

# Gender and Climate Resilience: Analysis and Toolkit

Case Study of Women in Gulf of Montijo, Panama

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November 2017



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Lead Author / Luís Márquez / Volt Studios  
Volt Ventures SA. de CV, Av. Jorge Jimenez Cantu SN,  
Atizapan de Zaragoza, Estado de México 52930, MEXICO

### About PROADAPT

PROADAPT was launched in 2013 by the Inter-American Development Bank in partnership with the Nordic Development Fund to improve climate resilience among small and medium enterprises and to foster business opportunities to provide climate resilience solutions, or products and services that help buyers to reduce or transfer their vulnerability to climate risk.

This report shall be referenced as:

Lead Author / Luís Márquez / Volt Studios Volt Ventures SA. de CV, Av. Jorge Jimenez Cantu SN, Atizapan de Zaragoza, Estado de México 52930, MEXICO

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## Introduction

Women and men adapt differently to the impacts of climate change. Communities have absorptive, adaptive, and transformative capacities that help them contribute to climate-resilient socio-ecological systems (SES) and men and women employ these capacities in different ways.<sup>1</sup> While some evidence suggests that men have certain advantages in coping with climate shocks, much of the adaptation literature suggests that women and men are both able to adapt, but do so in different ways. Women are often disproportionately vulnerable to the effects of climate change, and climate change can exacerbate gender disparities. However, there are many opportunities to create more climate resilient SES. Globally, gender-sensitive climate change adaptation and mitigation programs show positive, measurable results: increasing women’s participation in decision making can protect fragile natural resources, reduce greenhouse gases, and build resilience for current and future generations.<sup>2</sup>

This report analyzes the ways that gender intersects with climate change and adaptation. It summarizes the five key dimensions of climate resilience—social, ecological, economic, physical, and institutional—that PROADAPT climate change adaptation projects are addressing in the Latin America and the Caribbean (LAC) region. Many of the existing climate resilience tools focus on specific sectors (e.g., agriculture, energy, agro-forestry) but few explicitly focus on gender equality.

The PROADAPT facility, financed by the Inter-American Development Bank (IDB) and the Nordic Development Fund (NDF), supports innovative business models aimed at building resilience by implementing pilot projects in the Latin America and the Caribbean (LAC) region and creating and disseminating climate resilience knowledge. PROADAPT seeks to promote a responsible private sector that protects livelihoods and creates jobs through a new market for goods and services that help micro, small, and medium enterprises (MSMEs) build climate resilience. It develops practical business models and tools to help MSMEs and their framework institutions anticipate and prepare for climate-related threats to their assets, value chains, and local communities.

In view of the vulnerabilities and gender disparities that negatively impact women and women-led MSMEs, this report identifies key gender issues that affect climate resilience, provides recommendations for the development of new PROADAPT and climate change resilience projects that engage women as agents of climate resilience, and provides a toolkit to guide PROADAPT projects on how to integrate gender considerations into climate resilience projects. The toolkit presented in this report is based on a framework developed by the German development agency Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) along with the United Nations University. Finally, a case study of the PROADAPT project in Panama was developed to add depth and context to the report.





## Key Definitions

The following are definitions of key terms used in this report:

*Absorptive capacity:* The ability of a system to prepare for, mitigate or recover from the impacts of negative events using predetermined coping responses to preserve and restore essential basic structures and functions (e.g. human life, housing, productive assets).<sup>3</sup>

*Adaptive capacity:* The ability of a system to adjust, modify, or change its characteristics and actions to better respond to existing and anticipated future climatic shocks and stresses and to take advantage of opportunities.<sup>4</sup>

*Climate resilience:* The ability of an SES to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change.<sup>5</sup> The SES comprises five dimensions: social, ecological, economic, physical and institutional. Climate resilience is determined by analyzing these five dimensions at the household, community, and country level and the interdependence among them, as well as risks, uncertainty, and change.

*Gender roles:* The behavioral characteristics socially attributed to women and men in each historical, cultural, and socioeconomic context—beyond their biological differences—and that help shape the responsibilities, opportunities, and barriers encountered by them over the course of their lives. Gender roles are learned and therefore can change over time.

*Gender equality:* The extent to which women and men enjoy the same conditions and opportunities to exercise their rights and reach their social, economic, political, and cultural potential. The pursuit of equality requires actions aimed at gender equity.

*Gender equity:* Implies providing and distributing benefits and/or resources in a way that narrows the existing gaps between genders, recognizing that these gaps can harm both women and men.

*Transformative capacity:* The ability of a system to fundamentally change its characteristics and actions when existing conditions become untenable in the face of climatic shocks and stresses.<sup>6</sup>



# The Five Dimensions of Climate Resilience

There are five dimensions of the SES that can be used to analyze climate resilience—the social, ecological, economic, physical, and institutional. These dimensions and their relationship to gender differences, climate change, and climate resilience are defined and described below.

## 1. Social Dimension

The social dimension consists of characteristics such as health, education, food security, and the social networks that help deal with climate shocks and stresses.

**Women’s agricultural, household, and productive work may be invisible to climate change adaptation efforts.** Since women’s work is frequently unpaid and performed in the household, it can be invisible to project teams and policymakers. Women’s work at home and their childrearing role often mean that they cannot attend trainings or cooperative meetings.

**Climate change is likely to increase the risk of food insecurity.** A growing body of evidence shows that climate change disproportionately and negatively impacts the nutrition of women and girls.<sup>7</sup> For example, in Nicaragua, women are more likely than men to reduce their food consumption in response to drought.<sup>8</sup> At the same time, women are key agents in building up food security and resilience to climate change because of their role in tending to subsistence crops, preparing food, and feeding children.<sup>9</sup>

**Certain climate change-related negative health outcomes disproportionately affect women’s health.** Warmer temperatures and increased rainfall may extend the range, and prolong the seasonality, of transmission of vector-borne diseases like dengue, malaria, Chikungunya, and Zika. Researchers point to climate change as a catalyst for the Zika epidemic that hit northern Brazil in 2014 and 2015. Mosquitoes rely on water to flourish, but a drought in northern Brazil during 2014 and 2015 may have invited them into the region’s homes since people began storing water inside their houses.<sup>10</sup> The Zika epidemic led to a significant increase in microcephaly, a disease that causes congenital malformations, impacting the physical and mental health of families, particularly the women carrying the babies.

## 2. Ecological Dimension

The ecological dimension refers to the diversity and state of the natural environment. Biodiversity and the rate of deforestation determine not only the ecosystem’s ability to adapt to a changing climate but also the functioning of certain ecosystem services on which human beings critically depend, such as drinking water and fresh air. This dimension also



comprises the agricultural activities that both impact and are impacted by climate change. The roles played by women and men in SES, particularly in agriculture and the management of land resources such as forests, mean that climate impacts on crops, biodiversity, water, and the ecosystem also have gender-differentiated impacts.

Climate change will affect a community's agricultural value chain, from direct impacts on primary production, which may lower crop yields, to indirect impacts such as damage to infrastructure from extreme events, for example roads, making transport of food difficult. The intensity of weather events brought about by climate change, such as temperature and rainfall changes, more intense flooding and droughts, and saltwater intrusion and ocean acidification, directly impact food production, amplifying the need for smallholder farmers to adopt resiliency-increasing techniques.

**Men and women's livestock activities are impacted differently by climate change.** In many regions, women are responsible for the management of small livestock (e.g., chickens, pigs) and men for larger livestock (e.g., cattle, goats). For example, in Nicaragua women own around 10 percent of work animals and cattle but 55-65 percent of pigs and poultry.<sup>11</sup> Hence, interventions in climate-smart technology and practices for larger livestock can have beneficial impacts for climate adaptation but not much benefit to women's productive activities (See PROADAPT in Sertão Box 1). Traditional cattle production often requires capital and inputs that are increasingly scarce because of climate change. These resources could instead be used to provide other household members, including women, with greater livelihood opportunities.<sup>12</sup>

**In smallholder households, women engage in subsistence farming while men tend to commercial crops or work as agricultural laborers, fishermen, or in other rural jobs** In some contexts, men are more involved in commercial forms of agriculture and will face pressure to cope with damage to crops and reduced productivity due to the impacts of climate change. In other contexts, women are involved in commercial agriculture as producers or in harvesting, processing, or sale activities. Tending to subsistence agriculture gives women a unique knowledge of a wider range of crops and plants.

**From fetching water and firewood to cooking in traditional stoves, women are traditionally responsible for managing energy-related resources and disproportionately impacted by energy efficiency and adaptation efforts.** Men and women are focused on buying, producing, or procuring different energy sources. Since women are less likely to own land, demand from bio-fuel projects may push them onto more marginal lands or deprive them of land access. In Brazil, fears about the possibility of land tenure conflicts have prompted many women who rely on small-scale palm seed and oil harvesting for their livelihoods to advocate against the expansion of bio-fuel activities.<sup>13</sup> The lack of access to cooking fuel forces women and children to spend up to five hours per day gathering fuel or use significant household income to purchase fuel. In some countries, women make 91 percent of households' efforts to collect fuel and water, and they work an average of 11-14 hours a day compared to 10 hours for men.<sup>14</sup>



### **Box 1: The Ecological Dimension: PROADAPT in the Brazilian Sertão Region**

Adapta Sertão started in 2006 as a small project to understand how to make small family farmers of semiarid Bahia state more resilient to climate change. The inhabitants of the Sertão in northeastern Brazil are the most vulnerable to climate change in Brazil's population. In addition to endemic poverty, the farmers lacked the knowledge and access to the technologies needed to become resilient; they did not have access to the credit needed to purchase climate-resilient technologies, and their agricultural cooperatives lacked the knowhow and business models to help them address these threats. In 2013, the PROADAPT Program partnered with the Brazilian organization REDEH (Rede de Desenvolvimento Humano) to address the extreme exposure and vulnerability to climate change experienced in the Bahian Sertão. Beyond REDEH's experience in climate change in the region, the organization had experience working to empower women in the Sertão by strengthening their capacities to be leaders in local communities and cooperatives as well as making gender equality a key tenet of their activities. For years, Redeh had supported women who had "spent time at home" to take important roles in the community. Hence, women are in leadership roles in many of the PROADAPT project's cooperatives in the milk and ovine industries (whose membership is dominated by men).

