

# **Making Climate Action Count: Mainstreaming Gender in Climate Action to Accelerate Climate Compatible Development**

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## ABOUT THE AUTHOR

**Aparna Roy** is an Associate Fellow working with ORF's Climate Change and Development Initiative. Her current research explores the impact of and vulnerability to climate change with potential for adaptation. As a development practitioner, she has done in-depth research and policy analysis on issues of social development, governance reforms, gender, rights-based social protection/welfare policies, and human rights. Aparna holds a Bachelor's degree in Political Science Honours and Master's degrees in Sociology and International Development. She was a Commonwealth scholar at the University of Bristol. Aparna writes for various publications including the *Times of India*, *Hindustan Times* and *The Hindu*.

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# **Making Climate Action Count:<sup>1</sup> Mainstreaming Gender in Climate Action to Accelerate Climate Compatible Development**

## **ABSTRACT**

The first universal, legally binding global climate accord signed at the 21<sup>st</sup> session of the Conference of Parties (COP) in Paris in 2015 committed to long-term goals for “holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.” However, as world leaders prepare for the Facilitative Dialogue (FD) ahead of COP 24 in December 2018, there is a realisation that fulfilling the climate pledge and ensuring a rapid transition to low-carbon and climate-resilient economies and societies would require unprecedented efforts and reallocation of capital that significantly exceed their capacities. This paper argues that optimising development co-benefits from the simultaneous implementation of Sustainable Development Goals (SDGs), such as goal 5 on Gender Equality and 13 on Climate Action, is an essential and powerful solution for the success of the Paris Agreement and 2030 Agenda.

## INTRODUCTION

The year 2017 was a difficult one for the international climate action community, especially following the United States' withdrawal from the Paris Agreement.<sup>1</sup> At the COP23 concluded last year, French President Emmanuel Macron reiterated the climate change challenge and warned that under the current climate trajectory, the planet risks “disappearance of a significant number of populations by 2100.”<sup>2</sup> While global measures to mitigate climate change have accelerated over the decade, scientists believe that “[e]ven if GHG emissions were to stop immediately, the average temperature would continue to rise for some time as the life of carbon dioxide in the atmosphere is more than 100 years.”<sup>3</sup> This points to an urgent need for parties to the agreement to not only start turning their commitments into actions, but to step up and build greater resilience. The Facilitative Dialogue (FD<sup>ii</sup>) 2018 or the collective stocktake exercise in process, provides all parties to the Paris agreement an opportunity to turn a renewed focus on climate actions, both in ambition and scope.

Enhancing further action for a rapid transition to low-carbon, climate resilient economies would require an unprecedented reallocation of capital.<sup>4</sup> This would be particularly challenging for the developing countries: in addition to climate change, they are grappling with a host of economic and sustainable development issues that cost significant resources.

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- i. Parties to the climate accord are committed to achieving net zero emissions and contain the rise in average global temperatures to well below 2 degrees Celsius, and pursuing efforts to achieve a rise no greater than 1.5 degrees Celsius
  - ii. A key driver of ambition envisioned in the Paris package is a “facilitative dialogue” among parties in 2018. This dialogue is mandated to take stock of the collective efforts of parties toward the long-term goal set out in Article 4.1, and is intended to inform the preparation of the next round of nationally determined contributions (NDCs).

As a key player in international climate governance, India could set a precedent in enabling climate-compatible development through an action-oriented, “cross-cutting,” inclusive approach, while involving extensive participation, engagement and action of all segments in climate policy and initiatives. Women, especially in developing countries, are often faced with greater impacts and are at higher risk from climate change due to their reliance on natural resources for livelihoods and poor response capacity to natural hazards, such as droughts, landslides, floods and hurricanes.<sup>5</sup> Yet, women possess local knowledge and they lead sustainable resource management at the household and community level. This places them in a unique position to play a critical role not just in accelerating climate action,<sup>6</sup> but also in simultaneously addressing key development challenges such as lack of energy access and food security.<sup>7</sup> This potential is severely underutilised. Poverty, and the unequal participation of women in decision-making processes and the job markets, result in women’s multi-dimensional exclusion, preventing them from contributing to climate-change responses, planning and implementation.<sup>8</sup>

India can set an example for the developing nations on effectively aligning climate actions with development imperatives. It can do so by enabling a paradigm shift that leads to the integration of gender concerns at the centre of various resilience, mitigation and disaster risk management efforts.<sup>9</sup> This paper argues that mainstreaming gender considerations in climate policy and initiatives would not only help developing economies in optimising the development co-benefits, but also dramatically reduce costs while assisting in simultaneous implementation of the Paris Climate Agreement as well as the 2030 Agenda for change.

## **WHY GENDER INTEGRATION IN CLIMATE ACTION?**

For a developing country such as India, where implementation of development policies is varied owing to a multi-level federal governance

framework,<sup>10</sup> addressing gender considerations in climate policies adds an additional layer of complexity to the already complicated, multi-dimensional process.<sup>11</sup> Even then, gender is an important consideration in climate action for various reasons.

First, gender equality is a fundamental human right and integral to all dimensions of inclusive and sustainable development.<sup>12</sup> As a solution to seemingly intractable sustainable development challenges, the success of climate action, depends on the achievement of this goal.<sup>13</sup> Second, climate action will not be successful and sustainable, without the careful consideration of gender issues. There is no dearth of literature<sup>14, 15, 16</sup> to establish that women and men are affected differently by climate change. Especially in developing economies, women are rendered more dependent on natural resources that are threatened by environmental change, as they are considered primarily responsible for securing water, food, and fuel for cooking and heating.<sup>17</sup> At the same time, unequal access to resources and widespread gender norms hinder women's access to information and opportunities, thereby limiting their coping capacity and exacerbating even newer manifestations of gender inequality.<sup>18</sup> Gender consideration in climate action is therefore critical for understanding key vulnerabilities to climate change so as to devise appropriate policies and measures towards building greater resilience.

