



Building Resilience Capacities of Urban Poor in South Asia

A partnership project led by Mahila Housing SEWA Trust-MHT



Training Toolkit on

Climate Change Risks and Resilience Measures

Module 1: Orientation Training on Climate Change



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The Rockefeller Foundation, the U.S. Agency for International Development (USAID), and the Swedish International Development Cooperation Agency (Sida) have joined together to create the Global Resilience Partnership (GRP), which aims to identify and scale locally driven, high-impact, innovative solutions that will build the resilience of hundreds of millions of people in the Sahel, Horn of Africa, and South and Southeast Asia. A key component of the partnership is the [Global Resilience Challenge](#), a competition designed to surface innovation and capacities among partner institutions.

www.globalresiliencepartnership.org



Mahila Housing SEWA Trust (MHT) is an autonomous organization promoted by the Self Employed Women's Association (SEWA) in 1994 found with a mission of enabling sound housing and living environment for poor women in the informal sector. MHT's programs enable women in poor communities access basic services like water, sanitation, affordable energy, and also housing & land rights. MHT won the Global Partnership Challenge in 2015 for enabling 25000 poor families to take action against future climate risks.

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This training module is developed by MHT as part of the GRP Challenge. This is first in the series of climate change training modules.

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ABOUT THIS TRAINING MODULE

Rationale

Climate change is an accepted reality of our times. There is a clear scientific consensus around global warming and the resulting changes in earth's climatic conditions. It is also recognized that everyone contributes to climate change, and climate change will impact every one. However, women have a key role to play in both impacting climate change and being impacted. The dual burden of paid and domestic work on women, including caring for children and the elderly, and their high dependence on natural resources, makes them most susceptible to climate change impacts. They also face social and economic barriers that limit their coping capacities. Even among women, those living in slum communities are the worst affected by climate change related vagaries because of their geographical disadvantages, infrastructure deprivation, occupational risks, lower incomes, and limited access to resources.

While women are more vulnerable to climate change, they also have the most potential to become agents of change in relation to climate change mitigation and adaptation. As responsible members of families, stewards of household resources, and being the ones that inculcate habits in children, women have the power to change the way we live. Hence women and in particular poor women residing in slum communities are the primary audience for this training. The exercises in this module facilitate the process of understanding these gendered aspects of climate change. The training module is developed keeping in mind the capacities, literacy levels, and familiarity with technology of poor women.

Creativity is the key to enabling behaviour change. The exercises in this module facilitate the creative process of stimulation for increasing people's understanding of the issue of climate change and their own role in perpetuating climate change.

Objectives

This module aims to generate awareness on the issue of climate change. It sets the stage for the trainees to understand and comprehend the fact that the climate is really changing and that human actions are the root cause of climate change. This module also aims to create an understanding of the susceptibility and poverty/gender dimensions of climate change. At the end of the module the participants are expected to understand how women are a major stakeholder in the climate debate, and how they have the power to be agents of climate change.

Learning Outcomes

At the end of the training it is expected that the participants would have learnt:

- The meaning and symptoms of climate change
- Causes of climate change
- Effects of climate change
- Vulnerability of Slum Dwellers and Informal Settlements
- Added vulnerability of Women
- Role of women as agents of climate change adaptation

Target Group

This training applies to all women from urban and peri-urban areas (those who have not yet been exposed to the subject of Climate Change). An ideal training would have around 20 participants.

Time Required

This module is divided into 6 sessions spread over two days. The approximate time required for the complete module is 6 hours. Trainers can develop an agenda that suits their needs. Sample agenda is attached in Annexure.

Training Venue

The training venue should be at least 20 x 30 ft. and should have open space available for participatory exercises. The venue can be a closed space/ community hall or an open ground but should have access to electricity and plug points. The seating arrangement should be informal and flexible. Everyone should be able to view the screen and hear those speaking at the front.

Materials Required:

Training Tool Kit (Prepared by MHT)

- A set of picture cards,
- Posters explaining climate change phenomenon
- Snakes and Ladder game
- Story-telling power point/ Story Printouts
- Question-Answer Cards
- A DVD of short films related to Climate Change.

The trainers should carry this toolkit with every time the training is being conducted.

Other materials and stationary

- Chart paper
- Board
- Marker Pens
- Glue stick or paper tape
- Satin ribbons in five colors: red, orange, yellow, green, and blue
- Old newspaper/ brown paper
- LCD Projector, speakers, and laptop for presentations and film viewing

SESSION 1: REGISTRATION AND WELCOME

Objectives:

1. To welcome participants and document their names and contact details
2. To brief the participants on the training agenda, and the type of issues to be covered in the training.

Time Required:

15–20 minutes

Materials:

Copies of sample sign-in sheets for collecting participant details, 'List of Participants', paper cards, markers, pens

Process:

1. Greet participants and request them to fill in their details in the participant sign-in sheet
2. Once everyone has registered ask participants to join in the singing of a motivational song related to the training topic.



Figure 1: Women participate in singing of a motivational song

3. Ask them to get back to their places and brief them on the agenda and proceedings of the day.

SESSION 2: INTRODUCTIONS

Objectives

1. Break the ice among participants
2. To raise the inquisitiveness of participants on the issue of Climate Change
3. To enable the participants to map their own assets and vulnerabilities

Time Required:

One hour

Materials Required:

Flipchart / Whiteboard, Markers, Ribbons in Five Colours: Red, Orange, Yellow, Green and Blue

You need space for this session. If the classroom/ meeting hall has less space, you can also do this exercise in the outdoors or on the terrace.

Pre-preparation:

The purpose of this exercise is to enable the participants to understand their own level of vulnerability when it comes to key climate change related risks. The training facilitator should select key indicators in each of the categories (from handout 1) that are most applicable to the participant group and write them down on a hand card so as to enable easy calling. (also try to memorize as many as possible) Draw the following Table- 1 on a flipchart or whiteboard. The facilitators will use this table to input to put in the numbers during the exercise.

Table 1: Overall Vulnerability Analysis

Category	Red	Orange	Yellow	Green	Blue
Heat Stress					
Flooding and Inundation					
Water Stress					
Water and Vector Borne Diseases					
Poverty					
Gender					

Process

1. Ask the participants to introduce themselves to the room. They should tell everyone their name, their neighborhood/ locality, and the name of their community based organization (CBO).
2. Now ask everyone to come to the floor. Explain that now they will be participating in an exercise, which will explore further characteristics about their lifestyles and everyday regime. Tell them that you will be calling out a category, and they will have to take sides/ divide into groups and sub groups as applicable to them (personally) based on the categories you are calling.
3. Call out for the categories from the list in handout 1 in the first stress area.
4. The group will divide into two after the first (or second category is called). Thereafter let them divide into further sub-groups.
5. At the end, you should have small groups of 2-3 women each.

Facilitator's Note: When you break the groups, be sure you are asking the relevant categories. Also once a group is small enough of less than 3 people, you can ask them to move on one side. Only break the larger groups.

