

6.3.4 Hyderabad

The GHG emissions of Hyderabad was 0.77 MtCO_{2e} in 1975, that escalated to 1.63 MtCO_{2e} in 1990 and 4.61 MtCO_{2e} in 2015. A majority of the GHG emissions in 2015 (Figure 6.10, top) were contributed by the industry sector (44%) and transport sector (31%), followed by residential sector (21%) and energy sector (4%). As per the ICLAP model estimates (Figure 6.10, bottom), there would be an increase in emissions at 4.6%, leading to 5.54 MtCO_{2e} in 2030 and 7.20 MtCO_{2e} in 2050.

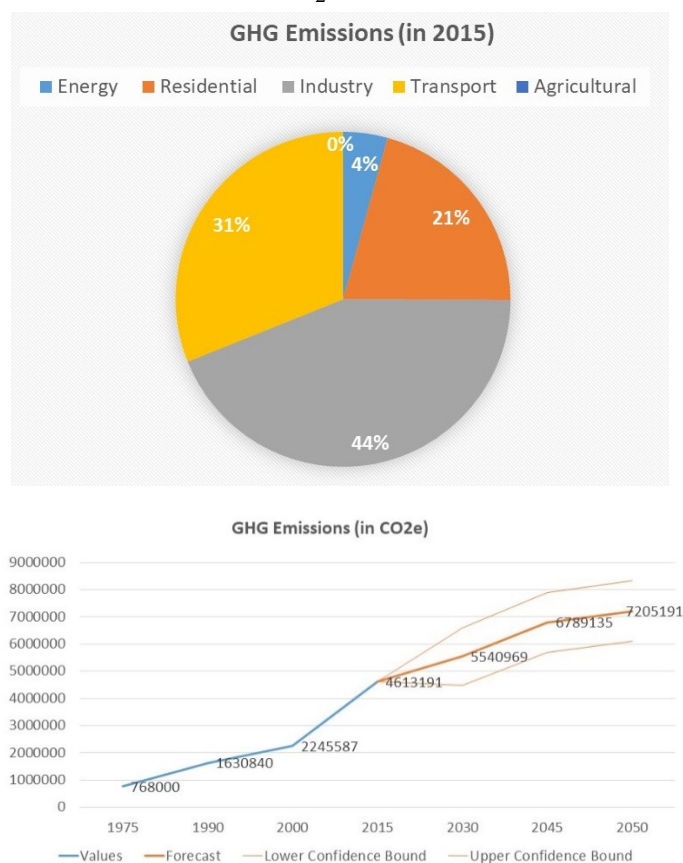


Figure 6.19: GHG contributions from different sectors in Hyderabad (top); ICLAP model estimates for Hyderabad's GHG emissions till 2050 (bottom)

The results for climate variability in Hyderabad indicate that depending on the emission scenarios, there would be a temperature increase of 0.35–2.35 degC from 2030-80s (Figure 6.11, top). The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 0.8 degC during 2030s (above the 1980 baseline temperature), 0.9 degC in 2050s, peaking to 1.45 degC during 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 6.11 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) exhibits an increase of 0.8 degC during 2030s (above the 1980 baseline temperature), 2.2 degC in 2050s further stabilizing to 2.35 degC above normal up to 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 6.11 (bottom). Meanwhile, the precipitation change for Hyderabad shows a very high variability in the long run, ranging from -100 to 300 mm from the normal (Figure 6.12, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits a decrease of about -10 mm during 2030s (above the 1980 baseline rainfall), rising to 20 mm in 2050s, rising again to 120 mm during 2070s and

dipping to 100 mm during 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 6.12 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) shows Hyderabad's city rainfall decrease to around -50 mm (above the 1980 baseline rainfall) during 2030s, rising up to -10 mm in 2050s, rising to 200 mm in 2060s, re-escalating to about 280 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 6.12 (bottom).

