

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

BOTTOM-UP PLANNING	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.
INCLUSIVE	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.
RESPONSIVE	Ensure that planning processes build the resilience of the most climate-vulnerable communities and households first.
FLEXIBLE	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).

BREAK FOR



CASE SHARING

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. 100 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.

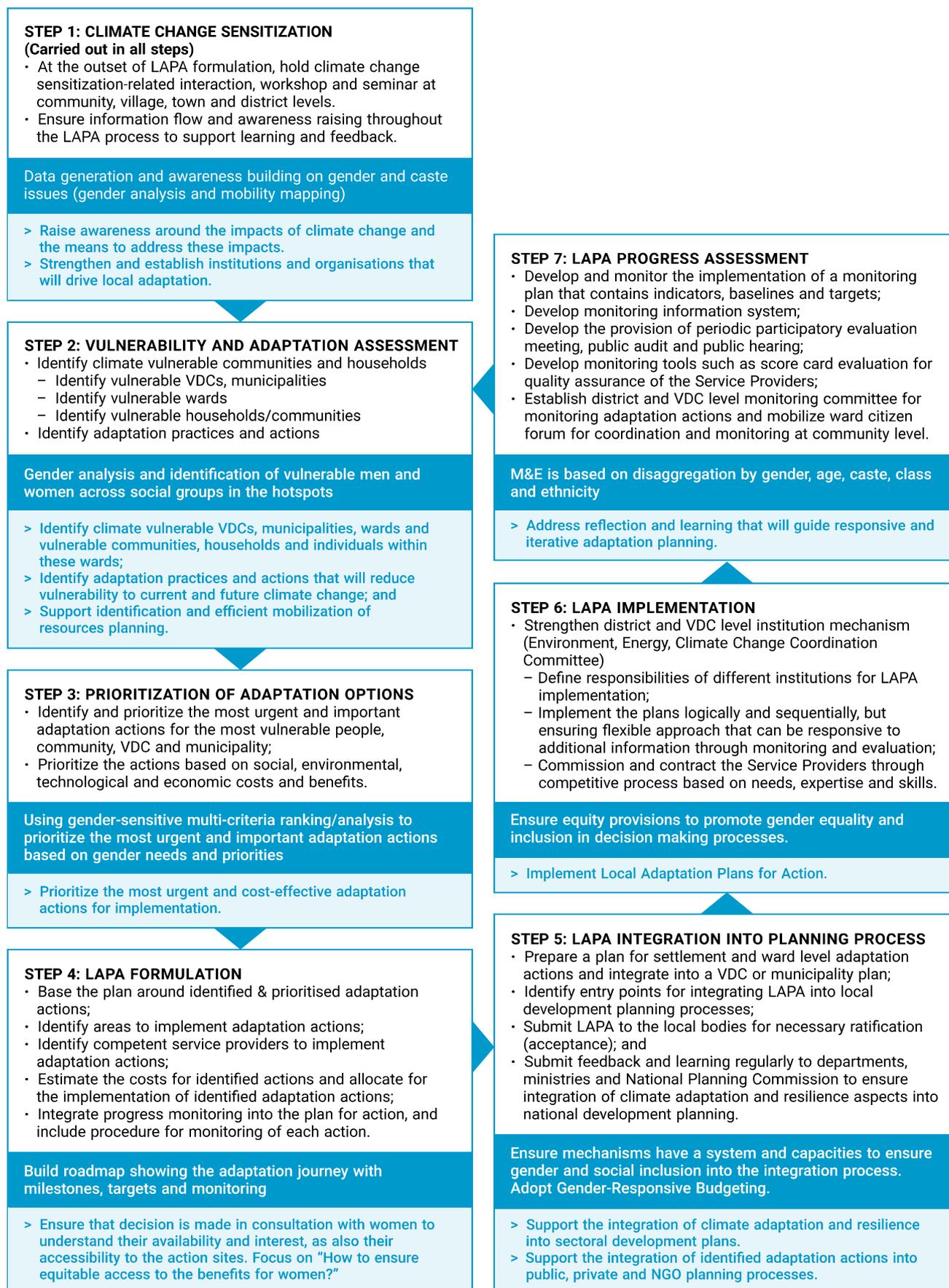
TRAINER'S TIP



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



Source: Adapted from UNDP Nepal (n.d.).

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

INFRASTRUCTURE AND ENVIRONMENT	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.
LEADERSHIP AND STRATEGY	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.

