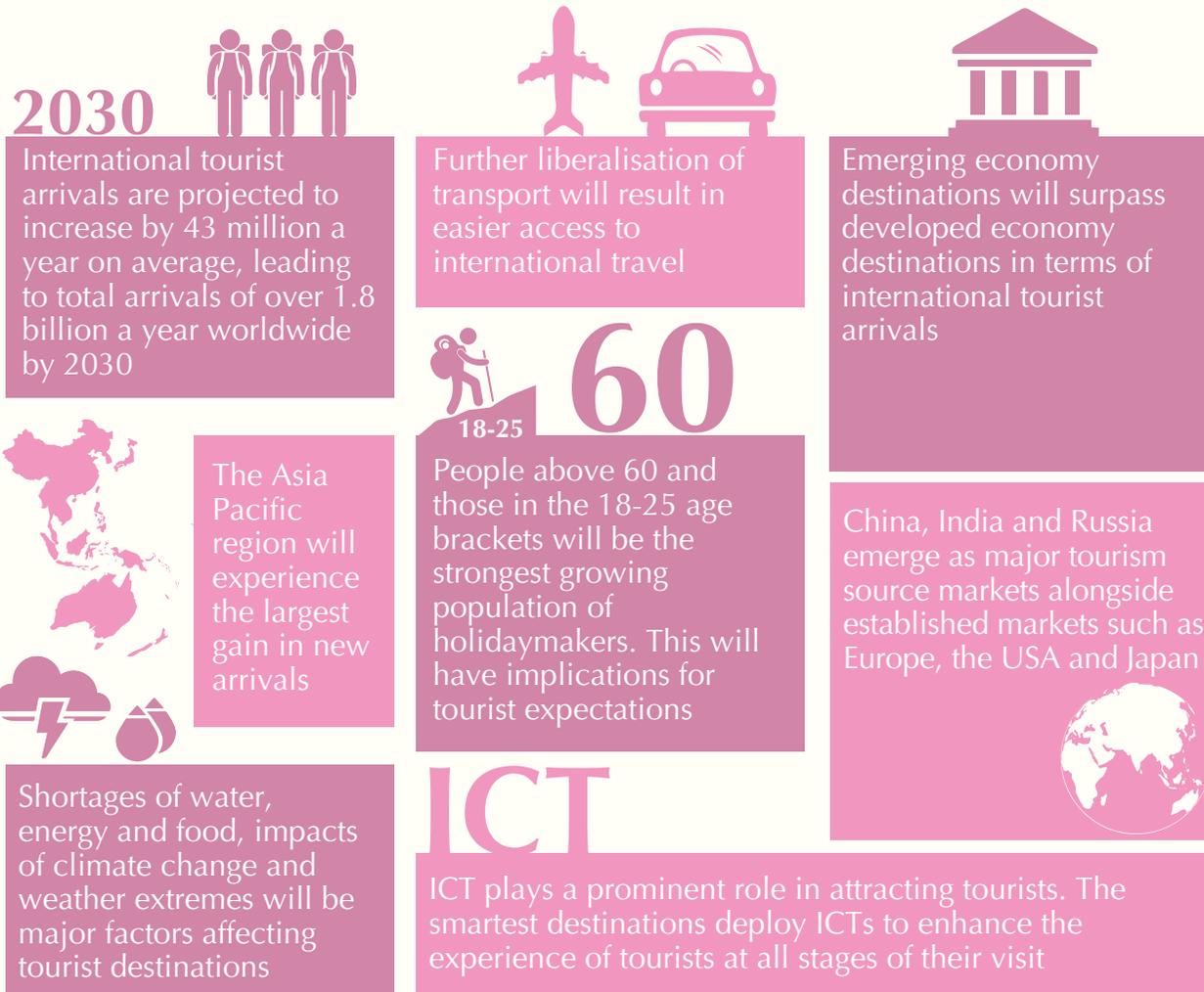


Tourism megatrends and the importance of sustainability in tourism

Sustainability of tourist destinations will play an important role. Security of water, food and energy will be major factors. Local transport will have to be convenient. Food supplied must be safe, healthy and nutritious. Value for money will comprise the sustainability score of tourism services.

Global megatrends in tourism

(Source: UNWTO, *Tourism Towards 2030, Global Overview*)



Characteristics of the new generation of tourists

Tourists of the twenty-first century are more demanding, but they also have more time and resources to spend for unique tourism experiences.

Sharing experiences
Participation
Value for money
Quality
Seeking
Authenticity and uniqueness
Safety and hygiene

Informed More
Environmental consciousness
Potentials critical
Flexible
Social consciousness
Money rich, time poor



Background of sustainable tourism in Malaysia

Malaysia has a good baseline to advance tourism to sustainable features and thereby creating a unique selling proposition that reflects global megatrends and tourist characteristics of the twenty-first century. There is already the attractive image of Malaysia truly Asia. Policies and institutions are in place. Mechanisms such as hotel ratings exist. It is time to move sustainability in tourism from a niche to a mainstream.

Malaysia is a vibrant tourist destination

Tourists are attracted by an amazing nature including globally top ranked islands and major biodiversity hotspots. A rich cultural heritage encompasses several ethnic groups, tantalising food, multiple languages, religions and traditions. Malaysia is a safe destination for visitors. A population conversant in major languages including English and Chinese makes moving in Malaysia convenient for visitors. Malaysia has a well-established private sector operating attractive tourism sites, theme parks, resorts, entertainment areas, shopping facilities and connecting infrastructure.

Building on existing policies and mechanisms

Several policies address sustainable tourism such as the Tourism Industry Act (1992), the National Ecotourism Plan, the New Economic Model, the Economic Transformation Programme, the Eleventh Plan and state level policies. The existing hotel star rating, used by most hotels, can be enhanced easily with a SCP component. Registered homestay operators are provided guidelines and training for quality operation, which constitute good conditions for a certification system following best practices. Tourism sites are governed by regulations administered at state and local level.

Niche versus mainstream approaches

Sustainable tourism is sometimes mistakenly reduced to ecotourism, which has the objective to protect biodiversity in sensitive natural habitats and is rather limiting tourism activities. The ASEAN Green Hotels Award runs in parallel to the official hotel classification system. However, only ten out of 3100 Malaysian hotels take part in the scheme. Such exclusive approaches constitute green niches, but do not deliver the intended green growth. Therefore, the SCP Blueprint advocates strategies that go beyond these limited approaches.

Strategies towards adding value in tourism through SCP

The SCP Blueprint promotes three critical strategies to adopt SCP practices across all tourism activities.

1. Integrating SCP criteria in the existing hotel rating system

SCP criteria are systematically added to the official hotel star rating system. The assessment of these criteria will be done as part of the hotel audit process already in place.

2. Towards a certification system for registered homestay accommodation

The existing homestay operating guidelines are enhanced with SCP criteria. The guidelines will lead to a certification scheme following international best practice.

3. Benchmarking site management on best practices

Malaysian tourism sites will be managed by adhering to best available standards including quality assurance.



1. Integrating SCP criteria in the existing hotel rating system

Star Rating of Hotel system

DIKELASKAN
has been classified



The existing system classifies hotels from one to five stars based on the performance in six categories. SCP will constitute an additional category:

- ★ Qualitative and aesthetic requirements
- ★ Common areas
- ★ Bedroom requirements
- ★ Services
- ★ Safety standards and hygiene
- ★ Staff

★ SCP practices (new category)

Each of these categories contains a set of criteria. The classification system assigns marks from one to ten for each of the categories. Hotels must meet a minimum number of marks across all categories to be classified with a particular star. A five star hotel must be awarded a minimum of nine out of ten marks across all categories.

Hotels are inspected every year by an audit team with representatives from MOTAC, the Malaysian Association of Hotels and the local government. The inspection report is shared with the hotel and presented to a panel meeting at MOTAC. The hotel has 30 days to appeal the assessment in the report.

No additional activities will be required to assess the SCP category, which will be done as part of the regular hotel inspection process. The virtual Malaysian SCP academy (see pathway 9) will provide training to hotel inspection staff once the new category is established. Hotels will be trained on the new SCP criteria, using existing approaches including in-house training programmes and short courses run by MOTAC.

Almost 80% of the 3100 hotels in Malaysia take part in the official Star Rating of Hotel classification system. This system is the perfect entry point for SCP in the hotel business.

Proposed criteria under the new SCP category

MOTAC is reviewing the categories and criteria system periodically. This will also apply to update the SCP category. The criteria listed here are tentative and subject to further refinement.



Sustainable purchasing

Does the hotel pay attention to green purchasing: food of local produce meeting MyGAP or similar standards, paper and stationary from a sustainable source, furniture and timber products from sustainable forestry, environmentally friendly laundry detergents and cleaning chemicals?



