

## INTENDED NATIONALLY DETERMINED CONTRIBUTION OF THE GOVERNMENT OF MALAYSIA

In accordance with decisions 1/CP.19 and 1/CP.20 of the UNFCCC, the Government of Malaysia is pleased to communicate its Intended Nationally Determined Contribution (INDC), together with relevant clarifying information.

### MALAYSIA'S INTENDED NATIONALLY DETERMINED CONTRIBUTION

Malaysia intends to reduce its greenhouse gas (GHG) emissions intensity of GDP by 45% by 2030 relative to the emissions intensity of GDP in 2005. This consist of 35% on an unconditional basis and a further 10% is condition upon receipt of climate finance, technology transfer and capacity building from developed countries.

<b>Quantifiable information on the reference point</b>	<p>Base year: 2005</p> <ul style="list-style-type: none"> <li>• Emissions in the base year: 288,663 Gg CO<sub>2</sub>eq*</li> <li>* Emissions in the base year includes emissions from land use, land use change and forestry (LULUCF) which have been estimated at 25,667Gg CO<sub>2</sub>eq respectively,</li> <li>• GDP in the base year (constant price at 2005): RM 543.578 billion</li> <li>• Emissions intensity of GDP in the base year: 0.531 tons CO<sub>2</sub>eq per thousand RM</li> </ul>
<b>Time frame for implementation:</b>	<b>10 years – 2021 to 2030</b>
<b>Scope and coverage</b>	<p><i>Gases covered:</i> Carbon dioxide (CO<sub>2</sub>) Methane (CH<sub>4</sub>) Nitrous Oxide (N<sub>2</sub>O)</p> <p><i>Coverage:</i> Economy-wide emissions intensity of GDP</p> <p><i>Sectors:</i> Energy Industrial Processes Waste Agriculture Land Use, Land Use Change and Forestry (LULUCF)</p>
<b>Planning processes</b>	The INDC was developed through participatory process through an inter-ministerial/agencies working group. Stakeholder consultations were conducted to obtain

	<p>inputs on possible measures to reduce greenhouse gas emissions. The projected outcomes from the 11<sup>th</sup> Malaysian Development Plan and the following policies and plans form the basis for the development of this INDC:</p> <ol style="list-style-type: none"> <li>a. National Petroleum Policy (1975)</li> <li>b. National Energy Policy (1979)</li> <li>c. National Depletion Policy (1980)</li> <li>d. Four-Fuel Diversification Policy (1981)</li> <li>e. National Forestry Policy (1978, Revised 1992)</li> <li>f. National Policy on Biological Diversity (1998)</li> <li>g. Five-Fuel Policy (2001)</li> <li>h. National Policy on the Environment (2002)</li> <li>i. National Strategic Plan for Solid Waste Management (2005)</li> <li>j. National Biofuel Policy (2006)</li> <li>k. National Energy Policy (2008)</li> <li>l. National Green Technology Policy (2009)</li> <li>m. National Policy on Climate Change (2009)</li> <li>n. New Economic Model, Government Transformation Programme and Economic Transformation Programme (2010)</li> <li>o. Renewable Energy Policy and Action Plan (2010)</li> <li>p. Second National Physical Plan (2010)</li> <li>q. Low Carbon Cities Framework (2011)</li> <li>r. National Agro-food Policy (2011)</li> <li>s. National Water Resources Policy (2012)</li> <li>t. National Automotive Policy (2014)</li> </ol>
<p><b>Assumptions and methodological processes</b></p>	<p><i>GHG Inventory Method</i>  Malaysia used the Revised 1996 IPCC Guidelines, Good Practice Guidance, 2000 and Good Practice Guidance for LULUCF, 2003 for current reporting. From 2017 onwards, the 2006 IPCC Guidelines will be used.</p> <p><i>Global Warming Potential Used</i>  Global warming potential values on a 100 year timescale in accordance with IPCC's 2<sup>nd</sup> Assessment Report</p> <p><i>International market mechanism</i>  Malaysia has no intentions to use international market mechanism to achieve INDC contributions.</p> <p><i>LULUCF</i>  The inclusion of non-forest land (cropland, grassland, wetlands and settlement) will be determined later.</p>

### **Fairness and Ambition Considerations:**

Malaysia's total GHG emissions represent about 0.6% of global emissions in 2011. The emission intensity per GDP was 0.41 tCO<sub>2</sub>eq/RM1000 for that year. This represents a reduction of about 23 % from 2005 values. The total GHG emissions including removals by LULUCF sinks is about 0.05% of global emissions.

