



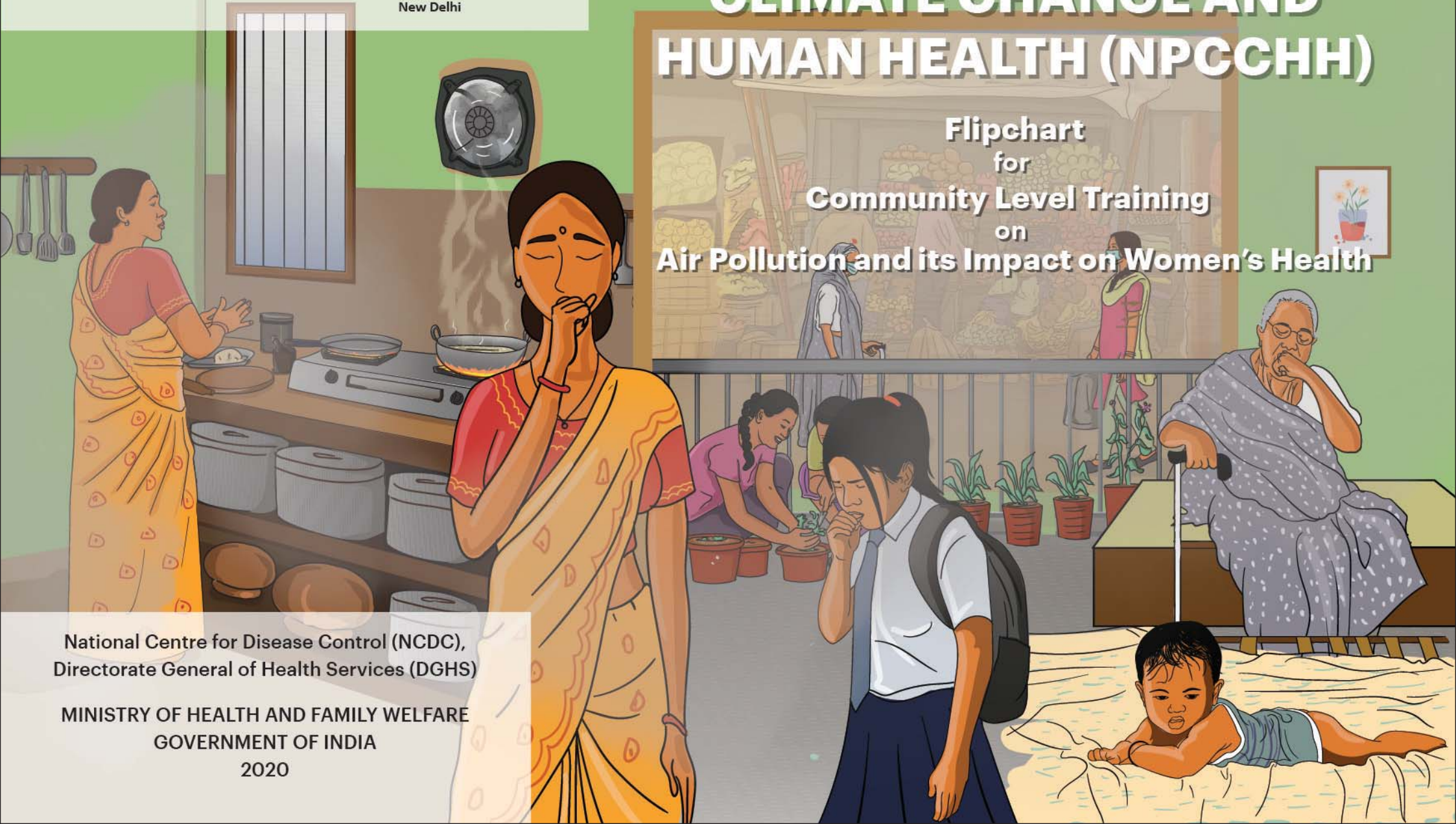
Ministry of Health & Family Welfare  
Government of India



