Human dynamics of climate change
www.metoffice.gov.uk/human-dynamics
Human dynamics of climate change

- Latest climate projections
- ‘Business-as-usual’ greenhouse gas concentration scenario (RCP 8.5)
- ‘Middle of the road’ population scenario (SSP2)
- Changes from present day to end of century
Present day human dynamics

Population
Water stress
Trade
Fish catch
Glaciers

Tropical cyclones
Fragile states
Ports & airports
Shipping routes
Maritime chokepoints
### Future climate impacts

<table>
<thead>
<tr>
<th>Run off</th>
<th>Flood frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regions of both increase and decrease</td>
<td>Increases in flood frequency over large regions, smaller areas seeing decreases</td>
</tr>
<tr>
<td>Water demand for irrigation</td>
<td>Coastal flooding</td>
</tr>
<tr>
<td>Global increases in the amount of water needed by crops</td>
<td>Millions of people at risk of coastal flooding due to sea level rise and population increases</td>
</tr>
<tr>
<td>Average crop yield</td>
<td>Temperature of warm days</td>
</tr>
<tr>
<td>Both increases and decreases in yield of wheat, rice and soybeans; Decreases for maize</td>
<td>Increases globally</td>
</tr>
<tr>
<td>Drought</td>
<td>Sea surface temperature</td>
</tr>
<tr>
<td>Global increases in number of days in drought</td>
<td>Warming sea temperatures and acidification of the ocean threaten marine ecosystems</td>
</tr>
</tbody>
</table>
Southeast Asia

Present-day human dynamics

- Areas of high water stress
- Important region for rice exports & fishing
- Exposed to tropical cyclones
- Significant maritime transport region
- Increasing population
Southeast Asia
Future climate impacts
Water run off

Decreasing run off

-8% (-15% - -5%)
Southeast Asia
Future climate impacts
Water demand for irrigation

Increasing water demand for irrigation
Southeast Asia
Future climate impacts
Crop yield

Decreasing maize yield
Increasing rice yield

Math: $-15\% (-25\% - 2\%)$

Math: $4\% (-4\% - 15\%)$
Southeast Asia
Future climate impacts

Drought

Increasing drought days
Southeast Asia
Future climate impacts
Flooding and coastal flooding

- 18,080,000 (17,880,000 – 18,650,000)
- 2,450,000 (1,670,000 – 4,460,000)
- 12,760,000 (10,500,000 – 18,900,000)
- 4,220,000 (3,080,000 – 7,900,000)

Increasing in population exposed to coastal flooding
Increasing flood frequency for most areas

77% (56% – 84%)
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Future climate impacts
Warm days

Increasing temperature of the warmest days
Southeast Asia
Future climate impacts
Human dynamics of climate change

Poster is full of information about human activity and climate change

Please have a look for yourself and see what connections you can make
Human dynamics of climate change