Energy management

Does the hotel have an energy management programme: providing staff training and awareness, use of energy efficient appliances such as chillers, air-conditioners and lighting meeting the MEPS standard, use of renewable energy such as PV and solar thermal systems for hot water preparation?



Waste management

Does the hotel have a waste management programme for waste separation, composting of organic waste and responsible use and disposal of hazardous waste in line with a circular economy waste system (see pathway 4)?



Guest awareness

How is the hotel engaging with guests to save energy and water, to separate waste and avoid littering, to create awareness to respect environment, culture and heritage?



2. Towards a certification system for homestay accommodation

Homestay operators are mainly small family businesses and contribute to income in remoter locations. These features make registered homestay accommodation an important element of sustainable tourism.

Best practices: homestay certification in Thailand

In Thailand, the official certification system for homestay is used by almost 50% of all homestays. The certification system is governed by the Ministry of Tourism and Sports and emphasises SCP related criteria under seven categories.



Food and nutrition

- Variety and quality of food offered
- Use of locally grown food
- Cleanliness of drinking water



Hospitality

- Guest information on community life, respecting the nature and cultural sensitivities



Local products

- Local tourism products such as visits to farms, cycling, cooking with local families, visits to nature sites



Natural resources

- Maintaining tourist attractions
- Removal of any waste



Culture

- Preservation of cultural traditions
- Preservation of community life styles
- Awareness for tourists on local sensitivities



Community

- Creation of community souvenir products
- Production of unique community products



Management and coordination

- Formation of executive homestay committees with communities
- Fair distribution of benefits
- System for advanced bookings and payments

Two steps to the adoption of SCP in registered homestay

The SCP strategy builds on the existing homestay operating guidelines provided by MOTAC. Best practices such as from Thailand show that certification can multiply the participation of homestay operators in registration programmes.

Integrating SCP criteria into homestay operation guidelines of MOTAC

Step 1

Step 2

Establishing a certification system for homestay. Internet portals can play a role in promotion and booking of homestay accommodation.



3. Benchmarking site management on best practices

The public space in a country is like a business card. The first impressions to visitors are the strongest and will remain in memory to visit or not to visit a country again. This is even more valid for designated tourist destinations and attractions.

Two steps to improve the management of tourism sites

Depending on the type of tourism sites, regulations and licensing requirements apply. These are administered by various agencies. Some sites such as natural parks, islands and heritage sites are already regulated by conservation criteria. Malaysia will strengthen enforcement of the existing regulatory processes. This shall be accomplished in two phases by adhering to best available standards.

Step 1

Improving enforcement of existing regulations

Regulations and rules for tourism sites will be consistently communicated to industries and tourists. Penalties for non-compliance with rules will be increased and the mere fact that there are fines will lead to better adherence to rules. Volunteer guard programmes supported by local communities, local government, NGOs, business and youth clubs will increase the safeguarding capacities. Local communities will be encouraged to clean up tourism sites and surroundings to instil appreciation of a litter-free environment.

Step 2

Enhancing regulations to benchmark with best practices

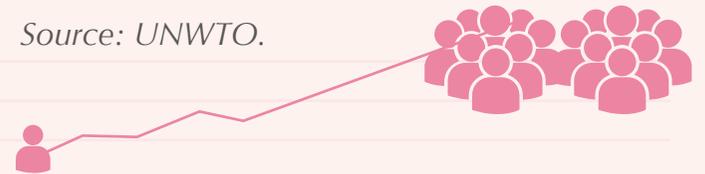
The rules for managing tourism sites shall follow the Malaysia Tourism Quality Assurance (MyTQA) standards. Event and site managers are guided to minimise waste and community disturbance. Starting from sensitive tourism sites such as islands MyTQA will apply for all tourism sites with a grace period. New tourism sites shall adhere to the standard already in the development phase.

Case study

Jiuzhaigou Valley, China

The number of tourists to China's Jiuzhaigou Valley dramatically increased from 10,000 in 1992 to over a million in 2002. The provincial government ensures that local communities benefit the most from tourism by regulating tourism operators from outside the region. Local communities operate the transport services, act as tour guides, run shops and accommodation.

Source: UNWTO.



Case study

Success of sustainable tourism in Costa Rica

Costa Rica has pioneered sustainable tourism as a strategy for all tourism activities. While bringing economic opportunities to local communities, natural treasures are protected. The Certification for Sustainable Tourism programme targets conservation of natural parks, environmental protection, efficient use of energy and water, waste management, respect for culture and support for local communities. From 1987 to 2007 tourist arrivals increased by seven times and receipts by 14 times. In 2010, tourists to Costa Rica spent an average of US\$ 944 per visit compared to an average of only US\$ 666 spent by tourists to France.

Source: Centre for Responsible Travel.





Monitoring progress

The SCP Blueprint anticipates that Malaysia will be able to develop a unique selling proposition in sustainable tourism until 2030 as a result of SCP practices by the tourism industry. The progress will be monitored by the question-based MySCPI framework (see pathway 10).



Does Malaysian tourism industry contribute to economic and inclusive growth by practising SCP?

- Global market share of Malaysia in international tourism destinations
- Number of jobs provided by the tourism sector
- Malaysia's position in international rankings such as UNWTO reviews
- Indicators measuring rise in accommodation facilities with having included SCP criteria
- Trends of energy, water and waste per tourist night

Conclusion

SCP aims to enhance the uniqueness of Malaysia's tourism products, attractions and destinations. MOTAC is already promoting Malaysia's assets such as nature, culture, heritage, traditions and food. A few additional interventions by the Government will propel sustainable tourism from a niche to a mainstream in Malaysia. The SCP Blueprint has a planning horizon until 2030 because substantial changes require time. The inclusion of SCP criteria in the official hotel rating is an easy measure and can be implemented immediately. To address homestay will require more time and simple steps shall prepare the ground for advanced certification efforts. Managing entire tourism sites sustainably is the most challenging part, because it will require a change of mindsets. In summary, all measures will complementarily add value to the tourism industry and create a unique selling proposition for the millions of tourists to visit Malaysia truly Asia. Sustainable tourism will be an irresistible pull factor for tourists to visit Malaysia, to stay long and to visit again.

SCP communication, education and public awareness (CEPA)

Better knowledge and awareness on SCP will ultimately lead to changes in mindset, behaviour and habits as emphasised in the Eleventh Plan. CEPA programmes engaging all levels of society will create a sense of shared responsibility among stakeholders. A crosscutting theme needs central coordination to reach out effectively. SCP in the school education will lay the foundation for generational change. A virtual SCP academy will connect the dots for lifelong learning on SCP.

The goal 2030

Positive imagination

Background of SCP CEPA in Malaysia

Strategies for effective SCP CEPA

- Core message
- Effective SCP communication
- Customised content and platforms
- National SCP Portal
- SCP in education
- The virtual Malaysian SCP academy

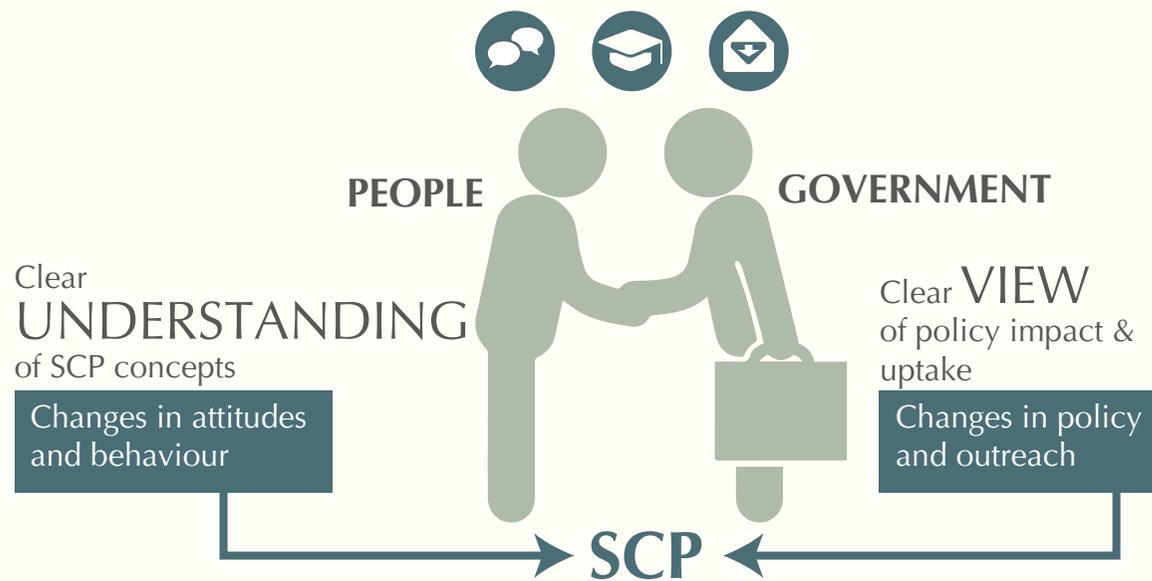
Monitoring progress

Conclusion



The goal 2030

Everyone can gain more through less! This the core message of SCP and the focus of all communication, education and public awareness efforts to generate understanding and action.



