# Climate Change in Your Backyard: The Role of Local Governments

**Table A1.** Data information

| | Data | Description | Source |
|---|---|---|---|
| 1 | Heat Index (HI) | The Heat Index (HI) represents the perceived temperature by considering both air temperature and relative humidity. It is commonly used in meteorology to assess human thermal comfort.<br><br>Formula:<br>$HI = c_1 + c_2T + c_3RH + c_4TRH + c_5T^2 + c_6RH^2 + c_7T^2RH + c_8TRH^2 + c_8T^2RH^2$<br>Where:<br>- HI = Heat Index (℉)<br>- T = Air temperature (℉)<br>- RH = Relative humidity (%)<br>- $c_1$=-42.379, $c_2$=2.04901523, $c_3$=10.14333127. $c_4$=-0.22475541. $c_5$=-0.00683783, $c_6$=-0.05481717. $c_7$=0.00122874. $c_8$=0.00085282. $c_9$=-0.00000199 | https://www.ecmwf.int/en/era5-land |
| 2 | Environment Stress Index (ESI) | The Environmental Stress Index (ESI) is a composite indicator that integrates multiple meteorological variables, including temperature, humidity, wind speed, and solar radiation, to estimate environmental heat stress on humans.<br><br>Formula:<br>*ESI = 0.63T+0.03RH+0.002SR-0.0054WS-5.74*<br>Where:<br>- T = Air temperature (℉)<br>- RH = Relative humidity (%)<br>- SR = Solar radiation (W/m²)<br>- WS = Wind speed (m/s) | https://www.ecmwf.int/en/era5-land |
| 3 | WBGT JME | The Wet Bulb Globe Temperature (WBGT) is one of the most widely used heat stress indices, incorporating temperature, humidity, wind speed, and | https://www.ecmwf.int/en/era5-land |

| | | | |
|---|---|---|---|
| | | solar radiation. The JME version (WBGT JME) refers to a modified version of WBGT based on the Joint Meteorological Evaluation standards.<br><br>The JME model calculates WBGT using the following formula:<br>$WBGT_{JME} =$<br>$0.735T_{\alpha} + 0.0347RH + 0.0022T_{\alpha}RH +$<br>$7.619SR - 4.557SR^2 - 0.0572WS - 4.064$<br>Where:<br>- $T_{\alpha}$ = Air temperature (℃)<br>- RH = Relative humidity (%)<br>- SR is the total solar radiation (kW/m²)<br>- WS is the wind speed (m/s) | |
| 4 | Political Composition | $\frac{Conservative\ members}{Total\ council\ members\ of\ local\ government}$ | https://clik.nanet.go.kr/potal/search/searchList.do |
| 5 | Meeting minutes of local government | Meeting minutes of 226 local government | https://clik.nanet.go.kr/potal/search/searchList.do?collection=minutes&searchSelect=Y# |

**Table A2.** Party classification

| | Party | Description | Note |
|---|---|---|---|
| 1 | Conservatives | Conservative parties were coded as a single conservative group, Similarly, Democratic Party of Korea, other liberal and left-leaning parties were coded as a single liberal groups.<br><br>Conservative parties: (국민의힘 (People Power Party), 미래통합당 (United Future Party), 미래한국당 (Future Korea Party), 새누리당 (Saenuri Party), 자유한국당 (Liberty Korea Party), 바른정당 (Bareun Party), 바른미래당 (Bareunmirae Party), 국민의당 (People's Party))<br><br>* In the context of Korean politics, the People Power Party, despite undergoing several name changes over time—including Democratic Liberal Party (민주자유당), Grand National Party (한나라당), United Liberal Democrats (자유민주연합), United Future Party (미래통합당), Future Korea Party (미래한국당), Saenuri Party (새누리당), and Liberty Korea Party (자유한국당)—are widely regarded as a single, continuous political entity. | |
| 2 | Liberals | Liberal, Left-leaning parties: (더불어민주당 (Democratic Party of Korea), 더불어시민당 (Citizen's Party of Korea), 민주당 (Democratic Party), 민주통합당 (Democratic United Party), 새정치민주연합 (New Politics Alliance for Democracy), 열린민주당 (Open Democratic Party), 민생당 (Minsaengdang), 정의당 (Justice Party), 진보당 | |

| | | | |
|---|---|---|---|
| | | (The Progressive Party), 통합진보당 (The Unified Progressive Party)<br><br>** In the context of Korean politics, the Democratic Party of Korea, despite undergoing several name changes over time—including the Democratic Party (민주당), Democratic United Party (민주통합당), National Congress for New Politics (새정치민주회의), New Politics Alliance for Democracy (새정치민주연합), and Open Democratic Party (열린민주당)—are widely recognized as a single, continuous political entity. | |