1. Deaths Based on Location (Bar Chart):

- **South-East Asia** dominates with over **6 million deaths**, making it the most critical region for household air pollution interventions.
- The **Western Pacific** region follows, with approximately **4.5 million deaths**.
- **Africa** ranks third, with deaths exceeding **3 million**, showcasing the widespread issue in resource-constrained settings.
- Deaths in **Europe** and the **Americas** are much lower (under **1 million each**), likely due to better access to cleaner fuels and technologies.

2. Heatmap of Deaths Based on Location and Cause:

- **Acute lower respiratory infections** (ALRI) show the highest death counts in **South-East Asia** and **Africa**.
- **Strokes** and **ischemic heart diseases** dominate as leading causes in higher-income areas of the **Western Pacific** and **South-East Asia**.
- **Chronic obstructive pulmonary disease (COPD)** and **trachea, bronchus, and lung cancers** also contribute significantly but are relatively lower compared to ALRI and strokes.
- **All causes combined** have the highest burden in **South-East Asia**, signifying a need for regional focus.

3. Deaths Based on Regions Categorized by the Cause (Stacked Bar Chart):

- **Acute lower respiratory infections** and **strokes** are the leading causes of deaths in **South-East Asia**, with over **25 million deaths** collectively.
- In the **Western Pacific**, strokes are more pronounced, showing higher deaths compared to ALRI.
- **Africa** sees relatively higher deaths from **ALRI**, which can be tied to the use of solid fuels like wood and coal in households.
- Causes like **lung cancer** are less significant globally compared to ALRI and strokes, though they remain notable in the **Western Pacific** region.

4. Choropleth Based on Number of Deaths:

- **India** and parts of **Sub-Saharan Africa** stand out as the regions with the darkest intensity, signifying the largest death counts.
- Regions in **Europe** and **North America** show minimal death counts, reflecting better infrastructure, access to cleaner energy, and stricter environmental policies.
- The global distribution underlines a clear disparity between low-income and high-income regions.

5. Regional Deaths During Different Years (2010–2020):

- **South-East Asia**:
    - Deaths start above **6 million** in 2010 and decline slightly, but the region still carries the highest burden in 2020, with over **5 million deaths**.
- **Western Pacific**:
    - Deaths begin at **4.5 million** in 2010 and show a gradual decline toward **4 million** by 2020.
- **Africa**:
    - Deaths remain relatively steady, around **3 million**, highlighting persistent challenges in reducing household air pollution.
- **Europe** and **the Americas**:
    - Deaths remain consistently low, indicating little variation over the decade and showing a relatively better control over household air pollution.

6. Deaths Based on Sex (Donut Chart):

- Females represent a larger share of deaths, corroborating evidence that women are disproportionately exposed to household pollution (e.g., cooking with polluting fuels).
- Males have fewer attributable deaths, possibly due to lesser exposure, as men in many cultures spend more time outside the home.

7. Yearly Range of Household Air Pollution Attributable Deaths (Bar Chart):

- Death counts decrease slightly year-over-year from 2010 to 2020, indicating some progress in addressing household air pollution.
- Despite reductions, total deaths remain staggeringly high, exceeding **20 million** annually in some regions, with **South-East Asia** contributing the largest share.
- The relative stability in regions like **Europe** and the **Americas** underscores the effectiveness of sustained interventions and cleaner technologies in these areas.

Key Patterns Across the Dashboard:

- **Geographical Burden**:
    - Deaths are disproportionately concentrated in low- and middle-income countries, particularly in **South-East Asia**, the **Western Pacific**, and **Africa**.
    - High-income regions like **Europe** and the **Americas** face a much smaller burden.
- **Leading Causes**:

    - **Acute lower respiratory infections** and **strokes** consistently rank as the top causes across all regions.

- **Temporal Trends**:
    - While deaths show a declining trend over the decade, the rate of reduction is insufficient in heavily affected regions like **Africa** and **South-East Asia**.
- **Demographic Disparities**:
    - Women bear the brunt of household air pollution-related deaths due to traditional roles in many societies, particularly in rural and impoverished areas.