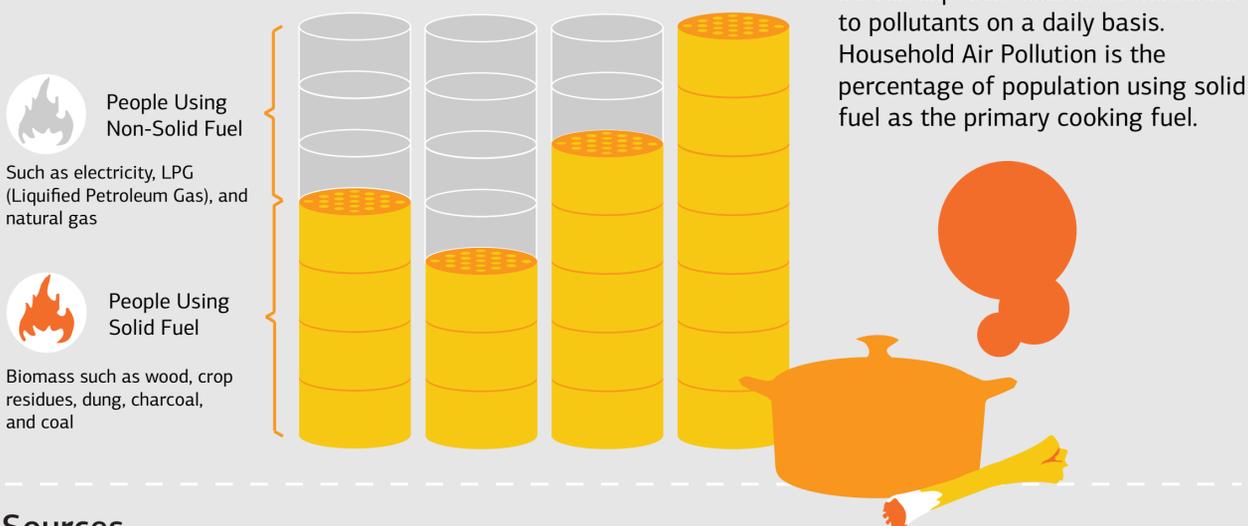


# What is Household Air Quality?

Cooking over open fires or in simple stoves exposes household members to pollutants on a daily basis. Household Air Pollution is the percentage of population using solid fuel as the primary cooking fuel.



## Sources

Solid fuels include biomass fuels, such as wood, charcoal, crops or other agricultural waste, dung, shrubs and straw, and coal.



## Harmful Effects

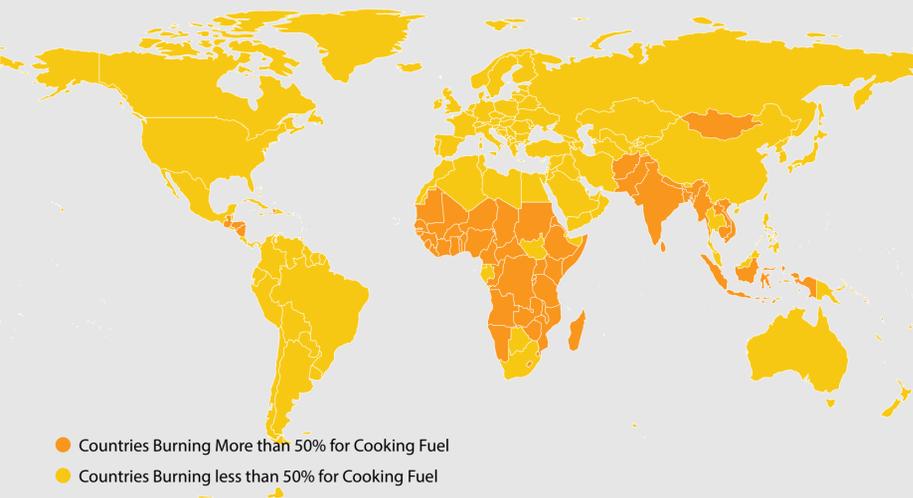
### Incomplete Combustion



Although biomass fuels contain few actual contaminants, they produce substantial pollution mainly as a result of incomplete combustion in traditional stoves and open fires. Unfortunately, since people in developing countries rarely have access to advanced stoves, cooking with biomass exposes them to harmful pollutants.

## Countries Burning More Than 50% Biomass for Cooking Fuel

Data from 2004-2008



## Developing Countries

Household air pollution is one of the most important causes of poor health in developing countries.



