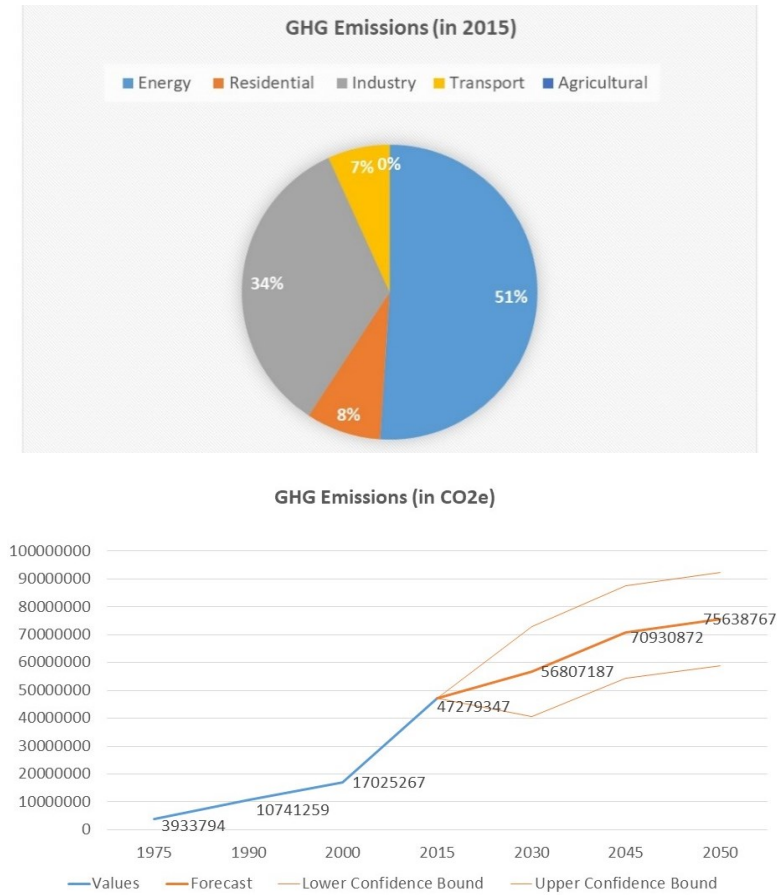


### 5.3.19 Wuhan

The GHG emissions of Wuhan was 3.9 MtCO<sub>2</sub>e in 1975, that escalated to 10.7 MtCO<sub>2</sub>e in 1990 and 47.2 MtCO<sub>2</sub>e in 2015. A majority of the GHG emissions in 2015 (Figure 5.55, top) were contributed by the energy sector (51%) and industry sector (34%), followed by residential sector (8%) and transport sector (7%). As per the ICLAP model estimates (Figure 5.55, below), there would be an increase in emissions at 6.4% per annum, leading to 56.8 MtCO<sub>2</sub>e in 2030 and 75.6 MtCO<sub>2</sub>e in 2050.



