



# Malaysia Stocktaking Report on Sustainable Transport and Climate Change

The transportation sector in Malaysia accounts for approximately 35% of the total energy consumed nationally, and produces nearly 50 million metric tons (Mt) of CO<sub>2</sub> per year (2015), second only to electricity power generation. The vast majority, 85.2% of transportation emissions, comes from road transport. Due to the high rate of personal automobile ownership, cars account for about 59% of the overall emissions from transport, while freight is responsible for 27%. Although there are a roughly equal number of cars and motorcycles on the roads, motorcycles account for only 11% of the CO<sub>2</sub> emissions from the transportation sector. As the economy continues to develop the rate of energy consumption rises, and corresponding Greenhouse Gas (GHG) emissions are also increasing, resulting in an almost constant rate of CO<sub>2</sub> emissions per Gross Domestic Product (GDP).

For the purpose of this report “Sustainable Transport” is defined as the freedom of mobility of both, people and goods, without sacrificing essential human or ecological values including affordability for socially disadvantaged groups and the long-term financial feasibility of transport systems. Generally this infers efficient transportation at a reasonable cost with an acceptable level of safety, without generating emissions or waste products in excess of the environment’s ability to absorb them.

This report provides an up-to-date (2016) picture of the transport sector and transport-related greenhouse gas emissions and mitigation policies in Malaysia, and includes identification of “gaps” where policies and practices can be changed in order to improve overall transportation efficiency and sustainability. The focus of this report is primarily on land transport including both passenger and freight transport and is based on existing literature and policy documents, interviews with policymakers and experts and a limited amount of primary field work.

The first chapter gives an introduction of the importance of sustainable transport in Malaysia and specifies the content in the following chapters.

In **Chapter 2**, a background on transportation and a trend analysis are presented to give an overview of the current situation in Malaysia, with regard to transportation trends and environmental issues. Data presented including: Current vehicle sales and transport statistics, annual registrations, transport demand statistics, average occupancy and load factors, modal distribution for passengers and freight, average vehicle-kilometre travelled (VKT), vehicle population by vehicle and fuel type, emissions factors of the various transportation modes and fuel characteristics. Additionally, this chapter also features estimating CO<sub>2</sub> emissions and potentials to reduce current emissions.

**Chapter 3** outlines and analyses policies related to sustainable transport based on the ASIF approach, where ASIF stands for Activity, Structure, Intensity, Fuel. This is done to quantify the GHG emissions of Malaysia’s transport sector including transport activity in passenger-kilometre travelled (PKT) and ton-kilometre travelled (TKT) for freight, modal split, fuel intensity, and emission factors. The policies already in place are discussed and the institutions linked to climate change and transport are described. Other sub-chapters are dedicated to the environmental



policy financing, the present monitoring effort (including data availability) and future emission projections.

Barriers towards low-carbon transport are shown in **Chapter 4**, divided into three topical focus areas: Policy development barriers, physical and infrastructural barriers, and behavioural and information barriers, where the first area revolves around the lack of coherent policy development regarding sustainable transport. This can be traced back to the fragmentation of the institutions in charge for climate change related questions. Overcoming these barriers is challenging from an ideological point of view, since economic interest often conflict with sustainable transportation. Physical and infrastructural barriers are issues which require significant infrastructure or physical resource development, such as adding new railways or building new laboratory facilities. Improving these gaps will require a commitment of time and money, and may be very time intensive. Lastly, behavioural and information barriers are issues, which predominantly require behavioural changes, and/or information sharing to overcome, with relatively little physical infrastructure development. Overcoming these barriers could happen relatively quickly, with much smaller investments of funds than major infrastructure projects. Examples would be: Integrated ticketing, green technology encouragement, bus route optimisation and car sharing.

**Chapter 5**, portrays recommendations for further action on policy development and capacity-building. Using the information gathered in the previous chapters, this chapter informs policy makers and other key stakeholders of possible improvements to achieve the goal of a more sustainable transport. Such recommendations are: To use CO<sub>2</sub> emissions per passenger kilometre as the unit for comparison of all transportation modes, car-pooling, park and ride, encouragement of non-motorised transportation modes and efficiency labels and standards, just to name a few.

This report is not only important for Malaysia, but also for the whole ASEAN region: Many of the lessons gleaned from other countries of region can be applied here in Malaysia, and Malaysia undoubtedly has a lot to offer in return as well. The recently published *Kuala Lumpur Strategic Transportation Plan 2016-2025*, an ASEAN wide transportation development plan, is a good example of just such cooperative planning.

### **Potential impact of sustainable transport**

With the implementation of a few of the most basic recommendations, it is calculated that Malaysia can reduce transport related emissions by up to 71 Mt of CO<sub>2</sub> per year (representing a 50% reduction of transportation related emissions) by 2030. While this represents a significant improvement in the state of transportation sustainability, it will not be sufficient to achieve the stated goal of a 40% reduction in CO<sub>2</sub> emissions per GDP by 2020 without other measures taken simultaneously.

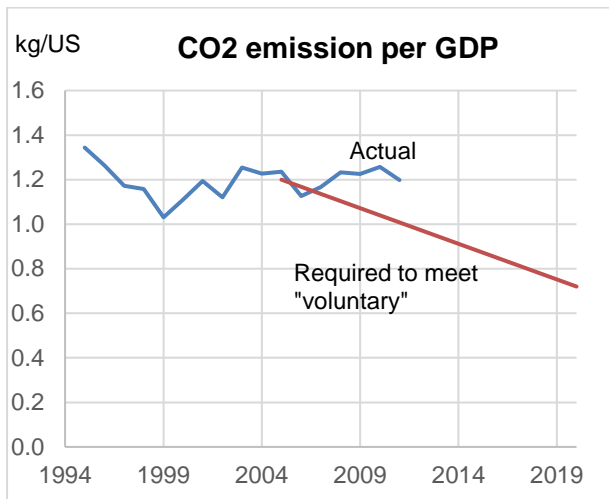


Figure 1: Actual Malaysian CO<sub>2</sub> emission per GDP with trend (dotted line) required to meet the 40% reduction commitment (see box page 1) by 2020 (Source: World Data Bank, 2012).

Malaysia is well positioned to be an important local hub of environmental activity. Many of the requisite factors, such as mature infrastructure development, centralised policy, and standards development are already in place. Notably Malaysia has recently decided to develop rigorous standards for all classes of electric two-wheeled vehicles, taking a leading role in the dissemination of this highly efficient technology. By implementing the suggestions contained in this report, Malaysia can significantly reduce CO<sub>2</sub> emissions while maintaining a reasonable rate of economic development and standard of living. Along with the trend of increasing regional integration, this may allow Malaysia to take on a greater role in transportation systems planning and implementation within ASEAN.