Third, women have a unique potential to contribute to climate change mitigation and adaptation. Their decisions in everyday life influence the livelihood of not only their own families but also the surrounding communities, they shape their environment, and impact the level of GHG emissions. Whether managing organic waste, using and retailing clean cooking appliances, or through re-plantation, women are often at the frontlines of addressing climate change.<sup>19</sup> Therefore, it is imperative for a developing economy in the path of low-carbon transition to target women as essential stakeholders, to harness their

knowledge and potential, and empower them to contribute to effective climate change responses.

India has explicitly recognised the critical role of women in the energy sector in its draft National Energy Policy 2017 and through schemes such as LPG connections for women below poverty line-‘Ujjwala’ and Power to All or ‘Saubhagya’. Yet their objectives fail to associate women with the energy supply chain or the modern and productive forms of energy. For instance, emissions from household energy use and smallholder agriculture could be significantly reduced if women who are managing household energy use and food resources are provided with more efficient household technology, are trained in sustainable farming, rewarded for conserving forests, and empowered to lead their communities toward sustainable development.<sup>20</sup>

## **GENDER IN INTERNATIONAL CLIMATE NEGOTIATION**

### **Governance**

The special role of women in environmental management was recognised as early in 1992 by Rio Conventions adopted at the Earth Summit. Yet, the United Nations Framework Convention on Climate Change (UNFCCC) lacked any reference to gender or women. This oversight led to a significant delay in mainstreaming gender considerations in international climate negotiations.<sup>21</sup> Nevertheless, sustained efforts by civil societies and feminist associations such as Care France, Adéquations, Women in Europe for a Common Future, and UN Women, led to the adoption of the Gender Action Plan (GAP)<sup>22</sup> at the COP23 in 2017 to bolster the role of women in climate action and mainstream gender in all stages of the Paris Agreement processes, right from negotiations to strategy to reporting.<sup>23</sup>

The momentum for change to place gender-sensitive climate policy more firmly on the climate agenda and integrate gender into the design



of climate action began much earlier, at COP7 in Marrakesh in 2001. Subsequently, gender equality references were integrated in the Cancun Agreements negotiated at the COP 2010 and a decision on promoting gender balance in UNFCCC and its delegations was adopted in the 18th session in Doha in 2012. An action plan to develop a two-year gender programme was called for at COP20 in Lima.<sup>24</sup> These preparatory efforts led to the formal recognition of women's rights and empowerment in the intersection of climate change and gender equality in the 2015 Paris agreement at COP21.<sup>25</sup>

The world needs to address significant gender gaps in climate action while capitalising on this momentum. Indeed, only 40 percent (65 out of 162 countries) of the parties to Paris Agreement have made gender reference in their INDCs so far.<sup>26</sup> Moreover, only half, or 33 of the 65 countries that mention gender in their INDCs, identify gender as a priority in climate action, strategies and policies.<sup>27</sup> Mainstreaming gender in climate action will therefore require a move beyond decisions and dedicated days at the COPs to action on the ground, to concretely demonstrate the linking of gender and climate change in practice.

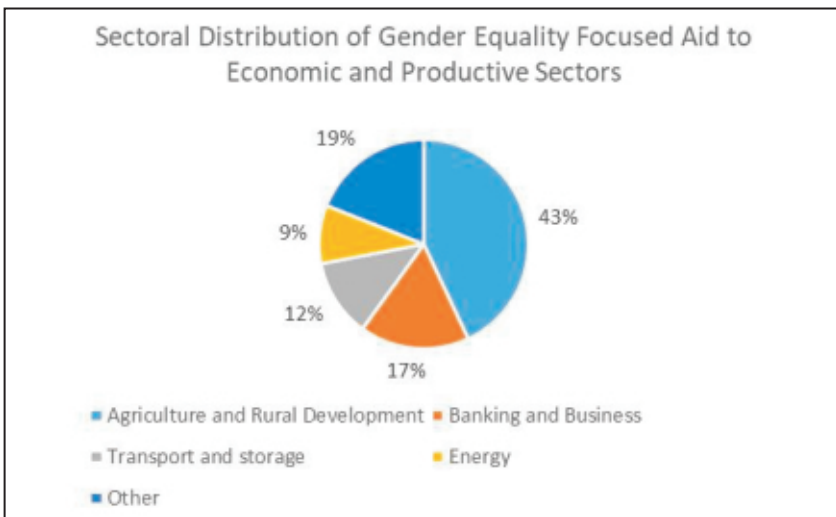
## Finance

It is well-established that there is a considerable momentum on integrating gender with climate action and new innovative women-centric action plans are emerging. However, a key barrier to the realisation of the potential gains from gender integration is the lack of access to finance.<sup>28</sup> Unfortunately, the history of climate finance lacks examples on inclusive funding. This could be attributed to the prioritisation and bias of the climate finance instruments towards large-scale technology investments focused on energy infrastructure and emission reductions—as they are cost-effective, with minimal reference to sustainable development and gender equality.<sup>29</sup> Though a majority of these projects may (indirectly) benefit women, their objectives do not

highlight gender. Therefore, gender concerns have often gone unrecognised, and have consequently shunned possibilities of replication and scale-up.

