An Overview of Malaysian Government Initiatives on Sustainable Consumption and Production Practices

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Abstract: Many countries have realized that unsustainable patterns of consumption and production could hinder sustainable development. For this reason, sustainable consumption and production (SCP) concepts have gained international prominence since 1992 and become one of a tool in achieving sustainable development. SCP has demonstrated its significance in reducing environmental burden and at the same time enhances quality of life and human well-being. In general, SCP refers to the production and use of goods and services that minimize the impact on the environment and enhance the people's quality of life and well-being without comprising the ability of future generation to meet their own needs. Government plays an important role to enable SCP practices by establishing SCP-related national policy and institutional framework, and promoting efficient use of resources amongst producer and consumer. In order to obtain an overview of Malaysian government initiatives with regard to SCP, relevant national policies were analyzed. This study finds Malaysian Government has shown commitment towards the implementation of SCP and several initiatives have been taken. Mainstreaming SCP practices in Malaysia would potentially contribute significantly towards achieving high income developed nation, inclusive and sustainable by 2020.

Keywords: sustainable consumption and production, sustainable development, sustainable energy, sustainable agriculture, green building

Introduction

For many years, the ever increasing consumption and production to meet human demands has greatly impacted environmental sustainability. This phenomenon has become crucial due to people's unsustainable lifestyles and rapid increase of human population globally, resulting in excessive use of scarce natural resources, more pollution and huge waste generation. Human population is expected to reach 9 billion by 2050 while the natural resources consumption is expected to rise to 170% of the earth's bio-capacity by 2020 [1]. Besides causing environmental degradation, the increase in level of consumption and production would adversely affect people's quality of life. The Oslo Ministerial Roundtable Conference on Sustainable Consumption and Production (also known as Oslo Symposium) in 1994 defines SCP as *'the use of goods and services that respond to basic needs and bring a better quality of life, while minimizing the use of natural resources, toxic materials and emissions of waste and pollutants over the life cycle, so as not to jeopardize the needs of future generations'* [2]. Since then, the definition has been widely used. From business perspective, [1] describes SCP as an effort by various stakeholders to achieving environmental quality through the use of natural resources efficiently, waste minimization, and products and services optimization. For the purpose of this article, the authors define SCP in simple term as production and consumption that minimise the impact on the environment while enhancing social and economic condition for present and future generations.

One of the many goals of SCP is *'to promote patterns of consumption and production that reduce environmental stress and will meet the basic needs of humanity'* [3]. The idea of SCP is elaborated in Chapter 4 of Agenda 21 which states *'achieving sustainable development will require both efficiency in the production process as well as changes in consumption patterns'*. Many suggestions are provided in Agenda 21 to promote SCP, among others, to use of renewable energy sources; reduce wasteful product packaging, expand environmental labelling, enhance consumer awareness, provide appropriate economic instruments such as government green procurement (GGP) and

promote recycling practices [4]. The significant role of SCP is further reiterated at the World Summit on Sustainable Development in 2002 and has been articulated in the Chapter III of the Johannesburg Plan of Implementation (JPOI). In view of this, the world leaders have agreed that fundamental changes in the way societies produce and consume are imperative in achieving global sustainable development [5]. To support regional and national initiatives on SCP that can accelerate the shift towards SCP, JPOI encouraged the development of a 10-year framework of programme (10YFP). Further, the Marrakech Process (MP) was established in 2003 as an informal global multi-stakeholder platform to support the implementation of SCP and 10YFP [6]. SCP and sustainable development are tightly linked as has been acknowledged during the Rio Earth Summit 1992, where Principle 8 of the Rio Declaration on Environment and Development declares the need *'to reduce and eliminate unsustainable patterns of consumption and production and promote appropriate demographic policies'* to achieve sustainable development and promote better quality of life for people [7]. The authors illustrate the link of SCP and sustainable development in Figure 1. In order to enhance the understanding of how SCP could contribute to sustainability, the authors illustrate one example with regards to water resources in Figure 2.