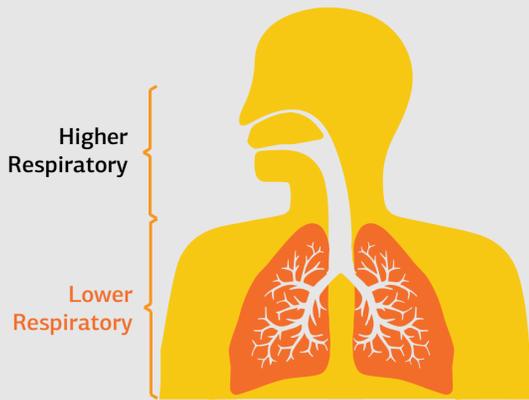
## Women & Children

Particularly for women and children, who are most impacted by household air quality, it's the second most important risk factor for women and girls.



### Daily Pollutant Concentration Levels

Cooking with solid fuels over open fires or in simple stoves exposes household members to daily pollutant concentrations that lie between those of secondhand smoke and active smoking.



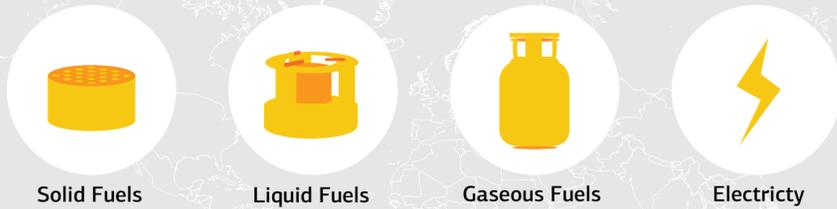
**For Adults**  
 Increased mortality from chronic obstructive pulmonary disease and lung cancer (where coal is used)



**For Children**  
 Increased mortality from pneumonia and other acute lower respiratory diseases

# How do we know?

## Data from World Health Organization



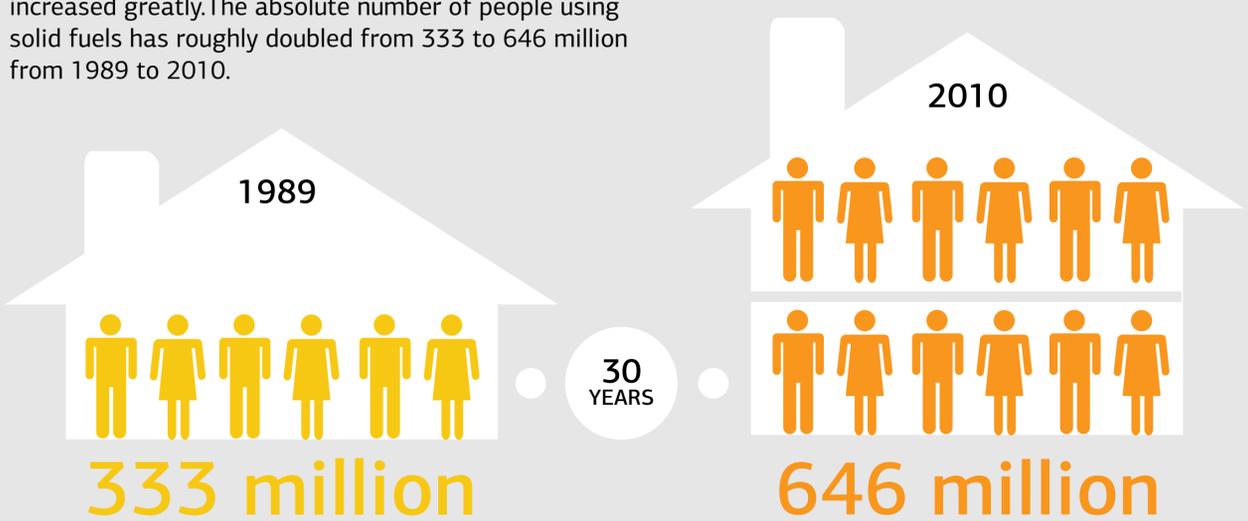
These data were collected from a total of 586 national country data points from household surveys in 155 countries. The rest of the data are generated from models predicting solid fuel use.

Households Using Solid Fuels % = People Exposed to Household Air Pollution %

The fraction of people exposed to household air pollution was assumed to be the same as the fraction of households using solid fuels.

# How is the world doing?

The number of people using solid fuel as cooking fuel has increased greatly. The absolute number of people using solid fuels has roughly doubled from 333 to 646 million from 1989 to 2010.



## References

- World Health Organization. (2012). WHO Household energy database. Available: [http://www.who.int/indoorair/health\\_impacts/he\\_database/en/index.html](http://www.who.int/indoorair/health_impacts/he_database/en/index.html). Last accessed: January 10, 2014.
- Bonjour et al. (2013). Solid fuel use for household cooking: Country and regional estimates for 1980-2010. Environmental Health Perspectives. 121(7): 784-790.
- WHO Household Energy Database. World Health Organization (WHO). [http://www.who.int/indoorair/health\\_impacts/he\\_databasecont/en/index.html](http://www.who.int/indoorair/health_impacts/he_databasecont/en/index.html)