

# Training Manual on Gender and Climate Change Resilience

## MODULE

### GENDER IN ADAPTATION APPROACHES AND SECTORAL ACTION

# 4

## MODULE 4: GENDER IN ADAPTATION APPROACHES AND SECTORAL ACTION

### SESSION PLAN

**SESSION A :** Adaptation Models and Gender

**SESSION B :** Gender and CCDRR Dimensions in Sectors  
 A. Agriculture and Food Security    C. Coastal Zones  
 B. Public Health and Epidemics

This module brings together the various approaches to adaptation planning – area-based, ecosystem-based, infrastructure-based, community-based, and the Leave No One Behind approach. Using select case studies from the region, this module will help the participants identify gaps, strategies and tools which can be applicable to their own work. The module also provides a step by step guide to Community-Based Adaptation (CBA) and resilience building approaches with focus on: i) Conceptual framework and guiding principles; ii) Building people's institutions with women and girls at the forefront; iii) Enabling transdisciplinary collaboration and multi-stakeholder processes; iv) Communicating climate concepts and scientific knowledge to women; and v) undertaking gender-sensitive community-based vulnerability assessment and resilience planning. The focus is on how women can be involved as equal stakeholders in Climate Change and Disaster Risk Reduction (CCDRR) projects. Building on this to provide a more nuanced understanding of the gender dimensions within various sub-sectors related to climate change, the module also covers technical information and tools for sectoral interventions and cases on gender-just practices and technical solutions implemented in the given sector.

#### OBJECTIVES OF THE MODULE:

- > Understand the various approaches to adaptation and resilience planning;
- > Identify strategies and tools integration of gender in various adaptation projects;
- > Be able to develop a community-based adaptation/resilience project;
- > Understand the gender and CCDRR dimensions within select sectors – be able to identify key stakeholders, strategies and activities for gender mainstreaming in the selected sectors;
- > Be able to design a gender-responsive CCDRR project.

#### KEY MESSAGES:

- > Adaptation to climate change involves anticipating the adverse effects of climate change and taking action to prevent or to minimize the damage that they can cause.
- > Globally, there are different types of approaches to adaptation practice that are employed. These include local adaptation action plans, city resilience plans, infrastructure-based adaptation, ecosystem-based adaptation, community-based adaptation and Leave No One Behind approach.
- > Local Adaptation Plans of Action (LAPAs) and City Resilience Plans are spatial approaches for adaptation planning, often prepared at the local government level, and focus on coverage of a decentralized administrative or geographical unit.
- > Ecosystem-based Adaptation (EbA) refers to nature-based solutions to address climate change and disasters. Such projects include two components – maintenance of ecosystems and ecosystem resilience. EbA is a more inclusive approach that takes into consideration vulnerable groups whose livelihoods directly depend on natural resources.
- > Community-Based Adaptation (CBA) is a more process-oriented approach which focuses on adaptive capacity-building rather than adaptation action. A key component of all CBA projects has to be knowledge enhancement of the communities.
- > All different types of adaptation approaches can be community-based but LAPAs and EbAs are seen to have adopted this approach more. CBAs are generally led by local non-governmental organizations (NGOs).
- > There is a need to integrate gender within all the adaptation approaches across sectors.
- > Sectoral adaptation – especially those concerning agriculture, livestock, food security, water management, drought management, public health services, coastal zones, cyclones, flooding and fisheries – have a strong gender dimension which must be considered in the planning and implementation processes.
- > Most importantly, women need to be part of all adaptation action and gender-just solutions must be promoted.

## MODULE 4\_SESSION PLAN A

ADAPTATION MODELS AND GENDER	
<b>OVERVIEW</b> 	At the end of this session, participants should be able to understand the guiding principles and processes for the various adaptation approaches. They should be able to identify strategies for gender integration within these processes.
<b>CONTENT</b> 	<ul style="list-style-type: none"> <li>A. Local Adaptation Plans of Action (LAPAs)             <ul style="list-style-type: none"> <li>a. Country Case Study – Nepal</li> </ul> </li> <li>B. City Resilience Plans             <ul style="list-style-type: none"> <li>a. Country Case Study – Indonesia (Semarang)</li> </ul> </li> <li>C. Infrastructure-Based Adaptation             <ul style="list-style-type: none"> <li>a. Country Case Study – China</li> <li>b. Country Case Study – Bangladesh</li> </ul> </li> <li>D. Ecosystem-Based Adaptation             <ul style="list-style-type: none"> <li>a. Country Case Study – Vietnam</li> <li>b. Country Case Study – Nepal</li> </ul> </li> <li>E. Community-Based Adaptation Approach             <ul style="list-style-type: none"> <li>a. Country Case Study – Vietnam</li> <li>b. Country Case Study – India</li> </ul> </li> </ul>
<b>MATERIALS</b> 	<ul style="list-style-type: none"> <li>&gt; PowerPoint presentations</li> <li>&gt; Whiteboard and marker pen</li> <li>&gt; Apparatus for film viewing on YouTube</li> <li>&gt; Chart papers and pens</li> <li>&gt; Copy of Handouts</li> </ul>
<b>OUTLINE</b> 	<p><b>5 mins.</b> Sharing of overview, session content and process.</p> <p><b>85 mins.</b> PowerPoint presentation on "Adaptation Models" intervened with Mock Panel Discussion for Gender-Responsiveness Assessment of Adaptation Projects (see Exercise 21 and Handouts 16 and 17).</p> <p><b>90 mins.</b> Harvard Case Review Method for "Women-Led Community-Based Urban Resilience Project" (see Exercise 22 and Handout 18).</p>
<b>GUIDANCE NOTES</b> 	<p>Share the session overview and content with the participants and state that this session will be conducted a bit differently. Tell them that the session aims to provide the participants an overview of the various adaptation models through a detailed presentation and sharing of examples. You will be making a presentation on various "Adaptation Models." Simultaneously, a panel discussion on Gender-Responsiveness Assessment of select adaptation projects will also be happening. Tell them that they have to assess their projects based on the Gender-Responsive Assessment Scale (GRAS) tool that they have learnt in the earlier session (see Exercise 21 and Handouts 16 and 17). Begin the presentation; after each model type, break for a relevant case (see trainer tips).</p> <p>This would be followed by a case review methodology to enable the participants to learn about community-based adaptation and resilience approaches in detail. A detailed case study is provided to guide the participants through the project preparation steps and stages. It will indicate how the design of the gender-specific activities progressed in a participatory manner, working with the range of stakeholders (communities, women, donor agencies, government and relevant NGOs). Participation is a key in all these project steps, from data collection, the identification of barriers, needs and potential enablers, to the design of women-specific activities and relevant budgets, staffing needs and indicators (see Exercise 22 and Handout 18). Make sure that you have circulated the Handouts to all participants well in advance, so that they have enough time to go through them (recommended for the advanced course). The trainer tip on Exercise 22 also provides video links on how to best facilitate a case review session. It is advisable for the trainer to go through these videos and read the case thoroughly before facilitating the session.</p>

## Adaptation Models and Gender

Adaptation to climate change involves anticipating the adverse effects of climate change and taking appropriate action to prevent or minimize the damage they can cause. The goal is to reduce vulnerability and exposure to the harmful effects of climate change (like sea-level rise, extreme weather events or food insecurity). It also encompasses making the most of any potential beneficial opportunities associated with climate change (for example, longer growing seasons or increased yields in some regions).

Globally, there are different types of approaches to adaptation practice that have been employed over the last two decades. Some of them are short-term (less than 10 years), addressing impacts that are already occurring and are likely to rise in the immediate future. These are often local measures, infrastructure- or service-oriented and often targeted to a specific risk. Many are medium- or long-term responses which focus on enhancing adaptive capacity or the ability of a system (human, natural or managed) to adjust to climate change.

### **LOCAL ADAPTATION PLANS OF ACTION – INTEGRATION OF BOTTOM-UP AND TOP-DOWN APPROACH**

Local Adaptation Plans of Action (LAPAs) is a spatial approach to adaptation planning. LAPAs are often prepared at the local government level and focus on coverage of a decentralized administrative or geographical unit. LAPAs may be prepared with or without community participation; though in most cases, LAPAs have been able to mainstream participatory processes. LAPAs are in a continuum to identify and address mid-term and long-term adaptation goals.

The practice of LAPA was first initiated in Nepal as part of the National Adaptation Programme of Action (NAPA) development processes (Peniston 2013). The Government of Nepal developed LAPAs in 14 districts (87 villages and 9 municipalities) which helped embed local priorities, needs and capacities into national-level planning, policies and action (Rattani and Lama 2018). After the initial pilots, LAPAs were also included in the National Adaptation Plan (NAP) processes (Daze, et al. 2018).

Specifically, the LAPA Framework (MoFE Nepal 2018) supports:

- > The development of local adaptation plans which reflect location- or region-specific climate change hazards and impacts. The plans support adaptation options that are available locally and that are accessible to the most vulnerable communities and households, including women.
- > The integration of local adaptation priorities into village, municipality, district and sectoral level planning processes in accordance with the Local Self Governance Act.
- > The implementation of local adaptation plans by supporting the timely and sustainable delivery of adaptation services to the most climate-vulnerable, including women.
- > Iterative adaptation planning through constant monitoring, evaluation and feedback.

The LAPA Framework was designed to consist of seven steps for integrating climate change resilience into local-to-national planning processes. They include: i) Sensitization; ii) Climate vulnerability and adaptation assessment; iii) Prioritization of adaptation options; iv) Developing local adaptation plan for action; v) Integrating the local adaptation plan for action into planning processes; vi) Implementing the local adaptation plan for action; and vii) Assessing progress of local adaptation plan for action (Peniston 2013). Each step is carefully considered as to why it is important; what actions should be undertaken; and, a list of appropriate participatory tools to use was outlined. Handout 14 brings together the key processes and tools involved in the different stages of LAPA.

The framework is based on the four principles of bottom-up, inclusive, responsive and flexible (see Table 4-1).

### **Gender Mainstreaming in LAPAs**

During the NAPA development process in Nepal in 2010, gender sensitivity analysis of climate change impacts was undertaken, highlighting the differentiated vulnerability of women across all six NAPA thematic areas. The LAPA took this further to also look at women as agents of change, especially highlighting the facts that male outmigration was increasing the number of women-headed households in the country, the feminization of agriculture sector, and the dependence of the country on women for natural resource management and health (MoFE Nepal 2018).

**TABLE 4-1: PRINCIPLES OF LAPA**

<b>BOTTOM-UP PLANNING</b>	Bottom-up planning refers to planning processes that start with local people and organizations and then link to local administrative scales. The adaptation plans are then fed into higher administrative planning scales.
<b>INCLUSIVE</b>	The need to include a diverse range of people (men and women of different ages, caste or ethnicity) as decision-makers in integrating climate change resilience into planning processes. Gender, in particular, is integrated throughout the LAPA process through a Gender Equality and Social Inclusion (GESI) strategy developed by the Ministry of Forest and Local Development in 2009.
<b>RESPONSIVE</b>	Ensure that planning processes build the resilience of the most climate-vulnerable communities and households first.
<b>FLEXIBLE</b>	The ability of planning processes to be iterative in their approach; that is, decision-making and implementation frameworks are able to constantly respond to changing circumstances and information.

Source: MoFE Nepal (2018).

Gender is integrated across all stages of the LAPA (Figure 4-1). The focus was also extended in the NAP development which had “Gender and Social Inclusion (Marginalized Groups)” as a cross-cutting issue and stand-alone theme. The focus was also in developing a dedicated adaptation pathway and ensuring representation of women and vulnerable groups across all working groups (Daze, et al. 2018).



#### CITY RESILIENCE ACTION PLANS – MULTI-DIMENSIONAL PLANNING

Rapid urbanization trends that have transformed the planet from 30 per cent urban in 1950 to over 55 per cent urban today are further expected to double by 2050. This means that every 7 of 10 people in the world will live in cities (World Bank 2020b). A significant portion of this expansion will happen in South Asia and sub-Saharan Africa, both regions with growing exposure to climate change and disaster impacts. Enabling urban resilience has become critical to achieving sustainable development agenda.

Recognizing this, more and more cities are addressing their vulnerability by creating resilience plans and/or prioritizing CCDRR in their master and sector-specific plans. These plans often use multiple strategies to help cities understand their vulnerabilities and prepare for climate impacts and disasters. Urban resilience is what helps cities adapt and transform in the face of these

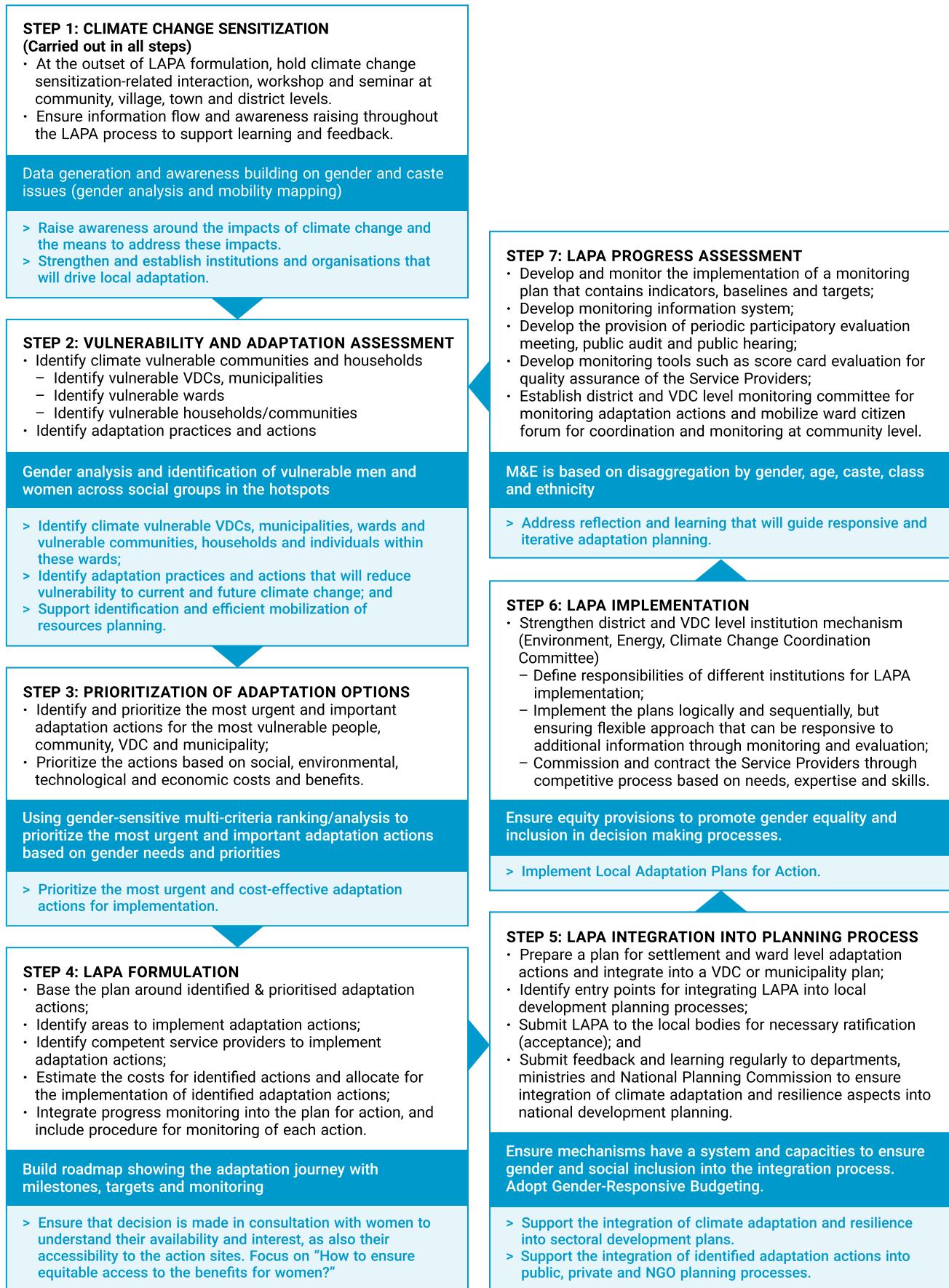
challenges, helping them to prepare for both the expected and the unexpected. 00 Resilience Cities defines urban resilience as “the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt and grow no matter what kinds of chronic stresses and acute shocks they experience” (C40 Cities and 100 Resilient Cities 2016). Building urban resilience requires looking at a city holistically, understanding the systems that make up the city, and the interdependencies and risks they may face in future. By strengthening the underlying fabric of a city and better understanding the potential shocks and stresses it may face, a city can improve its development trajectory and the well-being of its citizens.



Show this short film available at <https://www.youtube.com/watch?v=hLPcDfDWKes> for the participants to get a feel of the framework and indicators.

The City Resilience Framework (CRF) (Arup International and Rockefeller Foundation) provides a lens to help understand the complexity of cities. It identifies a series of drivers necessary for a city’s resilience. The CRF describes the essential systems of a city in terms of four dimensions: i) Health and Wellbeing; ii) Economy and Society; iii) Infrastructure and Environment; and iv) Leadership and Strategy. Each dimension contains three “drivers,” – a total of 12 goals, further broken into 52 indicators which reflect the actions that cities can take to improve their resilience.

### FIGURE 4-1: LAPA CYCLE IN NEPAL



The framework also builds on existing research on resilient systems and identifies seven characteristics that a city resilience system needs. These seven qualities are: i) reflective; ii) robust; iii) redundant; iv) flexible; v) resourceful; vi) inclusive; and vii) integrated.

The inclusion aspects especially focus on the need for broad consultation and engagement of communities, including the most vulnerable groups (ARUP 2015). Table 4-2 next identified the gender dimensions important to be considered across of the four dimensions and 12 goals.

**TABLE 4-2: GENDER IN CITY RESILIENCE PLANNING**

CITY RESILIENCE DIMENSION	RELATED DRIVERS/GOALS	DESCRIPTION OF GOALS	GENDER AND INCLUSION CONSIDERATIONS
HEALTH AND WELL-BEING	Minimal human vulnerability	Indicated by the extent to which everyone's basic needs are met.	Access to food, water, shelter and basic assets for everyone especially vulnerable groups is critical.
	Diverse livelihoods and employment	Facilitated by access to finance, ability to accrue savings, skills training, business support and social welfare.	An inclusive approach to livelihoods ensures that all citizens in a city have unrestricted access to legitimate occupations, regardless of race, ethnicity, gender or sexual orientation.
	Effective safeguards to human health and life	Relying on integrated health facilities and services, and responsive emergency services.	Accessible and affordable day-to-day individual healthcare, as well as appropriate population-based interventions. Services or facilities that target vulnerable groups ensure that preventive and responsive strategies are inclusive and able to reach the entire population.
ECONOMY AND SOCIETY	Collective identity and community support	Observed as active community engagement, strong social networks and social integration.	Communities that are active, appropriately supported by the city government and well-connected with one another contribute to the bottom-up creation of a city with a strong identity and culture. Social inclusion practices reinforced through physical intervention-communal facilities, physical accessibility and others.
	Comprehensive security and rule of law	Including law enforcement, crime prevention, justice and emergency management.	Laws upheld by resourceful and inclusive systems of policing. Social stability and security is also facilitated by inclusive public space design, which helps to avoid creating places where crime may proliferate, while maximizing the safety and security of individuals.
	Sustainable economy	Observed as sound financial management, diverse revenue streams, the ability to attract business investment, adequate investment and emergency funds.	City government can contribute to the sustainability of private economic activities by empowering different sectors within the economy.

**TABLE 4-2: GENDER IN CITY RESILIENCE PLANNING**

<b>INFRASTRUCTURE AND ENVIRONMENT</b>	Reduced exposure and fragility	Indicated by environmental stewardship, appropriate infrastructure, effective land use planning and enforcement of planning regulations.	Focus on integration of ecosystems with built-in infrastructure to reduce physical exposure.
	Effective provision of critical services	Indicated by diverse provision and active management, maintenance of ecosystems and infrastructure, and contingency planning.	
	Reliable communications and mobility	Indicated by diverse provision and active management, maintenance of ecosystems and infrastructure, and contingency planning.	Availability of reliable and inclusive forms of communication that are critical to disseminate information during emergencies – particularly to the most vulnerable residents of a city, such as the poor and the elderly. Inclusive multi-modal transport networks allow safe and affordable travel between all neighbourhoods.
<b>LEADERSHIP AND STRATEGY</b>	Effective leadership and management	Involving government, business and civil society, and indicated by trusted individuals, multi-stakeholder consultation and evidence-based decision-making.	Recognize the importance of grassroots knowledge and community consultations to solve city problems.
	Empowered stakeholders	Indicated by education for all, and access to up-to-date information and knowledge to enable people and organizations to take appropriate action.	Investment in research, data collection and risk monitoring, and provision of early warnings and access to education information for all.
	Integrated development planning	Indicated by the presence of a city vision, an integrated development strategy and plans that are regularly reviewed and updated by cross departmental working groups.	Understanding of and alignment between the motivations of different stakeholders involved in designing and implementing projects in the city. The collaboration and consultative processes should be truly inclusive, incorporating consultations with residents and others who will experience their effects.

Source: Adapted from (ARUP 2015).

**BREAK FOR**



**CASE SHARING**

### **INFRASTRUCTURE-BASED ADAPTATION PLANNING**

The impact of climate-related events and disasters are expected to put an added stress on vital water, sanitation, flood management, transportation and energy infrastructure. Climate change will play an increasingly

important role in defining the level of service, location, design, operation and maintenance, renewal or retrofitting options and eventual disposal of the asset. Thus, it is important that practitioners have effective tools and resources to develop and implement climate resilient solutions for existing and new infrastructure.

The incorporation of climate change adaptation principles into infrastructure planning, design or renewal may not always require a major change in process but more in

**DISCUSSION POINT**

***Ask the participants to list the key challenges from their cities and how they see the resilience approach in light of these parameters. Ask them if there are any specific challenges that need to be focused on within this framework.***

**Facilitator Clues**

- > The disproportionate impact of urban shocks and stresses on a city's low-income population and informal settlements. A growing literature is drawing attention to the lack of resilience among the urban poor. Poor people are disproportionately affected by shocks and stresses – not only because they are frequently more exposed (and subsequently more vulnerable) to climate-related shocks, but also because they have fewer resources and receive less support to prevent, cope with and adapt to them. Climate change is expected to intensify these shocks and stresses and further hinder efforts to reduce poverty (Hallegatte, et al. 2016).
- > Women are among the most vulnerable groups to climate change. Other vulnerable groups include the poor, children, (dis)abled, elderly, LGBTIQ, indigenous communities, among others. This is due to various

reasons including gender-insensitive traditional social norms or limited access to basic resources, and also because poverty is gendered. Women head about 40 per cent of the poorest urban households across the world (Aguilar, 2009). In some developing countries, this percentage may be higher, like in the Philippines where 80 per cent of slum householders are women (Jeans, et al. 2014).

- > In Vietnam, for example, especially in Da Nang City, no one knows how many households from the poorest group are female-headed; but, as deduced from the Women Union (WU) projects, the number of female-headed households within the poorest group may be relatively high – nearly half of beneficiary households in the WU housing project funded by the Rockefeller Foundation were female-headed (Anh, et al. 2016). Women's greater vulnerability is also because their roles and needs are underestimated or neglected in planning and action, even if they are a key labour force for most production and development activities (United Nations Vietnam 2009). Power relations and gender roles in livelihood and income-generation activities have a substantial influence on the vulnerability and adaptive capacity of individuals, households and communities (Oxfam 2009).

approach and design principles. Instead, the following approach stipulates an integration of climate change considerations in each phase of project implementation by:

- > Taking into consideration future climate conditions (along with past and current climate conditions); or
- > Considering uncertainty in the review and use of climate data through sensitivity testing and adjusting the design (for example, through a greater safety margin) or, at a minimum, adjusting the performance or service expectations of the designed structures.

Examples of alterations in engineering design could include: i) rehabilitating a stormwater network for greater capacity, as extreme precipitation events are expected to increase in the future; ii) building break waters or sea fronts, dikes and barriers against rising tides; iii) designing foundations of a new seawall so that it can be heightened in the future in response to sea level rise; iv) building a new bridge at a higher elevation if the existing structure is frequently submerged and damaged by river flooding; v) design and construction of shelters for cyclones, hurricanes and floods; and others.

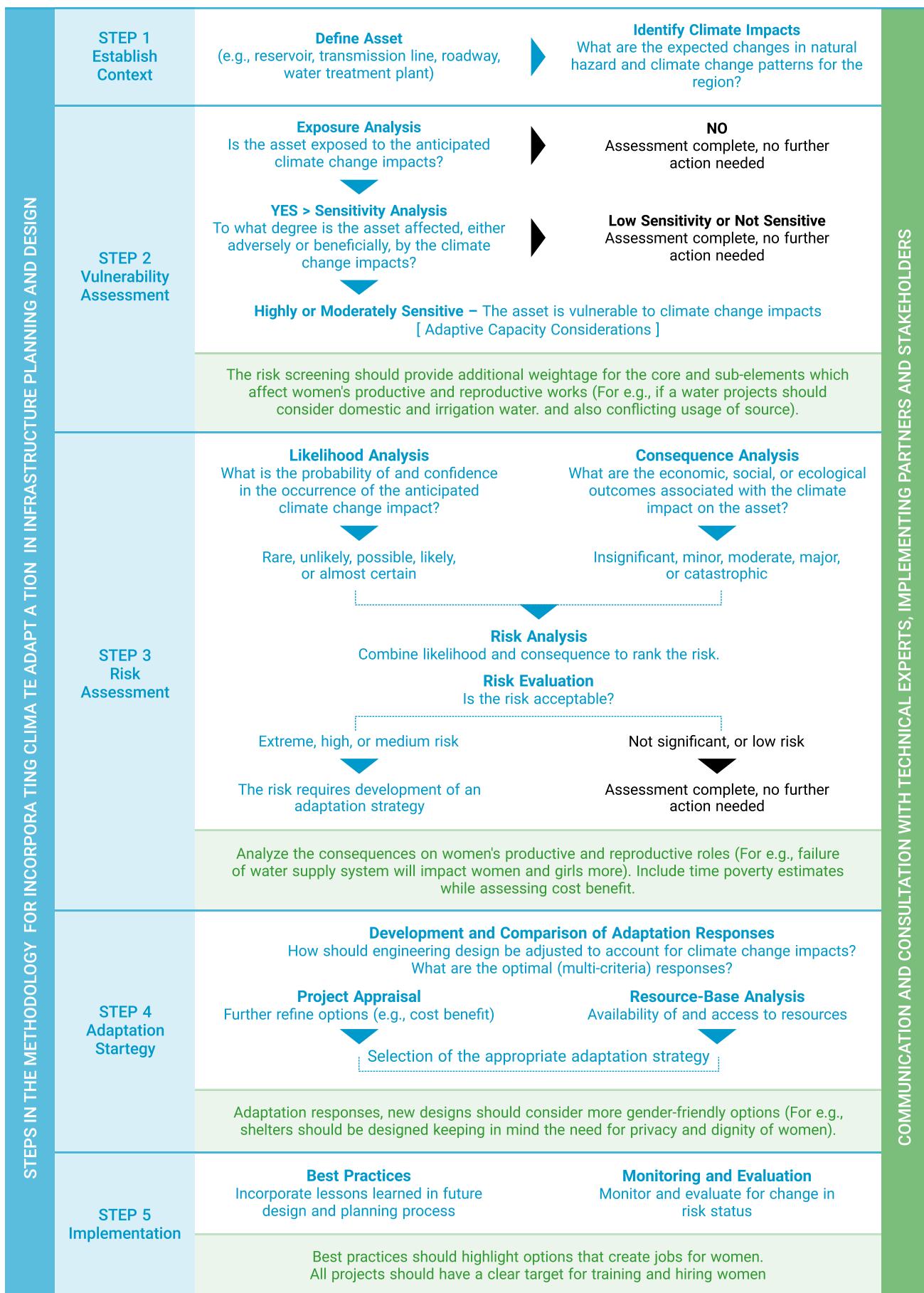
While these projects per se may seem gender-neutral, they may not essentially also benefit women unless women's rights, priorities and needs are considered and women are

meaningfully included and represented in the planning, design and management of the new infrastructure.

The gender-differentiated access over infrastructure and related services needs to be kept in mind while designing such services. Otherwise, it may not only end up with women not being able to gain economically or socially from these infra-related services but also being left worse off as a result of the new infrastructure. For example, diverting fresh water to areas where there is a water shortage (through dikes, water transfers or irrigation canals) may have the unintended consequence of lengthening and intensifying women's productive and reproductive working day by placing water sources in distant places (Aguilar 2009).

Such examples underscore the need for proper consideration of the interests and contributions of all members of society, especially women and other vulnerable groups, in the design and planning of climate-resilient infrastructure. In 2015, AECOM and USAID developed a manual on incorporating climate change adaptation in infrastructure planning and design. Figure 4-2 brings together the methodological steps for planning and design of climate-resilient infrastructure proposed in the framework, with suggestions for gender-responsive actions.

FIGURE 4-2: : PLANNING FOR CLIMATE-RESILIENT INFRASTRUCTURE

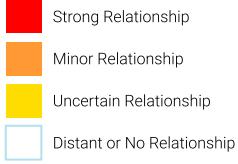
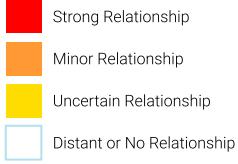
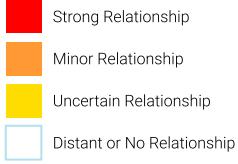


**GENDER DIMENSIONS IN VARIOUS STAGES OF INFRASTRUCTURE PLANNING  
– THE CASE OF LAKE BASIN IN CHINA**

This case from AECOM (2015) manual on climate-resilient infrastructure planning is focused on a large freshwater lake basin in mainland China. The basin's water resources are threatened by projected increases in average annual

temperature, changes in precipitation patterns and drought. The steps provided in the case highlight the gaps and opportunities for gender mainstreaming.

