8.3.5 Jakarta

The GHG emissions of Jakarta was 3.7 $MtCO_2e$ in 1975, that escalated to 12.9 $MtCO_2e$ in 1990 and 50.5 $MtCO_2e$ in 2015. A majority of the GHG emissions in 2015 (Figure 8.13, top) were contributed by the industry sector (44%) and transport sector (28%), followed by energy sector (21%) and residential sector (7%). As per the ICLAP model estimates (Figure 8.13, below), there would be an increase in emissions at 6.8%, leading to 64.2 $MtCO_2e$ in 2030 and 85.2 $MtCO_2e$ in 2050.

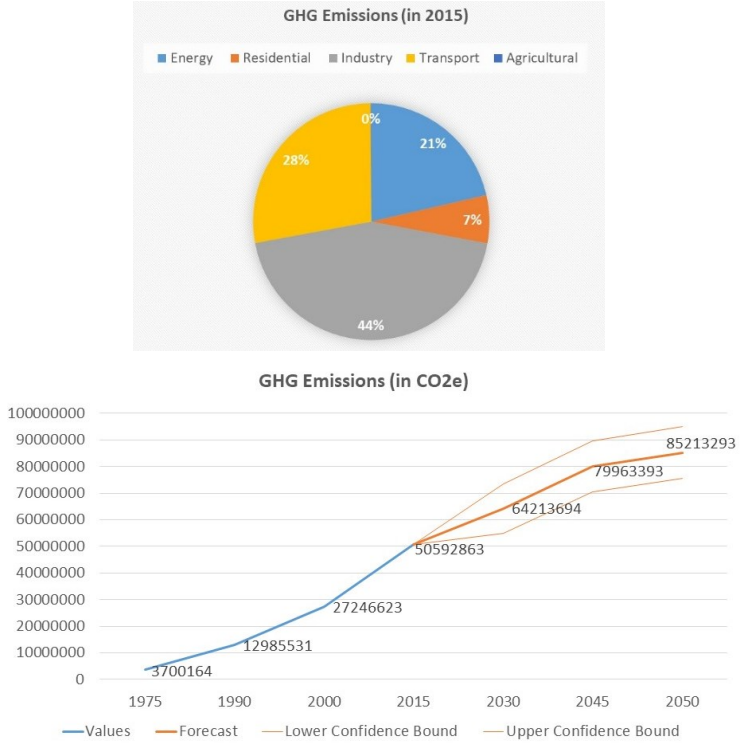

Figure 8.13: GHG contributions from different sectors in Jakarta (top); ICLAP model estimates for Jakarta's GHG emissions till 2050 (bottom)

The results for climate variability in Jakarta indicate that depending on the emission scenarios, there would be a temperature increase of 0.8-2.7 degC from 2030-80s (Figure 8.14, top). The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of 1 degC during 2030s (above the 1980 baseline temperature), 1.4 degC in 2050s, peaking to 1.6 degC during 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 8.14 (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), 1.7 degC in 2050s further rising sharply to 2.7 degC above normal up to 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 8.14 (bottom). Meanwhile, the precipitation change for Jakarta shows high variability in the long run, ranging from -150 to 270 mm from the normal (Figure 8.15, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245_MIROC6) exhibits an increase of about -60 mm during 2030s (above the 1980 baseline rainfall), declining to -140 mm in 2050s, then rising starkly to 270 mm in 2070s and dipping to 140 mm during 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 8.15 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585_MIROC6) shows Jakarta's city rainfall dipping to around 50 mm (above the 1980

baseline rainfall) during 2030s, declining to 10 mm in 2050s, further declining to -160 mm in 2060s, re-escalating to about 130 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 8.15 (bottom).