6. Ask each of the groups to hold hands and stand separately. Now ask each group to state their characteristics. Make sure that all groups identify all their characteristics rightly.
7. Now ask the class, "Who among them are the most vulnerable to the related stress?". Let the women raise their hands themselves or the other groups may also point. Ask them why they think so. Give RED satin ribbons to this group of women to tie on their arms and move out of the main group. (You may also have 2 or more group women saying they are most vulnerable based on different characteristics. This is ok, but make sure they have identified them correctly).
8. Now ask remaining to identify the second most vulnerable group from among them and why. Give this group ORANGE Ribbons and ask them to move out. Now ask them who is the least vulnerable and why. This group gets BLUE Ribbons and moves out.
9. Now ask the group to again identify the least vulnerable from among them and why. This group gets GREEN Ribbons and moves out.
10. All the remaining participants get YELLOW Ribbons.
11. Count the number of women having different coloured ribbons and write these numbers down on the flip chart/ white board.
12. Repeat the exercise with the other stresses, adding one ribbon after each stress on the arms.

13. After the exercise is over, divide the women into 5-6 groups according to the number of ribbons of different colours in their hand. You can ask them to divide as:

- Women having 3 or more red ribbons
- Women having 3 or more red or orange ribbons
- Women having 3 or more red, orange or yellow ribbons
- Women having 3 or more green or blue ribbons
- Women having 3 or more yellow, green or blue ribbons

14. Make sure the women sit together in their assigned groups throughout the training.



Figure 2: Women assess their own vulnerabilities

Facilitator's Note: If you have time, you can spend a little time discussing the vulnerabilities of different groups. Once you have identified the most vulnerable group (women who have mostly red or orange ribbons), ask them to discuss how they cope with regular service delivery problems, loss of livelihoods, health emergencies, disasters, and growing expenditures. Write down these strategies on a flip chart. Similarly identify the least vulnerable group with women having mostly green or blue ribbons. Ask them to discuss how they cope with regular service delivery problems, loss of livelihoods, health emergencies, disasters and growing expenditures. Write these strategies down on a flip chart and discuss the merits of different coping strategies and how sustainable and resilient the strategies are. Ask the groups what they can learn from each other and what they need to do to become less vulnerable and more resilient. This way the exercise can become a complete learning session in itself.

HANDOUT 1

A. Heat Stress	B. Flooding and Inundation Stress	C. Water Stress
<ul style="list-style-type: none"> ▪ Own home vs Rented Homes ▪ Pucca vs Kutchha Homes ▪ Asbestos/ Tin Roofs vs RCC Roofs; Tarpaulin Roofs vs Traditional Roofs ▪ Ventilated vs Non-Ventilated Homes (with no windows) ▪ Regular Electricity vs Irregular Electricity ▪ Load shedding in summers or not ▪ With Coolers vs Without Coolers ▪ Nearby green spaces (trees/parks) vs No green spaces ▪ Have to go out for work vs working within home/ workshed ▪ Work in afternoon vs Work in Mornings 	<ul style="list-style-type: none"> ▪ Settlement in Upstream vs Down Stream (Low lying areas/ near drainage lines) ▪ Below road level vs above road level ▪ Available storm water drainage vs no facilities ▪ Sewage lines vs No/ blocked/ broken drainage ▪ Little or No regular collection of garbage ▪ Door-to-door collection available vs not ▪ Drains are consistently clogged vs functional drains ▪ Clogged water bodies near locality or Not ▪ Prone to flooding vs Not prone ▪ Prone to inundation in high rainfall vs not prone ▪ Prone to inundation in one or two hours of rainfall vs not prone ▪ Had experience of more than one week of inundation ▪ Ever faced loss of life and huge loss of property during floods ▪ Ever faced small loss of assets- home, businesses and documents during floods/inundation ▪ Ever faced loss of livelihood/ wages during floods/inundation ▪ Regular home repair and maintenance expenses post monsoons or Not ▪ Water logging affects access to water and sanitation services or Not ▪ Access to early warning system vs no prior warning 	<ul style="list-style-type: none"> ▪ Dependence on groundwater or on surface water ▪ Access to reliable water supply (every day) vs Irregular access ▪ Face water cuts in regular seasons or Not ▪ Face water cuts in summers or not ▪ Ever paid for water or not ▪ Use of unsafe water or Not ▪ Incidence of water related diseases or not ▪ Knowledge of water quality parameters or not ▪ Water subjected to regular testing or not ▪ Access to water quality information or not ▪ Existing open water bodies/ nallas ▪ Open Defecation vs Soak pit vs network based solutions ▪ Unhygienic water storage practices vs Water purification practices

D. Disease Stress <ul style="list-style-type: none"> ▪ Higher number of elderly and children below 5 in family (>2) ▪ High water stress (orange or red) ▪ High heat stress (orange or red) ▪ Ever faced Stress, Fatigue and Illness during summers ▪ Family incidence of Diarrhea and typhoid in last year or Not ▪ Outbreak of diarrhea and typhoid last year in locality or Not ▪ Family faced Malaria or Dengue last year or Not ▪ Outbreak of Malaria or Dengue last year in locality or Not ▪ Easy access to government healthcare services vs private healthcare services 	E. Poverty Trap <ul style="list-style-type: none"> ▪ Notified/ Non-notified slums ▪ Insecure Land Tenure vs Secure Land tenure ▪ Clear home titles vs Non-clear titles ▪ Fear of Eviction vs less Chances of eviction ▪ Informal vs Formal Sector job ▪ Self Employed vs work for wages ▪ Daily wage earner vs Casual work ▪ Greater no. of earners vs greater no. of dependents in family ▪ Have savings vs no savings ▪ Access to formal credit vs availing informal credit ▪ Access to information vs Low access ▪ High flood/ inundation stress (orange or red) ▪ High medical expenses vs low expenses ▪ Have you ever lost productive days/ wages due to health problems ▪ Make systematic home improvements vs not possible 	F. Gender Burden <ul style="list-style-type: none"> ▪ Individual vs Shared Responsibility for Domestic Jobs (especially water) ▪ Increased/ Decreased drudgery of accessing safe water ▪ Individual vs Shared Responsibility for Care Giving Roles (especially healthcare) ▪ Involved in production/income generation activities or Not ▪ Home based vs Outdoor worker ▪ Have you ever lost productive days/ wages due to water problems ▪ Have you ever lost productive days/ wages due to healthcare problems ▪ Have you ever lost productive days/ wages due to flooding/ inundation ▪ In case of inundation/ flooding in city have you ever been stuck outside home ▪ In case of relocation (temporary or otherwise) ever faced lack of privacy at shelters ▪ In case of relocation (temporary or otherwise) ever faced sexual harassment at shelters
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SESSION 3: CONCEPT AND CAUSES OF CLIMATE CHANGE

Objectives

1. To introduce the subject of Climate Change
2. To let the participants feel the process of climate change.
3. To create an understanding of the meaning of Climate Change and its causes.

