

INVESTIGATING THE RELATIONSHIP BETWEEN CLIMATE CHANGE, GLOBAL WARMING AND SUSTAINABLE CONSUMPTION

Wan Kalthom Yahya and Sharifah Zannierah Syed Marzuki
Universiti Teknologi MARA, Malaysia

ABSTRACT

The purpose of this paper is to explore patterns of current consumption and production as well as to identify a better understanding the role of consumption that can reduces environmental deteriorations. Methods on how to change these consumption and production patterns to a better sustainable lifestyle are suggested. It is shown that global warming are becoming big impacts which it not only brings danger to human but also to other creature such as plant, animal and even the earth itself. This paper is very significant as global warming is prevalent with respect to consumption behaviour and sustainability. Looking into Malaysian context, the government has also taken several steps including setting up standards for companies to produce green life products for the benefits of its people and environment.

Keywords: Climate change, global warming, sustainable consumption, low carbon society, greenhouse

INTRODUCTION

Earth is the place where human and other living thing like animals, plants live on. Today, earth is facing a problem known as global warming. Climate change is the effect from global warming. In other word, a climate change is the changing of the world's weather. Climate change refers to the situation where a change of the climate properties in term of its mean and/or variability, and the situation continues for some extended periods of time (IPPC, 2007). It is predicted that future climate changes will include further global warming. Hegerl et al. (as cited in IPCC, 2007) assert that human activities have been the contributing factors to a number of climate changes. According to the 2007-2008 Gallup Polls surveyed which involved 127 countries; nearly over a third of the world's population was ignorant of global warming. This include mostly with people in developing countries than those in developed where those in Africa was the least aware. As for those in the Latin America, they were confidence that changes in world temperature are definitely a result of human activities. Nonetheless, countries like Africa, parts of Asia, the Middle East as well as a few countries from the Former Soviet Union belief oppositely (Pelham as cited in Gallup Polls 2007-2008).

Essentially, the burning of fossil fuels such as natural gas and coal contribute to global warming. These fossil fuels contain high percentage of carbon and the burning process generates carbon dioxide which increases radioactive forcing in the atmosphere. One prominent example is emission of greenhouse gas (US EPA, 2000). Indeed, the production and use of fossil fuels have raised environmental concern because fossil fuels are non-renewable resources (US EPA, 2000). Apparently, in the long term, combustion of fossil fuels also creates other air contaminants. The Intergovernmental Panel on Climate Change (IPPC) contends that climate change has and will continue to bring severe and probably permanent alteration to the geological, biological and ecological system of the planet (IPPC, 2007).

BACKGROUND OF THE STUDY

Presently, the climate change is not subsiding. Certainly, global warming gives long-term effect to the world. Therefore, we can only adapt to the climate change but then reactive and anticipate actions need to take place at all level (for instance legislative, industries, personal behavior and etc.) in responding to this present situation. Malaysia, an example of developing country, most probably would consider economic development as the nation priority agenda then handling the climate change especially in the environmental issues. Despite making economic development the nation number one mission, the Malaysian government has showed promising effort in improving the environmental quality through better management mostly air, water quality and solid waste management (EPU, 2002). Indeed, through the formation of National

Environmental Policy adopted in 2002, the Malaysian government has outlined strategies to push the country growth trends towards sustainable development (Ho and Fong, 2007).

GLOBAL WARMING

Global warming is a major issue due to the industrialization and progress by humankind since the past few years. Presently, the issues of global warming are the most common things people talk about. Through general information, global warming happens when gases released from greenhouse increase the environment temperature. Yet, the human are still ignorant about this current phenomenon. The sign of global warming can be seen all around us whether we notice it or not. The consequence of global warming is affecting the ecosystem where the heat is not only melting the glacier but also sea ice. The scientists believe that human activities initiated the global warming. The release of gases from greenhouse into the atmosphere is one of the examples (http://en.wikipedia.org/wiki/Scientific_opinion_on_climate_change). In the long run if no actions are taken to find solution to curb this situation, it could destroy the environment.

