

6.3.6 Mumbai

The GHG emissions of Mumbai was 5.3 MtCO_{2e} in 1975, that escalated to 10.2 MtCO_{2e} in 1990 and 24.7 MtCO_{2e} in 2015. A majority of the GHG emissions in 2015 (Figure 6.16, top) were contributed by both the energy sector (48%) and industry sector (36%), trailed by the residential sector (9%) and the transport sector (9%). As per the ICLAP model estimates (Figure 6.16, bottom), there would be an increase in emissions at 3.9% per annum, leading to 30.7 MtCO_{2e} in 2030 and 39.4 MtCO_{2e} in 2050.

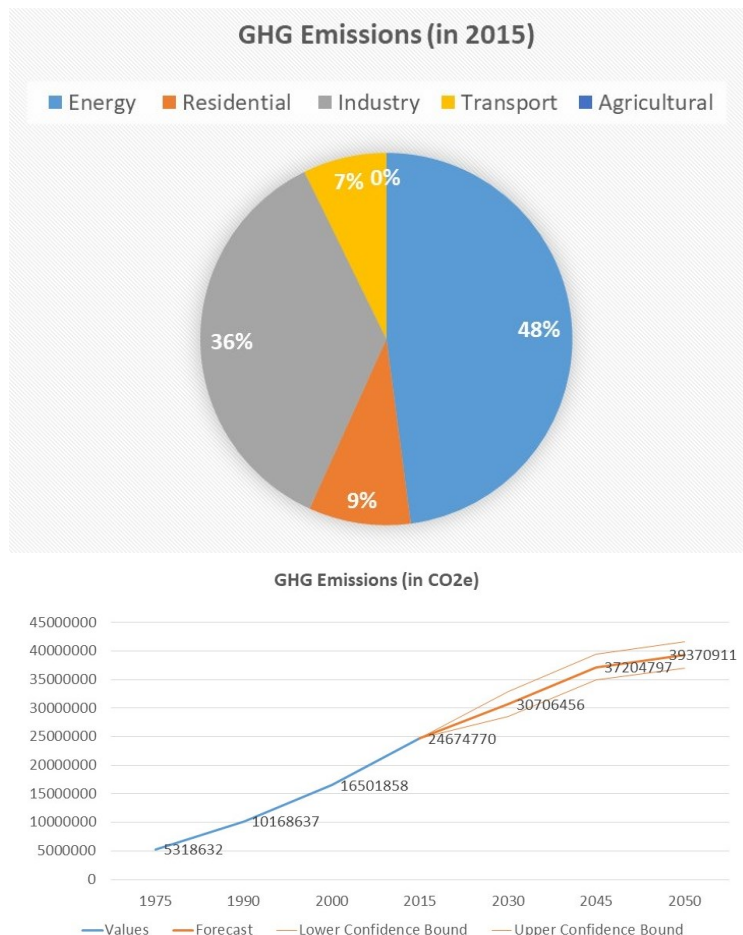


Figure 6.16: GHG contributions from different sectors in Mumbai (top); ICLAP model estimates for New Delhi's GHG emissions till 2050 (bottom)

The results for climate variability in Mumbai indicate that depending on the emission scenarios, there would be a temperature increase of 1.0–2.2 degC up till 2080s (Figure 6.17, top). The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 0.5 degC during 2030s (above the 1980 baseline temperature), 0.7 degC in 2050s, peaking to 1.0 degC during 2060s and continue to remain so till 2080s. The spatial results for moderate scenario over 2010–80s are mapped in Figure 6.17 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) exhibits an increase of 0.4 degC during 2030s (above the 1980 baseline temperature), 1.0 degC in 2050s further rising uninterruptedly to 2.3 degC above normal up to 2080s. The spatial results for high emission scenario over 2010–80s are mapped in Figure 6.17 (bottom). Meanwhile, the precipitation change for Mumbai shows high variability in the long run, ranging from 360–500 mm (Figure 6.18, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of over 200 mm during 2030s (above the 1980 baseline rainfall) to 370

mm in 2050s, dipping again to 200 mm during 2060s and thereafter stabilizing around 360 mm during 2070-80s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 6.18 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) shows an abrupt increase of 410 mm during 2030s (above the 1980 baseline rainfall), a fall to 200 mm in 2040s, re-escalating to about 470 mm in 2050s and thereafter gradually stabilizing to 500 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 6.18 (bottom).

