8.3.2 Chittagong

The GHG emissions of Chittagong was 0.75 $MtCO_2e$ in 1975, that escalated to 1.1 $MtCO_2e$ in 1990 and 6.8 $MtCO_2e$ in 2015. A majority of the GHG emissions in 2015 (Figure 8.4, top) were contributed by the energy sector (49%) and industry sector (34%), followed by transport sector (12%) and residential sector (5%). As per the ICLAP model estimates (Figure 8.4, below), there would be an increase in emissions at 5.7%, leading to 8.2 $MtCO_2e$ in 2030 and 10.9 $MtCO_2e$ in 2050.

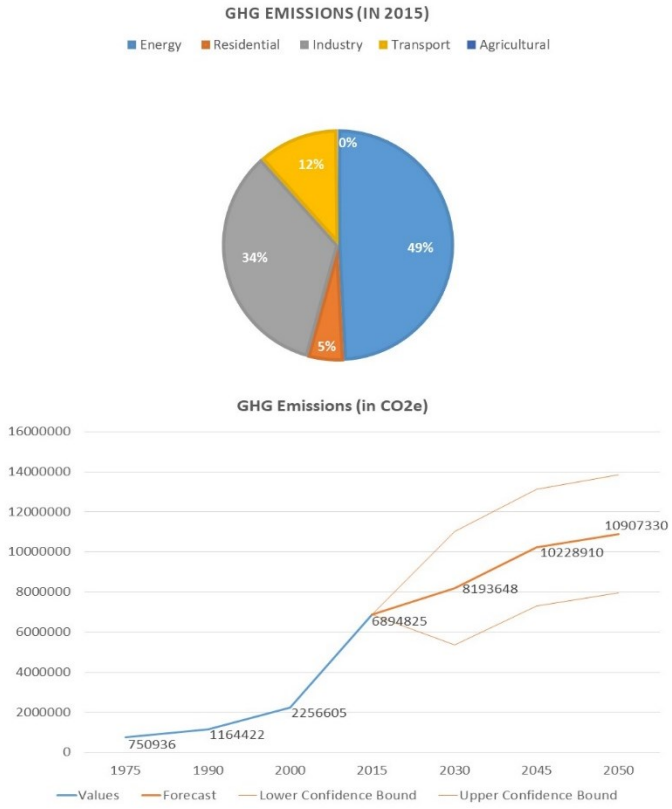

Figure 8.4: GHG contributions from different sectors in Chittagong (top); ICLAP model estimates for Chittagong's GHG emissions till 2050 (bottom)

The results for climate variability in Chittagong indicate that depending on the emission scenarios, there would be a temperature increase of 0.4–2.7 degC from 2030-80s (Figure 8.5, top). The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 0.4 degC in 2030s (above the 1980 baseline temperature), 0.9 degC in 2050s, peaking to 1.5 degC in 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 8.5 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) exhibits an increase of 0.6 degC in 2030s (above the 1980 baseline temperature), 1.5 degC in 2050s further rising to 2.7 degC above normal up to 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 8.5 (bottom). Meanwhile, the precipitation change for Chittagong shows extremely high variability in the long run, ranging from 80 to 580 mm from the normal (Figure 8.6, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of about 80 mm in 2030s (above the 1980 baseline rainfall), rising to 190 mm in 2050s, rising again to 220 mm in 2070s and again rising to 245 mm in 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 8.6 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6)

shows Chittagong's city rainfall increase to around 160 mm (above the 1980 baseline rainfall) in 2030s, rising up to 220 mm in 2050s, escalating sharply to 580 mm in 2060s, subsidizing to about 370 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 8.6 (bottom).

