

# Shades of climate risk

## Categorizing climate risk for investors

### Physical risks in Africa

Top risks	Key message	Observed Impacts	Projected Impacts towards 2050 (for a range of scenarios between 2°C and Business-as-Usual) <sup>1</sup>	Examples of Impacted Sectors	Shade of Risk
Flooding <sup>2</sup> 	Increased extreme precipitation, complicated by strong population growth and urbanization	Insufficient evidence or mixed trends, but increased rainfall intensity in West Africa (low to medium confidence)	Across all scenarios: Low agreement or small changes expected (low to medium confidence), but likely increase in heavy precipitation in East Africa (high confidence)	Transportation, infrastructure, agriculture	
Drought <sup>3</sup> 	Water stress. Reduced crop productivity. Loss of livestock. Conflict and migration	Spatially varying trends (low confidence), but increased dryness in West Africa (dominated by Sahel dryness in 1970s) (high confidence) and general increase in dryness in Southern Africa (medium confidence)	The trends are inconsistent or varying in different areas (low to medium confidence), but increased in dryness in already dry areas of Southern Africa (medium confidence)	Agriculture (combined temperature and precipitation trends will reduce crop productivity)	

<p>Sea level rise</p> 	<p>Especially cities in coastal areas, wetland and deltas at risk</p>	<p>Current global observed change 3.2 mm/year</p>	<p>+22 cm (16 to 32 cm) sea level rise globally in 2050 compared to 1986-2005 almost regardless of emission scenario (medium confidence). Sea level rise up to 20% higher in equator and subtropical regions.</p>	<p>Tourism, fisheries, transportation, industry, infrastructure</p>	<p>Coastal areas, deltas, cities</p>
<p>Heat stress<sup>4</sup></p> 	<p>Heat waves that are currently unusual will occur on a regular basis by 2040 under business-as-usual</p>	<p>Either insufficient signal or increased warm spell duration (low to medium confidence). Likely increase in hot days in Southern Africa (high confidence) and some parts of West Africa, otherwise insufficient evidence (low confidence)</p>	<p>Across all scenarios: Likely more frequent and longer heat waves (high confidence). Likely increase in hot days (high confidence). Heat waves that are currently unusual will occur on a regular basis by 2040 based on RCP8.5<sup>5</sup></p>	<p>Agriculture, health and labour productivity<sup>6</sup></p>	

Table 1: African Top Physical Risks<sup>7,8</sup>

*Legend:*

-  *Immediate attention required: impacts are already observed with a significant probability to increase*
-  *Some attention is required: impacts are expected in the next few years*
-  *Caution: impacts could manifest towards mid-century*

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<sup>1</sup> Based primarily on RCP2.6 and RCP8.5. If 2050 impacts were not available (based on 2046-2065), based on interpretation of 2071-2100 model results

<sup>2</sup> Extreme precipitation definition used is frequency of 'very wet days,' defined here as the 90th percentile of daily precipitation on wet days

<sup>3</sup> C.F. Schleussner et al. (2016) Differential climate impact for policy-relevant limits to global warming: the case of 1.5 and 2C. *Earth System Dynamics*, 7, 327-351, 2016.

<sup>4</sup> Extreme heat events definition used is frequency of 'warm days,' defined here as the 90th percentile daily maximum temperature

<sup>5</sup> Russo et al. (2016). When will unusual heat waves become normal in a warming Africa?

<sup>6</sup> Climate change and labour: impacts of heat in the workplace. UNDP (2016)

<sup>7</sup> Niang, I., et al. (2014). Africa. In V. R. Barros, et al. (Eds.), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 1199-1265). Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

<sup>8</sup> Hewitson, B. C., et al. (2014). Regional context. In V. R. Barros, et al. (Eds.), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (pp. 1133-1197). Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.