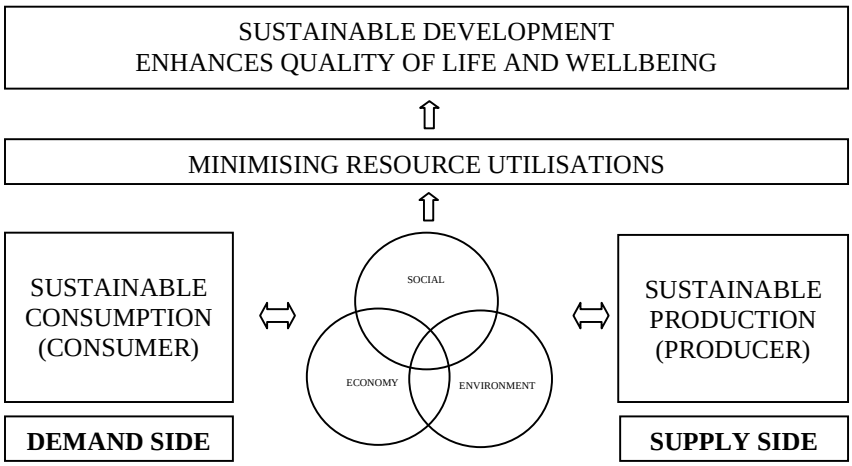

Figure 1: The link between SCP and SD

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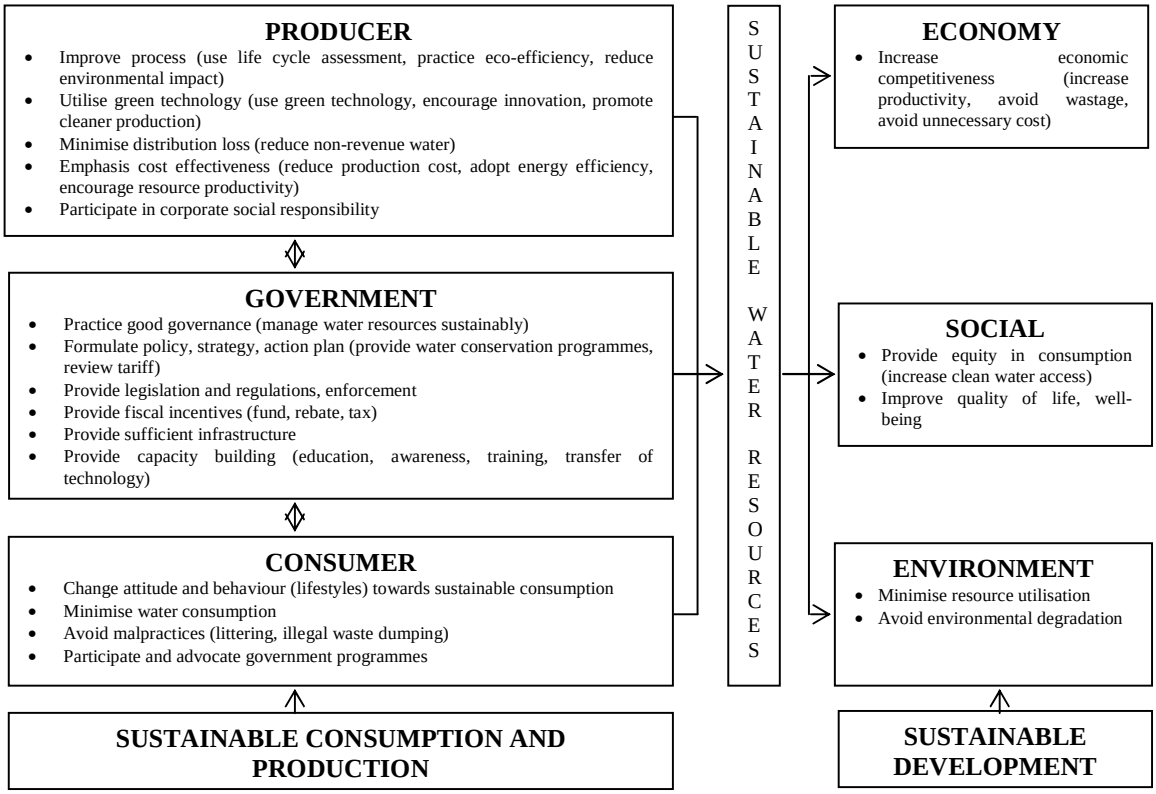