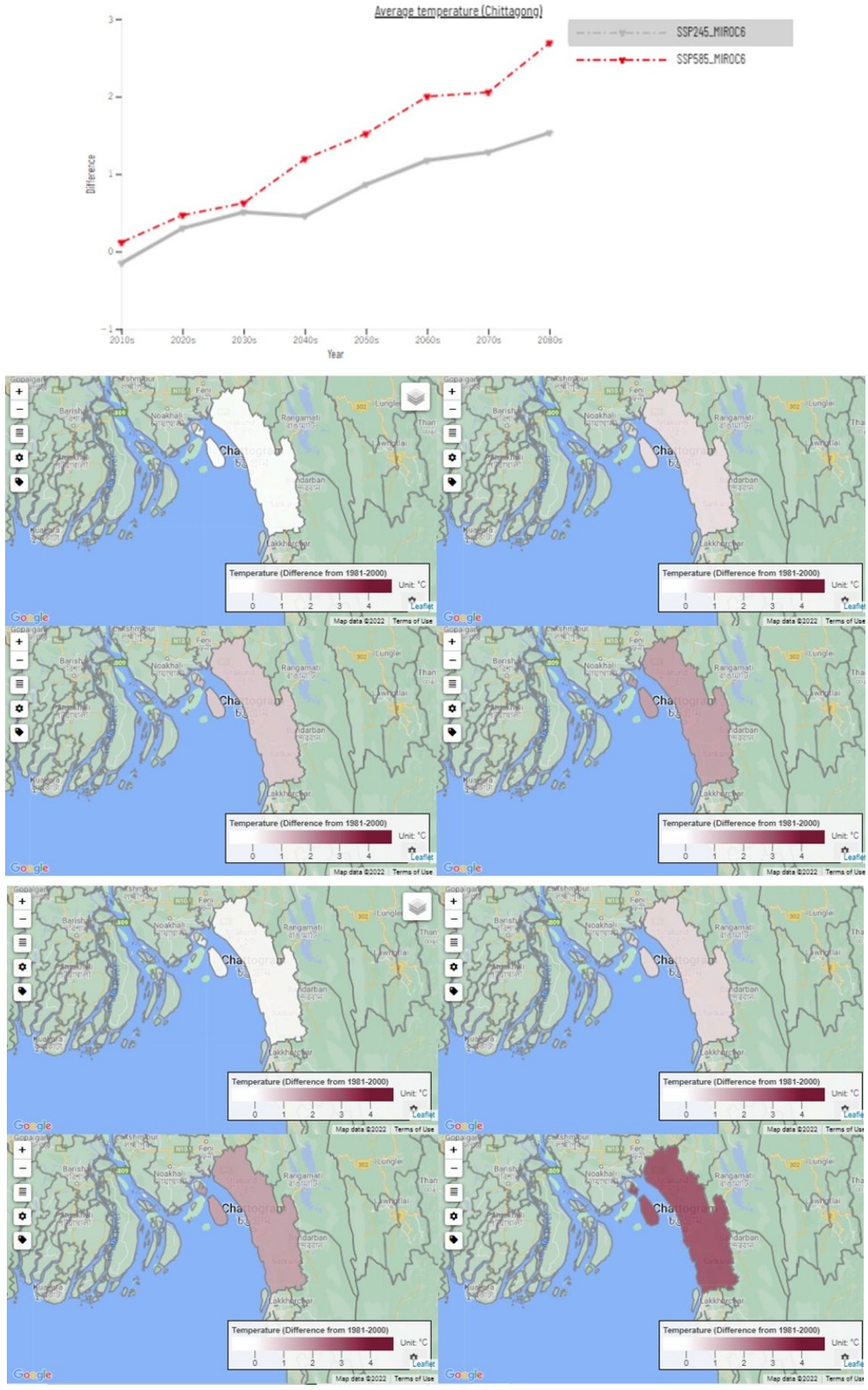

Figure 8.5: Temperature increase in Chittagong under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)

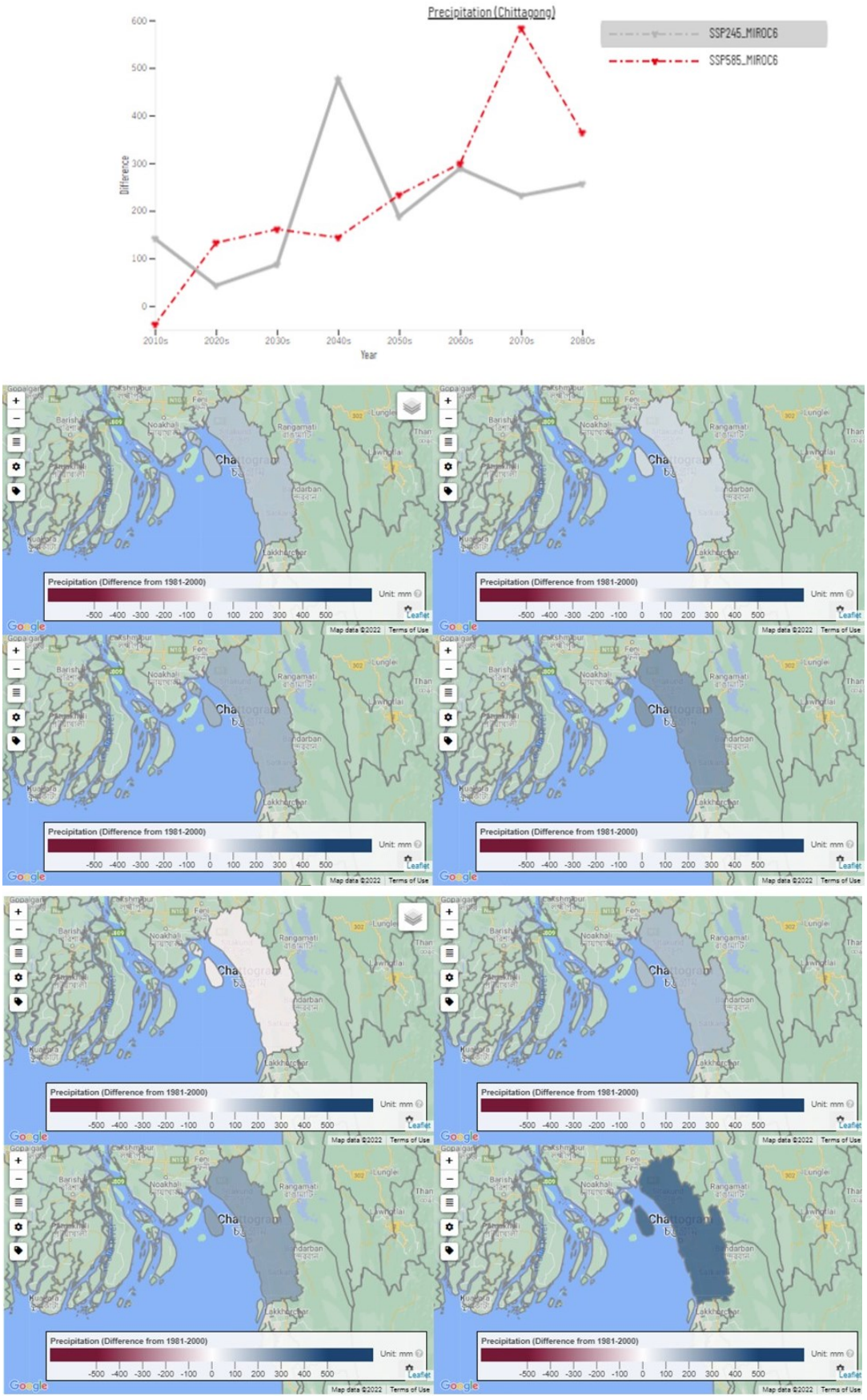

Figure 8.6: Precipitation variation in Chittagong under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)