WOMEN4CLIMATE

GENDER INCLUSIVE CLIMATE ACTION IN CITIES

HOW WOMEN'S LEADERSHIP AND EXPERTISE CAN SHAPE SUSTAINABLE AND INCLUSIVE CITIES

FEBRUARY 2019

C40 CITIES

ABOUT THE C40 INCLUSIVE CLIMATE ACTION PROGRAMME

The C40 Inclusive Climate Action programme is designed to help ensure that responses to climate change are fair, that benefits are distributed equitably, and that climate action developed in cities is inclusive of, and accountable to, the diversity of urban populations.

It is inspired by mayors and cutting-edge urban practice from around the world, giving mayors tailored support to deliver climate plans and actions that are inclusive of all communities (beyond those who are already aware and active), and to find equitable policy solutions.

The programme supports mayors to deliver accessible, affordable and well-communicated services in transport, energy, waste and resilience. In doing so it helps citizens to understand and experience the benefits of low-carbon transition.

ABOUT THE WOMEN4CLIMATE INITIATIVE

Under the leadership of Mayor Hidalgo of Paris, C40 developed the Women4Climate initiative in 2017. The Initiative aims to:

1.
Empower and inspire the next generation of climate leaders by developing a global mentorship scheme in participating cities.

2.
Raise awareness of the disproportionate impacts of climate change-induced disasters on women and on their key role for the effectiveness of climate policies and the resilience of urban communities.

3.
Drive action through research and tangible urban policy recommendations to guide gender-responsive urban climate action in cities.

ACKNOWLEDGEMENTS

C40 CITIES CLIMATE LEADERSHIP GROUP

The C40 Cities Climate Leadership Group, now in its 13th year, connects 90+ of the world's greatest cities which have committed to tackling climate change. We bring mayors from around the world together to learn from each other in reducing greenhouse gas emissions and creating resilient, sustainable and inclusive cities. C40 cities represent more than 700 million urban citizens and their economies account for 25% of global GDP. Our 'Deadline 2020' report sets out the critical role that the world's major cities have to play in delivering the historic Paris Agreement to prevent catastrophic climate change.

This research report was led by C40 Cities, Climate Leadership Group, under the Women4Climate Initiative and funded by L'Oréal & Michelin Corporate Foundation

L'ORÉAL

With its unique portfolio of 36 brands, L'Oréal aims to meet beauty aspirations all over the world. Its sustainability program sets out ambitious objectives by 2020 across its entire value chain. "Being a founding partner of Women4Climate reflects two of L'Oréal's core values: gender equality and climate protection. Women will play a critical role in tackling climate change. It is our responsibility to empower them", Alexandra Palt, L'Oréal's Chief Corporate Responsibility Officer.

MICHELIN FOUNDATION

Created in 2014, the Michelin Corporate Foundation seeks to promote projects of general interest in five areas: Sustainable Mobility, Protecting the environment, Sport and Health, Education and the community and Heritage and the arts. The Michelin Corporate Foundation's purpose rests on its philanthropic actions which always aim at helping more towards the communities and at fulfilling its societal responsibility. The Foundation contributes to carry the values of respect and solidarity the Michelin group holds.

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GLOSSARY OF TERMS

CLIMATE ACTION
Proactively taking actions to reduce greenhouse gas emissions, promote sustainability and strengthen resilience and adaptive capacity to climate-induced impacts. Climate action can take many forms, ranging from incorporating climate change measures into national and urban policies, to increasing education and awareness-raising campaigns on climate change.

GENDER BUDGETING
Analysis of how public spending and resource allocation impact men and women differently. This is a tool to help ensure a more even (re)distribution of public resources.

GENDER-DISAGGREGATED DATA
Data that is broken down by gender and therefore can reveal differences between women and men in terms of social, political, economic, and environmental preferences, behaviours and actions.

GENDER EXPERTISE
An understanding of how gender is a socially constructed category of identity that shapes social, political, economic, and spatial relationships.

GENDER PERSPECTIVE
An understanding that women and men have different needs, experiences, access to resources, and powers, and a consideration of the differential nature of women's lives, experiences, and needs in design and decision-making processes.

GENDER POWER RELATIONS
The ways in which gender creates differences in access to resources and the distribution of power in society.

GENDER SAFETY AUDITS
A practical tool for cities to understand how women and men perceive and experience the city differently. It helps increase awareness of gender-based harassment and violence in public space.

INTERSECTIONAL PERSPECTIVE
An understanding that there are multiple aspects of identity (such as sex, sexual orientation, racial or ethnic origin, religion, age and physical ability) that interact in complex ways to impact how people experience the world. An intersectional perspective also acknowledges that there are multiple kinds of discrimination and inequalities that are interconnected and therefore cannot be analysed separately.

INTELLIGENT MOBILITY
Technological innovations that are transforming how people and goods move around.

MOBILITY AS A SERVICE (MAAS)
A new model that frames transport in a business-like way, in which transport is a service and transport users are customers. Examples of MaaS include shared mobility options delivered by companies like Uber, Lyft, Zipcar and Mobike.

SOCIO-CULTURAL INFRASTRUCTURE
Foundational services and facilities in society that support health, wellbeing and quality of life. Examples of socio-cultural infrastructure include education, community, arts and culture, and recreation and sports facilities.

STRUCTURAL INEQUALITIES
Discrimination based on aspects of one's identity (such as sex, sexual orientation, racial or ethnic origin, religion, age and physical ability) that gets embedded in social, political and economic structures (i.e. by laws and policies).

TECHNOCRATIC
A viewpoint that heavily favours quantitative data and emphasises science and technology.

FOREWORD BY ANNE HIDALGO, MAYOR OF PARIS AND CHAIR OF C40 CITIES

THE SEVERITY OF CLIMATE IMPACTS IS INEXTRICABLY LINKED TO ECONOMICS, PUBLIC HEALTH, INEQUALITY AND GENDER. AROUND THE WORLD, CLIMATE CHANGE-INDUCED DISASTERS AFFECT WOMEN DISPROPORTIONATELY, THROWING INTO SHARP RELIEF THE EXISTING SOCIETAL INEQUALITIES BETWEEN MEN AND WOMEN.

CLIMATE CHANGE DOES NOT AFFECT ALL PEOPLE EQUALLY. CERTAIN POPULATIONS ARE ESPECIALLY VULNERABLE – INCLUDING THE YOUNG, THE ELDERLY AND WOMEN.