Figure 2: An example of how sustainable water resources contribute to SD

SCP-related policies in Malaysia

For SCP to be in place, governments must play their important role. In exercising their role, there are many ways for the government to promote SCP, which include minimizing resource utilization by promoting efficiency in production processes and reducing wasteful consumption along the process of economic progress. On the other hand, government can also demonstrate a good example in conserving environment to their citizens by implementing SCP. This can be done, among others by formulating policies, enacting and enforcing regulations, and providing economic and social instruments that will encourage a shift to SCP. To inculcate the SCP's values, government must also emphasis on raising SCP's awareness programmes.

Based on policy documents analysis, at the national level, the Malaysian Government is seen not lagging behind in advocating sustainable development. While SCP term does not explicitly mentioned in the documents, other SCP related terms such as cleaner production, green technology and environmentally friendly practices are widely used. The Malaysian Government in fact has demonstrated its strong commitment towards SCP by implementing various SCP-related policies and initiatives. The SCP agenda has been integrated in Malaysia's development plans and transformation programmes, to name a few, 10th Malaysia Plan (10MP) [8], New Economic Model (NEM) [9] and Economic Transformation Programme (ETP) [10]. Besides that, there are a number of environmental related policies such as the National Renewable Energy and Action Plan (NREPAP) [11], National Green Technology Policy (NGTP) [12] and the National Climate Change Policy (NCCP) [13] which call for sustainable behaviour. However, there is no holistic action plan for SCP development in Malaysia at this point in time.

The 10MP focuses on unleashing Malaysia's economic growth, promoting inclusive socio-economic development and creating an environment that could enhance quality of life in order to achieve high income developed nation, inclusive and sustainable by the year 2020. Under the 10MP, the Malaysian Government has embarked on a number of programmes, in particular, in five areas namely (i) Creating stronger incentives for investments in renewable

energy (RE); (ii) Promoting energy efficiency to encourage productive use of energy; (iii) Improving solid waste management; (iv) Conserving forests; and (v) Reducing emissions to improve air quality [8]. In line with this, the Malaysian Government has introduced the AFFIRM framework (short form of Awareness, Faculty, Finance, Infrastructure, Research and Marketing) to direct government in creating a comprehensive ecosystem for environmental sustainability [8].

The Malaysian Government targets to becoming a leader in the global green revolution, in its recently launched New Economic Model. In achieving this, the Malaysian Government is committed to adopt green 'gross domestic product' (GDP) concept, the approach which take into consideration the impact of growth on the environment throughout Malaysia's development process [9]. NREPAP seeks to preserve natural environment by formulating policy measures to encourage energy resource sustainability and energy efficiency, support policy measures to rationalize subsidies by gradually reduce the energy subsidies and remove price control of energy to promote the adoption of alternative energy generation and achieve market-based pricing for energy by the year 2015 [11]. ETP identifies four entry point projects (EPPs) as a platform to promote sustainable energy development namely improving energy efficiency (EPP9); building up solar power capacity (EPP10); developing nuclear energy for power generation (EPP12); and tapping Malaysia's hydroelectricity potential (EPP12) [10].