The Adapta Sertão project in Brazil has focused its efforts on providing assistance to producers in the cattle and milk value chains because of their potential to reduce emissions. Since men tend to dominate these activities, the project identified additional and alternative value chains that were dominated by women, such as fruits and women-led dairy cooperatives. Balancing technical assistance to different value-chains helped to: (i) diversify the income sources in the communities; and (ii) expand the base of productive activities that are employing climate-smart practices.

The focus of the Sertão project remains the introduction of climate-smart solutions in the cattle and milk value chains. It was challenging to ensure that these solutions focused on activities beyond those dominated by men. This is in part because cattle and milk value chains both produce the most negative effects on the environment and are the major sources of income in this area of Sertão. Therefore, donors looking solely at outcomes based on the reduction of emissions and increased economic income might inadvertently exclude the economic activities of female beneficiaries, which are instrumental to building climate resilience. To remedy this issue, project teams can consider including ecological and socioeconomic diversity outcomes as indicators alongside emissions and other climate change outcomes. For example, future projects can incorporate climate-smart technical assistance for value-chains that are dominated by women like those related to smaller animals such as pigs or chickens.<sup>15</sup>

Additionally, the following issues were observed when trying to promote gender equality in the project: (i) local groups criticized the project for not including women in technical positions, but there are few women in the agricultural engineering profession locally; (ii) women's participation in the leadership of cooperatives is welcome, but they are a minority of the membership of milk and cattle producers; and (iii) there is a lack of data that make the business case for gender diversity in general and in climate change adaptation projects specifically, making it harder to promote.





### 3. Economic Dimension

The economic dimension comprises the economic activities within a SES as well as the availability and distribution of financial assets and other endowments.

**Women are traditionally economically vulnerable and poorer than men, which in turn heightens their vulnerability to climate change.** Areas with endemic poverty and vulnerability also have high levels of gender inequality. Forty percent of rural women in LAC do not have incomes because they perform unpaid work. In the case of female-headed households, their lower incomes increase their vulnerability to climate shocks.<sup>16</sup>

**Women in LAC have less access to financial services and resources needed to withstand climate shocks or invest in climate-smart practices.** According to the World Bank's Global Findex survey, only 11 percent of women in LAC save at a financial institution compared to 15 percent of men, and men and women in rural areas are even less likely to have savings accounts. Thirty-six percent of women in LAC reported not having money for emergencies compared to 28 percent of men. Further, only 5 percent of women borrowed from a financial institution to start, operate, or expand a farm or business compared to 8 percent of men.<sup>17</sup> These statistics obscure the fact that in many LAC countries, more women save than men (although not necessarily at a formal financial institution). Hence, women save less because they earn less than men, rather than because of a lower propensity to save.

**Climate change exacerbates women's time poverty.** Because of women's important role in planting crops, the amount of time they must spend planting is likely to increase due to crop losses related to climate change. These crops are not always the cash crops that receive the most attention from climate change adaptation programs; therefore, less attention is paid to women's vulnerabilities in these programs.

**Women have less access to inputs such as training and technology that help improve their climate change and climate-smart agriculture knowledge.** Only 5 percent of all extension resources are directed at women worldwide, and only 15 percent of extension personnel are female.<sup>15</sup> Various studies from the developing world suggest that poor access to information on CSA practices tends to make women disproportionately more vulnerable to the impacts of climate change. One key strategy for adapting to the effects of climate change is to change farming practices and the inputs used.

**Women can often be "hidden influencers" in their communities.** They perform the back-end work in local associations or serve as mid-level managers in key value chains such as agribusinesses, energy companies, or water management utilities. Because of their less visible roles, they do not always receive knowledge to implement climate-smart agricultural practices. Further, climate change adaptation efforts may not prioritize women's entrepreneurial activities, since they focus on changing practices related to cash crops, fishing, land management, and raising large livestock. Yet, women's entrepreneurial activities are a key pillar in the diversification of local economies.



## 4. Physical Dimension

The physical dimension includes transportation, energy infrastructure, communication networks, and health facilities whose operations may be impacted by extreme weather conditions or natural disasters. Additionally, this dimension covers ownership of key assets such as land and housing.

**Higher poverty rates among female-led households in rural areas in LAC are reflected in the vulnerability of their housing structures.** Female-led households in LAC are more likely to be poor (20 percent compared to 15 percent for those led by men)<sup>16</sup> with more vulnerable housing structures (e.g., thatched roofs, lack of cement floors) and locations (e.g. areas vulnerable to extreme weather events). Additionally, female-led households have fewer resources to make improvements that will protect the house from severe weather conditions. Further, women in LAC lack proof of ownership of their homes. Only 22 to 46 percent of housing titles and 20 percent of land titles in LAC countries are held by women.<sup>18</sup> Access to reliable electricity can help women by reducing the amount of time they spend on household chores, generate income, and improve their health and safety.

**Climate vulnerability and natural disasters impact women more than men.** In the past 10 years, 87 percent of disasters have been climate-related, and studies have shown there are differences in how men and women are affected by the direct effects and the aftermath of natural disasters.<sup>19</sup> For example, in India and Indonesia, four times as many women as men died in the 2005 tsunami because they were more likely to be at home, where they were more exposed to the tsunami's force than their husbands, who were working on jobs in less vulnerable areas.<sup>20</sup> Women are more likely to be killed by natural disasters,<sup>21</sup> and challenges associated with disaster aftermath impact women and men differently.

## 5. Institutional Dimension

The institutional dimension determines how the process of building climate resilience is managed within a SES and how different perceptions and objectives are harmonized.

**Women's lower level of participation in communal, local, and national level decision-making that is relevant for climate adaptation efforts significantly limits their potential to contribute to and influence climate resilience at all these levels.** Since women very often are not invited to become members of farmer-led organizations such as cooperatives and producers' associations, they also lack access to the benefits of these organizations, such as participating in activities that explore and promote climate-smart knowledge or new agricultural practices. Nor will they reap the other traditional benefits of these organizations,



such as better prices for their products due to pooling of resources, or linking their products to buyers and premium markets. Access to better prices and premium markets enables producers to increase income and savings, making households more resilient to climatic shocks.

**Women are underrepresented in the workforce and in leadership of renewable energy companies and climate change-related jobs.** As of 2015, only 12 percent of environment ministries globally were headed by women.<sup>17</sup> At the World Energy Council, only 4 percent of chairs and 18 percent of secretaries are women,<sup>18</sup> and at the UNFCCC COP 20 meeting in 2014, only 36 percent of government delegates were women.<sup>19</sup> In LAC, this is partly attributable to women's lower propensity to pursue science, technology, engineering, and math (STEM) fields, which are prerequisites for many renewable energy, environmental management, and green technology jobs.

## **Opportunities to Increase Gender Equality in Climate Resilience**

**Women's diverse productive activities present opportunities to increase climate resilience in LAC.** Women tend to significantly lead income diversification in their households and communities, as workers or owners of restaurants, tour operators, processed food vendors, store owners, or entrepreneurs. Women plant a greater diversity of crops<sup>20</sup> and provide close to 80 percent of the total wild vegetable food collected in 135 different subsistence-based societies. Taking advantage of women's role in the diversification of rural and agricultural activities is crucial to ensure the sustainability and impact of projects.

**If women had the same access to productive resources as men, they could increase yields on their farms by 20 to 30 percent.** This would raise total agricultural output in developing countries by 2.5 to 4 percent, which could reduce the number of hungry people in the world by 12 to 17 percent. Increased productivity can come about as a result of the employment of CSA practices and can lead to a reduction of the land used for agriculture.<sup>21</sup>

**Climate risks present opportunities to propel women into change-agents for climate resilience.** It has been claimed that gender inequality and local gender dynamics are unchangeable; however, empirical evidence points to specific interventions that have proven otherwise. A quasi-experimental evaluation of a rural roads project in Peru that mandated increased participation of women in local roads committees and set targets for women's membership in road repair microenterprises found that women benefited from the program in the form of increased economic participation and access to education and health services. In Kenya, encouraging women to participate in local water committees led to significant increases in participation that were sustained over a three-year period.<sup>22</sup>

**If gender inequalities in funding, technology, and knowledge are redressed, then wider climate change adaptation efforts stand to benefit.** The United Nations Environmental



Program 2015 Adaptation Gap Report identified three main challenges for global climate change adaptation: (i) more adaptation finance flows, (ii) the transfer of technology to developing countries, and (iii) the integration and transfer of knowledge for adaptation. Since the primary focus of climate finance has been on renewable energy and energy efficiency, there is a more limited understanding of climate adaptation risks and the concrete investments that can be made to address them. Gender inequalities in access to these resources further exacerbate the challenges, since 50 percent of the population is being underutilized in climate change adaptation efforts.

## From Risks to Opportunities

This section sets forth a set of recommendations and programmatic areas of action for PROADAPT and climate change resilience projects based on the analysis outlined in this paper as well as innovations in climate change adaptation and mitigation and gender equality. Since international donors and the climate finance community have not yet explored in depth the intersection of gender equality and climate resilience, the interventions outlined below have yet to be piloted to test their effectiveness.