The recent shift in demand for mainstreaming gender concerns and harnessing women’s potential in climate action provides an opportunity to the climate finance mechanisms to become more gender-responsive.<sup>30</sup> Currently, the availability and flow of financing for women initiatives across economic and productive sectors remains scarce. In 2016, the Organisation for Economic Co-operation and Development’s (OECD) Development Assistance Committee (DAC) Network on Gender Equality (GENDERNET) noted that only a small fraction of official development assistance (ODA) has gone to the energy and transport/storage sectors (nine and 11 percent, respectively) for women-centric projects. (Figure 1).

**Figure 1: Sectoral distribution of gender equality focussed aid to economic and productive sectors between 2013-2014.**



Source: ENERGIА, World Bank Group/ESMAP and UN Women, 2018<sup>31</sup>

As the climate induced events disrupt business operations—directly through physical damage to infrastructure, and indirectly by regulatory

amendments and additional market risks—managing and mitigating climate change vulnerabilities requires greater involvement from the private sector. Estimates suggest that only 12 percent, out of 174 programmes or organisations are focused on investing in sustainable energy solutions that address gender concerns and aim at social inclusion. Given the current scenario, private sector finance needs to be increased in amount and tenor; it is imperative to nurture a more methodical inclusion of women-centred funds into existing sustainable development financing vehicles.<sup>32</sup>

## **CLIMATE CHANGE AND GENDER EQUALITY IN INDIA**

India ranks highest in South Asia’s disaster hotspot index and is among the countries most vulnerable to climate change.<sup>33</sup> The country is predominantly agrarian employing over 60 percent of its workforce or 700 million people directly or indirectly in agriculture.<sup>34</sup> Women play a vital role in building the economy as they make up about 33 percent of cultivators and 47 percent percent of agricultural labourers. Two-thirds of India’s population, about 850 million people, live in the rural areas, among whom 84 percent of women depend on agriculture for their livelihood.<sup>35</sup> Yet, their contributions often go unacknowledged in decision-making.<sup>36</sup>

The increase in probability, frequency and intensity of extreme events due to climate change threatens the lives and livelihood of a majority of rural communities dependent on climate-sensitive sectors such as agriculture, forestry and fisheries. In recent decades, monsoon seasons in the country have become unpredictable, severely impacting rainfed agriculture.<sup>37</sup> Climate change is spurring the emergence of new hazards and vulnerabilities with differential spatial and socioeconomic impacts, further diminishing the resilience and coping capacities of poor and vulnerable communities living in rural areas.<sup>38</sup>

At the same time, urbanisation is fast progressing. The Population Division at the UN's Department of Economic and Social Affairs estimates that India will add over 400 million urban dwellers by 2050, bringing the urban population to over 800 million. Large differentials exist within urban population in terms of climate change impacts as well as their potential to cope.<sup>39</sup> According to a report by the Planning Commission of India, cities that are turning into hubs of livelihood opportunities—attracting rapid economic growth and high levels of migration from neighbouring areas—are especially vulnerable to the impacts of climate change. These cities are unprepared for the challenges.<sup>40</sup> The urban poor are forced to live in poor infrastructure slums built on marginal lands and often lack access to basic services, thereby increasing their vulnerability to the impacts of climate change and disaster events, such as heavy rains and waterlogging. Climate change not only exacerbates poverty, but also frustrates gains made towards achieving the development goals.<sup>41</sup>

In both rural and urban settings, gender inequalities intersect with climate vulnerabilities. To begin with, India has performed poorly in removing gender-based disparities, slipping to 108<sup>th</sup> rank out of 144 countries in the World Economic Forum's (WEF) Global Gender Gap index 2017.<sup>42</sup> India's greatest challenges lie in the 'economic participation and opportunity' pillar, where it is ranked 139, as well as 'health and survival' pillar where it is 141<sup>th</sup>.<sup>43</sup> In 2017, only 12 percent of parliamentary seats were held by women<sup>44</sup> and latest data indicates that less than half of the country's females (47 percent) received some level of secondary education, compared with 53 percent of their male counterparts.<sup>45</sup> Female participation in the labour market is 27 percent, compared with 79.9 percent for men;<sup>46</sup> India has one of the world's lowest rates of female participation in the workforce, ranking 120<sup>th</sup> among 131 countries.<sup>47</sup>

These persistent disadvantages faced by women— limited access to resources, restricted rights, and a muted voice in shaping decisions—make them highly vulnerable to climate change. As cited in the Human Development Report, “the nature of that vulnerability varies widely cautioning against generalization. But climate change is likely to magnify existing patterns of gender disadvantage.”<sup>48</sup>

India has to address the sustainable development challenge of gender inequality, on one hand, and the ever-increasing threat posed by climate change, on the other. Optimising these synergies in key sectors could lead to substantial co-benefits. As it has been repeatedly argued by organisations demanding equitable outcomes from climate action, effective participation of women and their greater integration in an entire climate action project cycle—from planning to implementation, monitoring and evaluation—would not only ensure channelling finance and resources in a gender-responsive fashion but would also result in an equitable share of opportunities and benefits.

## **LEVERAGING CO-BENEFITS BETWEEN GENDER EQUALITY AND CLIMATE ACTION**<sup>49</sup>

### **A. Women’s role in energy entrepreneurship**

The world has embarked in an era of green energy transition. However, current estimates suggest that it will take until 2080 to achieve universal access to electricity and the mid-22<sup>nd</sup> century for access to non-polluting energy for cooking.<sup>50</sup> Gender mainstreaming in energy interventions not only can help narrow this gap, but also usher in gender equality while simultaneously addressing energy poverty.