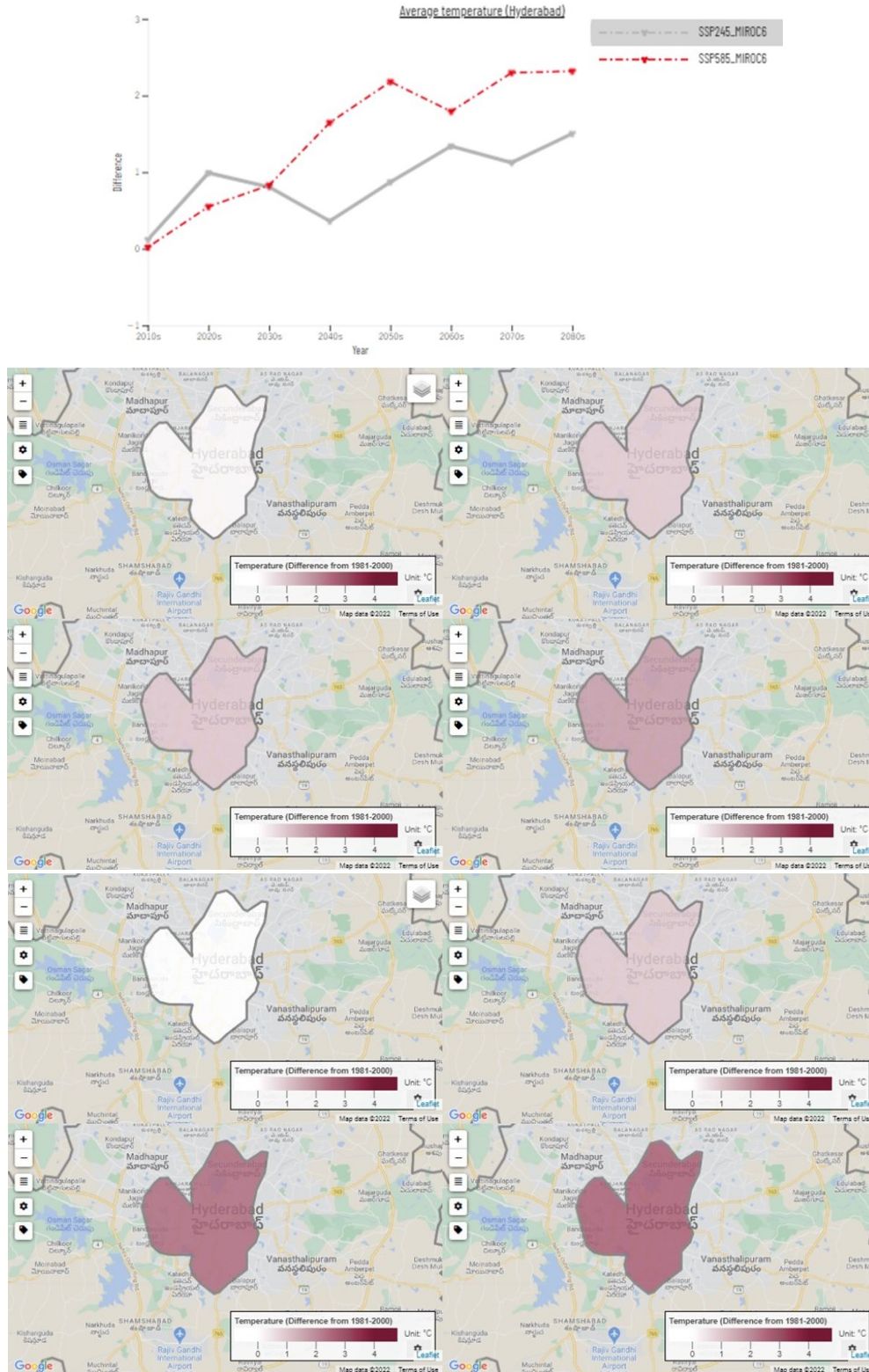


Figure 6.11: Temperature increase in Hyderabad under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)