**TABLE 4-3: STEPS IN CLIMATE-RESILIENT INFRASTRUCTURE PLANNING**

<b>STEP 1</b>	<p>To establish the context, available historical data from local weather stations were analyzed and climate modelling was used to establish that the lake was characterized by a marked dry spell.</p> <p>► <i>A gendered approach would have also triangulated the data with the usage and dependency patterns to understand not only the dry spells but also the major deficit periods.</i></p>																																																																																																																																																														
<b>STEP 2</b>	<p>Risk screening was undertaken by preparing a risk screening matrix, which illustrated a number of relationships. On the far-left side, the matrix shows the relationships between core elements (e.g., agriculture) and sub-elements (e.g., rice production). Relationships are then identified as being strong, minor, uncertain, distant, or non-existent.</p> <p>► <i>As can be seen, the core elements and sub-elements clearly missed the relationships on:</i></p> <ul style="list-style-type: none"> <li>i) Water quantity for human consumption</li> <li>ii) Water quality for human consumption</li> <li>iii) Impact on existing water sources due to lower recharge from the lake</li> </ul> <div style="text-align: center; margin-top: 10px;"> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #0070C0; color: white;"> <th colspan="2" style="text-align: left;">KEY CLIMATE DRIVER</th> <th rowspan="2" style="width: 15%;">CORE ELEMENT – SUB-ELEMENT(S)</th> <th rowspan="2" style="width: 15%;">SUB-ELEMENTS</th> <th colspan="6" style="text-align: center;">Relationships</th> </tr> <tr style="background-color: #0070C0; color: white;"> <th colspan="2"></th> <th style="width: 15%; text-align: center;">Extreme Heat</th> <th style="width: 15%; text-align: center;">Mean</th> <th style="width: 15%; text-align: center;">Extreme Cold</th> <th style="width: 15%; text-align: center;">Drought</th> <th style="width: 15%; text-align: center;">Mean Rainfall</th> <th style="width: 15%; text-align: center;">Extreme Rainfall</th> <th style="width: 15%; text-align: center;">Floods</th> </tr> </thead> <tbody> <tr> <td style="width: 15%; vertical-align: top;"> <b>AGRICULTURE</b> - 1, 2, 3, 4, 5, 6  <b>INDUSTRY</b> - 6, 7  <b>PUBLIC HEALTH</b> - 8, 9, 10  <b>LIVELIHOODS</b> - 6, 11, 12, 13  <b>BIODIVERSITY</b> - 6, 14  <b>TOURISM</b> - 14                 </td><td style="width: 15%; vertical-align: top; text-align: right;">  </td><td style="width: 15%; text-align: center;">1. 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<b>STEP 3</b>	<p>Based on the vulnerability screening steps presented above, almost 30 risks were identified and analyzed; most of the risks are likely to result in negative impacts while a few might present positive impacts (opportunity). The key climate change risks considered in the adaptation strategy included:</p> <ul style="list-style-type: none"> <li>&gt; Reduction in surface water resources;</li> <li>&gt; Decline in agricultural yields (including fisheries and forestry);</li> <li>&gt; Decrease in water availability for key industries;</li> <li>&gt; Public health impacts, in particular increased transmission and diffusion of schistosomiasis (a vector-borne disease influenced by temperature and flood patterns) and extreme heat;</li> </ul>																																																																																																																																																														

**TABLE 4-3: STEPS IN CLIMATE-RESILIENT INFRASTRUCTURE PLANNING**

<ul style="list-style-type: none"> <li>&gt; Potential degradation of key natural resources (water and subsistence farming) for local livelihood systems; and</li> <li>&gt; Potential decline in biodiversity values (migratory birds and wetlands).</li> </ul> <p>► <i>The rated risk evaluation highlights the impact of water availability in the province but not on the consequence to women's time poverty.</i></p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #0070C0; color: white; text-align: center;">RISK</th><th style="background-color: #0070C0; color: white; text-align: center;">LIKELIHOOD</th><th style="background-color: #0070C0; color: white; text-align: center;">CONSEQUENCE</th><th style="background-color: #0070C0; color: white; text-align: center;">RISK 2050</th></tr> </thead> <tbody> <tr> <td style="padding: 10px;"> <p>Reduced surface water resource as a result of increased frequency and intensity of drought events and increases in mean temperature and extreme heat events.</p> <p>Surface water resources account for 96% of total water supply in Jiangxi Province. Increase in the frequency and intensity of drought events, mean temperature and extreme heat all contribute to a decrease in surface water resources.</p> <p>Rising mean temperature and increases in the frequency and intensity of extreme heat events increase evaporation rates of surface water, the watershed and water reservoirs.</p> </td><td style="padding: 10px; text-align: center;"> <b>4 – LIKELY</b> </td><td style="padding: 10px; text-align: center;"> <b>4 – MAJOR</b> </td><td style="padding: 10px; text-align: center;"> <b>16 – HIGH</b> </td></tr> </tbody> </table>	RISK	LIKELIHOOD	CONSEQUENCE	RISK 2050	<p>Reduced surface water resource as a result of increased frequency and intensity of drought events and increases in mean temperature and extreme heat events.</p> <p>Surface water resources account for 96% of total water supply in Jiangxi Province. Increase in the frequency and intensity of drought events, mean temperature and extreme heat all contribute to a decrease in surface water resources.</p> <p>Rising mean temperature and increases in the frequency and intensity of extreme heat events increase evaporation rates of surface water, the watershed and water reservoirs.</p>	<b>4 – LIKELY</b>	<b>4 – MAJOR</b>	<b>16 – HIGH</b>
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<b>STEPS 4 and 5</b>	<p>A list of 12 possible adaptation measures was identified to address some of the most threatening risks. Most of these measures focus on a specific sector (water, lake level, agriculture, industry) and two of them were general measures (public health, awareness). The waters strategy included permanent (seasonal) water restrictions.</p> <p>► <i>Interestingly, domestic water has not even been considered as a major sector, the only role has been in terms of public health. There is documented evidence of the impact of water restrictions on women's productivity and even girl-child education. These have not even been considered.</i></p>								

BREAK FOR



CASE SHARING

### ECOSYSTEM-BASED ADAPTATION

Ecosystem-based Adaptation (EbA) refers to the use of environmental assets and natural protection measures as solutions to address climate change and disasters. For example, “floodplain forests and coastal mangroves provide storm protection, coastal defences and water recharge, and act as safety barriers against natural hazards such as floods, hurricanes and tsunamis; while wetlands filter pollutants and serve as water recharge areas and nurseries for local fisheries.” The Millennium Ecosystem Assessment (2005) also uses two EbA components in its analysis of how changes to ecosystems and their services affect human well-being.

**Maintenance of ecosystem services** – Ecosystems provide a number of provisioning, regulating, cultural and supporting services. In the context of climate change adaptation, these “natural assets” or “ecosystem services” include water provision, erosion protection, climate regulation, disaster risk reduction and genetic diversity. It is very important to ensure that these ecosystems are not degraded and they continue to provide these essential services. Central to the concept of EbA is the importance of adopting a holistic approach to maintaining ecosystem structure and functioning, and ecosystem service provision.

**Ecosystem resilience** – Climate change impacts such as changes in sea levels, temperature and rainfall will affect the functionality of ecosystems. Such changes can have significant social, cultural and economic consequences (Jeans, et al. 2014). The Millennium Ecosystem Assessment (2005) predicts that “By the end of the century, climate change and its impacts may be the dominant direct driver of biodiversity loss and changes

in ecosystem services globally." Ecosystems have limits beyond which they cannot function. The concept of ecosystem resilience builds on developing and maintaining "capacity of a system to tolerate impacts of drivers without irreversible change in its outputs or structure."

EbA often provides greater opportunity to target vulnerable groups whose livelihoods directly depend on natural resources. A community-based EbA even makes it possible to strengthen their position by offering multiple benefits.

EbA is very important from a gender perspective as women are generally the primary custodians of local and traditional knowledge due to the close linkage and stronger relationships with natural resources (Aguilar, Granat and Owren 2015). Thus, EbA also provides a larger space for women's involvement. The knowledge that women have as managers of natural resources can provide important insights into the design of effective strategies. It is, however, important to mention that gender integration is not a default process within EbA. It is important to take steps that include local and gender-based experiences in EbA planning processes. Equally important is to assess the ability of natural resources to contribute to women's livelihoods, health and other aspects as part of any EbA project designing. Generally, this aspect is missing, with the result that women are not aware of the benefits that they can directly achieve from options (Aguilar, Granat and Owren 2015).

#### TRAINER'S TIP



Take a break and show an EbA project "ResiNam" through the video on project available at <https://www.weadapt.org/placemarks/maps/view/35396>.

#### BREAK FOR



#### CASE SHARING

### COMMUNITY-BASED ADAPTATION APPROACH

All the above approaches can be a top-down technocracy-led or community-based. Community-Based Adaptation (CBA) is defined by its proponents as "a community-led process, based on communities' priorities, needs, knowledge and capacities which should empower people to plan for and cope with the impacts of climate change" (Reid, et al. 2009). It is an approach to adaptation research and practice that is bottom-up and strengths-based approach to strengthening community-level adaptive capacity.

CBA is also regarded by some (Reid and Huq 2007) as a "vital approach to the threat climate change poses to the poor." The authors of this paper argue that simply giving money to governments in poor countries will not ensure money reaching the poor and most vulnerable. Thus, it is important to adopt CBA that has a greater potential to reach out to these communities. Proponents of participatory approaches like Robert Chambers and others have already been arguing that "top-down" approaches are often disempowering and biased against the interests of the poor (Mansuri and Rao 2013). Climate activists argue that this also applies to adaptation projects which can focus on hard infrastructure projects and technological responses to discrete climate impacts instead of initiatives to strengthen the long-term adaptive capacity which reportedly failed to provide adequate adaptation support to those most vulnerable to climate change (Kirkby, Williams and Huq 2018).

CBA is generally driven by multiple components. The key component involves working in partnership with place-based communities to improve their capacity to adapt to climate risks and impacts. However, a CBA is more than a project; it is more like a movement since it involves a community with a shared interest in advocating for institutional and financial support for vulnerable communities to adapt to climate change.

Thus, it is a socio-political landscape where the decisions on adaptation are based on the needs and priorities of those who will be affected the most.

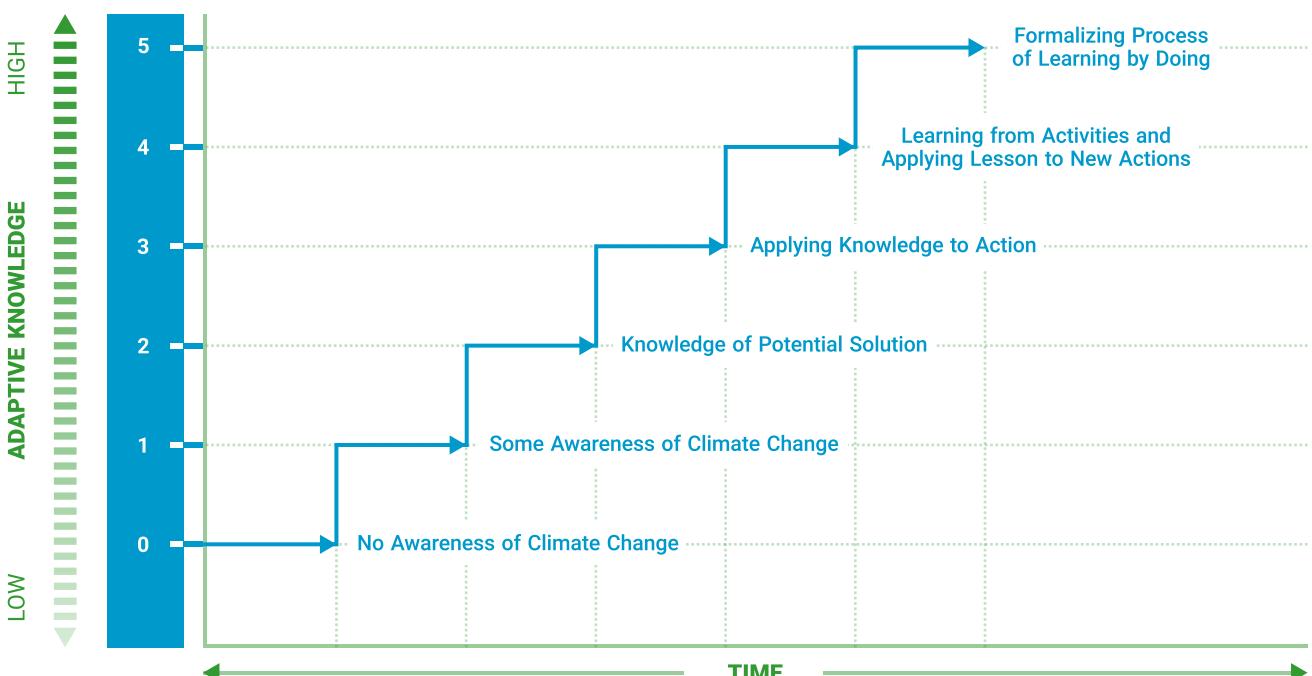
The objective of CBA is to enable communities to drive their own self-sufficient and sustained adaptation by allowing them to determine the methods and goals of adaptation for themselves (Dodman and Mitlin 2013). This is achieved through a process of empowerment that involves mobilizing the energy, effort, enthusiasm, knowledge and experience of individuals and communities (Reid, et al. 2009). CBA is "about the community making choices, not having them imposed from outside." CBA policies and interventions should reflect local values, priorities and conceptions of wellbeing – as opposed to those of external actors – and "should be done with rather than to or for communities" (Warrick 2011).

The key strategies of a CBA model (Reid and Huq 2007; Kirkby, Williams and Huq 2018) include:

1. Focused on adaptive capacity-building more than local adaptation action;
2. Sustained mobilization of communities with an aim to build trust between themselves and with other stakeholders;

3. Recognizing the complex realities of the local communities, especially the existing power structures, and creating enabling environment and institutional mechanism for vulnerable groups to participate in benefit-sharing, management and decision-making processes;
  4. Building capacities of communities to understand the complexities of climate change through top-down scientific information sharing while also ensuring the transfer of local knowledge for co-producing adaptation strategies. Integration of local wisdom and scientific knowledge is the key to a CBA. Towards this, CBA also necessitates the application of a trans-disciplinary approach;
  5. Focus on community-based vulnerability assessments and resilience planning approaches. Tailoring adaptation understanding and solutions to address the local and cultural contexts which define vulnerability (inhibit adaptation) – for example, women and landless not having space in natural resource management decisions – as well as adaptive capacities (enable adaptation) – for example, community awareness and systems for forest or mangrove restoration;
  6. Negotiating institutional barriers especially those related with resource control and power imbalances, finances, human resources and coordination between government agencies;
  7. CBA approaches especially focus on addressing underlying causes of vulnerability, thereby providing for an integrated model which mainstreams adaptation action within development processes; and
  8. Focus on women and vulnerable communities need to be an essential part of the CBA approach not only because they are most vulnerable to climate change but also because they are active agents of change and can be valuable contributors in adaptation work.
- A key component of all CBA projects has to be knowledge enhancement of the communities. Knowledge, of both likely future changes in the climate and possible adaptation strategies, empowers individuals and groups to decide whether, when and how to adapt, and enables them to address place-specific effects of climate change in ways that prioritize their long-term goals. Adaptive knowledge refers to any knowledge that improves individuals' or groups' abilities to adapt themselves to climate change. It includes both theoretical and practical knowledge and determines how well actors can adapt within constraints imposed by limited resources and power (Williams, Falzon and Hug 2018). Knowledge is a necessary but insufficient condition for successful adaptation: regardless of how much money or power actors have (Adger, et al. 2004), they cannot adapt to climate-induced hazards or stresses unless they are aware of a problem, understand potential responses to this problem and know how to effectively implement these responses.

FIGURE 4-3: THE ADAPTATION KNOWLEDGE LADDER



Source: Williams, Falzon and Hug (2018)

At the level of implementation, CBA projects are largely supported and funded by non-governmental organizations (NGOs) and/or government agencies, in collaboration with local communities. However, there are other institutions which play a major role, including multi-lateral financing agencies, facilitation, planning, research and advocacy agencies.

The key challenges of a CBA approach are characterized by limitations of participatory approaches, lack of demonstration of effectiveness of the approach through adequate monitoring and evaluation mechanisms, achieving scale, and being able to separate general development actions from adaptation actions. The last one in particular is a major hindrance to ensuring financial flows from adaptation funds, as there is a need to show the contribution to climate actions. Thus, most CBA projects are funded through development assistance. However, UNDP-GEF Small grants project, Global Resilience Partnership fund and others have also funded CBA projects that have co-financing from local partners.

### **Gender Mainstreaming in CBA Projects**

Gender mainstreaming is a critical factor to the success of a CBA project. Just as different communities are distinctively affected by climate change impacts, different groups within a single community have their own unique vulnerabilities. It is particularly important to identify gender-based vulnerabilities within the community as part of the CBA planning process.

This requires two kinds of strategies:

- Ensuring that women are part of all discussions of local vulnerability assessments. This can be done by bringing women as part of the community groups, or in societies where this is not possible, to have separate discussions with women-only groups, to understand the local vulnerabilities. However, it is important to ensure that women from all class, caste, (dis)abilities, ages, sexual orientation, ethnicity and others are part of these discussions.
- Applications of participatory gender analysis tools to highlight the gender roles and gender-based vulnerabilities in the community. Moser and Harvard frameworks; Capacities and Vulnerabilities Assessment (CVA) and GVCA assessment tools are especially useful to bring out gender and other vulnerabilities. It is also important to focus on the vulnerabilities faced by women with (dis)abilities and LGBTIQ persons, especially while planning for disaster risk management strategies.

The inclusion of women in CBA is essential not only because women are vulnerable, but also because they can be valuable contributors to adaptation work. Women can be community leaders and are often natural resource managers who can help develop strategies to cope with climate-related risks. It is important that CBA projects include a component of gender sensitization of communities and existing leaders so that they are more supportive to women taking up leadership positions in CCDRR-related institutions and decision-making processes. One strategy for enabling this is to provide a normative framework to women's participations – mandate that 30 per cent to 50 per cent of the members in all decision-making bodies are women. To further enable this, women-only groups and forums can also be supported, which can communicate the problems and required interventions to them prior to placing them before the main decision-making body. For example, in India, there is the concept of Mahila Sabha or a Women's (Village) Parliament before the Gram Sabha (Village Parliament), to ensure that all women have better and open opportunity to place their concerns in a village level forum. The resolution passed by the Mahila Sabha is then placed before the Gram Sabha (of which women are also members, but they do not speak up much in these forums due to social restrictions). Undertaking separate prioritization solutions exercises with men and women's groups and then bringing them together to discuss in one forum can be another strategy to support integration of women's demands in the resilience and CCDRR action plans. Another useful strategy is setting targets for female participation in activities and budget allocations using the Gender-Responsive Budgeting (GRB) framework.

Equally important is to focus on knowledge and information sharing and capacity-building of women. Information in communities when provided in general forums may not always reach women. It is important to have separate channels, like female volunteers, who can connect between the project and all women. The information also needs to be presented and communicated in way that considers local education levels and cultural dynamics to ensure that it reaches out to women. Using folk media, songs, games and participatory exercises can especially be useful to reach out to women. It is also important to ensure that all women are reached out to for such events and processes. It is very important to organize meetings in places which are open for all social groups and accessible especially to the elderly and (dis)abled, and have it at times which taken into consideration women's domestic and labour/work timings.

BREAK FOR



CASE SHARING

## MODULE 4\_SESSION PLAN B

	<b>2:30:00</b>	<b>SECTORAL ADAPTATION AND GENDER</b>								
<b>OVERVIEW</b>		At the end of this session, participants should be able to map all the gender and CCDRR dimensions within the given (selected) sector and identify gender-responsive strategies, practices and solutions. The session should be conducted in practice mode aiming for the participants to be able to go back and apply the learnings directly into their work.								
<b>CONTENT</b>		<p>This session dwells into three specific sectors:</p> <ul style="list-style-type: none"> <li>A. Agriculture and Food Security</li> <li>B. Public Health and Epidemics</li> <li>C. Coastal Zone</li> </ul> <p>The trainer can provide an option to the participants to choose from a range of three sessions running simultaneously if logistics permit, or pre-select one sector.</p> <p>Within each sector, the following dimensions are covered:</p> <ol style="list-style-type: none"> <li>1. Impact of Climate Change and Disasters</li> <li>2. Gender-Based Vulnerabilities and Adaptation Choices</li> <li>3. Examples of Gender-Responsive Solutions</li> </ol>								
<b>MATERIALS</b>		<ul style="list-style-type: none"> <li>&gt; PowerPoint presentation</li> <li>&gt; Two different colour post-it chits</li> <li>&gt; Apparatus for film viewing on YouTube</li> <li>&gt; Whiteboard and marker pen</li> <li>&gt; Chart papers and pens</li> <li>&gt; Copy of handouts</li> </ul>								
<b>OUTLINE</b>		<table border="0"> <tr> <td><b>10 mins.</b></td><td>Gender-based vulnerability discussion point and session overview.</td></tr> <tr> <td><b>50 mins.</b></td><td>"Infographic on Interlinkages of Gender and Climate Change Adaptation" in the Selected Sector (see Exercise 23 and Handout 19).</td></tr> <tr> <td><b>30 mins.</b></td><td>Presentation on "Gender-Based Vulnerabilities and Adaptation Choices in the Selected Sector"</td></tr> <tr> <td><b>60 mins.</b></td><td>Matrix Ranking Exercise for prioritization of "Gender-Responsive Adaptation Solutions" (see Exercise 24 and Handout 20).</td></tr> </table>	<b>10 mins.</b>	Gender-based vulnerability discussion point and session overview.	<b>50 mins.</b>	"Infographic on Interlinkages of Gender and Climate Change Adaptation" in the Selected Sector (see Exercise 23 and Handout 19).	<b>30 mins.</b>	Presentation on "Gender-Based Vulnerabilities and Adaptation Choices in the Selected Sector"	<b>60 mins.</b>	Matrix Ranking Exercise for prioritization of "Gender-Responsive Adaptation Solutions" (see Exercise 24 and Handout 20).
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<b>60 mins.</b>	Matrix Ranking Exercise for prioritization of "Gender-Responsive Adaptation Solutions" (see Exercise 24 and Handout 20).									
<b>GUIDANCE NOTES</b>		<p>Begin the session with the discussion on gender-based vulnerability within selected sector. Tell them that the next exercise will help them better understand how these gender dimensions within the sector will be affected by climate change and related adaptation choices (see Exercise 23 and Handout 19).</p> <p>Follow up the exercise with a presentation on "Gender-Based Vulnerabilities and Adaptation Choices in the Selected Sector." You can use the technical content provided in the module for the lecture; but it is advisable to call a local sectoral expert for the lecture. This will ensure that the information is more contextual and country-specific.</p> <p>After the presentation, tell the participants that you will now provide them with examples/project details of gender-responsive adaptation solutions which can be applied in the sector. Provide them five preselected examples from Handout 20. Share that they will now also learn how to prioritize the solutions based on gender using the participatory technique of matrix ranking.</p>								

## Sector 1: Climate Change, Agriculture and Food Security

### DISCUSSION POINT



**Ask the participants what the existing gender dimensions in agriculture and food security sectors are. Focus on highlighting gender roles and barriers in the sector as well as women's limited access to assets, resources and services. As the participants list the issues, write them on the whiteboard in two columns.**

### Facilitator Clues

#### Gender Roles and Barriers

- > Women produce 60-80 per cent of domestically produced food.
- > Nearly all rural women (96 per cent) work on family farms, providing 75 per cent of the farm labour and 60 per cent of farm-derived income.
- > With increasing male migration, women have expanded their productive role by adapting techniques to increase yields to earn incomes and ensure living standards above mere survival for their households.
- > Women face more market-related barriers. Even in societies without purdah rules, women are less likely to have personal vehicles and bicycles, relying more on public transportation than do men.
- > For those women who make their livelihood from buying and selling or selling in municipal markets, they often face greater levels of harassment, including sexual harassment, from officials when obtaining marketing permits or space.
- > Women and girls generally eat last and are the first to forgo nutrition in case of shortage.

#### Access and Control Over Assets, Resources and Services

- > Women-farmers are often not recognized by authorities as "farmers."
- > Their provision of household foods and their land use are often unrecognized and at the end of the hierarchy of agricultural development schemes.

- > Agricultural extension services are often directed to men because they are deemed to be the farmers and heads of households. Women have little technical information necessary to improve their farm and manage water resources.
- > Women also lack access to finance and modern business practices to enhance their farm management, inputs and outcomes.
- > Women have lower rates of membership in producer cooperatives or may be restricted from joining.
- > Women still lack legal and property rights. Lack of land ownership, or at least secure tenure rights, means that women do not have the required collateral for credit or other financial mechanisms from formal financial institutions or meet the requirements for membership in some producer, marketing or water user associations. It also means that in areas where land grabbing is occurring by large-scale, agricultural interests and women's rights are at greater risk.
- > Women are often under-represented in decision-making processes, even if they can make important contributions to these discussions due to the knowledge of ecological and water-related conditions gained as a factor of their societal roles as natural resources managers.

### GENDER-BASED VULNERABILITIES

Agriculture and allied activities are not only the major components of food production systems but also the mainstay livelihood activity of most of the world's poor populations who earn their living from subsistence farming – working as wage labourers, farmers, small-scale processors or traders. This is especially true for Asian countries where more than half of the populations are often engaged in agriculture activities. For example, in Cambodia, around 8.8 million people (57.6 per cent of the population) is engaged in agricultural activities, contributing to 32.1 per cent of the country's Gross Domestic Product (GDP) in 2011 (NCCP Cambodia 2013). Similarly, in Vietnam in 2007, agriculture still contributes

21 per cent of the GDP and employs over 47 per cent of the country's labour force (CGIAR n.d.).

Changes in temperature and precipitation patterns, in particular, will have an effect on the agriculture ecosystem, thereby impacting food production; Asia will be particularly impacted by the reduced agriculture production (IPCC-AR5 2014d).

Rural poor women, especially those in developing country, largely rely on subsistence agriculture to feed their families (Aguilar, Granat and Owren 2015). Given their high dependency on agriculture and the already existing gender discrimination in the agriculture sector, these women would be most vulnerable to the climate change risks

and disasters in the agriculture sector. The key impacts on women would include the following:

- > Climate change is expected to reduce average yields of most crops, especially rice, wheat and maize. In Cambodia for example, rice production could decline by 10 per cent for every 1 degree Celsius temperature rise (MEF and GSSD Cambodia 2019). Sea level rise also threatens coastal and deltaic rice production areas in Asia, such as those in Bangladesh and the Mekong River Delta. For example, about 7 per cent of Vietnam's agriculture land may be submerged due to 1-meter sea level rise. In Myanmar, saltwater intrusion due to sea level rise could also decrease rice yield (IPCC-AR5 2014b). Similarly, in India, the Indo-Gangetic Plains are under threat of a significant reduction in wheat yields. This area produces 90 million tons of wheat grain annually (about 14-15 per cent of global wheat production (IPCC-AR5 2014b)). In societies where they are mainly involved in food production, especially rice, wheat and maize, the decline in productivity due to the impact of climate change will increase their vulnerability both as farmers and as agriculture labourers. In Vietnam for example, climate change is reducing crop yields, increasing women's workload

as they replant rice crops more often to replace lost production (Oxfam 2009).

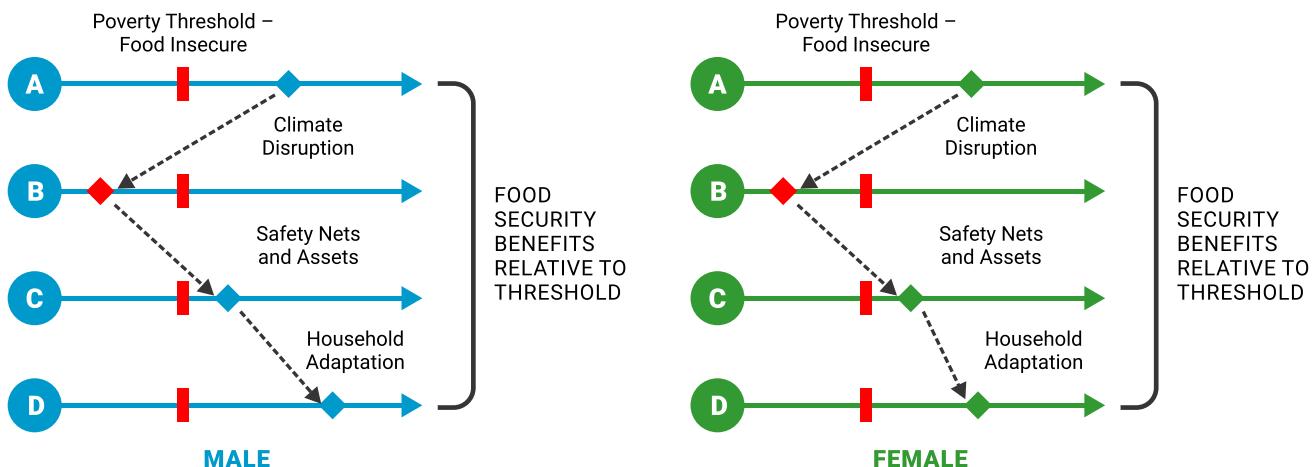
- > With reduced yields and production of rice and wheat, there is bound to be a "food production shortfall" in the region. These increasing shortfalls will be further exacerbated during droughts, which are the most serious cause of food shortages, causing 60 per cent of food emergencies (Aguilar, Granat and Owren 2015). Women, who also have the additional responsibility of ensuring food security within their households, will be more exposed to these climate change impacts affecting food, nutrition security and health. Existing social discrimination and cultural practices in many Asian societies result in women and girls eating last and being the first to forgo nutrition in case of shortage. It is not surprising that approximately 60 per cent of chronically hungry people are women and girls. Food shortages resulting from climate change will further exacerbate the insecurities affecting women's health.
- > Climate change will also increase water stress, which will further increase the work burden of women subsistence farmers who need access to water for food production and preparation. For example, in

#### TRAINER'S TIP



For the advanced course, you may want to use Figure 4-4 and explain as: "Climate disruption may have the same impact on the food security of male and female – moving down the dotted line from Level A to Level B on food security levels, both men and women will move behind the poverty threshold for insecurity (the vertical red line). Safety nets and assets will help households move ahead of the poverty threshold, as seen in Level C. However, this will not lead to normality; and households will have to take adaptation actions to restore equilibrium. Given the intra-household gender discrimination in food security, however, while men will be better than earlier, women will be left worse off, as seen at Level D."

**FIGURE 4-4: FOOD SECURITY RELATIVE TO POVERTY THRESHOLD – GENDER AND CLIMATE CHANGE IMPACTS**



- A. households' normal food security level; B. impact of climate disruption on food security; C. safety nets and assets raising households above the poverty line but not to normality; D. household adaptation is needed to return to equilibrium.

Source: Asfaw and Maggio (2016).

Vietnam, female-headed households are disadvantaged in securing sufficient water for agricultural needs. Female-headed households report 20 per cent lower rice yields compared to male-headed households due to limited water supplies (Huynh and Resurreccion 2013).

- > Climate Change and subsequent adaptation choices can also affect allied livelihood options like livestock rearing. Unsustainable uses of rangelands with the stress of climate change led to vegetation cover being increasingly undermined by water scarcity, having a detrimental consequence on fodder production. Given women's key role in pastoral lifestyles and livestock rearing, they had to bear most of the brunt of these changes.

Women also tend to be more likely to own small animals, such as chickens, goats and pigs, while men are more likely to own larger animals, such as cows and improved varieties of livestock. In disaster situations, women often end up losing these options, either due to lack of rescue or due to post-disaster sale to meet the family's cash requirements. In the 2015 Myanmar floods, women lost 80 per cent of all animals killed in the floods, while men lost 20 per cent in terms of buffaloes, cattle and pigs (UN Women 2016). Men who most often own large cattle and expensive breeds are also disproportionately affected as cattle are particularly vulnerable to the effects of climate change (Aguilar, Granat and Owren 2015).

### **Women as Agents of Change**

However, women are not just a vulnerable section of the farming community who need to be taken care of. Given the significant role of women in agriculture and food security, they also have the potential to take forward adaptation measures as key agents of change. According to FAO (2011), with equal access to resources and services, women could increase the yields of their farms by as much as 20-30 per cent. This would boost the total agricultural output in developing countries by 2.5 per cent to 4 per cent. The additional yield could feed an additional 100-150 million people. Thus, addressing the differences between women and men in access to financial and productive resources, decision-making, markets and services, land and water, and knowledge and technology can be a major adaptation strategy to boost production.

Women also play an important role as agents of agrobiodiversity conservation and household food security through gardens or small household plots. As migration flows reduce male involvement in farming, women are playing increasingly important roles in maintaining

knowledge about different plant varieties and deciding which crops to plant. In the Philippines for example, the farm roles of female household heads are changing as farms struggle to adapt to floods. Women's farming experience and relatively greater education levels compared to men in this setting are enabling them to take on greater managerial responsibilities, challenging traditional gender roles (Tatlonghari and Paris 2013). With dual roles as farmers and food preparers, women's selection of traditional crop varieties in this region is often influenced by cooking preferences contributing to food security. There is also a growing body of research highlighting the unique role of women in maintaining crop diversity in countries such as Nepal (Gautam, et al. 2009), and Bangladesh (Oakley and Momsen 2005), often through saving and exchanging seeds, and maintaining home gardens, with these becoming key sources of household food security.