Time Required:

One to one and a half hours

Materials Required:

Old News Paper/ Brown paper Sheet, Picture Cards showing different climatic conditions and its manifestations over the last twenty years. (You would need a set of 48-60 cards reflecting each of the indicators given in handout 2, Envelopes, Glue stick or paper tape

Pre-preparation:

Prepare one envelope for each of the indicators given in handout 2. Put in 2-3 picture cards related to current and past scenarios in the envelope related to the indicator. The indicator should be clearly written on the envelope. Spread and paste 2 newspaper sheets or brown paper on a wall with a paper tape. Mark one as 'Today's Climate (2015)' and another as 'Yester Year's Climate (1995)'. Divide each sheet into four parts as shown in picture 1: a) Temperature; b) Precipitation/Monsoons; c) Natural Habitats; d) Physical Habitats (Urban Landscape and Amenities).

Process:

1. Ask the participants what they expect of the training. List down the main points and tell them which would be covered in the training and which will be not. Let them know of any issues, which are going to be covered in subsequent trainings.
2. Introduce the objectives of the training. Tell the participants that unlike other issues, climate change is an issue which affects everyone on this earth. It is also an issue wherein every person is a beneficiary as well as an implementer.
3. Tell them that although the term is new now but at the end of the training, they will realize that it is something they already know, but now need to reflect on seriously.

4. Now divide the participants into pairs of two each. In each group one person represents 'Today's Climate' and the second as 'Yester year's climate'. Now give each group one envelope.
5. Tell the participants that you will be speaking out certain scenarios and the pair with the related envelope has to reflect on the same. The pair will look at their given pictures and select one picture which depicts "Today's Condition" and one which depicts 'Yester Years conditions (which existed 15-20 years back).
6. Read one indicator from handout 2 and let the participant pair respond to each statement. Once they have identified the said pictures, ask them to share why they have selected the picture, with the class.
7. Ask the class if they have made the correct assumptions and jointly decide which one to stick under which head on the newspaper/ brown paper. The result should emerge as picture 1.
8. Once all the statements are read and all the cards pasted, ask the participants to have a closer view of both the newspaper- posters together.

Facilitator's Note: Stick the pictures on the newspapers in a pattern to form a collage as well as so to help inference later on. Like stick all heat related pictures together.

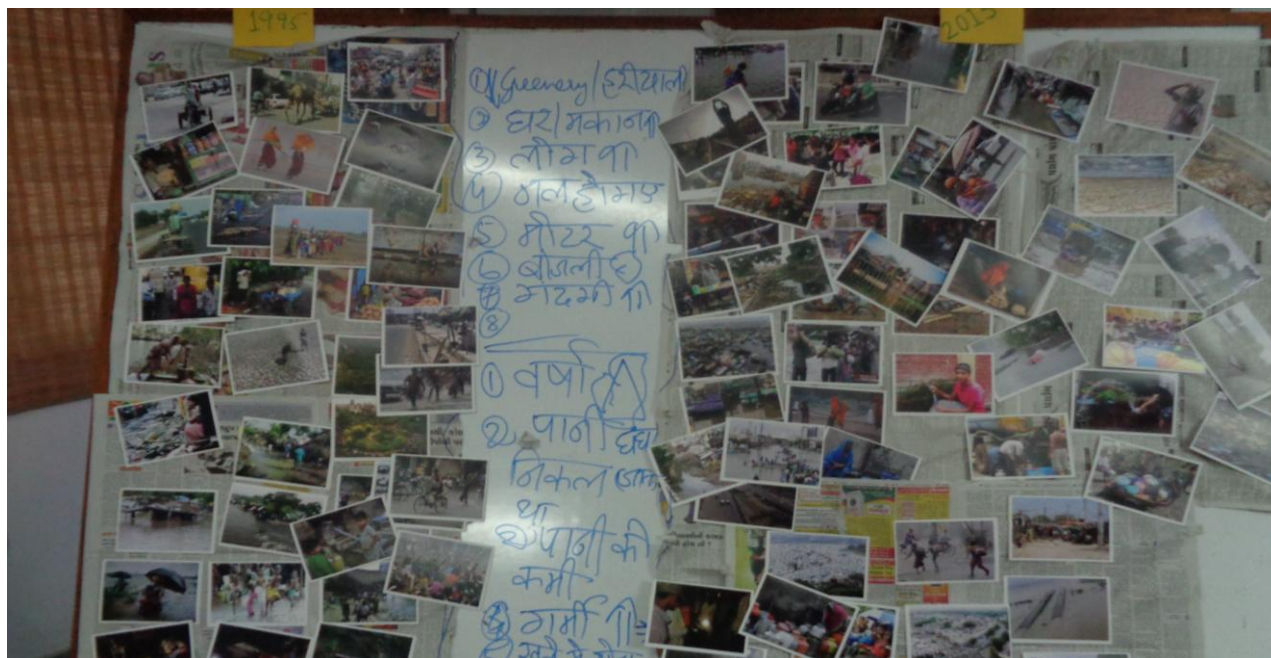


Figure 3: Understanding changes in climate over the past decade

9. Let the participants come back and sit as before in the plenary.
10. Ask them what they think about the changes in temperature and precipitation. Make a list of the points raised by them on a board. Ask them if they can think of more such issues.
11. The result of this brainstorming should be a list of changes identified by the women themselves. Now ask them if they think there is any relation with the changes in natural and physical habitat with the changes in temperature and precipitation. Write down the analysis of the board.

Facilitator's Note: You need to point to the fact that while the changes may be natural- it does have a strong link to our development processes. Also ask them to reflect on how the impact of the natural changes varies with how we are developing our cities.

12. Introduce the participants to the meaning of the words weather, climate change and global warming (see handout 3).
13. Now ask them to relate these events with the stress that they face (refer the flip charts developed in the earlier session). Give time for discussion as the issue sinks in.
14. Explain that this is human induced and not just a natural phenomenon. Show them a film related to "Causes of Climate Change".
15. Using handout 4 explain the various causes of climate change. You can also use the poster on Causes of Climate Change for explaining.
16. Do not go into too much detail, but insist on the fact that it is human induced and not nature induced.

Facilitator's Note: If you have time also explain the concept of greenhouse effect using the notes in handout 3 and a poster of Green House Effect. (You can show also the animation films on "greenhouse effect for kids" and "global warming" to explain the concept). Conclude by pointing out that GHGs are like salt in food, very essential but only required in small quantities. Or like clothes in summer required saving you from burning but very thick clothes will end up in the heat becoming unbearable.

Conclusion:

Reinforce the concept that Climate Change is something very much related to our daily lives. Tell them that human actions are responsible for this since the quantity of CO₂, Methane, Nitrous Oxide and other Green House Gases has increased a lot after the 18th century, when our population started growing rapidly and with that the demand for resources/ material benefits; industrialization began and with that were introduced more and more vehicles, machines, plastics, more fossil fuel burning, etc; cutting of forests in huge numbers.