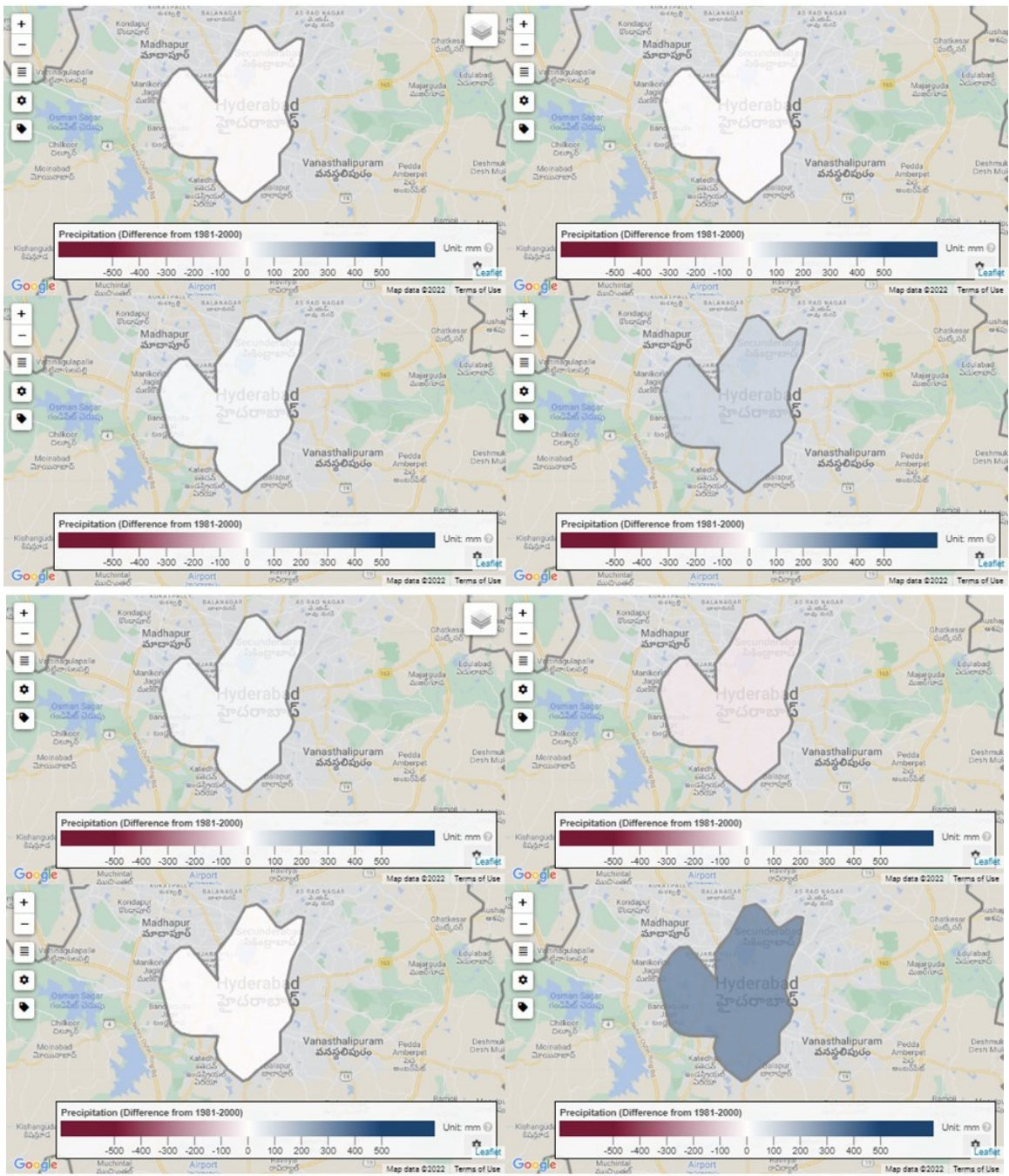
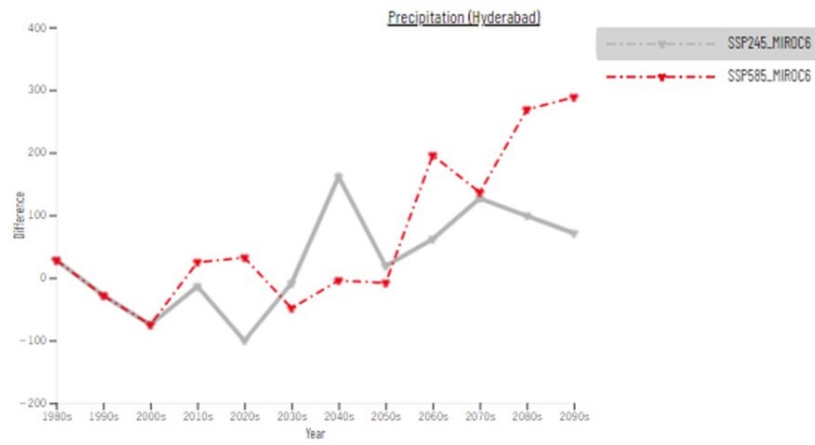


Figure 6.12: Precipitation variation in Hyderabad under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)