Women in rural households also have traditional strategies for ensuring food supplies in the event of disasters like floods and droughts. Women are often responsible for food and seed storage. They generally control small livestock and process their by-products that can be a source of ready cash in emergencies. Dairy products, which are often women's responsibilities, and other animal products (e.g., bees, silkworms) provide families with more regular income than either crops or animal sales. Women may increase their collection of wild plants and game to unsustainable levels to make up for crop and protein shortages.

### **GENDER-RESPONSIVE ADAPTATION CHOICES AND STRATEGIES**

It is important that gender considerations are accounted for in agriculture adaptation processes both for ensuring that women's additional vulnerability is addressed and for involving them as key agents of change. Furthermore, given the existing gender equality situation and discrimination against women, it is highly unlikely that so called "gender-neutral" adaptation measures could yield the requisite results. For example, CCA projects which promote drought, salinity and/or flood-tolerant new species to cope with ecosystem changes could displace women farmers if the new crops or varieties are profitable and dominated by men (Aguilar, Granat and Owren 2015). These could also increase the demand on women's productive labour. In Nepal for example, the shift to buckwheat in response to climate disruptions has resulted in women performing much more work than men in order to produce it, reducing time available for other livelihood activities (Onta and Resurreccion 2011).

**TRAINER'S TIP**

You can also show this short film gender in climate change adaptation and ask the participants to highlight the stages in adaptation action that need gender integration. This film by FAO on "Addressing Gender Concerns in Climate Change Policies Policies for Agriculture" available at [https://www.youtube.com/watch?time\\_continue=270&v=nsIxsSOXups&feature=emb\\_title](https://www.youtube.com/watch?time_continue=270&v=nsIxsSOXups&feature=emb_title) will be useful.

In fact, most may end up affecting women and their families negatively while also increasing gender inequalities. Agriculture adaptation options must be reviewed for gender considerations. This means that the particular needs, priorities, and realities of men and women are recognized and adequately addressed in the design and application of Climate-Smart Agriculture (CSA) so that both men and women can equally benefit. Food and Agriculture Organization of the United Nations (FAO) has proposed a potential matrix for gender considerations within CSA projects. Undertaking such analysis would be the first step to gender-responsive CSA approach especially for project implementers.

**Climate-Smart Agriculture (CSA)**

"CSA is an approach to developing the technical, policy and investment conditions to achieve sustainable agricultural development for food security under climate change. It integrates the three dimensions of sustainable development (economic, social and environmental) by jointly addressing food security and climate challenges. It is composed of three main pillars: i) sustainably increasing agricultural productivity and incomes; ii) adapting and building resilience to climate change; and iii) reducing and/or removing greenhouse gas emissions, where possible" (Nelson and Huyer 2016).

Women also are more likely to benefit from select livelihood interventions. For example, livestock projects requiring fewer inputs, as is generally the case with smaller animals such as pigs or chickens or locally-adapted breeds of cattle (Hoffmann 2013), may benefit women more (Chanamuto and Hall 2013). Promoting vegetable gardening especially in homestead lands where women have a greater say and control can be another such intervention. These especially help in areas like Cambodia that are prone to flash floods which affect rice harvest. Women's vegetable gardens prove to be a good fallback option. A recent study by Nexus for Development found that in Pursat province in Cambodia, renewables-powered water pumps, biodigesters, and harvest refrigerators and dryers can greatly benefit women farmers in the long run (UN Women and UNEP 2019).

**FIGURE 4-5: POTENTIAL GENDER CONSIDERATIONS FOR CSA-SENSITIVE PROJECTS**

CSA-SENSITIVE PRACTICES	GENDER IMPACT	REQUIREMENTS FOR ADOPTION PRACTICE					
		Women's Control of Income from Practice	Relative Amount of Time Until Benefits are Realized	Potential for Women to Benefit from Increased Productivity	Female and Youth Labour Availability	Female Access to and Control of Land	Female Access to Cash and Ability to Spend It
Conservation Agriculture	Low	High	High	Low-Medium	High	Low	Low
Improved Home Gardens	High	Low	High	High	High	High	High
On-Farm Tree Planting	Low	High	Medium	High Initially, Low Later	High	High	Medium
Small-Scale Irrigation	Low-Medium	Low	High	Medium	High	High	Medium
Livestock Genetic Improvement	Low-High	High	High	Low-High	Low	High	Medium

Source: Nelson and Huyer (2016).

However, what is also important is to prioritize these practices in allocations of budgets and pursue them actively through implementation strategies especially extension services. Often, extension services and other practices are geared more to men than women. It is as important to have a gendered delivery as it is for the

practices themselves to be gender sensitive (Nelson and Huyer 2016).

Table 4-4 shows some key strategies and practices that can be applied to promote gender-responsive climate-smart agriculture.

**TABLE 4-4: STRATEGIES AND PRACTICES FOR CLIMATE-SMART AGRICULTURE**

PROMOTING WOMEN'S LIVELIHOODS IN AGRICULTURE	GENDER PREPAREDNESS FOR CLIMATE-SMART AGRICULTURE	ADDRESSING STRUCTURAL CHANGES TO REDUCE GENDER BARRIERS AND DISCRIMINATIONS IN AGRICULTURE
<ul style="list-style-type: none"> <li>&gt; Analyze the impact of introducing new varieties and promote a more equitable distribution of reproductive work.</li> <li>&gt; Adapt promoted practices to the existing gender division of labour for agriculture and livestock management.</li> <li>&gt; Provide training on agricultural extension and climate smart agriculture to women.</li> <li>&gt; Make marketing facilities available.</li> <li>&gt; Institutionalize alternative provisions to accommodate women, women's groups and cooperatives that are unable to provide the collateral needed for accessing agricultural credit.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Utilize local agricultural knowledge and engage women and men, to ensure indigenous crop varietals are used where possible.</li> <li>&gt; Build community resilience on food security through the establishment of local climate-smart seed banks owned and managed by women.</li> <li>&gt; Involve women and men in conservation of biodiversity.</li> <li>&gt; Provide specific nutritional supplements for women and girls.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Facilitate equitable access to and control of resources, as well as the distribution of their benefits (including productive resources, jobs, training and credit).</li> <li>&gt; Improve women's land tenure security.</li> <li>&gt; Encourage equity in having access to irrigated land ownership.</li> <li>&gt; Expand access to credit, insurance and other financial mechanisms.</li> <li>&gt; Revise the existing strategies that enable the flow of credit from public/commercial banks and financial institutions to support and increase women's access to credit.</li> <li>&gt; Adapt participation/membership criteria and reduce participation barriers for women's active participation and leadership in decision-making bodies at all levels (i.e., forestry, watershed management, irrigation water, coastal management, biodiversity conservation and disasters).</li> </ul>

## Sector 2: Climate Change, Public Health and Epidemics

### DISCUSSION POINT



**Ask the participants what they think about the prevalence and fatality rates of men and women from COVID-19. Ask them what they think are the other gender impacts and risks of COVID-19.**

### Facilitator Clues

- > Men and women have the same prevalence of COVID-19. However, a study in China shows that men are more at risk for worse outcomes and death, independent of age, with COVID-19 (Jin, et al. 2020). Similar analyses in USA and Italy have also shown that the relative death rate is higher among males.
- > The differences are attributed to sex-based immunological differences due to female hormones, a lower prevalence of smoking in women, and men developing co-morbid conditions such as hypertension at a younger age than women.
- > On the surface, men seem to be more vulnerable to COVID-19 than women. However, there are many other gendered impacts.

First of all, there are demographic anomalies.

- > India, for example, reported higher prevalence among men (with 65 per cent of the case share) but the mortality rate was higher at 3.3 per cent among women compared to 2.9 per cent among men. Then there was the age intersectionality – in the 40-49 age group, 3.2 per cent of the infected women died, compared to 2.1 per cent of men. (Joe, et al. 2020).
- > The social determinants like access to healthcare as well as general health and nutrition status, which are generally worse for women in India than their male counterparts, could explain these differences that defy the global trend (Joe, et al. 2020).

Then, there is an exposure anomaly.

- > Women make up 70 per cent of all health and social services staff globally (Boniol, et al. 2019), and their share of healthcare workers affected has also been high, for example, at 72 per cent and 66 per cent in Spain and Italy, respectively (UN Women 2020b).
- > Furthermore, most of these women are on the frontlines of the pandemic dealing with communities directly and often paid less than men. In India for example, the frontline Health Workers (ASHAs and Anganwadi Workers) who are only paid an honorarium and even denied minimum wages have been the most involved in community outreach, testing and contact tracing.

- > Homemaker caregivers are also more prone to contracting the infection. Even during the 1918 Spanish flu, more women in India – relatively undernourished, cooped up in unhygienic and ill-ventilated dwellings, and nursing the sick – died than men (Joe, et al. 2020).

And finally, the crisis-management anomaly – The key strategy to deal with the crisis was imposition of lockdowns. This has resulted in women suffering more than men, mainly due to the fact that:

- > Domestic, sexual and gender-based violence increased under conditions of quarantine or stay-at-home measures; women and children who live with violent and controlling men are exposed to considerably greater danger. These trends are seen globally and in Asian countries like India (Joe, et al. 2020) and Cambodia (CCHR Cambodia 2020). Young boys and girls in Asia-Pacific regions have been especially affected (Plan International and Save the Children 2020). This was not unforeseen – previous epidemics, such as the Ebola virus disease outbreak in west Africa, as well as cholera and Zika virus disease outbreaks, led to regional environments where domestic violence became more prevalent (Chandan, et al. 2020). However, no measures to address these issues have been considered or deliberated upon.
- > Women have also been left to face an economic crisis. Already existing gender gaps in wages, higher concentration in informal sectors could mean that women could lose their existing income sources. It is also well-documented that women are often disproportionately affected by cuts and lay-offs (ILO 2020).
- > Media reports in May 2020 showed that across the United States of America, the cost to female jobs is already visible. The latest unemployment figures show that women held 55 per cent of the 20.5 million jobs lost last month. Women's share of all unemployment claims filed between March and April 11 ranged from 53 per cent in Wyoming to as high as 67 per cent in Alabama, according to

non-profit journalism organization The Fuller Project. In Canada, too, women have made up the bulk of the layoffs (Martinuzzi 2020).

- > The lockdown also increased the workload of women and girls at home, as in most societies, women are traditionally responsible for domestic responsibilities, spending three times more than men. The lockdown in many countries meant shutting down of all domestic services which are linked to market like restaurants and food supply, washing and ironing clothes, even children's online education support. The burden of all these activities has fallen on women, thereby increasing their care role (ILO 2020).
- > The provision of sexual and reproductive health services, including maternal health care and

gender-based violence-related services, are central to health, rights and well-being of women and girls. The diversion of attention and critical resources away from these provisions may result in exacerbated maternal mortality and morbidity, increased rates of adolescent pregnancies, HIV and sexually transmitted diseases (UN Women 2020a).

As a result: The pandemic is deepening pre-existing inequalities, exposing vulnerabilities in social, political and economic systems which are in turn amplifying the impacts of the pandemic. It would also put the achievements of 2030 Agenda at stake, especially for women and girls (UN Women 2020b).

## GENDER-BASED VULNERABILITIES

Climate change is not only projected to increase threats to human health (IPCC-AR5 2014a) through direct effects of extreme events, such as heat waves, floods and storms, but also through more complex pathways of altered infectious disease patterns and negative effects on food and nutrition security and water scarcity, among others.

Unfortunately, although there is some evidence that health impacts of climate change vary by gender, even the World Health Organization has acknowledged that there is limited research available to capture the gendered dimensions of health and CCDRR (WHO, 2014b). The key health impacts on women projected based on available studies in select regions show that:

- > Climate change is increasing the risk of health impacts associated with storms and flood events with evidence that mortality rates for women and girls during these events is higher than that of men and boys (UN Women 2016). Much of these can be attributed to gendered cultural practices related to purdah, restrictions on mobility, unsuitable dressing, lack of swimming skills, limited access to early warning systems and others.
- > Furthermore, while studies in the United States of America and Australia indicate no significant gender differences, available studies from Asian countries suggest otherwise (GGCA 2016). For example, the rate of deaths among females (likely associated with heat) in Ahmedabad (India), during a 2010 heat wave was significantly higher than for males (Azhar, et al. 2014). Similarly, research from Korea suggest that women were at a significantly greater risk (16 per cent) of mortality during heat waves between 2000 and 2007,

while men's increased risk of mortality was statistically indistinguishable from zero (Son, et al. 2012). While physiological differences between males and females in their capacity to regulate high temperatures are at least partially responsible for gender differences in heat-related mortality (Lundgren, et al. 2013), most trends suggest that gendered living and livelihood patterns, access to medical treatment, and local climatic factors likely matter more than biological differences.

- > Climate change is increasing the spread of water- and vector-borne diseases around the world (IPCC -AR5 2014c), such as cholera, dengue fever, malaria and schistosomiasis, which tend to disproportionately burden the poor more especially in developing countries. It is estimated that in 2000 alone, climate change was responsible for 2.4 per cent of cases of diarrhoea worldwide and 6 per cent of cases of malaria (Prüss-Üstün, et al. 2008). Sex-disaggregated analysis of the disease burden shows that men may be more susceptible to dengue than women while women, especially pregnant women, are more susceptible to malaria (DhangadamaJhi, Kar and Ranjit 2009; WHO 2015). Cholera may roughly affect men and women equally in many settings, while some studies show slightly higher burdens of the disease among men, and others among women (Agtini, et al. 2005; Lopez, et al. 2015)
- > Bacterial and viral infections related to exposure to contaminated flood waters, however, seem to affect women more. Evidence from Bangladesh suggest that females may be disproportionately exposed to skin problems related to floodwater exposure (Alston 2015). While formal studies are not available, saline

- contamination expected to increase with climate change and sea-level rise is indicated as affecting a large number of pregnant women in Bangladesh with preeclampsia, eclampsia and hypertension (Khan, Scheelbeek, et al. 2014). Local healthcare workers have reported that there are increasing trends of gynaecological problems due to unhygienic water use and water logging (Neelormi, Adri and Ahmed 2009).
- > Climate change also has gendered impacts on mental health, with additional stress especially after disaster, often leading to depression and in extreme cases suicide. However, while both men and women tend to experience higher rates of mental health challenges after disasters, women are generally more susceptible to developing stress-related disorders and depression (Olff, et al. 2007).
- A large study after flooding in Hunan (China) found that females had a 1.1 times greater risk of developing post-traumatic stress disorder (PTSD) than males (Liu, et al. 2006). Another study (Li, et al. 2010) found that the odds of girls developing PTSD were also slightly greater than those of boys. After Cyclone Nargis in Myanmar, the odds of women developing PTSD were 2.6 times greater than those of men, while women's odds of developing acute stress disorder were 3.2 times greater than men's odds (Kim, et al. 2010). In Nepal, Women's Rehabilitation Centre (WOREC) reported that women who were displaced during the flood in Dang district in 2014 experienced trauma, and this resulted in them suffering from irregular menstrual cycles and abdominal pain (Singh 2015).

The lack of accessible and affordable healthcare services, especially sexual and reproductive health (SRH) care, further aggravates the problem. Accessibility barriers may include lack of time due to long working hours, long waiting hours at public health care facilities, transportation costs and lack of decision-making power due to gender inequality. The privatization of healthcare services, made these services unaffordable. Furthermore, SRH is often not prioritized in the New Urban Agenda and unabated climate change will make the situation worse for the urban poor women and girls (Mian 2017; 2018).

A study by ARROW and the Khan Foundation in Bangladesh (2015) showed:

- > Almost 90 per cent of the respondents stated that medical care and services/treatment facilities are not available to women.

- While studies on suicide risks are not so clear, there is evidence to show that men are disproportionately more likely to commit suicide. In India for example, climate change is increasing risks to farmers on small plots on marginal lands (largely men), who are more vulnerable to crop failures due to the limited ability to diversify crop holdings, which in turn is associated with elevated suicide rates (Kennedy and King 2014).
- > Climate change also threatens the ability of women to access family planning services, making it harder for women to choose if and/or when to have children. While data from Asia is not available, studies elsewhere have shown that climate-linked natural disasters are likely to hamper access to reproductive healthcare, as occurred after Typhoon Haiyan and Hurricane Katrina. Additionally, the impacts of disasters may exacerbate the effects of pre-existing barriers that women have to seeking reproductive health services, such as race and class, as documented after Hurricane Ike (GGCA 2016).
- > Climate change is also likely to impact pregnancy outcomes and care. Pregnant women are more susceptible to dengue (Machado, et al 2013) and malaria (Khan, Galagan, et al. 2014). Other research has linked heat wave (He, et al. 2016) and flood/storm events (Currie and Rossin-Slater 2013) to an increased risk of preterm delivery and related pregnancy complications. Saltwater intrusion into groundwater, which is more likely with higher sea levels and associated flooding, may also increase rates of preeclampsia and hypertension during pregnancy

- > Around two-fifths cited absence of emergency doctors as the key problem, while another two-fifths stated lack of necessary medicines, sanitary and hygiene products, and one-fifth stated lack of emergency and delivery kits as major problems.

All the above have negative consequences on the sexual and reproductive health and rights of women and girls especially during disasters. As expressed by Mahmuda Begum, a 35-year-old housewife and mother of seven children, from Fakirghona village of Moheshkhali sub-district:

*"During times of disasters, the biggest problem faced by the women in our community is the lack of access to medical care, including health services and facilities." (N. Khan 2015)*

- (A.E. Khan, et al. 2011; Khan, Scheelbeek, et al. 2014). As these point to the added dimension of vulnerability for pregnant women in relation to climate change, it is thus important to integrate family planning and other reproductive and sexual health services within all adaptation and disaster management programmes.
- > The increase in the disease burden due to climate change will also affect the caregiving role of women and girls, as they take care of the sick in their homes (Brody, Demetriades and Esplen 2008). This increases their workload and they often end up neglecting their own health and well-being. This also limits the time they have available for income generation and education, which, when coupled with the rising medical costs associated with family illness, heightens levels of poverty, which is, in turn, a powerful determinant of health. It also means that they have less time to contribute to community-level decision-making processes, including on climate change, health and disaster risk reduction.
  - > Climate change is also expected to increase water scarcity, forcing many families to use unsafe sources, including streams and ponds that are likely to be contaminated. This will not only lead to an increase in water-related diseases such as diarrhoea and cholera, but also affect women more than men by increasing their workloads. In a study of drought management in Ninh Thuan (Vietnam) for example, 74 per cent of the respondents believed that women were more affected from the drought due to water scarcity which forced them to walk long distances. There are also studies which show that during the dry season in rural India, 30 per cent or more of a woman's daily energy intake is spent fetching water. Carrying heavy loads over long periods of time causes cumulative damage to the spine, the neck muscles and the lower back, leading to early ageing of the vertebral column (WHO 2014b).
  - > Damages to sanitation facilities and scarcity of water, especially toilets and bathrooms not having running water, also restrict menstrual hygiene practices among women and girls. The typical way for them to cope is to refrain from drinking water to avoid having to go to the toilet during the day, thereby exacerbating urinary tract infections and reproductive tract infections. Also, the lack of water and toilet facilities in school contributes to absenteeism among girls and this impacts their education (Mian 2018).
  - > Climate change also threatens crop production in terms of the decline in quality and quantity of food crops, resulting in food insecurity and undernutrition. Crop failure would cause a hike in food prices, indirectly increasing the cost of living. This would ultimately affect women's food consumption, not only due to poverty but also due to household food hierarchies still practiced in some cultures in Asia where women and girls are allowed to eat only after the men and boys have eaten, resulting in high undernutrition and its related health problems.
  - > Their undernutrition will be further exacerbated during climate extreme events (Aguilar, Granat and Owren 2015). After natural disasters in India, young girls were more likely to be stunted and underweight than boys (Datar, et al. 2013). In another study in Andhra Pradesh (India) twice as many women as men reported eating less in response to drought (FAO 2018). A Bangladesh study (Alston 2015) showed that women and girls are typically the first to skip meals if there is a shortage of food, as often occurs during droughts, floods or storms. In the Philippines, infant mortality increased after typhoons among girls but not among boys, which researchers attribute to competition for scarce resources within families (Anttila-Hughes and Hsiang 2013). In Vietnam, women are more likely to skip meals than men during periods of food scarcity due to cultural norms regarding the importance of men's physical labour (Oxfam 2009).
  - > Studies on the impact of climate change on undernutrition have also shown that it would result in increased disability-adjusted life year (DALY) lost in developing countries. Women are more susceptible to nutritional deficiencies compared to men because of their distinct nutritional requirements, particularly when pregnant or breastfeeding. For example, in South Asia and South-East Asia, 45 per cent to 60 per cent of women of reproductive age are underweight and 80 per cent of pregnant women have iron deficiencies. Thus, they need more iron intake compared to men as they are more prone to anaemia. They also need more protein when they are pregnant or breastfeeding. Undernourished pregnant women are at high risk of having pregnancy and delivery problems such as intrauterine growth retardation, premature labour, stillbirth, low birth weight babies and perinatal mortality. Undernourished women may suffer from amenorrhoea and infertility, and undernourished prepuberty girls may experience delayed menarche (WHO 2014b).

### **Gender-Based Violence: A Critical Dimension in Climate Change and Health Considerations**

Although specific evidence of impact of climate-related disasters and Gender-Based Violence (GBV) is not available, studies from other disasters point to an increase in gender-based violence in after disaster settings. Displaced women and girls are often forced to sleep in unsecure homes and shelters, making them feel unsafe and exposing them to sexual harassment. For example, after the 2010 Pakistan floods, majority of women reported feeling unsecure sleeping in the open (UNIFEM 2010). Shelters that do not offer separate sleeping arrangements for men and women, unlit and insecure bathing and washing facilities can all increase the risk of GBV for women and girls (Hussain 2015). Women and girls also face elevated levels of violence if they must travel long distances to fetch water, firewood or food after a disaster (Nellemann, Verma and Hislop 2011).

"Overcrowding, chaotic conditions, lack of privacy and the collapse of regular routines can contribute to anger, frustration and violence," with children (especially girls) and women being the most vulnerable individuals (Bartlett 2008). Increased stress and feelings of powerlessness, due to bereavement, loss of property and loss of livelihood, mental health problems such as post-traumatic stress disorder, the scarcity of basic provisions, and other factors leading to hegemonic masculinity crises also contribute to pre-existing levels of violence among men. This is often compounded by loss of protection from family members who have died or migrated, as well as a breakdown in the rule of law. A study in Bangladesh, found extremely high incidences of violence against women after 2007 flooding, particularly among disadvantaged groups such as sex workers and the disabled (Dankelman, et al. 2008). Increases in violence against women after climate change-related disasters have also been documented in Vietnam (Oxfam 2009). Although trends in Asia are not known, studies (Sanz-Barbero, et al. 2018) have reported an increase in risk of intimate partner violence after three days of a heat wave threshold on 34 degrees Celsius in Madrid (Spain).

Women and girls also face an even more serious risk with the onslaught of climate-induced disasters: child marriage and organized trafficking. Child marriage is an epidemic in Bangladesh, and has recently been linked with climate change and the increased numbers of natural disasters.

Women and children are also at greatest risk of being trafficked in times of disasters, and they face the greatest risk of becoming targets for exploitation, resulting in slavery and sex labour (Nellemann, Verma and Hislop 2011). Again, while no statistical data are available, employment in sex work and begging are risk factors in times of environmental and climate crises (IFRC 2015). In West Bengal (India), there is an observed pattern between human trafficking of women and girls, and annual flooding. There is a yearly increase in human traffickers who follow annual inundation, when targeted families become destitute and desperate for livelihoods. Some evidence following typhoon Haiyan in the Philippines in November 2013 also supports the claim that trafficking is a major concern.

### **GENDER-RESPONSIVE ADAPTATION CHOICES AND STRATEGIES**

The adaptation actions in the health arena mainly overlap with adaptation strategies for disasters, such as enhancing early warning systems, ensuring access to fresh water for drinking and hygiene, ensuring agriculture and food security for nutrition, reducing poverty and ensuring education to expand opportunities, and addressing psychosocial and mental health issues related to stress from disaster recovery, relocation, and forced migration. However, there is also the need to look at improvement in general public healthcare services, especially sexual and reproductive health care, water and sanitation accessibility, which fall within the development purview as important adaptation strategies. The World Health Organization (2014b) has brought together the gender dimensions of climate change, along with adaptation strategies and possible interventions. Key highlights from this are reproduced in Table 4-5.

#### **TRAINER'S TIP**



At this point, it would be good to take a break and show a short film on Voices of women from Sarawak highlighting their challenges in living in a changing landscape. This story is part of a regional research on "Building New Constituencies for Women's Sexual and Reproductive Health and Rights (SRHR) and Climate Change," available at [https://www.youtube.com/watch?v=2PrRN5YLa\\_U&t=29s](https://www.youtube.com/watch?v=2PrRN5YLa_U&t=29s).

**TABLE 4-5: GENDER-RESPONSIVE ADAPTATION STRATEGIES AND PRACTICES IN CLIMATE CHANGE ADAPTATION FOR HEALTH SECTOR**

GENDER-RESPONSIVE ADAPTIVE STRATEGIES	GENDER-RESPONSIVE ADAPTATION PRACTICES
<ul style="list-style-type: none"> <li>&gt; Provide safe shelters and homes for both women and men.</li> <li>&gt; Training on gender-sensitive disaster risk reduction and early warning systems.</li> <li>&gt; Promote programmes that facilitate men to seek help for psychosocial problems.</li> <li>&gt; Empowerment of women to strengthen their capacity to question and change harmful behavioural norms that put them at risk in the case of extreme events.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Gender-sensitive disaster preparedness.</li> <li>&gt; Gender-sensitive early warning systems.</li> <li>&gt; Ensure women's participation on equal basis in all policy and programme cycles.</li> <li>&gt; Target women and men differently in communication campaigns and health promotion strategies, taking into account their gender norms and roles.</li> <li>&gt; Adopt strategies at all levels of programming to change norms and practices that prevent women or men from appropriate responses and coping mechanisms in situations of natural disasters.</li> </ul>
<ul style="list-style-type: none"> <li>&gt; A gender perspective must be incorporated into infectious disease analysis and research to target policies and programmes.</li> <li>&gt; Collected data must be disaggregated by sex, age, socioeconomic status, education, ethnicity and geographical location, where appropriate.</li> <li>&gt; An understanding of gender and its implications for health and health-seeking behaviour should be incorporated into training of health professionals and development of health-sector responses.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Ensure better availability and access to, and support by, health systems for both women and men, but especially for women, given their caregiving roles.</li> <li>&gt; Support outreach activities, using gender-sensitive information, education, and communication strategies and materials for advocacy and training.</li> <li>&gt; Promote childcare facilities and other approaches to support women's caregiving role, while trying to transform related gendered roles and norms.</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Promote programmes that facilitate men to seek help for psychosocial problems.</li> <li>&gt; Empower women to enhance their capacities to look after themselves and their families and specifically to use available social and other networks to cope with increased burdens and tensions.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Target women and men differently in post-disaster relief, taking into account gender norms, roles and relations.</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Promote water-saving practices that take into account the different uses and roles related to water for women, girls and men.</li> <li>&gt; Address salination and arsenic contamination of water, proposing specific actions that consider the different patterns of exposure and impacts on women and men.</li> <li>&gt; Counter social stigma attached to the effects of arsenic poisoning on women and men.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Ensure affordable drinking water, taking into account the different roles and needs of women and men.</li> <li>&gt; Empower women and facilitate their equal participation in management of water resources at national, regional and grassroots levels.</li> <li>&gt; Appropriate technologies for assuring potable water closer to where families live.</li> <li>&gt; Strengthen forestation and water harvesting mechanisms, considering the different roles, needs and impacts on women and men.</li> <li>&gt; Promote women's rights to own land and ownership of land use certificates.</li> <li>&gt; Effective implementation of water policies that consider women's and men's different needs and roles for water use, provision and consumption.</li> <li>&gt; Ensure equitable access to resources also in relation to payments for environmental services.</li> </ul>
<ul style="list-style-type: none"> <li>&gt; Involve women and men in conservation of biodiversity.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Training on agricultural extension for both women and men.</li> <li>&gt; Better nutrition supplements for needy families.</li> <li>&gt; Marketing facilities.</li> <li>&gt; Land rights for women.</li> </ul>

**TABLE 4-5: GENDER-RESPONSIVE ADAPTATION STRATEGIES AND PRACTICES IN CLIMATE CHANGE ADAPTATION FOR HEALTH SECTOR**

GENDER-RESPONSIVE ADAPTIVE STRATEGIES	GENDER-RESPONSIVE ADAPTATION PRACTICES
<ul style="list-style-type: none"> <li>&gt; Build strong and supportive networks for both women and men.</li> <li>&gt; Promote gender-sensitive training to eliminate violence against women, girls and boys.</li> <li>&gt; Capacity-building within the health system to ensure early detection of domestic or sexual violence.</li> <li>&gt; Involve women in management of shelters and distribution activities.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Policy initiatives in the health, education, finance and labour sectors to be conceived as a part of a cohesive national/international violence prevention effort that includes women, girls, men and boys.</li> <li>&gt; Implement appropriate health services that respond to the specific needs of women and men based on their respective needs, roles and capacities.</li> <li>&gt; Design effective referral systems for cases of domestic violence. Design referral system for cases of sexual harassment.</li> </ul>

Source: Adapted from WHO (2014b).

## Sector 3: Climate Change and Coastal Zones

### DISCUSSION POINT



**Ask the participants which livelihood activities are predominant among coastal communities in their regions and what the role is that men and women play in said communities. Ask them what they think will be the impact of climate change on these coastal livelihoods.**

### Facilitator Clues

#### Activities:

- > Fishing (subsistence, household level)
- > Fishing (commercial/local or external markets)
- > Capture fisheries (caught fish, prawns, crabs, or shellfish)
- > Gleaning/hand collection from wetland areas (e.g., snails, frogs, crabs)
- > Aquaculture
- > Fish processing and post-harvest production
- > Preparing fishing gear
- > Rice and vegetable farming
- > Marketing and selling (fish, vegetables, rice, forest products, others)
- > Tourism (e.g., tour guide, boat operator, cooking, homestay, working in a guesthouse)
- > Informal employment (unpaid work, e.g., shopkeeper, food preparation, handicraft production, casual work)
- > Business (small and medium enterprise, shop, trading)

#### Impact of Climate Change on Coastal Livelihoods:

- > *Rice Farmers* – Seawater inundation has become a major problem for traditional agriculture in countries like Bangladesh, Cambodia, Vietnam and other low-lying island nations (Lata and Nunn, 2012; Rahman

and Rahman 2015). The combination of rice yield reduction induced by climate change and inundation of lands by seawater causes an important reduction in production (Chen, et al. 2012).

- > *Fishers* – Rising temperatures could also lead to changes in fish migration patterns and localized extinction of fish species, severely affecting the livelihoods of fisher communities (Cochrane, et al. 2009). According to the FAO, about 58 million people worldwide are directly engaged in fishing and aquaculture, including substantial numbers of men and women in Asia. In Cambodia for example, the fishing sector alone contributed up to 10 per cent of the country's GDP and employed six million people nationwide in 2013 (NCCP Cambodia 2013), indicating that any changes in fish productivity would endanger the economic development and livelihoods of millions.
- > *Tourism* – Changes in marine ecosystems and frequent disasters will also affect tourism in the areas, further resulting in loss of supplementary incomes for most coastal families.
- > *Local Business* – With falling local incomes and decline in tourism, local business will also suffer.