The country continues to allocate financial resources for the implementation of climate change mitigation programmes through both public and private sector initiatives. The climate-related policies are implemented along with national priorities such as poverty eradication, improving quality of life and development. In addition, financial resources are also frequently reallocated to address losses due to increased incidences of natural disasters.

#### **➤ Malaysia has taken early action**

Since the Ninth Malaysia Plan (2006-2010), Malaysia has started initiatives to increase the share of use of non-fossil fuel energy. The National Biofuel Policy 2006 already laid the groundwork for the development and use of biofuels. The National Biofuel Industry Act 2007 was put in place to regulate the biofuel industry and to promote the mandatory use of the B5 domestic blend of 5% palm biodiesel and 95% fossil fuel diesel. At the end of 2014, Malaysia had also introduced the bio-diesel B7 Programme.

The Tenth Malaysia Plan (2011-2015) focussed on sustainable growth and introducing mitigation strategies to reduce emissions of GHG. Three significant financial tools were introduced to promote sustainability measures. These consist of the introduction of a feed-in-tariff (FiT) mechanism in conjunction with the Renewable Energy Policy and Action Plan (2010) to help finance renewable energy investment, providing fiscal incentives and funding for green technology investments and promoting projects eligible for carbon credits. In the forestry sector, two major initiatives were launched, the Central Forest Spine (CFS) and Heart of Borneo (HOB) to ensure sustainable forest management and use of natural resources.

The government will continue to pursue the green growth goal under the Eleventh Malaysia Plan (2016-2020) will further focus on pursuing green growth for sustainability and resilience. These include strengthening enabling environment for green growth, adoption of sustainable consumption and production, conserving natural resources and strengthening resilience against climate change and natural disasters. These actions will further reduce Malaysia's carbon footprint.

#### **➤ Major barriers for implementation include high costs and capacity constraints**

Malaysia developed *A Roadmap of Emissions Intensity Reduction in Malaysia* in 2014. The study indicated that Malaysia has opportunities across various sectors to meet the reduction target of 40% emissions intensity reduction of GDP. However, while these opportunities exist, considerable efforts would be required to realise these emissions reductions in light of the challenges and barriers described below.

## *TECHNOLOGY COST*

Many mitigation actions are limited by the cost and suitability of appropriate technologies. Generation cost of renewable energy is still higher than conventional energies while rail based mass transport systems have high capital cost. Benefit relating to electrification of transportation systems are also limited by the current fuel mix used for electricity generation which consist mainly of fossil fuels.

## *INSTITUTIONAL FRAMEWORK and CAPACITY*

Climate change is a cross cutting issue and currently the institutional framework to address the issue is fragmented. It is often a consequential co-benefit outcome of agencies' core responsibilities. Creating long-term commitment from all stakeholders, businesses, civil society, and people, is critical as this transition and associated results will take time. In addition, new competencies and skills need to be developed.

## *LULUCF LEGACY ISSUES*

Malaysia has a long forest management history. However, there are some areas of forest that have been degraded due to past management effects. Restoration and rehabilitation of these forests incurs high cost and nurturing. Furthermore, the advent of climate change has also highlighted another legacy in forest management, that is, the drained peatlands. In the 1960s and 70s, peatlands were considered a wasteland and draining was considered an effective rehabilitation to improve the productivity. Some of these drained peatlands are now unmanaged and are susceptible to wildfires during the dry seasons. It is also expensive to "re-wet" these areas.