HANDOUT 2

Temperature Changes <ul style="list-style-type: none"> • Heat levels during Holi (in March) • Months of Winter Season • Heat waves in May • Heat levels in Diwali (in October) • Heat in monsoons • Temperature at Night 	Precipitation Changes <ul style="list-style-type: none"> • Notion of Monsoon • Number of Rainy days • Quantity of rainfall • Heavy Precipitation • Moderate Precipitation • Droughts
Changes in Natural Resources <ul style="list-style-type: none"> • Ground Water level • Surface Water Bodies • Water Quality • Tree Cover • Rivers and Natural Drains 	Changes in Habitat Situation <ul style="list-style-type: none"> • Homes • Buildings and Skyline • Offices • Streets and Roads • Industries/Factories

HANDOUT 3

WHAT IS WEATHER?

We often make remarks like...

- What a glorious day!
- It's so cold, my fingers are falling off!
- Today is so much hotter than yesterday.
- Do you think it might rain today?

These are discussions related to weather. Weather is what we feel during the day or night. Weather changes at various times during the day itself and from season to season.

WHAT IS CLIMATE?

We know what weather to expect during each season and across locations...

- It's hot during summers
- Hill stations are cooler during summers.
- It rains more in Kerala than in Gujarat
- Snow falls in Kashmir during winters

This predictability of weather conditions during a particular season, month or location is the 'climate' of the region. Climate is the average weather of a given region or area over a given period of time.

The Climate anywhere on our planet can be well described as a result of a delicate balance between the sun, atmosphere, oceans, water systems, plants, living organisms and topography. The most important factors taken into account are rain, sunshine, humidity, wind and temperature.

DIFFERENCE BETWEEN WEATHER AND CLIMATE:

WEATHER	CLIMATE
<ul style="list-style-type: none"> • Is short time • Always likely to change • Is what we actually get and feel 	<ul style="list-style-type: none"> • Is long term • Not likely to change abruptly • Is what we expect to get

WHAT IS CLIMATE CHANGE?

Changes in the average weather conditions in the given region or area is Climate Change. This includes changes in temperature, wind patterns, and precipitation. The change is referred to in a global sense and concerns the earth as a whole.

WHAT IS GREENHOUSE EFFECT?

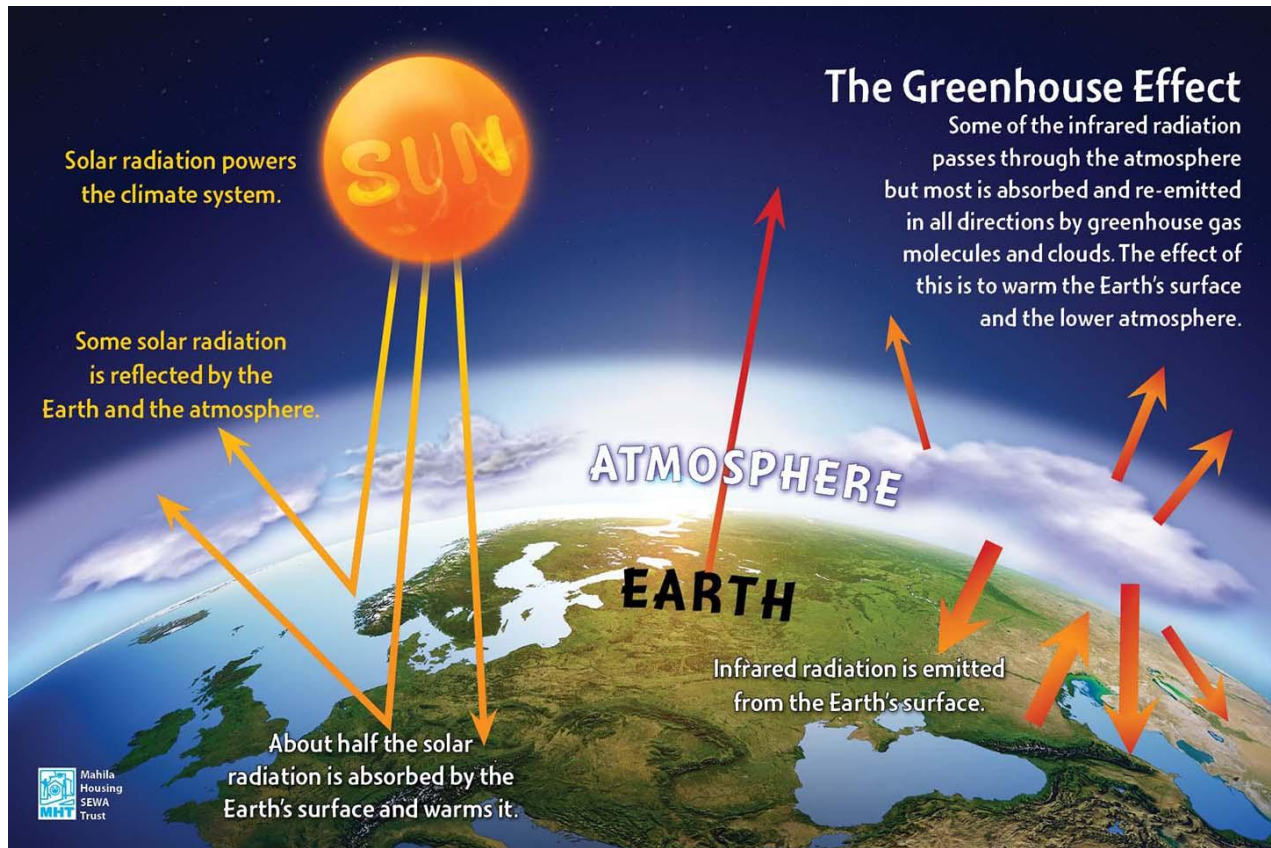


Figure 4: Poster explaining Greenhouse Effect

A green house is a glass shed used to grow plants, especially during winter. The glass panels let in the light and heat from the sun. The heat gets trapped inside and cannot escape from the greenhouse. The house thus heats up and gives out warmth to the plants. This natural process is called the "Green House Effect".

Some gases in the atmosphere work like glass panels. The sun's rays enter the atmosphere through the gases. They hit the land and water, heating them both during the day. Light and heat are reflected back from the planet's surface, and while some of it escapes into space, the rest of it becomes trapped because of the gases that act like a lid or a cover around the earth creating a Green House Effect.

It's the Green House Effect which helps keep a cozy average global temperature of 16 degrees Celsius. Without the Green House Effect, the planet would be freezing at -18 degrees Celsius.

WHAT IS GLOBALWARMING?

Global warming is the rise in the temperature of the earth's surface and the air over a period of time. The earth's surface and air have slowly been warming up over thousands of years. But in the past century, our planet has been warming up faster than ever before due to increase in concentration of green-house gases.