## GENDER-BASED VULNERABILITIES

Coastal zones contain unique ecosystems with significant economic assets and activities; and they typically have higher population densities than inland areas. At least 1 in 10 people worldwide live near the coast in a low-lying area; most of them in the United States of America and Asian countries like China, India, Bangladesh, Vietnam and Indonesia (Neumann, et al. 2015). The IPCC-AR5 (2014a) has predicted with a high confidence that coastal and marine systems are under increasing stress from both climatic and non-climatic drivers in Asia. These would involve damage to the coastal ecosystems and increase in disasters due to storm surges and tropical cyclones causing loss of livelihoods and social impacts, including food and water insecurity, to millions of people, especially the poor and women.

The key impacts of climate change on coastal zones and coastal communities especially women were elaborated here:

- > Degradation of marine ecosystems, especially coral reefs, will significantly affect coral reefs and mangroves. These provide natural barriers and resources for managing climate change risk, such as storm surge from disasters. If these coastal landscapes are degraded, it can cause even more severe impacts on surrounding communities and ecosystem resilience. A significant decline in biodiversity is also predicted and likely to include local loss of pollinators, which, with other threats, will put at risk food availability for coastal communities. Women's livelihoods are also impacted by risk in coastal resource use and fisheries. Women are involved in the fisheries sector, particularly in processing fish, preparing for market, and small-scale harvesting – activities that are close to the shore. In the Pacific region alone, it is estimated that women catch about a quarter of the total seafood harvested. In Cambodia, Laos, Thailand, Vietnam and the Philippines, there are communities where women have a greater role in aquaculture production and harvesting of littoral organisms than that of men (Aguilar, Granat and Owren 2015). Shifts in pelagic fish may increase fishing labour and price of fish, and the income from post-harvest production can decline, impacting incomes of women fishers. Ocean acidification is harming many shellfish species, with profound economic costs for producers who are often female (Narita, Rehdanz and Tol 2012). The loss of near-shore resources' sustenance also impacts women more especially, as household food security and nutrition are threatened.
- > Sea level rise, in combination with cyclone intensification, could increase coastal flooding; losses of coral reefs and mangrove forests would exacerbate wave damage. Asia already has more than 90 per cent of the global population exposed to tropical cyclones. Fifteen of the global top 20 cities for projected population exposure and 13 of the top 20 cities for asset exposure are based in Asia (IPCC-AR5 2014c). There is an observed gendered disparity in mortality during major storms in the developing world. Evidence examining 26 years of cyclones from Bangladesh show that women were 58 per cent more likely than comparably-aged men to die during these events (Lindeboom, et al. 2012). Preliminary evidence from Tacloban City (Philippines) after Typhoon Haiyan struck its shores show that among adults, roughly 50 per cent more females died than males (Ballera, et al. 2015). Much of this is due to socio-cultural practices like purdah, restrictions in mobility of women, limited access to information and early warning systems, traditional attire and lack of swimming skills, among others (Alston 2015).
- > Storms (including tropical storms such as hurricanes and cyclones, as well as thunderstorms) and floods are often also associated with mortality and can pose a significant risk to the coastal communities. The 2013 Typhoon Haiyan in the Philippines, for example, displaced more than 4 million people, destroying entire communities and ruining millions of livelihoods. It was the fiercest storm to make landfall at the time, with winds reaching 196 miles per hour (Singer 2014).
- > The damage to assets and infrastructure will have long-term economic and social impacts. In Cambodia, the typhoon Ketsana of 2009 caused US\$24 million in damages to the education sector, affected 12 per cent of the schools in the country and many others had to be closed due to inaccessibility following destroyed infrastructure (UNDRR 2019b).
- > The aftermath of a disaster also places acute pressure on women with their everyday workloads, besides creating the loss of household dwellings, security, safety nets and ruptures in social controls that regulate behaviour and norms within and between households (Bartlett 2008). There is evidence from Bangladesh suggesting that females may be disproportionately exposed to skin problems related to floodwater exposure (Alston 2015).
- > Women are also often subject to be disproportionately impacted by loss of livelihoods in the aftermath of a disaster. In the Philippines, post-typhoon vulnerability assessments found that female-headed households were more likely to be vulnerable to flooding and other storm-related impacts (Barth 2010).

After Typhoon Ondoy struck Metro Manila (Philippines), female-headed households experienced greater damage costs, while male-headed households experienced greater temporary loss of income, likely due to a reliance on manufacturing employment among men, which took longer to resume after the floods (Porio 2014).

- > Climate change-related disasters are also associated with increases in gender-based violence. Recent work from Bangladesh notes that violence against women increased in response to the effects of climate change (Alston 2015). Extremely high incidences of violence against women occurred after the 2007 flooding, particularly among disadvantaged groups such as sex workers and the disabled (Azad, Hossain and Nasreen 2014). Research also notes that adolescent girls are particularly at risk of sexual harassment and violence in shelters (Swarup, et al. 2011). Increases in violence against women after climate change-related disasters have also been documented in Vietnam (Oxfam 2009). Organized trafficking of women and girls is emerging as a potentially serious risk associated with climate-related disasters. Reports of advocacy groups from the Philippines also suggest that after Typhoon Haiyan, there was an increase in risk of sex trafficking. In another study by IFRC (2018b) on Sexual and Gender-Based Violence during disaster situations in Indonesia, Lao PDR and the Philippines, household survey respondents expressed that child marriage and domestic violence are “harmful incidents for women and girls” that occur in the immediate aftermath of the disasters
  - In the Philippines, 30 per cent of respondents reported that women and girls felt distressed by the rise in child marriage after the disaster.
  - In Indonesia, 18 per cent of respondents reported that women and girls felt distressed by the rise in child marriage after the disaster.
  - In Lao PDR, 47 per cent of respondents reported that women and girls felt distressed by the rise in child marriage after the disaster.
- > Evidence also suggests that extreme weather events – such as heavy rainfall, flooding, and cyclone – tend to cause disruption to water system. As a result, safe and clean water have become scarcer. Women have to consume and use polluted water, causing them to be more susceptible to SRH problems, especially for pregnant women.
- > Coastal freshwater wetlands will also be vulnerable to saltwater intrusion with rising sea levels, affecting the availability of drinking water (Rasmussen, et al. 2013).

Water sources in coastal Bangladesh, such as rivers and groundwater, have already become contaminated by varying degrees of salinity due to saltwater intrusion from rising sea levels. Besides increasing their workload for finding water, this will also impact women's health, especially hypertension among elderly and pregnant women (Shammi, et al. 2019).

- > Other possible health consequences of hazards associated with flooding and typhoons include stress-related illness and risk of malnutrition related to loss of income and subsistence, which are known to have a strong gender dimension. Studies from Vietnam found that stress factors were apparent at the household level. People interviewed in cities in the Mekong Delta referred to increased anxiety, fears or intra-household tension as a result of the dangers and damage associated with flooding and its livelihood impacts. Interviewees in the central provinces referred to food shortages and hunger potentially resulting from crop and income losses following destructive floods and typhoons (Few and Tran 2010). Studies in China and Myanmar have also shown that females, both women and girls, have a greater odd of developing post-traumatic stress disorder (PTSD) than males (Liu, et al. 2006; Kim, et al. 2010; Li, et al. 2010).
- > Climate change also threatens the ability of women to access family planning services, making it harder for women to choose if and/or when to have children. GGCA (2016), in a review of existing literature on gender and climate change, concluded that climate-linked natural disasters are likely to hamper access to reproductive healthcare. The review quotes studies which report that this occurred after Typhoon Haiyan and Hurricane Katrina. Additionally, it says, the impacts of disasters may exacerbate the effects of pre-existing barriers that women have to seeking reproductive health services, such as race and class, as documented after Hurricane Ike. Similar results are seen in various scoping studies conducted by the Asian-Pacific Resource and Research Centre for Women (ARROW) in Bangladesh (N. Khan 2015); Philippines (Castro and Hernandez 2015); Lao PDR (Thikeo and Sychareun 2015); among others.

#### TRAINER'S TIP



At this point, it would be good to take a break and show a short film on women in coastal areas in the Philippines by Path Foundation, available at <https://www.youtube.com/watch?v=YZ-IHRcTe2Y>.

## GENDER-RESPONSIVE ADAPTATION CHOICES AND STRATEGIES

Not considering these gender-differentiated effects of climate change on coastal communities can result in adaptation choices which are less efficient – not only due to their limited outreach to women and girls but also due to the negative impacts that the choices may have.

For the protection of the coastline, one of the key identified adaptation options includes the construction of physical barriers (e.g., seawalls, breakwaters, gabion, groins and sluices). Unless a gender lens is incorporated in these projects, these may end up creating job sources that favour hiring a male work force, with no opportunities for women to work on jobs they would like to do and can do. Due to ignorance of the impact on women's productive activities (hand digging for molluscs, among others), there is often also no attention paid to the consequences of such projects on women.

The same is also true for disaster risk management. For example, women often experience increased vulnerability due to the fact that disaster planning and policymaking does not routinely take into account the needs and concerns of women.

- > Women are often not involved in designing the spaces around them – construction is often seen as men's work – and this may lead to the use of designs (such as the use of ladders that are less accessible for pregnant women), which can make women disproportionately vulnerable to harm during storms, fire and floods (Jabeen 2014).
- > Additionally, information regarding hazards may not be provided in a way that is easily accessible for women. There is evidence which indicates that women and men have different preferences regarding how to hear warnings, as women often have less access than men to radios, televisions and mobile phones. After Cyclone Sidr for instance, women reported that warnings about the storm were provided only in local markets, and that efforts were not made to notify people door-to-door.
- > Women are also more impacted by inaccessible shelters due to distance. For example, a study of predominately male respondents in Bangladesh found that individuals who lived more than one kilometer from a shelter were significantly less likely to evacuate to a shelter during Cyclone Sidr than those who lived within one kilometer (Paul 2012). Since evacuation decisions in Bangladesh for entire families are typically made by men, these results imply that women distant from shelters are less likely to evacuate during storm as well, even if they independently prefer to leave.

> Women also face additional barriers if shelters are not designed to provide them sufficient space or privacy. Studies of shelter in Bangladesh (Alam and Rahman 2014) show the lack of separate or hygienic washing facilities for women, as well as private spaces for breastfeeding or changing menstrual pads, often resulting in women being harassed or threatened in these settings. A recent study also found that among individuals who did not evacuate to a shelter during Cyclone Alia, 36 per cent cited the lack of separate spaces for women in shelters as an important reason for not evacuating (Ahsan, et al. 2016).

The second is less construction-oriented and involves improved environmental management, with approaches such as protection of existing ecosystems and reforestation of areas adjacent to coastlines. However, restoring damaged ecosystems may worsen gender inequality by encouraging the voluntary (unpaid) work done by many women in rehabilitation and conservation activities. This may reinforce traditional environmental work roles, for example, making women responsible for cooking, community meetings, and children's and adolescents' environment education, without promoting non-traditional roles. It is important to promote joint responsibility and redistribution of reproductive work in families, to give women free time for other activities, and also to pay women for their work on environment restoration. Similarly, introduction of native and salt-tolerant plants and animals to protect/re-vegetate the coast without consulting women and taking into account their knowledge can have a negative effect on women's interests and needs in coastal zones, if varieties introduced affect resources specifically used by them (Aguilar, Granat and Owren 2015).

There is also the need to acknowledge the linkages between climate change and reproductive health so that voluntary, rights-based family planning programs are adopted as a strategy for reducing vulnerability to climate disruptions. In particular, integrating family planning with other forms of development designed to promote resilience, such as through population, health and environment initiatives, is an increasingly popular approach for jointly improving human health and environmental outcomes (D'Agnes, et al. 2010; De'Souza 2014). Providing women with greater control of their fertility empowers them to make choices that can improve their resilience to the effects of climate change (Mian 2018).

Another critical aspect is to look at reproductive health concerns during disasters. For example, after Typhoon Haiyan struck the Philippines in 2013, it was estimated that there were more than 250,000 pregnant and

169,000 breastfeeding women in the typhoon-hit areas. Some 1,000 childbirths were taking place every day, with 150 expected to experience potentially life-threatening complications (UNFPA 2014). Extreme events like typhoons often end up damaging health service infrastructure. While restoring health services should be a priority in disaster recovery interventions, it is also important that relief measures include focus on child birth and needs of pregnant women.

Fisheries is another important sector that has not only neglected gender-responsive planning and adaptation choices but also has had limited involvement of women as important stakeholders in the decision-making processes. Due to their focus on activities that are often on the sideline of harvesting, women's tasks in relation to fisheries have not been prioritized in economic analyses or resource investment. Few sustainable development programs in coastal areas have reached out to women as strategic partners due to the misconception that women are not actively involved in the fishing industry. The result is that:

- > Women do not usually participate in the meetings held by the fishermen's organizations;
- > Most of the fishing projects are oriented toward men, and the participation of women is limited with respect to planning, programming and management;
- > There are very few policies or programmes within the fishing sector where gender aspects are considered, as also indicated by recent results from the Environment and Gender Index (EGI).

Tourism activities in coastal zones also do not take into account the relationship between tourist and the local population and its impact on gender relations. Jobs in the tourism sector reproduce the traditional forms around the sexual division of work (i.e., hiring women as chambermaids and cooks).

GGCA and IUCN have suggested various strategies for gender-responsive coastal adaptation (Aguilar, Granat and Owren 2015). These include the following:

- > Ensure access to wage-earning productive activities to improve living conditions for families.
- > Include gender criteria in Environment Impact Assessments (EIAs).
- > Undertake focused gender assessments of all projects.
- > Develop a network of women and local bodies and sectoral departments for efficient infrastructural management, in order to ensure protection of infrastructure from damage during calamities.

- > Involve women in monitoring the effects of climate change, for example in coral ecosystems and in aquaculture.
- > Women should be trained in administration to ensure official resource and fishing permits.
- > Include women in strategies to adapt to the reduction of marine species, or managing new marine species.
- > Grant concessions and permits of marine coastal resources to groups of women.
- > Develop initiatives to recover and reforest mangroves.
- > Implement integrated coastal management policies that consider gender-sensitive risk management.
- > Involve women in coastal research through training on monitoring and data gathering methods.
- > Train women and men on non-traditional activities related to rehabilitating ecosystems.
- > Encourage leadership and women's effective participation in organizations and decision-making.
- > Analyze gender relations associated with the use of, access to, management and control of coastal environmental resources.
- > Promote equitable inclusion of women and men when introducing varieties.
- > Create jobs with equitable participation of women and men.
- > Relocate critical infrastructure and facilities with consideration of gender-specific socio-economic impact.
- > Establish protection of marine and coastal systems and infrastructure managed by women.
- > Ensure equal access to resources.
- > Establish gender equality and diversity in planning, design, decision-making and leadership roles of marine and coastal systems, and in designation of marine protected areas.
- > Ensure equal access to education and employment in technical and scientific fields, and strive for, or guarantee, equality in food distribution.
- > Analyze gender relations associated with the use of, access to, management and control of resources to conduct gender-disaggregated vulnerability studies in coastal zones. Develop a process for capacity-building for women so that they can run local meteorological stations to report on coastal weather conditions, and mobilize these women to act as information focal points for weather information that has to be transmitted to communities regarding major metrological events along the coasts.

## EXERCISES

### EXERCISE 21: GRAS APPLICATION THROUGH MOCK PANEL DISCUSSION

The key objective of this exercise is to enable the participants to identify gender gaps in existing adaptation and disaster projects. This will also provide them with an opportunity to have a hands-on experience of how they can contribute as observers in project approval/steering committee meetings related to climate finance.

#### Materials Required:

Copies of Handouts 16 and 17.

#### Pre-preparation (day before the exercise):

Select 10 volunteers from the participants and divide them into pairs. Give each pair any one case study from Handout 14. Tell them to go through the case and to try and make short presentations of one or two slides or posters on a chart paper related to the case. They are also free to look up for any additional information that they can get on these cases. This has to be done a day before so that the volunteers have enough time to work on the cases. Ask them to be ready with the presentation before the beginning of the sessions the next day, as they can be called in any time to make the presentations.

#### TRAINER'S TIP



This exercise is best conducted simultaneously with the presentation on "Adaptation Models." See the markers in the main technical content for break for case sharing.

#### Process:

**Step 1:** Tell the audience to imagine a mock panel discussion on various adaptation models being implemented in South and South-East Asia. Tell them that projects are already ongoing, and that the discussion is to assess the gender-responsiveness of the projects and to provide inputs for strengthening gender integration.

**Step 2:** Place a copy of Handout 17 on a wall, where everyone can see. Go through it so that everyone is on the same page and understands the levels.

**Step 3:** Tell them that after each presentation, they will have to rate the project on the Gender-Responsiveness Assessment Scale (GRAS). They have to provide the level of responsiveness as well as their comments/reasons for the assessment. This has to be done on a separate sheet of paper for all the projects.

**Step 4:** Begin the presentations one by one. Provide five minutes to the volunteer pair for making the presentation and another two minutes for participants to finish their ratings. Collect the rating sheets from the participants. Go through them quickly and ask one or two persons who have given the most accurate/relevant responses to share their insights. Ask the group to share ideas on how the projects can be brought up by one level, especially making them gender-responsive or gender-transformative. Encourage different people to speak for different projects.

**Learning Output:** As each of the projects is discussed, the participants get to understand the various adaptation models and the use of the GRAS scale. Tell them that this same process can be followed when people attend various meetings and conferences where adaptation projects are presented. Women's organizations should keep this assessment at the back of their mind and highlight the gaps in gender in those projects. Conclude by saying that the same thought process can also be followed if anyone is attending meetings for any climate funds as observers. (If the participants do not know about it, tell them that the same will be discussed later in the module on climate finance.)

## EXERCISE 22: COMMUNITY-BASED RESILIENCE CASE STUDY

The objective of this exercise is to provide the participants with a deeper understanding of what constitutes a community-based resilience model and the nuances of developing and implementing such a project.

**Materials Required:** Whiteboard and markers.

### Process:

**Step 1:** Provide each of the participants with the case paper (Handout 18) in advance and ask them to read it before the discussion.

**Step 2:** Divide the participants into groups of 5-6 people. For a discussion-based approach, questions have been assigned as part of the case paper. Tell the group that they have to assume that they are on the board of this Trust, that they have to take decisions related to strategy and approve funding for each of these activities. Tell them to remember that resources are not finite; thus, the decisions will need to be made accordingly.

**Step 3:** Give around one hour for the participants to reflect on them as a group. Ask them to discuss and find suitable answers to all the questions in the handouts. Tell them that the group need not come to a consensus but must have a logical reasoning for what it decides.

**Step 4:** During the discussions, before the group comes together in a plenary, divide the whiteboard to bring together the following key learning points:

- > Why should CSOs promote women-led resilience models?
- > What would be the key features/Unique Selling Points (USPs) of such a model?
- > What relevant strategies must be deployed within the organization and at project level?
- > How to incorporate iteration in the project, learning from what works and what does not?
- > How can the key principles, tools and steps on CBA be applied in a women-led resilience model?

**Step 5:** Once the participants come together in the plenary, ask them what decisions they have taken and why.

**Step 6:** As various viewpoints emerge, make notes in the relevant section of the white board. Identify participants who hold opposing views and ask questions designed to stimulate debate among participants until the group uncovers most or all of the learning points identified in advance.

**Step 7:** A potential analysis is shown in Table 4-6.

**Learning Output:** End the session with a quick response from all participants on what the participants have learned from the case study that may be applied into their own work.

### TRAINER'S TIP



The practical exercise following this session is more geared to an advanced level of learners especially those in senior management and leadership roles. For a basic orientation training programme, you can replace the session or to save time with the viewing of the film on "Women-Led Climate Resilience Action in South Asia" available at <https://www.mahilahousingtrust.org/our-work/climate-resilience/>. You can then move straight to the discussion on the model, key strategies and tools applied.

Also, if the trainer has no experience of using or participating in the Harvard Case study method, it is advisable to first watch the following videos to understand the basic thinking and principles behind the approach. You need to see: Case Study Method a Unique Approach to Learning available at <https://www.exed.hbs.edu/video?videoid=3200>; and/or How to prepare for Case Study Method available at <https://www.youtube.com/watch?v=wP3id-DxuDU> or Teaching With Cases: Lessons From a Harvard Business Professor available at <https://www.youtube.com/watch?v=jxDjewaesg>.

You can also make the approach more iterative by encouraging participants to apply their real life experiences into the cases so as to enable a more experiential learning experience.

**TABLE 4-6: POTENTIAL ANALYSIS**

WHY WOMEN-LED CLIMATE RESILIENCE?	KEY FEATURES OF THE MODEL	STRATEGIES DEPLOYED
<ul style="list-style-type: none"> <li>&gt; Women are more vulnerable and already feeling the effects.</li> <li>&gt; Poor women have neither the source of information or training nor the financial resources to deal with climate change.</li> <li>&gt; The current development initiatives in the city must be climate-resilient.</li> <li>&gt; The available social capital base will enable women to be strong agents of change.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Participatory at all levels.</li> <li>&gt; Integrated model addressed multiple vulnerabilities.</li> <li>&gt; Women-led also focuses on promoting them as change agents.</li> <li>&gt; Combines development with adaptation.</li> <li>&gt; Iterative model – learning by doing approach.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Social Capital and Leadership Development.</li> <li>&gt; Co-creation of knowledge products and adaptation solutions.</li> <li>&gt; Communication for behaviour change.</li> <li>&gt; Transdisciplinary multi-stakeholder approach.</li> </ul>
WHAT WORKED AND WHY?	WHAT WERE THE KEY CHALLENGES?	KEY TOOLS/PROCESSES EMPLOYED
<ul style="list-style-type: none"> <li>&gt; Building on existing trust within communities and local government helped move project quickly.</li> <li>&gt; Women's awareness increased due to multiple communication strategies.</li> <li>&gt; Focused implementation strategy within the slums with clear steps to move forward.</li> <li>&gt; Involvement of technical experts and communities from the start, including for project formulation.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Cultural hindrances to women's participation.</li> <li>&gt; Need to balance between immediate needs and long-term priorities.</li> <li>&gt; Balance between capacity enhancement and actual action.</li> <li>&gt; Getting communities to invest in solutions.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Community-based organizations and community action groups.</li> <li>&gt; City-level federation.</li> <li>&gt; Facilitated workshops for cross learning and sharing between experts and communities.</li> <li>&gt; Games and innovative communication tools.</li> <li>&gt; Focused capacity-building on institutional development, service delivery and access and climate change.</li> <li>&gt; Community-Based Vulnerability Assessment and resilience planning toolkit.</li> </ul>

### EXERCISE 23: INFOGRAPHIC DEVELOPMENT ON GENDER AND CLIMATE CHANGE

The key objective of this exercise is to enable the participants to connect the dots between climate change risks and impacts in any given sector with the existing gender roles and vulnerabilities.

**Materials Required:** Post-it chits (different colours); chart paper and pens; copies of Handout 19.

#### Process:

**Step 1:** Divide the participants into two to three groups, and give each group a chart paper 'Strengths'; 'Weaknesses'; 'Opportunities'; and 'Challenges' as shown in Figure 4-6.

**Step 2:** Explain the concepts of SWOT analysis. Strengths are positive attributes; or in case of our exercise, the existing livelihoods, assets and capacities that the women have. Weaknesses are negative parameters; or in our case, the existing gender biases and discriminations. Opportunities are the factors which you can support the growth; in our case, new innovations and adaptation actions. Threats are like climate risks and externally-pursued adaptation choices that women have no control on. Strengths and weaknesses are internal – things that you have some control over and can change. Opportunities and

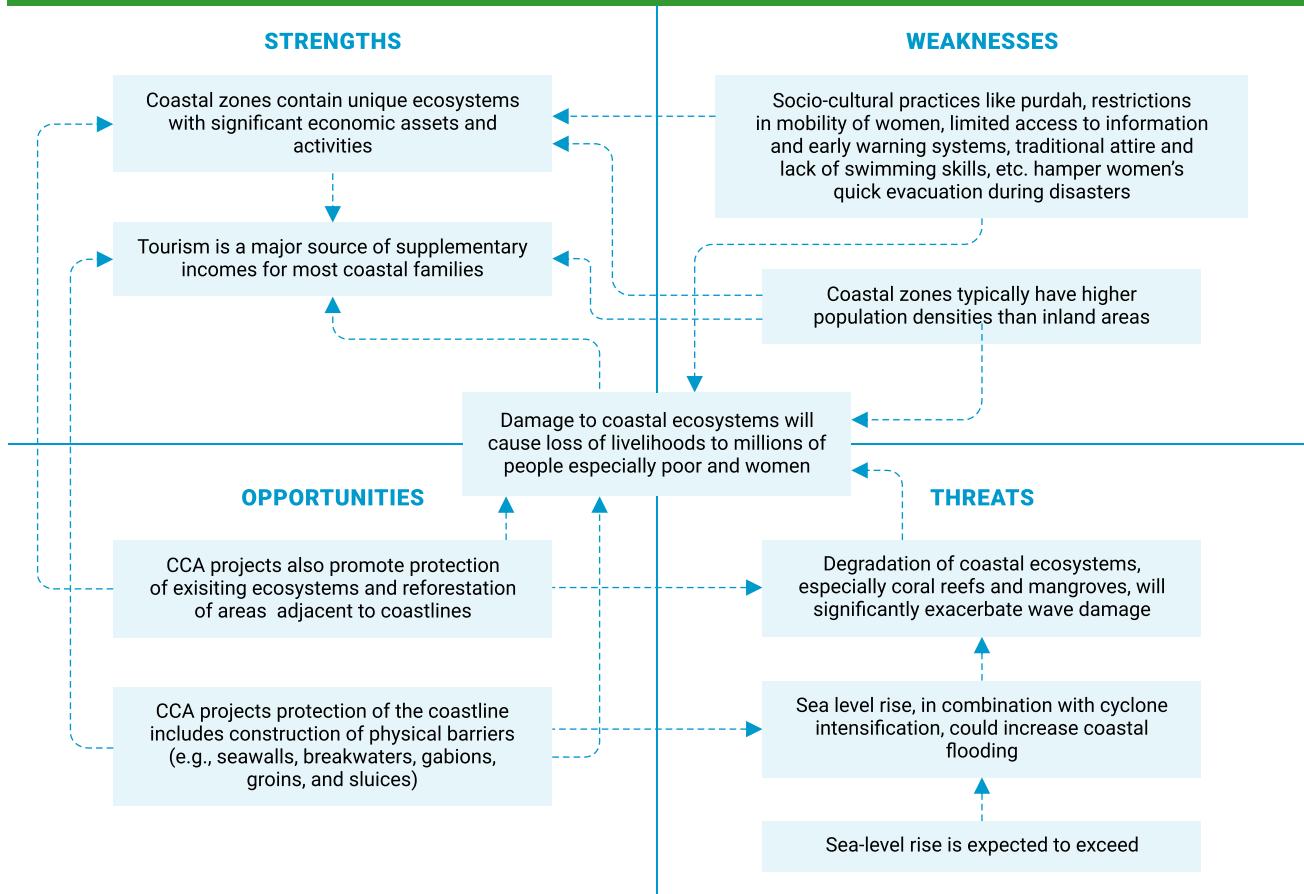
threats are external – you can take advantage of opportunities and protect against threats, but you cannot change them.

**Step 3:** Give them a copy of Handout 19 and two sets of post chits, asking them to write the general points on one colour and the gender-related aspects on another colour. Ask them to place the chits in the relevant boxes on the chart above. Tell them that if they are confused, they can check with you or place the chits in the area connecting the two boxes. They are also free to add any more points that they find relevant.

**Step 4:** Give them 15 minutes to finish the task. Ask them to connect the chits/points that they think will positively or negatively impact each other as shown in Figure 4-6. Give them 15 minutes for this. Remember, the purpose of this exercise is not to create a good diagram but for the participants to understand the interlinkages between climate change, gender and the sectoral dimensions.

**Step 5:** Bring the participants to the plenary and ask them to present their charts. Ask each group to note down the key points emerging from all groups.

**Learning Output:** Sum up the session by reiterating the key points.

**FIGURE 4-6: LINKING THE CLIMATE AND GENDER DIMENSIONS**

### EXERCISE 24: MATRIX RANKING OF GENDER-RESPONSIVE ADAPTATION SOLUTIONS

The key objective of this exercise is to provide the participants with a first-hand experience of conducting a participatory matrix ranking exercise for facilitating women's prioritization of gender-just solutions.

**Materials Required:** Chart paper and pens; Copies of Handout 20.

#### Process:

**Step 1:** Provide the participants with Handout 20 (5-6 most relevant examples) and ask them to identify two most relevant gender-just sectoral solutions.

**Step 2:** Prepare a matrix chart listing out the major type of works in the "Y" axis.

**Step 3:** Ask the group to select the type of work that they feel will be most suitable and why. List down the list of criteria on the top column of the "X" axis. The type of criteria may include: i) number of people affected by the issue, level of difficulty; ii) level of difficulty for vulnerable groups such as elderly or children; iii) impact

of the problem; and others. You may have to convert the reasons into criteria as part of your facilitation. For example, if the people say "two times of day," you may mark it down as "frequency"; or if they say "everyday" as against "sometimes," you may want to mark as "regularity." An example of a chart for identification of preferred energy solutions for livelihoods would look like Table 4-7.

**Step 4:** Ask the group to rank each option against the deciding factors on a scale of 1-5 or 1-10.

**Step 5:** Facilitate the identification of the preferred option jointly with the group by analyzing the marks obtained by the different solutions.

**Learning Output:** Conclude by telling the participants that the same exercise can also be undertaken for the selection of components within a project, for example tree species for forest plantation (See Figure 4-7). It is best to do this separately with men and women, and then facilitate a joint discussion; but even within a common group, this could be done by ensuring that all of women's criteria for preference is included in the list and is given weight.

**TABLE 4-7: TEMPLATE FOR GENDER-RESPONSIVE CLIMATE-RESILIENT SOLUTIONS**

CRITERIA FOR PREFERENCE	TYPE OF CLIMATE-RESILIENT SOLUTIONS			
	Community-based rice drying improvement with solar technologies	Household irrigation improvement with solar technologies	Community-based vegetable conservation improvement with solar cooling technologies	Community-based chicken and duck production improvement with solar incubator
Percentage of people involved				
Number of months providing employment/income				
Stability of incomes				
Losses faced due to natural hazards				
Potential of increased income stability and reduced losses				
Percentage of women involved in the activity				
Percentage of women owning the business				
Percentage of women having received training in the business				
Potential number of women's groups/businesswomen who can take up the enterprise				
Will it reduce drudgery of women and girls?				
<b>TOTAL</b>				

**FIGURE 4-7: EXAMPLE OF TREE SPECIES FOR FOREST PLANTATION**

CRITERIA	Siso	Khair	Dhavdo	Teak	Kalam	Biyo	Timru	Mahudo	Sadad	Billi	Tanachh	Bamboo
1. Fuel Wood	1	—	3	2	4	5	—	—	—	—	—	—
2. Bedi	—	—	—	—	—	—	1	2	—	—	—	—
3. House Construction	2	—	4	7	—	5	—	—	—	—	1	6
4. Agriculture	3	4	—	—	—	—	—	—	5	—	1	—
5. Charcoal	4	—	1	2	3	—	6	—	—	5	—	—
6. Vegetable	—	—	—	—	—	—	—	—	—	—	—	1
7. Medicinal Use	—	—	—	—	—	—	—	1	—	—	—	—
8. Colour	—	1	—	—	—	—	—	—	—	—	—	—
9. Fruits/Food	—	—	—	—	—	—	2	3	—	1	—	—
10. Oil	—	—	—	—	—	—	—	1	—	—	—	—
11. Soap	—	—	—	—	—	—	—	—	—	—	—	—
12. Furniture	3	—	—	1	—	—	—	—	—	—	—	—
13. Fishing	—	—	—	—	—	—	—	—	—	—	—	1
14. Gum	—	3	—	—	—	3	—	—	1	—	—	—
15. Shade	—	—	—	—	—	—	—	1	—	—	—	2
16. Country Wine	—	—	—	—	—	—	—	1	—	—	—	—
17. Toothstick	—	—	1	—	—	—	—	—	—	—	—	—
18. Existing More Trees	—	—	3	1	—	—	—	—	—	4	—	2
19. % to be Planted	5	20	5	10	3	2	3	5	5	2	5	20

TEST YOUR KNOWLEDGE		
COMPLETE THE STATEMENT	✓ TICK YOUR SELECTION	
Local Adaptation Plan of Actions...	*are bottom up planning processes.	integration of top-down and bottom-up approach.
Resilient infrastructure in cities will have to be...	*a least cost alternative.	robust to deal with high stress without much impact.
Ecosystem-adaptation includes projects like...	*dam and flood protection wall construction.	sustainable livestock management, green facades, community garden.
Typical communication tools for a CBA project would include...	*scientific and peer review publications, conferences and seminars, etc.	mobile messaging, theatre folk media, games and videos, etc.
Infrastructure projects...	*cannot include gender assessments directly.	should include a resilience and gender perspective.