Positive imagination

The Eleventh Plan has triggered a fundamental shift in Malaysia’s management of natural resources and the environment in the socio-economic context. The understanding that there is a shared responsibility of all people is leading to behavioural change and action.

SCP communication centres on the core message of gaining more through less. One-way information broadcasts are replaced with conversations between stakeholders. Malaysians are passionate about practising SCP as they understand its benefits. The National SCP Portal is the most trusted source of SCP information and receives tens of thousands of visits a week.

SCP education has become a guiding paradigm in schools. SCP was included in the secondary school curricula as requested by the Eleventh Plan. The routine curriculum update is used to extend SCP to primary education. By 2020 the first batch of students have completed their lectures about SCP in daily life. These students become ambassadors of SCP sharing their knowledge, skills and attitudes with friends and family. By 2030 Malaysia will see the first generation of young parents passing on to their children the passion for SCP, which they have acquired during school education.

A virtual Malaysian SCP academy has established a well-connected SCP training market. Transfer of SCP knowledge and skills is efficient through a plurality of training materials, programmes and institutions. The virtual SCP academy serves as a one-stop-centre for industry, NGOs, government and the public to source their SCP training needs. Increased qualifications open up new employment opportunities in higher value, knowledge-based areas. The SCP training sector grows and contributes to Malaysia’s position as an international and transnational education hub.



Background of SCP CEPA in Malaysia

SCP is a set of practices for daily life and business contexts. To know what, how and why to apply these practices has to be communicated and educated consistently. Malaysia can build on existing CEPA channels to spread the messages of SCP.

Capitalising on existing core communication capacities

The size, scope and ambition of SCP is challenging to communication. SCP is a relatively new concept in Malaysia and cuts across all sectors and audiences. Isolated and fragmented messaging by different agencies can lead to a confused view of SCP. The Blueprint advocates inter-agency coordination as the first step of an effective SCP communication approach. Most government institutions have a communication unit. The Ministry of Communication and Multimedia (MCMC) has several communication instruments and specialised agencies. There is a well-developed multi-lingual media sector and a growing public relations industry. Digital platforms are widely used by Malaysians. SCP Malaysia has already established an SCP internet portal www.scpmalaysia.com.my.



Connecting the SCP training market

Various courses on SCP related topics exist across universities, training providers, expert organisations, NGOs and government affiliated institutions. Yet, stakeholders from industry, civil society and government feel there is insufficient supply of training to meet their needs. Many training initiatives rarely build on previous experiences and programmes. End users are confused with different packaging of similar training contents. Access is limited to individual training providers' resources. The SCP Blueprint proposes setting up a virtual Malaysian SCP academy to address these shortfalls by connecting the SCP training market. This will support several desired shifts of the Malaysia Education Blueprint 2015-2025 (Higher Education). The virtual SCP academy will provide content to create holistic, entrepreneurial and balanced graduates, enhance opportunities for lifelong learning, secure financial sustainability through better cooperation in the training market and use effectively connected learning platforms to integrate the offerings of training providers.

Including SCP in school education

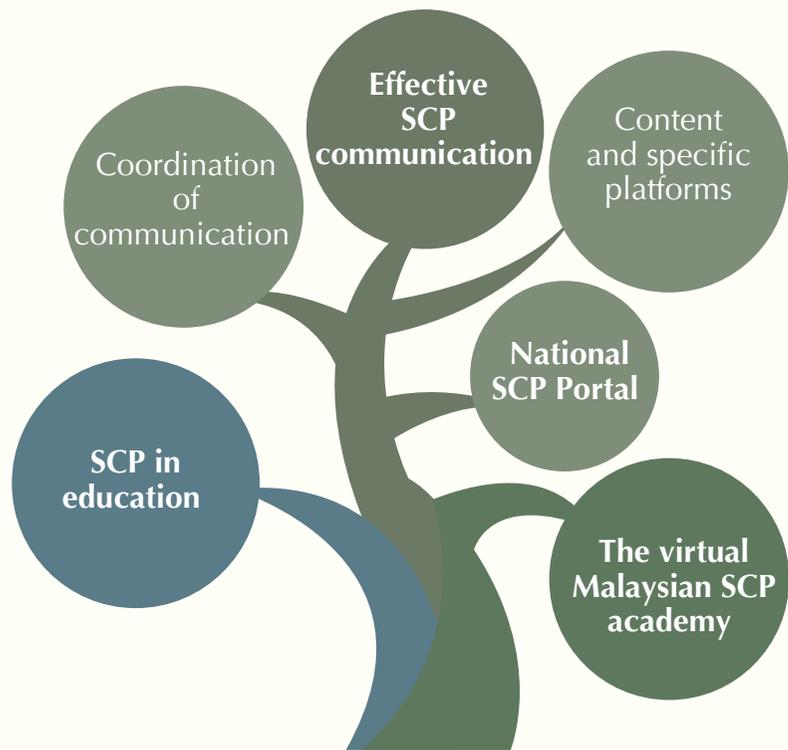
Concepts such as sustainable development and SCP are not yet systematically used in the classroom. Elements resembling such concepts are scattered across subjects. In the current integrated curriculum for secondary schools eleven out of the 16 core subjects contain SCP related content. However, these are mainly focussed on cognitive knowledge. There are minimal learning outcomes aimed at turning this knowledge into daily life practice. A small proportion of schools participate in extracurricular programmes such as Sekolah Lestari, the 3R programme and CSR projects involving industry and NGOs. All 27 teacher education institutes offer environmental education to teacher trainees.

The standard curriculum for secondary education is currently under revision until 2017. The SCP Blueprint seizes the opportunity to integrate SCP elements systematically as requested by the Eleventh Plan. The regular revision of curricula will allow integrating SCP over time to all school forms including primary education.



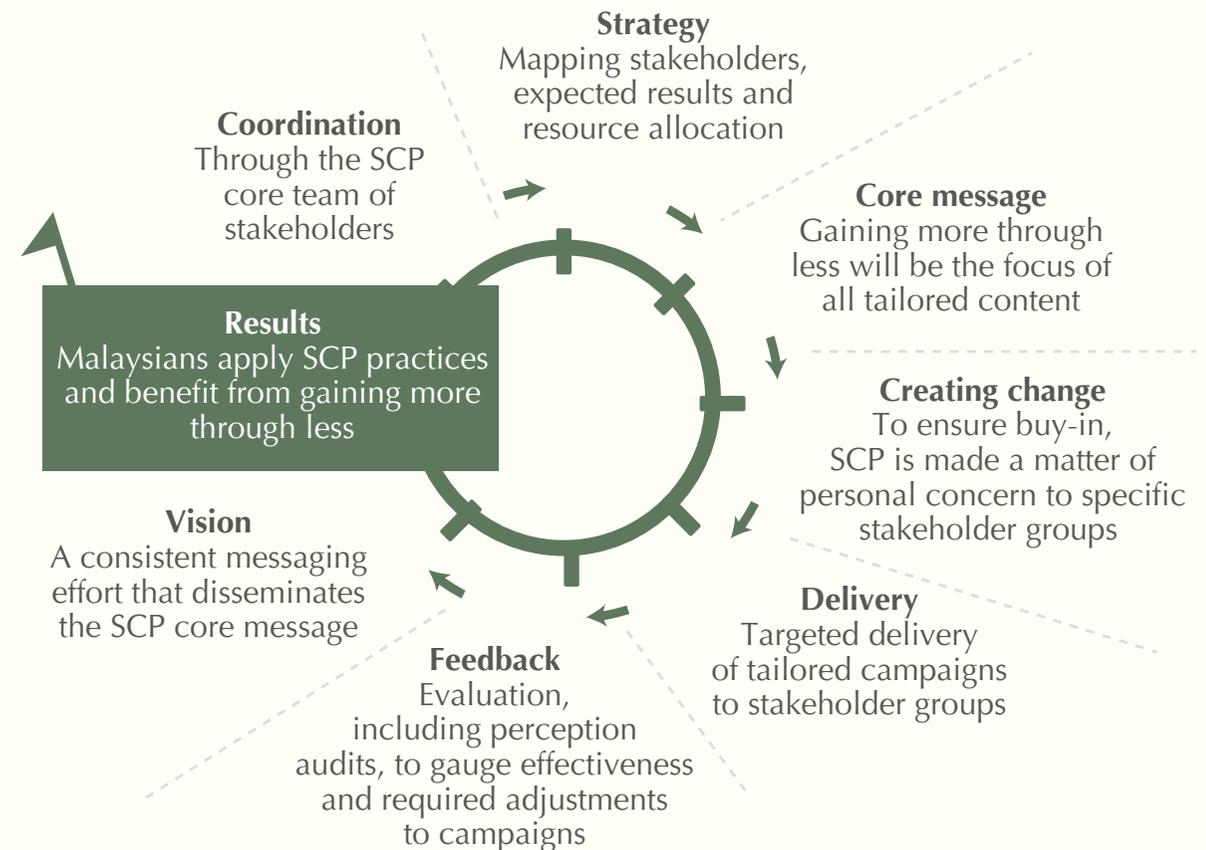
Strategies for effective SCP CEPA

The strategies for CEPA focus on conveying the core message of gaining more through less in all SCP communication, education and public awareness efforts.