CAUSES OF GLOBAL WARMING

Many factors can cause global warming. One of the biggest problems is pollution. Pollution comes in many forms. For example, greenhouse gas emissions such as the burning of fossil fuels are one ways that causes pollution. The burning of fossil such as natural gas and coal released carbon dioxide to the atmosphere. The more gas being released from greenhouse means more gas is being trapped in the atmosphere. At the same time, deforestation takes place in the forests. The process of cutting down trees often cause destructive and has contributed directly or indirectly to deforestation. This phenomenon not only happens in Malaysia but also has been actively happening to the other part of the world. Definitely, logging cause to steep slopes and damaging the ecosystem. Therefore, forests are very important in the cycle of carbon dioxide that being released in the atmosphere (<http://environment.nationalgeographic.com/environment/global-warming/gw-causes>). In short, all the industrialized countries should be responsible to the amount of greenhouse gases that is currently has being emitted to the atmosphere.

Another cause of global warming is population and transportation. The increasing number of population definitely will increase food production process. Another problem relates to population is transportation. Thus, this will increase the demand for transportation especially private car. So, the marketer will produce many cars possible in order to fulfill consumers demand. By having too many cars on the road, more carbon monoxide will be emitted to the air. Consequently, more cars mean more pollution. Surprisingly, electrical can also cause pollution that lead to global warming. Human daily activities of using energy and polluting the air are turning on a light, watching TV, listening to a radio, washing and drying clothes, using hair dryer, and air conditioner, and many more.

EFFECTS OF GLOBAL WARMING

Changes in weather patterns give bad impact to the world and also cause human's health problems such as asthma, dry skin and respiratory system. Prolong of this situation lead to increase death especially among children, adult, very old people as well as the poorer. Fundamentally, severity of heat lead to more heat stroke that cause death particularly among the senior citizens and children. They are vulnerable to these effects. Furthermore, changes in weather patterns cause more extreme weather such as storms, severe and prolonged droughts and floods all over the world. Severe drought and flooding will occur as weather pattern become more extreme. In many parts of the world, mammoth numbers of people die due to lack of food production because of frequent drought and floods. Desolately, the economic and agricultural of the world solely depend on the current patterns of weather. Thus, changes in these weather patterns, will definitely affect the ability of food production that make market unstable, inefficient and price for food more expensive.

Indeed, the ecosystem is also being affected by changes in the weather pattern. Some animal or species can adapt with any ecosystem and some are not. Subsequently, any species that won't be able to adapt could become extinct due to the changes of ecosystem. The hot weather jeopardizes the plant productivity and subsequently changes the chain of food that makes human and animal lack of food. Finally, the global warming also affects the environment. Forests are the most important natural resource. It provides habitat for wildlife, source of fresh water and air. However, deforestation activities affect the flora

and fauna that eventually will be destroyed. In the long run, the living things will lose their 'home' due to the logging activities. As a result, all the living creatures in the forests will vanish.

LOW CARBON SOCIETY

In order to tackle the issue of carbon emission, there is a need for strategies for sustainability in urban environments. According to Cohen (2004) by the year 2030, over 60% of the world's population will be living in the urban. Respectively, over 70% of overall carbon emissions also come from the urban environment (Ho and Fong, 2007). Thus, in order to create or build low carbon cities, the process of creating low carbon society is vital. Such process involves promoting low carbon emission by reducing emission of carbon dioxide (CO₂) in the urban regions. As mention earlier, as one of the newly developing countries, Malaysia, combating environmental issues could be her second agenda as economic development is the priority. As such, promoting private transportation and competing to provide affordable cars to the country's middle class population among automakers is definitely increased. Obviously, this will further inflate the country's CO₂ emissions in the future. However, there are several strategies to achieve low carbon cities through sustainable development. One of the strategies to reduce CO₂ emission is by reducing energy intensity where government must promote the utilization of renewable energy. In addition, to minimize carbon intensity in the cities, support using public transportation as an alternative. It is worth noting, the work of Middlemiss and Parrish (2010) where they apply a framework (refer to figure 1) where in particular, the framework helps to enrich the understanding of the opportunities and constraints facing society in an attempt to stimulate low-carbon communities.