\* Items in red are the incorrect answers.

## SUGGESTED READINGS:

- Care International, Vietnam. 2015. *Planning for Resilience: A practitioner's manual to support community based adaptation to climate change*. Hanoi: Care International in Vietnam. <https://careclimatechange.org/wp-content/uploads/2016/03/Planning-for-Resilience-EN.pdf>.
- GGCA. 2016. *Gender and Climate Change: A closer look at existing evidence*. Global Gender and Climate Alliance. <https://wedo.org/wp-content/uploads/2016/11/GGCA-RP-FINAL.pdf>.
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- Vincent, Katharine, Lucy Wanjiru, Adeline Aubry, Andre Mershon, Charles Nyandiga, Tracy Cull, and Khamarunga Banda. 2010. *Gender, Climate Change and Community-Based Adaptation: A Guidebook for Designing and Implementing Gender-Sensitive Community-Based Adaptation Programmes and Projects*. New York: United Nations Development Programme. Accessed July 27, 2020. [https://www.undp.org/content/undp/en/home/librarypage/environment-energy/climate\\_change/gender/gender-climate-change-and-community-based-adaptation-guidebook-.html](https://www.undp.org/content/undp/en/home/librarypage/environment-energy/climate_change/gender/gender-climate-change-and-community-based-adaptation-guidebook-.html).
- WECD. 2019. *Gender Just Climate Solutions*. Women Engage for a Common Future (WECD) and Women and Gender Constituency (WGC). <https://womengenderclimate.org/wp-content/uploads/2020/02/GJCS-2019-eng.pdf>.

# TRAINOR'S NOTES

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## REMINDERS

# TRAINOR'S GRID NOTES

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AGENDA

REMINDERS



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# GENDER IN ADAPTATION APPROACHES AND SECTORAL ACTION

## HANDOUTS



**MODULE** 4

## MOD4\_HANDOUT 15

PROCESSES AND TOOLS FOR LAPA		
LAPA STEPS	CORE TOOLS	ADDITIONAL TOOLS
<b>STEP 1: Development Needs and Climate Change Sensitization</b>	<ol style="list-style-type: none"> <li>1. Shared Learning Dialogues (district level)</li> <li>2. Gateway Services Analysis (district level)</li> <li>3. Visuals and stories</li> <li>4. Climatic Hazard Trend Analysis</li> <li>5. Seasonal Calendars</li> </ol>	<ul style="list-style-type: none"> <li>&gt; Climate adaptation capacity assessment and opportunities identification</li> <li>&gt; Cause and Effect Analysis (problem tree)</li> <li>&gt; Envisioning climate scenarios</li> <li>&gt; Hazard and Impact Risk Analysis</li> <li>&gt; Hazard and Response Analysis</li> <li>&gt; Mapping: hazards, vulnerability (social, economic, physical), resources (social, natural, etc.)</li> <li>&gt; Timeline history regarding changes</li> <li>&gt; School level awareness raising tools: essay competition, quiz contest, scouts, eco-clubs, etc.</li> </ul>
<b>STEP 2: Vulnerability and Adaptation Assessment</b>	<ol style="list-style-type: none"> <li>6. Gateway Services Analysis</li> <li>7. Mapping hazards, risks, vulnerability, resources</li> <li>8. Disaggregated Vulnerability Matrix</li> <li>9. Hazard and Impact Risk Analysis</li> <li>10. Envisioning Climate Scenarios</li> <li>11. Climate Adapted Well-Being Assessment</li> </ol>	<ul style="list-style-type: none"> <li>&gt; Cause and Effect Analysis</li> <li>&gt; GIS mapping</li> <li>&gt; Hazard and Response analysis</li> <li>&gt; Seasonal Calendars</li> <li>&gt; Livelihoods Impact Analysis</li> <li>&gt; Climatic Hazard Trend Analysis</li> <li>&gt; Mapping of service provider/institutional analysis</li> </ul>
<b>STEP 3: Prioritization of adaptation actions</b>	<ol style="list-style-type: none"> <li>12. Multi-Criteria Ranking</li> <li>13. Participatory Cost-Benefit Analysis</li> </ol>	<ul style="list-style-type: none"> <li>&gt; Impact Implementation matrix</li> <li>&gt; Pair wise ranking</li> <li>&gt; Scenario tool for identifying energy</li> </ul>
<b>STEP 4: Adaption Plan Development</b>	<ol style="list-style-type: none"> <li>14. Service Provider Analysis           <ul style="list-style-type: none"> <li>&gt; The 4 WH's (what, where, when, who, budget, etc)</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>&gt; Logical Framework</li> <li>&gt; Inclusion-sensitive budgeting (for example gender and indigenous people-sensitive budget)</li> </ul>
<b>STEP 5: Integrating Adaption Plan</b>	<ul style="list-style-type: none"> <li>&gt; Shared learning dialogue</li> <li>&gt; Policy and institutional analysis to identify entry points and/or adopt entry points included in this framework</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Sharing best practices and lesson learned with plan decision-makers</li> </ul>
<b>STEP 6: Implementing Plan</b>	NA	NA
<b>STEP 7: Assessing Progress (M&amp;E) and Informing Future Plan Development</b>	<ul style="list-style-type: none"> <li>&gt; Visioning high adaptive capacity</li> <li>&gt; Service Providers Analysis</li> <li>&gt; Behavior Change Journals Analysis</li> <li>&gt; Disaggregated Vulnerability Matrix</li> <li>&gt; Mapping risks, vulnerability, and service providers</li> <li>&gt; Climate-Adapted Well-Being Assessment</li> <li>&gt; Self-Monitoring and Evaluation</li> <li>&gt; Most Significant Change Analysis</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Mapping hazards, risks, and vulnerability</li> <li>&gt; Envisioning climate scenarios</li> <li>&gt; Logical Frameworks</li> <li>&gt; Hazard Trend Analysis</li> <li>&gt; Seasonal Calendars</li> <li>&gt; Hazard Response Analysis</li> <li>&gt; Gateway Systems Analysis</li> <li>&gt; Policy and Institutional analysis</li> </ul>

Source: UNDP Nepal (n.d.).

**CASE STUDIES FOR MOCK PANEL DISCUSSION****CASE 1: KHUMBU LOCAL ADAPTATION PLAN OF ACTION (LAPA), SOLU KHUMBU DISTRICT, NEPAL**

The Mountain Institute (TMI), as part of High Mountains Adaptation Partnership (HIMAP), played a major role in the designing, partnering, and initiating a Local Adaptation Plan for Action (LAPA) for the Khumbu Valley. Three facilitating staff (one female and two male) were recruited specifically for the purpose. However, it needs to be noted that the facilitation of the LAPA production process has built on TMI's decades of work in the region.

The key steps undertaken by them include:

- a. Expanding linkages with local communities and civil society organizations, as well as with local and national government agencies and entities (e.g., Department of National Park and Wildlife Conservation, Buffer Zone Management Committee, Sagarmatha Pollution Control Committee, etc.) as a means of enabling, supporting, and facilitating the LAPA production for the Khumbu.
- b. Facilitating community consultations; follow on meetings with stakeholders in Kathmandu; and LAPA introductory and climate change impact assessments in communities in the valley.
- c. Facilitating final community consultations, adaptation prioritization, funding source identification, and intervention mainstreaming workshops.
- d. In addition to the LAPA guidelines of Government of Nepal, the project integrated three components designed to enhance the utility and sustainability of the LAPA planning documents produced. They include i) assisting stakeholders in the identification of prospective funding sources for each of the priority climate change adaptation interventions identified (e.g., Buffer Zone, VDC, GON, international donors), ii) purposely mainstreaming high priority climate change adaptation interventions with district- and local-level development priorities (e.g., adding water collection systems and climate smart designs to the construction of new community buildings), and iii) actively leveraging co-financing for the implementation of priority climate change and risk reduction interventions (e.g., National Geographic Society alternative energy grants, UNDP/Nepal subcontracts).

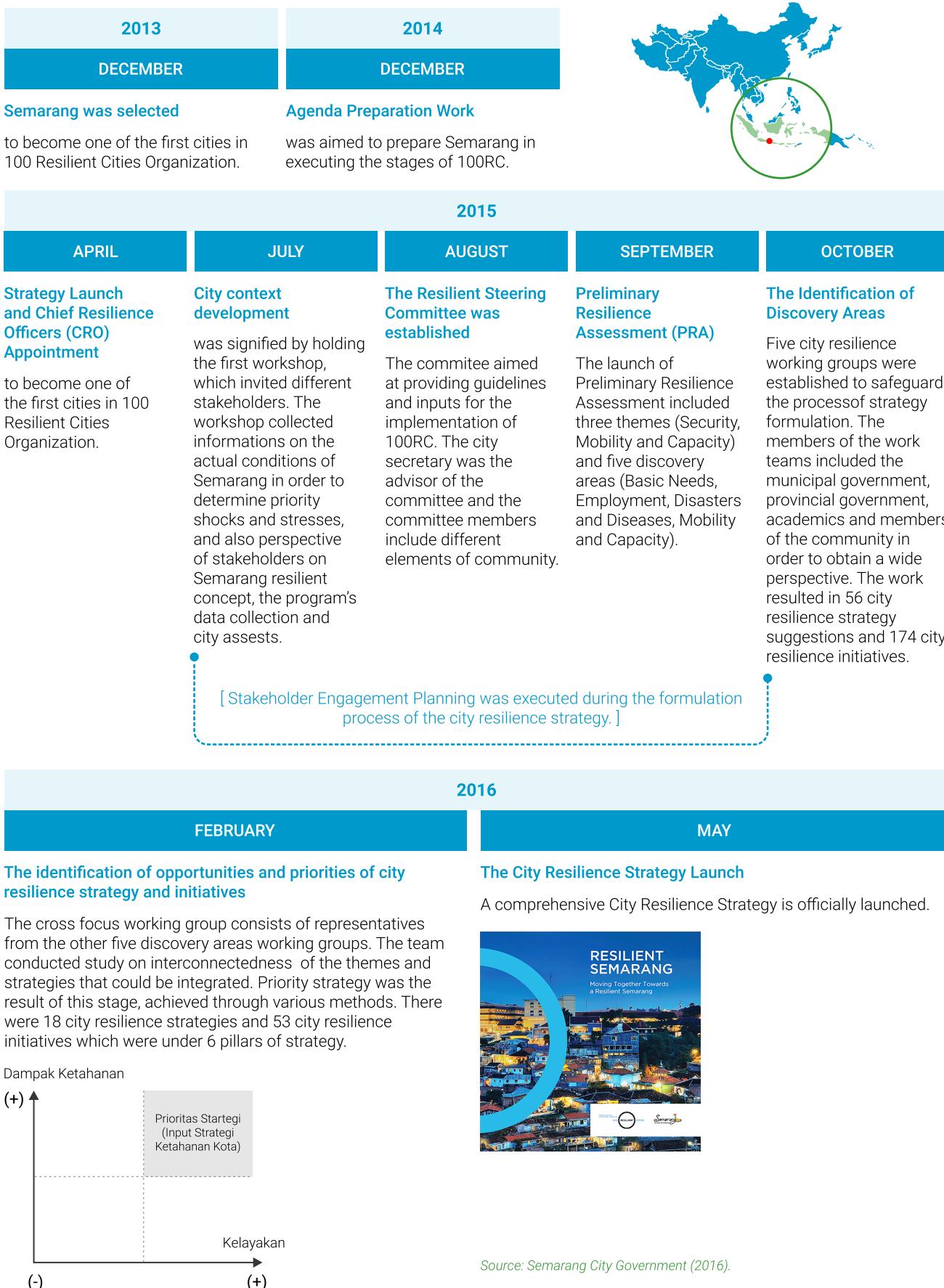
Source: Byers and Thakali (2015).

**CASE 2: MOVING TOGETHER TOWARDS A RESILIENT SEMARANG (INDONESIA)  
— DEVELOPING A CITY RESILIENCE STRATEGY AND ACTION PLAN**

As a city, Semarang still faces a diverse range of issues. Tidal flooding and flash floods, sanitation and waste management, congestion, and unemployment, among others, are the issues the city currently dealt with. About five percent of the city's population living in poverty is considered to be the most vulnerable to these problems. The Semarang City Government, together with all of the city elements, tried to overcome these challenges through improved physical and non-physical infrastructures. Although the city achieved and accomplished a lot, there is still much left to be done for the completion of Semarang City's Resilience Strategy Document as part of the 100 Resilient Cities initiative. The strategy was formulated through an inclusive process involving many elements of the city (see Figure 4-8).

**FIGURE 4-8: RESILIENCE STRATEGY DEVELOPMENT PROCESS IN SEMARANG (INDONESIA)**

The diagram below explains the stages and milestones in the development of city resilience strategy in Semarang.



**TABLE 4-8: SEMARANG CITY RESILIENCE STRATEGY: PILLARS, STRATEGIES AND INITIATIVES**

There are 6 pillar strategies, 18 strategies, and 53 initiatives listed in the Semarang City Resilience Strategy Document as shared in this table.

PILLARS	Sustainable Water and Energy	New Economic Opportunities	Preparedness for Disaster and Disease Outbreaks	Integrated Mobility	Transparent Public Information and Governance	Competitive Human Resources
STRATEGIES	1. Enhancing the performance of basic water management. 2. Promoting innovations in water provision. 3. Promoting environmentally-friendly behaviours.	1. Promoting entrepreneurship to increase the competitiveness of trade and services. 2. Developing environmentally-friendly and socially-oriented innovative businesses. 3. Strengthening multi-stakeholder (academic, business, community, government) partnership to create job opportunities.	1. Developing technology for disaster and disease management. 2. Enhancing the capacity of stakeholders in disaster and disease management. 3. Improving coordination in disaster risk reduction.	1. Encouraging a change in behaviour from using private vehicles to public transport. 2. Improving coordination and institutional management of public transport. 3. Integrating transportation planning.	1. Optimizing Musrenbang (development planning forum) in the planning process. 2. Improving the integration of planning and city budgeting. 3. Optimizing the government's coordination of data integration and public information.	1. Preparing the workforce for the current job market. 2. Promoting the value of pursuing higher education qualifications. 3. Improving non-formal education.
NUMBER OF INITIATIVES	8	11	7	13	9	5

Source: Semarang City Government (2016).

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### CASE 3: RESILIENCE THROUGH ECONOMIC EMPOWERMENT, CLIMATE ADAPTATION, LEADERSHIP AND LEARNING (REE-CALL), BANGLADESH

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Bangladesh Nari Progati Sangha (BNPS) has been implementing "Resilience through Economic Empowerment, Climate Adaptation, Leadership and Learning (REE-CALL)" project supported by Oxfam GB since August 2010. The project aims to build community capacities for disaster risk reduction and management. The key foundations of the project are the development of a strong community-based organization (CBO) with men and women-leaders from the local village, facilitating identification of DRR interventions through use of participatory capacity and vulnerability analysis (PCVA) process.

In 2011, a CBO was formed in Kurerpar village with 92 members including women. During the PCVA with the CBO, it was revealed that the village faces a double jeopardy of alternative flood and droughts every year. For about seven months, the haor remains under water; the rest of the year, it is a dry low land. During the PCVA exercise, the CBO members identified risks like tidal hit, flood and under-developed transportation system. The insecurity and loss of assets and livelihoods due to tide strokes was highlighted as the key impacts of the disaster risks. The CBO members planned to construct a guide wall (mound protection wall) in a limited area which would directly benefit 30 families.

However, while identification of solution was easy, the implementation was not. Other than the need for financing technical assistance was also an issue. As the project could not support the full costs, the CBO members approached the local administration for the support. The sub-district engineer and project implementation officer were approached; and after regular follow up and liaising, the construction was finally completed in April 2015. Apart from BDT225,000 provided by the RECALL project, the community themselves also contributed money and labour to the tune of BDT100,000 for the construction of 517 feet guide wall and 290 feet CC-mounded protection wall. The government contribution for this work was BDT118,000 which was used to construct 227 feet CC-mounded protection wall. It was a totally new experience for the villagers and CBO members, and highlights how it is important that the community should also be involved in infrastructure development projects.

Source: Case information provided by Bangladesh Nari Progati Sangha.

**CASE STUDIES FOR MOCK PANEL DISCUSSION****CASE 4: MOUNTAIN ECOSYSTEM-BASED ADAPTATION IN NEPAL  
– SUSTAINABLE MANAGEMENT, CONSERVATION AND RESTORATION OF ECOSYSTEMS AT WATERSHED LEVEL**

The focus is on sub-watershed level through various interventions like water conservation, land rehabilitation, livelihood diversification and capacity enhancement of government agencies and local communities.

Practices, like water source conservation and construction of conservation ponds, were initiated to address water scarcity issues. Rangeland management was done by building compound walls to halt over-grazing activities of the livestock and protect the grassland ecosystem from further degradation. Several riverbank conservation initiatives with application of grey-green measures, i.e., engineered structures coupled with bamboo plantation were carried out to protect agricultural lands in the riverbanks to reduce deposition of sediment downstream.

The Project broadcasted radio programs named 'Panchise ko Serofero' through Radio barahi-99.2, Radio saligram-100.6 and Syangja FM-89.6 from Kaski, Parbat and Syangja, respectively, to increase local-level awareness on ecosystems and EbA.

The Project is implemented by the Department of Forests under the Ministry of Forests and Soil Conservation and is coordinated by the Ministry of Science, Technology and Environment. Similarly, there are three implementing agencies: United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP) and International Union for Conservation of Nature (IUCN).

Source: UNDP Nepal (2015).

**CASE 5: INTEGRATED COMMUNITY-BASED ADAPTATION IN MEKONG DELTA (ICAM), VIETNAM**

The overall aim of the Integrated Community-Based Adaptation in the Mekong Delta (ICAM) project is to increase the resilience of communities in the Mekong Delta to the unavoidable impacts of climate change. The project targets the most vulnerable people, specifically landless and land-poor people, with a particular focus on minority ethnic groups such as the Cham and Khmer, living in five communes in the provinces of Soc Trang and An Giang, in close collaboration with partners.

The project has four core components:

**A. Building local capacity to carry out improved gender-sensitive analysis and planning for CBA:**

A step-by-step approach to vulnerability assessment and CBA planning was developed using CARE's Climate Vulnerability and Capacity Assessment (CVCA) manual and community visioning tools (see tool in Figure 4-9). Afterwards, a collaborative analysis of climate risks and adaptation options between communities and the local authorities was conducted. Communities planned for a resilient future by accounting for different climate scenarios. The resulting action plans inform approaches to livelihoods, disaster risk reduction and behaviour change.

**B. Supporting the implementation of DRR measures and climate-resilient livelihoods:**

DRR activities like swimming skills training, a flood warning system, child safety information and tree planting for the prevention of soil erosion are being jointly funded by the project and government. Additionally, the project also provided support for climate-resilient livelihood activities like organic eel raising, organic indoor mushroom farming, onion waste-based bio-fertilizer production, drip irrigation techniques, bio-bedding for pig manure management, floating food gardens and chilli growing.

**C. Advocacy and social mobilization to address the underlying causes of vulnerability:**

Members of different ethnic groups, women, the poor and the landless, those living on boats or in unprotected houses on the river were supported to communicate their experiences and concerns through community digital storytelling.

### CASE STUDIES FOR MOCK PANEL DISCUSSION

**D. Strengthening civil society in the Mekong Delta:**

Enhanced civil society networking, information-sharing, learning and collaboration on climate change through the joint establishment and operation of the Southern Climate Change Working Group. This group brings together Vietnamese civil society, international NGOs, research institutes and bilateral funding organisations.

Source: Compiled from King (2014); Care International, Vietnam (2015); and Care International, Vietnam (2019).

**FIGURE 4-9: PROCESS STEPS FROM THE CARE VIETNAM CBA PLANNING MANUAL**

STEPS: CC/CBA Orientation for Provincial and District Authorities	ACTIVITIES	RESULTS
<b>STEP 1</b>	<ul style="list-style-type: none"> <li>&gt; Orientation sessions on CC, CBA and gender.</li> <li>&gt; Consensus building on CBA planning process.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Improved understanding among provincial and district local authorities on CC, CBA and gender.</li> <li>&gt; Approval and commitment of local authorities to CBA planning steps.</li> </ul>
<b>STEP 2</b>	<ul style="list-style-type: none"> <li>&gt; Establishment and approval of CBA taskforce.</li> <li>&gt; Selection of potential CBA trainers.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Established group of the main CBA decision-makers in the province.</li> <li>&gt; A gender-balanced list of potential CBA trainers.</li> </ul>
<b>STEP 3</b>	<ul style="list-style-type: none"> <li>&gt; Training on climate change and DRR.</li> <li>&gt; CBA planning process + tools.</li> <li>&gt; Training and facilitation skills.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; A group of qualified gender-balanced CBA trainers from the province, district (and commune) level that will lead Step 4 to Step 9.</li> </ul>
<b>STEP 4</b>	<ul style="list-style-type: none"> <li>&gt; Consensus on CBA planning process.</li> <li>&gt; Selection of CBA facilitators.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Improved understanding among commune and village local authorities on CC (including gender) and CBA.</li> <li>&gt; Approval and commitment of local authorities to CBA planning steps.</li> </ul>
<b>STEP 5</b>	<ul style="list-style-type: none"> <li>&gt; Training on CBA planning process + tools.</li> <li>&gt; Facilitation skills.</li> <li>&gt; Field testing of CBA tools.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; A group of qualified gender-balanced CBA facilitators from the commune and village that will help the CBA trainers facilitate Step 7 and 8 (village and commune CBA planning).</li> </ul>
<b>STEP 6</b>	<ul style="list-style-type: none"> <li>&gt; Developing work plan for Step 7 to Step 9.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; A detailed work plan, including time schedule, jointly developed by the CBA trainers and CBA facilitators to carry out the village and commune plan.</li> </ul>
<b>STEP 7</b>	<ul style="list-style-type: none"> <li>&gt; Secondary data collection + CVCA exercises.</li> <li>&gt; Visioning and village CBE plan.</li> <li>&gt; Documentation</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Village CBA planning reports, including CVCA report, a common village vision and a gender-responsive inclusive village CBA plan.</li> </ul>
<b>STEP 8</b>	<ul style="list-style-type: none"> <li>&gt; Present village CBA plans, commune socio-economic development plan (SEDP).</li> <li>&gt; Developing commune CBA plan.</li> <li>&gt; Discuss mainstreaming into SEDP.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Commune CBA planning reports, including a gender-responsive inclusive commune CBA plan and recommended follow-up actions for mainstreaming into the commune SEDP.</li> </ul>
<b>STEP 9</b>	<ul style="list-style-type: none"> <li>&gt; Present commune CBA plan + district SEDP.</li> <li>&gt; Orientation on CC mainstreaming.</li> <li>&gt; Discuss mainstreaming into district SEDP.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Improved understanding of the CBA taskforce on CC mainstreaming into SEDP and the results of the CBA planning.</li> <li>&gt; Agreed follow-up actions for mainstreaming into SEDP/sectoral plans.</li> </ul>
<b>STEP 10</b>	<ul style="list-style-type: none"> <li>&gt; Discussion by Government, communities, mass organisations, CSOs, NGOs, etc. about implementation.</li> </ul>	<ul style="list-style-type: none"> <li>&gt; Implementation of commune and village CBA plans.</li> </ul>

Source: King (2014).

GENDER-RESPONSIVE ASSESSMENT SCALE (GRAS) RANKING SHEET	
<b>LEVEL 1: GENDER UNEQUAL</b>	<ul style="list-style-type: none"> <li>&gt; <b>Perpetuates gender inequality</b> by reinforcing unbalanced norms, roles and relations.</li> <li>&gt; Privileges men over women (or vice versa).</li> <li>&gt; Often leads to one sex enjoying more rights or opportunities than the other.</li> </ul>
<b>LEVEL 2: GENDER-BLIND</b>	<ul style="list-style-type: none"> <li>&gt; <b>Ignores gender norms, roles and relations.</b></li> <li>&gt; Very often reinforces gender-based discrimination.</li> <li>&gt; Ignores differences in opportunities and resource allocation for men and women.</li> <li>&gt; Often constructed based on the principle of being "fair" by <b><i>treating everyone the same.</i></b></li> </ul>
<b>LEVEL 3: GENDER-SENSITIVE</b>	<ul style="list-style-type: none"> <li>&gt; <b>Considers gender norms, roles and relations..</b></li> <li>&gt; Does not address inequality generated by unequal norms, roles and relations.</li> <li>&gt; Indicates gender awareness, although often <b><i>no remedial action is developed.</i></b></li> </ul>
<b>LEVEL 4: GENDER-SPECIFIC</b>	<ul style="list-style-type: none"> <li>&gt; <b>Considers gender norms, roles and relations</b> for women and men and how they affect access to and control over resources.</li> <li>&gt; Considers women's and men's specific needs.</li> <li>&gt; Intentionally <b><i>targets and benefits a specific group of women or men to achieve certain policy or programme goals or meet certain needs.</i></b></li> <li>&gt; Makes it easier for women and men to fulfil duties that are ascribed to them based on their gender roles.</li> </ul>
<b>LEVEL 5: GENDER- TRANSFORMATIVE</b>	<ul style="list-style-type: none"> <li>&gt; <b>Considers gender norms, roles and relations</b> for women and men and that these affect access to and control over resources.</li> <li>&gt; Considers women's and men's specific needs.</li> <li>&gt; <b>Addresses the causes of gender-based health inequities.</b></li> <li>&gt; <b><i>Includes ways to transform harmful gender norms, roles and relations.</i></b></li> <li>&gt; <b><i>The objective is often to promote gender equality.</i></b></li> <li>&gt; Includes strategies to foster <b><i>progressive changes in power relationships between men and women.</i></b></li> </ul>

Source: WHO (n.d.).

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL<sup>7</sup>

### PART A: DECIDING ON RESILIENCE STRATEGY

#### **About Women's Empowerment Trust:**

The Women's Empowerment Trust was founded in the 1990s to facilitate better housing, infrastructure and associated services for women in Gujarat (India). Beginning with a modest team of social workers and engineers, the Trust was called upon in 1998 by the local city government to support community mobilization in slums for provision of basic services like water, sanitation, drainage, internal road, solid waste management, street lights and tree plantation. Their project implementation approach focused on women-led development. This model focuses on forming women-led community-based organizations (CBOs) in the slums and developing leadership skills of women to plan and implement the project in their areas. This work approach was extremely successful. In the period 1999-2004, the Trust, with support from the local municipal government, was able to reach out to over 35,000 slum families for coverage of these services.

#### **Approach and Programmes up to 2014:**

After initial successes, the Trust then built on this experience to scale its operations both horizontally and vertically. It increased the scope of its activities along the value of chain community-led services. Its initial activities in the slums helped form CBOs; and women-leaders were trained and empowered to liaise and work closely with local authorities to get access to legal electricity connections, adoption of energy efficient and renewable energy products and loans for better housing. Vertical scaling was in two ways; First, the Trust used its own learnings from the community-based work to influence city, state and national policies. Second, the Trust facilitated the CBOs to engage with each other at the city level, thereby forming a city-level women's federation of CBOs. The horizontal expansion included increasing the number of slums engaged within the city, moving into other cities within the state (sub-national level) and moving into other states.

#### **Strategy Plan Development in 2014:**

In 2014, the Trust decided to undertake a strategic plan development exercise with a view to review the impact and coverage of its work with reference to the emerging Sustainable Development Agenda and the changing development focus in the country as well as the altered development finance landscape. The exercise was facilitated by external consultants and involved a series of participatory workshops with grassroot women-leaders of the city federation and the programme staff. This exercise brought forth the following three potential strategies for the Trust:

- a. Focus solely on select sectors that are common to the SDGs and national government agenda as they are more likely to secure development finance. This would involve focusing on three sectors – water, sanitation and energy. The Trust would need to realign its current human resources and focus on scaling up the work to reach out to more than a million households in the next five years.
- b. Shift its focus to professional for-profit housing services (which is also aligned with the development agenda of the national and city government) to generate finances, which can cross-finance its not-for-profit work on service delivery. This would involve consolidating its current work to limited geographical locations with focus on creating higher level of impacts on the lives of around a hundred thousand people in a few cities.
- c. Move focus from service delivery to governance and advocacy work building leadership and technical capacities and community organizations of women for empowering them to prioritize their own development needs, and to avail these from city governments and other service providers. This process would entail moving into transdisciplinary partnerships, with a core focus on community development that identifies local vulnerabilities and strengthens resilience with most appropriate solutions chosen by CBOs.

- Key Questions:**
- a. What are the advantages and disadvantages of each approach?
  - b. Which approach do you think is best suited for the Trust?
  - c. What should be the criteria for selection of the right approach?

7. Adapted from Women's Action Towards Climate Resilience of Urban Poor in Asia: A project by Mahila Housing SEWA Trust. (Documents reviewed include project evaluation reports, manuals and policy briefs. The information and photos are used with permission from Mahila Housing SEWA Trust).

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

## PART B: DEVELOPING A COMMUNITY-BASED RESILIENCE PROJECT

**After the consultations, the Trust decided to go through a combination of the approaches and adopted the following strategy:**

- a. Mainstream climate change resilience into its existing sectoral work through technical partnerships and co-create cost-effective gender-sensitive solutions which can be scaled through a market-based mechanism to reach out to more than a hundred thousand people;
- b. Continue its focus on building social capital through CBO formation and women's leadership development but push the frontier to address urban governance and inclusive planning by effective empowerment of women changemakers and reaching out to larger populations;
- c. Partner with other grassroot-based organizations for sharing knowledge products and strategies to enable scale to other cities; and
- d. Consolidate its current service delivery work to focus on last-mile service delivery targeting the most vulnerable and marginalized among the slum communities.

The idea behind this strategy is to let vulnerable populations, especially women, set the agenda and to support them in overcoming the barriers to development. The strategy has its fundamentals on two premises. First, if the urban poor are provided with the requisite knowledge to undertake vulnerability and risk assessments and are equipped with available resilient technologies, they will be able to devise and implement locally-relevant and pro-poor climate-resilient solutions. Second, if the poor are empowered to implement their own resilience plans, and the institutional mechanisms representing their voices are in place, they will be able to provide a constructive voice in city planning and governance on pro-poor adaptation and resilience action. Using this strategy framework as a guiding principle, the Trust specifically developed a Women-Led Climate Resilience Project.

