Research Summary

Modern transportation nowadays has evolved into an important economic activity for human civilization. However, it has been long realized that excessive usage of fossil fuels in transportation sector is one of the highest contributors to the emission of carbon to the atmosphere which will then lead to drastic climate change. Malaysia with a huge supply of palm oil for biofuels production is intended to implement mandatory biodiesel blends in its transportation sector in 2011 in order to achieve its carbon reduction commitment towards a more sustainable development. This implementation was originally targeted to start in 2009 but had to be postponed due to several obstacles such as expensive cost, lack of sufficient infrastructure and low public demand. On the other hand, Japan is also trying to fulfil its carbon reduction obligation as outlined under Kyoto Protocol with the usage of biofuels to replace fossil fuels in the transportation sector. However, it lacks of sufficient biofuels supply to support its high transportation energy demand. In this case study, the mutual cooperation between Malaysia and Japan in the implementation of biofuels in transportation sector will be studied and analysed in order to overcome the challenges presented in both countries. Successful implementation of biofuels in transportation sector can discard the belief that fossil fuels are irreplaceable and thus pave the way for the introduction of other more radical renewable energy such as fuel cell and solar energy in the future. As it stands now, biodiesel blends has been ready to replace part of the mineral diesel demand in transportation sector. Future work will focus on optimizing the production cost and increasing the palm oil yield in order to support higher biodiesel blending percentage in the blends. On the other hand, lignocellulosic bioethanol still requires extensive research to make it viable for gasoline replacement. Establishing commercial production of bioethanol will be equally important since most of the current private transportation vehicles are operated using gasoline. International cooperation will be more and more important in dealing with global issues such as renewable energy and can be very advantageous as discussed in the work above. It is believed that the strengths from one country can help to cover for the weaknesses from the other and vice versa via closer bilateral partnership which will be extremely crucial when dealing with global energy issues. The successful partnership between Malaysia and Japan can be a good role model for other countries to emulate in the future. Ultimately, it is hope that this case study will enable both Malaysian and Japanese government to achieve their target of replacing energy demand from fossil fuels in domestic transportation sector with that from renewable sources. In the long term, this will lead to the success of Kyoto Protocol and ensuring a sustainable environment for future generation.

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