Effective SCP communication

SCP communication will become an effort of all ministries and agencies. It constitutes a cross-agency programme of SCP implementation and will be centrally coordinated by the SCP core team of stakeholders under EPU (see pathway 10).



Core message

Gaining more through less

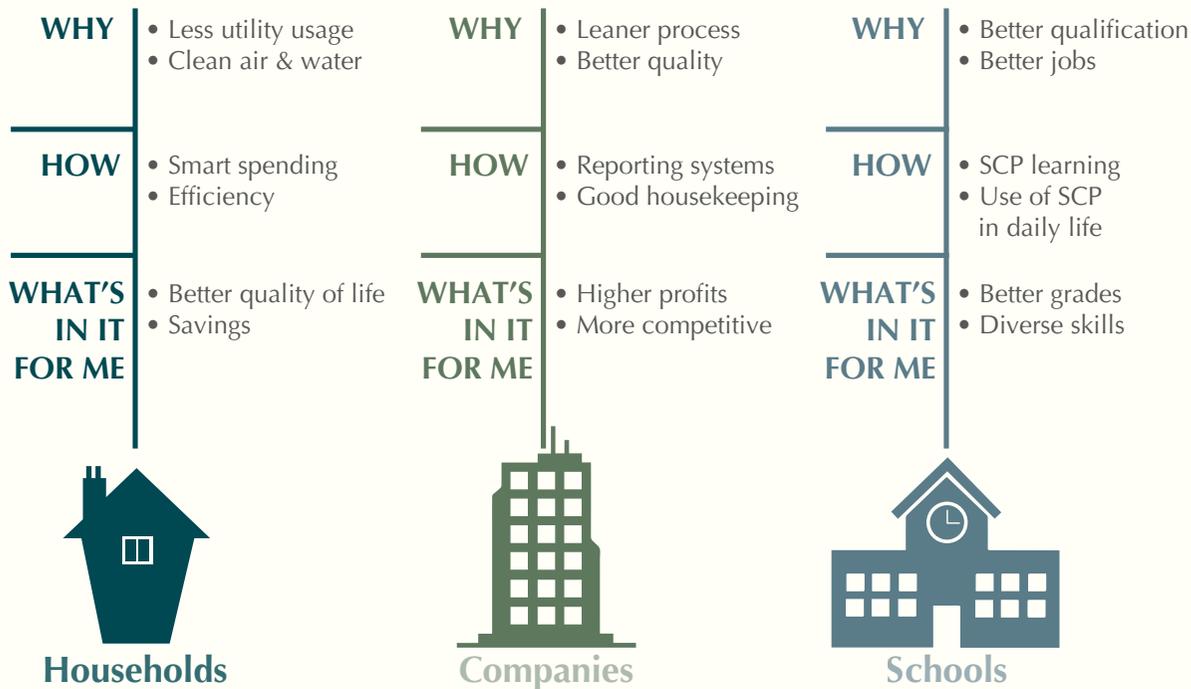
is the consistent and easily recognisable core message of SCP to hit home by providing a clear understanding of what SCP stands for, what are the SCP benefits and its relevance to daily life. Gaining more through less will be the resonant element throughout the CEPA efforts.



Customised content and platforms

Creating attention and concern

The core message of gaining more through less will appeal to all stakeholder groups by referring to daily life connotations. Customised messages will attract each group. SCP will become a matter of personal concern.



Platforms to convey content

All channels such as TV, radio, newspaper, magazines, direct mailing, leaflets, posters and wall papers, internet and social media will be used to convey the customised contents to the target groups.

National SCP Portal

www.scpmalaysia.gov.my

The National SCP Portal (SCP portal) is a cross-agency project of SCP Malaysia. The SCP portal will be continuously advanced to keep pace with the rapid development of the internet world.

Content is gold

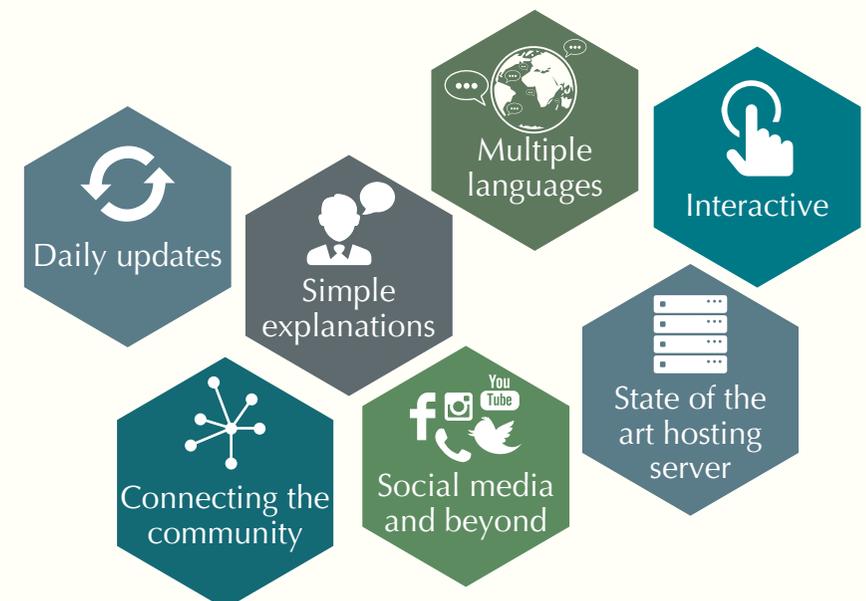
Content is tailored for specific audiences. Visitors to the SCP portal can learn how SCP impacts their lives positively.

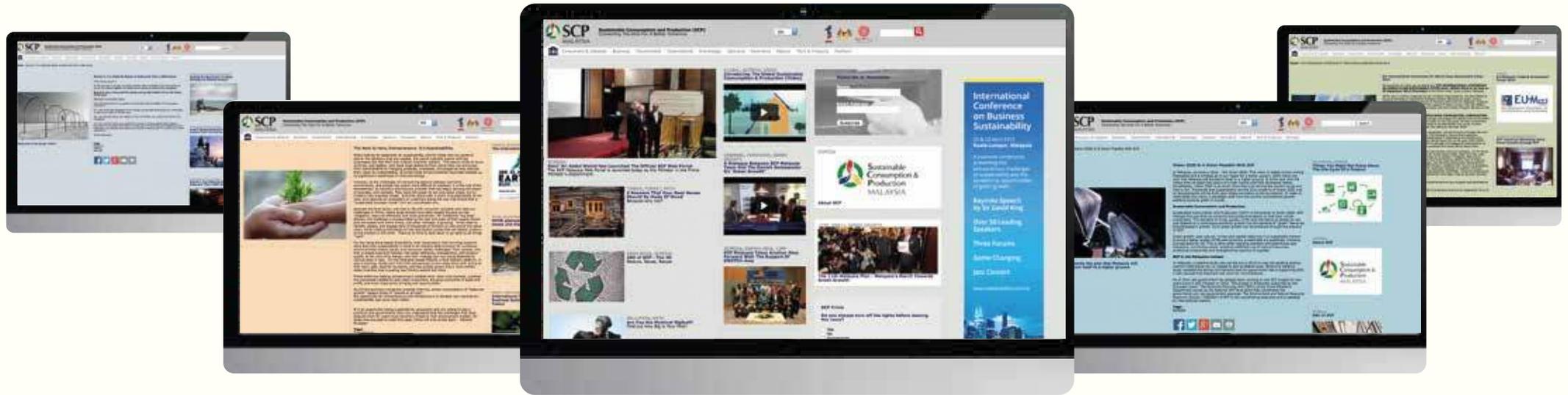
Going interactive

Users become active participants. The SCP portal will actively engage users to interact, provide opinions, suggestions, ask questions and get answers. Games, competitions and online tools provide further pull.

