8.3.3 Manila

The GHG emissions of Manila was 6.1 $MtCO_2e$ in 1975, that escalated to 7.9 $MtCO_2e$ in 1990 and 16 $MtCO_2e$ in 2015. A majority of the emissions in 2015 (57%) were contributed by the industry sector (Figure 8.25, top), followed by transport sector (29%), residential sector (12%), energy sector (2%) and agricultural sector (~0%). As per the ICLAP model estimates (Figure 8.25, below), there would be an increase in emissions at 2.4% per annum, leading to 19.2 $MtCO_2e$ in 2030 and 23.6 $MtCO_2e$ in 2050.

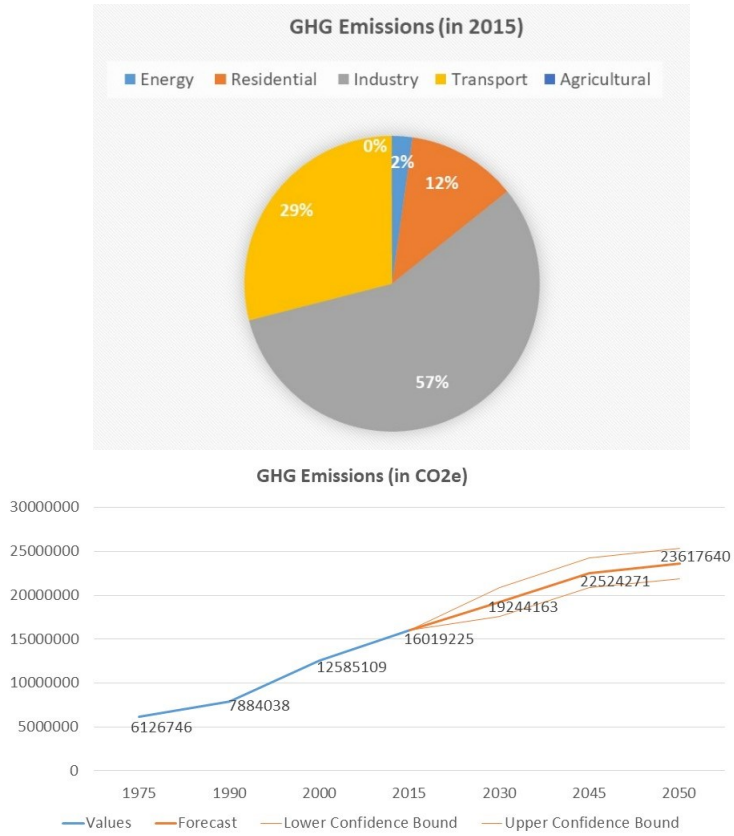

Figure 8.25: GHG contributions from different sectors in Manila (top); ICLAP model estimates for Manila's GHG emissions till 2050 (bottom)

The results for climate variability in Manila indicate a temperature increase of 0.8–3.0 degC in the long run (Figure 8.26, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 0.85 degC during 2030s (above the 1980 baseline temperature) to 1.1 degC in 2040s, dipping to 0.8 degC in 2050s, later peaking to 1.65 degC by 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 8.26 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) exhibits an increase of 1.0 degC during 2030s (above the 1980 baseline temperature), 1.7 degC in 2050s further escalating to 3.0 degC above normal during 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 8.26 (bottom). Meanwhile, the precipitation variation for Manila ranges considerably from 5–230 mm in the long run (Figure 8.27, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 105 mm during 2030s (above the 1980 baseline rainfall) dipping to 5 mm in 2040s, re-escalating to 230 mm above average during 2050s, decreasing to 40 mm during 2070s, rising again to 75 mm during 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 8.27

(middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) exhibits an increase of 70 mm (above the 1980 baseline rainfall) during 2030s, further growing to 95 mm in 2050s, declining to -5mm during 2070s, re-escalating to 120 mm during 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 8.27 (bottom).