The NGTP aims at accelerating Malaysia's economy and promote sustainable development by utilizing green technology. NGTP defines green technology as *'products, equipment or system that minimize degradation to the environment, have zero or low green house gas (GHG) emission, safe for use and promote healthy and improved environment for all forms of life, conserve the use of energy and natural resources, and promote the use of renewable resources*' [12]. NCCP intends to mainstreaming climate change through wise management of resources and enhancing environmental conservation. In achieving its policy objectives, NCCP highlights the important role of efficient consumption and production to strengthen Malaysia's economic competitiveness and to improve quality of life [13].

At the local authority level, Local Agenda 21 (LA21) pilot projects have been started in 2000, involving four local authorities namely Petaling Jaya Municipal Council (MPPJ), Kuantan Municipal Council (MPK), Kerian District Council (KDC) and Miri City Council (MBM) [14]. LA21 is a program that emphasizes the involvement of local authority, community and private sector working together to plan and manage their surrounding environment towards sustainable development and a better quality of life. At the university level, Universiti Sains Malaysia (USM) and Universiti Kebangsaan Malaysia (UKM) have taken steps in implementing sustainable campus programmes since early 2000 [15].

Malaysian government initiatives towards SCP

Although, SCP is a new concept and not widely adopted in Malaysia, various initiatives have been taken by the Government. As SCP consists of many aspects, the paper focuses on environmental aspect and highlights Malaysian government initiatives in five sectors namely energy, agriculture, tourism, government procurement and building sectors.

Energy

Energy is an essential element for the generation of social and economic growth [16] and economic competitiveness requires efficient energy production and consumption [13]. The energy sector plays an important role in Malaysia's socioeconomic development as energy production is the largest contributor to air pollution [11]. In addition, aspect of energy sustainability is vital to deal with the growing pressure on the depleting natural resources. Malaysia's emission intensity levels of GHG are above the global average in the energy sector [17]. For these reasons, the Government has taken various measures to ensure long term reliability and security of energy supply, efficient utilization of energy and at the same time reduce the negative impact on the environment.

Sustainable energy means energy which, in its generation, provision and use has minimal negatives impact to human and environment, and can be supplied continuously to future generation. Sustainable energy includes renewable energy (RE) [18]. RE is electricity generated from recurring and non-depleting indigenous resources [11]. Effort towards energy sustainability has been taken since 1979 whereby the National Energy Policy was launched to ensure adequacy of energy supply, efficient utilization of energy and minimisation of environmental burden. In achieving the objectives, subsequent energy policies such as the National Depletion Policy (NDP; 1980) and Four-Fuel Diversification Policy (4FDP; 1981) were formulated. NDP is intended to conserve Malaysia's energy resources particularly oil and gas whereas 4FDP aims to reduce Malaysia's overdependence on oil as the energy source [19].

In recognizing the importance of sustainable energy, the Government has made efforts to intensify the development of RE and encourage energy efficiency (EE). In this context, the use of RE is expected to reduce the environmental pollution due to the GHG emission such as carbon dioxide (CO_2), nitrogen oxides (NO_x), sulfur oxides (SO_x) and particulate matters as a result of power generation from oil, natural gas and coal [20; 22]. There are a number of potential RE resources in Malaysia namely biomass, biogas, mini hydro, solar PV and municipal waste as in Table 1. The Government has recognized the potential of RE and initiatives to encourage the use of RE were initiated through Five-Fuel Diversification Policy (5FDP; 2001) under the 8th Malaysia Plan (8MP; 2001-2005). Efforts to develop and promote the utilization of RE were further intensified under the 9th Malaysia Plan (9MP; 2006-2010).