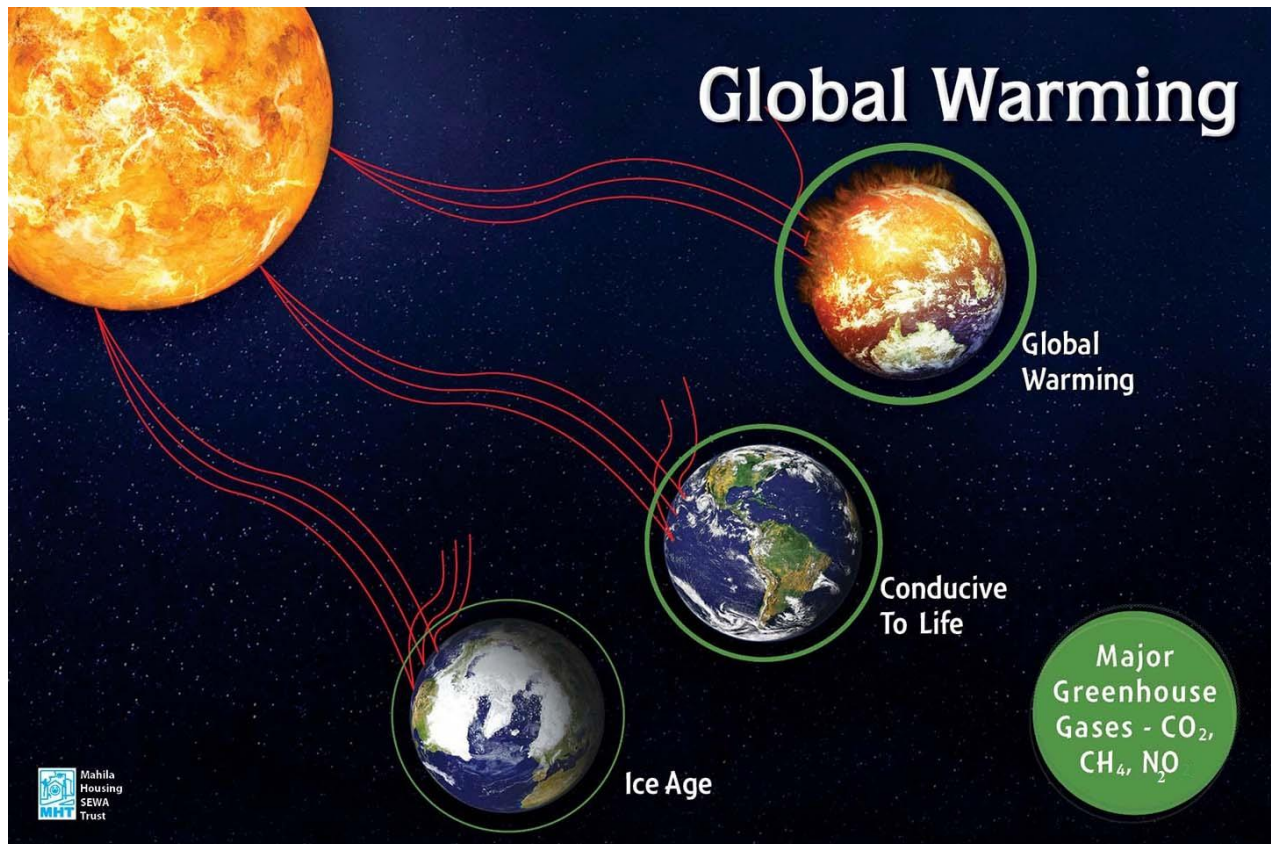


Figure 5: Poster explaining Global warming

HANDOUT 4

CAUSES OF CLIMATE CHANGE

Post industrial revolution, the concentration of GHG in the atmosphere has increased massively. Since 1750, atmospheric concentrations of CO₂, CH₄ and N₂O have increased by over 36 percent, 148 percent and 18 percent, respectively. Experts believe that over half of the increase is due to emissions from human sources. The major sources include:

- Oil, coal and natural gas- all **fossil fuels**- supply most of the energy needed to run vehicles. When fossil fuels are burnt they release a lot of CO₂ in the atmosphere.
- **Production of electricity from thermal (coal based) power plants** contributes 65% of the annual SO₂ emissions besides releasing huge amounts of CO₂.
- **Industrialization** in general has increased the usage of fossil fuels which leads to climate change. In addition, GHG emissions are also produced as the byproduct of various non-energy related industrial activities. Each year, **manufacturing cement** gives out 5-10% of the world's total CO₂ emissions.
- **Fertilizer overuse** is responsible for the highest single share of agriculture's direct GHG emissions, currently equal to some 2.1 billion tonnes of CO₂ annually. Excess fertilizer results in emission of climate change causing Nitrous Oxide (N₂O), which is some 300 times more potent than carbon dioxide.
- **Increase in population and growing meat/dairy production** has led to an increase in livestock population over the years, which is contributing to climate change. About one-fourth of all CH₄ emissions are said to come from domesticated animals such as dairy cows, goats, pigs, buffaloes, camels, horses and sheep, which produce CH₄ while chewing cud or defecating. The bacteria in the stomachs of these animals decompose the food and convert part of it to methane.
- Around 15-20% of the total CH₄ emissions is said to be **released from rice or paddy fields** that are flooded during the sowing and maturing periods. When the soil is covered by water, it becomes anaerobic (lacking in oxygen). Under such conditions, CH₄ producing bacteria and other organisms decompose the soil's organic matter, which leads to CH₄ emission. Nearly 90% of the paddy area is found in Asia, where rice is the staple diet.
- We all know that plants absorb CO₂. All the trees and plants of the world together take in 6.1 billion metric tonnes of this GHG. If trees are depleted, then they are unable to perform this function of converting CO₂ into O₂ efficiently. Also when a tree is cut, the CO₂ stored in it escapes into the atmosphere. Thus a major portion of GHG emission also comes from **deforestation**. Forest destruction accounts for 15% of global emission by human activity, far outranking the total from vehicles and aircrafts combined.
- Every year, people throw away billions of food and drink cans, glass bottles and jars, and plastic and metal jar and can covers. About 85% of this garbage is sent to a dump, or landfill. These **landfills** are a major source of methane emissions.



Figure 6: Poster explaining causes of climate change

SESSION 4: IMPACT OF CLIMATE CHANGE

Objectives

1. To create an awareness on the possible impacts of climate change.
2. To help participants realize the enormity of the issue.

Time Required:

One to one and a half hours

Materials Required:

- Poster on impact of climate change
- Logistics for film viewing
- Fish-bowl with question/ answer cards (see Handout 5)
- Old newspaper/ brown paper and glue

Process:

1. Explain that you will now discuss more on how climate change will impact our lives. Tell them that we will understand this process better by viewing a film after which there will be a quiz on the impacts of climate change.
2. After watching the film, allow a few minutes for the impacts to sink in and then begin the quiz game.
3. Divide the participants into two groups. Put all the question cards in a bowl and answer cards in another bowl.
4. Let each group pick up one card each and read out the question aloud.
5. If the group knows the answer let them answer it, else put it up to the other group for answering (You can also keep score accordingly, say 10 points for direct answer and 5 for bonus answer).
6. Now tell the participant who gives the correct answer to come up and pick the answer card from the answer bowl and stick it up together with the question on the newspaper.
7. Ask the participant to read out the question and answer aloud and ask the participants what they think about it. Give them time to reflect.