SCP on the go

To start off, a mobile application will expand the functionalities of the SCP portal.





www.scpmalaysia.gov.my

An outstanding online magazine

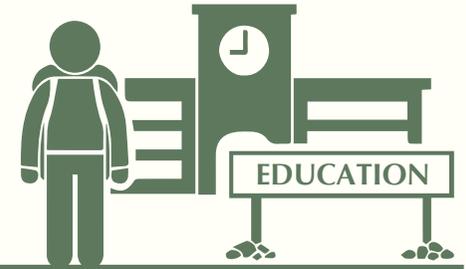


The internet presence of SCP aims for the quality of attractive news magazines. The SCP portal serves to satisfy the curiosity of internet users with SCP news and to visit the site at least on a weekly basis. The grouping of articles follows the reality of life. There are articles for consumers and their lifestyles, students, business and government. A knowledge section provides inspiring new understanding of the SCP world. The SCP portal opens the window to global, regional and local SCP initiatives. The SCP portal is an entry point to visit the websites of the SCP Malaysia partners and to announce events and activities.



SCP in education

SCP will be extended across the entire school education system. The education for sustainable consumption and production (ESCP) curriculum will first integrate SCP in secondary education as required by the Eleventh Plan. SCP will be extended to primary education during the course of its next curriculum update.



Objectives of the ESCP curriculum

The revision of the curricula for secondary education is a perfect opportunity to integrate ESCP systematically into the formal school system. SCP Malaysia and the Ministry of Education (MOE) have developed an ESCP master curriculum for secondary education targeting forms one, two and three. These three forms will secure all students to learn the fascinating world of SCP.

Inspirational SCP classes

The ESCP master curriculum will guide secondary school teachers to provide inspiring SCP classes. Teaching and learning activities focus on practising SCP in daily life contexts to remove the barriers to embark on a new theme. ESCP reflects the key message to achieve a better quality of life by gaining more through less.

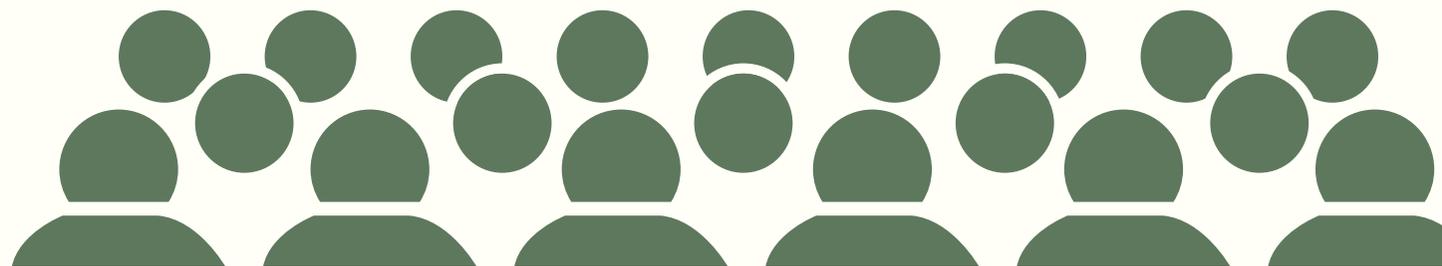


Preamble on SCP in key documents

A preamble on ESCP will be included in the curriculum standards document to guide in the teaching of SCP. The introduction to ESCP supported by the activity modules of eight themes, will jumpstart teachers in the delivery of this new curriculum.

SCP themes across subjects

ESCP themes, which already exist in current subjects to some extent, will be further elaborated in the standard curriculum with reference to the SCP master curriculum. Some ESCP topics have been already incorporated in the new form one curriculum, namely in the subjects of geography and environmental studies. Progressively, further ESCP themes will be incorporated in existing subjects for the other levels (form two and three) in the subsequent years. The ESCP master curriculum will serve as a guide to the curriculum review panel for the integration of ESCP in the syllabi.





ESCP curriculum: themes and content

The ESCP master curriculum covers eight themes. Each theme contains a number of learning areas with learning objectives and learning outcomes. The learning outcomes are defined in terms of knowledge, skills and attitudes.

Preserving cultural heritage and nature during holidays, so we can enjoy it forever

- Tourism and leisure activities we enjoy
- Impact of tourism on society, economy and environment (SEE)
- Options for sustainable tourism including destinations and products
- Sustainable hotels and homestay
- Applying sustainable practices while on holiday

Improving our quality of life through sustainable features in our homes

- Understanding the features of the home we live in
- Impact of buildings on SEE
- Characteristics of sustainable homes
- Designing and refurbishing our homes to be sustainable

Convenient and low carbon means of mobility

- The importance of mobility in our lives
- Impact of mobility on SEE
- Types of low carbon mobility
- Choosing convenient and low carbon mobility options

Towards nutritious, safe and quality food

- The relationship between a healthy environment and healthy eating
- Impact of food consumption and production on SEE
- Malaysia's national Nutrition Policy
- Sustainable food systems
- Making smart food consumption choices

SCP and its relevance to the daily life of everyone

- Everyone is a consumer; benefits of informed consumers
- Basic principles of consumption and production
- Impact of consumption and production on society, economy and environment (SEE)
- The concept of SCP and its benefits of gaining more through less
- Mapping SCP in daily life activities

Gaining more through less energy use

- The nature and role of energy in our lives
- Impact of energy consumption on SEE
- Ways of reducing energy consumption
- Practising smart and efficient energy choices in daily life

Water does not simply come out of a tap

- The importance of water for everyone's survival
- Impact of water consumption on SEE
- Approaches to saving and being efficient with water
- Practising water saving in daily life

Moving away from mountains of waste

- Waste as a resource
- Impact of waste
- The earth's limited capacity to contain waste
- Our role in waste management systems
- Practising reduce, reuse and recycling in our daily life





The virtual Malaysian SCP academy

The virtual SCP academy represents another cross-agency programme of SCP implementation. It will connect the SCP training market through joint programmes between training providers and a regime of certification up to

post-graduate degree level. It will advance to a professional association of SCP training providers and practitioners. The virtual SCP academy will be operated through a secretariat and a board of members.

Mechanisms to operationalise SCP in the virtual SCP academy



Establishment of virtual SCP academy

- Establishment of a founding board chaired by EPU
- Appointment of a professional expert team to run the virtual SCP academy
- Development of a 5-year business plan
- Establishment of operations and service functions such as training needs analysis, programme development, accreditation and training providers



Coordinate, scale up and sustain donor programmes

- Information for donors on existing training programmes, needs and gaps in SCP related areas
- Accreditation mechanism for donor programmes
- Platform to scale up training through network of training providers and trainers
- Repository for training courses, materials and other resources from donors



Consolidate training and capacity building programmes in SCP related areas

- Inventory of existing SCP training providers and training courses at vocational, technical, under-graduate and post-graduate education levels
- Needs assessment of SCP related training for government, businesses, universities and civil society
- Gap analysis of needs and available courses based on survey of stakeholders
- Establishment of expert advisory panel of SCP professionals and stakeholders, terms of reference and membership schemes



Certification for SCP related training programmes and materials

- Develop accreditation system for training programmes and materials based on international systems (modular) including credit transfer systems
- Invitation call to owners of programmes and materials for accreditation
- Assess and accredit programmes and materials



Develop a community of professional practice in SCP

- Update SCP portal to provide information on the virtual SCP academy including lists of training topics, training providers and certification
- A community of practice in SCP connecting government, business, universities and civil society organisations to share knowledge and develop activities
- Inventory of professional certification and routes to certification credits for degrees
- Networking events, expert talks and sharing activities
- A registry of SCP related professional members of the virtual SCP academy
- Recognition of qualifications, experience and expertise



Training providers

- Develop accreditation system for training providers
- Invitation call for training providers
- Assess and accredit training providers and trainers



A preliminary list of training needs to be matched by the virtual SCP academy

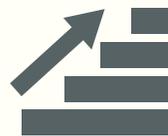
General for all target groups

- SCP and its role as a development approach
- The life cycle of SCP
- Demand-side management concepts (energy, water)
- SCP and Sustainable Development Goals (SDGs)



Government at all levels

- Pre-service training on SCP
- Leadership training on SCP
- Capacity building for government green procurement (benefits, application of guidelines, life cycle costing)
- Training for agencies to design, manage and monitor SCP implementation
- Training for subject matter experts (see sectors below)
- Logical framework approach, project cycle management and results based management
- Monitoring and evaluation of SCP initiatives (linked to MySCPI)