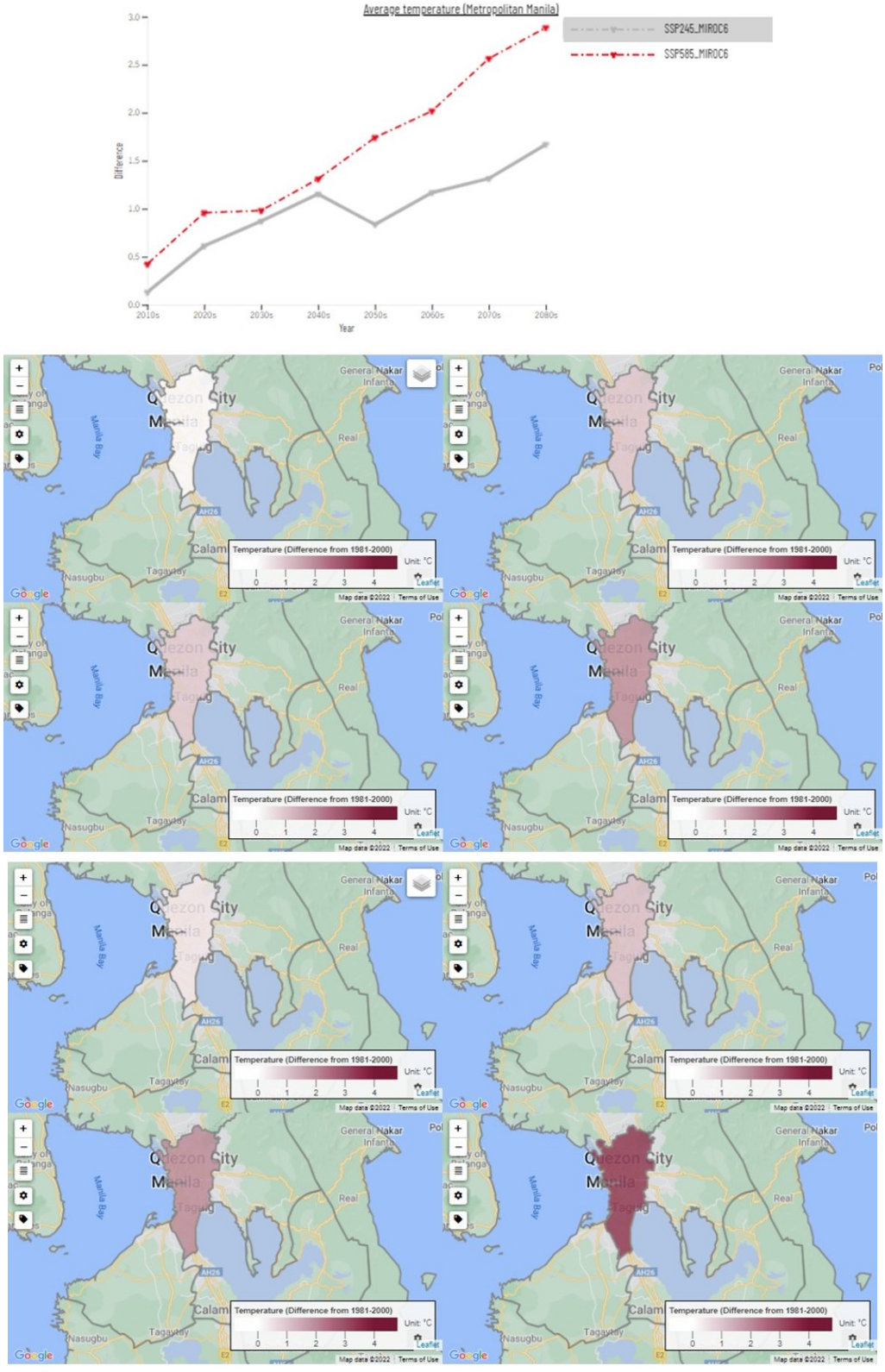

Figure 8.26: Temperature increase in Manila under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)