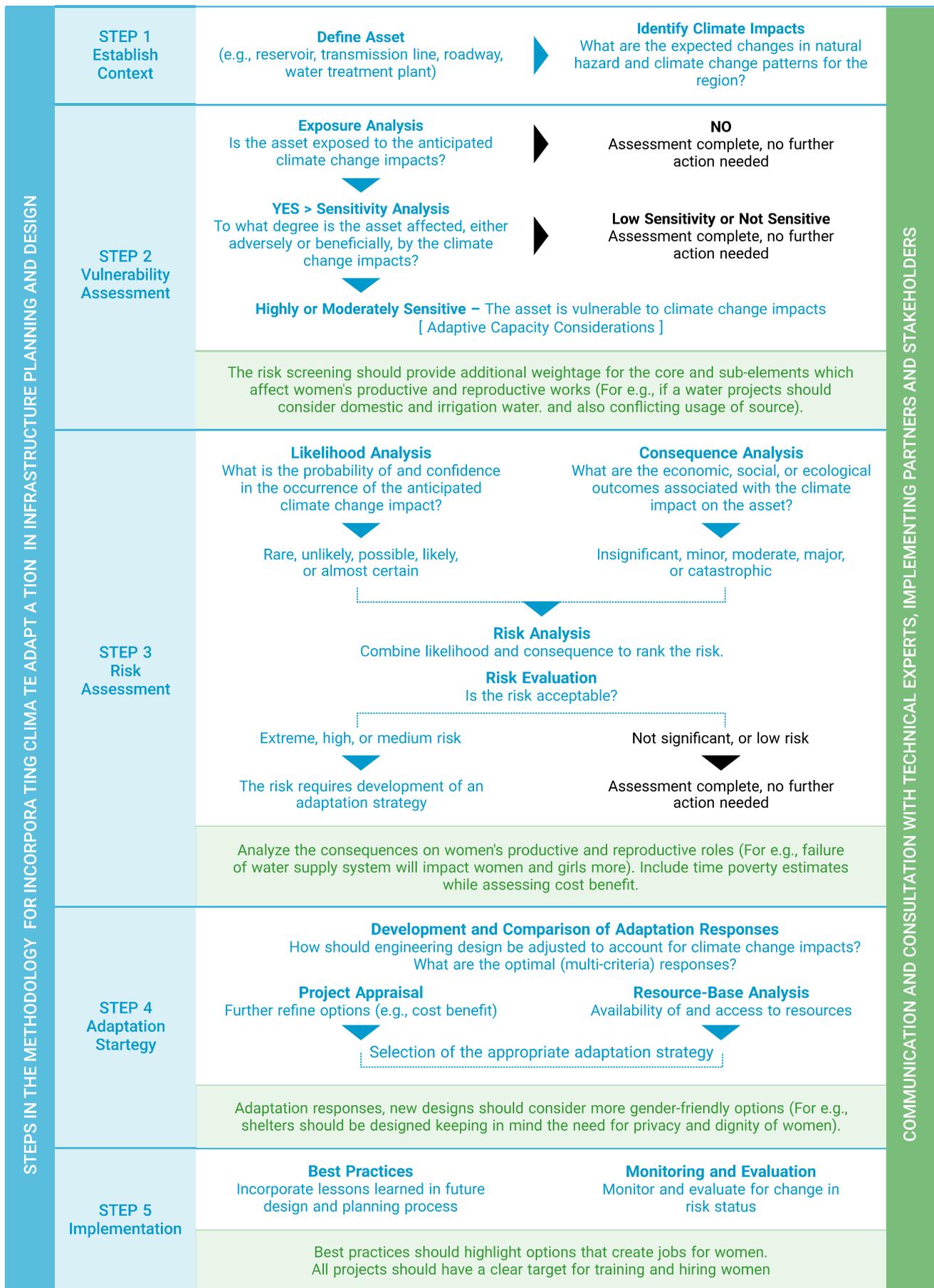
While these projects per se may seem gender-neutral, they may not essentially also benefit women unless women's rights, priorities and needs are considered and women are

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



COMMUNICATION AND CONSULTATION WITH TECHNICAL EXPERTS, IMPLEMENTING PARTNERS AND STAKEHOLDERS

Source: Adapted from AECOM (2015).

