

# Women's health & household air pollution



# What is air pollution?

1

Human beings can survive for some time without food, but we cannot survive even for a few minutes without air. Breathing clean air is thus very important for our health and well being.

2

Air pollution refers to the release of pollutants into the air—pollutants which are detrimental to human health and the planet as a whole.

3

The substances which contaminate the air are called air pollutants.

4

Sometimes, such substances may come from natural sources like smoke and dust arising from forest fires or strong winds. Pollutants are also added to the atmosphere by certain human activities like burning biomass, or smoke from factories and vehicles.



Scan to see videos





# What is air pollution?

1

There is a clear connection between poor air quality and climate change.

2

Air pollutants, such as, black carbon, carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) accelerate greenhouse effect.

3

This means, when the sun's rays penetrate the atmosphere, the heat that is reflected off the surface cannot escape back into space.

4

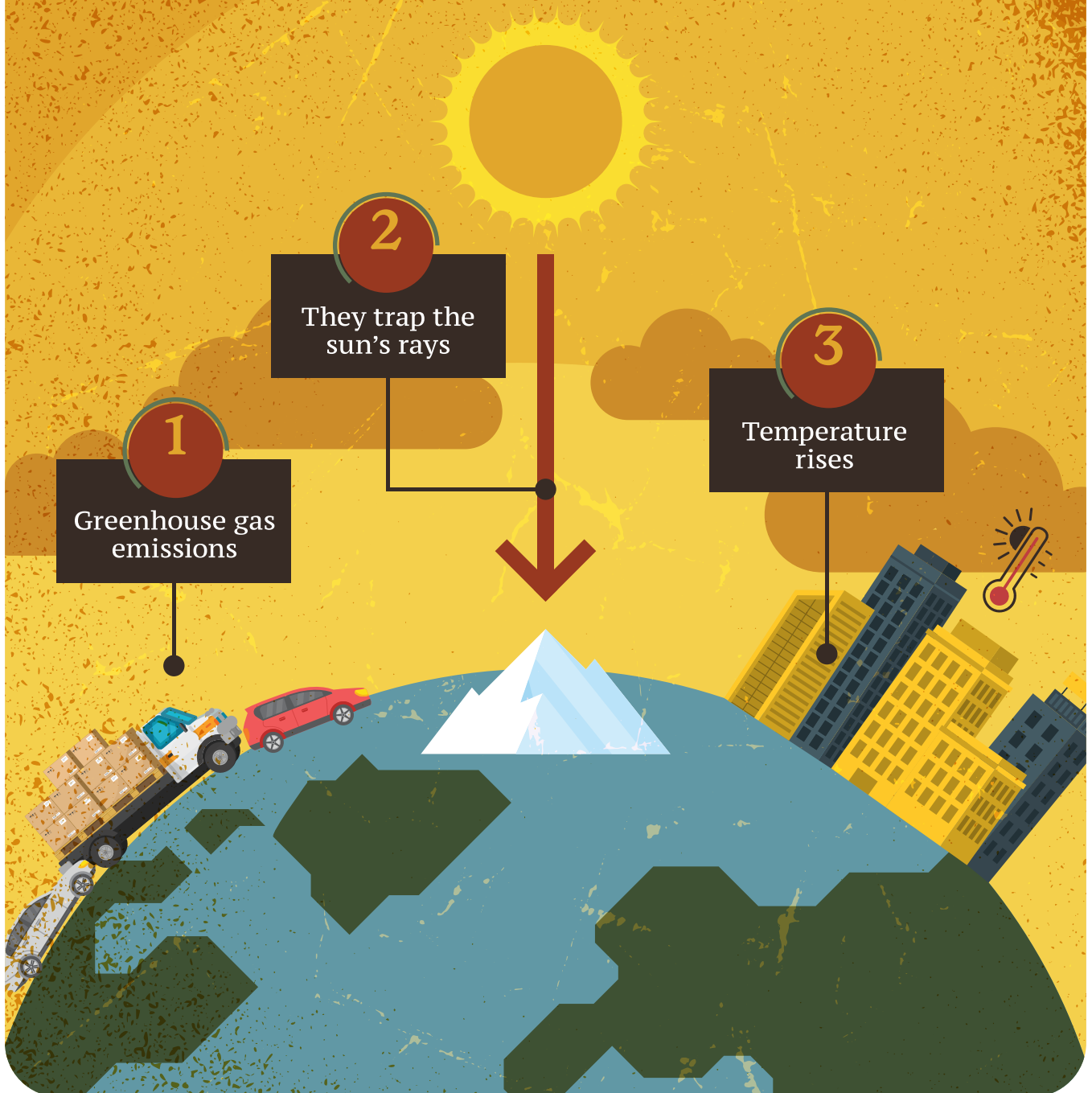
This results in global warming which is the warming of the earth's overall temperature. Global warming causes climate change, which poses a serious threat to life on earth.