National Centre for Disease Control (NCDC)  
Government of India  
New Delhi

# THE NATIONAL PROGRAM ON CLIMATE CHANGE AND HUMAN HEALTH (NPCCHH)

Flipchart  
for  
Community Level Training  
on  
Air Pollution and its Impact on Women's Health



National Centre for Disease Control (NCDC),  
Directorate General of Health Services (DGHS)

MINISTRY OF HEALTH AND FAMILY WELFARE  
GOVERNMENT OF INDIA

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सत्यमेव जयते

राष्ट्रीय रोग नियंत्रण केंद्र  
स्वास्थ्य सेवा महानिदेशालय  
स्वास्थ्य एवं परिवार कल्याण मंत्रालय भारत सरकार  
National Centre for Disease Control (NCDC)  
Directorate General of Health Services (DGHS)  
Ministry of Health and Family Welfare  
Government of India

## PREFACE

Air pollution is recognised as the greatest environmental risk to human health and a main avoidable cause of death and disability. It affects disproportionately to women health. Women in the country have been suffering their health from the impacts of air pollution particularly indoor air pollution. Air pollution affects women health from before birth during the gestational life to life after birth in the whole life cycle. Health of the women of child-bearing age is also a concern as air pollution may impact not only the outcome of pregnancy but also, of the developing child during the pregnancy including abnormal pregnancy, for example, abortions, premature births and low birth weights etc.

So, it is very important that the health impact of women due to air pollution in the country is well addressed for the benefit of the national health cause.

Bringing awareness to the public particularly women on the causes of air pollution, various health outcomes and impacts and the multiple health adaptation mechanisms to protect and prevent from air pollution will enable them in addressing their related health issues.



The Centre for Environmental and Occupational Health, Climate Change and Health (CEOHCCH) division at National Centre for Disease Control, Directorate General Health Services under the Ministry of Health and Family Welfare which looks after the National Program of Climate Change and Human Health (NPCCHH) has developed 'Training manual for community level training on air pollution and its impact on women's health'. The manual has rightly covered the various sources of air pollution, the ways to understand air pollution in a particular area, the health impacts and the various ways to prevent and protect the health of the women in particular. The Training of Trainers (ToTs) based on this manual will be undertaken for the States/UTs under NPCCHH and they will further do training in the States/UTs so that the awareness and desired messages reach the target group

I am thankful to other partners in developing the present manual including the WHO India and Public Health Foundation of India (PHFI) teams for their full support and cooperation which will be extremely important to address the issue at present and in the coming days.

I am sure that this training manual on community level training of air pollution and its impact on women's health will help in successful implementation of the NPCCHH programme.

I commend the efforts of all those who have contributed to making this a much valuable document.



**(Sujeet K. Singh)**

**निर्देशक**

**Director**

# 1 CLEAN AIR IS GOOD FOR OUR HEALTH





1

# CLEAN AIR IS GOOD FOR OUR HEALTH

**NOTE FOR FACILITATORS:** Ask the participants what they can see in the picture

**Discussion point:**

1. What does it mean to be healthy?
2. What are the signs that a person or child is healthy?
3. What things contribute to a healthy life?
4. Do you know that clean air inside and outside our homes are important for good health?
5. We know about the importance of clean water, eating vegetables and fruits, and physical activity for good health. Scientists and doctors want us to know that a clean environment (air, water, soil) help make us healthier and prevent disease.