**The key stages followed for the project development included:**

**Stage 1:** An initial project concept note was developed for funding support to undertake an in-depth problem assessment and then design their solutions. The funding secured for this was used as an opportunity to test the viability strategy and its premises. Thus, the project was developed in a participatory manner by providing initial orientation to select women community leaders to understand climate risks and vulnerability. (See Exhibit A for initial challenges in participatory approach.)

**Stage 2:** A quick gender and risk assessment exercise kit using Climate Trend Histogram and Moser Framework was put together, and grassroot workers and women-leaders from slums were trained to apply these to encourage focus group discussions (FGDs) on the issue with the slum communities. A total of 52 FGDs were organized in six different cities during this phase on the issues related to climate change. The key stresses of heat, water, water quality, flooding and inundation and vector management emerged as the major issues during these FGDs. Communities shared that due to extensively hot afternoons, four hours of the day went in vain as they could not take up any activity due to the extreme heat. This led to decrease in the working hours as well as reduced efficiency. The FGDs also brought out that most of the households received 2-3 hours of water per day through individual municipal connections or through common bore wells in the community. However, there were still areas where water was a major issue, especially in the summer months. Most of the communities also reported on inland flooding which caused backlogged sewers. Some also mentioned that heavy rainfall for as little as 1-2 hours caused knee-level water logging, which made workers miss out an average of 4-5 working days a month, as instead of working, the residents got involved in removing water or fell sick and were unable to work as flooding caused unhygienic conditions, increase in dengue and cases of other vector-borne diseases. Based on these interactions, detailed city level community profiles and slum profiles were developed for the target settlements.

**Stage 3:** Equipped with settlement level information, the women-leaders then engaged with the technical experts in workshop mode to undertake a joint problem analysis. The problem tree development workshop, bringing together the technical partners of the project, implementation team and women-leaders from slum communities on one platform, was a key highlight of the project development stage. This was the first type of interaction where the experts and communities were gathered around the table and discussed about the specific stresses from their different perceptions to develop problem trees. Each of these problem trees on heat stress, water scarcity, inland flooding, water and vector-borne diseases, loss of property and institutional capacities as well as mechanisms developed as part of this workshop were taken as a base to develop log-frames which helped the team to design solutions in a participatory mode. At the end of this two-day comprehensive workshop, securing health and livelihoods emerged as the core of the solutions framework. (See Exhibit B for Technical Partnerships.)

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

## PART B: DEVELOPING A COMMUNITY-BASED RESILIENCE PROJECT

**Stage 4:** This workshop also broke the ice between the technical experts and community leaders. Following the workshop, many technical experts visited the slums to understand the issues better where women-leaders facilitated the engagement. These field visits further refined the project design.

**Stage 5:** Later in this phase, there was also an Indicator Development Exercise undertaken with the women-leaders and grassroot mobilization team, which was to feed into the process of assessing community-level vulnerability in a workshop mode. Women's views on smart slums and smart cities were noted to understand their perception of vulnerability, risk and resilience building. Various sources of information for the women-leaders were also mapped to identify the existing barriers and prospects for behaviour change communication interventions as part of the project implementation. Different types of communication strategies/practices including role plays and story-telling exercises were used on the ground to mobilize the communities. The entire exercise was helpful in charting out a behaviour change communication strategy for the project. The workshop also had participation from communication technology providers who shared their models to explore possibilities of collaboration. Two new communication partners were bought into the project through this workshop.

**Stage 6:** In order to further the stakeholder engagement process, multi-stakeholder workshops were organized at the city level. This especially helped in getting the buy-in of local government stakeholders, both officers and elected representatives. (See Exhibit C for Local Government Partnerships.)

**Stage 7:** During this phase, the technical experts also did their own scoping of solutions/technologies and also developed sectoral briefs of their subjects of expertise. These sectoral briefs went on to become the basis for establishing the evidence to validate the theory of change and proposed project strategies.

**Stage 8:** Finally, after four months, a solutions development workshop was organized, which again brought together the technical experts and women-leaders, to reflect on the proposed project model, implementation strategies and activities.

**Key Questions:**

- a. What is your reflection on the project development process followed by the Trust? What are the advantages and disadvantages of such a process?
- b. Financial resources are often limited. There is always a trade-off in spending on project development with actual activities of the project. How do you think they can be balanced? Do you think donor funding can be made available for project development activities?
- c. What are key challenges to developing transdisciplinary multi-stakeholder partnerships? Are there any learnings from the project actions which should be documented and used for advocacy to enable funding for such activities?
- d. What type of partnerships would you recommend to be conducted formally and which partnerships could be continued informally? Do you think forming a consortium or formal network would be more suitable than informal partnerships? If so, why?
- e. Where do you envision your role in such a project?

**EXHIBIT A: INITIAL CHALLENGES IN THE PARTICIPATORY APPROACH**

The new strategy advocated for participatory approach. However, this task turned out to be the most challenging task of the project development phase. As the person who first introduced climate change to the women-leaders describes it:

*"A talk which I thought would be quite easy turned out to be a daunting task when I realized I was talking to women with modest or no education, who had no idea of global warming and yet they were the ones I knew are to be the most affected by the impact of the changing climate. I did not use technical jargons so I did what I knew best and asked the women what they were experiencing about the changing weather conditions. And voilà, the women not only knew what was happening, but were in their own ways developing mechanisms to cope with it. This got me thinking, if just experience could help a group of women to fix so many problems, what could they not do if they had the requisite scientific knowledge, capacities and technologies. Can this be a way to develop actionable adaptation plans?"*

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

### PART B: DEVELOPING A COMMUNITY-BASED RESILIENCE PROJECT

The Trust started the issue of climate resilience with city-level technical experts. Initial discussions were limited to understanding the issue and how it impacts women from slum communities. Subsequently, the Trust also organized specific trainings on climate change for the women-leaders, which were aimed to help the women advance their domain knowledge and also to bring about the finer issues of impacts and challenges that they share as a community.

Transferring scientific knowledge to the grassroot staff and women-leaders was difficult. Climate science is a very technical subject; and to train the literate or often illiterate women required a specialized approach of linking the technical issues with day-to-day impacts. These trainings were not just academic exercises but also engagement modes to bring out the impacts and solutions relevant for them. Therefore, the approaches used in the training also had to deal with the concepts and enable the participants to use this understanding within the existing complexity of inter-linkages and inter-connectedness between various issues to come up with solutions. A simple climate solution of building a recharge pond may sound like a relevant solution to recharge ground water but may lose its relevance and purpose in extreme heat waves or it can create issues of vector-borne diseases or it may become a source of contaminated water if connected to discharge pipelines if all the relevant social, economic, environmental, policy and planning issues are not considered in the climate context.

#### **EXHIBIT B: TECHNICAL PARTNERSHIPS**

The challenges of growth and resilience building faced by the urban poor require sound research and innovations. However, taking the innovation to scale often faces barriers related to the multi-dimensional and multi-stakeholder nature of social challenges. Dealing with this requires a new approach where social and technological progress co-evolves through direct dialogue between the natural and social sciences and collective action between communities and technical experts.

Given the multi-dimensional nature of the project, four types of technical experts were engaged as a part of the project:

- a. **Innovative Entrepreneurs and Businesses** who demonstrated their products/services in the slums. They sought the help of the Trust to get an entry into the communities and get a space to showcase their

product. The Trust's interest in facilitating this was to create a basket of efficient and effective choices for the community to choose from, based on their needs, aspirations and financial status. During the project, a range of such partners dealing with improved roofing solutions, water purification products, composting technologies, building technologies, among others was explored.

**b. Academic Institutions – Universities and Public Research Institutes**

**Research Institutes** that enabled a systems-thinking approach, provided subject-specific inputs and technical trainings, and creation of knowledge products (technical manuals, audio/video bytes, others). The key institutes participating for technical support were those particularly engaged in undertaking applied research projects in the areas and those who wanted to take the lead in the formative and summative project evaluation to be able to capture and disseminate the learnings.

**c. Civil Society Organizations (CSOs) and Social Innovators:**

Local CSOs with different organizational focus and expertise were also involved in the process. The key among them were those working on communication and behaviour change aspects of the project. These included those who worked on environment and climate education as well as communication technology partners Mobile Vaani (for mobile-based communication). The highlight of the project was that these agencies did not work in isolation but came together to support the development of an integrated and effective communication strategy.

**d. Individual Subject Matter Experts**

who demonstrated an interest in working directly with the communities/grassroot to train them or design products and services for them. The project benefitted from the expert services of more than 20 people from the field of health, vector management, disaster management, water management, behaviour change analysis and risk management and information technology.

The initial attraction for most technical partners to collaborate was the Trust's ability to mobilize slum communities, especially the women. The project design approach enabled the partners to interact directly with the women-leaders. Among the key barriers to innovation and transfer of knowledge identified by the project were the skills and abilities of technical experts to work with

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

### PART B: DEVELOPING A COMMUNITY-BASED RESILIENCE PROJECT

communities. These technical partnerships and engagements were included in the project design stage itself, making the engagement process streamlined.

Currently, the engagement of experts with communities happens in two ways:

- a. For research**, when the research institutes send their students or surveyors to the slum communities to get data which would inform their research projects. Here, the community's role is limited to being basically a supplier of information, with no or little control over the analysis and conclusions drawn. In most cases, the results may not even be shared with the communities.
- b. For marketing purposes**, when innovators and businesses with established products want to promote their products. In the current marketing paradigm, the urban slum communities are target consumers, especially those who are a level higher on the poverty pyramid.

Both these engagement modes are inadequate to deal with the issues of climate change experienced by the slum communities for many reasons. First, the products or services offered are often designed in a generic manner and are not suitable for slum communities. They need designs that are planned for density, have mixed or multiple use, build on their existing investments, are cost-effective and at the same time aspirational. Thus, even though a range of climate-resilient solutions for heat resistance and water management are already available, they are often inaccessible and unsuitably prototyped to meet the specific needs of these communities. Often, the technology offered is not in sync with the existing infrastructure or the existing space constraints. This happens mainly because the innovator has no space to test the prototype of the product directly with the slum communities and also no facilitation for validation of the prototype. One of the essential services that the Trust brought into this partnership was facilitation to test and provide feedback on the prototype and to validate the solution.

Second, businesses have a proper supply chain model which enables them to distribute products to communities at a scale. The current distributor-based model of most businesses which require high upfront investments are not successful in slum communities where the capacity to pay is low and initial turnover is less, making the business less viable. While the Trust is still struggling to enable big changes in this, the women-leaders have been able to make a mark by becoming sales agents and marketers

for many of the products. This helps disseminate the product in the community while also becoming a source of livelihood for the women-leaders.

Third, cost is a challenge. Most innovations at the initial stage are not cost-effective especially as the manufacturer did not achieve the economies of scale. This makes the products costlier; often, there are not many takers at the slum levels. As slum dwellers have little access to formal finance, they are not even able to take these on instalments. The Trust worked towards enabling this by linking slum dwellers to formal banks and credit cooperatives as well as by having a revolving fund specifically created for financing such products. This is also an attraction for innovators and businesses to partner with the Trust.

Fourth, communication is a challenge. CBA projects also require top-down attempts to educate people of the risks, impacts and available technology options to climate change. Unfortunately, the current system of scientific knowledge focuses on reducing climate change impacts to biophysical changes with pre-determined notions of what should and can be done. It was very important to enable knowledge sharing between communities and technical experts to happen on an equal footing. One of the key aspects of the project was to facilitate processes and platforms which enable communities and technical experts (social and natural scientists) to interact and co-create pro-poor resilient solutions. A very good example of this was observed when the geohydrological partner actually adopted the participatory research approach to ground water management for the first time and even placed a research student for the duration of the project period to interact and work directly with communities.

### EXHIBIT C: LOCAL GOVERNMENT PARTNERSHIPS

The Trust recognized that to be effective in influencing 'higher level' policy decision-making, grassroot organizations need to work closely with the local governments. In fact, the key to the Trust's success over the years was based on the fact that the Trust does not focus only on identification of gaps in implementation of people-centric programmes but also works in tandem with local governments to develop pro-poor solutions. This requires constant liaising with civic officials – sensitizing them to people's needs while understanding procedural dynamics; manoeuvring red-tape while remaining within the regulatory frameworks; demonstrating workable approaches on the ground and training Urban Local Bodies (ULBs) on these approaches.

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

### PART B: DEVELOPING A COMMUNITY-BASED RESILIENCE PROJECT

Another key role that the trust plays is enabling coordination and convergence between the multiple departments of the ULBs. There are two key players within the local governments which were included as project partners:

#### **1. Municipal Corporators (Local Councillors)<sup>8</sup>**

Their role is to monitor the activities of urban local body in the provision of all municipal services and ensure their effectiveness in their respective wards. The Trust successfully mobilized and trained women-leaders from poor communities to engage with the councillors and leverage their budgets to bring in improvements to their area. With the active engagement and financial support of local councillors, the women-leaders have been able to bring about tangible improvements in their areas.

#### **2. Technical Staff of Local Government**

Along with elected representatives, Municipal Corporations in India also have an executive wing headed by the Municipal Commissioner. These are subsequently divided into zone/ward level offices and different functional departments like public health and engineering, water and sanitation, school education, and others. One of the unique selling points of the Trust was training the women-leaders and programme staff to work closely with the local technical staff of the ULB to overcome these barriers by recommending process improvements, changes in policies and operational guidelines, and surrogate mechanisms to help reach their policies and programs to the poor.

In the past many years, the Trust successfully worked with local governments and was instrumental in bringing key policy and program changes that have enabled the poor to access improved services. Local governments also recognize the value that the Trust brings in resolving the implementation hurdles on ground.

#### **Women-Leader on Government Partnership**

*"Initially when we thought of working with the local government, we always had the impression that it would be difficult. But over the years, I received training from the officer regarding the structure and functioning of local governance systems. We have been able to change and challenge people's perceptions about the government."*

#### **Government Official on Community Partnership**

*"I have been working with these women-leaders for some years now. The support of these women-leaders has been instrumental in implementing government policies and schemes in urban slums. The government falls short when it comes to convincing people and securing their support for developmental needs. This is where CSOs and community leaders have played a vital role of a mediator between the community and the government. In this way, we were able to serve more slums in the city."*

<sup>8</sup>. Municipal Corporators/Councilors form the elected deliberative wing of the local government in India.

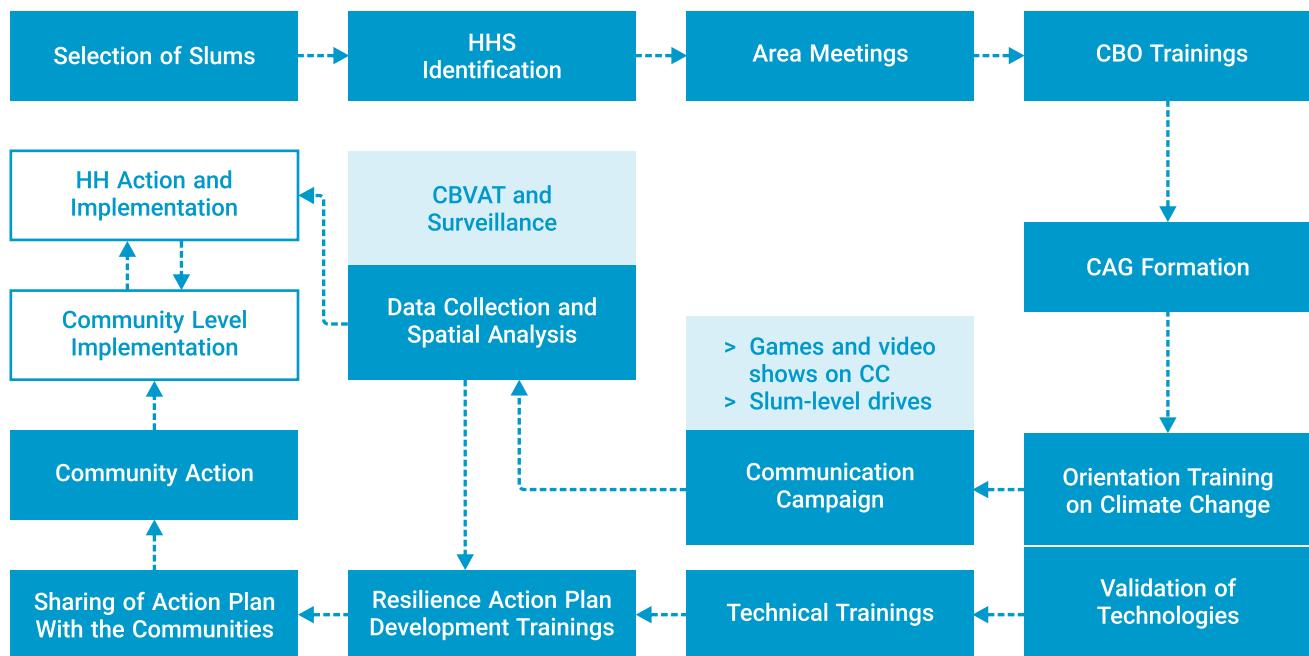
## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

## PART C: EXECUTING A COMMUNITY-BASED RESILIENCE PROJECT

The Trust was also able to receive project funding for a two-year period. This was both an opportunity and a challenge. Community-based projects require a continuous and a long-term approach to building trust between the various stakeholders, enable cross learnings and knowledge sharing, facilitate planning and gather support for resilience action itself.

Achieving this in a two-year period was ambitious and at the same time an opportunity to showcase a working model of women-led resilience action in urban slums, which could be replicated, scaled up and fed into the learning curve of policy and planning processes. The project thus developed a joint household and slum-level implementation strategy to be undertaken over a two-year period as can be seen in Figure 4-10. The core base of the project was organizing and mobilizing women from poor slum communities to form their own community-based organizations (CBOs), each comprising 200 to 250 families.

FIGURE 4-10: IMPLEMENTATION DESIGN



A group of 15 to 25 women representing these families are trained on community action, leadership and urban governance. Generally, a group of 10 to 12 women would emerge as leaders during the training process. This group of leaders is called the community action group (CAG).

The CAG then becomes the support system within the slum for women to actively interface with government bodies and municipal corporations and take charge of the slum improvement processes.

The CAG not only included ten women-leaders from the CBO but were also encouraged to include two adolescent/young girls. This was done with the dual motive to firstly

have a more contemporary and futuristic perspective within the group as well as for the CAG to benefit with the technology skills which these young girls would bring with them. The CAG members were then trained over a period of six months on the following topics:

1. Orientation to project;
2. Importance of collective action and process of CBO/CAG formation;
3. Structure and functioning of ULBs and service agencies (including a visit to the local ULB office); and
4. Urban development programmes and people's entitlements.

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

### PART C: EXECUTING A COMMUNITY-BASED RESILIENCE PROJECT

The Trust also came up with a scaling up plan to enable this within the limitations of time and funding resources, achieving the desired scale by deciding to intervene in seven cities within three nations. These cities fall into three categories:

- **Established cities** that have well-established networks of women-leaders in both informal settlements and city-wide, emerging out of the Trust's long history of intervention;
- **Emergent cities** that are in the process of establishing networks of women-leaders at both informal settlements and city levels, emerging out of the Trust's shorter history of working in these cities;
- **Partner cities** that contain neither an established network of women-leaders nor an existing non-government organization (NGO) with experience in creating such networks, where the Trust is partnering with local organizations for cross sharing on experiences of community-based adaptation models.

The project implementation strategy was to pilot a practice, tool or technology within the established city, replicating a changed model through an iterative learning process in an emergent city. Documentation was done on the application of the practice, tool or technology in different cities and the ways to tailor the same to local context, converting this into a knowledge product and sharing with partner cities for customizing and adoption in their field of work. A focused knowledge management team was put in place at the project office to facilitate this process.

The project also recognized that transferring scientific knowledge would require repeatedly and progressively conveying information regarding climate change and resilience actions without losing residents' interest. To achieve this, it was necessary to devise innovative communication tools that are systematic and repeated, slowly progressing in depth and difficulty.

Another aspect of project design was that communities need to undertake their own vulnerability assessment. This was a challenge, since local slum-level data were not readily available in the region and the women-leaders did not have the capacities and orientation to learn complex models. To deal with this, the partners developed vulnerability assessment, surveillance and planning toolkits. There were around nine tools of process/practices

which were identified during the project development phase, which needed to be piloted and tested for efficacy and impact. These included training modules; audio-visual and print material; games; community-based vulnerability assessment and resilience planning toolkit; and Community-Based Surveillance practices. (See Exhibit D on Knowledge Products.)

Another key focus of the project was to provide the communities with a basket of choices on technological solutions, so they can then make their own decisions based on what is affordable and appealing to them. The new technologies were scoped through exposure visits and inviting innovators and technology providers to workshops along with inputs from the project technical experts. This coupled with field demonstration of relevant technical interventions. Seeing and experiencing various products first-hand helped build the confidence among communities, with themselves investing in resilient technologies. Twenty-one household-level solutions and nine community-level solutions were demonstrated. These included, among others: modular cool roofs, cool autos, urban landscaping, vermi-compost systems, water meters, roof rain water harvesting systems, compost tumblers and community-managed water supply systems.

#### **Key Questions:**

- a. What do you think constitutes an adequate time frame for a CBA project? What could be the problems associated with racing against time on such projects?
- b. What do you think would be the challenges of undertaking such a project of this complex nature? What are the ways in which this project anticipates potential problems and includes them in its implementation design?
- c. What are the key steps required at organizational level for managing such a project? What would be the recommendations of the Board for checks and balances to ensure that all the project outputs are delivered in time, partnerships are well-managed and financial resources efficiently utilized?
- d. How would you rate the capacity strengthening strategy and its tools of the project?
- e. What do you think are the key gaps/limitations of the project in terms of addressing Intersectionalities and ensuring LNOB?

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

## PART C: EXECUTING A COMMUNITY-BASED RESILIENCE PROJECT

## EXHIBIT D: KNOWLEDGE PRODUCTS

## CLIMATE CHANGE ORIENTATION TRAINING MODULE AND TOOLKIT



The basic training module aimed to introduce the concept of climate change and generate awareness of its impact on the urban poor, especially women. It's a step-by-step process composed of six sessions. The first two sessions are intended to stimulate interest. Session 3 and Session 4 introduce concepts such as climate change and global warming and explain their impacts on the entire humanity as well as everyday life. The last two sessions are more activity-oriented, with Session 5 introducing the game of Snakes and Ladders, where climate stressors are snakes to drag women down and resilience actions are ladders that help them up. Session 6 encourages personal reflection and introduces the concept of resilience actions and futuristic thinking.

## TECHNICAL TRAINING

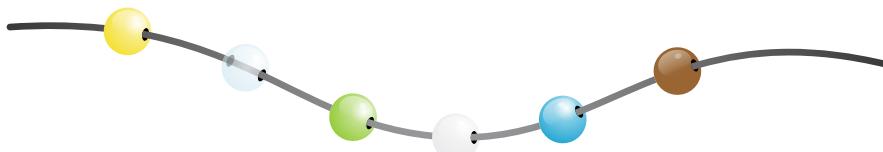
**Materials**

Take only one bead of each colour.

**Directions**

1. Thread the different coloured beads on the string in any order.
2. Place the string around your wrist and tie it.
3. By rotating the beads around your wrist, you have created a water cycle.

The technical trainings conducted by sector experts offered more in-depth and comprehensive information on a given topic such as water management, vector-borne disease, heat stress, managing one's own health etc. Instead of giving all CAG members undifferentiated technical training, the intention is to encourage each CAG member to become specialized in at least one climate change-related stressor among the four. There was a specific focus on developing participatory tools – games and exercises for technical trainings.



**Yellow = Solar Energy** > Energy provided by the sun for the never-ending water cycle.

**Clear = Evaporation** > Vapour created when the sun heats water in lakes, streams, rivers or oceans.

**Green = Transpiration** > Vapour created when plants and trees give off moisture.

**White = Condensation** > Tiny droplets of water formed when vapour rises into the air and cools.

**Blue = Precipitation** > Moisture released when the clouds become heavy and form rain, snow, hail etc.

**Brown = Percolation** > Movement of water through the ground.

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

## PART C: EXECUTING A COMMUNITY-BASED RESILIENCE PROJECT

## EXHIBIT D: KNOWLEDGE PRODUCTS

## COMMUNICATION STRATEGIES

Innovative communication strategies tools like Snake and Ladder game, animated videos, posters, and wall paintings and folk media were deployed to reach out to communities through multiple channels. The print media material included dissemination of 500 copies each of a set of four posters on different stresses, which was widely used in all CBO meetings reaching out to a wide audience. Folk media shows were organized in 38 slums reaching out to more than 7,500 people within a span of one month.

Around 229 rounds of the Snakes and Ladders game were organized in which more than 3,500 people participated. Short audio-visual materials on community vulnerabilities, interventions and community feedback have also been produced for community awareness building. Among these, the animation film on "Ramaben's Story" became quite popular with the communities.

## Climate Change Will Impact Women More



Photo credits (left to right, top to bottom): Farmers in Beora, a small farming community in Rupandehi District, CIAT/Neil Palmer/Flickr; a woman shopkeeper checks on her live food at Jagalchi Seafood Market in Busan, South Korea, Cheng Wei/Shutterstock; women drawing drinking water extracted from well in Lalitpur, Nepal, Aleksandar Todorovic/Shutterstock; medical assistance to Myanmar refugees at the Mae Tao clinic, Thailand, Salvacampillo/Shutterstock; women workers are returning after collecting firewood in Sylhet, Bangladesh, H.M. Shahidul Islam/Shutterstock; and woman wading through flood waters in Vietnam, UN Women Vietnam/Pham Ke Toai/Flickr.

## INTEGRATED VOICE RESPONSE (IVR) SERVICE AND COMMUNITY RADIO



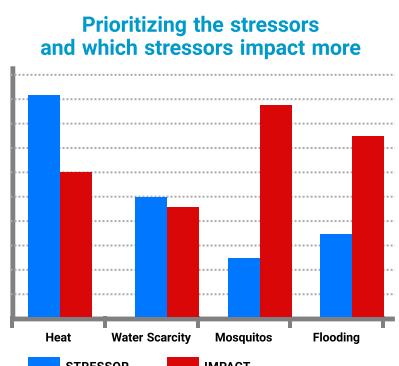
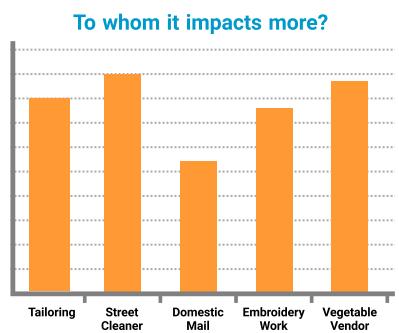
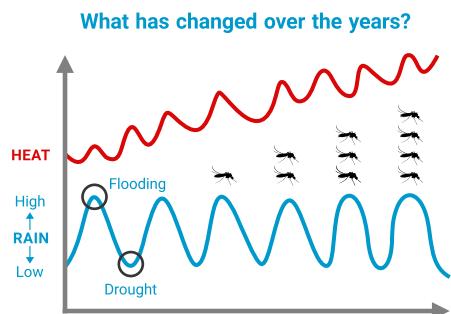
An Interactive Voice Response Service (IVRS) provided personalized access to climate-change related information and a venue for their personal feedback on household-level interventions. Communication channels like community radio that report local situation, expert opinion, government responses and citizens' voices help widen reach beyond our targeted communities. 45 radio episodes have been broadcasted on the broad theme of "Enabling Inclusive and Resilient Cities" via a community radio station. Four adolescent girls who were CAG leaders have also begun working as city level radio reporters for the Community Radio Station.

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

### PART C: EXECUTING A COMMUNITY-BASED RESILIENCE PROJECT

#### EXHIBIT D: KNOWLEDGE PRODUCTS

##### COMMUNITY BASED VULNERABILITY ASSESSMENT TOOLKIT (CBVAT)

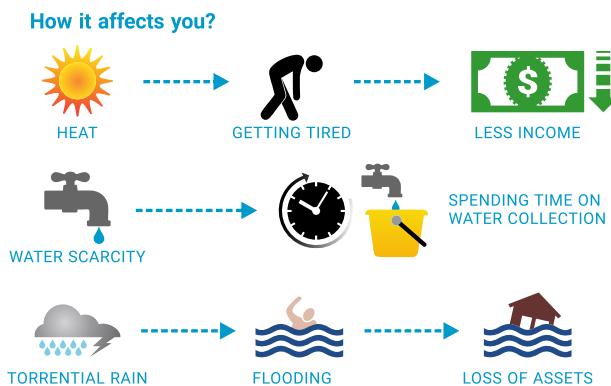


The CBVAT is a participatory learning tool using a set of six exercises. It was designed to develop a community's understanding about climate risks and adaptation strategies. The assessment spans over six to eight weeks. A series of charts and tables are provided to CAG members, guiding them to identify the stressor against which the community is most vulnerable and the occupation groups/gender that are most vulnerable, and to assess the root cause of the vulnerability and their adaptive capacity. These include:

- Histogram:** To map the climate and urbanization challenges faced in the last 10 years.
- Moser:** To understand the gender implication of climate stress and shocks.
- Matrix Ranking:** To apply a somewhat objective analysis to identify the most impacting stressor and the most vulnerable occupational groups.
- Risk Quadrant:** To understand the stressors and shocks in relation to the level of impact and frequency of occurrence.
- Root Influence Diagram:** To dissect the key risks emerging in the last session and identify causes which are mainly responsible for the risk as well as for aggravating the situation.
- Adaptive Capacity Scoring:** To assess the availability of infrastructure, knowledge and social capital within the community which would contribute to building their resilience.

The CBVAT provided a framework for dialogue within communities regarding identification of practical strategies to facilitate community-based adaptation to climate change.

Once the CBVAT assessment is completed, the results are converted into a PowerPoint presentation and shared with the CAG members during the Resilience Planning process.



	Access to Shelter During Evacuation		
	Grievance Redressal	Flash Flood Warning	Disease Monitoring and Surveillance
Knowledge on Protection Measures	Water Harvesting System	Regular Cleaning of Drains	Water Testing
Access to Heat Advisory	Access to Water Tankers	Solid Waste Management System	Water Management System
Availability of Green Shade	Adequate Supply	Storm Water Drainage	Access to Information on Preventive Services
Availability of Shade	Availability of Water Resources	Well-Managed Drainage	Access to Information During Outbreaks
RAIN	WATER SCARCITY	FLOODING	VECTOR-BORNE DISEASES

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

## PART C: EXECUTING A COMMUNITY-BASED RESILIENCE PROJECT

## EXHIBIT D: KNOWLEDGE PRODUCTS

## COMMUNITY-BASED RESILIENCE ACTION PLANNING

When the CAGs come together to develop their Community-Based Resilience Action Plan, they revisit the vulnerability assessment results once again, improve or accept the same and develop an annual action plan for addressing the identified key stressors, listing the time required for action, the daily/weekly/monthly goals, the funding they need, and organizations who can support the communities in implementing these action plans.

## Solutions Quiz

## Air-lite Ventilation



- Water Stress
- Heat Stress
- Flooding
- Water Quality
- Vector-borne Disease

## Cool Auto



- Water Stress
- Heat Stress
- Flooding
- Water Quality
- Vector-borne Disease

## Modular Roof



- Water Stress
- Heat Stress
- Flooding
- Water Quality
- Vector-borne Disease

## COMMUNITY-BASED SURVEILLANCE



While the annual action plan development process is a periodic affair, the project was also conscious of the fact that resilience building is an iterative process and that the communities, especially the CAG leaders, have to be groomed into monitoring the climate-related changes and stresses to be able to take timely action. Towards this, the project developed a two-pronged surveillance system:

- A. **Seasonal surveillance system:** This was initiated through drives involving young boys and girls (known as Child Doctors) from the community for collecting real-time data on larvae presence and water quality testing.
- B. **Daily/weekly surveillance systems:** The project also piloted systems to collect real-time weather information and climate data in 23 slums. This included systems to measure temperature, humidity and precipitation and to look at water quantity and quality, vectors, flooding and inundation.