### 1. Role Models and Mentors for Climate Resilience

To build climate resilience, interventions should promote gender inclusiveness in decision-making. Increasingly, interventions globally and in LAC seek to increase women's visibility in key roles, particularly in nontraditional fields such as STEM, water, green energy, and climate science. Evidence points to positive impacts on gender equality from having successful women in nontraditional occupations as role models.<sup>23</sup> Since many women may not be aware of employment opportunities in these fields, there is an opportunity to develop interventions in the area of professional development to empower women.

**Community-level mentoring:** Since women's voice and agency are important in any type of community-level projects, it is important to also include women in climate change adaptation projects. Women in decision-making roles taking part in key productive activities in their communities can tell their stories to other communities where women are less empowered. This practice is currently being employed in knowledge transfer and mentoring of climate-smart practices in PROADAPT projects.

**Leaders in climate adaptation action:** Projects can develop women as change agents by training them to be spokespeople on climate change at the local and regional level. Interventions could promote climate resilience by training women in climate-smart practices using a train-the-trainers approach and spreading knowledge throughout their communities. Interventions could promote gender equality by enhancing leadership skills, such as public





speaking, management, and teaching. Similarly, training men using the same approach can help them become spokesmen for gender equality.

**Engaging the next generation:** Young women growing up in climate-vulnerable communities can become marine biologists, agricultural engineers, and climate scientists. As young people migrate from vulnerable areas to study and find jobs, they should be provided with internships and fellowship programs in NGOs, government agencies, and other organizations seeking to promote climate-smart practices. Providing them a stipend can enable them to study in traditionally male-dominated fields and help their communities. The IDB's internships for young women in renewable energy companies have already had positive results, and this approach could be employed at the community level.

## 2. Climate Finance and Investment with a Gender Lens

**Climate finance to build community resilience:** Because of a lower level of access to land, education, information, credit, and political and decision-making processes at all levels, women are also at a disadvantage for accessing climate finance. Equal access to financial tools to address threats from climate change would benefit a community more effectively, with men and women focusing on building resilience in their own economic activities. For example, in Mexico, the Women's Plumbers program channeled climate finance to create a self-sustaining and financially viable model that provided women with skills and economic opportunities while reducing climate emissions (see Box 2). The project is an example of how to engage women as change makers by linking them to global climate finance efforts.

**Gender-lens investing.** Gender-lens investing is the practice of investing for financial returns while considering how it benefits women. For example, one global women-led organization with expertise in both climate change and gender, WOCAN, created the W+ Standard in 2015 to provide governments, NGOs, and companies a way to measure and finance women's empowerment outcomes within projects and supply chains. The W+ Standard is applied to energy, agriculture, and forestry projects that produce improved income, health, food security, leadership, time saving, and educational benefits for women and their families. The W+ makes it possible for companies, funders, and individuals to obtain carbon emissions offsets that provide benefits to women through purchases of Certified Emission Reductions (CERs) bundled with W+ units in a single package.<sup>24</sup>

**Intersecting climate finance with gender-lens investing:** While these initiatives are too recent to have accumulated best practices, there are a few opportunities at the intersection of climate finance and gender-lens investing. These include: (i) linking certification programs to gender-lens and climate fund investors to measure social and environmental impact; (ii) adding gender components to green bonds that finance climate adaptation methods; and (iii) linking PROADAPT projects to initiatives like W+ to finance gender activities and expand the reach of the projects. These activities can channel more resources toward specific



interventions that develop climate-smart economic activities to improve household and community resilience in LAC.

**Box 2: Women Plumbers to Reduce Carbon Emissions through Better Water Management<sup>25</sup>**

This 100 percent self-sustaining pilot project addressed the severe water shortage around Mexico City and included citizen activism in the governance of the city's water supply. About 70 percent of Mexico City's water comes from an aquifer, leaving the water table incredibly stressed. About 30 percent of the water is pumped uphill from kilometers away. Currently there are 10 million people in Mexico who lack access to clean water.

Thanks to the Women's Plumbers training program, developed by Cambio Azul S.A. with financial support from the MIF, the new formal labor force changed the water fixtures of 15,000 low-income households in water-stressed regions. Teams of 50 women trained as plumbers installed specially designed, innovative, high-efficiency water fixtures. Once the water fixtures were designed and the custom molds produced, producing additional units was quite inexpensive.

Each family that participated in the project is expected to save 40+ days of income per year (approximately US\$300) by lowering their use of hot water. That is equivalent to up to 40 percent water and 25 percent energy savings per household, and approximately 15,000 CO2 tons/year worth of carbon credits. The project achieves sustainability through the sale of carbon and water credits, certified under the UN CDM scheme. The set-up costs were financed by a blend of reimbursable and non-reimbursable resources provided by the MIF, the project developer, and the prospective buyer of the carbon credits.

### **3. Paying a Premium for Products that Promote Gender Equality and Green Business**

There is a plethora of fair trade, organic, and environmental certifications for which consumers, mainly in developed economies, pay a premium. There are also examples of products and markets paying a premium for products made by women (see *Paying a Premium: Linking Green Coffee Certifications with Gender Certifications in Guatemala* in the Box 3). Gender equality certifications for cooperatives are already linked to organic and fair-trade practices with the idea that women can make high-quality products that provide environmental and social returns. This presents an opportunity to combine fair trade and environmental certifications with those that promote gender equality in certain climate-resilient value chains. The goal would be to identify higher-value markets for products coming from communities vulnerable to climate change and to provide these communities with alternative income sources that increase their resilience. As droughts increase and sea levels rise, communities will need to search for opportunities that provide a higher profit margin to make up for lower yields. Further, the premium prices paid show the community that the outside world values gender diversity. Big retailers like Walmart have already produced their own Women-Owned



logo for products sold in their stores, including organic coffee, chocolate bars certified by the Rainforest Alliance, and purses made by women-owned businesses in Africa. However, these initiatives are few and far between.

**Box 3: Paying a Premium: Linking Green Coffee Certifications with Gender Certifications in Guatemala**<sup>26</sup>

A project with four Guatemalan coffee cooperatives, financed by the MIF and Root Capital, found that women face several systemic and cultural constraints to participation: traditional norms stipulate that a woman's place is in the home; many cooperatives require women to demonstrate property ownership, which is often hindered by legal practices limiting women's ownership of land; many cooperatives limit membership to one member per household, which then excludes the woman; and there are very few women leaders, because they have less free time and face cultural barriers to taking leadership positions within their cooperatives. However, the case studies also show that when women do join cooperatives, the benefit is shared with their household. Women reported a greater increase than men in self-reported quality of life after joining the cooperative.<sup>27</sup> The same project worked with the Nahualá cooperative that was working with an international brand called Café Feminino, an organically grown coffee. The approach began in Peru but has also worked in Brazil, Bolivia, Colombia, Dominican Republic, Guatemala, Mexico, and Nicaragua. The idea behind the brand is to provide a higher value to coffee produced by women through specialty coffee certifications, organic farming, and fair-trade marketing channels. As a result of Nahualá's participation in Café Feminino, more women have joined the cooperative. Importantly, the women of Nahualá are paid directly, which enhances their cash flows. Nahualá's women members attend cooperative trainings as often as their male counterparts, although they are still less likely to participate in the cooperative's assembly meetings, indicating that they continue to be underrepresented in decision making. While women still perform "women's tasks" on the farm, such as harvesting and sorting, they are increasingly involved in the steps of coffee production traditionally restricted to men, such as pruning and fertilizer application.

Currently, relevant certification efforts have ranged from certifying woman-owned businesses (e.g., taking into account women's participation in ownership and management) to certifying gender-equitable practices in producer groups (e.g., women's participation in leadership, ensuring that income is distributed equally). To incentivize gender-equitable business practices, cooperatives are incentivized with a price premium on their goods and provided with technical assistance (e.g., training women with leadership and management skills, educating cooperative leadership on the importance of gender diversity). A best practice identified through these initiatives is to ensure they are linked to other high-value-added processes like organic and fair-trade certifications. There is an opportunity for climate change adaptation efforts, particularly those initiatives that are working on developing both the supply and demand side of the market.



## 4. Incubating Women’s Entrepreneurship for Diversity and Adaptation

Women’s engagement as entrepreneurs can be pivotal for the economic diversification and climate resilience of their communities. It is important to identify women who are starting opportunity-led businesses in climate-vulnerable areas and nurture them. Interventions can focus on creating small incubators for small and microenterprises in these areas focused on helping opportunity-led women entrepreneurs to grow and thrive. Criteria for inclusion of women in the incubators can include: (i) businesses that are providing new sources of incomes for their climate-vulnerable communities; (ii) businesses that are developing climate-smart products or services that are engaging women as key beneficiaries; and (iii) innovations, led by women or men, which will have a disproportionate impact on climate change adaptation and gender equality. For the latter, interventions such as a “solutions by women for women” hackathon, calls for proposals, or other events can help incentivize and catalyze products such as clean cookstoves and solar lighting, which have positive effects on women’s time, and process innovations that engage women.