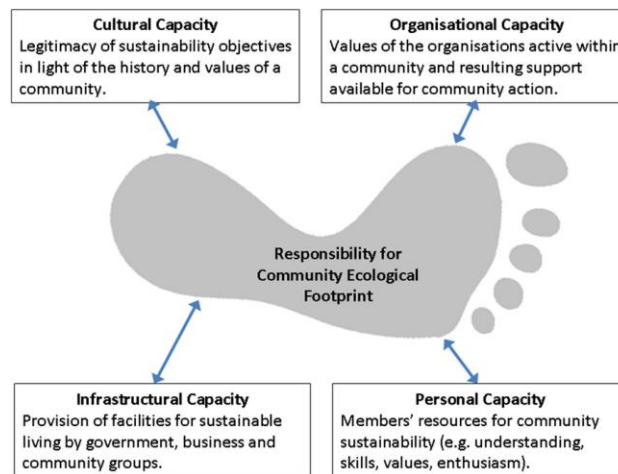


Figure 1: The Theoretical Framework for Understanding the Role of Community Capacity in Enabling Responsibility for Community Ecological Footprint
(Source: Middlemiss, 2008; Middlemiss and Parrish, 2010)

In general, this framework explains the relationship between responsibility and capacity in a low-carbon community context.

RESPONSIBILITY FOR COMMUNITY ECOLOGICAL FOOTPRINT

This responsibility is held both by the community as a collective, and by individuals who comprise that particular community. Four types of capacity enfold the responsibility which these capacities influence the ability of the community together with its members to protect the ecology. Suppose, if any of the capacities are feeble, therefore, the community's ability to perform the responsibility for the ecological footprint will reduce. On the other hand, if the capacities are physically powerful, then the community's ability to take responsibility for the ecological footprint will be superior.

Personal capacity refers to the resources own by individual in the community. These resources include the individual's understanding of sustainability issues, their willingness and skills to act on the issues.

Infrastructural capacity indicates to specific amenities and services being offered in a community as the prospective for sustainable living. Undoubtedly, some communities will have

Have infrastructures which are more or less conducive to sustainable living than others.

Organisational capacity is about the values own by organisation that are active in the community. The capacity will support the effort and attempt to encourage sustainability as well as to sustain organisation to stimulate change.

Cultural capacity refers to the legitimacy of sustainability in term of the community's history and values in which the sustainability is framed within the community's culture.

Furthermore, Middlemiss and Parrish (2010) reckon that there are three ways in which policy makers' action could influence community. They are how people can change their own actions, seek to influence others around them and finally seek to change the social structures that they live in. Thus, through the framework, the policy makers can initiate ecological actions that have impact on the capacity of the community in creating low carbon society.

SUSTAINABLE CONSUMPTION

Sustainable consumption is a circumstance of fulfillment in the consumer needs, demands and resources with the intention to minimize the environmental, social and economic negative impacts. Therefore, sustainable consumption is an important strategy for economic development, convene the needs of the citizen and protect the environment. Robin and Robert (1998) define sustainable consumption as a strategy which focuses on new techniques in managing the demand side of the economy while emphasizing environmental and social well-being (Haron, 2005). The concept of sustainable consumption is about choosing, consuming and disposing goods and services in an environmentally friendly manner to bring about social and environmental benefits (Haron et al. 2005). Consumption activates include population growth, economic activity, technology choices, social values, institutions and policies. Therefore, Haron et al. (2005) conclude that consumers must adopt environmentally responsible consumption behaviors and lifestyles in concordance with sustainable consumption concepts. In their research, Ahmad and Juhdi (2008) signify that the public acknowledge of what is happening to the environment and ecology. However, they further confess that in reality (especially in Malaysia) consumers are still lack in understanding and knowledge of the relationship between their consumption choices and its consequences to the environment. Conversely, past research has recognized government's vital role in creating an environment for sustainable consumption to thrive and the need to implement strategies to meet the challenges of sustainable consumption and development (Ahmad and Juhdi, 2008). Some of the strategies include education and fostering environmental and ecological awareness amongst the public to ensure that sustainable consumption practices work (Said et al. 2003).

