



## **Heat Stress exposure in South Asia at 1.5°C and 2°C warmer worlds**

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Climate change will substantially exacerbate temperature and specific humidity, which in turn will increase the heat stress. With its high pace of urbanization and population growth, South Asia is considered as a region already susceptible to increase in heat stress. Owing to the incidence of poverty, a large part of population does not have access to cooling infrastructure in South Asia, and therefore have low adaptive capacity. Heat stress may prove to be very dangerous aspect of climate change, posing a severe threat to human health, energy infrastructure, and especially to the outdoor activities including agriculture production.

There has been increasing interest in quantifying the impact of climate change at discrete level of global warming after the adoption of Paris Agreement. Simulations conducted under HAPPI (Half a degree Additional warming, Prognosis and Projected Impacts) project are better suited than transient CMIP-like simulation for assessing such impacts at the Paris Agreement long-term goals i.e. global warming levels of 1.5°C and 2°C. For this study, we used HAPPI data to calculate wet-bulb temperature and investigate the population exposure to heat stress at 1.5°C and 2°C by employing future population projections from the shared socioeconomic pathways project. We estimated the population exposure to wet bulb temperature that may exceed postulated theoretical limits of human tolerance. The analysis is conducted for each individual country as well as most populated cities of South Asia.

Our results indicate that restricting global warming to 1.5°C would expose significantly less number of people to severity of future heat stress. Our findings are in line with previous assessments and corroborate the need of urgent action to limit global warming in order to attenuate future social and human-related impacts for South Asia.