## **Adaptation**

Over the past five decades, positive trends in temperature increase have been observed in Malaysia. The surface mean temperature increase is around 0.14°C to 0.25°C per decade. The surface maximum temperature increase is around 0.17°C to 0.22°C per decade, and the surface minimum temperature increase is around 0.20°C to 0.32°C per decade. Realising adaptation to climate change is required to build resilience, Malaysia has taken early actions to mainstream adaptation to climate change into development. During the Tenth Malaysia Plan, Malaysia spent RM51 billion to enhance resilience against climate change. A national adaptation plan would be developed to provide greater coordinated implementation.

## *Addressing Flood Risks*

Malaysia is prone to seasonal monsoon floods. Average annual direct loss from these floods amounts to RM915 million. In the recent decade, rainfall intensity has increased leading to more severe monsoonal floods. Urban areas are also becoming more prone to flash floods due to the higher rainfall intensity. In the extreme floods in 2014, damage to public infrastructure amounted to RM2.9 billion. However, Malaysia has been implicitly building adaptation resilience through its development Plans. From 2004 to 2014, Malaysia has invested over RM 9.3 billion on flood mitigation. Flood mitigation programmes and

strengthening of disaster risk management and resilience of infrastructure would be further enhanced in the Eleventh Malaysia Plan and beyond.

#### *Water Security*

Over 97% of the water supply is derived from surface water in rivers and reservoirs, hence management of these vital water catchment areas is crucial to ensure a reliable source of water supply. As part of forward planning on water supply requirements, a Review of the National Water Resources Study (2000-2050) was completed in 2011 and a National Water Resources Policy was formulated in 2012. To ensure adequate and safe water supplies, inter-basin water transfer projects are being implemented to supply water to areas that are experiencing water-stress due to high economic and population growth and spatial and temporal shifts in rainfall distribution. Although expensive, these infrastructure investments are necessary to address water resource needs under a future climate regime. During the Tenth Malaysia Plan, over RM 12 billion were spent on improving the water sector infrastructure, with over RM 5.6 billion being used for developing the water supply for the rural areas. Moving forward, the Eleventh Malaysia Plan among others aims to strengthen the regulatory framework of the water services industry, expand the water supply network and treatment capacity infrastructure and increase the efficiency of water supply services.

#### *Food Security*

The development of the agriculture sector in Malaysia is guided by the National Agro-food Policy (2011-2020) and the National Commodity Policy (2011-2020), which aim to increase food production and exports of industrial commodities. In the Tenth Malaysia Plan, RM 5.1 billion was allocated to improve the agriculture and agro-based industries in Malaysia. The Eleventh Malaysia Plan would further expand implementation of good agricultural practices and intensifying research and development for improving agriculture production. New granary areas and adequate and efficient irrigation and drainage infrastructure will be developed to increase the production of rice.

#### *Protecting Coastlines*

Malaysia has about 5267km of coastline and 29% of these faces erosion problems. As part of the solution towards coastal erosion, both hard and soft engineering approaches had been implemented. For the longer term, Integrate Shoreline Management Plans (ISMPs) have been developed and implemented for specific areas. In addition, a National Coastal Vulnerability Index to sea-level rise is being developed. Detailed sea level rise studies had also been conducted at some of the vulnerable coastal areas to project future vulnerabilities in a 20-year sequence from 2020 to 2100.

#### *Health*

During the Tenth Malaysia Plan, Malaysia spent over RM 9 billion on the health sector, with over RM 1.5 billion being for adaptation of the health sector to climate change. In particular, vector-borne diseases such as dengue and malaria are expected to be further exacerbated by rising temperatures and high rainfall. The dengue menace in urban centres has been a

constant public health challenge affecting a wide population of all age groups in Malaysia and this is expected to worsen with the impacts of climate change. The control and prevention of dengue transmission using early test kits and community behavioural intervention as well as exploratory research on alternative medicines are among the efforts being undertaken.

In addition, climate-related disasters are already posing huge challenges to the public disaster management systems. Ensuring clean water supply and optimal sewerage services are particularly difficult during disasters such as flooding, as experienced during the recent year-end massive flooding that affected several states, giving rise to food and water-borne diseases.