The severity of climate impacts is inextricably linked to economics, public health, inequality and gender. Around the world, climate change-induced disasters affect women disproportionately, throwing into sharp relief the existing societal inequalities between men and women.

The devastating impacts of these events can be measured in both lives lost and economic opportunities destroyed. But as we look to address the greatest challenge humankind has ever faced, we do so with one of the greatest possible resources: womankind. Empowering women is key to creating cities and communities that are clean, safe and economically vibrant. This is true not only because women make up 50 per cent of the global population, but also because women are powerful advocates for solutions to long-term problems like climate change.

Time is running out to deliver on the ambition of the Paris Agreement and keep global temperature rise to 1.5°C above pre-industrial levels – as the science makes clear we must to avoid catastrophic climate change. Because the majority of people are now urbanised, our collective future depends on a radical transformation of life in our great cities. We will only succeed by harnessing the full potential of both men and women and by ensuring that the benefits of the transformation are realised by all citizens, rich and poor, young and old, male and female.

I am delighted to welcome this new research report, a product of the C40 Women4Climate initiative. The findings and recommendations provide invaluable insights to how the effects of climate change, and the responses of climate action are experienced by women in cities. Only by understanding the gendered nature of climate change, policies and programmes, can we deliver action that will benefit all citizens equally. With concrete examples from Paris, Barcelona, San Francisco and London, the evidence is clear that this important work is already well underway.

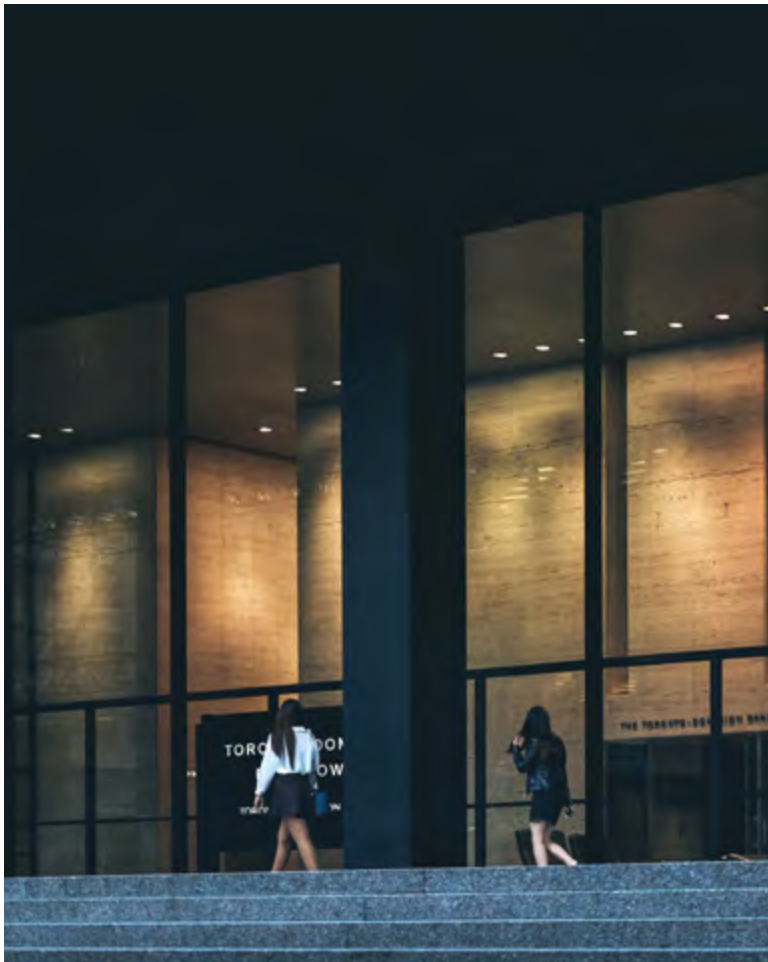
Women possess the ability to surpass great obstacles to make our world a better place. As women, we know we must work ten times as hard to attain the same opportunities as men. As women, we know that we will face discrimination and dismissiveness in any arena we enter. But we also know that responsibility for the future rests on our shoulders and we are prepared to rise to that challenge.

We know that women will shape the future. In order to build the most liveable, equal and economically empowered cities, we need women to lead. Unfortunately, women remain underrepresented in positions of power. That must change and this research provides concrete examples and inspiration to accelerate that trend.

Under the Women4Climate initiative, C40 has supported eight cities to set up mentoring schemes to empower the climate heroines who are building the world of tomorrow. In the future, we need to extend the influence and implementation of this unstoppable movement, supporting women to take the lead. We will work to launch more mentorship programmes in more cities. We will keep supporting women working in technology to enhance climate action through the next editions of our tech challenge and we will develop more research for our cities to keep addressing gender inequalities through a data-driven approach.

We must show courage, creativity and solidarity as we endow more young women with the skills and opportunities they need to lead the fight against climate change. We must remove obstacles for the next generation of women leaders. We must give them the tools they need to carry forward the work we have started. We must inspire a new generation of men and women to help tackle climate change. **I call on all C40 mayors to adopt the recommendations of this research and take action.** Women face different barriers all over the world, and cities are spaces where we want women to feel safe and to thrive. It's time to consider gender-sensitive urban climate approaches, actions and policies. Really, it's simple: we won't achieve climate justice without developing actions that include, at every level, half of the world's population.

> **WE MUST INSPIRE A NEW GENERATION OF MEN AND WOMEN TO HELP TACKLE CLIMATE CHANGE. I CALL ON ALL C40 MAYORS TO ADOPT THE RECOMMENDATIONS OF THIS RESEARCH AND TAKE ACTION.**



EXECUTIVE SUMMARY

IN RECENT YEARS, A SMALL NUMBER OF EXTRAORDINARY WOMEN HAVE EMERGED AS KEY LEADERS ON GLOBAL ACTION TO TACKLE CLIMATE CHANGE.

However, more generally, women are grossly under-represented in high-level climate negotiations; tend to be disproportionately vulnerable to climate impacts; and climate solutions tend to ignore gender-specific issues, perpetuating a general bias of infrastructure and services designed predominantly for men. This report sets out proposals for how to correct these imbalances and, through focusing on an inclusive climate action approach, to ensure that investment to cut emissions and improve resilience will benefit the full diversity of urban citizens, rich and poor, men and women.