## CASE STUDY ON WOMEN-LED RESILIENCE MODEL

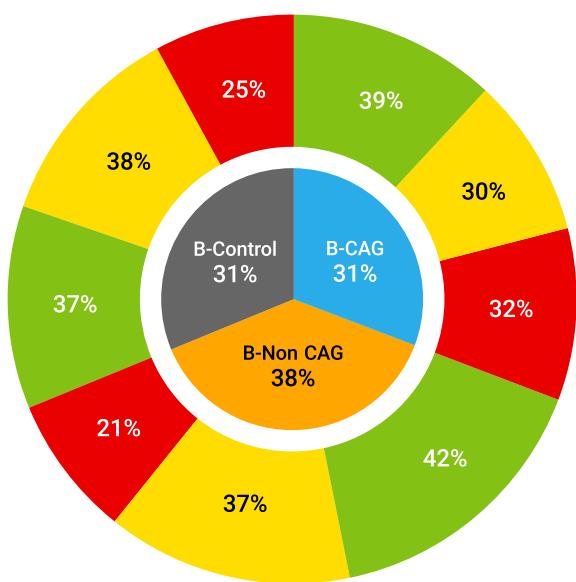
## PART D: KEY ACHIEVEMENTS AND LEARNINGS

## PROJECT OUTREACH

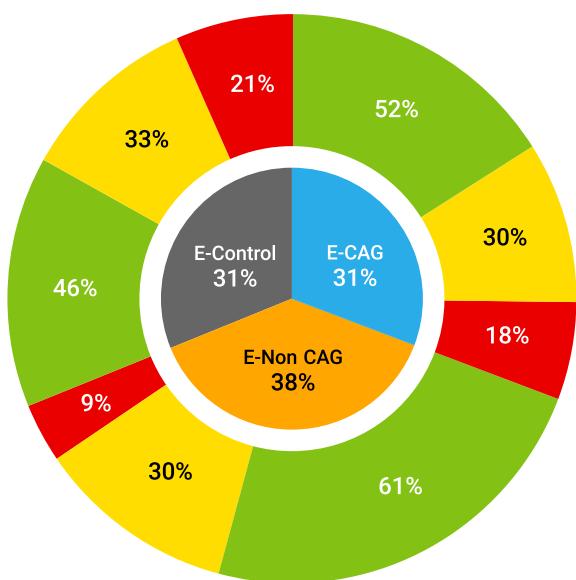
- > Three Countries
- > Seven Cities
- > 107 Slum Settlements
- > 135,000 People

**FIGURE 4-11: VULNERABILITY GROUP HOUSEHOLDS DISTRIBUTION (BASELINE AND ENDLINE)**

Vulnerability Group HHs Distribution Across CAG Category – Baseline



Vulnerability Group HHs Distribution Across CAG Category – Endline



## OUTCOMES ACHIEVED

**Reduction in Vulnerability to Climate Change**

The project had a robust quantitative monitoring and evaluation system which showed that:

- > Around 35 per cent of the treatment households showed a reduction in their vulnerability scale as compared to baseline.
- > The percentage of most vulnerable households (red category) went down drastically for project participants as compared to control group.
- > The movement from medium (yellow) to low (green) category was higher for participants as compared to control.
- > There is decline in both CAG and non-CAG categories, indicating that the impact was not limited to the core leadership group but also spread beyond as desired.

**Knowledge and Empowerment Outcomes**

- > Around 8 per cent of households surveyed have made major investments in their home to improve climate change resilience.
- > Around 64 per cent of women surveyed have reported increase in awareness on resilience solutions.
- > Around 64 per cent of the women surveyed reported awareness on the climate risks.
- > The city-level women's federation was directly invited by local government to present their cause in the city's Heat Action Plan. This led to them being officially recognized as a stakeholder in the Heat Action Plan, incorporating slum-level strategies for the first time in the plan. By the next year, white painting of roofs for slum households was officially adopted as an action point. In another city, Roof Rain Water Harvesting Systems were included as an essential costed part of the slum redevelopment project.

**This is not to say the process was without challenges.**

- > The project required mobilizing families in emergent cities to partner with the Trust. This process was long-drawn, involved repeated visits and was resource consuming. Even though the trainings were organized – keeping in mind women's schedules, their loss of livelihood, religious/cultural festivals and other engagements – in some communities, getting women out was very challenging. There was scepticism among women and men alike about the whereabouts/nature of these trainings.

**CASE STUDY ON WOMEN-LED RESILIENCE MODEL****PART D: KEY ACHIEVEMENTS AND LEARNINGS**

- > To generate awareness and interest around the issue of climate change among poor women was a key challenge. Area meetings did not get a lot of attention and interest. The use of creative communication tools on climate change and its impacts initially generated interest among the communities. However, at one point, it was felt that the programme was getting too focused on training.
- > To sustain the interest of communities in the program, there was a need to demonstrate action and tangible change on ground. The community-based surveillance system had to be modified into a campaign while it was still in its design phase. Therefore, the vector surveillance system was expanded to include at least half of the households in the slums, which was beyond the initial plan of a smaller sample of households. This encouraged the involvement of adolescents in the programme.
- > Several team members and women-leaders were trained to facilitate the vulnerability assessment processes. However, the process was technical and slightly complex and involved a longer learning curve. According to one facilitator, *"It was difficult for me to remember all the terms and the different tools. I used to get them confused and mixed-up. It took us a long time to facilitate the CBVAT in the first five to six slums. We thought it was a lot of paperwork which we were not used to. The communities also showed little interest."*
- > The CBVAT process elicited different responses from different communities. In some communities, it was very successful. Women consistently participated in all the exercises that were spread across a few weeks. They were able to understand and articulate their vulnerabilities. In emerging communities, it proved a little more challenging to sustain interest in the initial phases of the process.
- > Technology demonstrations require a buy-in of the community even in the initial phase of the product testing. The cool auto demonstration generated a lot of interest and the product was tried with the auto-drivers for free. While the auto-drivers were interested in the product since it was for free, they did not really invest in the maintenance. As a staff member shares, *"In Cool auto earlier, there was no contribution and so the initial beneficiaries passed on wrong messages. The people started to believe that the Rexene would be spoiled and it was cited as a reason especially when asked for contribution; none agreed."*

*However, we learnt from this and for solar roof paint we insisted on contribution. Women are so empowered that they kept checking the quantity of roof paint used and the contribution they made, staff made them understand how it actually works and then she was fine with it."*

- > It is important to have a long-term approach that incorporates strategies for knowledge generation, triggering behaviour change and promoting community-led action. However, the project experience suggests that to mobilize communities around climate change and sustain their interest in long-term resilient planning, it is often essential to serve their immediate interest. As a woman-leader shares, *"Initially when I started conducting area meetings around climate change, in all meetings women would enquire about when the drainage line would be completed? One year into the program the work for drainage line started. Once the change was visible, they took more interest in participatory planning processes. These processes offered them a space to come together and decide collective action that the community wants to take next."*
- > Real-time collection and monitoring of climate data further triggered a behaviour change in communities towards making more informed decisions, and empowered them with knowledge to demand improved government services. As was reported by one partner, *"We had done several trainings earlier on use of water filters, but no one was willing to adopt it. When we conducted water testing, community women realized the quality of water they are drinking was quite bad. We explained how drinking such water results in health problems like kidney stones, stomach illnesses etc. After these drives, people came forward on their own to buy water filters."*

**Key Questions:**

- a. Are you satisfied with the results of the project? Does the time and resources invested justify the outreach and outcomes?
- b. What more would you have liked to see as a part of project outcomes?
- c. Is the project outreach and scale sufficient to justify the adoption of a combination of approaches? Or would it be better to go with any one strategy (refer to Part A)?
- d. How do you see the project actually contributing to what the Trust had identified as its strategy? Is it on track to achieve the desired strategy?

## KEY POINTS IN SECTORAL CLIMATE CHANGE ADAPTATION AND GENDER

### PART A: AGRICULTURE AND FOOD SECURITY

Expected changes in climate – temperature and precipitation.	Climate change will affect agriculture ecosystem.
Average yields of rice will go down.	There will be shortfall in food production.
Floods, storms, cyclones and droughts will increase the instability in agriculture and food production.	Sea level rise threatens coastal and deltaic rice production.
Agriculture land may be submerged due to 1-meter sea level rise.	Saltwater intrusion due to sea level rise could also decrease rice yield.
Rice-growing areas will shift upwards.	Floods will damage paddy fields.
Droughts will result in crop losses.	Women face more market-related barriers.
Rice and wheat are the key staple crops across the world.	90 per cent or more of the world's rice production is from Asia.
Women still lack land rights.	Rising food prices and food emergencies
Rural women, especially the poor, rely heavily on subsistence agriculture.	Women produce 60-80 per cent of domestically produced food.
Floods, storms and cyclones will result in livestock loss.	Women and girls generally eat last and are the first to forgo food during shortage.
Women farmers are often not recognized by authorities as farmers.	Agricultural extension services are often directed to men; they are deemed as "farmers."
Women also lack access to finance and modern business practices.	Women have limited technical information on climate-smart practices.
Women have limited access to weather information and early warning systems.	Women have lower rates of membership in producer cooperatives.
Indo-Gangetic Plains will see significant reduction in wheat yields.	Women favour higher crop diversity.
Water stress will reduce crop (rice) yields for female-headed households.	Water stress will increase the work burden of women subsistence farmers.
Climate change will also increase water stress.	Fodder production will also be affected.
Changes in land use patterns will be observed.	Women tend to be more likely to own small animals, such as chickens, as an alternative/diversified livelihood option.
Small livestock rearing will be more impacted during floods and storms.	60 per cent of chronically-hungry people are women and girls.
Women have the primary responsibility of cooking and food security for family.	With equal access to resources and services, women could increase the yields of their farms by as much as 20-30 per cent.
A 20-30 per cent increase in food yields could feed an additional 100-150 million people.	Women often take leadership in seed selection and preservation.
Women have a profound knowledge of the flora and fauna in their environment, and respective conservation methods.	Women traditionally have used indigenous resources for food, medicines and energy.

**KEY POINTS IN SECTORAL CLIMATE CHANGE ADAPTATION AND GENDER****PART A: AGRICULTURE AND FOOD SECURITY**

Women also play an important role as agents of agro-biodiversity conservation and household food security through gardens or small household plots	Addressing the differences between women and men in access to financial and productive resources, decision-making, markets and services, land and water, and knowledge and technology can be a major adaptation strategy to boost production.
Women invest 90-95 per cent of the money they receive related to biodiversity on improving the family's quality of life.	Bio-diversity losses mainly affect poor and indigenous communities, especially women.
Male outmigration result in growing feminization of agriculture.	Women have traditional strategies for ensuring food supplies in the event of disasters like floods and droughts.
Women are responsible for food and seed storage.	Small livestock are easy cash resources in emergencies.
CCA projects promote drought, salinity and or flood-tolerant new species to cope with ecosystem changes.	If the new crops or varieties are profitable and dominated by men, they may result in displacing women from the plots where they previously cultivated subsistence food crops.
High-yielding and tolerant crop (new) species often require elevated levels of care.	Women's work burden could increase with the promotion of new high-yielding or tolerant species.
To increase resilience, time- and labour-saving technologies that are useful to women need to be focused on.	New varieties may often require the use of pesticides and herbicides without considering gender specifics, especially affecting pregnant women.
Men are more likely to own larger animals, such as cows, as well as improved varieties of livestock.	Cattle are particularly vulnerable to the effects of climate change.
Women also have a major role in cattle care.	Small livestock like goats and chicken can be kept at home and are often less expensive and need less care than larger livestock like cattle.
CCA projects promote water-related infrastructure (dikes, water transfer, or irrigation canals) for diverting fresh water to areas where there is a water shortage.	Water-related infrastructure projects often ignore women's requirements of fresh water needed for their productive and reproductive activities.
Women have a major role in arranging drinking and domestic water.	Women often have greater interest in horticulture or fuelwood-providing trees.

## KEY POINTS IN SECTORAL CLIMATE CHANGE ADAPTATION AND GENDER

### PART B: PUBLIC HEALTH AND EPIDEMICS

Climate change is increasing the risk of health impacts.	There is evidence that mortality rates for women and girls increase during storms and flood events.
Climate change will increase extreme events, like storms and floods.	Women are also at a significantly greater risk of mortality during heat waves.
Climate change will also lead to heat waves.	Water- and vector-borne diseases disproportionately affect the poor more.
Climate change is increasing the spread of water- and vector-borne diseases such as cholera, dengue fever, malaria, and schistosomiasis around the world.	Cultural practices related to purdah, restrictions on mobility, unsuitable dressing, lack of swimming skills, limited access to early warning systems, among others contributed to women's late evacuation resulting in higher mortality rates.
Men may be more susceptible to dengue than women.	Women especially pregnant women are more susceptible to malaria.
Cholera may roughly affect men and women equally in many settings.	There is limited research available to capture the gendered dimensions of health and CCDRR.
Contaminated flood waters will increase bacterial and viral infections.	Bacterial and viral infections related to exposure to contaminated flood waters seem to affect women more.
Females may be disproportionately exposed to skin problems related to floodwater exposure.	Saline contamination expected to increase with climate change and sea-level rise was indicated as affecting pregnant women with preeclampsia, eclampsia and hypertension.
There are increasing trends of gynaecological problems due to unhygienic water use and water logging.	Climate change also impacts mental health, with additional stress especially after disaster often leading to depression and, in extreme cases, suicide.
CCA projects on health promote research on health impacts of climate change.	Women are often tasked with 'education' on how to prevent such diseases in the household area.
Women are generally more susceptible to developing stress-related disorders especially post-traumatic stress disorder (PTSD) and depression	Men are disproportionately more likely to commit suicide.
Climate change-related disasters are also associated with increases in gender-based violence.	LGBTIQ persons, (dis)abled and adolescent girls are particularly at risk of sexual harassment and violence in shelters.
Organized trafficking of women and girls, in fact, is emerging as a potentially serious risk associated with climate-related disasters.	Women in coastal areas also face differential impacts related with consumption of saline water, especially hypertension during pregnancy.
Climate-induced disasters will also lead to significant damage to infrastructure and assets.	Basic services such as water supply systems can be damaged during disasters.
Climate change also threatens the ability of women to access family planning services. Climate-linked natural disasters are likely to hamper access to reproductive healthcare.	Women are more affected due to water scarcity which forces them to walk long distances, carrying heavy loads over long periods of time. This causes cumulative damage to the spine, the neck muscles and the lower back, leading to early ageing of the vertebral column.
Climate change is also likely to impact pregnancy outcomes and care.	The increase in the disease burden due to climate change will also affect the caregiving role of women and girls as they have to take care of the sick in their homes.

KEY POINTS IN SECTORAL CLIMATE CHANGE ADAPTATION AND GENDER	
PART B: PUBLIC HEALTH AND EPIDEMICS	
This increases their workload and women often end up in neglect of their own health and well-being.	Climate change is also expected to increase water scarcity, forcing many families to use unsafe sources, including streams and ponds that are likely to be contaminated.
Recurring drought will further aggravate the problem of water.	Damage to sanitation facilities and scarcity of water, especially toilets and bathrooms not having running water, also restrict menstrual hygiene practices among women and girls.
The impacts of disasters may exacerbate the effects of pre-existing barriers that women have to seeking reproductive health services.	Climate change also threatens crop production in terms of the decline in quality and quantity of food crops, resulting in food insecurity and undernutrition.
Women and girls are often the last to eat and first to forego food and nutrition in times of scarcity	Studies show that after typhoons, infant mortality increased among girls but not among boys, which researchers attribute to competition for scarce resources within families.
Impact of climate change on undernutrition would result in increased disability-adjusted life year (DALY) lost in developing countries.	Women are more susceptible to nutritional deficiencies compared to men because of their distinct nutritional requirements, particularly when pregnant or breastfeeding.
Girls also face an even more serious risk with the onslaught of climate-induced disasters, like an increase in child marriage.	Men's vulnerability to mortality during disaster is because of gender norms that promote risk-taking.
Women often lack, or have less access to, health services.	Women constitute the majority of those who take care of the sick (both as household caregivers and as frontline health workers).
CCA projects on health promote enhanced early warning and disease surveillance systems.	CCA projects promote appropriate technology and behaviour change norms for prevention of diseases.

KEY POINTS IN SECTORAL CLIMATE CHANGE ADAPTATION AND GENDER	
PART C: COASTAL ZONES	
Coastal zones contain unique ecosystems with significant economic assets and activities	Coastal zones typically have higher population densities than inland areas.
Rising temperatures could also lead to changes in fish migration patterns and localized extinction of fish species	Livelihoods of fisher communities will be highly affected with changes in fish availability.
Storms (including tropical storms such as hurricanes and cyclones, as well as thunderstorms) and floods pose a significant life risk for coastal communities.	Asia already has more than 90% of the global population exposed to tropical cyclones.
Coastal and marine systems are under increasing stress from climate change.	Changes in marine ecosystems and frequent disasters will also affect tourism.
Tourism is a major source of supplementary incomes for most coastal families.	Climate change will damage the coastal ecosystems.
Damage to coastal ecosystems will cause loss of livelihoods to millions of people, especially the poor and women.	Coastal freshwater wetlands will also be vulnerable to saltwater intrusion with rising sea levels.
Water resources, by varying degrees of salinity, will be contaminated due to salt water intrusion.	At least 1 in 10 people worldwide live near the coast in a low-lying area, most of them in the United States of America and Asian countries like China, India, Bangladesh, Vietnam and Indonesia.
Marine ecosystems will suffer through increased ocean acidity and water temperature.	This will lead to significant decline in bio-diversity especially local loss of pollinators.
Loss of pollinators will risk food availability for coastal communities.	Saltwater intrusion will affect agriculture production, especially rice yields.
Sea level rise, in combination with cyclone intensification, could increase coastal flooding.	Coastal zones also provide natural barriers from disasters, like storms and cyclones.
Degradation of coastal ecosystems, especially coral reef and mangroves, will significantly exacerbate wave damage.	Rising winter temperatures are also expected to result in poleward expansion of mangrove ecosystems.
Storms and similar climate change-induced disasters will also displace millions of coastal populations.	Sea-level rise is expected to exceed.
Sea-level rise will increase coastal flooding, erosion, and saltwater intrusion into surface and groundwaters.	With sea-level rise, beaches may erode and mangroves, salt marshes, and seagrass beds will decline.
Climate-induced disasters will also lead to significant damage to infrastructure and assets.	Basic services such as water supply systems can be damaged during disasters.
Schools can also be damaged and closed during major disaster events like typhoons.	Women are more likely to die in disaster than men.
Socio-cultural practices like purdah, restrictions in mobility of women, limited access to information and early warning systems, traditional attire and lack of swimming skills hamper women's quick evacuation during disasters.	In the Pacific region alone, it is estimated that women catch about a quarter of the total seafood harvested. In Cambodia, Laos, Thailand, Vietnam and the Philippines, there are communities where women have a greater role in aquaculture production and harvesting of littoral organisms than that of men.
Climate change-related disasters are also associated with increases in gender-based violence	LGBTIQ persons, (dis)abled and adolescent girls are particularly at risk of sexual harassment and violence in shelters.

## KEY POINTS IN SECTORAL CLIMATE CHANGE ADAPTATION AND GENDER

### PART C: COASTAL ZONES

Organized trafficking of women and girls, in fact, is emerging as a potentially serious risk associated with climate-related disasters.	Female-headed households were more likely to be vulnerable to flooding and other storm-related impacts.
Women are involved in the fisheries sector, particularly in processing fish, preparing for market, and small-scale harvesting – activities that are close to the shore.	The loss of near-shore resources' sustenance also impacts women more, especially as household food security and nutrition is threatened.
Men leave communities to find paid income for recovery after a disaster.	The aftermath of a disaster also places acute pressure on women with their everyday workloads.
Indigenous people and women are often predominantly employed in low-paying work in the tourism sector.	Females may be disproportionately exposed to skin problems related to floodwater exposure.
Females, both women and girls, have a greater odds of developing post-traumatic stress disorder (PTSD) than males.	Women in coastal areas also face differential impacts related with consumption of saline water, especially hypertension during pregnancy.
Climate change also threatens the ability of women to access family planning services. Climate-linked natural disasters are likely to hamper access to reproductive healthcare.	The impacts of disasters may exacerbate the effects of pre-existing barriers that women have to seeking reproductive health services.
CCA projects on the protection of the coastline include construction of physical barriers (e.g., seawalls, breakwaters, gabion, groins and sluices).	Without a gender lens, construction projects can end up creating job sources that favour hiring a male work force with no opportunities for women to work.
Women often experience increased vulnerability due to the fact that disaster planning policymaking does not routinely take into account the needs and concerns of women.	Women are often not involved in designing the spaces around them, because construction is often seen as men's work.
Information regarding hazards may not be provided in a way that is easily accessible for women.	Women and men have different preferences regarding how to hear warnings, as women often have less access than men to radios, televisions, and mobile phones.
Women are also more impacted by inaccessibility of shelters due to distance.	Evacuation decisions in many societies for entire families are typically made by men.
Women also face additional barriers if shelters are often not designed to provide them sufficient space or privacy.	CCA projects also promote protection of existing ecosystems and reforestation of areas adjacent to coastlines.
Restoring damaged ecosystems may worsen gender inequality by encouraging the voluntary (unpaid) work done by many women in rehabilitation and conservation activities.	Introduction of native and salt-tolerant plants and animals to protect/re-vegetate the coast, without consulting women and taking into account their knowledge, can have a negative effect on women's interests.
Due to their focus on activities that are often on the side-line of harvesting, women's tasks in relation to fisheries have not been prioritized in economic analyses or resource investment.	Extreme events like typhoons often end up damaging health service infrastructures.
Most of the fishing projects are oriented toward men, and the participation of women is limited with respect to planning, programming and management.	Jobs in the tourism sector reproduce the traditional forms around the sexual division of work (i.e., hiring women as chambermaids and cooks).

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS				
EXAMPLE 1: WOMEN'S ECONOMIC EMPOWERMENT THROUGH AGRICULTURAL VALUE CHAIN ENHANCEMENT (WEAVE)				
COUNTRY	ORGANIZATION	SECTOR		
VIETNAM	Oxfam, Care International, SNV	Agriculture		
DESCRIPTION	<p>WEAVE supports ethnic minority women's economic empowerment in pork, cinnamon and banana value chains. Across each value chain, women producers' potential is restricted by lack of access to secure markets, technical skills and finances along with a division of roles and responsibilities between women and men that exclude women from decision-making and lead to high domestic and income-generating workloads. In the period 2013-2015, the project supported over 1,720 remote ethnic minority women to learn about their rights and access finance for income generation activities through establishing 41 women's Village Saving and Loan Associations (VSLAs) and strengthening 30 existing women's groups. The project worked with 426 remote ethnic minority women, training them on climate change and helping them to identify and implement new climate-resilient livelihood options.</p>			
GENDER STRATEGY/IMPACT	<p>Besides having women as its core development partner, the project aimed to promote equality between women and men within households and producer groups, strengthening women and men producers' skills and bargaining power, and working with business and government decision-makers to improve the policy environment to support producers. Through activities and discussions targeting both women and men, the project supported equality between women and men so that women can enjoy increased benefits from their work in the banana, cinnamon and pork value chains</p> <p>The project also completed a participatory gender analysis to identify women and men's roles, responsibilities and harmful gender norms, and worked with communities to develop Action Plans to address any harmful norms. It also engaged over 400 project participants and partners in dialogue about gender-based violence, with women's group facilitators showing an increased commitment to addressing the issue. This included working with male authorities to create spaces for women's voice in decision-making forums, and establishing a 'Men's engagement for gender equality' network to promote women's rights.</p>			
Source: Pham and Pham (2018).				
EXAMPLE 2: VEGETABLE GARDENS BRING VERITABLE GAINS FOR WOMEN				
COUNTRY	ORGANIZATION	SECTOR		
CAMBODIA	UNEP, UN Women	Agriculture, Energy		
DESCRIPTION	<p>UN Women and UN Environment have jointly initiated the EmPower project, for strengthening gender-responsive climate and disaster risk reduction (DRR) policies. Between 2018 and 2022, the programme will focus on Bangladesh, Cambodia and Vietnam, along with many governmental, non-governmental and civil society organization partners, towards achieving this.</p> <p>In Cambodia's Pursat province, the project builds on a scoping study by EmPower and Nexus for Development which highlighted how the area was facing the dual burden of excess and little water. On one hand, there were floods which wash away the harvest. On the other hand, during some months, taps run dry, paddy fields wither and villagers walk up to 20 kilometres to collect water. With an aim to promote climate-resilient livelihoods, the project encourages and supports women to use renewables – powered water pumps, biodigesters, and harvest refrigerators and dryers – that can greatly benefit women farmers in the long run.</p> <p>Through support from the project, women have also started diversification into home-grown vegetable gardens. From Chinese cauliflower to lettuce and gourds, multi-cropping in these gardens is not only helping keep the land fertile but is also a steady source of income, bringing nearly US\$500 per growing cycle. Water for the gardens comes from local/family wells, with the help of an electric pump and/or diesel generator, which are enabled through promotion of renewable energy in the areas where gaining access to the grid is still a challenge.</p>			
GENDER STRATEGY/IMPACT	<p>The most crucial part of this project is to encourage women and marginalized groups to participate in the decision-making process; generate, analyze and use sex, age, and disability disaggregated data (SADD) to inform policy; improve gender-responsiveness in climate and disaster risk reduction policies; enable women to use renewable energy as economic resources for resilient livelihoods; and improve regional mechanism, processes and knowledge on climate change and disaster risk reduction to include gender and human rights.</p>			
Source: UN Women and UNEP (2019).				

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS				
EXAMPLE 3: PROMOTING CLIMATE RESILIENCE FOR WOMEN THROUGH BIODYNAMIC FARMING AND WATER-RETAINING VEGETABLES				
COUNTRY	ORGANIZATION	SECTOR		
NEPAL	Aabash Memorial Foundation	Agriculture		
DESCRIPTION	<p>This Aabash Memorial Foundation (AMF) project empowers marginalized women facing climate change and water scarcity in the Khokana community in Nepal through practical assessments and trainings on environmental resilience. Actions are put in place through knowledge dissemination on climate impacts, along with practical assessments.</p> <p>The project focuses on food security and water availability, and women are empowered to be self-reliant in terms of decision-making concerning water-retaining vegetables for improved cropping, knowledge of biodynamic farming systems, climate change impacts, and sustainable measures that would help to build adaptive capacity during water scarcity on their farm lands.</p> <p>Activities include awareness programs in schools/colleges/women's groups, group technique discussions, and solar demonstration. Key indicators of affordability and sustainability include increased food supply with water-retaining crops; reduced working hours and time spent to fetch water; less conflicts; and revenue from vermicomposting fertilisers.</p>			
GENDER STRATEGY/IMPACT	<p>The most crucial part of this project is to empower women and girls living in a community with low literacy rate. The project also aims to empower them by teaching about climate change impacts, sustainable solutions, solar demonstration training, rainwater harvesting system, and others. Besides that, women and girls also learn vermicomposting with solid waste and they would sell the compost to generate revenue.</p>			
Source: WECF (2017).				
EXAMPLE 4: COMMUNITY LIVESTOCK DEVELOPMENT PROJECT (CLDP)				
COUNTRY	ORGANIZATION	SECTOR		
NEPAL	Asian Development Bank	Livestock		
DESCRIPTION	<p>The goal of the Nepal Community Livestock Development Project (CLDP) is to reduce poverty in rural communities through gender and socially-inclusive development. It aims to improve food security, nutrition, income and employment for 164,000 families through increased productivity from livestock production and small-scale livestock-related enterprises in 48 out of 75 districts in all five regions of Nepal. The key components of the project include:</p> <ul style="list-style-type: none"> <li>&gt; Formation of 3,450 mixed farmers' groups (at least 35 per cent are women) with 20 households per group to select an enterprise from a menu of 15 livestock enterprises.</li> <li>&gt; Identification of 15 livestock improvement models as suitable investments, including forage development, calf rearing, goats, pigs, and poultry, to enable the participation of the poor, including women, disadvantaged groups and landless farmers.</li> <li>&gt; Small-scale processing and marketing of livestock and livestock products to create employment and to improve the quality of livestock products. Enterprises range from live animal markets to milk chilling centers, milk processing facilities, slaughter slabs, meat shops and para-veterinary practices.</li> <li>&gt; Strengthening outreach to communities in high altitudes through surveys and participatory rural appraisals conducted to identify the overall development needs and particular needs to improve livestock rearing in pilot areas.</li> </ul>			
GENDER STRATEGY/IMPACT	<p>Given the predominance of women in the livestock sector, the CLDP's intended impact, outcome, and outputs included gender-based objectives and performance indicators, and the project was classified with a gender equity theme. To facilitate gender mainstreaming throughout project implementation for the achievement of gender-inclusive project outcomes, the project mandated all surveys and participatory rural appraisals to collect information on livelihoods, livestock production and processing activities at high altitudes, addressing gender issues through consultations with both men and women.</p> <p>The socioeconomic assessment during project preparation underscored that while only a small proportion of poor women and men had access to training in improved livestock care, women were particularly difficult to reach and hard to organize into groups as they faced higher opportunity costs resulting from delayed investment payoffs.</p>			

### EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS

#### EXAMPLE 4: COMMUNITY LIVESTOCK DEVELOPMENT PROJECT (CLDP)

Source: ADB (2010).

A component-wise Gender Action Plan (GAP) was developed during the design phase: which focused on ensuring that 35 per cent of the farmers in all activities were women; 50 per cent of the participants of training and loan recipients were women, and that women were provided the necessary support to participate in farmers' groups and umbrella-ward level farmer coordination committees, community associations and cooperatives. The project also focused on promoting one model woman entrepreneur per project district to increase women's participation in enterprise development.

#### EXAMPLE 5: ECONOMIC EMPOWERMENT OF RURAL WOMEN WITH SOLAR ENERGY AND MICRO-ENTREPRENEURSHIP

COUNTRY	ORGANIZATION	SECTOR
INDIA	AIWC–Priyadarshini Mahila Samajam	Agriculture, Energy
DESCRIPTION		
	This green energy project aims to demonstrate the economic sustainability and gender impact of selling solar-dried fruits, vegetables, and condiments. The micro-enterprise, created and managed by five women, uses two solar dryers (capacity of 50 kilograms each) to process and transform local seasonal fruits and vegetables into packaged food products with strong value added. They work with 43 women suppliers who receive important additional revenues and reduce product wasting. The organization trains women's groups in solar drying processes and marketing skills.	
GENDER STRATEGY/IMPACT		
	Women are empowered through local production and sale of high value-added food products. Revenue increase for women employees and suppliers (from US\$10 to US\$30 per month, depending on the season and product). Reduced labour burden (two hours per day), creating time for other income-generating activities. Participation in purchasing and processing decisions, marketing, and profits sharing. The micro-enterprise participates in fairs and festivals to share knowledge and offer training support.	