Table 1: RE resources potential in Malaysia

Renewable Energies	Potential (MW)
Biomass	1.340
Biogas	410
Mini Hydro	500
Solar PV	6,500
Municipal Waste	400
Total	9,150

Source: [20]

The Government has introduced several initiatives and incentives to support the development of RE such as the Small Renewable Energy Programme (SREP), Biomass Power Generation and Demonstration Project (BioGen) and the Malaysian Building Integrated Photovoltaic Technology Application Project (MBPIV). Besides that, fiscal incentive and funding such as the Pioneer Status (PS) or Investment Tax Allowance (ITA), has also been introduced. In addition, the National Renewable Energy Policy and Action Plan was launched in 2010 to enhance the utilization of indigenous RE resources to contribute towards national electricity supply security and sustainable socioeconomic development [11]. Despite a range of RE's initiatives and incentives, the RE target set out under 8MP and 9MP was not achieved [8]. The Government has set a target of 300 MW of the country's electricity from RE by 2010, but only achieved up to 56.7 MW [20; 23]. RE implementation issues are as in Table 2.

Table 2: RE implementation issues

Issues	Description
Market failure exists	The RE market "fails" due to misuse of monopsony power and information asymmetries; the RE market is also constrained by financial and technological factors
Inherent factor	Inherent factors that constrain the performance of the market
Arbitrary price setting	RE prices set arbitrarily
Tensions and trade-offs	The predicament of expecting that the utility will bear the higher costs of RE power (due to the higher RE price)
Absence of Regulatory Framework	Market failure compounded by absence of a proper regulatory framework, which prevents proper and legal action from being taken
Poor governance	Poor governance detrimentally affects the participation of stakeholders and legitimacy of the action
Limited Oversight	No concerted oversight of implementation problems
Lack of institutional measures	Lack of proper institutional measures to meet informational and technological needs

Source: [23]

The 10MP further emphasizes energy security and economic efficiency based on five strategic pillars namely initiatives to secure and manage reliable energy supply, measures to encourage EE, adoption of market-based energy pricing, stronger governance and managing change [8]. In order to provide a more favourable environment for RE development, the Renewable Energy Act (REA; 2011) and Sustainable Energy Development Authority Act 2011 [25] have been enacted under the 10MP. Both acts allow the implementation of Feed-in Tariff (FiT) mechanism to ensure that renewable energy becomes a viable and sound long-term investment for companies, industries and also

for individuals [22]. The FiT system/mechanism obliges Distribution Licensees (DLs) to buy RE from Feed-in Approval Holders (FiAHs) and sets the rate to be paid for such RE (FiT Rate). For a specific duration (Effective Period), DLs would pay for each unit of RE supplied to their respective electricity grids [23, 22]. Malaysia aims to achieve RE target of 985 MW (contributing 5.5 percent to Malaysia's total electricity generation mix) by 2015 [8] and 2,080 MW (11 percent) by 2020 [11].

Apart from RE, the Government has also actively promoted the EE programme such as efficiency in power generation, transmission and distribution of electricity and various end-uses of energy. One of the projects under the EE programme is the Malaysian Industrial Energy Efficiency Improvement Project (MIEEIP) [26] and Malaysia is going to phase out incandescent light bulbs by 2014 to reduce CO_2 emissions by an estimated 732,000 tones and reducing energy usage by 1,074 gig watts a year [8]. In order to reduce private vehicle that can save energy and reduce air pollution, the Government is developing the Mass Rapid Transit (MRT) in the Klang Valley with an estimated private investment of RM40 billion which is expected to be completed by 2020. Upon completion, the utilization of public transport is expected to increase by at least 40 percent and will reduce petrol consumption per capita [10; 27]. Additionally, to encourage the use of low carbon vehicle, the Government has given full exemption of import duty and excise duty on hybrid and electric cars until 31 December 2013 [28].