## 5. Climate Risk Micro-Insurance

Climate-risk micro-insurance interventions targeting low-income, rural populations and linked to climate indices have gained prominence in the last decade. The main benefit is that when a climate shock takes place, producers do not have to prove their losses; rather, when the system hits certain indicators (e.g., rainfall below certain levels), farmers are paid.<sup>28</sup> Further, producers that do not have the money to pay premiums can pay through climate resilience-related labor or initiatives. Further, micro-insurance programs that have reached scale have worked through existing microfinance institutions (MFIs) or farmer cooperatives, providing an opportunity for women’s engagement on two fronts. MFIs could consider developing insurance products marketed to and delivered by women, whose households could benefit from insurance schemes. Insurance could be provided through credits given to finance CSA inputs, which are in turn subsidized by carbon credits (see *Women Plumbers* example above). In India, PepsiCo is sourcing potatoes from smallholders and also providing insurance as a service to these farmers, but it does not link the scheme with other carbon credit schemes.<sup>29</sup> Women’s cooperatives in commercial farming could pool resources to pay into such schemes and build on social capital models developed in the village banking model. Also in India, the Micro-Insurance Academy (MIA) is working with women’s self-help groups (village banks) on providing insurance packages that cover health, crop, and livestock risks based on market research and participatory product development in the communities.<sup>30</sup>





## 6. Gender, Data, and Resilience

Another nascent contribution to gender equality, the use of big data, particularly geospatial data, can be linked to climate adaptation methods that rely on geographic information systems (GIS). The amount of high-quality geospatial data that have become available at little or no cost in recent years has increased significantly. Satellite imagery can capture regular changes in biophysical and environmental phenomena; human infrastructure and patterns (light intensity, roads); and social outcomes and patterns (e.g., health and nutrition, education outcomes, presence of schools, literacy). In climate change resilience projects like the MarViva project in Panama, geospatial data and studies are combined with a community participative approach that develops climate vulnerability maps along with the identification of spots that are suffering from overfishing, marine habitat deterioration, flooding, or erosion. Hence, there are opportunities for joining both methods to identify areas where climate vulnerability and gender inequalities are more severe. Similarly, by creating maps of education outcomes by gender and climate vulnerability, projects may be able to identify opportunities and threats for climate resilience. For example, communities that experience more marked gender inequalities in education outcomes may find it more difficult to convince women to employ climate-smart practices. Another example, currently being piloted in Africa, is looking at how climate change is changing mosquito habitat patterns and therefore changing mosquito-borne disease vectors that have differentiated impacts for men and women's health. Climate change adaptation projects are already overlapping maps of human and environmental activity.

Another area of interest is analyzing financial inclusion data, particularly remittances and savings data, to identify community resilience to climate shocks as well gender differences. For example, communities where a high proportion of women are receiving conditional cash transfers linked to savings accounts might have a significant "rainy day fund" for climate shocks. A study of credit card records and mobile phones in a LAC country<sup>31</sup> looked at gendered patterns of economic activity and found that women spent much more money on groceries and on multiple trips compared to men's longer but simpler commutes.

Finally, women can be engaged as agents in the development and use of early-warning systems for climate shocks. A few ways in which big data can be used for natural disaster warning systems are: (i) incorporating social media data to trigger emergency response measures (e.g., heat or flood alert systems); (ii) using personal devices equipped with sensors to monitor human movement before, during, and after a specific event to aid with disaster response; (iii) geo-tagging tweets so that disaster management services can map impacted areas in real-time to target efforts; and (iv) scraping the Internet for recently uploaded photos of affected areas.<sup>32</sup> In all of these cases, women can be engaged as key change agents in communities. Most importantly, women can be trained in the collection and response of big data necessary for early warning systems, be compensated for these efforts, and work out of their homes. These efforts can build on international development experiences where women



and youth are trained in monitoring and data collection efforts using mobile phones. The impact of these interventions is twofold: women gain valuable skills, and early-warning systems are better informed by those most likely to benefit from them.

## Toolkit on Gender Equality and Climate Change Adaptation

This toolkit provides a guide to climate resilience project teams that helps them capitalize on women's role as agents in climate change adaptation and promote gender equality. Whether the objective of the intervention is to promote gender equality and climate change or to mainstream gender into a wider climate change adaptation project, the following steps are a useful basis for analysis.

### Step 1: Analyze It

#### *Climate Resilience Assessments with a Gender Lens*

When designing interventions at the intersection of gender equality and climate resilience, project teams should start with a needs assessment. For gender mainstreaming, the first step is a gender analysis that identifies women and men's different needs and priorities in a given issue or intervention by assessing the differences in gender roles and available opportunities for men and women. In the case of climate resilience, an assessment looks at climate risks and observed and projected climate changes and how the livelihoods of a given community respond (or could respond) to these changes. Every SES has its own structure and set of actors, all of which need to be analyzed when undergoing a climate resilience assessment with a gender lens. The Box *Developing a Climate Resilience Assessment with Gender Lens* outlines key questions that project teams can answer to identify climate risks and opportunities that can help develop interventions that promote climate resilience.

It is important to first **conduct a gender analysis of the five dimensions of climate resilience to determine the roles that women play in and outside relevant SES and value chains, the constraints they face, and what opportunities exist** to build resilient communities. Additionally, it is important to identify opportunities to strengthen climate resilience through gender equality for key stakeholders like anchor firms, tourism operators, food service companies, financial institutions, and retailers. Project teams could do relatively quick assessments of the gendered division of tasks within the household, community, and value chain. Behind each of the questions and lines of analysis, the objectives are to identify:

- **What strategies men and women in the SES of interest are employing** in response to the stresses or shocks of climate change.
- How men and women at the household, community, and local levels are **coping (absorptive capacity), adapting, or transforming to climate change**, particularly the underlying sources of current and future SES vulnerability.



- Potential **climate absorptive, adaptive, transformative activities** that will create a climate resilient ecosystem and women's roles within them.

This initial analysis will strengthen the project, as it requires an understanding of the participants' basic features and obstacles and can thus provide additional lessons learned and information critical for scaling the project at another point in time. After the initial analysis, project teams should know if there are major gender inequalities, relations, or norms that either can affect the achievement and sustainability of the project's results or can stand to be improved upon by the proposed intervention. For example, during the assessment for a project that provides green and organic techniques to farmer cooperatives, the project team might have identified that women are not represented among the participants in the workshops even though 40 percent of producers are women. To improve women's participation, facilitators can be trained to encourage men to bring their spouses and ask the cooperative leadership to extend invitations to women (mainstreaming into project activities). However, the assessment might have also found that the cooperative membership is mainly male and women are presented with barriers to joining. A specific component can be developed to sensitize cooperative members and leaders on the importance of including women in the cooperative. This component would benefit women producers and expand the project's impact on farmers' productivity. Regardless of the scale of the intervention proposed, all gender components and activities need to be assigned financial or human resources, which should be clearly reflected in the project budget and documents.<sup>33</sup>



**Box A: Developing a Climate Resilience Assessment with Gender Lens**

Dimension	Gender Analysis Questions
Social	<p><b>What are the drivers of climate change vulnerability and how do gendered barriers exacerbate them?</b></p> <ul style="list-style-type: none"> <li>-Which livelihoods are most vulnerable to climate variability and disasters and which are least affected and why?</li> <li>-How does climate change affect different groups within the community, which groups are most vulnerable to which hazards and why? Within each group, how are women affected by these hazards and how are men affected?</li> <li>-Is climate change (droughts, floods, or other extreme weather events) impacting food security (e.g., subsistence farming)?</li> <li>-What is the level of knowledge between men and women of specific CSA and resilient practices?</li> </ul> <p><b>How is climate change impacting gender dynamics within households and communities?</b></p> <ul style="list-style-type: none"> <li>- Are there gender differences in how men and women perceive the impacts of climate change?</li> <li>- Do men and women think the burden of climate shocks (e.g., droughts, floods) is on them versus their partners?</li> <li>-Have women’s productive roles in the household changed because of climate change (e.g., decreased yields leading them to start income-generating activities, i.e. in microenterprises or associations)? Are men migrating and leaving women to tend to the household?</li> </ul> <p><b>What are women’s roles within producer groups, cooperatives, and local councils?</b></p> <ul style="list-style-type: none"> <li>-Do women participate in the management and leadership of relevant groups?</li> <li>- Are women who are not producers allowed to join?</li> <li>-Does the cooperative include members who are active in a variety of economic activities in the cooperative or community?</li> </ul> <p><b>Are there gender-differentiated climate resilience-building opportunities?</b></p> <ul style="list-style-type: none"> <li>- Are there women leaders or women from other communities who can serve as mentors and role-models in the implementation of climate-smart and gender-equitable activities?</li> </ul>





	<ul style="list-style-type: none"> <li>-Are there opportunities for women or women’s organizations to take the lead on climate resilience information dissemination interventions?</li> <li>- Do gender gaps in climate-smart practices provide an opportunity for targeted knowledge and technology transfer interventions for women?</li> </ul>
Ecological	<p><b>What are the most important climate-related impacts and risks facing the region and/or ecological zone?</b></p> <ul style="list-style-type: none"> <li>-What changes in the weather have men and women observed over decades or in recent years? Are there important differences?</li> </ul> <p><b>Men and women’s roles in managing different natural resources and their direct and indirect importance for their respective livelihoods.</b></p> <ul style="list-style-type: none"> <li>-Are there significant gender differences in reforestation, biodiversity, or conservation efforts?</li> <li>--What are the most important climate related hazards the region and/or ecological zone faces?</li> <li>- What are women’s roles in the collection of key inputs like water and energy resources (e.g., firewood)?</li> <li>- Is the productive activity being dealt with male-dominated?</li> <li>-Do producer groups support diversification of crops and livestock in member households or within the cooperative?</li> </ul> <p><b>Are there gender-differentiated climate resilience-building opportunities?</b></p> <ul style="list-style-type: none"> <li>- Are male or female dominated productive activities: (i) reducing or increasing biodiversity; or (ii) reducing or increasing emissions or pollution?</li> <li>-Are there significant gendered differences in reforestation, biodiversity, or conservation efforts?</li> </ul>
Economic	<p><b>What are the most important sources of income in households and respective communities?</b></p> <ul style="list-style-type: none"> <li>-What percent of household and/or cooperative incomes come from any given productive activity (e.g., coffee, cattle, fishing, oil)</li> <li>- Identify the proportion of income in the household coming from: (i) male- and female-dominated activities; and (ii) the relevant climate adaptation activity.</li> <li>-Which assets and services are key for the ability of men and women to buffer shocks and adapt to changes, and what degree of access to and control over them do they have?</li> <li>- Are Payments for Ecosystem Services (PES) resources equally</li> </ul>