Gender is an important factor that influences people's lived experiences within a city, as well as their vulnerability to, and ability to mitigate, climate impacts. The design and planning of transport systems in cities provides an excellent example. Bus and metro networks tend to prioritise routes that bring commuters from the suburbs and outer boroughs into the city centre. These routes are assumed to offer the greatest economic benefit to the city, and they are statistically more likely to be used by men, travelling to and from workplaces. Yet research shows that the majority of journeys on public transport in cities are made by women, taking shorter trips, with multiple stops and at different times of the day to the traditional commuter hours. Women's journeys are often more encumbered, for example with pushchairs or small children; women also face more safety concerns on public transport, which are often factors in their decision-making about what modes to use, and when.

Women's organisations and grass roots activism have played critical roles in increasing women's representation in, and elevating gender issues at, international climate negotiations, as well as empowering women, building capacity, raising awareness and mobilising collective action. However, these activities are often undervalued in discussions about how cities can deliver on what the science says we need and avoid catastrophic climate change.

To achieve gender-inclusive climate action we need more women in leadership positions, bringing their perspectives and experiences into the decision-making processes, greater consultation with women during policy making, and better analysis of the differentiated gendered needs within cities.

Strategies to increase women's leadership in climate action and improve consultation detailed in this report include:

INVESTING IN MENTORING PROGRAMMES FOR WOMEN.

These have huge potential to strengthen female leadership in climate action, especially at the local level. Cities should invest in mentoring programmes and monitor and evaluate them regularly to improve, scale and replicate.

APPLYING THE GAMMA METHODOLOGY.

This methodology can be applied collectively by local governments with grassroots organisations and citizens. It allows cities to examine the gender responsiveness of local policies, and to identify entry points to integrate a gender perspective/gender-informed recommendations.

GENDER RESPONSIVE PARTICIPATORY PLANNING.

Participatory processes enable local government to harness local knowledge and local priorities to maximise resource effectiveness in climate planning.

Strategies to improve analysis of differentiated gender needs detailed in this report include:

COLLECTING GENDER-DISAGGREGATED DATA.

This provides city leaders and other stakeholders with common data, indicators and vocabulary to devise strategies to increase women's inclusion in climate action.

GENDER-RESPONSIVE BUDGETING – PARTICULARLY IN INFRASTRUCTURE INVESTMENTS.

Thisenables policymakers to assess the gendered impacts of public spending. In climate finance it would also help to identify how investment in technological innovation to address climate change may disparately impact women.

CONDUCTING WOMEN'S SAFETY AUDITS.

Safety concerns impact women's travel around a city, and can inhibit their participation in low-carbon mobility solutions. Audits can improve safety for women and girls, and provide robust indicators for systematic safety assessments.

To implement the 1.5°C Paris Agreement target and achieve climate action, cities need to include all citizens. These recommendations and tools can guide cities to achieve inclusive climate action.

1. THE CASE FOR GENDER INCLUSIVE CLIMATE ACTION

This report makes the explicit connection between gender and climate action. It argues that one of the best inroads for cities to integrate a gender perspective into their climate action plans – and ultimately to achieve more inclusive climate action – is through a focus on inclusive and sustainable urban mobility.

1 WHY INCLUSIVITY MATTERS

Climate change does not impact all people equally. The poorest and most vulnerable in our societies are disproportionately at risk from rising sea levels, unprecedented droughts and climate related disasters. Climate action plans, policies and programmes, therefore, must be inclusive of all citizens.

Equally, people's lived experiences and needs within a city are diverse. As cities design and implement infrastructure, policies and plans to increase sustainability and meet environmental targets, citizen uptake depends on these plans meeting their diverse needs.

70%

OF THE 15,000 PEOPLE IN FRANCE WHO DIED DURING THE 2003 HEATWAVE WERE WOMEN

4x

AS MANY WOMEN THAN MEN WERE KILLED IN THE TSUNAMI-AFFECTED AREAS OF INDONESIA, SRI LANKA AND INDIA IN 2004

2 WHY GENDER MATTERS

Gender is an important factor in determining people's vulnerability to, and ability to mitigate, climate impacts. And research shows that women are disproportionately vulnerable to disasters. For example, women are far more likely than men to die in a natural disaster: 70% of the 15,000 people in France who died during the 2003 heatwave were women (Ogg, 2005) and four times as many women than men were killed in the tsunami-affected areas of Indonesia, Sri Lanka and India in 2004 (Oxfam, 2005). In the aftermath of a disaster, women tend to be more susceptible to stress-related disorders, depression and gender-based violence (Sellers, 2016; World Health Organization, 2011; Buckingham, 2015).

These gender-related differences are the result of systemic and structural inequalities, not biological differences. It is only by better understanding and planning for these differentiated experiences that these socio-cultural factors and structural inequalities can be addressed to deliver inclusive climate action.

Furthermore, women are still starkly underrepresented in climate action leadership and participation, which means that their perspectives and experiences are not being sufficiently incorporated into climate action decision-making.

Of course, gender is one aspect of our identity that combines with other aspects – such as race, age, sexuality, physical ability, economic resources, migrant status and so on – to shape our lives, opportunities and experiences. An intersectional perspective, therefore, is central to addressing gender. Considering wider issues around diversity, equality and inclusion, we can account for the nuances and variability in how people experience and respond to climate change, and in turn to develop inclusive climate change solutions.

3 WHY CITIES MATTER

Although cities account for less than 2% of the earth's surface, they consume 78% of the world's energy and are responsible for over 70% of greenhouse gas emissions (UN Habitat, 2012; Aguilar et al., 2015). As such, it is in cities that there is the greatest urgency for climate action.

'The right to the city' as a concept was introduced by French philosopher and sociologist Henri Lefebvre in 1968. It has since been embraced by urban theorists and activists as '[t]he freedom to make and remake our cities and ourselves' (Harvey, 2008, p.23).