Agriculture

Agriculture besides forestry is the biggest land user. Therefore, unsustainable production (and consumption) gave a big impact on land and other resources. Agriculture activities have become a major cause of land and soil degradation, pesticide pollution and loss of biological diversity. In view of the above challenges, sustainable agriculture practices are a viable solution to address the negative impact of agriculture on the environment. In fact, the Government has taken a step to adopt sustainable agriculture practices since the 1970s [29]. With the aim to improve the environmental impact on agriculture activities, the Third National Agriculture Policy (NAP3; 1998-2010) was formulated with the overriding objective of maximizing income by optimal utilization of natural resources [30]. In order to achieve these objectives, the Government has introduced and implemented intensification of land use by introducing integrated agriculture practices such as agro forestry, rehabilitation of marginal land, mixed farming, recycling of organic waste, mulching, cover cropping, composting, organic farming, and soil and water conservation [31]. For instance, the System of Rice Intensification (SRI) which adopted environmentally friendly methods (the use of organic fertilizer and pesticide) has been introduced since 2010 [29].

Malaysia is a signatory to a number of international agreements such as the Convention on Biological Diversity (CBD), International Tropical Timber Agreement (ITTA), and the Charter of the Indigenous-Tribal Peoples of Tropical Forests. Apart from that, Malaysia has enacted several legislations related to land use and environment preservation, inter alia, Land Acquisition Act 1960, Land Conservation Act 1960 (revised in 1989), National Land Code 1965, National Forestry Act 1984, Protection of Wildlife Act 1972, Environmental Quality Act 1974 (Environmental Quality), Environmental Quality (Clean Air) Regulation 1978, Labour Law, Workers' Minimum Standard of Housing & Amenities Act 1990, Occupational Safety & Health Act 1977, Pesticides Act 1974 (Pesticides Registration) Rules 1988, Pesticides (Licensing for sale & storage) Rules 1988, Pesticides (Labelling) Regulations 1984, Factories & Machinery (Noise Exposure) Regulations 1989, Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987 and The National Parks Act 1984. In addition, Malaysia is the founding member of the Roundtable on Sustainable Palm Oil (RSPO) and has been actively promoting the growth and use of sustainable palm oil. Malaysia has also implemented national accreditation programmes such as Good Agriculture Practices (GAP), Farm Accreditation Scheme (SALM), Aqua Farm Certification Scheme (SPLAM), Veterinary Health Mark (VIM), Livestock Accreditation Scheme (SALT) and Malaysia Best to recognize and certify farms/produces/products which fulfil the established criteria.

Building

Buildings consume up to 40 percent of energy and account for 40 percent of GHG emissions [24]. According to the International Panel on Climate Change, 30 percent of energy used in buildings could be reduced with net economic benefits by 2030 [32]. Realizing these facts, the Government has carried out numerous efforts in promoting green buildings and sustainably built environment. Currently, the Government has owned three green buildings which house the Ministry of Energy, Green Technology and Water; Malaysian Green Technology Corporation; and the Energy Commission; to lead by example. To further promote the development of green buildings, the Government has launched the Low Carbon Cities Framework (LCCF) and Assessment System in 2011 and supported the Green Building Index (GBI) Certification that was developed by the Malaysian Institute of Architects (PAM) and the Association of Consulting Engineers Malaysia (ACEM) [24; 33; 34; 35]. LCCF is an assessment tool to provide

guidance to the local authorities, developers and other users based on carbon footprint levels. The assessment is based on four main elements namely urban environment, urban transportation, urban infrastructure and buildings [41]. GBI is green rating tool to promote the sustainability at buildings. The assessment is based on the six main criteria namely energy efficiency, indoor environment quality, sustainable site planning and management, materials and resources, water efficiency and innovation. The buildings are rating based on scores achieved (certified, silver, gold and platinum) [37; 38; 39; 40]

Under the 10MP, the Government has committed to revise the Uniform Building By-Laws to incorporate the Malaysian Standard: Code of Practice on Energy Efficiency and Renewable Energy for Non-Residential Buildings (MS1525) to allow for integration of renewable energy systems and energy saving features in buildings [8], wider adoption of the Green Building Index (GBI) to benchmark energy consumption in new and existing buildings, and increase the use of thermal insulation for roofs in air conditioned buildings to save energy [8]. The Government has also introduced several fiscal incentives for building owners obtaining GBI certificates from 24 October 2009 until 31 December 2014. The respective building owners are entitled to income tax exemption equivalent to the additional capital expenditure in obtaining GBI Certificates whereas buyers purchasing building with GBI Certificates from developers will be given stamp duty exemptions on instruments of transfer of ownership [36]. In support of the Government efforts, the campaign to save 10 percent energy and water use in all government buildings and energy audits are being conducted.