In line with its climate commitments under the Nationally Determined Contributions, India’s power sector is undergoing significant transformation. So far, substantial progress has been made

towards its ambitious targets of reducing the intensity of carbon emissions by 33-35 percent by 2030<sup>51</sup> and achieving 175 GW renewable energy capacity by 2022.<sup>52</sup> The government, through schemes such as the Ujjwala Yojna and 'Power for All' or Pradhan Mantri Sahaj Bijli Har Ghar Yojana- 'Saubhagya,' is making significant efforts towards achieving its ambitious goal of providing clean cooking access to poor women by 2019 and electricity connections to every household by 2018.<sup>53</sup> Data from the government think-tank, NITI Aayog's draft National Energy Policy (NEP) released in 2017 show that 304 million people in the country still lack access to electricity.<sup>54</sup> On the other hand, a recent impact assessment carried out by The Energy and Resource Institute (TERI) in the state of Himachal Pradesh highlights that out of 4,000 induction stoves distributed among the poorest families of the state, only five percent of them shifted from traditional mud stoves.<sup>55</sup> This points that despite progress, achieving sustainable, affordable, reliable and equitable energy access continues to remain a critical challenge.

Energy policies and programmes impact women and men differently due to their varying roles at home, the workplace and society in general. In emerging economies such as India, energy is critical to women's economic empowerment and well-being. Women in many parts of India still spend up to five hours a day collecting fuel for cooking. This forms a part of their unpaid, unrecognised and unaccounted care work that limits their opportunity for education, employment and economic advancement. Further, the use of biomass and unclean fuel for cooking have significant impact on their health. According to a World Health Organization report, these traditional fuel sources causes severe health and respiratory diseases that kills 500,000 people in India every year.<sup>56</sup>

Ensuing energy access for women in particular could benefit them by reducing drudgery, enabling better delivery of basic services such as

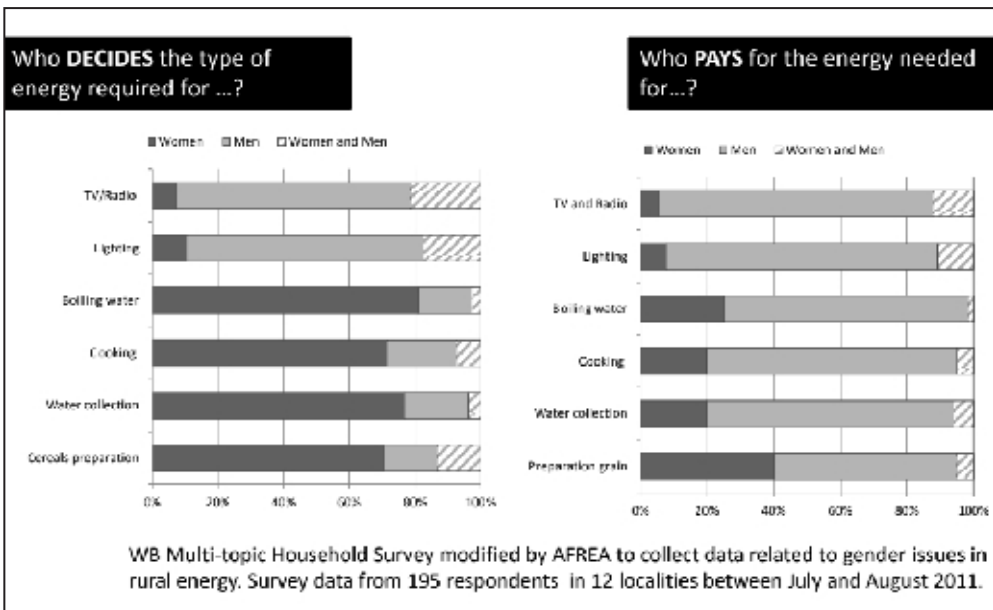
health and education, and increasing livelihood opportunities. A sustainable flow of electricity in rural communities could result in a nine-percent increase in female employment, and a 23-percent increase in the probability of rural women working outside the home. According to a recent study by the McKinsey Global Institute, empowering women to participate in India's economy on an equal basis with men would add some US\$3 trillion to the nation's economy by 2025.<sup>57</sup>

In rural areas where the Distribution Companies (DISCOMs) are plagued with high distribution and transmission losses and ageing grid infrastructures, women could make a significant contribution as energy entrepreneurs while providing solutions with decentralised renewable energy (DRE). For DRE solutions to be successful and reach the scale that could effectively meet the existing gaps, there is need to create and nurture sustainable business models that leverage on existing infrastructure and institutions.<sup>58</sup> Women's position at the household and community level could be effectively leveraged for this purpose.

In most developing countries, women are the primary household energy managers and can also be powerful agents of change in the transition to sustainable energy<sup>59</sup> (Figure 2). Since women are decision-makers at home—influencing 80 percent of buying decisions and thereby controlling US\$20 trillion of global spending—they could be effective representatives for the use of clean energy, endorsers of marketing messages, and effective communicators within and outside their community.<sup>60</sup> Owing to their proximity to customers and knowledge of local circumstances, women could act as catalysts for selling energy products and services while creating vibrant distribution and servicing networks and promoting adoption of new technologies for energy access solutions.<sup>61</sup> A women SME mapping exercise conducted in 2011 by IFC and McKinsey reveals women's ownership in small and medium enterprises is at 30 to 37 percent of all SMEs [eight million to

ten million women-owned firms] in emerging markets.<sup>62</sup> Their significant role in fostering inclusive and sustainable economic growth is obvious from the success of initiatives from organisations such as Solar Sisters, Frontier Markets and Barefoot College.<sup>63</sup> Evidently, as gender responsive and clean energy solutions are pursued together, it brings along a high return on investment besides generating other positive financial, social, and environmental outcomes.