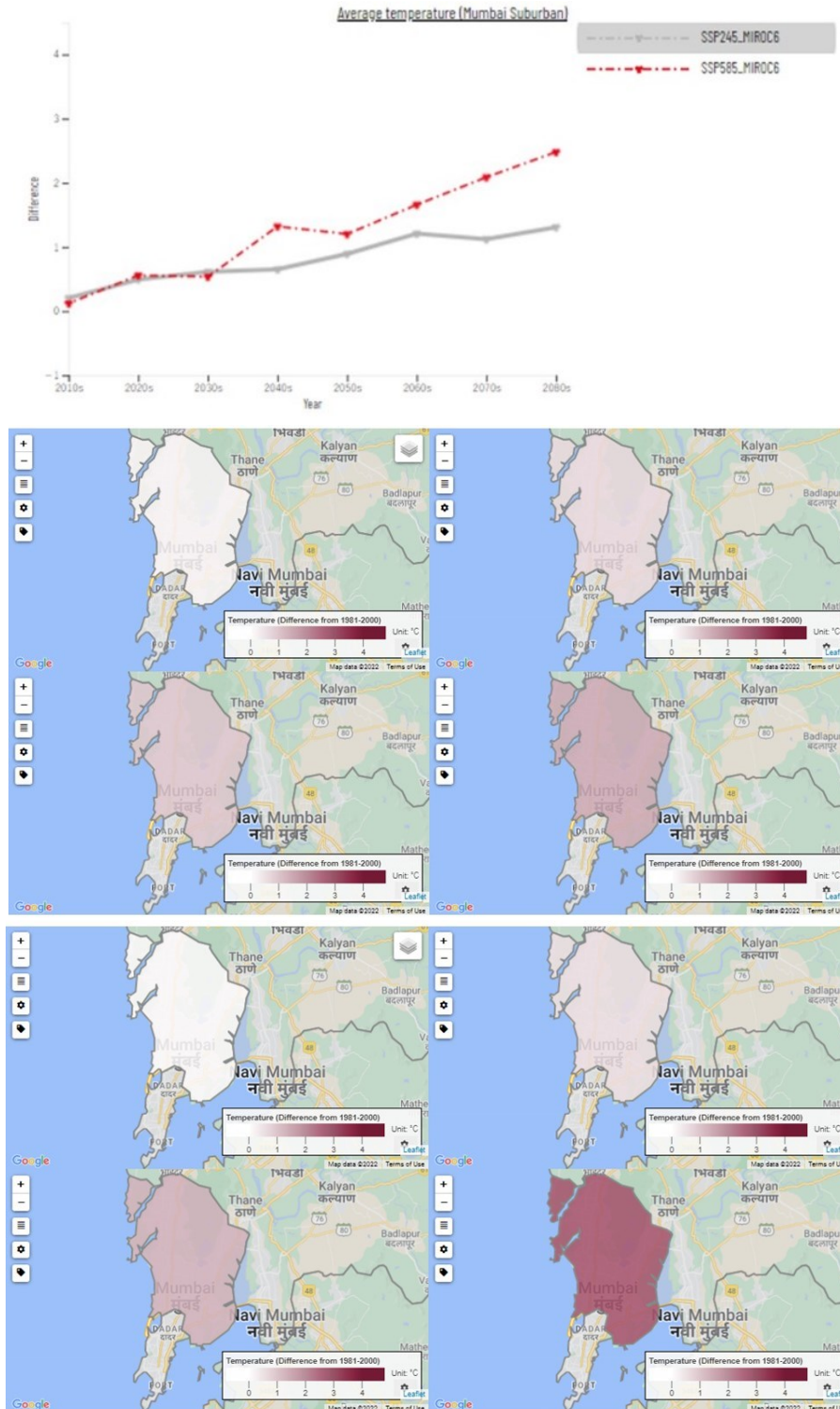


Figure 6.17: Temperature increase in Mumbai under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)