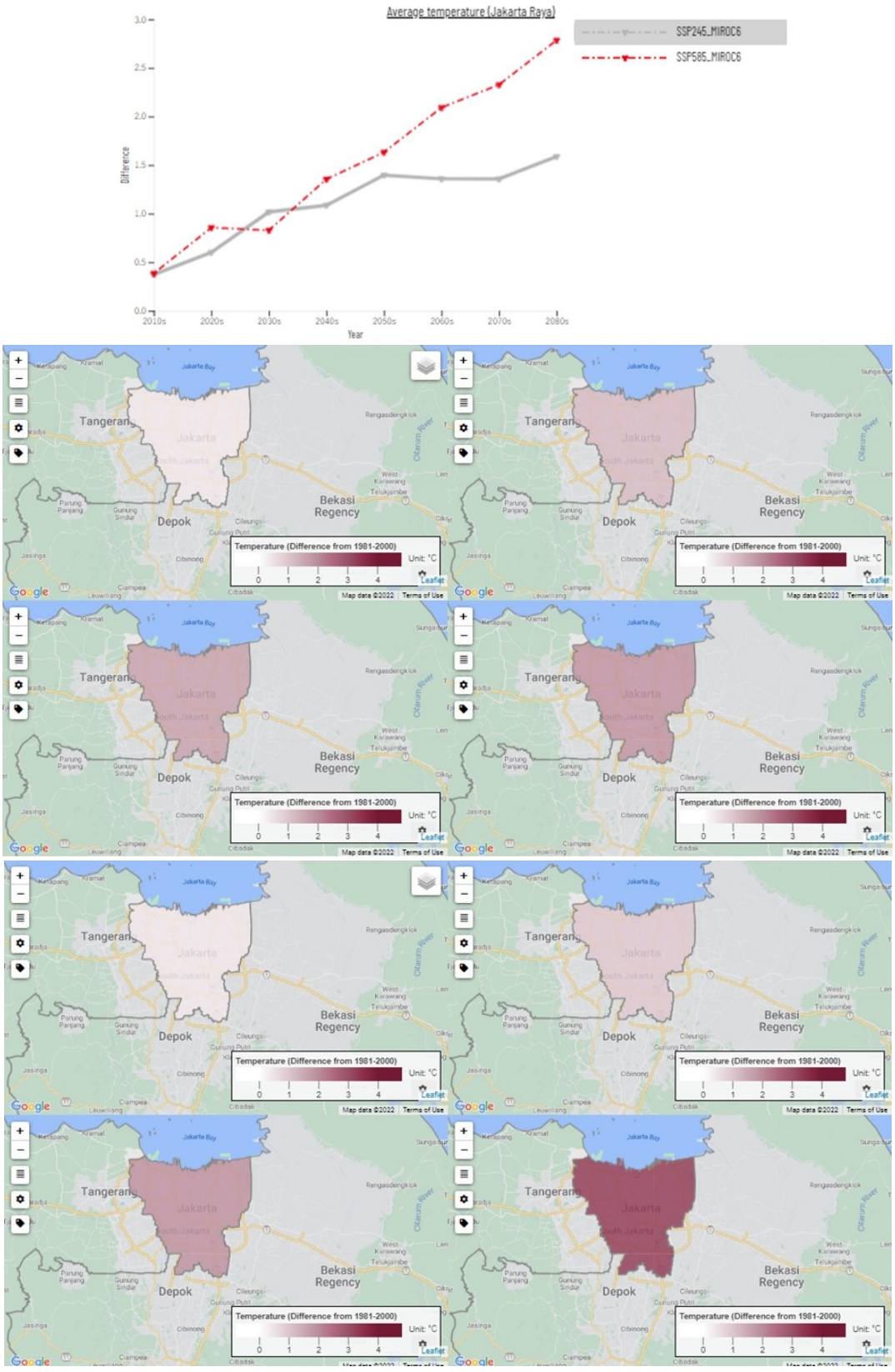

Figure 8.14: Temperature increase in Jakarta under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)