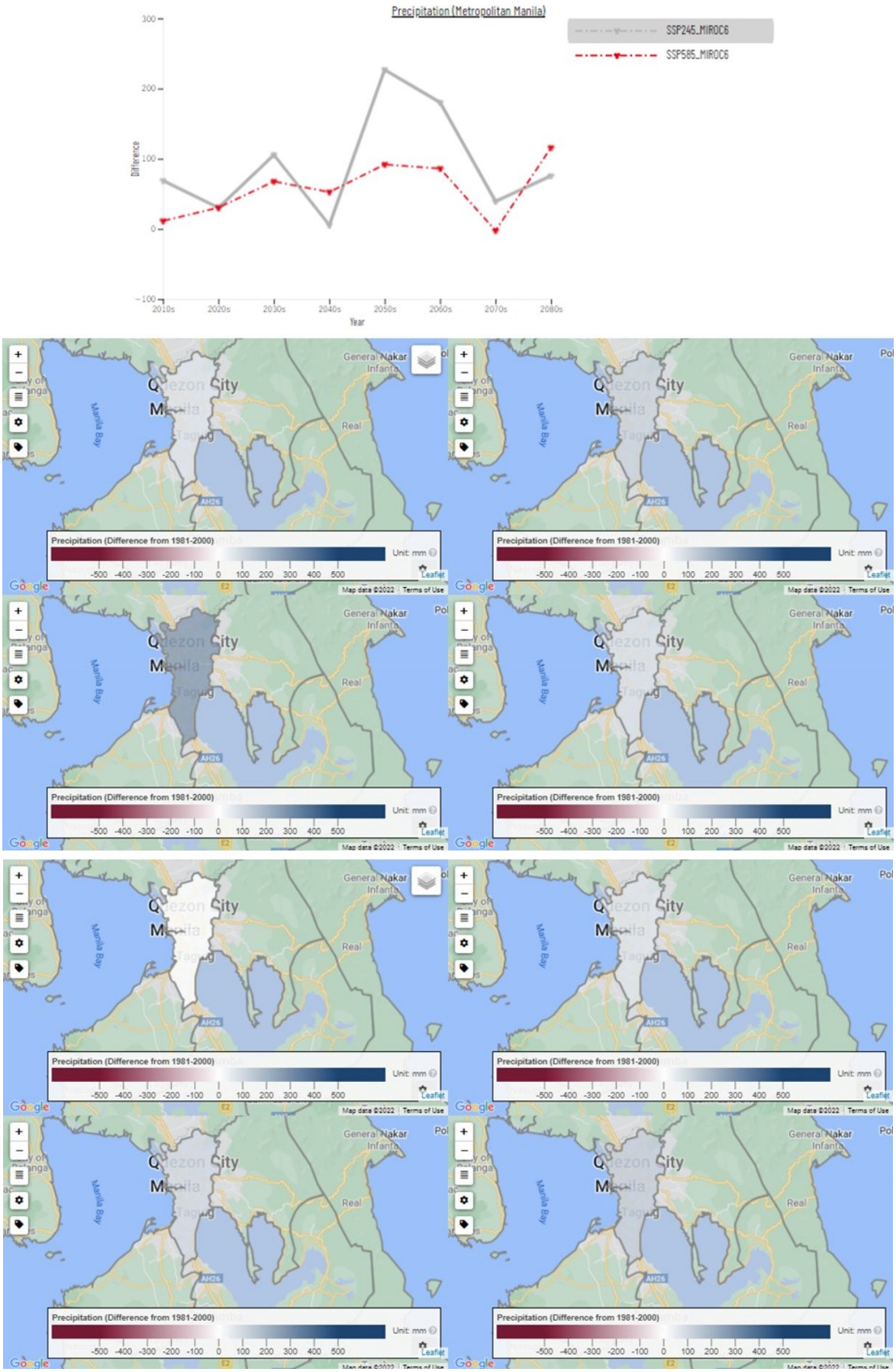

Figure 8.27: Precipitation variation in Manila under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)