Private households

- Training on key consumption clusters
- Training on visibility tools for SCP (footprints, rating tools, benchmarking tools, decision making tools)
- Training on building consumer trust
- Best practices for consumer education programmes

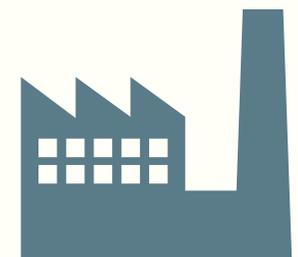
Waste

- Defining waste, waste hierarchies and responsibilities
- Managing packaging waste
- Managing organic waste
- E-waste management
- Hazardous waste management
- Construction waste management
- Industrial waste management
- Sanitary landfill management
- Incinerators and their role in phasing out landfills
- Managing the informal waste sector
- Government waste management as part of procurement practice
- Waste materials exchange



Industry

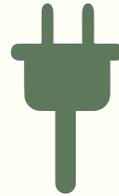
- Benchmarking
- Setting up reporting systems in large companies and in SMEs
- Inspection and maintenance of equipment
- Cleaner production
- Energy auditing and energy management systems
- Sustainable supply chain management
- Supply chain risk assessment
- Sustainable procurement
- Setting minimum standards for domestic products
- Eco-design of products
- Participation in labelling programmes and green directories
- Training on engineered timber as a construction material





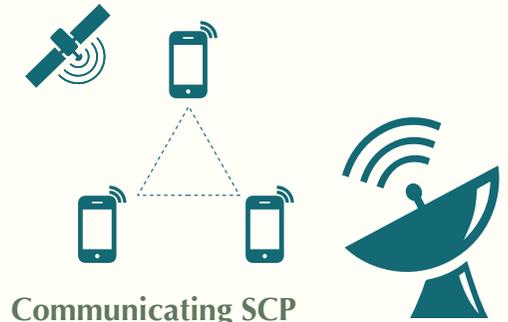
Mobility

- The psychology of moving
- Route planning and other apps
- Integrated transport strategies
- Low impact transport planning
- Establishing low carbon mobility communities
- Use of ICT tools for video conferencing and workflow



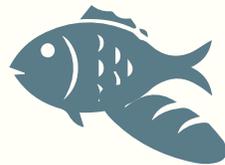
Energy

- Energy efficiency building codes and standards
- Energy audit for buildings
- Building energy intensity (BEI) calculation
- Retrofitting of building features towards energy efficiency
- Smart house and passive design
- PV and zero energy building



Communicating SCP

- Communication strategies for SCP
- SCP core message
- Customised content and platforms for SCP communication



Food

- Calculation of carbon footprints for food and beverages
- Calculation of water footprints for food and beverages
- Life cycle thinking across food life cycle stages
- Efficient agriculture production systems
- Ecological stewardship and conservation in agriculture
- Urban farming approaches
- Training for cottage industry on food safety
- MyGAP, HACCP, GMP
- Innovative food packaging
- Sustainable logistics and warehousing
- Healthy and sustainable diets
- Developing literacy programs on food, nutrition labelling and branding (for food industry, retailers, NGOs and government)



Tourism

- Training for hotel auditors to assess SCP criteria in hotel classification system
- Training for hotel operators to implement SCP criteria in hotel classification system
- Training for homestay operators to implement SCP criteria in homestay operation guidelines
- Sustainable procurement by hotels
- Sustainability of culture and heritage in tourism
- Sustainable tourism product development (including sustainability of culture and heritage)
- Sustainable tourism site management
- Sustainable tourism product packaging and promotion



Education

- Train the teachers on SCP (ESCP curriculum)
- Text book development for SCP themes

MySCPI

- Standard operating procedure on SCP monitoring along the MySCPI concept





Monitoring progress

The SCP Blueprint expects that coordinated CEPA actions will instil over time a change of mindset and increase knowledge, skills and attitudes to SCP. The progress will be monitored by the question-based MySCPI framework (see pathway 10). Tentative policy questions and policy indicators are:



Have the SCP communication efforts led to the desired mindset changes?

- Indicators related to SCP campaigns, covered themes, audiences reached and level of awareness on SCP

Is the use of online communication tools such as the National SCP Portal effective?

- Indicators such as number of hits on SCP portal, featured articles on the SCP portal and level of responses

Has the ESCP curriculum been effectively adopted by schools in Malaysia?

- Indicators measuring adoption of ESCP in schools: hours, teachers, students involved
- Indicators measuring improved SCP knowledge of students: through exam scores and surveys

Is the virtual SCP academy effectively connecting the dots for SCP training?

- Indicators on accredited SCP training providers, courses, trainers, trainees, certificates

Conclusion

Successful CEPA must be aligned with long-term policy goals, regulatory and economic frameworks and with daily life and business contexts. The core message of gaining more through less must be effectively communicated to inculcate the buy-in by all stakeholder groups. The collaboration of government institutions will be the key for success. Clear and consistent messages by the Government will lead to change and action. The integration of SCP across the education system will lay the foundation for aware and concerned next generations. Existing training initiatives must be connected to provide better accessible SCP training options to the market.

Coordinating and monitoring SCP implementation

The SCP Blueprint marks the beginning of a long journey. Impactful implementation of SCP and outreach to consumers and industries will require effective coordination and collaboration of government agencies. Building on existing structures, the institutional set up will be consolidated to better connect the dots, to operate cross-agency programmes efficiently and to the state of the art in SCP developments. Systematic monitoring of progress will be vital from the start.

PATHWAY

10

The goal 2030

Positive imagination

The institutional SCP implementation structure

Background of SCP Malaysia

Strategies for effective SCP implementation

- Platforms to connect the dots
- Cross-agency programmes
- Budgeting for SCP
- SCP implementation support facility

Spearheading SCP pathways

The MySCPI monitoring framework

Monitoring progress

Conclusion



The goal 2030

The concept of SCP is fully adopted by government agencies at all levels. Centrally coordinated, the implementation is delegated to spearheading and assisting stakeholders. The achievements of gaining more through less are recorded with the question-based MySCPI framework.

Positive imagination

Since the uptake of the SCP concept in the Eleventh Plan 2016-2020 and the endorsement of the National SCP Blueprint 2016-2030 SCP has grown into a leading paradigm to develop the nation along the green growth path.

- All SCP pathways have been effectively implemented due to collaboration of all government agencies.
- The national strategies of the SCP Blueprint have been successfully promoted to state and local levels. The civil society and the private sector have been mobilised with clear and consistent directions by the Government.
- Annual budgets reflect the long-term and financially attractive perspectives of SCP that have allowed deviating from subsidising green towards economically viable approaches.
- Capacity on SCP subjects has grown at all government levels throughout the nation.
- The biennial monitoring reports of the MySCPI framework show continuous progress and positive trends towards the green scenario. There is ample evidence of Malaysia's success in rising to the SCP challenge.

The institutional SCP implementation structure



National SCP Steering Committee

Chaired by EPU top management and attended by high level representatives of spearheading stakeholders



Core Team of SCP stakeholders

Chaired by EPU and attended by implementing stakeholders

National SCP Focal Point at EPU

- Secretariat to SCP Steering Committee and Core Team of SCP stakeholders
- Operating the SCP implementation support facility



Working committees along the SCP pathways

Established and chaired by the spearheading stakeholders



Cross-agency SCP programmes

Requiring collaboration of all stakeholders

- National SCP Portal
- Virtual Malaysian SCP academy
- MySCPI

A National SCP Steering Committee oversees SCP implementation and adjusts the direction when necessary. A Core Team of ministry and agency stakeholders coordinates at the working level with regard to cross-agency programmes that need the engagement of all stakeholders. Working committees will ensure implementation of the distinct pathways of the SCP Blueprint. The National SCP Focal point at EPU will act as secretariat for internal and external communication and technical support to SCP implementation.



Background of SCP Malaysia

The SCP Blueprint is the result of a project SCP Policy Support Malaysia funded by the EU in the period 2012 to January 2016. SCP Malaysia is an interface to link green growth activities to unfold their full potentials. The

Building on existing efforts

The consultation mechanisms established since 2012 at a project level require institutionalisation and enhancement for the implementation from 2016 onwards. Since 2012, two committees have provided excellent platforms to mainstream the concept of SCP within the network of participating stakeholders. A steering committee oversaw the progress of the project SCP Policy Support Malaysia. A core team of stakeholders reviewed the detailed work of the project. Both committees are chaired by the EPU. The central coordination through the EPU allowed engaging with dozens of ministries and agencies. This is an asset that needs to be prolonged.

A number of working committees have been established for distinct pathways such as the task force for government green procurement (GGP). Several agencies have established platforms for SCP topics like energy efficient building, industrial energy efficiency, SCP in tourism, circular economy or integration of SCP into school education.