Guide the discussion and ask further questions about definition of good health among women, and children. Some examples include:

- » Good appetite
- » Kids playing actively
- » Growing
- » No fever, coughs or cold

**Ask the women to describe 3–5 things that they do everyday to ensure good health.**

» \_\_\_\_\_

» \_\_\_\_\_

» \_\_\_\_\_

» \_\_\_\_\_

» \_\_\_\_\_

## 2 WOMEN & CHILDREN ARE BREATHING SMOKE



2

# WOMEN AND CHILDREN ARE BREATHING SMOKE



**Discussion point:**

1. What happens when they are around smoke?
2. What happens when they breathe through the smoke?

Guide the discussion and ask further questions about the times when they are near sources of smoke

Examples of sources of smoke or pollution: Cooking with biomass fuel, burning garbage, burning wood or straw, vehicular pollution, smoke from factories, smoke from brick kilns, dust from construction sites

**List 3-5 things that they experience when there is too much smoke inside or outside their homes**

- » .....
- » .....
- » .....
- » .....
- » .....



### 3 WHAT ARE BIOMASS FUELS?



## 3

## WHAT ARE BIOMASS FUELS?



**NOTE FOR FACILITATORS:** Ask the participants what they can see in the picture

#### Discussion point:

1. Explain what biomass fuels are and why it is important for women's and children's health.
2. Ask the participants if they have any questions or additions.

- » 3 billion people (300 crores) or close to half of the world's population use wood, kerosene, coal, straw, and cow dung for energy. These are called biomass fuels

- » These biomass fuels are used for cooking, lighting, and heating
- » Women and children spend hours collecting biomass fuel for household use
- » Women and girls are the main users and collectors of household energy/fuel. They are also the ones who get sick because of burning these fuels
- » Women and children spend a lot of time collecting wood and dung for use in the home

**NOTE FOR FACILITATORS:** STOP.

If there no more questions, refer to your manual to conduct the activity on gaseous pollutants

# 4 EVERYDAY USE OF BIOMASS FUELS



4

# EVERYDAY USE OF BIOMASS FUELS



**NOTE FOR FACILITATORS:** Ask the participants what they can see in the picture

**Discussion point:**

1. What are biomass fuels?
2. How long have they used these fuels?
3. Have there been any changes in their practices?
4. Do they have LPG?

What else do they notice about the use of these fuels?

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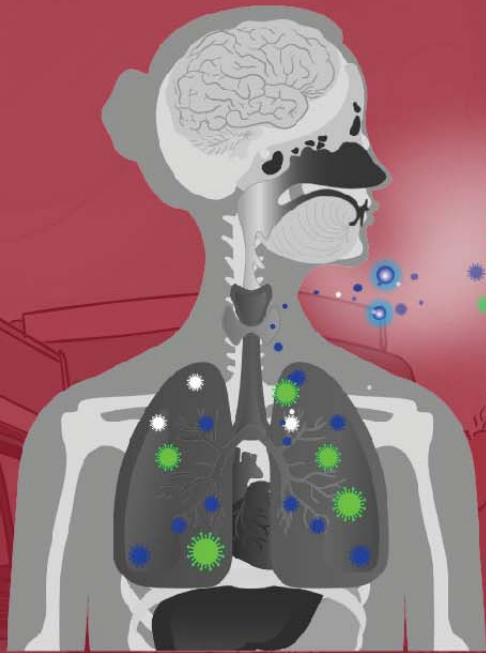
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# HEALTH EFFECTS ASSOCIATED WITH AIR POLLUTION AND BIOMASS USE



Size comparison



Fine grain of sand



Aerosols PM10



Aerosols PM2.5

Human Hair

PM10

PM2.5



5



# HEALTH EFFECTS ASSOCIATED WITH AIR POLLUTION AND BIOMASS USE

**NOTE FOR FACILITATORS:** Ask the participants what they can see in the picture

**Discussion point:**

1. Why are we easily affected by smoke?
2. Ask the participants if they have any questions or additions

**Points to emphasize:**

- » Children and women who are always exposed to smoke experience more coughs and colds
- » Because children’s lungs are still developing, they find it hard to breathe if the air is dirty. They are more sickly