More recently, academic discourse on 'the right to the city' has entered into urban policy. In October 2017, at the United Nations (UN) Conference on Housing and Sustainable Urban Development, the New Urban Agenda invoked 'the right to the city' as:

> **...A VISION OF CITIES FOR ALL, REFERRING TO THE EQUAL USE AND ENJOYMENT OF CITIES AND HUMAN SETTLEMENTS, SEEKING TO PROMOTE INCLUSIVITY AND ENSURE THAT ALL INHABITANTS, OF PRESENT AND FUTURE GENERATIONS, WITHOUT DISCRIMINATION OF ANY KIND, ARE ABLE TO INHABIT AND PRODUCE JUST, SAFE, HEALTHY, ACCESSIBLE, AFFORDABLE, RESILIENT AND SUSTAINABLE CITIES AND HUMAN SETTLEMENTS TO FOSTER PROSPERITY AND QUALITY OF LIFE FOR ALL.' (UNITED NATIONS 2017, P.5)**

The fact that urban policymakers are thinking about what 'the right to the city' means and how that translates into practice is a milestone in inclusive climate action. This report seeks to make the connection between gender, climate action and the right to the city explicit.

The United Nations Sustainable Development Goals (SDGs) enshrine gender equality, reduced inequalities, sustainable cities and climate action as pillars of sustainable urban development:

- **SDG 5: Achieve gender equality and empower all women and girls.**
- **SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable.**
- **SDG 13: Take urgent action to combat climate change and its impacts.**

The SDGs have established the link between achieving gender equality, reducing inequality, promoting inclusive and sustainable cities and engaging in climate action. However, the link between these goals and the 'right to the city' needs to be more clearly articulated. How do we ensure sustainable urban development and gender equality, to deliver and safeguard the right to the city for women and girls? What does it mean to codify a gender perspective to sustainable cities and climate action? How might city strategies to tackle climate change inadvertently marginalise women? How might the ways that city leaders think about and discuss climate change exclude women's experiences, perspectives and input? This report seeks to start addressing these questions.

2. HOW CLIMATE CHANGE IS GENDERED

The rallying call to action at the United Nations Climate Change Conference in Bali, December 2007, 'No climate justice without gender justice' continues to resonate (Terry, 2009).

A decade later, in March 2017 at the inaugural C40 Women4Climate Conference in New York City, women leaders representing city governments, businesses and civil society organisations around the world affirmed their commitment to address gender inequality and climate change.

This chapter outlines the three key themes in existing literature linking gender, climate change and cities:

- the underrepresentation of women in climate action,
- gender and vulnerability to climate impacts, and
- gender and climate change in cities.

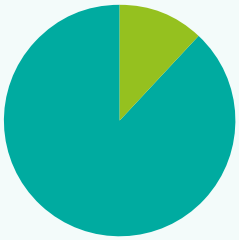
1 THE UNDERREPRESENTATION OF WOMEN IN CLIMATE ACTION

Women leadership in climate governance and negotiations has been increasing since 2008, with women leaders playing a pivotal role in negotiating the Paris Agreement (2015) and instigating ambitious city climate action plans worldwide.

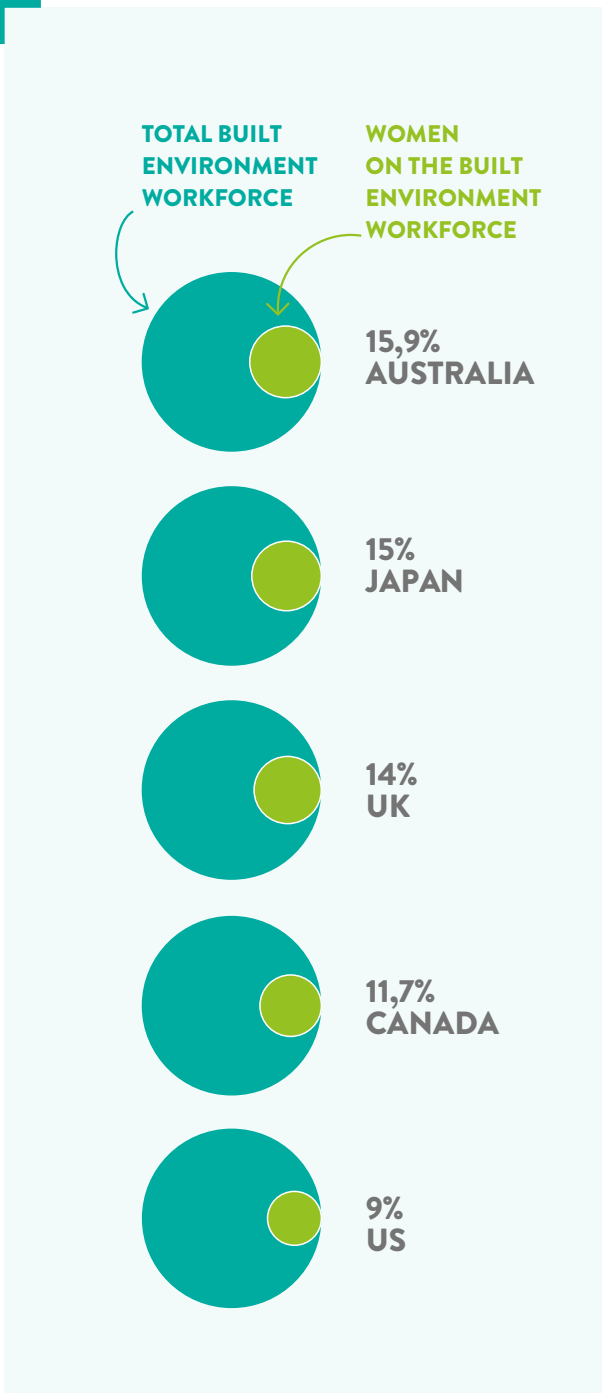
However, women are still underrepresented in high-level climate negotiations (Kronsell, 2013; Sellers, 2016; Burns and Andre, 2013). As of 2015, women headed just 12% of federal environment ministries worldwide (Sellers, 2016). And while the number of women representing national delegations to United Nations climate change conferences has steadily increased from 33% in 2008 to 38% in 2014, women from Africa and the Asia-Pacific region remain disproportionately underrepresented (Burns and Andre, 2013).

These figures underscore the need to build and support women's leadership in the planning, implementation and evaluation of climate policies (Alber, 2016; Sellers, 2016; Burns and Andre, 2013).

At the same time, it is crucial to note that women's leadership and participation in climate action extend beyond politics. Built environment sectors – such as urban planning, architecture, housing, energy, transport, infrastructure and waste and water management – also contribute to, and are impacted by, climate change (Aguilar et al., 2015; UN-Habitat, 2012). Unfortunately, as with politics, women are underrepresented across these sectors (Buckingham, 2015; Aguilar et al., 2015). In the UK, women make up only approximately 14% of the built environment workforce, and the numbers are similar in Australia, Japan, Canada and the US: 15.9%, 15%, 11.7% and 9% respectively (Clear, 2017).