**Figure 2: Women as household energy managers in developing countries**



Source: Malian Agency for the Development of Household Energy and Rural Electrification, 2011<sup>64</sup>

Unfortunately, despite this direct and positive co-relation, intentional investments in women’s access to energy remains scarce and women continue to be underrepresented in the energy value chain, both at the policy and decision-making levels.<sup>65</sup> The fundamental barriers to their effective representation include deep-rooted social and cultural discrimination, restricted mobility, time poverty, difficulty in accessing finance, and limited access to education and training provisions.



## KEY GENDER ISSUES ACROSS THE ENERGY SECTOR

<p><b>Energy Access</b> Household, Energy &amp; Rural Electrification</p>	<p>Time poverty due to fuel collection and cooking; gender-based violence related to fuel collection; health impacts, as women and children are disproportionately affected by indoor air pollution; and lack of access to information and financing for energy services or technologies.</p>
<p><b>Electricity Infrastructure</b> Generation, Transmission, and Distribution</p>	<p>Displacement, inequity in ownership or land titling during resettlement; inequitable access to new jobs in areas such as energy, engineering, tourism, or services; inequitable benefit sharing due to lack of land titles or government identification; gender-based violence related to migration, new roadways, and traffic patterns; and exposure (mostly affecting men) to hazardous work on energy infrastructure such as electrical wiring and chemical handling.</p>
<p><b>Clean Energy</b> Renewable Energy &amp; Energy Efficiency</p>	<p>Women and female-headed households having less information on new technologies that can create opportunities for</p>

<p><b>Energy Policy</b> Subsidies, Tariffs, &amp; Reforms</p>	<p>employment and training; lack of access to financing and collateral to purchase such technologies or services; lack of voice in household decision making about energy options and electricity use that can impact behavioural change or adoption of improved energy services.</p>
	<p>Female-headed households are often poorer and may suffer more from rapid tariff increases than male-headed households; men often have power over household budgets and decision-making; men may be more affected than women by direct job losses in heavy manufacturing; women may not be included in policy consultations and decision-making due to societal norms.</p>

Source: *ESMAP, 2017*<sup>66</sup>

To address these gender-specific barriers faced by women energy entrepreneurs, and enhance their leadership in energy policymaking, the UN Women and the United Nations Environment Programme (UNEP) launched the Women’s Entrepreneurship for Sustainable Energy (WESE) programme at COP 21 in Paris. The programme has partnered with the Ministry of New and Renewable Energy (MNRE) for implementation in selected Indian states.<sup>67</sup> In partnership with the New and Renewable Energy Department in Madhya Pradesh, the programme

is aiming to increase access to clean energy for women-owned and managed institutions such as the *Anganwadi* centres. However, such initiatives need to be significantly scaled up through comprehensive analyses of the gender-energy poverty nexus that could help influence donors to invest in addressing such nexus.<sup>68</sup>

UN Women has embarked on creating a multi-dimensional framework that integrates gender indicators in their energy access measures drawing from work examples of organisations such as Sustainable Energy for All (SEforALL), Shakti Foundation, Council on Energy Environment and Water (CEEW) and the World Bank.<sup>69</sup> The Government of India could leverage from their experience and create a sustainable and inclusive framework for implementation of its schemes that ensures energy access goes beyond mere supplies and connections to address key socio-economic concerns related to sustainability and equity.

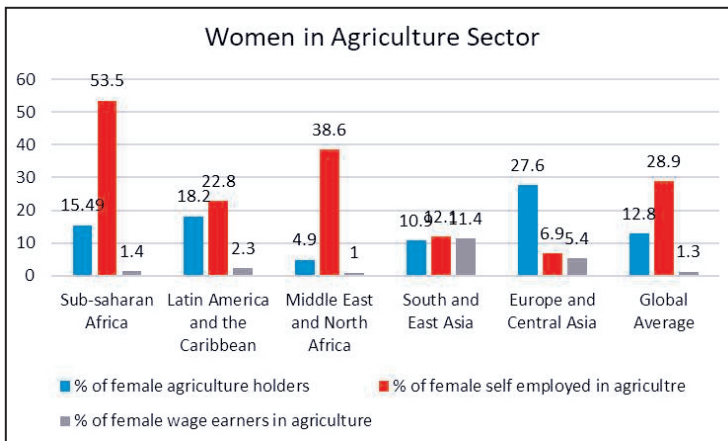
## **B. Women in climate smart agriculture (CSA)<sup>70,71</sup>**

The world population is projected to grow significantly by 2050, with most of the rapid concentration—an addition of 2.4 billion people—expected in the developing countries of South Asia and sub-Saharan Africa.<sup>72</sup> Agriculture is a key economic sector and major source of employment in the region. Yet, more than 20 percent of its population is food-insecure.<sup>73</sup> Global projections indicate that meeting the increased demand would require expansion of agricultural production by 60 percent by 2050.<sup>74</sup> However, climate change is significantly impacting agricultural growth, while affecting crop production and increasing the vulnerability of developing countries, in particular. Higher frequency and intensity of extreme events such as drought, heavy rainfall, flooding and high maximum temperatures have resulted in reduced global yields of maize and wheat by 3.8 percent and 5.5 percent, respectively.<sup>75</sup> Besides productivity, climate change poses risk to access to food, disrupts markets, affects investment incentives, and reduces the likelihood of effective farm innovations.<sup>76</sup>

Therefore, Article 2 of the Paris Agreement urges “increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production.” In light of the current climate scenario, it is imperative to accelerate the adoption of CSA<sup>iii</sup> to enhance food security, strengthen resilience to increased climate variability, and promote economic growth. CSA promotes the judicious use of inputs such as land, fertilisers, water and pesticides to make the agriculture sector less vulnerable to climate change and ensure higher productivity.<sup>77</sup>

However, building the resilience of future agricultural systems and making them climate-smart would require farmers to first overcome existing farming constraints— the most prevalent and challenging of which is the gender gap. Women’s unequal access to land and other productive resources such as information, technology, labour, finance and markets, have the potential to translate into a significant productivity gap. (Figure 3)

**Figure 3: Women in Agriculture sector**



Source: Food and Agriculture Organisation of the United Nations, 2015<sup>78</sup>

iii. The Food and Agriculture Organisation defines Climate-smart agriculture (CSA) as “an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate.”