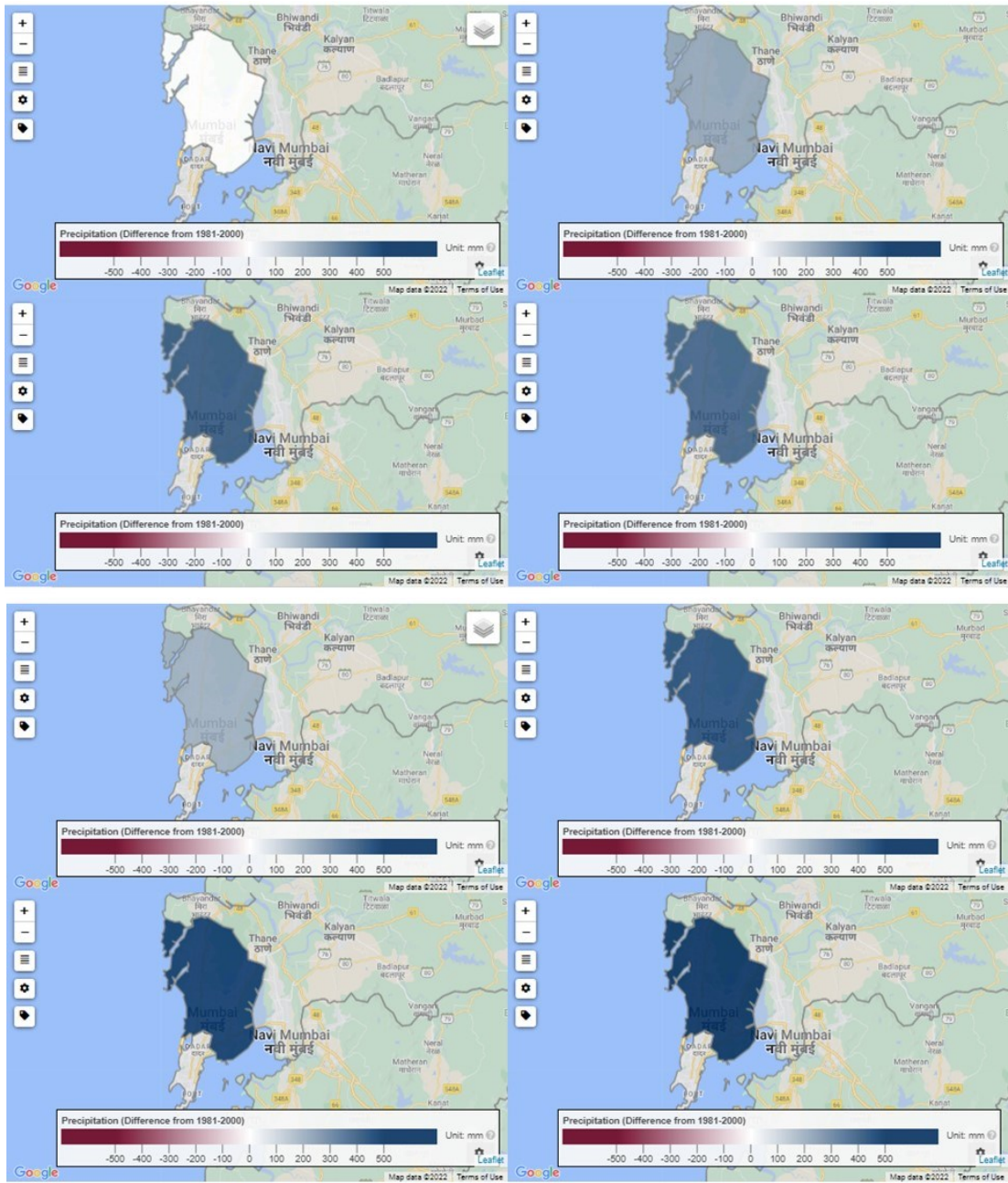
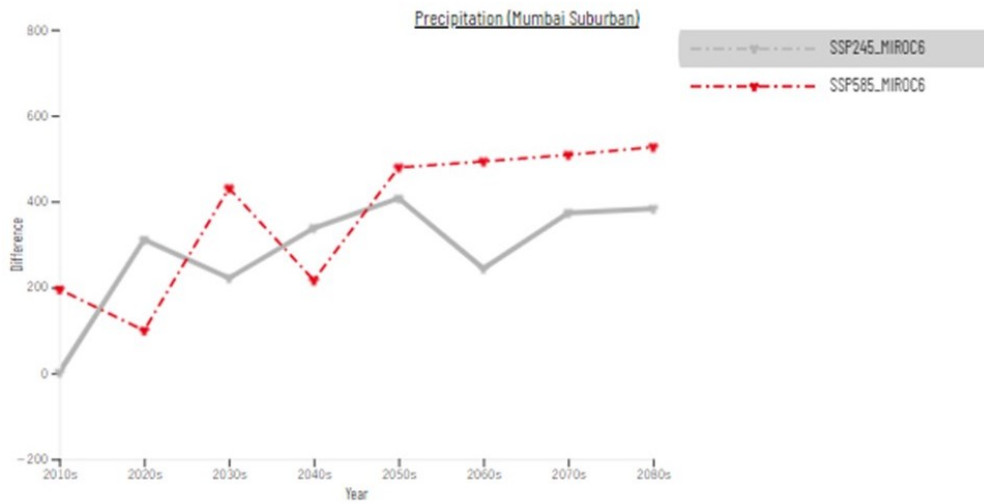


Figure 6.18: Precipitation variation in Mumbai under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)