8. Move the fish bowl into the groups one by one (You can also keep a rule that from each group one participants gets only two chances to answer; that way most trainees will get a chance).
9. Once the game is over, ask a volunteer to explain the impacts using the poster on critical impacts of Climate Change (handout 6)
10. Let the participants brainstorm on how these impacts would affect their own lives.



Figure 7: Watching an animated film to understand the concept of climate change

Conclusion:

Climate change will impact all of us whether we are in any part of the world, however, the impacts will not be same for all. Different people will be impacted differently. Point out that although not everyone contributes equally to climate change and the contribution of the poor is particularly less- they will be impacted more by climate change. This is because climate change affects seasons- in turn affecting our natural resources. Adding to this is the fact that the way we design and live in our cities will make some communities more vulnerable to others.

HANDOUT 5

QUESTION- ANSWER CARDS

1) Will summer temperatures increase with global warming?	1) Yes temperatures in summers are likely to go higher due to global warming. Also there will be more frequent heat waves. Already we are seeing temperatures soar higher and higher since 1998.
2) What will happen if summer temperatures become higher than what they are today?	2) More people will fall ill due to heat stroke, particularly old persons and small children. We will have to invest more in cooling equipments and our energy bills will go higher.
3) How will our electricity bills be affected if temperature rises?	3) As temperatures rise, we will require more electricity to deal with increased usage of fans, coolers and air conditioners. Moreover ACs and refrigerator will consume more electricity for same temperature setting compared to today. This is likely to increase our electricity bills.
4) Will number of rainy days become less? If yes, what will be the result?	4) Yes, the number of rainy days is bound to become lesser due to higher temperatures. If this happens, not only will there be an overall water scarcity, but monsoon crop productivity will also go down as farmers who do not have irrigation may lose their crops. This will affect food availability and food prices.
5) What will happen if there is too much rain in one or two days?	5) In urban areas there will be water-logging disturbing all work. In rural areas, crops will be affected as higher rain intensity will destroy standing crops. The Mumbai deluge and Gujarat floods in 2005 are examples of this.
6) What will happen if winters are not so cold anymore?	6) Our energy needs which go down in winter will not be so. Also production of crops which require dew formation or lower temperatures like wheat and gram will go down.

7) Will there be more floods? If yes, why	7) The frequency of floods will be higher as the intensity of rain increases. Also in coastal areas there will be higher storms and cyclones.
8) What will happen if there are frequent floods?	8) Frequent floods would disturb all infrastructures, both public and private. Also routine life will be thrown out of gear. This would require diversion of resources for relief and rehabilitation and hence less money will be available for further economic growth.
9) Will there be more droughts?	9) There is a likelihood of more droughts as temperature increases and rainfall becomes scarce and irregular even in monsoons, at some places.
10) What will happen if there are more frequent droughts or unstable monsoons?	10) Agriculture will become very unproductive if there are frequent droughts or unstable monsoons. This could lead to food crisis. In addition, there will be more water shortage.
11) How will wheat and rice production be affected by Climate Change?	11) Production of wheat and rice is expected to go down by 10% as the climate changes. Wheat mainly because of higher winter temperatures and rice due to lower rainfalls.
12) How will we be impacted by it if there is food scarcity?	12) Already food prices are going up as demand increases with population and production does not match the same. If there is a loss in food production, it will lead to further rise in prices.
13) What will happen if there is reduction in water availability?	13) Water is the basic requirement for all sectors; domestic, agriculture and industry. If there is a water crisis all the sectors will be affected. However, most problems would be faced at HH level.

14) Will Climate Change lead to water scarcity?

14) Yes. Regardless of the impact of climate, there is a widening gap between the demand and supply for water. Already many regions in the world are facing water shortages. With changes in climate especially glacier melting, lesser precipitation and increasing heat stress, the situation will further aggravate.

15) How will agriculture be impacted if climate changes?

15) It is the climate of an area which determines which crops are grown and what is the quality and yield. That is why certain crops are grown only in certain regions and only in certain seasons. If climate changes, then the cropping patterns will also change.

Further production of kharif crops will go down if the number of rainy days is less and there is a dry spell between two rainfall periods. This will increase the requirement for irrigation water in agriculture.

16) What will happen to crop productivity if temperatures are warmer in monsoons and winters?

16) Warmer temperatures will lead to decline in production of crops which require cooler temperatures or dew formation for their grain formation.

17) What will happen in coastal areas due to Climate Change?

17) They will face more storms and cyclones (disasters) as also the salinity of ground water may increase and coastal areas will have very less water for drinking or irrigation purposes in non-monsoon months. This could also lead to large scale in-land migration from coastal areas.

18) If Himalayan glaciers melt, northern India will face water shortage. How will it affect other parts of India?

18) The Ganga plains hold the most fertile soils and a major contribution to agriculture comes from these areas which may become less. Further, if northern India faces a water crisis, there could be large scale migration to other areas thereby further increasing the stress on the resources in these areas.

19) What will be the status of diseases which happen more in summers and monsoons?	19) Incidence of diseases like malaria and dengue which happen more at higher temperatures will increase. This is mainly because mosquitoes breed more in higher temperatures.
20) Will the population of mosquitoes go up or down?	20) The population of mosquitoes will go up with higher temperatures.
21) What will happen if the sea levels rise?	21) If sea level rises, many parts of coastal cities, towns and villages are likely to be submerged. Even otherwise they would be under constant threat of increasing storms and cyclones. Sea water could also enter the aquifers thereby contaminating ground water.
22) Will birds and animals be affected by Climate Change?	22) It is very likely that some birds and animals which cannot cope with higher temperatures will become extinct. The most affected however would be cold water fish and polar bears whose natural habitats will be destroyed. Further, milk productivity of cows and buffaloes could be impacted with higher temperatures.
23) How will plants be affected by Climate Change?	23) The flowering and fruiting of a tree generally happens in a particular season, meaning it depends on temperature, rainfall and humidity in the region. If these factors change, then their flowering and fruiting systems will be affected. Such signs are already visible in our own mango tree. Further, plants which cannot take in higher temperatures could become extinct or change their region of growth.
24) How will plants be affected by Climate Change?	24) The flowering and fruiting of a tree generally happens in a particular season, meaning it depends on temperature, rainfall and humidity in the region. If these factors change, then their flowering and fruiting systems will be affected. Such signs are already visible in our own mango tree. Further, plants which cannot take in higher temperatures could become extinct or change their region of growth.