The agriculture sector in India employs (either directly or indirectly) over 60 percent of the workforce or 700 million people.<sup>79</sup> Women constitute 74 percent of India's rural workforce,<sup>80</sup> with their engagement in agriculture at 41 percent as against 59 percent of the male workforce.<sup>81</sup> While they make a significant contribution to the sector, their rights are often ignored. Where the legal recognition of farmers usually results from land ownership, only 12.69 percent of rural women enjoy the same.<sup>82</sup> A low rate of women's land ownership could act as a potential barrier in her access to government schemes, subsidies and agriculture resources.

Equal access of women and men to land and productive resources could increase farm yields by 20-30 percent<sup>83</sup> and benefit a "triple dividend" of gender equality, food security and climate management, thereby offering a cost effective and transformative approach to the pursuit of the SDGs.<sup>84</sup> A greater integration and empowerment of women in agriculture is imperative to ensure food security, child nutrition, and generating subsequent positive outcomes for women and children's health and education. Besides, knowledge, resource independence, access to innovations and equity gained through larger participation in CSA, would enhance higher levels of self-sufficiency and autonomy in rural women, thereby accelerating efforts towards achievement of SDG 5.

CSA has made a formal inroad in India with the National Mission for Sustainable Agriculture (NMSA), embodied under the National Action Plan on Climate Change (NAPCC).<sup>85</sup> In a significant move to make its agriculture resilient and sustainable, the Indian government has introduced schemes under the 2018 Union Budget such as the *Kisan Urja Suraksha Evam Utthaan Mahaabhiyan* (KUSUM), for promoting solar farming. With an allocation of USD 21.8 billion, the government plans to start building 10,000 MW solar plants on barren lands, providing

1.75 million off-grid agricultural solar pumps.<sup>86</sup> However, the initiatives lack integrated gender dimensions into the policy and plans. Under the influence of increased international attention turning to gender issues, the dimension has mostly been “added” to ongoing policies, without addressing the fundamental changes required to foster gender equality.<sup>87</sup>

The changing climate would lead to shrinking window of opportunity to close gender gaps in agriculture. Climate change aggravates existing barriers, limiting women farmer’s access to long-term affordable finance and increasing their burdens to fetch water and fuel, as resources become even more scarce. In the absence of urgent, concerted efforts to close these gender gaps in agriculture, women farmers face the risk of being trapped in a downward spiral. Enabling women farmers to adopt CSA approaches at the same rate as men is essential not just to accelerate climate action, but also to achieve gender goals.

### **C. Women in sustainable urban cities**

Cities are the major producers of GHG emissions. Urbanisation and population growth are projected to add 2.5 billion people to the world’s urban population by 2050, with nearly 90 percent of the increase concentrated in Asia and Africa. By 2030, 50 percent of India’s population are projected to reside in urban areas.<sup>88</sup>

While cities in India are expected to accommodate 200 million more people by 2030, estimates suggest that two-thirds of its infrastructure required to host the growth, remains to be built. As cities would account for 75 percent of the countries’ GDP growth in the next 15 years, expected level of development will raise the demand for modern fuels, appliances and vehicles. Urban transition is most likely to face a substantial challenge in meeting the massive energy demand, on one

hand, and addressing the climate implications, on the other. Determining the urban form of India's future cities provides a distinctive window of opportunity to choose development pathways that could meet energy needs while not compromising on climate commitments.<sup>89</sup>

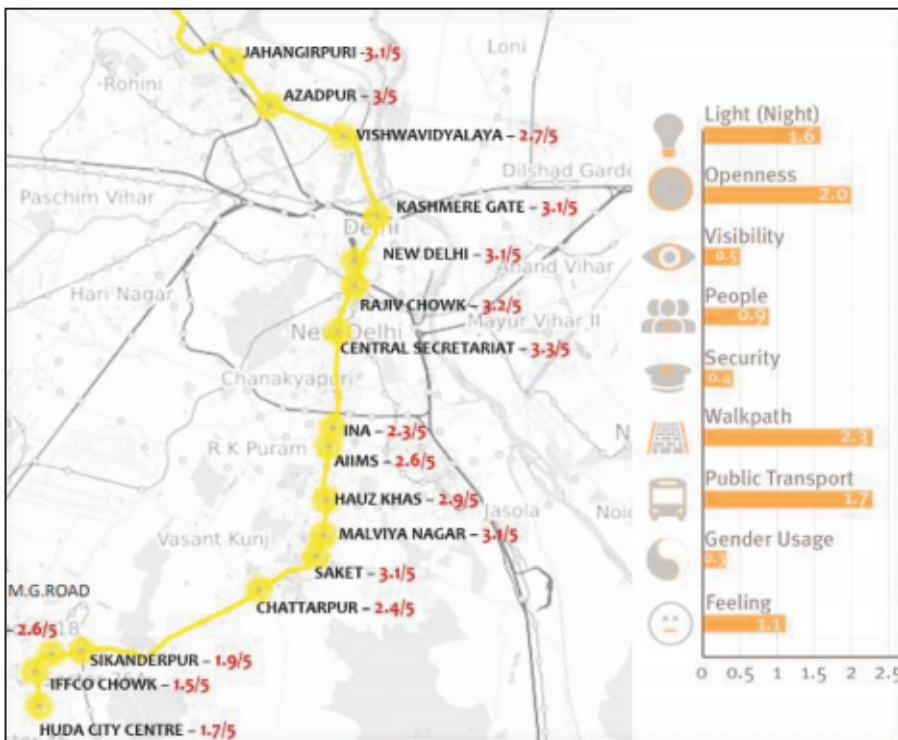
India is currently the world's fourth largest GHG emitter; key contributors are energy, transport and building infrastructure from urban settings.<sup>90</sup> Early and appropriate measures to design or restructure cities for the future would require deploying renewable energy and energy efficiency solutions for electricity supply and consumption, retrofitting buildings and homes, and providing safe and sustainable transport.<sup>91</sup> These energy efficient policies should be devised based on gender considerations. Removing gender barriers in access to inheritance and property rights, finance and information can maximise the capacity of women at home and workplace, with the potential to help significantly to invest in energy-efficient buildings, appliances and technologies.<sup>92</sup>