#### EXAMPLE 6: ORGANIK FARM: EMPOWERING WOMEN FOR A SUSTAINABLE, CLIMATE-RESILIENT FOOD PRODUCTION

COUNTRY	ORGANIZATION	SECTOR
VIETNAM	APFSVA – Association Pour la Promotion des Femmes Scientifiques Vietnamiennes	Food Security
DESCRIPTION		
	Organik Farm (created in Dalat, Vietnam in 2007) is a perfect example of women's empowerment through sustainable, climate-resilient farming and food distribution. Organik processes "bio" certified vegetables and fruits from mountainous lands. Vegetables are grown according to GAP (Good Agricultural Practices) and organic standards. The produce is distributed through their Ho Chi Minh City shop, online shop, diverse retail channels and export to Cambodia and Thailand. The Farm employs women at all levels: farming, sales, accounting, purchasing and management. It offers a specific pricing policy for schools and hospitals, ensuring organic diet for children and the sick.  The Farm strengthens the ecosystems, ensuring presence of beneficial insects, greater below-ground diversity, nutrient cycling, disease suppression, nitrogen fixation. Its performance is good in energy consumption, soil conservation, water-use efficiency, water purity and increasing soil health (crop rotations, green manures, composting), proving that a farm can manage resources sustainably and while being climate-friendly.	
GENDER STRATEGY/IMPACT		
	Vietnamese girls and women continue to suffer gender-based violence and gender inequalities. Organik Farm has 55 employees, of which 44 are women: 8 of 17 farmers, 20 of 21 processing staff, 12 of 14 managers, and 2 of 3 shop assistants. Employees climb the work ladder very fast. Organik trains women on organic GAP; hygiene food safety; free range; non-GMO; crop rotation; seedlings; natural pest control; animal husbandry. They also build capacity on decision-making for sales, purchases and coordination of market schedules.	

Source: WECF (2017).

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS		
EXAMPLE 7: REGIONAL FISHERIES LIVELIHOODS PROGRAMME FOR SOUTH AND SOUTH-EAST ASIA (RFLP)		
REGION	ORGANIZATION	SECTOR
SOUTH AND SOUTH-EAST ASIA	Food and Agriculture Organization of the United Nations (FAO)	Fisheries
DESCRIPTION	<p>The RFLP was a four-year project (2009-2013), for strengthening capacity among participating small-scale fishing communities and their supporting institutions in Cambodia, Indonesia, the Philippines, Sri Lanka, Timor-Leste and Vietnam. It seeks to improve the livelihoods of fishers and their families while fostering more sustainable fisheries resources management practices. The project has six key areas of focus:</p> <ul style="list-style-type: none"> <li>&gt; Co-management mechanisms for sustainable utilization of fishery resources</li> <li>&gt; Improved safety at sea and reduced vulnerabilities for small-scale fisher communities</li> <li>&gt; Improved quality of fishery products and market chains</li> <li>&gt; Strengthened or diversified income opportunities for fisher families</li> <li>&gt; Better access to microfinance services</li> <li>&gt; Increased sharing of knowledge</li> </ul>	
GENDER STRATEGY/IMPACT	<p>The project especially focused on undertaking a gender analysis to understand the gender roles in fishing communities. This was used to provide gender trainings to men and women in fishing communities. The trainings were an opportunity for meso-level actors to be aware of "gender perceptions" and "gender stereotypes in the fisheries sector." RFLP also focused efforts on increasing the participation of women in decision-making, including their participation in co-management mechanisms, taking various roles in fisheries management interventions. In the Philippines, RFLP integrated gender into Coastal Resource and Fisheries Management Plans (CRFM) of the Local Government Units (LGUs). As a result, women will be acting as fish wardens and fishery law enforcers. RFLP is also working with the communities to set a women's managed area. In Sri Lanka, the inclusion of women representatives in co-management coordination committees was made compulsory, as well as the inclusion of minimum of two women directors in the Fish Finance Network Association. In Timor-Leste, women were involved as signatories of the first ever documented Tara Bandu, a traditional coastal resources management practice. Local authorities and communities were informed of the need to involve women in resource management, and agreed to an RFLP request to include women as signatories of the Tara Bandu document. Women now have a role in the formalization of the traditional and community-based resource management system, albeit a mainly symbolic one, a role that they did not have before the RFLP intervention. As signatories, they will now participate in all decision-making meetings. In Vietnam, the RFLP supported 16 Fisheries Associations (FAs) between the provinces of Quang Nam, Quang Tri and Thua Thien Hue. The FAs are community-based organizations for mainly male fishers – of the 1,335 members, only 36 are women. In Vietnam, it is normal that men represent their household in most registrations. The local authorities' argument is that even if women's names do not appear in FA, they are considered FA members. RFLP worked through this to increase women's FA membership and encourage their active participation, through an incentive scheme that includes: i) providing assistance for livelihood model implementation to women that are FA members only; and ii) specifying that the membership fee is by household, instead of individual. This means that if both husband and wife are members, they will only need to pay one fee.</p>	
Source: FAO (2012).		

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS		
EXAMPLE 8: EMPOWERING WOMEN'S GROUPS IN DISASTER-PRONE AREAS THROUGH COMMUNITY-BASED SUSTAINABLE WATER MANAGEMENT		
COUNTRY	ORGANIZATION	SECTOR
INDONESIA	YAKKUM Emergency Unit (YEU)	Water
DESCRIPTION	<p>The Gemawang, Kaloran and Temmangung districts in Central Java are threatened by water scarcity and landslides due to deforestation. This project empowers women's groups to identify and implement adaptation strategies within their communities. The women conduct field assessment and feasibility studies with village authorities and water experts and select appropriate water management technologies to adapt to a changing environment. They use water-saving solutions, water infiltration techniques and ecological sanitation, improving livelihoods in their communities.</p> <p>Massive deforestation in the Central Java area significantly reduced groundwater supply and led to a severe drought. The changing function of the forest caused serious damage to the land and increased the risk of landslide. The women's groups and people in the sub-villages have worked together to develop sustainable water management systems, preserve important old trees and replant young trees around the water sources to prevent landslide, maintaining water supply through infiltration and preserving a balanced ecosystem. These measures are effective climate adaptation strategies.</p>	
GENDER STRATEGY/IMPACT	<p>The project was initiated by women. The women's groups are actively involved in decisions on water management technology and they do advocacy both at local and regional level. Ten members of the women's group Muncar Lor's were involved in the regional authority's field assessment on water. Gender equality is also strengthened by income-generating activities through the sale of water technology. This new income can be used to maintain facilities, set up social funds and ensure self-development.</p> <p>Source: WECF (2016).</p>	
EXAMPLE 9: ETHNIC MINORITY WOMEN'S EMPOWERMENT		
COUNTRY	ORGANIZATION	SECTOR
VIETNAM	CARE International in Vietnam	Livelihood
DESCRIPTION	<p>This project aims to empower remote ethnic minority women to actively participate in local socio-economic development planning and decision-making. To achieve this objective, the project focuses on four components: i) women's voice in local development plan; ii) climate-resilient livelihood; iii) strengthening women's groups; and iv) fighting gender-based violence. The project targets 4,500 women and 3,000 men of Thai, Tay, Dzao and Hmong people in remote northern mountain area. Nearly 90 per cent of women were aware of climate change and its implication on their community, and 43 per cent of target women increased their income.</p> <p>The project worked with indigenous communities to conduct climate vulnerability and capacity assessments, as well as research on climate-resilient livelihood models. For the first time in their life, local people reflected on climate change and its impact. A system of Sustainable Rice Intensification (SRI) was applied. People saved 40 per cent of their seedlings, reduced fertilizers use by up to 40 per cent and saved 30 per cent water. Carbon dioxide (CO<sub>2</sub>) emissions from SRI practice can fall by 70 per cent. This model helps farmers adapt better to drought and disaster by reducing water usage and shortening the cultivation period.</p>	
GENDER STRATEGY/IMPACT	<p>The project established a social protection net for local women via a saving and loan association. This is a platform for women to talk, share, start saving and gain easy access to loans. It improves women's confidence and solidarity. The SRI technical trainings were introduced for men and women. For the first time, the women could build their capacity on technical knowledge and agriculture, which is usually male-dominated. As a result, women improved their income by US\$70 per acre of rice.</p> <p>Source: WECF (2016).</p>	

**EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS**

**EXAMPLE 10: WOMEN AS DRIVERS OF CHANGE FOR SUSTAINABLE FOOD CONSUMPTION AND PRODUCTION**

COUNTRY	ORGANIZATION	SECTOR
TAIWAN	Homemakers United Foundation	Food Security
DESCRIPTION	<p>Started in 2012, this project aims to empower women and local communities to address food security problems under climate change. This is achieved in four ways: i) mobilizing women to adopt a low-carbon food consumption lifestyle through workshops; ii) supporting women to launch climate change campaigns in their communities; iii) providing a free online map to promote local food sourcing from "green spots"; and iv) drawing the government's attention on food education in communities and schools.</p> <p>In the past decade, the number and intensity of typhoons have escalated, threatening Taiwan's food supply. Homemakers United Foundation convinced 580 small farmers to use non-GMO (genetically-modified organism) seeds and sustainable farming practices. Between 2012 and 2016, 100 food education programs were held in Taipei, Taichung and Kaohsiung, participated in by more than 4,000 mothers and members of the local communities. In 2015, a "Green Food Community Online Map" was launched, mobilizing youth on an "anti-climate change" action on a daily basis.</p>	
GENDER STRATEGY/IMPACT	<p>In Taiwan, women are aware of climate change and are drivers of change. Homemakers United Foundation enables more than 700 women to launch and lead various food education programs in primary schools, universities and their communities. Women are empowered to trigger behavioural change towards sustainable food consumption and production (reducing food waste, eating locally and seasonally, sourcing locally to urban farming and others).</p>	
Source: WECF (2016).		

**EXAMPLE 11: AGRO-CLIMATE INFORMATION SERVICES FOR WOMEN AND ETHNIC MINORITY FARMERS IN SOUTH-EAST ASIA (ACIS) PROJECT**

COUNTRY	ORGANIZATION	SECTOR
VIETNAM	Care International Vietnam	Agriculture
DESCRIPTION	<p>The ACIS project is co-implemented by CARE International in Vietnam and World Agroforestry Centre (ICRAF), with funding from the Research Program on Climate Change, Agriculture and Food Security run by the Consultative Group on International Agricultural Research (CGIAR). CARE applied a Participatory Scenario Planning approach to engage stakeholders from different backgrounds, including meteorology and agriculture, to participate in discussions with commune staff, village heads and representatives of Village Saving and Loan Associations (VSLA), which are self-managed, sustainable groups of women aimed at creating opportunities through financial cooperation. These discussions are to generate and share downscaled (detailed and local, rather than regional) seasonal forecasts sourced from both scientific and local knowledge.</p>	
GENDER STRATEGY/IMPACT	<p>These forecasts are translated into agricultural advisories and actionable information, taking into consideration the local farming context, language and culture. The translated information is shared with women members in the VSLA group in their monthly meetings. Female members have the chance to provide feedback on how they apply the advisories and it is also the forum for them to raise their general needs, concerns and issues to commune officials and government agricultural authorities. For example, before the annual Socio-Economic Development Plan process, the VSLAs engaged in discussions about their issues and raised them with village heads and the commune People's Council in consultation meetings. Women are also able to seek advice from Agricultural Extension Workers regarding farming practices such as seasonal calendar application, crop structure development and pesticide, and herbicide and fertilizer management. Men and boys are engaged in the discussions with women about sharing of workload, in productive and reproductive activities, and decision-making regarding agricultural inputs at the household level and other decisions at the community level.</p>	
Source: VUFO-NGO Centre and CCWG (2017).		

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS		
EXAMPLE 12: STRENGTHENING CLIMATE INFORMATION AND EARLY WARNING SYSTEMS		
COUNTRY	ORGANIZATION	SECTOR
CAMBODIA	UNDP	Disaster Risk Reduction, Agriculture
DESCRIPTION	<p>Supported with funding from the Global Environment Facility – Least Developed Countries Fund, this project (2015-2020) is supporting the Royal Government of Cambodia (RGC) to bridge existing gaps in institutional capacity, inter-ministerial coordination and infrastructure. It focuses on enhancing the inclusion of climate change considerations in short- and long-term planning, sectoral planning and other decision-making processes. Data generated through installed hardware, along with risk mapping and forecasted data, are being made available to specifically benefit agriculture and water management sectors in their planning processes. Under the project:</p> <ul style="list-style-type: none"> <li>&gt; 24 automatic weather stations and 29 automatic hydro stations were installed</li> <li>&gt; 29 hydrologists, meteorologists and technicians were trained in modelling and forecasting</li> <li>&gt; A Forecast Application for Risk Management (FARM) Field School curriculum was developed</li> <li>&gt; A seasonal forecast system ('FOCUS') was established</li> <li>&gt; Three national climate outlook forums ('Monsoon Forums') were hosted</li> <li>&gt; Drought Information Hubs (InfoHubs) were established in Takeo, Kampot, Kampong Chhnang, Pursat and Battambang provinces, with another three to be developed by May 2020</li> <li>&gt; More than 60 trainings were conducted for local agricultural cooperative leaders, farmers and partners on drought-resistant agricultural techniques</li> <li>&gt; Five international partnerships and four local partnerships were forged</li> <li>&gt; More than 20 women were trained in disaster risk reduction and early warning systems</li> <li>&gt; More than 1,300 farmers were trained in drought-resistant agricultural techniques</li> <li>&gt; 12,511 Cambodians were reached through the extension of the phone-based early warning service EWS1294 (in Koh Kong, Sihanoukville, Kampong Cham, Tboung Khmum and Prey Veng)</li> <li>&gt; 2,369 children were trained in school safety drills</li> </ul> <p>The project also partnered with EWS1294, a free mobile phone service developed by the non-government organization (NGO) People in Need (PIN) in Cambodia following severe flooding in 2013. The focus is to extend the service from the existing five provinces to eight provinces, with the goal of nationwide coverage by 2020. EWS1294 is a practical means for Cambodians to receive early warning messages. According to a 2016 study, more than 96 per cent of Cambodians report owning a phone, and more than 99 per cent are reachable through some sort of phone. Members of the public register by simply dialling 1294 and entering their location. In the event of an emergency, such as a flood or storm, users in the affected area receive an audio message from the National Committee for Disaster Management, warning them of the risks and steps to take to protect themselves, whether evacuating to the nearest safe site, staying indoors or securing their livestock. Since being piloted in 2013, EWS1294 integrated into the National Committee for Disaster Management's disaster management strategy. In 2018, UNDP and PIN also worked together to install water-level stations and engage with communities in the flood-prone coastal provinces of Koh Kong and Sihanoukville.</p>	
GENDER STRATEGY/IMPACT	<p>Within the project, UNDP, with a focus on enhancing gender equality in early warning system and disaster risk reduction, also forged a partnership with Action Aid for increasing the representation of local organizations and women in disaster management and climate change adaptation decision-making. This ensures their voices are heard locally and nationally, and makes sure their knowledge and contributions are maximized. The project focuses on selecting, training and linking local women as 'DRR Champions' with skills in community-based disaster risk reduction; hazard, vulnerability and capacity assessments; and leadership and advocacy. The project also developed a Women's Resilience Index for Cambodia. Women and youth will be trained in data collection and entry, with analysis supported by international specialists. The project will also produce and promote a women's 'Charter of Demands for Disaster Risk Reduction and Climate Change Adaptation.' The Charter will be developed based on data and consultative workshops, and on input from women 'DRR Champions' from the two provinces. The Charter will provide the basis for advocacy at the sub-national and national levels, seeking action on priority areas.</p>	
Source: UNDP GEF (2020).		

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS				
EXAMPLE 13: COMMUNITY CAPACITY-BUILDING THROUGH AN ALTERNATIVE APPROACH BASED ON PARTICIPATION IN HANDLING DENGUE HAEMORRHAGIC FEVER (DHF) IN SEMARANG				
COUNTRY	ORGANIZATION	SECTOR		
INDONESIA	Mercy Corps Indonesia	Health		
DESCRIPTION	<p>The ACTIVE (Actions Changing The Incidence of Vector-Borne Endemic Diseases) program was carried out with the local Government of Semarang (Health Department, Development Planning Agency, Meteorology Climatology and Geophysics Agency, Department of Education) and academics of Diponegoro University. The focus is to build the adaptive capacity of the city to respond to DHF through increase in community participation. The alternative approach in the ACTIVE Program is a variation of the method used in a series of capacity-building activities such as: i). the use of educational games; ii) a participatory approach; iii) interactive discussions; iv) workshops; v) the use of modules and props; vi) meetings to mobilize the commitment of stakeholders; vii) adult learning approaches; and viii) mentoring activities that always involve the community. Through this approach, the project was able to increase the community's enthusiasm on participation in various activities ranging from training to practicing the things that they learned related to the control and prevention of dengue in everyday life.</p> <p>In addition to motivating the community, an alternative approach is expected to shape the culture of the community in applying clean and healthy behaviour. The ACTIVE program comprises a series of 10 activities comprising of three stages of community capacity-building efforts including: i) preparation and training – Training of Trainers (ToT), the community and schools, action orientation group (AOG), training of cadre, empowering small doctors; ii) implementation – larva monitoring routine (PJR), mosquito breeding site eradication (PSN), the health information system (HIS) and the health early warning system (HEWS); and iii) maintaining continuity – through workshops and assistance prior to musrenbang (community discussion about local development needs) and mentoring.</p>			
GENDER STRATEGY/IMPACT	<p>Mercy Corps uses a gender approach (and not a women's approach) because we recognize that sustainable solutions to the challenges outlined above require that men and boys play key roles as partners, supporters and advocates of the integration of women's and girls' participation in their communities.</p>			
Source: Pratama, et al. (2017).				
EXAMPLE 14: POPULATION, HEALTH AND ENVIRONMENT (PHE) APPROACH IN CLIMATE CHANGE POLICIES				
COUNTRY	ORGANIZATION	SECTOR		
PHILIPPINES	PATH Foundation Philippines, Inc.	Health		
DESCRIPTION	<p>PATH Foundation Philippines, Inc. (PFPI) implemented the Population, Health and Environment and Climate Change Project in the Philippines' Verde Island Passage. Verde Island is a key marine biodiversity area threatened by overfishing, pollution and climate change. The goal of the project is to mainstream sexual and reproductive health and rights (SRHR) into climate change policy and practice. The project applied a developmental approach (PHE) that forges multisectoral collaboration and partnership, and employs multiple interventions to address SRHR needs (family planning), biodiversity loss, poor health and food insecurity to foster climate-resilient communities.</p> <p>Women play a critical role in achieving climate change resilience. PFPI's scoping study results show that women are central to conceiving and implementing solutions. Planning their families, managing the resources and being pro-health and pro-environment advocates in their own communities will help build resilience to climate change. All these will contribute to a better future for their children. The women also highlighted that collaboration and agreements between communities will create synergy in community actions and results.</p>			
GENDER STRATEGY/IMPACT	<p>At the core of the population, health, environment and climate change nexus is the "burden on the woman." Fishing communities in the Verde Islands experience declining fish catch, depleting potable water and poor health. Lack of livelihood options, loss of family income and food insecurity drive women to engage in multiple jobs and to work longer hours to supplement the family's income. The project addresses women's needs and rights as well as family planning in a participatory approach, helping them identify coping strategies.</p>			
Source: WECF (2016).				

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS				
EXAMPLE 15: REPRODUCTIVE HEALTH CARE IN EMERGENCY RESPONSE				
COUNTRY	ORGANIZATION	SECTOR		
PHILIPPINES	UNFPA	Coastal Disaster Management		
DESCRIPTION	<p>After Typhoon Haiyan, United Nations Population Fund (UNFPA) estimated that there were 230,000 pregnant women in affected areas, with 835 women giving birth every day with very limited access to emergency obstetric care. UNFPA and its partners provided lifesaving maternal health services through 80 temporary maternity wards, two emergency obstetric theatres in containers and 34 ambulances, including motorbikes. Women and girls of reproductive age were also provided access to basic hygiene items, such as sanitary pads, underwear and soap, through the distribution of 105,000 dignity kits in evacuation centres. An additional 110,000 kits were for pregnant and lactating women. UNFPA also focused on ensuring that 4,000 women every week have access to reproductive health care services by providing equipment and repairing infrastructures in all eight affected provinces.</p> <p>In the aftermath of the storm, UNFPA also paid special attention to the needs of young people affected by the disaster. With their direct involvement and the help of local partners, UNFPA set up 'Youth-Friendly Spaces' that offer peer education training for volunteers and various activities for local youth, including information sessions about life skills and responsible sexual behaviour. More than 20,000 young people across hard-hit areas attended UNFPA-supported health information sessions to address issues of gender-based violence. UNFPA established 17 women-friendly spaces across the four provinces. The spaces serve as primary venues for raising awareness on gender-based violence, anti-trafficking and psychosocial support with referrals to services for survivors. It also has linkages to cash-for-work programmes. In addition, 2,400 service providers were oriented on handling gender-based violence cases during emergencies.</p>			
GENDER STRATEGY/IMPACT	<p>As needs intensified after Typhoon Haiyan, UNFPA began working with the Government of the Philippines to ensure that women affected by the typhoon are not cut off from life-saving reproductive health care, wherever they are located.</p>			
Source: UNFPA (2018).				
EXAMPLE 16: COOL ROOFS FOR URBAN POOR				
COUNTRY	ORGANIZATION	SECTOR		
INDIA	Mahila Housing SEWA Trust (MHT)	Health and Livelihood		
DESCRIPTION	<p>Abnormally high temperatures not only increase energy demand but also impact health and livelihood of the poor, especially those living in urban slums. More than 60 per cent of urban roofs are made from metal, asbestos and concrete, trapping heat inside buildings. Home-based workers, mostly women, are most affected by this, with reports of decline in their productivity by up to 30 per cent in summer. To address this, the MHT piloted a programme on cool roofs for the urban poor in India. By shifting to passive cooling, these homes could better adapt to days of extreme heat, making households less vulnerable to weather impacts and improving their resilience against climate change risks. Cool roofs reflect sunlight and absorb less heat. Depending on the setting, cool roofs can help keep indoor temperatures lower by 2-5 degrees Celsius (3.6-9 degrees Fahrenheit) compared to traditional roofs. Cool roofs can cost from as little as 0.5 per square foot for a simple lime-based paint, to more expensive reflective coatings or membranes. There are three key models of cool roofs that are being piloted:</p> <ul style="list-style-type: none"> <li>a. "Air Lite" ventilators: Made of fibre sheet, these dome-shaped roof ventilators not only improve air circulation and reduce inner temperatures, they also enable better day-time lighting of homes, thereby reducing electricity consumption (of fans and tube lights) by almost half and helping deal with indoor air-pollution.</li> <li>b. "Mod-Roof" tops: Made of paper waste and coconut husk, these water-proof mod-roofs not only reduce home temperature by 6-8 degrees Celsius but also provide for a cheaper and environment-friendly alternative to RCC roofs. They are easy to dismantle and can be reinstalled after adding additional floors or when moved to new locations. It is a boon for slum dwellers with uncertain land tenures.</li> <li>c. Heat-Reflective Paints: Painting the roofs of households with heat-reflective paint lower indoor temperatures by up to 2 degrees Celsius.</li> </ul> <p>MHT also partnered with University of Chicago Energy and Environment Lab in Delhi and with National Defence Research Council (NDRC) to evaluate the effectiveness of these technologies in lowering indoor temperatures.</p>			

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS		
GENDER STRATEGY/IMPACT	DESCRIPTION	
Source: <i>Mahila Housing SEWA Trust</i> (2017).	<p>Cool roofs have multiple benefits for women, as highlighted from the pilots. They help reduce energy bills, while also providing bearable afternoon time for home-based women workers. The project also mobilizes women to generate awareness on the benefits of using the product by training women entrepreneurs, and designs a loan product to create a sustainable business model.</p> <p>Cool roofs also help build community resilience to extreme heat. The organization also elevated the experience through women leaders at the city level. Ahmedabad City now has a cool roofs program for over 3,000 low income homes as part of its heat action plan.</p>	
<b>EXAMPLE 17: SOLAR HOME LIGHTING SYSTEMS PROMOTED BY INDIGENOUS YOUNG WOMEN IN THEIR TRIBAL COMMUNITIES</b>		
COUNTRY	ORGANIZATION	SECTOR
INDIA	Rural Agency for Social and Technological Advancement (RASTA)	Energy
<b>DESCRIPTION</b> <p>The project trains indigenous young women to install solar photovoltaic systems for indoor lighting in tribal homes of the forest area of Wayanad in India. RASTA cooperates with the Barefoot College women of Rajasthan to train young women from a tribal community in installing and operating photovoltaic lamps. After the training, the young women conduct installations in their community, and motivate the community to contribute a small fee for ongoing and future maintenance. The major beneficiaries are school children and women, as the illuminated homes allow time for homework and keep wild animals away.</p> <p>The photovoltaic systems, installed in 165 households of a remote forest area, reduced the climate impact of the tribal community by approximately 16.5 tons of greenhouse gas (GHG). Their consumption of kerosene was considerably reduced by around 10,000 liter per year. The lamps' batteries can be returned, recycled and refitted, reducing the environmental impact of the project.</p>		
GENDER STRATEGY/IMPACT	<p>The project's committee consists of 80 per cent women, and the installations are carried out by trained tribal girls. The installation process attracts women, who are taking on a job traditionally done by men. The social recognition and the economic status of the female solar engineers improved. As a consequence, dropouts of girls from school were reduced, and women improved their reading habits.</p>	
<b>EXAMPLE 18: GENDER ASSESSMENT OF NON-TIMBER FOREST PRODUCTION AND CAPACITY BUILDING</b>		
COUNTRY	ORGANIZATION	SECTOR
LAO PDR	Gender Development Association	Forestry
<b>DESCRIPTION</b> <p>Gender Development Association (GDA) assessed gender roles in the northern rural uplands of Lao PDR, focusing on Non-Timber Forest Production (NTFP). The project used a women's empowerment lens to bridge traditional harvesting practices with sustainable livelihood initiatives in the target communities. The 4,500 project beneficiaries were women, their families and fellow community members. Many of them belong to the Hmong and Khmu ethnic groups who were systematically marginalized in Lao PDR. The project identified key areas and documented policies for improving sustainability. Women leaders in the community participated in the Training of Trainer workshops, with the goal to enhance their capacity and their knowledge sharing.</p> <p>The villages selected for the assessment were located in high-risk landslide regions. The risk increased in past years due to deforestation from overharvesting. By supporting alternative economies and NTFPs, GDA works towards mitigating the risk of natural disaster. Natural resources are preserved through training and advocacy on sustainable harvesting practices, especially advocating for policy reform in the area of unsustainable harvesting of fish, cardamom and wild mushrooms.</p>		
GENDER STRATEGY/IMPACT	<p>In addition to the familial and household duties, women in the targeted villages are also primarily responsible for NTFP. Using a rights-based gender framework, the project conducted awareness raising and training on financial management to promote financial independence. By building the capacity of the women to become knowledge bearers in the field of agriculture and income generation, the project aimed to increase their inclusion and impact on community decisions.</p>	
Source: <i>WECF</i> (2017).		

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS				
<b>EXAMPLE 19: BIODIVERSITY PRESERVATION: WOMEN'S ROLE IN MANGROVE RESTORATION</b>				
COUNTRY	ORGANIZATION	SECTOR		
INDONESIA	Natural Aceh	Coastal Ecosystem		
DESCRIPTION	<p>In a poor coastal village in Aceh, men go out to sea for days to catch fish, while women add to the family income by collecting oysters around the village. Through training and awareness-raising of local women on the importance of restoring mangrove forests, the project manages to secure increased household income and mitigate climate change. With a long-term focus, the practical training looks at seedling techniques, planting and sustaining ecosystems. Through community participation, the project contributes to food security and nutrition, improving the lives of 1,270 inhabitants. Situated in a conflict prone area, economic resilience can reduce the possibility of future conflicts.</p> <p>Continuous exploitation and external impacts are affecting oyster's habitats, thereby affecting the income of those dependent on their availability. Mangrove ecosystems have a potential to reduce carbon emissions by sinking it to the ocean floor. Planting mangroves improves air and water quality, enhances biodiversity and reduces local temperature. With right restoration method and cheap mangrove tree (€0.15-0.20 each), the community can benefit in long-term, environmentally and economically.</p>			
GENDER STRATEGY/IMPACT	<p>Almost 90 per cent of the rural women in Aceh are oyster farmers. The work is strenuous and affects their health. The project trains the women in sustainable mangrove restoration. To avoid adding to the women's workload, they are given a daily allowance during the training period. Women in Aceh struggle to be included in community decision-making. However, the project provides the women a space to participate in local decision-making on environmental issues which affect their lives adversely.</p>			
Source: WECF (2017).				
<b>EXAMPLE 20: WEATHER-INFORMED AGRICULTURE AND FISHERIES STRENGTHEN DISASTER RISK REDUCTION AND CLIMATE RESILIENCE</b>				
COUNTRY	ORGANIZATION	SECTOR		
PHILIPPINES	Rice Watch Action Network, Inc.	Agriculture		
DESCRIPTION	<p>The program enhances 15,000 farmers' sensitivity and knowledge about weather and climate patterns. It helps them anticipate heavy rains and typhoons and interpret weather information for decision-making on farm adjustments and crop contingency plans. Localized, automatic weather stations were set-up, and 150 local government staff were trained to interpret and post weather data and farming advice to publicly-accessible collection points. Climate resiliency Field Schools (CrFS) are established to train farmers in ecological agriculture methods to help them prepare for and cope with adverse short- and long-term weather patterns and climate change.</p> <p>This emergency quick response program supported by 30 informed municipalities alleviates climate-related damages or losses in farmers' livelihoods and assets. Additionally, the program rebuilds biodiversity with new, organic seed varieties and organic fertilizer made from compost. An integrated pest management brings back beneficial insects. Low emission technologies such as Rice Intensification using alternate wetting and drying reduce methane emissions by 50 per cent and help retain carbon in the soil.</p>			
GENDER STRATEGY/IMPACT	<p>The Climate resiliency Field Schools follow open enrolment, including women and youth. The learning program is done onsite, enabling participation of home-bound women. The learning modules also promote diversification of income and food sources and capacitate women on activities traditionally dominated by men (e.g., fisheries). This helps increase their knowledge toward shared decision-making on family assets and livelihoods.</p>			
Source: WECF (2019).				

EXAMPLES OF GENDER-RESPONSIVE SOLUTIONS		
EXAMPLE 21: KEEPING AFLOAT – GENDER-RESPONSIVE CLIMATE ACTION IN CAMBODIA'S FLOATING VILLAGES		
COUNTRY	ORGANIZATION	SECTOR
CAMBODIA	Conservation International	Fisheries
DESCRIPTION	<p>Sustaining the endangered ecosystem of lake Tonle Sap is a matter of survival for 8,000 Cambodians and of crucial regulation for the entire Mekong area. With an integrated approach targeting emissions reduction via fuel-efficient fish processing and women's economic and social empowerment – through trainings to improve environmental knowledge, hygiene practices, packing, marketing and pooling of sales – this project transforms traditional fish smoking methods that have become unsustainable into climate-resilient livelihood activities. By changing the perception of women's roles, it challenges patriarchal structures to ensure gender-just decision-making that promotes ecological conservation initiatives.</p> <p>Fuel-efficient stoves reduce carbon emissions and wood consumption, helping protect the fragile ecosystem of lake Tonle Sap, which is based on flooded forests and is an exceptional natural fish nursery. Education in the communities about specific climate change impacts on the Tonle Sap and possible ways to mitigate these threats is backed by the development of financial buffering through increased revenues for women. The creation of saving groups enables investment of the loans' interest into conservation projects, strengthened by the implementation of protected areas.</p>	
GENDER STRATEGY/IMPACT	<p>Gender equality and women's empowerment is promoted in many ways, alleviating women's burdens through efficient smoking technology. Girls' school enrolment is up 60 per cent. With sales increased by 32 per cent without adding pressure on the fisheries, women's economic power and self-confidence were raised. Sixteen saving groups in seven villages foster women's entrepreneurship. This results in informed and outspoken women participating in decision-making processes in the fishery committees, as they benefit from the saving groups investments and must report about their priorities and conservation activities.</p>	

Source: WECF (2019).