5

Climate change refers to changes in weather patterns and growing seasons around the world. It also refers to sea level rise caused by the expansion of warmer seas and melting ice sheets and glaciers.



# The greenhouse effect



# Measuring air pollution



## Central Pollution Control Board's Air Quality Standards

Air Quality Index (AQI)	Category
0-50	Good
51-100	Satisfactory
101-200	Moderate
201-300	Poor
301-400	Very poor
401-500	Severe

Air quality is measured with the Air Quality Index, or AQI.

The AQI works like a thermometer that runs from 0 to 500 degree and shows changes in the amount of pollution in the air.

Air quality monitors can measure the concentration of PM2.5 and PM10 in the air thus giving us an idea of good or bad the air in a particular location is.

There are outdoor monitors set up in big spaces or small hand held portable monitors.



To see a demo on using Air Quality Monitors, scan the code

# Air pollution: sources

Factories,  
industries,  
power plants

Waste burning

Chlorofluoro  
carbons used in  
refrigerators, air  
conditioners and  
aerosol sprays

Vehicles

Use of pesticides and  
chemicals for cleaning

Biomass burning  
(wood, charcoal, dry  
leaves, etc.)

Use of incense or  
burning camphor





# Biomass burning and household air pollution (HAP)

Worldwide, around 2.4 billion people still cook using solid fuels (such as wood, crop waste, charcoal, coal and dung) and kerosene in open fires and inefficient stoves. Most of these people are poor and live in low- and middle-income countries.

In India, a large number of households cook using chulhas made up of brick and use biomass such as wood and coal to cook on these chulhas. Cooking is mostly done in badly ventilated kitchens with the smoke from the chulhas engulfing the house every time one cooks.

The smoke from chulhas contains a range of health-damaging pollutants such as carbon monoxide, particulate matter and methane which are inhaled by individuals who are in close proximity to the chulhas.

Exposure is particularly high among women and children, who spend the most time near the chulha.

# Women's health and household air pollution



Research suggests that burning chulhas in homes for cooking and heating has adverse impacts on the health and well being of women and children in particular as they are exposed to the fumes.

Over 40% households in India still don't have access to clean cooking fuel (NFHS, 2019–20) which essentially means that women in these households continue spending anywhere between 2–3 hours everyday in front of the toxic fumes coming out of chulhas.

## Impact of HAP on women's health and wellbeing

On a day to day basis, women face mild to moderate health impacts of using chulhas such as watery eyes, trouble while breathing, throat irritation and nasal congestion etc.

Women can face adverse pregnancy outcomes such as stillbirths, low birth weight, intrauterine growth retardation, and infant mortality due to constant exposure to smoke.

Some of the more adverse effects of biomass burning on women include the occurrence of Chronic Obstructive Pulmonary Disease (COPD), tuberculosis, asthma, and lung cancer.

# Gender and HAP

1

Gender roles in the society and the family mean that cooking is seen as the sole responsibility of the women and girls in the household.

2

Women have to remain in front of the chulhas for 2–3 hours everyday as they cook meals for the entire family and inhale a lot of toxic smoke in the process.

3

Gathering biomass also has a lot of opportunity costs associated with it. Women and young girls lose out almost an entire day in a week to find biomass and fetch it. This puts a tremendous burden on them as they lose out on a lot of time and energy that they can otherwise use for productive tasks such as studying.



Watch a photo essay on the link between gender and HAP by scanning the code.