25) Which livelihoods are likely to be most impacted if climate changes?	25) All primary sector livelihoods; agriculture, animal husbandry, fisheries and services linked to these like vegetable/fruit vending, fish selling, etc. will be affected by Climate Change. In addition, water and energy stress is also likely to impact manufacturing sector.
26) Will men and women be equally impacted by Climate Change?	26) Women are likely to be more impacted than men as they have the main responsibilities of ensuring food and water availability in the HH. Also if food becomes scarce their intake would be affected. Further, women are mostly employed in primary sectors and hence are more likely to lose their livelihood opportunities.
27) Will rich and poor be equally impacted by Climate Change?	27) Although Climate Change will affect rich and poor equally, the poor are more vulnerable as they would not be able to cope or adapt to the changing scenarios of higher food prices, energy prices, maybe water prices and loss of employment. Also it is the poor who are more affected during floods and droughts.
28) Will urban and rural areas both be impacted by Climate Change?	29) Climate Change will affect both urban and rural areas in most ways like water and food scarcity, energy scarcity, extreme events, etc. However, the damage to urban infrastructure due to floods, etc. will be more leading to decline in living standards. On the other hand, rural areas are more likely to be impacted in terms of loss of livelihoods.
30) Will elderly persons and children be impacted more by Climate Change?	31) Elderly persons and children will suffer more due to increasing heat waves and are more likely to be affected by vector and water borne diseases.

HANDOUT 6



Figure 8: Poster to explain the impacts of climate change

SESSION 5: IMPACT OF CLIMATE CHANGE ON WOMEN IN URBAN INFORMAL SETTLEMENTS

Objectives

1. To help participants relate to the concept of climate change
2. To enable participants to visualize the impacts of climate change in their own lives
- 3.
4. Introduce the gender dimensions of climate change

Time Required:

One hour

Materials Required:

- Game of Snake and Ladders
- Flip Chart
- White Board
- Marker Pens

Process:

1. Introduce the snake and ladders game.
2. Spread the flex on the ground and ask for 4 volunteers to play the game. Let the women stand near the start pole at number 1. Tell the women that they each have to throw the dice and move the number of steps on the flex board as per the number on the dice. If they end on the bottom of a ladder, they climb up and if they end on the mouth of a snake they climb down. Tell them they all have to reach up to number 100. The woman who reaches first is the winner.
3. Get the game started. Let the other trainees stand nearby and observe.
4. As each woman climbs up a ladder or moves down a snake, explain the reason why it happened. Also prompt on when she is just nearing a snake or a ladder on what she could have done to improve or just got saved from- this way you will cover all the points.
5. Let all 4 women complete the game.

6. Encourage some discussion on why one women won and what were the problems faced by other women. Make sure to emphasize on how her efforts at growth are being negated due to Climate-related events.
7. After that allow the participants to discuss more on how these impacts would affect their own lives.
8. Relate the discussions with the vulnerabilities identified in session 1 and ask them to reflect on how these can make them more susceptible to the impacts.
9. Using Handout 7 explain how women are more vulnerable to climate change.



Figure 9: Participants play snakes- ladders to understand how climate change affects their lives

Conclusion:

All the participants should be convinced that women are more vulnerable to climate change. Also explain to them that this is more due to the existing gender discrimination in the society and not their biological status. Hence they need to work towards both building resilience for climate change as well as challenging their existing status within the society. Unless women are empowered they cannot deal with climate change with full force and also will continue to remain more vulnerable to climate change.

HANDOUT 7

Women bear a disproportionate burden of climate change consequences...

Decreased food security- Traditional food sources become more unpredictable and scarce, exposing women to loss of harvests, often sole sources of food and income.

Water resources shortage and access- Exacerbate shortages of water. Women are largely responsible for water collection in their communities and are therefore more affected when the quantity of water and/or its accessibility changes.

Reduced access to fodder and fuel wood- As the pressure on land for production of crops, bio-fuels, renewable energy increases, availability of grazing land will decrease. Also more stringent measures to protect forests would lead to increased stress for fuel wood availability.

Impact on livelihoods- Women are more dependent for their livelihood on natural resources that are threatened by climate change. For instance, climate change causes a rise in the sea level, affecting the fishing community; change in rainfall patterns will affect agriculture production, etc.

Increased burden of care giving- As primary caregivers, women will find their responsibilities increased as family members may suffer increased illness due to exposure to vector borne diseases such as malaria, waterborne diseases such as cholera and increase in heart stress mortality.

Women suffer more in disasters- It is a well-recognized fact that disasters are not gender neutral. Women are often at the receiving end- during any disaster. Besides, when the land is inundated, infrastructure (roads and houses) are damaged. Large scale migration from inundated areas is expected and much of the burden of migration falls on women.



Figure 10: Poster explaining impact of Climate Change on women

SESSION 6: TAKING ACTION FOR BUILDING CLIMATE RESILIENCE

Objectives

1. Participants will reflect in detail on the impacts of climate change personally on their own lives and on their livelihoods
2. To motivate the participants to think about possible solutions for climate resilience
3. Introduce the concept of future planning/ futuristic thinking

Time Required:

One hour

Materials Required:

- Old Newspaper/ Brown Paper for Time Machine Game
- Copied of picture cards and printed copies of story
- Flipchart and marker pens for group task

Process:

1. Put on the two posters developed during the session 2 to demonstrate- yester years (1995) climate and present climate (2015) side by side.
2. Now add two more blank papers to their sides, marked with years 2025 and 2035.
3. Give the participants the remaining picture cards and ask them to imagine what the climate would be like in 2025 and 2035. Ask them to stick the pictures on the papers respectively.
4. Give them all red markers pens to highlight conditions which they feel can be worst then that is shown in the pictures.
5. After the charts are ready, divide the participants into 6 small groups for discussion.
6. Give each group a copy of the story (handout 8) and ask them to read it aloud within their group. Ask them to repeat so that all participants have understood story.

7. Give each group a card with any one of the following issues written on them :
 - a. Heat
 - b. Floods
 - c. Water
 - d. Health
 - e. Livelihood
 - f. Food Security
8. Ask the groups to discuss on the issue given to them based on the story for 5 minutes. Tell them to reflect on how Ramaben's life has changed over the years.
9. Let's the groups present their points in an open forum and other participants can add points, if any. Your analysis should emerge something as in Table 2.

सुचना पर ध्यान नही दिया		
2015	2025	Realise समझ 2035 पैसा
आय अच्छी	खर्चा बढ़ा	खर्चा बढ़ा :
काम था	बिजली	बिजली
सुविधा कम थी	बीमार शुरू	Gas
पानी की समस्या	बारिश हुई बाढ़	पानी
	सुखा पड़ा	काम असर
	पानी की समस्या बढ़ गई	

Figure 11: Participants analyze RamaBen's Story

Table 2: Analysis of Ramaben's Story			
Timelines	2015	2015	2035
Positive Attributes	Employment Opportunities available; Good Income	Income increased; Sustainable source for husband	Income increased; Access to better home assets and life style
Balanced Attributes	Less Savings; Has access to very basic services	Expectation of son to get employed soon; business aspirations- investing in shop	Income not so stable, but flourishing
Negative Attributes	Water problems in summer; Gender connotations	Increased electricity expenses; Increased water problems; Disease concerns; Loss of assets due to flooding	Increased Expenses on basic services Increased food prices Increased social conflict
Information support and reflection	No source	Government providing information/Focusing on awareness but she does not heed to it initially...some realisation	Realization clicks in but difficult to take action due to constraints

10. Ask the participants to reflect on what will life be like when all these impacts are combined together and whether she has really achieved a better lifestyle.
11. Now give each group a flip chart and pen and ask them to discuss on how they feel their lives would be impacted in future. Allow 10 minutes for discussion.
12. Now give the participants a copy of the Action plan sheet as in handout 9 and ask them to write the three most critical impacts which can happen in their life and what they need to do for the same.
13. Ask the participants to share openly what type of support they require from the Community Based Organization (CBO); MHT (Supporting NGO) and City Governments for enabling the said action.