	<p>distributed?</p> <p><b>How have economic activities changed because of climate change?</b></p> <ul style="list-style-type: none"> <li>-Have women’s productive roles in the household changed as a result of climate change (e.g., decreased yields leading them to start income-generating activities)?</li> <li>-What productive activities do women undertake within the SES and value chain, and has the distribution of labor changed because of climate change?</li> <li>-Are women to a lesser or greater extent engaged in climate-smart practices?</li> <li>-What are women’s sources of income? Do women have access to community resources like technology inputs for CSA upgrading or insurance mechanisms?</li> </ul> <p><b>Are households financially prepared for climate shocks?</b></p> <ul style="list-style-type: none"> <li>- Do households have formal savings accounts? If so, are they used to soften income shocks caused by climate change? Do both men and women have access to them?</li> <li>- Do women and men have access to a savings and credit union or other financial institution?</li> <li>-Do women and men have access to climate-risk (micro) insurance?</li> <li>- How are remittances and credit used in the household? Are they used to mitigate climate shocks?</li> </ul> <p><b>What are women’s roles and potential in climate adaptive and transformative activities?</b></p> <ul style="list-style-type: none"> <li>- Are women or women-led MSMEs being engaged as part of the distribution system of new green or CSA technologies?</li> <li>-Are women to a lesser or greater extent implementing climate-smart practices?</li> <li>-How are the technological innovations impacting men and women differently?</li> </ul>
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Physical	<p><b>What are the climate-related impacts and risks for social and productive infrastructure?</b></p> <ul style="list-style-type: none"> <li>-Are there any risks to infrastructure or crops because of climate change? What is the gender composition of the owners or users of the infrastructure?</li> <li>- What is the composition of male vs. female-led households in areas at risk of erosion or flooding?</li> </ul> <p><b>How does women’s access to titling for key assets (e.g., land, homes, cars) impact community resilience?</b></p> <ul style="list-style-type: none"> <li>- Are there explicit or implicit inheritance rules that discriminate against women in local producer groups or cooperatives?</li> <li>- Are there opportunities to develop joint-titling interventions that provide women access to basic titles that will help them access cooperative membership, credit, and other CSA inputs?</li> </ul>
Institutional	<p><b>Women in Key Decision-making Positions</b></p> <ul style="list-style-type: none"> <li>-What is the gender composition of technicians or extension agents from the organization?</li> <li>-Are there women leaders or women from other communities who can serve as mentors and role models in the implementation of climate-smart and gender equitable activities?</li> <li>-How do local planning processes work? Who is involved in, or influences decisions at the community level? Whose interests are represented externally, e.g., toward local government?</li> </ul> <p><b>Mapping Gender and Climate Resilience Issues in the SES and Value Chain Actors, Cooperatives, and Producer Groups</b></p> <ul style="list-style-type: none"> <li>- Does the group have plans to diversify income sources?</li> <li>-What does the gendered distribution of benefits and finance look like?</li> <li>-What is the participation of women in cooperatives and local decision-making bodies?</li> <li>-Does the group support diversification of crops and livestock in member households or within the cooperative?</li> <li>- Is the group linked to a savings and credit union or other financial institution? Can members take part in it?</li> <li>-Does the group have insurance for climate-related risks (e.g., drought, hurricanes)?</li> </ul> <p><b>Financing Resilience</b></p> <ul style="list-style-type: none"> <li>- What percent of borrowers of green finance products are women-led MSEs?</li> </ul>



	<ul style="list-style-type: none"> <li>-Does the institution provide insurance for climate-based risks? If so, what is the gender composition of the client base?</li> <li>- Are there opportunities in gender and climate innovations that provide openings for climate risk insurance?</li> </ul> <p><b>Anchor, Agribusiness, and Energy Firms</b></p> <ul style="list-style-type: none"> <li>- What percent of total suppliers are women or women-led MSMEs (cooperatives and producer groups)?</li> <li>- What is the gender distribution of management and agro-processing employees?</li> <li>- Are there relevant supplier diversity or corporate social responsibility (CSR) policies in the anchor firm, hotel, or restaurant that can be capitalized on?</li> <li>- For retailers, is there a market for products made with gender equality standards or made by women?</li> </ul>
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## Step 2: Consult it

### ***Identifying Men and Women’s Climate Adaptation and Resilience Priorities***

A best practice in climate resilience assessments is to employ participatory approaches with the affected communities to capture men and women’s perceptions about climate change and obtain their inputs in the development of climate resilience interventions. It is important to ask women (and men) throughout the respective SES and value chains what they want from the project. The literature agrees that the social aspects of SES are the most overlooked in climate resilience assessments, even though the participation of local stakeholders allows them to evaluate current conditions and reach agreement on priority actions.<sup>34</sup> A participatory approach to climate resilience assessments seeks to identify the priorities of the direct beneficiaries (e.g., members of cooperatives, recipients of technical assistance, women-led MSMEs) and the indirect beneficiaries.

**For climate change resilience, it is important to include women even if they have not been identified as direct beneficiaries given their important role in the development of resilient ecosystems.** Depending on the scope and size of the project, needs assessments or consultations can take the form of simple meetings with stakeholders, to group discussions with potential beneficiaries, to full-fledged studies with assigned budgets. Regardless of the form they take, consultations and project analysis missions should:

- Ask both men and women about their perceptions on climate change over the last few years or decades and how this has changed their livelihoods.



- Work with men and women to identify climate resilience priorities and interventions.
  - Ensure that women, women’s committees, or women’s organizations are included in stakeholder meetings, particularly given their role in community climate resilience.
  - Ask organizations or staff members planning the meetings to include women, particularly when climate-smart action plans and land or marine resource management is involved.
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- Ask about the changes that men and women hope to see to make these aspirations possible—in terms of services and resources, social rules, the natural environment or security issues.
  - Hold group discussions with ample representation and participation of women beneficiaries or potential beneficiaries and, when necessary, hold separate discussions with women or their representatives (e.g., women’s cooperatives, committees, or civil society organizations).
  - Undertake an institutional mapping and include a breadth of local actors and organizations in the consultation process.
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- Assuming that because women are not in the room they are not interested or not relevant.
  - Assuming that women in the room who are not speaking agree with all that is being said.

**In the Field: Consultations / Needs Assessment Checklist**

- Organizing the meeting and identifying participants
  - Has a diverse group of women been identified and invited even if they are not direct beneficiaries?
  - Have you considered what assumptions you might be making when identifying groups to consult, based on traditional roles of women and men?
  - Are the gendered barriers to attending meetings?
  - Are there resources available to reimburse those attending meetings for alternative care arrangements and transportation?
  - Has there been more than one meeting scheduled and are they staggered over the week?
- During the meeting(s)
  - Is the group size appropriate for the members in attendance?
  - Have participants been told about the potential for change by contributing their suggestions?
  - Are there regular opportunities to ask questions or comment?
- After the meeting(s)
  - Have the results of the changes made following the meetings been communicated back to women and men?



### Step 3: Change it

After opportunities for promoting gender equality and resilience in a specific sector or value-chain are identified, project teams can think about the interventions they want to develop to build gender-inclusive and climate-resilient ecosystems. These activities can range from minor alterations to existing design elements to major project revisions. The box below outlines a list of potential interventions along the five dimensions of climate resilience that, together with the ideas listed in the Innovative Solutions section, align efforts to promote gender equality with climate resilience.

#### ***Box B: Potential Actions to Increase Climate Resilience with a Gender Lens***

Dimensions	Potential Actions
Social	<p><b>Absorptive/Adaptive Interventions</b></p> <ul style="list-style-type: none"><li>-Adapt delivery mechanisms and marketing strategies to reach diverse groups in the community, including women at home.</li><li>- Ensure climate information services are disseminated to both men and women.</li></ul> <p><b>Transformative Interventions</b></p> <ul style="list-style-type: none"><li>-Develop capacity-building interventions that help women organize themselves or join wider decision-making organizations that seek to change the main productive activities of the community (e.g., from fishing to tourism, smallholder to commercially sustainable agriculture)</li></ul> <p><b>Crosscutting Interventions</b></p> <ul style="list-style-type: none"><li>-Develop and introduce time-saving and emissions reduction technologies.</li><li>-Develop trainings that promote positive gender attitudes within the household with both men and women and encourage a better distribution of assets and work.</li><li>- Identify women or potential leaders for leadership trainings so they can become spokeswomen on climate-transformative practices in other communities.</li></ul>