IN 2015, WOMEN HEADED JUST **12%** OF FEDERAL ENVIRONMENT MINISTRIES WORLDWIDE



Climate change is predominantly framed as a technical problem that requires scientific, technological, engineering and/or economic solutions. Since these are male-dominated fields, this can be a barrier to women's entry and leadership in climate action (Buckingham, 2015; Nelson, 2015; Detraz, 2016; MacGregor, 2010; Polk, 2009; Djoudi et al., 2016; Krosnell, 2013; Seager, 2009; Röhr, 2009; Terry, 2009).

Furthermore, this framing ignores the social, cultural and political dimensions of climate change. It suggests that wider issues around social inclusion are irrelevant and further alienates women who are underrepresented in these fields (MacGregor, 2010; Polk, 2009; Krosnell; 2013; Aguilar et al., 2015; Röhr, 2009; Gaard, 2015).

Ulrike Röhr, Director of the German gender and environment project Genanet, attributes the underrepresentation of women in climate action to the scientific and technical approach to climate change that makes 'women feel like they can't enter the discussions' (quoted in Stoparic, 2006). In many cultures, women are socialised from an early age to avoid technical and quantitative sciences like engineering and economics, which leads to a gender gap in these professional sectors (Röhr, 2009; MacGregor, 2010; Zecharia et al., 2014). This is reflected in survey data collected in the UK, which indicates that men are better informed about, and more responsive to, discussions on climate change science than women (MacGregor, 2010).

Increasing gender parity in climate leadership is an important first step to achieve gender inclusive climate action. However, it is also necessary to have gender expertise – that is a knowledge about the ways in which design and investment decisions contribute to gender inequality. There is often insufficient expertise to ensure that the decision-making processes are accessible to, and inclusive of, women (MacGregor, 2010; Sellers, 2016; Polk, 2009; Kronsell, 2013).

Consider transport, for instance. Transport facilitates people's access to and participation in public life. Yet it is largely framed as a technocratic issue that falls within the purview of engineering, economics and technology (Polk, 2009; Kronsell, 2013; Aguilar et al., 2015). This technocratic framing of transport leaves little room for considerations of gender and social inclusion, and perpetuates female exclusion in the industry, starting in education. Ultimately, if infrastructure aspires to fulfil societal needs, gendered experiences and broader issues around social inclusion must be integrated alongside technical components of transport infrastructure projects.

2 GENDER AND VULNERABILITY TO CLIMATE IMPACTS

Vulnerability to climate impacts refers to how likely an individual is to be exposed to, and able to mitigate, climate change impacts. Gender is one factor that contributes to differential vulnerabilities to climate impacts. Other factors include geographic location, race, socio-economic background, migrant status and age, for instance. Further research and analysis are needed to better understand how cultural norms, gendered power relations and structural inequalities (such as income, racism or homophobia) create variability in people's experience of, and capacities to respond to, climate change impacts (Nelson, 2015; Kronsell, 2013; Polk, 2009; MacGregor, 2010; Demetriades and Esplen, 2008; Buckingham, 2015; Aguilar et al., 2015).

Dominant discourses on how gender affects vulnerability to climate impacts typically refer to women and girls. However, gender includes men and boys (MacGregor, 2010; Sellers, 2016; Demetriades and Esplen, 2008). For example, there are gendered health disparities that get compounded by climate shocks, such as disasters. Men are more likely to commit suicide as a result of disasters, for instance (Sellers, 2016; World Health Organization, 2011; Buckingham, 2015). Prevalent gender inequalities also tend to get exacerbated in the wake of disasters, for example women and girls become more vulnerable to gender-based violence (Demetriades and Espien, 2008; World Health Organization, 2011; Buckingham, 2015). In some locations, women may lack access to necessary health care due to patriarchal societal norms that restrict them from traveling alone, poverty or spatial isolation (World Health Organization, 2011). And patriarchal norms about masculinity may prevent men from receiving necessary health care as they feel less inclined to seek help (Ibid.).

A popular narrative in discourses about gender and vulnerability to climate impacts is that women are more vulnerable, but that they are also more active agents in adaptation and mitigation strategies (Gonda, 2016; MacGregor, 2010; Sellers, 2016; Demetriades and Esplen, 2008; Röhr, 2009). This 'women-are-vulnerable-but-also-agents' narrative gained traction following the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, Brazil. Feminist activists applauded the discussion of gender in international climate change negotiations, but they also critiqued this narrative as being overly simplistic (Gonda, 2016). The narrative falsely insinuates that women have a greater capacity and impetus to act (MacGregor, 2010; Buckingham, 2015; Detraz, 2016; Demetriades and Esplen, 2008, p.24).

VULNERABILITY TO CLIMATE IMPACTS REFERS TO HOW LIKELY AN INDIVIDUAL IS TO BE EXPOSED TO, AND ABLE TO MITIGATE, CLIMATE CHANGE IMPACTS. GENDER IS ONE FACTOR THAT CONTRIBUTES TO DIFFERENTIAL VULNERABILITIES TO CLIMATE IMPACTS

This narrative is also often founded on unsubstantiated stereotypes that women are natural caregivers and therefore intrinsically more inclined to be environmentalists. While it is important to acknowledge women's agency in driving climate action, it is equally important to acknowledge that their agency is constrained by patriarchal social norms, socio-economic inequalities and underrepresentation in politics, among others. Moreover, suggesting that women are more active agents ignores the male dominance in decision-making processes regarding climate change and sustainable development.

In reality, it is the broader systemic and structural inequalities (such as the underrepresentation of women in politics, employment discrimination and the gendered division of labour) that creates differences in people's vulnerability to climate impacts. It is unhelpful to make sweeping generalisations that homogenise women or men. Women and men's experiences can vary greatly based on factors, like physical ability, sexual orientation, race and religion. Disparities in the labour market and unequal access to knowledge and resources (such as income, capital, land or technology) are more examples of structural factors relating to gender that affect vulnerability to climate impacts (Djoudi et al., 2016; Bernier et al., 2015; Demetriades and Espien, 2008).