SUSTAINABLE LIFESTYLES

In understanding the development of sustainable ways of living those concerning citizen everyday environmental actions, it is crucial to identify how green behavior and habitual behavior of individual within home relates with the social and psychological bases of sustainable lifestyles. Furthermore, by analyzing such activities in this way, it is anticipated that a more effective understanding of progress towards sustainable lifestyles can be understood. Gilg et al. (2005) identify there are four groups of sustainable lifestyles, namely:

- (1) Committed environmentalist – the most eager and enthusiastic group that always compost their waste and passionately practice sustainable purchase activities (e.g. buying organic product)
- (2) Mainstream environmentalist – most likely behave the same manner as the committed environmentalist but they are considerably less likely to compost their waste.
- (3) Occasional environmentalist - who were more likely to either never or rarely undertake sustainable purchasing behaviors
- (4) Non-environmentalist - the least active, never undertake any sustainable purchasing behaviors

From the study, Gilg et al. (2005) conclude that purchase-related and habitual behavior do constitute to sustainable consumption pattern of lifestyles. Basically, these distinctive behavioral groups encompass their own social, attitudinal and behavioral qualities where committed environmentalists, who participate in environmental actions, to non-environmentalists that generally never, participate in any such environmental activities. Undoubtedly, to achieve sustainability lifestyles, policy maker especially need to comprehend the relationship between purchase behaviors and habitual elements of individual. Each group has its own specific behavioral qualities and attitudes that connect in a different ways in sustainability.

PREVENTATIVE MEASURE THAT COULD BE CONSIDERED

Fundamentally, public need to be guided in understanding the government objectives in promoting patterns of consumption and sustainable lifestyles in reducing environmental deterioration. Thus, in order to achieve sustainable consumption patterns, the main tasks of the government are to avoid any unsustainable patterns; particularly activities that are in industrialized areas those are extremely harmful to the environment, and identifies inefficient and wasteful in their development processes. Changes in unsustainable consumption patterns require emphasize in use of resource optimization and minimization of waste in industries, households and individuals. Furthermore, efficiency in production is pivotal in achieving environmental quality and sustainable development.

The sustainable behaviour can be achieved if behaviour change tools are practiced that include commitment and prompts. Within this context, as quoted by McKenzie-Mohr (2000, p. 531), “as humanity hurtles toward a future with twice today’s inhabitants, it will be forced to make dramatic changes so that the burgeoning population does not outstrip the earth’s ability to support humans and other species.” It is found that there has been a growing interest in informing consumers about the environmental aspects to consider when buying products (Young et al., 2010). In order to support these tasks, government should make a concerted effort to examine the relationship between production and consumption, environment and demographic factors which initially will assist government in developing new concepts of sustainable growth and prosperity. Eventually, these new concepts of wealth and prosperity would lead to higher standards of living through changed lifestyles that are less dependent on the limited resources of the earth. Therefore, there are many ways to reduce and prevent global warming in Malaysia. Firstly, is to educate the citizens. Government needs to educate the citizens about causes and effects of global warming. Government could educate households and the public to make environmentally sound purchasing decisions by providing information on the consequences of their consumption choices and behaviour. Finally, government could encourage healthy lifestyles by means of ensure consumers be aware of environmental impact of the products they purchased and consumed. Similarly, subject about global warming must also be added in school syllabus. Children need to be exposed and informed about environmental care and how global warming can effect the environment. This kind of information would enhance the young citizens in helping to save earth by not consuming products that could contribute to global warming.

Likewise, Government accompany by industry could help household as well as the public through specific consumer-oriented programs such as recycling program in order to reduce product waste and it is necessary to prevent any additional landfill contamination. Basically, garbage is easy to decompose, but if too much it can create big problem and eventually lead to global warming. To prevent this from happening, government should take several steps to curb it. Encourage local not to use non-eco friendly product. Government needs to inform the public to avoid disposable goods like polybags, razors, plates, glasses, pet bottles and tins. Plastics are one of the materials that need years to decompose. Therefore, government should encourage local to use reusable goods like cloth bags, bottled drink and refuse polybags.

Encourage the public to use public transportation like bicycle, buses and car pool. To encourage these, government should build more bike trails and make sure that bicyclists are kept safe from traffic. Relates this activity as a health lifestyle where the public can sense the logic behind it. Nowadays, light rail train or LRT has become one of the alternative transportation to the public and this vehicle does not use much fossil fuel. However, the current number of LRT is not sufficient as to cater the public needs. If the government could provide sufficient LRT services this problem will not be a matter in the future. Furthermore, impose fines for citizen that drive alone in a car during peak hours. Indeed, car pool helps to save fossil fuel and also reduce the release of carbon monoxide into the air. The ‘Earth Hour’ is an event that takes place once a year. During the event the public is encouraged to switch off electricity for one hour. This

kind of event definitely requires support from the public and encouragement from the government. Fundamentally, Earth Hour is a first step to persuade people to reduce global warming and take care of earth. The publicity of the Earth Hour event needs more and exclusive coverage in order to alert the public on the issues of climate change. Instead of having the event only once a year, try to do at least twice a year! Essentially, the earth hour is not about switching off lights for one hour. By switching off, it reduces the energy consumed. The main goal of the event is to create awareness around climate change issues and to express that individual action in a big group help to transform the planet for the better.