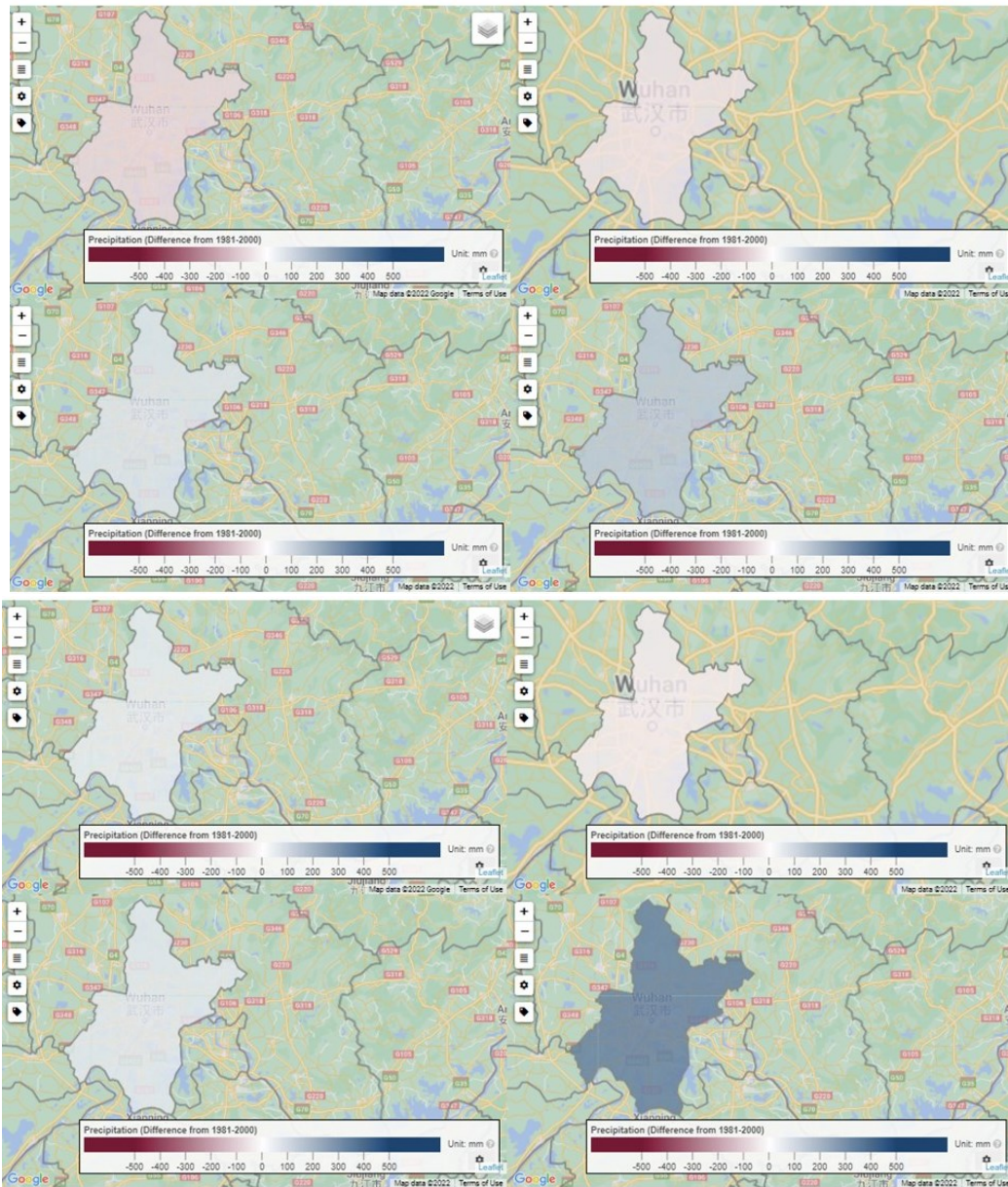
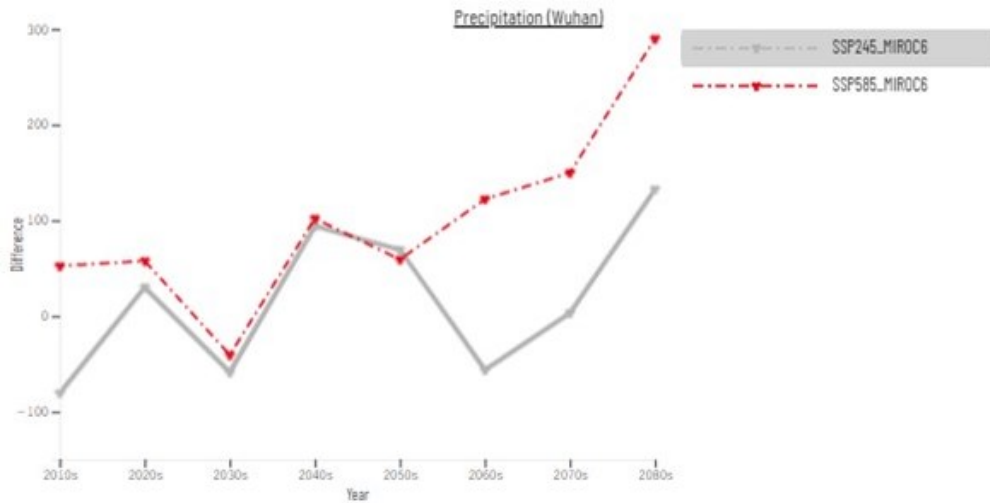
**Figure 5.55: GHG contributions from different sectors in Wuhan (top); ICLAP model estimates for Wuhan's GHG emissions till 2050 (bottom)**

The results for climate variability in Wuhan indicate that depending on the emission scenarios, there would be a temperature increase of 1.6–3.9 degC from 2030–80s (Figure 5.56, top). The scenario corresponding to the pathway with moderate GHGs (SSP245\_MIROC6) exhibits an increase of 1.6 degC during 2030s (above the 1980 baseline temperature), which remains 1.7 degC in 2050s, which further rises to 2.3 degC during 2080s. The spatial results for moderate scenario over 2010–80s are mapped in Figure 5.56 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585\_MIROC6) exhibits an increase of 1.7 degC during 2030s (above the 1980 baseline temperature), 2.7 degC in 2050s further rising to 3.6 degC above normal up to 2080s. The spatial results for high emission scenario over 2010–80s are mapped in Figure 5.56 (bottom). Meanwhile, the precipitation change for Wuhan shows a very high variability in the long run, ranging from -70 to 190 mm from the normal (Figure 5.57, top) depending on the emission scenarios. The scenario corresponding to the pathway with moderate GHGs (SSP245\_MIROC6) exhibits an increase of about -70 mm during 2030s (above the 1980

baseline rainfall), increasing to 70 mm in 2050s, decreasing to -10 mm during 2070s and increasing to 120 mm during 2080s. The spatial results for moderate scenario over 2010-80s are mapped in Figure 5.57 (middle). Meanwhile, the scenario corresponding to the pathway with the highest GHGs (SSP585\_MIROC6) shows Wuhan's city rainfall diminishes to around -40 mm (from the 1980 baseline rainfall) during 2030s, rising up to 50 mm in 2050s and 115 mm in 2060s, further escalating to about 190 mm in 2080s. The spatial results for high emission scenario over 2010-80s are mapped in Figure 5.57 (bottom).



**Figure 5.56: Temperature increase in Wuhan 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 5.57: Precipitation variation in Wuhan 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)**