Therefore, a more productive dialogue about gendered vulnerability to climate impacts would shift away from individuals or groups of women and men, and instead address the role of structural inequalities in producing these differential vulnerabilities (Djoudi et al., 2016; Seager, 2009; Alaimo, 2009; Gonda, 2016).

> **IT IS THE BROADER SYSTEMIC AND STRUCTURAL INEQUALITIES (SUCH AS THE UNDERREPRESENTATION OF WOMEN IN POLITICS, EMPLOYMENT DISCRIMINATION AND THE GENDERED DIVISION OF LABOUR) THAT CREATES DIFFERENCES IN PEOPLE'S VULNERABILITY TO CLIMATE IMPACTS**

3 GENDER AND CLIMATE CHANGE IN CITIES

54% of the world's population now lives in cities. By 2050, that figure will rise to 68% (UN DESA, 2018). Although cities account for less than 2% of the earth's surface, they consume 78% of the world's energy and are responsible for over 70% of greenhouse gas emissions (UN-Habitat, 2012; Aguilar et al., 2015). As such, it is in cities that there is the greatest urgency for climate action.

While gender issues have gained traction in climate change research and policy over the last decade, existing literature focuses heavily on low-income women in rural areas in the Global South – not on cities (MacGregor, 2010; Soper, 2009; Kronsell, 2013; Aguilar et al., 2015). Within the sparse literature that exists on climate change, gender and cities, it tends to focus on disasters and food security (Sellers, 2016: 20; MacGregor, 2010).

Thus, more research is needed to better understand the gendered impacts of climate change in cities and the Global North, extending into climate-related issues beyond disasters and urban agriculture (MacGregor, 2010; Hannan, 2009; Djoudi et al., 2016; UN-Habitat, 2012; Röhr, 2009). Further research is also needed that incorporates the diverse lives and experiences of people who may share gender in common, but who have vastly different experiences of the world based on other aspects of their identity (Sellers, 2016; Djoudi et al., 2016; MacGregor, 2010; Resurreccion, 2013; Demetriades and Esplen, 2008; CARE International, 2010).

BOX 1

HOW DISASTERS ARE GENDERED

Natural disasters are an important area for climate action. Here we demonstrate some of the ways in which the impacts of natural disasters can be gendered.

HEALTH

In the aftermath of a disaster, men have higher suicide rates, while women tend to me more susceptible to stress-related disorders depression and gender-based violence (Sellers, 2016; World Health Organisation, 2011; Buckingham, 2015). More women than men die in natural disasters: 70% of the 15,000 people in France who died during the 2003 heatwave were women (Ogg, 2005); four times as many women than men were killed in the tsunami-affected areas of Indonesia, Sri Lanka and India in 2004 (Oxfam, 2005); and 90% of the 14,000 people killed during the 1991 Bangladesh cyclone were women (Aguilar, 2004 cited in World Health Organization, 2011). These figures illustrate instances where women are disproportionately vulnerable to disasters. Therefore, is important to keep in mind that disasters create differential health outcomes among populations and attention to gendered differences is needed.

These figures illustrate instances where women are disproportionately vulnerable to disasters. Therefore, is important to keep in mind that disasters create differential health outcomes among populations and attention to gendered differences is needed.

90%

OF THE 14,000 PEOPLE KILLED DURING THE 1991 BANGLADESH CYCLONE WERE WOMEN

ACCESS TO WORK

Take flooding as an example. Flooding affects access to transport within a city, which in turn affects people's ability to work. In some cities in the Global South, men may be more likely to work outside in jobs such as construction workers, or as rickshaw drivers and flooding would prevent them from being able to work. Women, however, may be more likely to work inside, such as in restaurants or in houses, and may be more likely to be able to continue to work (Jabeen, 2014; Alam et al., 2015; Demetriades and Esplen, 2008). This could temporarily alter the household dynamics, with women becoming the primary earners. This may give them more bargaining power within the household, but it may also make them more vulnerable to partner-violence, particularly in patriarchal contexts where traditional gender roles are more rigidly enforced (Sellers, 2016; World Health Organisation, 2011; Alam et al., 2015; Buckingham, 2015; Metcalf, 2015; Alston, 2014; Demetriades and Esplen, 2008. They may also be more vulnerable to harassment or violence in public spaces, as they are having to take different transport routes and modes to move through the city to work.

The example of flooding illustrates how climate impacts are gendered in complex and nuanced ways. It underscores the need for climate action to address both structural factors, like socioeconomic activity, as well as cultural factors, like gender roles and ideas about masculinity and femininity.

GENDER-BASED VIOLENCE

In fact, it is well evidenced that gender-based violence tends to spike in the aftermath of disasters. Based on this evidence, organisations like the World Health Organization and CARE International strongly recommend investing in resources for victims of gender-based violence following disasters (Sellers, 2016; World Health Organisation, 2011; CARE International, 2010).

SOCIO-ECONOMIC STATUS AND RACE

In addition to gender, socio-economic status and race can compound people's vulnerability to disasters. For example, Hurricane Katrina exacerbated the wage gap between women and men and among women of different ethnicities (Le Masson and Langston, 2014). When Hurricane Katrina hit, 26% of women in New Orleans were living in poverty, compared to 20% of men (Henrici et al., 2010). Three years later, in 2008, there were fewer women and girls living in poverty: 15%, which was just slightly over the national rate of 14.4% (Ibid.). However, according to the Institute for Women's Policy Research, this does not reflect a decline in female poverty, but rather it reflects a reduction in the overall female population in New Orleans since Hurricane Katrina. Many poorer women never returned (Ibid.).

BOX 2

HOW FOOD SECURITY IS GENDERED

Globally, women produce half of the world's food, but are up to 11 percentage points more likely than men to report food insecurity (UN Women, 2018). 60% of the world's hungriest people are women (World Food Programme, 2013). When poor households experience food shortages, women tend to go without food so that their family members may eat, which results in malnutrition and other health problems (UN Women, 2018 and MacGregor, 2010).

Socio-economic disparities intersect with gender to increase women's vulnerability to food insecurity. For example, there are gendered differences in ownership of land and assets, decision-making powers regarding the purchase, sale and transfer of land and assets, as well access to financial capital (Bernier et al., 2015; Hannan, 2009; Djoudi et al., 2016; and Gaard, 2015). A recently released World Bank working paper explores female property ownership across Africa. Using data from 28 sub-Saharan African countries, the paper finds that there is a gender gap in property (land and housing) ownership whereby 20 million fewer women than men have sole or joint ownership of some housing (Gandhi, 2018).