# Choking millions

Scan the code to watch  
'Choking Millions', a film that  
chronicles the hardships of  
women in Delhi's slums as  
they are forced to use biomass  
as they cannot access and  
afford LPG.





# Experts speak

Women can face adverse pregnancy outcomes such as stillbirths, low birth weight, intrauterine growth retardation, and infant mortality due to constant exposure to smoke. Some of the more adverse effects of biomass burning on women include the occurrence of Chronic Obstructive Pulmonary Disease (COPD), tuberculosis, asthma, and lung cancer.

— *Dr. Sameer Arbat, Pulmonologist, Nagpur, Maharashtra*

Effects of inhaling the toxic fumes from chulhas range from mild—like cough, sneezing and trouble in breathing to severe such as—lung damage and Chronic Obstructive pulmonary disease. Most of these impacts are seen after years of chulha usage by which time it is too late to act. Thus timely awareness and intervention is a must to tackle the issue.

— *Dr. Anjana Lakra, Gynaecologist, Lohardaga, Jharkhand*



Scan code to watch doctors talking about the impact of air pollution on health

# Barriers for transition towards clean cooking

## 1 AWARENESS

- » There is very little awareness about the ill effects of cooking on chulhas
- » Poor households also lack awareness about procedural aspects of procuring LPG connections and the subsidies associated with it

## 3 ACCEPTANCE

- » Socio-cultural norms including myths around food cooked on chulhas being tasty and healthy are a key barrier in households giving up on it
- » Concerns regarding safety of LPG

## 2 ACCESS

- » Unavailability of documents to procure a connection make it difficult for many to transition to LPG
- » Delay in procuring LPG refills, issues with delivery in several places are major factors that discourage people from adopting it as the primary and only fuel

## 4 AFFORDABILITY

- » High costs of LPG make it unaffordable for the poor to afford it
- » The average cost of an LPG cylinder is Rs.1,000 in India which makes it unaffordable especially for households with big families as they require more than a cylinder every month
- » Biomass is easily available in rural areas and in urban slums people find it simpler to fetch or buy biomass as opposed to an LPG because they do not have to pay the entire cost at once



# Pradhan Mantri Ujjwala Yojana (PMUY)

Pradhan Mantri Ujjwala Yojana was launched in the year 2016 by the Ministry of Petroleum and Natural Gas with the vision of a smoke-free rural India

Eligible consumers were identified through the Socio-Economic Caste Survey–2011 (later expanded to 7 more categories) and the connection is provided under the name of the women of the household

The scheme provides financial support (INR 1600) for the purchase of LPG connection, security deposit and one time set up cost. Additionally, all PMUY beneficiaries are provided with first LPG refill and stove (hotplate) both free of cost

A provision of EMI and interest-free loans were also facilitated to reduce the financial burden during refilling.

This scheme helped to increase the LPG coverage within the country from 62% in 2016 to 99.8% in 2021.



# Awareness

The National Center for Disease Control, Government of India has released some Information Education Communication (IEC) Material which can be used to create awareness about the issue of air pollution and its impact on health.



The material can be found here.





# Alternatives

While it is difficult to provide a foolproof alternative to LPG (as there are doubts about their scalability), some alternatives include:

## Smokeless chulhas

The smokeless chulha is built using bricks, an iron rod and a pipe for the outflow of smoke.

## Solar cookers and water heaters

Devices which use the energy of direct sunlight to heat

## Induction stoves

Stovetops which run on electricity



# Recommendations

1

Awareness and behaviour change campaigns.

2

Need for a policy push at the state and the local level for filling the gaps in implementation of PMUY

3

Research on alternate and affordable clean cooking options along with pilot testing them for scaling them further

4

Clean cooking prioritised under National Clean Air Programme (NCAP)



# Key messages



Women's health should be a priority in households as it improves the overall well being of a family.

Using a chulha poses serious risks to women's health, adds to the everyday drudgery which could result in her missing educational and economic opportunities.



Local and State governments should find a way to ensure LPG is accessible to the poorest households regularly and households have the right infrastructure for sustained use of LPG.

The government should also look at seriously investing in alternatives where LPG is just not viable in the long-run.



For every household to access clean cooking, there should be enough demand from women for the Government to fix the supply side challenges.