Enhancing human resources and capacity

Human resources of government agencies need to keep pace with policies to avoid enforcement bottlenecks. New priorities require adequately qualified personnel. Reallocation of resources and organisational rearrangements will be necessary for an efficient implementation of SCP. A clear business case will justify investing in additional man power and technical assistance.

At the coordination and expertise levels, the frequent rotation of officers bears serious challenges for continuity and institutional memory. The establishment of the SCP Blueprint was only possible because of a knowledgeable and dedicated expert team. The implementation of the SCP Blueprint will require a similar capacity to secure technical assistance and continuity.

SCP Blueprint connects the dots by painting the bigger picture at the planning level. To move from blueprinting to practical implementation will require from all stakeholders the strong effort to cooperate. Implementing the SCP Blueprint will be challenging but also holds potentials to transform public service through better collaboration and synergies between the institutions.

Evaluation of financial support

An evaluation of economic instruments (SCP Malaysia, EPU 2014) came to the conclusion that the government offers a wide variety of financial support. The study found that the offered incentives are often stand-alone and not connected efforts. Key economic issues such as natural resource use, waste, energy use, emissions and water usage are weakly addressed. The needs of market players are not properly reflected, for example by offering soft loans which are unattractive to many SMEs. Generally, support has too heavy a focus on particular technologies or projects rather than on creating mainstream behavioural change. They lack tools to measure impact and to monitor performance. Only 15% of 88 investigated instruments scored sufficiently high. Instruments such as taxes and fees that would impose a cost on SCP non-compliant behaviour are missing. The study looked at relevance, effectiveness, impact, efficiency and sustainability of financial instruments. The used methodology will serve to evaluate incentives regularly in the future. This will also include exit strategies from financial support, whether the intended effects would continue once a support instrument expires. This crucial aspect is omitted in the existing designs of financial support instruments.

Monitoring progress through the MySCPI framework

The instrument to monitor the progress of SCP implementation is already established with the MySCPI framework. The state of the art system asks policy questions relevant to the goals and targets of each pathway in the SCP Blueprint and suggests best needed indicators to answer these questions. A prototype MySCPI report was presented in 2015. Some of the indicators have been taken up already in the Eleventh Plan. The institutionalisation of MySCPI will advance SCP monitoring from plan to reality.



Strategies for effective SCP implementation

The rationale is coordination of decentralised implementation of the SCP pathways at national and state levels.

Platforms to connect the dots

National SCP Steering Committee

Chaired by the EPU top management, at least two meetings per year will assemble the key stakeholders along the SCP pathways to review the progress. The committee will also ensure the exchange of experiences with the state levels.

Core Team of SCP stakeholders

Spearheading and assisting stakeholders will regularly exchange at a working level. At least quarterly meetings will support cross-agency programmes and the distinct pathways. Progress reports will be tabled to the National SCP Steering Committee meetings.

Working committees along the SCP pathways

The spearheading stakeholders will establish working platforms to the respective pathways and report regularly to EPU about the progress. They will be supported by technical assistance as required.

National SCP Focal Point

The focal point will act as secretariat to the SCP committees and ensure that SCP related information is adequately collected and disseminated. It will represent Malaysia also in the international SCP community.

Budgeting for SCP

Existing budgets for SCP activities will be better ear-marked and synergised. Increased spending is justified, if it leads to higher revenues or cost savings. Crucial is the evaluation of financial support instruments regarding relevance, effectiveness, impact, efficiency and sustainability. The latter will include the exit strategy of an instrument to avoid subsidy-heavy interventions without economic viability in the medium to long term.

Cross-agency programmes

The cooperation of all government stakeholders is required to realise cross-cutting SCP strategies.

SCP communication and National SCP Portal

All implementing agencies have to join the efforts of campaigning for SCP. The SCP portal will require the day-to-day collaboration of the information holders.

The virtual Malaysian SCP academy

The aim is an open and structured training marketplace as a joint effort of all stakeholders.

Monitoring progress through MySCPI

All SCP pathways are equipped with policy questions and indicators to monitor the progress of SCP implementation. The data have to be collected by all implementing agencies.

SCP implementation support facility

EPU will ensure sufficient technical assistance for SCP implementation according to the state of the art. The tentative scope of activities is:

- Assisting in coordinating SCP implementation with studies, reports, workshops and seminars
- Technical assistance to cross-agency programmes
- Technical assistance to implementing agencies in fine-tuning the pathways with action plans, legal and economic reforms and CEPA programmes
- Capacity building and assistance for the outreach to state levels
- Assisting international cooperation opportunities



Spearheading SCP pathways

The map summarises roles and responsibilities to spearhead the strategies of the SCP pathways 1 to 10. The map is preliminary, it can be adjusted if necessary and will be endorsed by the National SCP Steering Committee.

Leading by example through GGP

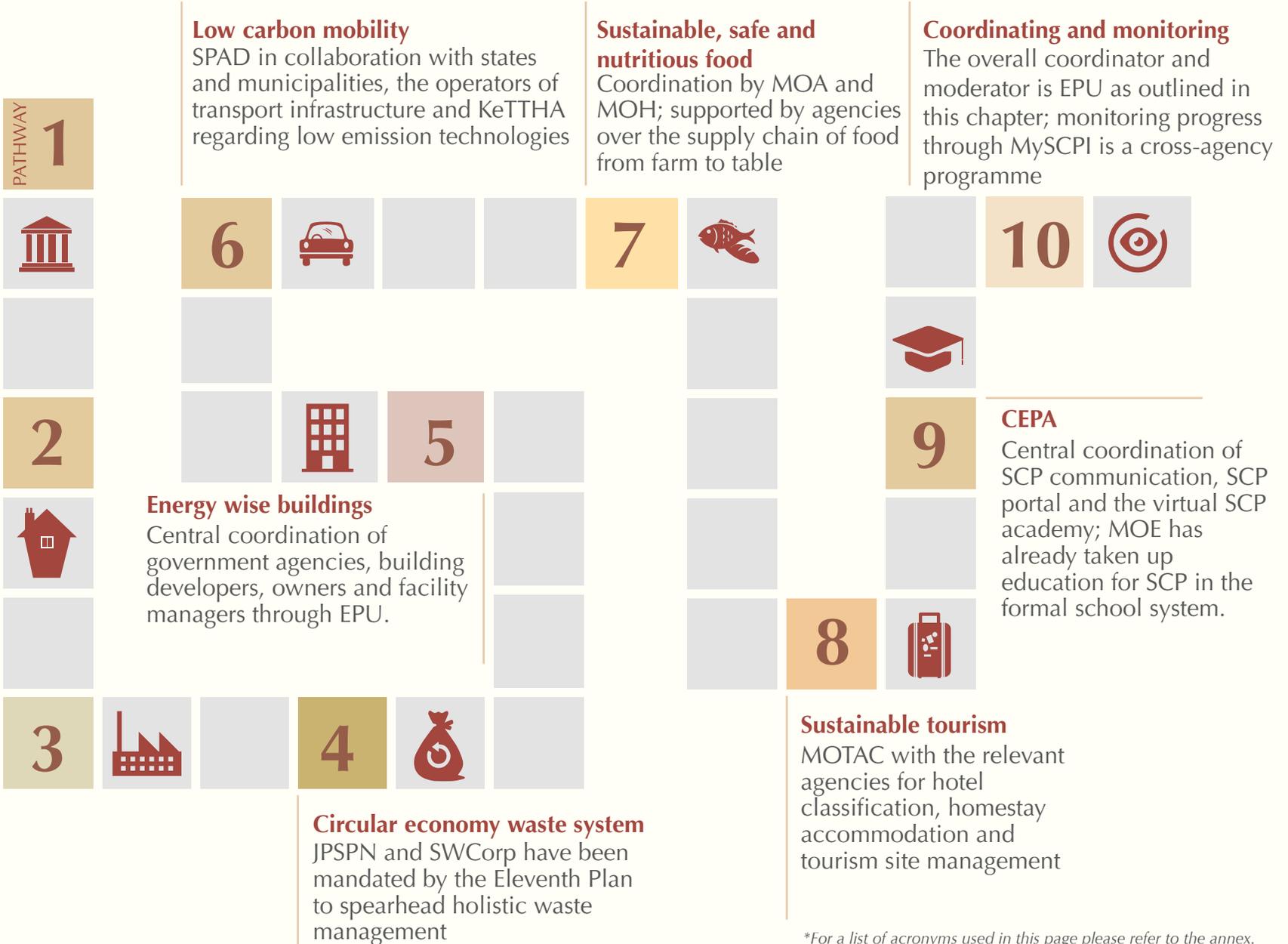
MOF is responsible for the government procurement policy and prudent spending; support by KeTTHA* as well as other agencies

SCP in private households

KPDNKK is in charge of consumer rights and responsibilities which are closely related to SCP; support by agencies for the consumption clusters housing, energy, water, food, waste and mobility

The business case of SCP in Industry

NRE, DOE, SMECorp, SSM and others for reporting and management; EC is the energy regulator; MITI and agencies for supply chains and standards; MPIC for commodities



*For a list of acronyms used in this page please refer to the annex.