Therefore, although traditional gender roles assign women much of the labour associated with food production, structural inequalities deny them ownership and decision-making powers, which renders them more vulnerable to food insecurity. According to Neven Mimica, European Commissioner for International Cooperation and Development, if women in agricultural food production had access to the same amount of resources (i.e., access to financial resources and new technologies, land ownership and rights, decision-making power, and so on.) as men, there would be up to 150 million fewer hungry people in the world due to productivity gains (Food and Agriculture Organization of the United Nations, 2016).

BOX 3

HOW ENERGY IS GENDERED

Energy accounts for 71-76% of greenhouse gas emissions in cities (Aguilar et al., 2015). In some European countries, up to 30% of the population cannot afford sufficient fuel for indoor heating (Aguilar et al., 2015). Women, especially single mothers and elderly women, constitute the majority of this 30% population segment, as they are more socioeconomically deprived than men are.

Over 12% of urban populations globally still use solid fuels for cooking and heating needs, which generates indoor air pollution (Aguilar et al., 2015). This disparately impacts women and girls because they spend more time indoors performing household labour (Ibid.). In fact, in 2012, 4.3 million people died from indoor air pollution from using solid fuels for household energy, with women and girls disproportionately accounting for 60% of these deaths (UN Women, 2018).

With regard to household energy consumption, women who work within the household may consume more energy than men who work outside the home. Without access to affordable, clean energy, women may disproportionately suffer negative health consequences from increased exposure to indoor air pollutants (UN Women, 2018). It is important for clean energy programmes targeting households to take gendered energy consumption and intra-household dynamics into consideration (Terry, 2009; Aguilar et al., 2015; and UN-Habitat, 2012). Gathering gender-disaggregated data on energy consumption can help maximise the efficacy of clean energy programmes.

At the World Energy Council, only 4% of chairs and 18% of secretariats are female (Sellers, 2016). Out of 464 energy companies in Spain, Sweden and Germany – three similarly industrialised, Western European nations – 64% had no women on their boards and only 5% achieved gender parity on the boards (Kronsell, 2013). There is clearly a lack of female representation in the energy sector. Where this is compounded by a lack of gender expertise in decision-making – that is an understanding of gender-differentiated consumption patterns – the benefits of clean energy innovations will not be evenly distributed among populations.

4%
OF CHAIRS
&
18%
OF SECRETARIATS ARE FEMALE AT THE WORLD ENERGY COUNCIL.

BOX 4

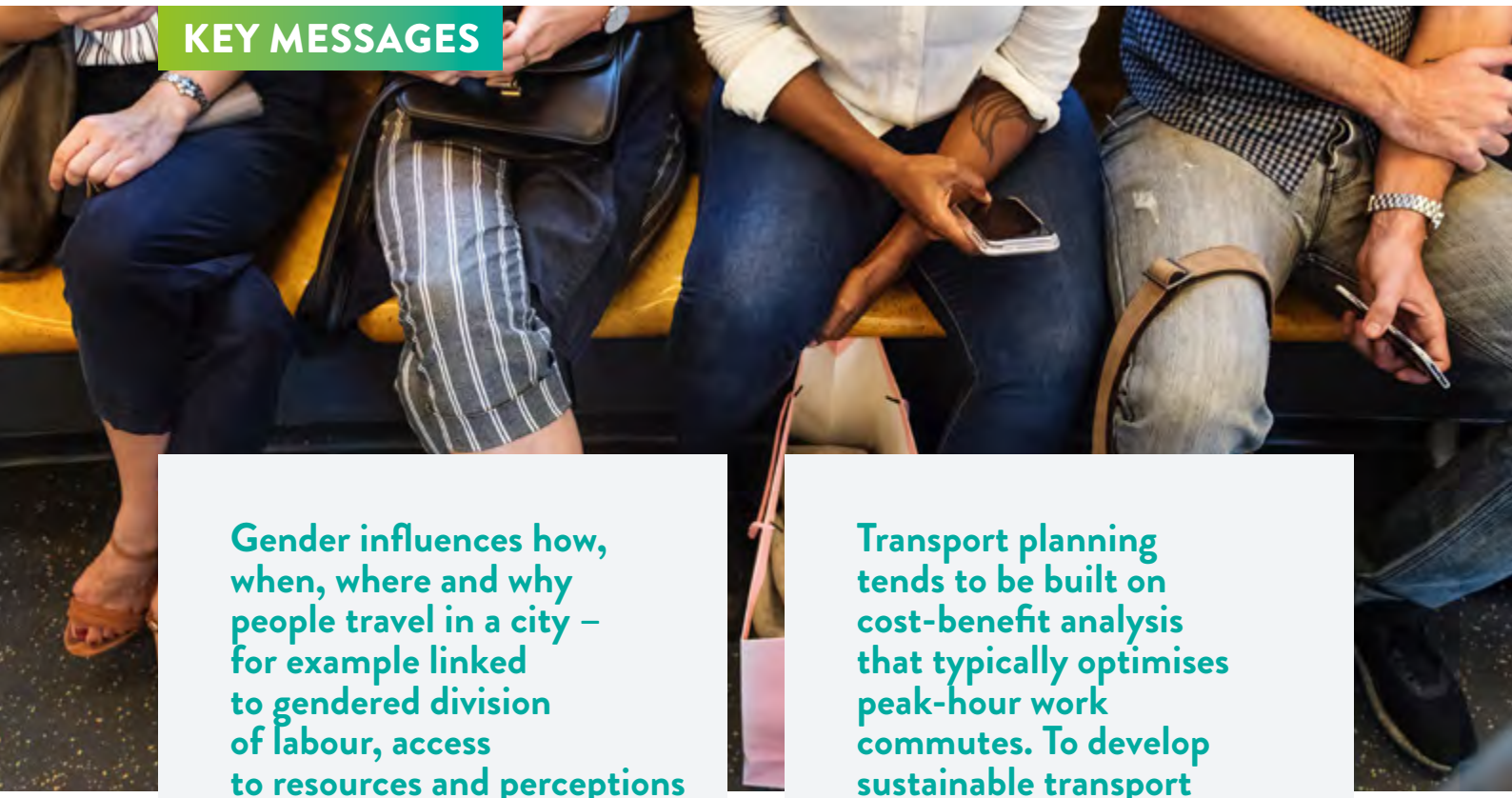
HOW TRANSPORT IS GENDERED

With transport being one of the leading contributors to greenhouse gas emissions in cities (Blomstrom et al., 2018) and air polluters (C40 Cities, 2017), investing in sustainable urban transport systems is a key way for cities to reduce emissions and create healthy streets.