**What to do if your family member is sick**

- » Bring your child or family member to the Primary Health Centre (PHC) if they have a severe cough and cold which lasts more than 7 days, or if they develop high fever. The PHC will treat your child or relative if they have health problems
- » A child who has cough, cold and fever needs to drink more water. Give them watery dal with mashed vegetables to improve their energy
- » Talk to your ASHA or ANM about your child or relative if their symptoms persist for more than 7 days
- » Someone who has difficulty breathing should not be exposed to pollution or smoke

Government welfare programmes are available to help families that are BPL. These are also called insurance. Ask your doctor or nurse at the PHC about these programmes:

- RSBY ( Rashtriya Swasthiya Bima Yojana) is an insurance scheme for families who are below poverty line (BPL)
- Universal health insurance scheme

The government has different programmes to help you if you need to go to a doctor or hospital

6

# OTHER ACTIVITIES THAT MAY CAUSE POLLUTION INSIDE THE HOME



## 6



## OTHER ACTIVITIES THAT MAY CAUSE POLLUTION INSIDE THE HOME

**NOTE FOR FACILITATORS:** Ask the participants what they can see in the picture

### Discussion point:

1. Ask the participants about other sources of air pollution in their community
2. Discuss the tradition of burning incense during puja, and for warding off evil spirits.
3. Discuss the tradition of burning chillies to ward off evil for protecting young children.

- » Smoking tobacco inside or near the house
- » Burning of rice straw/tree branches/vegetation, etc.
- » Excessive use of pesticides
- » Burning incense, cow dung, mosquito coils, etc.
- » Exhaust from cars and trucks can enter the house if the house is near the road
- » Smoke from brick kilns or factories



# 7 LASTING HEALTH EFFECTS OF POLLUTION

Pollution may affect us differently based on our age and health condition



Healthy Aging



## 7

# LASTING HEALTH EFFECTS OF POLLUTION



**NOTE FOR FACILITATORS:** Ask the participants what they can see in the picture

### Things to remember:

- » Pollution affects us in various ways during each stage of life from pregnancy (intra-uterine period) to old age. This is called the lifecourse approach
- » The effects vary at each stage of exposure to pollution
- » Infants whose mothers were exposed to pollution during pregnancy can be born small or pre-term
- » Children can experience more respiratory infections and poor lung development in later life
- » Pollution also affects the developing brain of children making it harder for them to concentrate and develop their full learning potential later
- » Pregnant women and children are very vulnerable to poor air quality and so are the sick and elderly. They must be protected from poor air both indoors and outdoors to avoid lifelong health effects

# PREGNANT WOMEN AND THEIR UNBORN CHILDREN ARE AFFECTED BY AIR POLLUTION



## 9

# PREGNANT WOMEN AND THEIR UNBORN CHILDREN ARE AFFECTED BY AIR POLLUTION



**NOTE FOR FACILITATORS:** Please take care when explaining how smoke and pollution can affect a pregnant woman and her unborn child. Pregnant women should not feel nervous or any tension when hearing about these facts. We want to emphasize that the mothers' clean environment and calm state of mind is important for the healthy growth of their child inside the womb.

### Things to remember:

- » We all know that clean water, vegetables and fruits, and physical activity, and a calm and happy mind is good for our pregnancies.
- » Scientists and doctors want us to know that breathing clean air is very good for pregnant women and their unborn child. But, they are not saying that your child will be unhealthy. This knowledge will help us when we talk to a child doctor, to the Nurse and ASHA about our child. Remember KNOWLEDGE IS POWER!