Ecological	<p><b>Absorptive/Adaptive Interventions</b></p> <ul style="list-style-type: none"> <li>- Engage women in agricultural diversification initiatives that seek to diversify subsistence crops and improve food security.</li> <li>- Map women and men’s differentiated knowledge about local biodiversity and land management to identify relevant climate-resilient practices.</li> <li>- Work with women, who usually tend to subsistence farming, to: provide them with drought (or other climatic shock)-resistant seeds or livestock; develop climate-smart land and crop management techniques; implement water-saving technologies or methods.</li> </ul> <p><b>Transformative Interventions</b></p> <ul style="list-style-type: none"> <li>- Target women in interventions that seek to transform how households use: energy resources (e.g., clean cook stoves that rely on gas versus firewood); water resources (e.g., well, piping, and sanitation upgrades that improve water management and reduce pollution); climate-smart livestock and crops that are smaller or less resource intensive than those currently being used in the community.</li> </ul>
Economic	<p><b>Absorptive/Adaptive Interventions</b></p> <ul style="list-style-type: none"> <li>-Develop programs that link women’s household savings and remittances to formal or informal insurance mechanisms that can help smooth income during climate shocks.</li> <li>-Identify markets or clients that will pay a premium for products produced by women.</li> <li>-Develop and promote climate finance initiatives.</li> </ul> <p><b>Transformative Interventions</b></p> <ul style="list-style-type: none"> <li>-Identify diverse income sources and enterprises that can be strengthened as sources of economic diversification.</li> <li>-When offering new goods and services, consider business opportunities for both women-led firms as business owners and employers.</li> </ul> <p><b>Crosscutting</b></p> <ul style="list-style-type: none"> <li>-Develop “woman-owned” brands or climate-plus-gender certifications that promote quality, environmentally friendly products that promote gender equality.</li> </ul> <p><b>Financial Institutions</b></p> <ul style="list-style-type: none"> <li>- Work with financial institutions to build resilience in the face of shocks by: (i) identifying remittance-receiving individuals (mainly women) that could benefit from financing or savings for improved agricultural or environmental</li> </ul>



	<p>practices; (ii) taking advantage of the large female client base at microfinance institutions to develop and market climate insurance products to women as key decision-makers in household finances; (iii) developing alternative credit-risk assessment methodologies that reduce barriers to credit, such as collateral requirements and improved recognition of women's different income-producing activities in the household; (iv) developing credit products for opportunity-led women micro-entrepreneurs looking to diversify household incomes; and (v) helping financial institutions develop credit risk assessment.</p>
Physical	<p><b>Crosscutting Interventions</b></p> <ul style="list-style-type: none"> <li>-Develop programs that link women's household savings and remittances with housing finance to improve housing structures.</li> <li>-Use GIS to identify the "feminization" of areas and infrastructure vulnerable to climate change by overlapping household survey data with administrative data and other relevant sources (e.g., big data, utilities).</li> </ul>
Institutional	<p><b>Decision-Making Bodies</b></p> <ul style="list-style-type: none"> <li>- Engage women as key change agents in PES interventions for the management and distribution of resources.</li> <li>- Develop incentive and capacity-building interventions that increase women's participation in cooperatives as members and leaders.</li> <li>- Develop role model and mentoring interventions for women to help women from different communities in the development of climate adaptation (e.g., CSA practices) or transformative activities (e.g., development of restaurants, tourism operations).</li> </ul> <p><b>Agribusinesses and Anchor Firms</b></p> <ul style="list-style-type: none"> <li>-Develop CSR programs that create inclusive opportunities for the social and environmental bottom line.</li> <li>-Identify markets or clients that will pay a premium for products produced by women.</li> <li>-Develop and hire more female extension agents and/or provide internships for young women starting their careers.</li> </ul> <p><b>Crosscutting</b></p> <ul style="list-style-type: none"> <li>- Support climate-resilient innovations by women for women.</li> <li>-Develop focused vouchers and technology transfer programs for women.</li> </ul>



Project teams should ensure that men and women are equally informed and benefit from project objectives. This may require the adaptation of delivery mechanisms and marketing strategies to reach diverse groups in the community, including women at home (see In the Field Checklist for Ensuring Equitable Distribution of Benefits). Additionally, to “move the needle” in different projects, gender trainings and workshops may be needed to sensitize key stakeholders on the importance of gender equality, diversity, and women’s empowerment. When done correctly, these trainings can help set the stage for positive project outcomes on gender equality and climate resilience. Some key activities that projects can undertake are outlined below.

**Use Role Models as Speakers:** MIF experience in PROADAPT and climate-smart agriculture projects shows that not all groups and cooperatives are ready for these types of trainings. In these cases, it may be best to bring in role models to talk about their experiences or to partner with experienced organizations that have ample experience starting from scratch.

**Develop sensitization trainings on importance of including women** for cooperative members and managers on the importance of inclusiveness in their businesses.

**Deliver trainings on gender-equitable norms, sensitization about violence against women, and sharing of household responsibilities.** What happens in the household matters. Men are usually the gatekeepers for access to household resources, training, income, and leadership positions. The involvement of both men and women in gender workshops from the beginning has led to real changes in the balance of power within the household in projects such as the MIF-financed Haiti Hope project. Workshops should focus not only on women’s roles as members of cooperatives or producers but also on internal household dynamics. One idea is to have men and women in the same workshop **and encourage men to do some of the tasks traditionally performed by women**, thus allowing women to engage in other activities.

**Give trainings for technicians and implementing agency staff.** Projects that aim to promote gender equality should work with implementing agency staff so that they understand the biases that can be inherent in the project and help them think through strategies to be more inclusive (e.g., encouraging women to join trainings, hiring women to be disseminators and local advocates for climate change, etc.).



### ***Box C: In the Field: Checklist for Ensuring Equitable Distribution of Benefits***

- **Participation:** Are women participating in the trainings or technical assistance programs?
  - Has the project staff actively and publicly encouraged women’s participation?
  - Have you taken sex-disaggregated attendance?
- **Active Participation:** Are women participating actively?
  - Has the team developed a strategy to encourage women to be involved?
  - Are women talking, or “taking a back seat” during trainings?
- **Cultural Sensitivity:** In indigenous and traditional communities:
  - Have you thought about holding activities with women’s groups separately?
  - Does your team include women that make the women more comfortable?
- **Communication:**
  - Were women explicitly invited to participate in the activity (e.g., in communications material or through extension agents encouraging spouses to participate)?
  - Do communications materials include images of women actively participating in related activities (e.g., include male and female producers, fisher people, etc.)?
  - In the case of SME-related projects, were women-led businesses explicitly invited to apply?
  - Have you thought of engaging women’s organizations as key agents for communicating climate change adaptation messages?
  - Avoid: (i) Assuming that women’s low participation rates are only a reflection of wider gender inequalities in the community; (ii) assuming that because women are not in the room they are not interested or not relevant; and (iii) Assuming that women in the room who are not speaking agree with all that is being said.

Given the sensitivity around topics regarding gender, sometimes it is best to discuss issues such as being more inclusive in cooperatives, developing diverse income streams, and shared responsibility in household and caring responsibilities. Similarly, sometimes it is best to talk about specific climate-change issues such as reduced yields, changing magnitude and strength of weather conditions, droughts, and other relevant issues.

### **Step 4: Budget for it**

As with any other project component, teams need to budget for gender-related activities. While this may seem simple, many projects do not budget for gender activities. When these activities are included with wider technical assistance, training, or other activities, the project



team should seek to ensure that the budget lines for these activities include budget for gender activities. More inclusive projects looking to support a wide range of climate-smart and economic activities will need bigger budgets.

#### **At a minimum**

- Ensure budget lines for key components include any tailoring or additional costs included with holding more inclusive trainings (e.g., budget for bigger groups which include both genders, longer distances, longer meeting times, and additional groups of women beneficiaries).

#### **Ideal**

- Set aside specific budget lines for gender-related activities or identify specific budget lines that the project will incur as it becomes more inclusive.
- Analyze the percentage of the budget that is going towards male dominated value chains (e.g., cattle production) versus female dominated chains (e.g., fruit production).
- Ensure an equitable distribution of resources and that entities handling the budget resources understand the importance of inclusiveness.

#### **Avoid**

- Assuming that the budget is gender-blind.
- Setting aside budget for generic gender trainings at the expense of bigger budgets for making the main activities of the project more inclusive.

## **Step 5: Measure it**

The final step in the process of developing projects that promote climate resilience with a gender lens is to monitor and measure outcomes and impacts. However, measuring climate resilience outcomes is not an exact science, and the literature on the subject notes that there are no standard indicators to use. Simple indicators like measuring soil phosphorus or poverty levels can capture key aspects of SES but, by its nature, climate resilience is interrelated and multidisciplinary.<sup>35</sup> Measuring climate resilience requires an inter-sectoral approach that looks at the five dimensions of climate resilience in each specific context. The complexity of measuring climate resilience is compounded when looking at gender equality, which requires sex-disaggregated data and analyses. Below are some recommendations for the measurement of climate resilience impacts with a gender lens.

#### **At a minimum**

- Ensure indicators cover both social and environmental/ecological outcomes.
- Monitor sex-disaggregated participation in the sub-sectors of relevant SES and value chains (e.g., agriculture and tourism or small and large livestock).



- Include sex-disaggregated results and impact indicators to measure the results of the activities and to simultaneously make gender gaps visible throughout the lifecycle of the project.

### **Ideal**

- Agricultural productivity indicators should be paired with economic diversification indicators, including the percentage of income coming from activities where women are overrepresented, to provide a more accurate proxy for resilience.
- Measure changes in women and men's perceptions on both gender and climate issues.
- Include indicators that measure changes in men and women's knowledge of climate-smart practices and include targets that seek to close gender gaps in these areas.

### **Avoid**

- Assuming that the budget is gender-blind.
- Setting arbitrary targets for men and women's participation (50/50), particularly those set without a sex-disaggregated baseline.
- Measuring for the sake of measurement. Set a baseline and seek to establish hard and soft targets for women's participation (always in conjunction with gender sensitization activities and eliciting buy-in from cooperative leadership).