With the rise of cities and economic opportunities, at least 10 million people are projected to enter the Indian job market annually for the next two decades, of which women would comprise a significant proportion. Their participation at work would rely on sustainable and safe transport facilities. An effective mass transport system is a key element for sustainable urban development, with significant implications for economic growth, social progress and environmental protection.<sup>93</sup> Sustainable transport has a strong gender dimension as the services place different burdens on women, with the costs of poor public transport often being borne by them. For instance, women may turn down better employment opportunities that are physically distant from their residence in case the public transport system is unreliable or unaffordable.<sup>94</sup>



Indeed, gender is overlooked in transport planning in India and women’s concerns are often underrepresented in urban policy and development.<sup>95</sup> This is because India’s urban development planning is overwhelmingly oriented towards infrastructure and real estate projects,<sup>96</sup> lacking gender-differentiated understanding of opportunities, benefits and risks. A safety audit conducted by a personal safety app for women, SafetiPin around the metro stations along the Yellow Line of the Delhi Metro Rail Corporation (DMRC) is a case in point. According to their evaluation, the level of safety in the evening hours between 5pm and 10pm at the 17 metro stations are average, with visibility, people, security and gender diversity being rated the poorest among all parameters (Figure 4).<sup>97</sup>

**Figure 4: Women’s safety in Delhi Metro stations**



(Left) Safety score in the night along the Yellow Line of the Delhi metro rail corridor; (Right) Graph showing rating of safety audit parameters. Source: ITDP and SafetiPin, 2017<sup>98</sup>



The High Powered Executive Committee (HPEC) estimates that around INR 23 lakh crores is required between the years 2015–2030 to revamp India’s urban transport infrastructure. The Green Urban Mobility Scheme (GUMS) launched in 2017 expects to invest around INR 70,000 crores over 2018–2023 on sustainable transport. While efforts by different levels of government are underway to address women’s safety issues in public transport, however, infrastructure planning should mainstream gender considerations in the planning process from its very inception.<sup>99</sup> Addressing urban transport issues would not only create opportunities for mitigating GHG emissions but also deliver on promoting gender equity. Women’s access and use of urban transportation will play a critical role in achieving India’s SDGs and ensuring women’s right to the city and its public spaces. In return, by aligning development priorities like gender with climate change objectives, India can make its transport growth more sustainable and climate compatible. However, ensuring a sustainable urban transport is not the responsibility of one division and gender inclusive transportation would require interventions at multiple scales and coordination with a number of ministries and departments.<sup>100</sup>

To be effective, safe public transport would require a comprehensive and integrated approach to gender-responsive urban planning. Increasing the number of women in local government, initiating dialogues at multiple levels of governance, participatory budgeting and social audits, and capacity development to incorporate a gender approach in municipal departments can result in a wide spectrum of solutions that would address safety issues as well as generate substantial climate, economic, and gender co-benefits (UN Women, 2016).

## **WOMEN IN DISASTER RISK REDUCTION (DRR)**

Disaster risk reduction (DRR) is a pillar of sustainable development and requires an “All of Society Inclusive Approach”<sup>101</sup> given that women and

men bring different capacities to risk management. A gender perspective to disaster risk management plans, systems and investments is thus imperative to focus attention on the gender-specific capacities and vulnerabilities to prevent, prepare, confront, and recover from disasters.<sup>102</sup>

Since 1900, natural disasters have claimed more than 32 million lives globally.<sup>103</sup> Among the communities most vulnerable to the disaster impacts are women. Evidence from case studies suggest that natural disaster-related female casualties are higher than those of men. The 1991 cyclone Gorki in Bangladesh, for example, cost numerous lives of which 91 percent were women.<sup>104</sup> Hurricane Mitch, which hit Honduras and Nicaragua in 1998, affected women the most along with other marginalised communities.<sup>105</sup> High numbers of women casualties were also recorded in Indonesia and Sri Lanka following the Indian Ocean tsunami of 2004. Similar was the case in Myanmar where 61 percent of those who died in the aftermath of the 2008 cyclone were female.<sup>106</sup> Studies<sup>107, 108, 109</sup> attribute this high female mortality rate to systemic socioeconomic, cultural and political marginalisation at the time of a catastrophic event.<sup>110</sup>