- » Pregnant women exposed to smoke are more likely to give birth earlier than expected and have smaller babies. Some infants are born small, or they get sick and die early
- » Infants who are born early, will grow slowly or will be shorter compared to other children
- » Children who are short or sickly, may experience more health problems as they grow older
- » These children may develop more respiratory problems or diseases of the heart
- » The respiratory health of infants and children up to 5 years of age are easily affected by air pollution in the home

### Women and children are more exposed to smoke & the effects are life long

- » Children are exposed to smoke when staying with their mothers or sisters in the kitchen or home
- » Girls stay longer in the kitchen and inhale more smoke, so they develop more respiratory infections than boys
- » Children cannot study properly when their eyes are affected by the smoke from kerosene lamps
- » Children have a hard time breathing and will grow slowly (stunted)

# 10 ACTIVITY: HOUSE VENTILATION





## 10

## ACTIVITY: HOUSE VENTILATION

**NOTE FOR FACILITATORS:** Emphasize the importance of ventilation when cooking with biomass fuels. The children should not be present inside the home/kitchen if there is no ventilation in place

**Materials:** Incense, Matches, Box with no holes, Box with holes

**Objectives:** To demonstrate the importance of having ventilation in the home when cooking with biomass fuels (reinforcement of need for having windows, or chimneys near the stove)

### Steps:

- » Facilitator will light incense and wait for it to generate smoke
- » The incense while burning will be put on a dish on the floor. The box will be put on top of the incense (covering the incense). The box looks like a kitchen (window and no window)
- » The participants will observe how long the incense will burn, and the smoke
- » If the box has no windows, the smoke will just stay inside. The other box which has a window will be opened, and the participants can see how the smoke goes out of the box

# WHAT I CAN DO TO PROTECT MYSELF AND MY FAMILY



11

# WHAT I CAN DO TO PROTECT MYSELF AND MY FAMILY



**NOTE FOR FACILITATORS:**

Discuss the following ways women can avoid inhalation of smoke or pollution. Ask them if they have other solutions or ideas

Houses that are close to the road will be exposed to pollution from vehicles. We can close our windows during the time when a lot of vehicles, especially trucks are on the road. This will protect the air inside the home, and the pollution from vehicles will not easily enter the home

Sometimes, we have to take care of our children while cooking. If it is possible, you can put your child sit farther away from the stove. The smoke can affect their eyes and cause coughs and cold

When cooking, make sure the smoke can go outside the kitchen or house by opening the door or a window. Position the chulha near a window or the door. If possible, put the chulha in an outdoor area



A chulha with a built-in chimney can direct smoke outside the house or place of cooking. We can also use a mask or a piece of cloth to cover our eyes, nose and mouth if the smoke is very thick. We can step out of the kitchen for a few minutes especially when our eyes start to water, or if we start coughing

Use clean fuels such as LPG, biogas or solar cooker. Ask the LPG Panchayat about information on getting an LPG and a stove. Ask your panchayat leader about government programmes on biogas and solar power for your community



# EAT VEGETABLES AND FRUITS TO KEEP HEALTHY



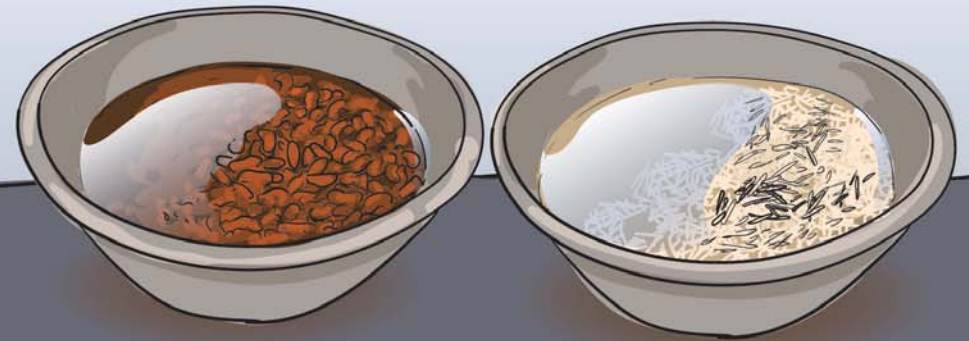
## 12

# EAT VEGETABLES AND FRUITS TO KEEP HEALTHY



- » One of the best ways to make our families healthy is to eat vegetables and fruits. The effects of pollution or smoke on our cardiovascular system can be minimized by eating a good diet, rich in vegetables and fruits
- » The vitamins and minerals in food allow us to fight diseases, and the effects of exposure to smoke
- » Eating proper meals with our family will give us energy and strength
- » Apart from eating proper meals, drinking water will help our bodies fight coughs and colds