Additionally, some key indicators to monitor the gender inclusiveness of cooperatives that are participating in a project are:

### **At a minimum**

- Percentage and number of women on the board of directors
- Presence of at least one woman in a leadership position (entrepreneur or manager)
- Number and percentage of women members

### **Ideal**

- Number and percentage of women in middle management
- Number and percentage of women agro-processing employees (if relevant)
- Number and percentage of women agronomists, biologists, engineers (if relevant)
- Number and percentage of women accessing loans through enterprise's internal credit fund (if relevant)
- Number and percentage benefitting from climate risk-related insurance (if relevant)





## ***Yo soy Pescadora* – A Case Study of PROADAPT in Panama**

Over the last few years, artisanal fishermen and women (*fishers* from now on)<sup>1</sup> as well as micro tourism entrepreneurs in the Gulf of Montijo in Panama, have had to adapt to the negative impact of climate change on their productive activities. The rising sea levels in the Gulf impact marine and coastal ecosystems that are a key source of livelihood for the 56,000 people who live in the surrounding communities. Starting in 2016, the MIF, with the support of Nordic Development Fund (NDF) resources, designed and approved a project with MarViva, a regional nonprofit organization that promotes conservation and sustainable use of the marine and coastal ecosystems in the Eastern Tropical Pacific, to support adaptation to climate change impacts to improve resilience in the productive activities of artisanal fishermen and community tourism micro-entrepreneurs.

The main causes of vulnerability in coastal communities' basic productive activities are a lack of knowledge about climate change and its effects, a lack of technical capacities and economic resources to design and implement adaptation measures, and barriers to entry for market processes that support and encourage the consolidation of productive activities that affect the sustainability of the marine environment. The project is working with nine fishing cooperatives, four microenterprises, and key regional actors (e.g., tourism associations, tourism boating operator associations, local government officials) to increase awareness of climate change impacts in the region, implement effective adaptation measures like sustainable fishing, sustainable procurement of seafood in the case of tourism operators (e.g., restaurants and hotels), and introduce climate change adaptation measures to improve the resilience of critical productive activities for their livelihood.

The Climate Resiliency Model developed by the project consists of:

- **Sustainable Fishing:** MarViva is training fishing communities on sustainable fishing practices and providing them with small grants to subsidize inputs that will help with sustainable fishing and climate change adaptation (e.g., bigger nets to avoid catching premature fish, better motors for boats to go to more distant fishing areas and avoid local overfishing, and refrigeration equipment). Additionally, there are knowledge exchanges and shadowing programs so that communities can learn from other communities that have implemented sustainable fishing practices. See the section below on the roles of women in the community for more on how gender is integrated in the project.
- **MarViva Standard and Sustainable Sourcing:** Around five to seven hotels, distributors, and small restaurants in the Gulf region are being certified with the MarViva standard which, among other activities, trains the staff of companies to identify, buy, and market

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<sup>1</sup> There is no globally recognized non-gendered term for the word fishermen. The term “fisher” has been used in countries like the United States and Canada to be more inclusive and eliminate the inherent connotation that fishers are male.



sustainable seafood. MarViva's inclusive approach, which trains all the staff, is a best practice when it comes to gender inclusiveness, because men and women regardless of their rank are trained in the standard for the organization to pass the periodic audits conducted by external auditors.

- **Sustainable Tourism:** Supports both the demand and the supply of new sustainable tourism markets, particularly whale watching and snorkeling/diving excursions. On the supply side, MarViva is helping fishers repurpose their boats for tourism by providing them with capacity building in sustainable tourism and linking them to financing for repurposing their boats. On the demand side, it works with boating and tourism associations of Santa Catalina, the epicenter of tourism in the Gulf of Montijo, to develop promotional material and events that market whale watching and sustainable tourism.
- **Studies and Marine Special Planning:** Develops maps on the risks of sea level rises and overlapping maps of socioeconomic and biophysical vulnerabilities and risks to share with Gulf communities.
- **Climate Change Education:** Provides cooperatives, community groups, associations, companies, and local authorities with information on climate change and its impacts in the Gulf region in part based on climate change studies developed by the project.
- **Finance:** The project also works with banks to develop financing for future adaptation measures. Given the small scale of the project, this component is challenging since it needs buy-in from financial institutions that are risk adverse and slow in developing new products.

*"When I was young in December I felt the breeze change and now I can't identify the different seasons. There has been an imbalance in the climate for many years"*

– Fisher, Palo Seco

## 1. The Community

The communities around the Gulf of Montijo are poorer than the national average. The average years of education in the region are six, with certain fishing communities like Hicaco, Palo Seco and el Pito averaging five years. The median household monthly income, according to the 2010 census, is estimated to be \$207, and 2014 surveys indicate that microenterprise activities bring in between \$200 and \$750 a month with artisanal fishing falling on the lower end, at between \$100 and \$250 per month. Seventy-eight percent of the people in the communities do not have social security. Life in the community revolves around coastal resources. The main vulnerabilities they face with regard to climate change are lack of knowledge about climate change and its effects, lack of organizational capacity to develop sectoral actions, lack of financial resources to develop adaptation measures, and barriers to markets. Santa Catalina is a small town that has become a tourist hotspot for international surfers, backpackers, and expatriates. All tourism activities center around the town, and fishing



communities further out seek to catch some of the business that comes from the town via tourist boat excursions.

## **2. Climate Change Resilience and Women's Roles**

Women have different roles throughout the fishing communities that are not always as visible as those held by male fishers. This is the case throughout different agricultural and aquaculture value chains in the LAC region, and in the Gulf of Montijo region of Panama. Women in the fishing communities play different roles, from fishing on their own, fishing with their spouses, running and working in the fish collection centers, doing near-shore collection of shellfish, to management and leadership of the cooperatives. All these productive roles are in addition to childrearing, cleaning, and other household responsibilities. While not among the beneficiaries of the project, the biologist and technician helping the cooperatives implement climate-smart practices (e.g., nets that do not capture small fish, returning fish that have not matured) is a woman. The section below looks at women's different roles in the communities and the project.

*"I am a homemaker. Also I fish."*

- Fisher, Isla Leones

## **3. Women as Fishers**

Throughout the Gulf region, women participate as fishers and formal members of fishing cooperatives, with significant variation between communities. In some cases, husband and wife teams go out fishing on the boat together since fishing in the region is a two-person job, while in other cases the cooperative assigns two men. The advantages of women and men who fish as a couple is that they are in control or at least aware of the income that is coming into the household. Most notably, many women who fished along with their spouses did not immediately identify themselves as fishers. They identified themselves as homemakers first and only if asked directly did they identify themselves as fishers, unlike men who immediately identified as fishers. This seemingly small issue exemplifies how women do not value or readily identify their important productive roles in the home and community.

In some of the smallest fishing communities, women are an integral part of the cooperative membership. They fish because the communities understand they need as many people fishing as possible with the reduction of fishing stocks because of climatic factors. Meanwhile, larger cooperatives have varying degrees of integration of women as fishers, with one cooperative standing out by not having women fishers among their membership because they do not see fishing as a role that women can handle. The inclusion of women in cooperatives is important because, cooperatives are the main medium through which MarViva



and other government and NGO programs provide capacity building and financing for fishing inputs.

*"The best opportunity for women's development is including more of them as members in local cooperatives [...] Women are very interested in joining the cooperatives."*

– Local Government Official

#### **4. Women as Leaders**

Only one of the nine fishing cooperatives that the project is working with has a woman president (and only one of the 14 fishing cooperatives in the whole Gulf of Montijo region), but women are represented as vice-presidents, secretaries, or treasurers on the boards of at least five of the cooperatives. While women presidents and vice-presidents obviously hold more decision-making power, the other positions are also important as a measure of women's participation and empowerment in the cooperative and because they are important influencers, albeit more hidden. The inclusion of women in the leadership of the cooperatives is not only important to ensure that women's voices and needs are heard, but also as a role model for younger generations. The single female president of the cooperative was well known throughout the region as being an outspoken, strong woman and a role model to others. Beyond the fishing cooperatives, there is more equitable representation of women in the tourism and business associations of the region, but men still hold the all local government positions (e.g., local community board, deputy representative, and political leadership) related to the project.



### **Box: Women's Participation and Adaptation in Different Cooperatives**

While the factors behind the participation of women in leadership are multifaceted and would require deeper studies, there are some key findings from three of the cooperatives visited that identify key factors behind the diversity of women's roles in each community and their responses to climate change.

**Isla Leones:** This island community has a female president. Women are involved in all productive facets of the cooperative, which has limited resources and few people, so everyone is expected to do their share. Women (and men) started fishing with their parents when they were 10-12 years old even though their mothers did not necessarily fish. Women were key leaders behind the creation of the cooperative in 2009 and feel that men not only accept it but welcome it. The cooperative was created in response to changing patterns in fish stocks that decreased yields, so the community had to employ 100 percent of the population to get ahead. As children are sent to school on the mainland when they are older, women become even more important in the small community. All members of the community are part of the cooperative, regardless of their roles as fishers, and all are invited to express their opinions.

**Hicaco:** A more traditional mainland community, with only two women members in the cooperative who work in the collection center. The spouses of fishers in this community care for children, tend to the home, and do some minor economic activities like handicrafts. However, fishing is men's work and too intense for women, particularly since the fishers in this community have been going out further distances to the open sea for longer hours because of changing fish patterns resulting from changes in the ecosystem. The community members feel there is less need for women to fish because the community is larger and more productive. To join the cooperative, you must prove yourself for six months and help with duties ranging from fishing, to collection, and sales. Hence, women in the community, except for those who work in the center, do not participate in the decision-making of the cooperative. The community is only a 30-minute boat ride from Isla Leones, so the contrast is stark. While Hicaco sends its fishing vessels larger distances, it can be argued that women could join the cooperative if they wanted to. The point of gender mainstreaming is to challenge preconceived notions of what men and women can or cannot do while understanding that certain norms and traditions will not change overnight.