**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

STEP 1	<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 patters to understand not only the dry spells but also the major deficit periods.</i></p>																																																																																																																																											
STEP 2	<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"> <i>i) Water quantity for human consumption</i> <i>ii) Water quality for human consumption</i> <i>iii) Impact on existing water sources due to lower recharge from the lake</i> <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">KEY CLIMATE DRIVER</th> <th>Extreme Heat</th> <th>Mean</th> <th>Extreme Cold</th> <th>Drought</th> <th>Mean Rainfall</th> <th>Extreme Rainfall</th> <th>Floods</th> </tr> <tr style="background-color: #0070C0; color: white;"> <th>CORE ELEMENT - SUB-ELEMENT(S)</th> <th>SUB-ELEMENTS</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td rowspan="14" style="vertical-align: top;"> AGRICULTURE - 1, 2, 3, 4, 5, 6 INDUSTRY - 6, 7 PUBLIC HEALTH - 8, 9, 10 LIVELIHOODS - 6, 11, 12, 13 BIODIVERSITY - 6, 14 TOURISM - 14 </td> <td>1. 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STEP 3	<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"> > Reduction in surface water resources; > Decline in agricultural yields (including fisheries and forestry); > Decrease in water availability for key industries; > Public health impacts, in particular increased transmission and diffusion of schistosomiasis (a vector-borne disease influenced by temperature and flood patterns) and extreme heat; 																																																																																																																																											

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

	<ul style="list-style-type: none"> > Potential degradation of key natural resources (water and subsistence farming) for local livelihood systems; and > Potential decline in biodiversity values (migratory birds and wetlands). <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>								
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<p>STEPS 4 and 5</p>	<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).

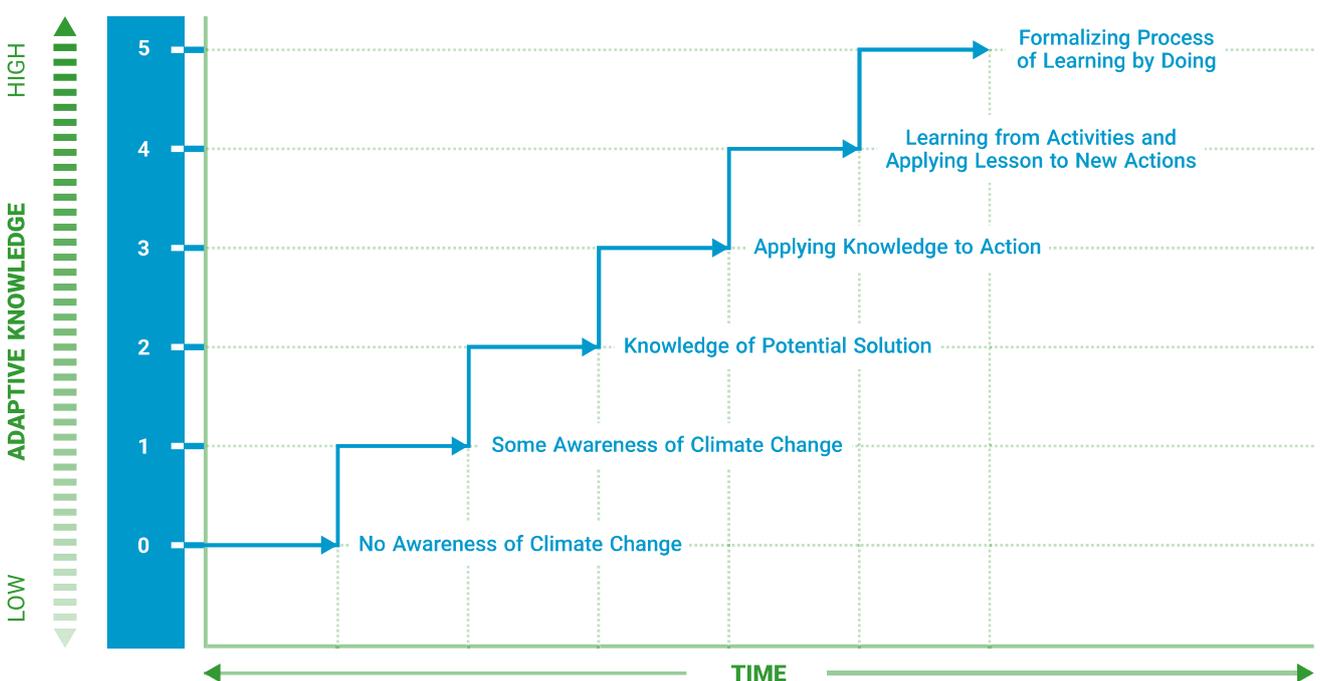
The key strategies of a CBA model (Reid and Huq 2007; Kirkby, Williams and Huq 2018) include:

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 Huq 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 Huq (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:

- a. 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.
- b. 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.

