Tourism and Climate Change Adaptation
Implications for Southeast Asia?

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Southeast Asia (2016):

- 11.8% of GDP – US$ 301.1bn
- 9.7% of total employment

Source: WTTC, 2017
# Climate Change Impacts on Tourism

<table>
<thead>
<tr>
<th>Climate change effect</th>
<th>Tourism impacts</th>
<th>Exacerbating factors</th>
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</thead>
<tbody>
<tr>
<td>Sea-level rise</td>
<td>Coastal erosion, beach loss</td>
<td>Clearing coastal areas of vegetation, poorly planned sea walls and ports</td>
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<tr>
<td>A changing storm regime and rainfall patterns</td>
<td>Damage to tourism facilities, increased insurance and operations costs, business interruption</td>
<td>Developing tourism <strong>infrastructure in hazard-prone areas</strong>, poor quality of building design and materials</td>
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<td>Biodiversity changes (e.g. ocean acidification)</td>
<td>Loss of natural attractions and species from destinations, especially for coral reefs</td>
<td>Pollution, <strong>poor waste and waste-water management</strong>, disturbance of animals in protected areas, reduction of and damage to natural habitats</td>
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<tr>
<td>Warmer temperatures</td>
<td>Heat stress for tourists, increased cooling costs, coral bleaching</td>
<td>Inadequate building design, <strong>reduction of tree cover</strong> and natural shading options</td>
</tr>
</tbody>
</table>

Source: Hess & Kelman, 2017
Climate Change Impacts on Tourism

Thailand is facing its worst water shortage in two decades ...with water rationing being imposed in some provinces and hotels told to minimise their laundry loads. (Reuters, 2016)

Tourists urged to holiday in the Philippines after Typhoon Haiyan ...

As the aid effort in the Philippines continues, the tourism industry is urged to visit the country as a way of helping the recovery effort.

Koh Samui is suffering a severe shortage of water ...
...two of the islands five filtration plants are set to shut down (Koh Samui News, 2016)

Tourists in temple rescued ...
...Almost 200 tourists had to be rescued by helicopters and boats (The Phnom Penh Post, 2011)

Elephant dies from exhaustion after carrying tourists to Cambodia's Angkor Wat ...
...The animal had been working for 40 minutes in searing heat before she collapsed. (Independent, 2016)

Too hot to work: climate change 'puts south-east Asia economies at risk' ...
...Rising temperatures and humidity due to climate change are likely to increase the number of days with unsafe “heat stress”, putting south-east Asia at great risk of significant drops in productivity. (The Guardian, 2015)

Thailand closes dive sites over coral bleaching crisis ...
...In a rare move to shun tourism profits for environmental protection, 10 popular dive sites have been shut down... to slow a coral bleaching crisis (Guardian, 2016)
Global Climate Change impacts on Tourism

High levels of investment in adaptation will be needed to maintain or increase visitor numbers

Source: UNWTO & UNEP 2008, p. 31
Global Adaptation Costs

Indicative level of costs based on synthesis of bottom-up studies

Global aggregated sector impact assessment

Climate Change Adaptation Definitions

Climate Change Adaptation is:

• “[t]he process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities...”. Source: IPCC, 2014a, p. 118

Climate Change Adaptation of the Tourism Industry is:

• “the appropriate response to the measures taken to reduce the industry’s vulnerability in relation to climate change” or to exploit favourable opportunities. Source: Kaján & Saarinen, 2013, p. 179 based on; Becken & Hay, 2007; Patterson, Bastianoni, & Simpson, 2006
Adaptation Action

Natural Resource Management

Coral reef rehabilitation

Water efficiency

Fixing leaky pipes

Rainwater Harvesting/water reservoirs

Building design

summer sun
winter sun
louvred vent
deciduous trees
maximum glazing to north
thermal mass flooring

Cooling/Heating

Inverter AC, Solar water heater, ceiling fan

light coloured roof with insulation
summer cooling breezes
screen planting against winter winds
Adaptation Action

Regulatory & incentive frameworks

Risk transfer mechanisms

Shoreline protection

Early warning systems

Barbados: 1.2 km prime location, 24.2m $, responsive to CC & SLR
Adaptive Capacity of Tourism Stakeholders

Source: Hess et al., 2015 (based on Scott and Jones, 2006)
Thank you for your attention!