Indeed, structural barriers that limit women's access to land, technology, financial services, education and skills make them more defenseless during disasters as compared to men, thereby limiting their coping capacity in post-disaster situations.<sup>111</sup> Economic disruption that follows a disaster hits women the most because of their engagement in insecure forms of employment. Many regions have witnessed rise in sexual exploitation and trafficking, especially of children,<sup>112</sup> in the aftermath of disasters. This can be mainly attributed to breakdowns in social norms and regulations, a lack of a social safety net, and limited opportunities for income generation, and food insecurity.<sup>113</sup> Women in most developing countries are expected to fulfil the responsibility of

looking after house, livestock, etc., despite being restricted by social and cultural norms. They are often prohibited to take part in some life-saving activities that are critical during disaster times, like swimming, thereby enhancing their chances of drowning during floods.<sup>114</sup>

**Table 1: Climate-related disasters and female mortality**

Year	Disaster/Country	Female Mortality
1991	Cyclone OB2 – Bangladesh	90%
2004	Tsunami – Aceh-Indonesia	77%
2004	Tsunami – Tamil Nadu-India	73%
2008	Cyclone Nargis – Myanmar	61%
2009	Tsunami – Tonga and Samoa	70%
2014	Solomon Island Floods	96% (women & children)
2015	Nepal Earthquake	55%

Source: UN Women, 2016<sup>115</sup>

The irony of it is that women in fact have a huge potential in reducing disaster risks.<sup>116</sup> They typically make decisions about resource use and investments in the interest and welfare of their families and communities<sup>117</sup> and have a deeper understanding of issues better than men in contexts such as practical concerns for access to clean water. These perspectives could help significantly in disaster preparedness.<sup>118</sup>

It is important for policymakers to recognise this potential. In the past 10 years alone, 87 percent of disasters in the world have been climate-related; this number is only projected to grow.<sup>119</sup> India is leading a global intervention in bringing down disaster losses that is pushing more than 26 million people into abject poverty every year, by offering its expertise like the South Asia satellite, GSAT-9 and Tsunami Early

Warning Centre to other countries. It is the first country which has drawn a comprehensive national plan to fully achieve the Sendai framework for Disaster Risk Reduction by 2030.<sup>120</sup> It is noteworthy that the Sendai framework itself emphasises that “women and their participation are critical to effectively managing disaster risk and designing, resourcing and implementing gender-sensitive disaster risk reduction policies, plans and programmes.”<sup>121</sup> Yet, women’s participation in disaster risk management in India has so far been sporadic and their contributions often overlooked.<sup>122</sup>

Among the coastal states, Odisha, Andhra Pradesh and Tamil Nadu have made significant progress in women’s inclusion and participation. This is evident from examples such as the effective models of community partnership and ownership around Multi-purpose Cyclone Shelters through the creation of Cyclone Shelter Management and Maintenance Committees, jointly run by collaboration of both local government and the community members.<sup>123</sup>

These initiatives must be scaled up and replicated. India, after all, as the largest democracy making significant progress in its DRR potential, should enable a paradigm shift through dedicated action in engendering all DRR policies, plans and programmes at all scales. In this regard, gender-sensitive and accessible data and information will be key to monitoring progress in women’s participation and leadership in DRR. Monitoring systems aligning DRR with SDGs, while giving particular attention to gender equality, would be a most effective step forward. This can be achieved through ensuring that the targets and indicators on the framework for disaster risk reduction include gender data in risk assessments, hazards exposure, vulnerability assessment, design of people-centred early warning systems, preparedness and contingency planning and in post-disasters assessment of impacts.<sup>124</sup>

Furthermore, removing structural barriers while ensuring equal access to information and skills, strengthens women's individual capacities and the capacity of the community to meet challenges that emerge from disasters. A case in point is Odisha's success in evacuating some one million people prior to the landfall of Cyclone Phailin in 2013, and ensuring minimal casualties in the aftermath.<sup>125</sup>


Urbanisation will pose greater challenges for disaster risk management, by concentrating people, property and economic activity in smaller areas, many of them in disaster-prone locations. Inclusive action by all communities through greater involvement and leadership of women in disaster risk management, in terms of both planning and implementation, could make the urban spaces as well as economies most resilient.<sup>126</sup>

## CONCLUSION

The year 2015 brought significant achievements for gender and sustainable development. The 2030 Agenda was launched to guide development action for the key 21st century challenges such as poverty, gender inequality and climate change. The Sendai Framework for Disaster Risk Reduction (SFDRR) laid out recommendations for efforts towards gender sensitive resilience building. The Paris Agreement also urges member states to adopt gender-responsive approaches for climate action. However, translating these post-2015 global and national sustainable development aspirations into concrete actions remains a critical challenge.

Climate change is the most pressing development challenge that has the potential to undo decades of development and jeopardise gains made in key development sectors such as food security, access to health, and education. Moreover, climate change has a disproportionate impact

on women because of gender differentiated roles at household and community level. Socio-economic and political marginalisation makes women structurally more vulnerable. According to data from UNDP<sup>127</sup>, 80 percent of people displaced by climate change are women. Among the victims of Asian tsunami 2004, 70 percent were women. Their over-reliance on natural resources leads to dependence on unsustainable environmental practices such as deforestation, thereby contributing further to environmental risks and hazards. Low adaptive capacity and lack of resources to weather climate impacts together put women in a disadvantaged position in coping with the adverse impacts of the changing climate.

Apart from advancement towards a fundamental human right, promoting gender equality in climate-development policies and actions has significant economic imperatives. Therefore, policy planners and development partners should adapt gender considerations across sectors, agriculture, health, water and sanitation, forestry, energy and infrastructure, and at all levels including planning, financing and implementation of climate responses. As the world moves towards the post-Kyoto climate regime, it is essential that climate initiatives at all levels pay particular attention to the interlinkages between gender and climate change and that women are engaged at all levels of the decision-making and action process. 

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