The MySCPI monitoring framework

Malaysia and the world go through a process of fundamental reform towards sustainability. Understanding where we are and where we are going are two critical questions in charting the way forward.

The challenges of measuring SCP

SCP embraces various sectors and the drivers, impacts and responses vary widely between each sector. In the complex universe of SCP, changes in one sector can influence other sectors. Measuring SCP implementation requires data from various sources including primary, secondary and tertiary information. Aspects of SCP often overlap and double counting might occur. Efficiency and productivity indicators are often combined with economic indicators such as GDP.

The question-based framework of MySCPI

To resolve measuring SCP despite the many challenges, SCP Malaysia has developed and tested a state of the art SCP monitoring framework, similar to the successful system of the European Environment Agency. The main purpose is to ease interpretation and communication of the findings. The MySCPI framework is question-based whereby the questions reflect the policy goals of SCP. One or more indicators serve to answer the specific policy question. The indicators are computed from a wide range of data, which reside within various agencies. This makes MySCPI a cross-agency programme of the SCP implementation. Monitoring progress will also allow revising and adjusting SCP implementation, if necessary.



Policy questions along the SCP pathways

- Derived from goals, positive imagination and strategy targets



Indicators to answer the policy questions

- Headline, trend and response indicators
- Index indicators computed from more than one indicator



Data to compute indicators

- Following the best available and best needed principle
- Available secondary and tertiary data from existing statistics and reports
- Primary data to be established new

Scope, procedures, reports and timelines



The expandable scope of MySCPI

MySCPI is flexible and allows the addition of new or modified questions and further indicators based on data according to the best available and best needed principle. The initial scope is given by monitoring progress of implementing the SCP Blueprint. Each pathway is equipped with policy questions and possible indicators. The formats used in the SCP Blueprint are a simplification of the more technical system behind MySCPI that goes beyond the constraints of this document.

MySCPI is compatible with other monitoring needs such as of the overall green growth strategy or the observance of Sustainable Development Goals (SDGs) and could include or serve as starting point for monitoring these frameworks.



Standard operating procedures

A MySCPI working committee has been already established during the prototyping phase; it will also deal in the future with the technical aspects of SCP monitoring following clear standards operating procedures. These consist of the collection and processing of data to indicators and the analysis of indicators in the form of fact sheets with regard to the policy questions.



Biennial reports

It is the plan to produce every two years a full MySCPI report with all information that is available at the time. In addition, theme reports could feature focus areas on various sectors or pathways. The first full report will aim to reconcile the prototype materials to the SCP Blueprint framework and policy questions.



Monitoring progress

Coordinating and monitoring will be itself subject of progress monitoring. The question-based MySCPI framework will observe if the institutional setting for SCP implementation is delivering and meeting its key performance indicators.



Has the institutional structure for SCP implementation been established according to plan?

- Members and frequency of meetings of the National SCP Steering Committee, the Core Team of stakeholders and working committees

Have resources for SCP been allocated or reallocated with prudence?

- Budgets and outputs ear-marked for SCP
- Revenues and savings through SCP

Are the cross-agency programmes delivering the anticipated results?

- Indicators related to the SCP portal, the virtual SCP academy (see also pathway 9)
- Scope and performance of MySCPI

Conclusion

The successful adoption of the SCP concept by Malaysia's society and economy will depend on the capability of the Government to convey consistent messages. The framework is provided with the SCP Blueprint. To make it a reality is the responsibility of the government stakeholders. The coordination of ministries and agencies is a challenging task that will require strong leadership. Capacity bottlenecks might hamper this prospect. A robust institutional system needs sufficient capacities. It will be vital to go beyond administrative approaches with strong expertise, institutional responsibility and the political will to spearhead and lead. The efforts to monitor progress in a goal oriented manner will provide evidence of successes and failures on the way forward with the possibility to adjust and go even beyond the outlined scenario and positive imagination.

List of acronyms

10FYP 10 Year Framework of Programmes

A

AELB	Atomic Energy Licencing Board
APAEC	ASEAN Plan of Action for Energy Cooperation
ASEAN	Association of South East Asian Nations

B

BAT	Best available techniques
BAU	Business as usual
BEI	Building energy intensity

C

CEPA	Communication, education and public awareness
CIDB	Construction Industry Development Board Malaysia
CNG	Compressed natural gas
CO ₂	Carbon dioxide
CP	Cleaner production
CSR	Corporate social responsibility

D

DOE	Department of Environment
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E

EC	Energy Commission
EE	Energy efficiency or energy efficient
EEV	Energy efficient vehicles
Eleventh Plan	Eleventh Malaysia Plan 2016-2020
EMEER	Efficient Management of Electrical Energy Regulations
EPU	Economic Planning Unit
EQA	Environmental Quality Act
ESCO	Energy service company
ESCP	Education for sustainable consumption and production
ETOU	Enhanced Time of Use
ETP	Economic Transformation Programme
EU	European Union

F

FAMA	Federal Agriculture Marketing Authority
FIT	Feed-in tariff

G

GDP	Gross domestic product
GGP	Government green procurement
GHG	Green house gas
GMP	Good Manufacturing Practices Certification
GTP	Government Transformation Programme

H

HACCP	Hazard Analysis and Critical Control Point Certification
HFC	Hydrofluorocarbons

I

IBS	Integrated building system
ICT	Information and communication technology
IE	International efficiency
IEA	International Energy Agency
ISO	International Organization for Standardization

J

JKR	Department of Public Works
JSPN	National Solid Waste Management Department

K

KDN	Ministry of Home Affairs
KeTTHA	Ministry of Energy, Green Technology and Water
KL	Kuala Lumpur
KOSPEN	Healthy Communities Mighty Nation
KPDNKK	Ministry of Domestic Trade, Co-operatives and Consumerism
KPKT	Ministry of Urban Wellbeing, Housing and Local Government

L

LCA	Life cycle assessment
LCC	Life cycle costing
LTAP	Long-Term Action Plan

M

M&E	Monitoring and evaluation
MCOMM	Ministry of Communications and Multimedia
MEPS	Minimum Energy Performance Standards
MeSTI	Makanan Selamat Tanggungjawab Industri Certification
MITI	Ministry of International Trade and Industry
MOA	Ministry of Agriculture and Agro-based Industry
MOE	Ministry of Education
MOF	Ministry of Finance
MOH	Ministry of Health
MOSTI	Ministry of Science, Technology and Innovation
MOTAC	Ministry of Tourism and Culture
MOU	Memorandum of understanding
MPIC	Ministry of Plantation Industries and Commodities
MS	Malaysian Standard
MWI	Malaysian Wellbeing Index
MyGAP	Malaysian Good Agriculture Practices
MySCPI	Malaysian Sustainable Consumption and Production Indicator framework
MyTQA	Malaysia Tourism Quality Assurance

N

NAP14	National Automotive Plan 2014
NEM	New Economic Model
NGOs	Non government organisations
NLPTMP	National Land Public Transport Master Plan
NRE	Ministry of Natural Resources and Environment

P

PEMANDU	Performance Management and Delivery Unit
PPPI	Public procurement promoting innovation
PRIMA	1Malaysia People's Housing
PV	Photovoltaics

R

R&D	Research and development
RE	Renewable energy
REHDA	Real Estate and Housing Developer's Association Malaysia
RM	Ringgit Malaysia

S

S&P	Sales and purchase
SCORE	SME Competitive Rating for Enhancement
SCP	Sustainable consumption and production
SDGs	Sustainable Development Goals
SEE	Society, economy and environment
SIRIM	SIRIM Berhad
SME	Small and medium enterprise
SMECorp	SME Corporation Malaysia
SPAD	Land Public Transport Commission
SPAN	National Water Services Commission
SRPP	Social responsible public procurement
SSM	Companies Commission of Malaysia
STAP	Short-term action plan
SW	Stiftung Warentest
SWCorp	Solid Waste Management and Public Cleansing Corporation

T

TNB	Tenaga Nasional Berhad
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U

UBBL	Uniform Building Bylaw
UN	United Nations
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organisation
UNWTO	United Nations World Tourism Organisation

V

VAC	Ventilation, air-conditioning and cooling
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W

WEEE	Waste electrical and electronic equipment
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THE NATIONAL SCP BLUEPRINT 2016-2030

The Pathways for Sustainable Consumption and Production
(SCP) in Malaysia