Consistently, Government must formulate campaign such as 'save the earth' by enhancing citizen to plan tree in their surroundings. The campaign must emphasize everyone to take part. As an incentive, reward those that participate. Currently, Government is also undertaking the planting of trees along the sidewalks. Recently, government seems to practice urban farming as one of the ways to lessen the effect of global warming. Urban farming is referred to farming or agricultural activities within an urban area, generally practiced for income-earning or food-producing purposes (KeTTHA, 2010). It contributes to food security, food safety, better environmental quality and greenery for a nation especially the urban area. In the urban, there are percentage of urban land reserved for rivers, railways and utilities. From observation, not all these reserved land are fully utilized for example Tenaga Nasional Berhad (TNB) transmission line reserved lands and Keretapi Tanah Melayu (KTM) reserved land. Usually this vacant lands are being utilized illegally e.g. for squatters, waste dumping, workshop and even farming. The significance of this urban farming is that the vegetation is capable to clean the urban environment especially the air. Subsequently, the process would reduce air pollution, urban heat as well as improve human health. Thus, the government must encourage public that interested to do urban farming to take the opportunity to do so. This not only curbs global warming but so provide job to the public.

Being the main authority in the nation, government needs to stringent the law and regulation regarding environment. Yes, fundamentally Malaysian government all well occupied with law and regulation regarding environmental. However, all these law and regulations required forceful enforcement. For instance, make it a standard requirement by company to adapt corporate social responsibility as one of the company corporate strategies. As a result, the companies need to produce green life product that not bring any harm to the citizen and environment. Accordingly, government together with the cooperation from industries could encourage greater efficiency in the use of energy and resources by (1) promoting R&D in environmentally sound technologies (2) recycling process at the industrial (3) reduce uneconomical product packaging (4) introduce more environmentally sound products by having environmental labeling. Besides that, make a law regarding environmental pollution to prevent people and communities and organizations from doing something that contributes to environmental pollution such as littering, having open burning, remove the toxic waste into rivers and other. This can be done by set the standards required by the factory to discharge waste into the air and make sure that the factory are using filter before their waste are release into the air. Impose severe penalties for those factories that violate this law. Finally, in addition, higher levels of self efficacy are likely to yield higher levels of environmental behaviors if the individuals perceive that they have the time and resources to act (Barr, 2003).

CONCLUSION

There are many reasons that cause global warming such as deforestation, human vulnerability or activities such as smoking, and open burning. Using of fossil fuel also give a bad impact to earth because it causes global warming. Based on this situation, active actions are needed to curb and lessen the bad impact of global warming. This can be done by educating the citizen with the information that could affect global warming. Companies also can contribute their effort in order to help in controlling the global warming effects by making green life product. Government also need to enforce the law and regulation regarding the environment and make campaign in the newspaper, internet and television that can help in controlling the global warming. Eventually, through education, public awareness programs, positive products and services advertising that encourage using environmentally sound technologies, government would promote positive attitude toward sustainable production and consumption pattern to the public. In the long run, changes in unsustainable consumption patterns would be achieved. Undoubtedly, all these activities and programs involve the collaboration efforts between government, consumer and producers. Predominantly, more attention needs to be given to women and households as they played the most significant role as consumers.

In conclusion, all parties including government, local authorities, industries, the public and non-government organisations should take seriously the phenomenon of global warming. Moreover, everyone in the society need to enhance his or her own self-awareness about the factors that could lead to global warming as to ensure the effects of global warming would not harm the physical and human environment. Consequently, the communities in general must be alert and sensitive with their actions especially the consumption pattern in order to avoid many more severe negative impact as to ensure the wealth of the environment for the next generation ahead.

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