# WHAT CAN I DO TO SAVE FUEL AND TIME WHILE COOKING?



## 13

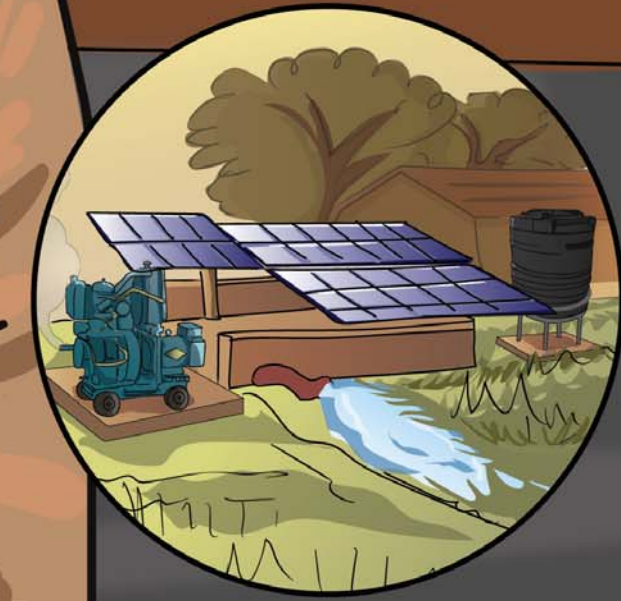


## WHAT CAN I DO TO SAVE FUEL AND TIME WHILE COOKING?

**NOTE FOR FACILITATORS:** Give the following suggestions to decrease the amount of time spent on cooking. Ask the women if they have found other effective solutions when cooking

- » Use round bottom pots on chulhas
- » The pots should be 1-2 times bigger than the mouth of the chulha
- » Clean the bottom of the pot so it gets hot faster
- » Soak chana, rajma beans and other types of dal (pulses), overnight and it will cook faster
- » Soak rice before cooking
- » Cover the pots to shorten time of cooking
- » Cut the wood in small pieces so it burns faster and completely
- » Add dung on the wood or sticks. Once dry, these sticks will burn better and produce less smoke