**Palo Seco:** On the other side of the Gulf from the other two communities, Palo Seco has a woman vice-president of the board and a president who vocally expresses the importance of gender inclusiveness in the cooperative. Even though women in the community fished on their own or with their spouses and began fishing since they were 10 years old, when the cooperative was created women were not allowed to be members. However, a few years into the creation of the cooperative, a women's empowerment project from the Ministry of Social Development (MIDES) came to the community and provided women with leadership training and capacity building so they could create a group and ask for government resources. However, the men and women in the community agreed that it was best to join forces, and rules were changed so that the women could join (and the resources could be shared by all). These changes coincided with decreasing yields that had led the community to adapt and join efforts so that they could improve productivity in the face of the changing ecosystem. Women are now an integral part of the cooperative and, as members, are receiving all the capacity building programs given by MarViva and other government technical assistance projects.



## 5. Women as Entrepreneurs

Women running micro-tourism businesses and other enterprises are pivotal for the diversification of income in rural areas and are important for household's resilience to climate change. Women in the communities, whether they were fishers or not, engaged in a series of economic activities like running small stores, restaurants, selling food, and creating and selling handicrafts. For women linked to the project, these businesses were started mainly to diversify their household's economic activities because of lowered fish stocks.

The small restaurant in the Arrimadero beach, which is supported by MarViva, was started by a group of women who had seen their household incomes decrease along with lower yields. Incentivized by government and NGO programs that helped the women create an association and provided them with a combination of seed grants and reimbursable grants focused on helping women's groups, the nine women who are part of the restaurant group started with an idea to start a sewing cooperative but quickly found that the restaurant was more lucrative. The women came from households that relied on fishing for their livelihoods but decreasing yields pushed them to look for a new opportunity that could increase their incomes. Now the restaurant, which has grown along with the tourism in the area, brings in more income for the women than fishing activities, which are run mainly by their grown sons (in many cases the women are the heads of household). MarViva is now teaching them about sustainable sourcing and fishing so that the fish sourced by the restaurant is fished according to sustainable practices.

*"We have gotten basic accounting trainings from NGO and government programs (MIDA). Not all teachers teach the same thing but every time we go to the trainings we learn something else...some of us have gotten very short and basic courses on tourism but we would like more trainings for the whole group on how to tend to tourists."*

– Arrimadero Restaurant owner and leader of restaurant cooperative

*"Our dream is to finish our cooperative center and create a restaurant and hotel."*

-Fisher, Isla Leones

*Women in processing centers and other value chain activities:* Women are more present on the back end of fishing operations when it comes to working and running the fish collection centers from the cooperatives. Additionally, tourism boats led by boatmen sometimes have their spouses deal with customers on shore before they get on the boat. However, there is ample representation of women in the workforce hotel that is being certified with the MarViva standard. MarViva's inclusive approach to capacity building at the hotel also ensures that men and women from all levels of the hotel workforce receive the trainings.

*"Men do the hard work. For women, it is harder. So the women, we have work in the collection center."*





– Leader of cooperative, Isla Leones

*“Whatever we need to do as far as work we do. If we have to carry cement mix, we carry it. We [the women] built the cooperative center with the men including putting cement on the floor “tirando piso”*

– Cooperative Member, Isla Leones

*“Handicrafts bring very little income and women can’t live off of it, but we need to figure out how to help women move forward.”*

-Local government official

## **Gender, Resilience, and Adaptation to Climate Change**

**Women and men have adapted to climate change differently, with men’s transformative activities being substantially more resource-intensive.** Fishermen have confronted decreased fishing yields by banding together in cooperatives (most cooperatives have been created in the last 10 years) to improve their negotiating power with buyers, share information, and finance productive inputs like boats, better motors, and fishing equipment. The project is also helping to develop a sustainable boat tourism micro-industry by working on the supply and demand of activities such as whale watching, snorkeling/diving, recreational fishing, and excursions to tourist-friendly islands and mangroves. Boatmen who used to be fishers are provided training on best practices for whale watching, diving (reducing the human impact by expanding the number of diving sites and eliminating traffic in at-risk areas), and recreational fishing (based on the same content that is provided to fishing communities). However, the investment needed for the larger boats with motors can average \$45,000, putting them out of reach for many individual fishers and requiring external financing. The project has helped link boatmen to financing sources. There are now 22 boatmen trained in sustainable tourism practices with 16 operating boats, but none of them are women. Women’s roles in this industry in the region are minimal, and this component is a good example of how high value-added activities can exclude women given their lack of resources (boats and money). Additionally, the local government, along with the tourism cooperative of Santa Catalina, has been working to organize big international events, such as a Surfing Tournament that was held in 2013.

**Women’s roles in building economically and environmentally resilient communities are evident and will only increase in importance.** Women in the Gulf of Montijo traditionally have been key to economic diversification by supplementing household incomes. Selling handicrafts, food, and shellfish collected through near-shore fishing activities is supporting some households with additional income. As fishing yields continue to decrease and marine habitats continue to change (climate change has also endangered the availability of crabs,



lobsters, and black conch, which provide supplemental incomes for some women), women's economic roles will continue to gain importance. Hence, women need to have a seat at the table in local fishing and tourism cooperatives, the linchpin decision-making bodies in the communities. Some communities already understand that the cooperative has a role that goes beyond fishing activities and includes women. These communities will be best placed to plan for increased variability and intensity in climatic conditions and, with women at the table, can think through the best ways to help grow non-male-dominated economic activities.

**However, development projects in the Gulf region continue to support small-scale (absorptive) economic activities rather than transformative capacities that can propel women as agents of change.** The restaurant association group in Arrimadero showed that associations can succeed in developing transformative alternatives linked to the fishing value chain but diverse enough to bring in income when yields are lower.

Meanwhile, women in another cooperative were receiving training in beauty and personal care from a government representative, a traditionally low-income proposition in an area with few potential clients. Both the cooperative led by women on Isla Leones and the cooperative that has no women have as a main goal the development of a tourism restaurant. However, in both cases this is a more distant dream and, even if realized, both communities would only receive a fraction of the volume of tourism that restaurants in Santa Catalina receive. There needs to be a paradigm shift in development assistance that helps develop new value chains, such as tourism boating operations, that will significantly broaden the sources of income of communities vulnerable to climate change.

**Women can also help their communities by participating in fishing activities, which they can perform just as well as men in fishing activities.** Differences in women's participation between communities have more to do with traditional gender norms and the necessity to adapt to climate change than women's abilities or desires to participate in the region's main economic activity. The community in Palo Seco proved that capacity building and incentives can help change women's participation in communities in a relatively short time. These results mirror those of projects throughout LAC that have proven that a few well-designed interventions can change women's participation in the membership and leadership of rural and agricultural cooperatives. However, these projects need to be well designed, and success depends upon the willingness and openness of community leaders.

*"Every year there are good times and bad times....but 10 years ago the good times were much better and if I went fishing I knew that I would fish no matter what. Fish stocks have decreased. we have to look for different alternatives for income"*

– Cooperative Member, Isla Leones

*"Those of us that have kids studying need to make more money so the kids don't suffer what we suffered through."*

– Cooperative Member, Palo Seco



## Recommendations

**Role models for change:** There are **opportunities for employing models of women helping women** (see Innovative Solutions section below) both in grant and credit financing as well as mentoring and technical assistance. In this regard, there are opportunities for women from cooperatives, both fishing and restaurants, with high levels of women's participation to exchange their experiences and path towards creating women's groups. Further, successful women entrepreneurs in the tourism or restaurant industry could be identified as mentors for the women.

**Budget for diversity.** If additional activities and beneficiaries will be added to the project to make it more inclusive, the implementing agency requires the necessary budget to implement it. PROADAPT projects like the MarViva case have limited budgets assigned for each community. Additionally, participative action plan approaches like those employed by MarViva require buy-in from the community for gender or women-targeted components. Hence, components should be added with the accompanying resources, including those necessary to present the business case for women's participation and gender diversity to the executing agency and to the key stakeholders. Donors tacking on additional gender equality components during the execution of a project can develop "gender antibodies" in the executing agency since they are seen as additional requirements.

**If government and NGO programs want to transform socio-ecological ecosystems, they need to move beyond developing traditional programs that focus on helping women develop low-value activities** (e.g., simple handicrafts, beauty and care, selling food) and help them develop higher-value, sustainable activities. The lack of women benefiting from MarViva's tourism boat components is a notable example of both a value chain that could bring great benefits to women in cooperatives like those in Isla Leones and an activity that is solely directly benefitting men. At the very least, women can be present in the tourism trainings and develop the skills necessary for developing tourism microenterprises.

**"Women owned" brand or certification.** At the local level, the MarViva project is already certifying businesses (including a fish product traceability standard) and cooperatives with its sustainable fishing standard. MarViva could link up with organizations already employing gender certifications or develop a relatively simple standard for its cooperatives. In fact, one of the key components of the standard for buyers (hotels, restaurants) is to support fishing communities and artisanal suppliers and it is expected that "companies that apply the Standard will implement some type of action to strengthen artisanal suppliers, such as training in good manufacturing practices, product handling and quality control; training on administrative, accounting, and organizational topics; improvements to infrastructure or facilities, ice making equipment, etc." The joint "green and gender-equitable" product could then be marketed as such and potentially earn a premium from hotels in the area. Understandably, the nature of the artisanal fishing industry and logistics of the MarViva project do not allow it to export. However, PROADAPT and climate change adaptation projects



working with export-grade products could develop the joint certifications for international markets.

**Move beyond credit.** While the project is working with banks to educate them on the financing needs and particularities for climate change adaptation equipment, it seems that the small volume of business for banks related to the project will not provide them with an incentive to develop new products. However, in a country like Panama full of financial innovation, the project could consider alternatives like crowdfunding. Specifically, **crowdfunding for women-led enterprises (tourism or cooperatives) has worked well in other countries and could work in the Gulf of Montijo**, particularly with the goal of developing business models that help communities adapt to climate change.



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