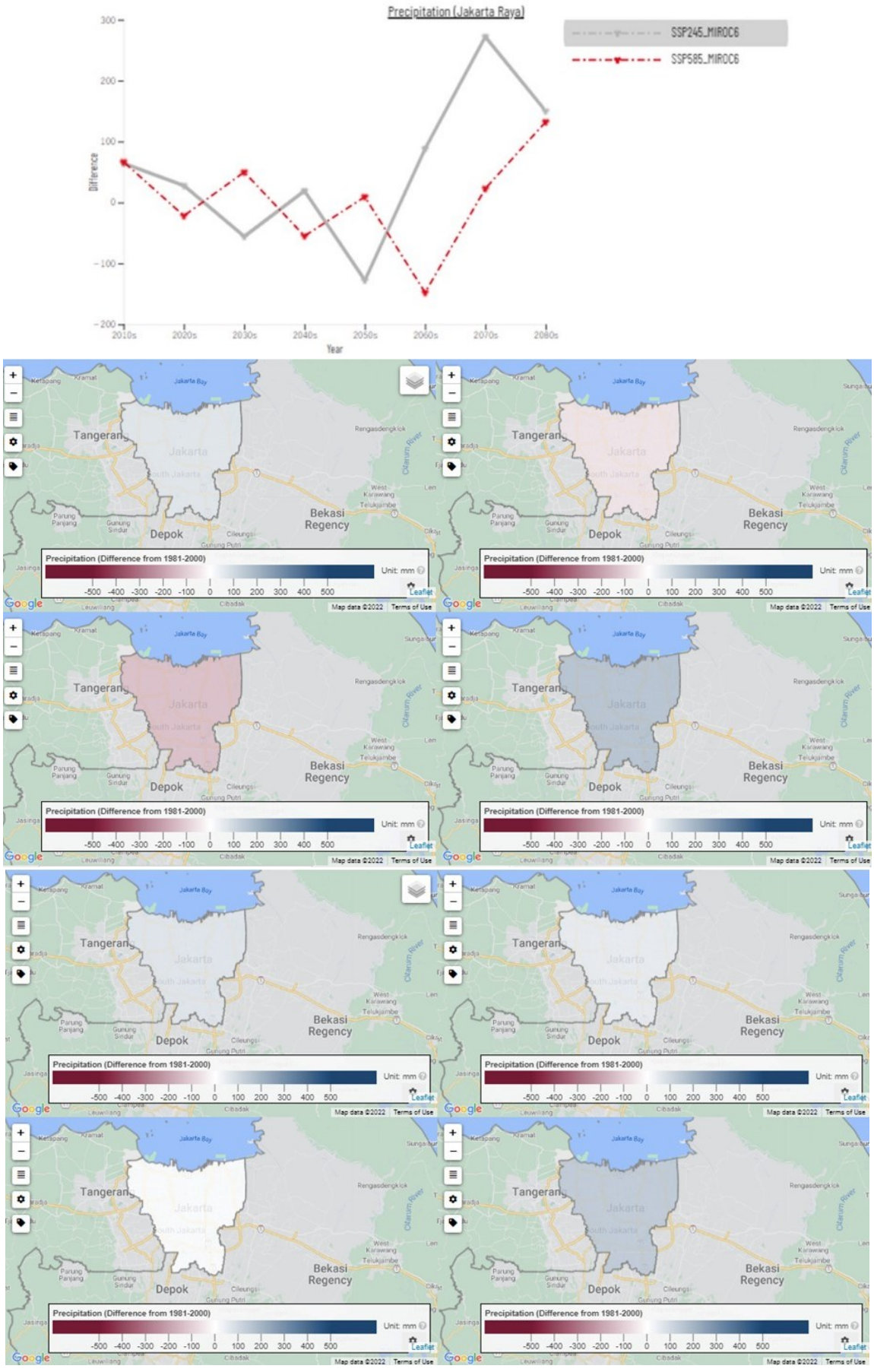

Figure 8.15: Precipitation variation in Jakarta under medium (grey) and high (red) emission scenario till 2080s (top); Spatial results for medium scenario for 2010s, 2030s, 2050s, 2080s (middle); Spatial results for high scenario for 2020s, 2030s, 2050s, 2080s (bottom)