# 14 WHAT CAN I USE FOR LIGHTING AND HEATING?



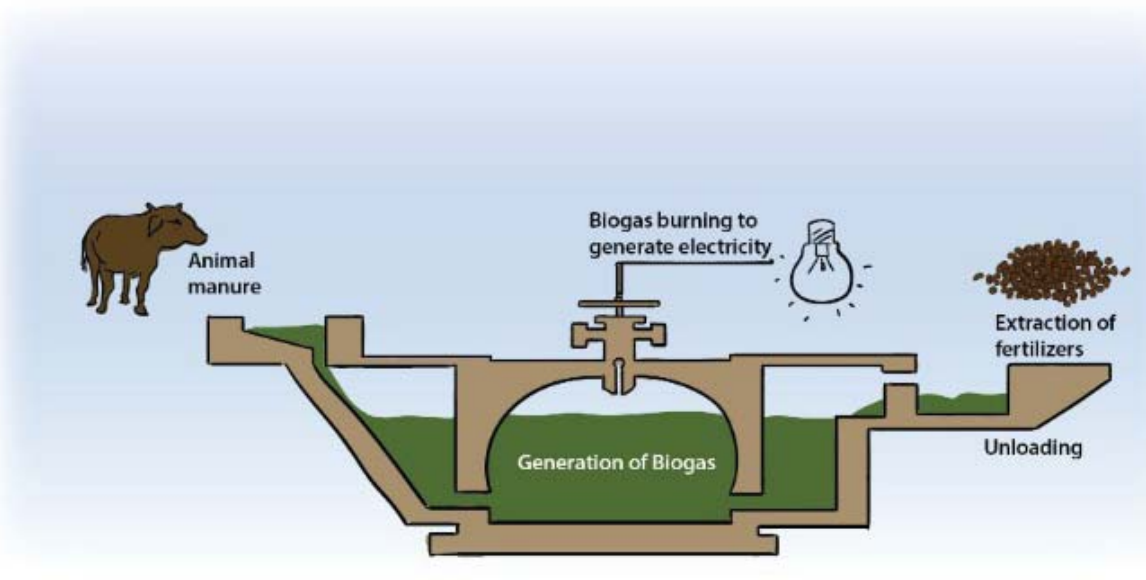
## 14

## WHAT CAN I USE FOR LIGHTING AND HEATING?



- » In the northern parts of India, families need to burn biomass to keep warm. It is easier to warm our bodies than our whole house!
  - » Wear a cap and shawl at all times. You lose more body heat and feel cold when your head and neck are not covered. Wear socks if possible. It is very important to keep children or old people warm at all times
  - » Plastics and rubber products should not be burned inside or near the home. These items produce a lot of smoke that can affect your lungs
  - » Solar energy can be used to heat water and also provide electricity at night
- The government has many programs that can help your family and your neighbors

# CALL TO ACTION: HOW TO REDUCE EXPOSURE AND CONTRIBUTION TO AIR POLLUTION



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# CALL TO ACTION: HOW TO REDUCE EXPOSURE AND CONTRIBUTION TO AIR POLLUTION



We have discussed and learned a lot today! Let's give each other a round of applause

Before we separate, let's talk about what we can do with all the information we shared and how it can be put into action to help our families, and our communities to be healthier and stronger

Let us start with three actions!

 **KNOW**

Now we know the facts about biomass fuels and other sources of pollution in the community

Now we know the facts about biomass fuels and other pollution sources such as smoke from vehicles, factories or burning in the fields which can enter our homes

We know there are things that we can do at home today to avoid inhalation of smoke and pollution and make our families stronger and healthier