Tourism

Tourism sector one of the National Key Economic Area (NKEA) contributes significantly to Malaysia's economic progress particularly in terms of income, sustainability and inclusiveness. In this view, Malaysia is aiming at promoting sustainable tourism concept to protect environment, maintain ecological balance, conserve biodiversity and cultural heritage that subsequently provide economic and social benefits and enhance well-being of its people. National Policy on Biological diversity (NPBD) supports sustainable tourism practices in its statement that the *'tourism industry relies on the country's diverse and unspoilt natural beauty, including unique species of plants and animals in national parks, wildlife reserves, bird parks and in marine parks and the adjacent coral reefs'* [42]. In addition, NEM emphasizes on environmentally responsible tourism, green hotel standards, food and beverage standards, public restroom standards, or home-stay standards [9]. ETP proposes *'nature adventure'* concept to promote sustainable tourism as outlined in its two entry point projects - establish Malaysia as global biodiversity hub for international attention and develop integrated eco-resort for ensuring green development [10].

Government Green Procurement (GGP)

GGP refers to the acquisition of products, services and work in the public sector that takes into account environmental criteria and standards to conserve the natural environment and resources that minimises and reduces the negative impacts of human activities. Malaysian government has acknowledged the importance of GGP and initial steps have been taken towards its implementation as can be seen in the 10MP, NEM, ETP, NGTP, NREPAP, Small and Medium Enterprises Master Plan (SMEMP) and Annual Federal Government Budget. Under the ETP, the Government has made GGP as one of its EPPs. GGP could be considered as enabling factors that would promote SCP practices where it will encourage demand for green products and services.

Conclusion

SCP has demonstrated its significance as a tool to reducing environmental burden and at the same time, enhances quality of life and human well-being. Hence, proactive action in implementing SCP is needed at all level. Various efforts that have been implemented which some of them have shown positive outcomes; indicate that the Malaysian government is committed in ensuring environmental sustainability in national economic development, which is in line with SCP goals. Malaysia has always taken into account economic growth, people's well-being and environmental protection in its development planning. The implementation of SCP will assist Malaysia to achieve the target reduction in CO_2 emissions intensity by 40 per cent of GDP by 2020 compared to levels in 2005 as had been pledged by the Government during the United Nations Climate Change Conference (COP15) in Copenhagen in 2009. Moreover, SCP is expected to improve energy efficiency by 40 percent in 2020 which will results in cost savings of RM295 billion [10].

Although there are many existing policies and initiatives which are related to the SCP, the specific policy and action plan with regards to SCP in Malaysia are yet to be seen. Based on the experience of other countries that have successfully implemented SCP, the writers believe that specific SCP's policy and action plan are important steps for Malaysia to ensure the implementation of SCP in a more systematic and holistic manner. Certainly, the

implementation of SCP would be confronted with various issues and challenges. Among the obstacles in Asia include the lack of knowledge and awareness, lack of top management support, lack of legislation and enforcement, lack of economic incentives, lack of infrastructure and financing resources, and the lack of existing political and economic mechanisms for addressing major international problems of the environment [1; 37; 38; 39; 40]. In this regard, the formulation of policy, and strategies and action plan in addressing these issues and challenges are vital. Change must occur in people's behaviour and with full commitment, systematic planning and support from all stakeholders, it is not impossible for Malaysia to become leader in SCP in the near future. However, concerted efforts must be taken both by consumers and producers in achieving sustainable development.

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