Facilitator's Note: Make a list of these for planning future action with the CBO. This list is very critical as a consolidated list of all trainings conducted in a said period needs to be shared regularly in project reflection meetings as well as with the resource groups at the city level.

Conclusion:

This session is more aimed at recap of the whole training and to enable the participants to link the issue to their own lives and be able to start thinking on what actions they need to do to build resilience. They may not have concrete actions now but it is important to get them start thinking in that direction.

HANDOUT 8

Ramaben's Story - 2015

Ramaben lives in Rampur colony of Ahmedabad. Her husband works as a painter on casual basis, while she earns her income by selling vegetables. Together they earn around Rs. 12000/- every month. In addition, during festival season, her husband makes an addition Rs 40,000/- every year and she earns another Rs. 20000/- by selling raw mangoes during summers (which is managed by her mother-in-law). Her mother-in-law, who is 55, also earns around some 500 rupees every month by doing embroidery work. This money is sufficient for a decent livelihood for the family of five, Ramaben, her husband, mother-in-law and two children- one son and one daughter- who study in class V and II, respectively.

They are also able to make some savings for emergencies. Only if there is a major social function then they have to take money on credit. Unfortunately, there is an emergency every two to three years, which puts their life back by a year.

Ramaben gets up at five o'clock every morning. After doing the basic cleaning of the house, she goes to buy vegetables at the Jamalpur Mandi. She then comes back to cook for the entire family, before leaving for selling the vegetables door to door. Since they now have a water connection at home, it's a bit easy else she had to spent 2 hours daily at the public stand post to get water. Even now in summers, when there are water cuts, she has to often come back home early to be able to fetch water from the nearby hand pump.

In the evening, after coming back, she has to store her vegetables and then she then cooks dinner. Thankfully she has kerosene stove and only needs fuel wood when kerosene is not available at the ration shop.

Ramaben's Story -2025

The local officer has just handed Ramaben an electricity bill of Rs. 4000/- for the month of June. It's so hot now a days that fans and coolers have become a necessity rather than luxury.

Ramaben is now worried. After the severe drought last year, when high vegetable prices affected her business in a big way, this year her home was flooded during the monsoons. She had shifted with her family to the nearby school but could not do much about her raw material and other household belongings. Their flooring was destroyed and now they have taken a loan to repay for the money spent on the repairs. She already has a debt on her head, which she had taken for building a small shop for her vegetable business. Thank goodness her husband now has a better income from his painting work. He has joined a contractor and now earns about Rs. 25000/- every month.

The situation would have been better if her son had finished college this year. She was hoping for him to get a job, but unfortunately he contracted dengue last year which has made him loose one whole year of college. Now her mother-in-law has fever and she doesn't know what she will do if it turns out to be malaria or is it due to heat stress..

The water logging has also destroyed the water supply lines and now she has to spend more time fetching water. The water in the hand pump has become saline. Her daughter now has to stand for hours to fetch water from tankers. How is her daughter going to manage her Board exams will all of this? As she cooks dinner on a gas stove, she is wondering how long it will last before she has to shell money for another cylinder.

If only, their colony had agreed to pay for proper storm water drainage and would be investing in cleaning of existing drains, then this would not have happened. If only, they had listened to government advice on cleaning water tanks and coolers, her son would not have had dengue....SO MANY IF ONLYs.....

Hopefully, they will soon shift to the new flat and will have better amenities like water and gas pipelines and will not have to face the water logging in their homes.

Ramaben's Story -2035

Ramaben is now worried. She is not even aware how she is going to manage the food supplies for the next month now. This in fact has become a regular affair since food prices have gone up drastically.

Adding to her woes is the monthly electricity bill of Rs.10,000/-, gas bill of Rs 3000/-, drinking water bill of Rs. 2000/- and the society maintenance bill of Rs. 15,000/-. She is really going to fight hard if the society decides to hike the maintenance once again this year. People have to learn to use less water, how-come some people waste so much water and then everyone in the society has to pay for it. They should have had water meters as in the place her daughter stays, Ramaben thinks...may be she can also share about the rain water harvesting technique and the water recycling plant as is there in her daughter's society. But then again, that would mean payment in lakhs, where will we get this money from. They should have thought about these before buying the flat.

Having four earning members, with her son now having a sales job in the local mall and her daughter- in- law working as a teacher, she should have been living a comfortable life by now.

Unfortunately, things are not so good. Her husband is not able to get good work as all year round monsoons have made hand painting a thing of past. People are resorting to water proof paints which is not required so soon and that too in a mechanized fashion so that it dries quickly. Painting jobs have become lesser and lesser. Even her vegetable shop is not making so much profit because she has high refrigeration bills. She just wishes she had opted for solar refrigerator rather than electric one.

And now that her daughter-in-law is pregnant, they will have to take special care. The home gets so heated in summers. Can they really afford an air conditioner... how will they pay the bills? But it will be so difficult to have the new born baby in this house. Just last year, her neighbour's baby died in the peak summer due to heat stroke. And even if they get an air-conditioner, there is so much load shedding these days. Can they really afford to also buy a bigger capacity inverter???

HANDOUT 9

What are the three most likely stress you are susceptible to	What would you like to do for that	What support would you need for that from		
		CBO/ Local Community	MHT/ Local NGO	City Government

SUGGESTED SHORT FILMS FOR VIEWING

- a) Green House Effect Animation for Kids: https://www.youtube.com/watch?v=x_sJzVe9P_8
- b) Global Warming Animation for Kids: <https://www.youtube.com/watch?v=PqxMzKLYrZ4>
- c) Climate Change Animation: <https://www.youtube.com/watch?v=wa58h4IJ6Hk>
- d) Global Warming: Short Film in Hindi
- e) Impact of Climate Change- India, Bangladesh and China:
<https://www.youtube.com/watch?v=XxWd2LeHH0M>
- f) Global Warming Predictions:
 - a. <http://www.telegraph.co.uk/news/earth/environment/climatechange/11286404/Watch-Climate-change-explained-in-60-second-animation.html>
 - b. <https://www.youtube.com/watch?v=ifrHogDujXw>
 - c. <https://www.youtube.com/watch?v=dmNKg-k4vAA> (Hindi)