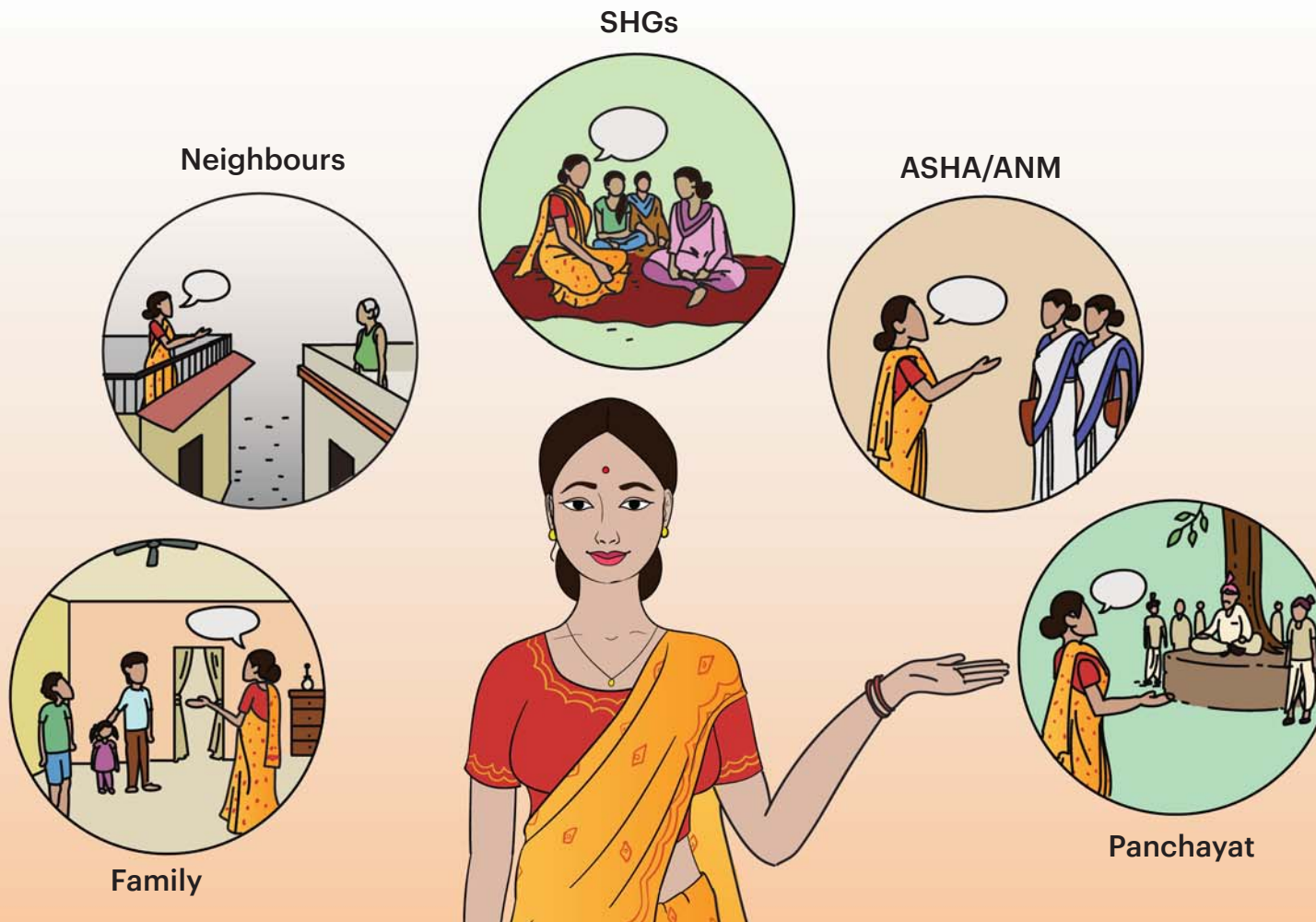




# CALL TO ACTION: HOW TO REDUCE EXPOSURE AND CONTRIBUTION TO AIR POLLUTION



TALK



# CALL TO ACTION: HOW TO REDUCE EXPOSURE AND CONTRIBUTION TO AIR POLLUTION



## ACT

- » The last action is to make the changes in the home to prevent inhalation of smoke, or to lessen your exposure to pollution
- » Use an improved cookstove that doesn't make too much smoke and uses less biomass fuels. There are different types of stoves approved by the government and are sold in the market
- » Use biogas or a solar cookstove if available. Stoves that use LPG are the cleanest. More and more women in India are using LPG for everyday cooking
- » Make sure the smoke goes outside the house when you are cooking. Open the window and door to have ventilation
- » If there is a lot of smoke while you are cooking, ask a friend or relative to take your children outside the house until you are finished with your work
- » Install a chimney for the chulha to improve ventilation. If possible, you can move your chulha in an area where there is a window or near the door
- » Discuss with your local panchayat leader about the various government programmes available to your community
- » Now you are aware that simple changes can make your health better. We talked about solutions that are available, but these changes may not happen immediately. When we start to discuss with our friends and family, we learn new ideas and have a better understanding of our beliefs and practices. The scientists and doctors advise us that clean air, clean water and vegetables and fruits will make us healthier. Knowledge is power!





This Training Manual for Community Level Training on Air Pollution and its effects on Women's Health will help to develop Trainers at various levels in the States/UTs under NPCCHH to enable them in reaching an increased awareness level on the sources of air pollution to women, women's health impacts due to air pollution and better adaptation ways to protect and prevent their health effects due to air pollution in the States/UTs in the country.