Gender is an important factor in how people experience and benefit from transport systems. For example, a World Bank study showed that in Lima, women are more likely to make transport decisions based on safety, whereas men choose their mode of transport based on speed (Gomez, 2000).

Women tend to take public transport to a higher extent than men in many cities – and this has been the case for a long time. Therefore, transport systems themselves would benefit by taking their main customers in consideration. In short, by integrating a gender perspective into sustainable urban mobility systems (such as cycling, public transport and shared-mobility), they become more suitable for – and therefore more likely to be adopted by – more people. And this will help cities to achieve their sustainable transport targets.

3. A SECTORIAL EXAMPLE: GENDER EXPERTISE IN URBAN MOBILITY PLANNING



KEY MESSAGES

Gender influences how, when, where and why people travel in a city – for example linked to gendered division of labour, access to resources and perceptions of safety. To support women to adopt low carbon and non-motorised transport, it is necessary to understand and plan for their differentiated transport needs.

Transport planning tends to be built on cost-benefit analysis that typically optimises peak-hour work commutes. To develop sustainable transport solutions, cities must also apply non-economic value analysis of the benefits for cities and all citizens.

Intelligent mobility is transforming urban transport. We are now at a tipping point where intelligent mobility infrastructure could either lock in high-carbon, unsustainable growth and exacerbate inequalities, or facilitate change to more sustainable and inclusive urban cities.

Practical tools for cities to develop gender expertise include conducting women's safety audits, collecting gender-disaggregated data, gender budgeting and gender-responsive participatory planning.

One third of greenhouse gas emissions in C40 cities come from transport. Globally, traffic is the biggest source of air pollution, responsible for up to one quarter of particulate matter in the air.

As of January 2019, 26 global mayors have signed the C40 **Green and Healthy Streets Declaration** outlining a vision for greener, healthier, and more prosperous cities, where streets are accessible and safe for everybody. The Declaration sets out a future where walking, cycling and shared transport are the way the majority of citizens move around cities, with the goal of reducing emissions, traffic and improving quality of life for everyone (C40 Cities, 2018).

Through the Green and Healthy Streets Declaration, C40 mayors are committed to improving the quality of life for all citizens and helping to tackle the global threat of climate change. In addition to reducing greenhouse gas emissions, sustainable urban mobility is also a strong example because improved air quality measures have major health benefits (C40 Cities, 2018). However, the shift towards zero emission mobility won't be achievable without including all segments of the population.

As new urban transport solutions are being developed and implemented across the world as part of the sustainability agenda, it is important that the gendered implications of these designs are taken into account. This chapter outlines how gender expertise can help cities to achieve more inclusive and sustainable urban mobility systems. It provides four practical tools and approaches for cities to develop gender expertise: women's safety audits; gender-disaggregated data; gender budgeting; and gender-responsive participatory planning. It also features two case studies illustrating how the cities of Barcelona and San Francisco are developing gender expertise to inform sustainable mobility projects.

1 GENDER AND PERCEPTIONS OF SAFETY

Gendered perceptions of safety are one of many systemic factors that impact where, when, how and why people travel (Shah et al., 2017; Allen et al., 2017; Gomez, 2000; and Diaz and Rojas, 2017). In many places, there is a resounding fact that public space is not safe for women and girls. As such, women and girls are socialised to be more concerned about their personal safety and to modify their speech, behaviour, dress and travel patterns to protect themselves (Law, 1999; Levy, 2013; Plan International UK, 2018). In fact, 66% of girls in the United Kingdom have experienced sexual harassment in public and adopt tactics to 'avoid' street harassment, such as crossing the road to avoid someone, taking longer routes to circumvent dangerous areas, pretending to be on the phone, avoiding empty train carriages, changing their outfits and stopping going out at night (Plan International UK, 2018).

66%

OF GIRLS IN THE UNITED KINGDOM HAVE EXPERIENCED SEXUAL HARASSMENT IN PUBLIC AND ADOPT TACTICS TO 'AVOID' STREET HARASSMENT

Other systemic factors that constrain women's freedom and mobility in cities include violence against women, employment discrimination, the gendered division of household labour, and gender disparities in access to resources (such as time, money, education, skills and technology). This produces gendered variations in mobility choices (for example travel demand and transport mode), mobility behaviour (such as timing, distance, duration, route and purpose) and perceptions and experiences of mobility (Law, 1999).

The failure to incorporate gendered experiences in the way we design, plan and build cities disparately impacts women and girls and denies them the 'right to the city' (Law, 1999; Levy, 2013; Whitzman, 2012; Ehrnberger et al., 2012; Faulkner, 2000; Gomez, 2000; Shah et al., 2017). If the 'right to the city' is 'freedom to make and remake our cities and ourselves' (Harvey, 2008), women and girls cannot enjoy this until they have the freedom to traverse public space without physical or verbal threats (Levy, 2013). In order for women and girls to truly access and take advantage of all the opportunities the city has to offer, they must be included in urban design, planning and governance processes.

2 INCLUSIVE TRANSPORT PLANNING

Transport planning tends to be built on cost-benefit analyses that typically optimise peak-hour work commutes and long-distance radial journeys (those to the city/business centre) (Levy, 2013; Kronsell, 2013; Polk, 2009; Whitzman, 2012; and Law, 1999). This disadvantages those working outside of formal labour markets and/or traveling at non-peak hour times for other purposes – such as care-, social-, or leisure-related travel. Statistically and historically women are more likely to be included in this group. Women are also more likely to make more frequent, short journeys within a city, and those journeys may be more encumbered – for example, travelling with pushchairs or shopping trolleys (ibid.).

In fact, despite transport planning privileging peak-hour radial journeys, in many cities most travel is actually not work-related (American Association of State Highway and Transportation Officials, 2013; and Transport for London, 2017). More people travel to go to school, visit friends, visit family, go shopping, go to the gym, run errands, go to museums and so on, than to go to work. Moreover, the changing nature of work and the labour market (the rise of the on-demand economy, start-ups, co-working and remote working) further call into question transport planning that prioritises radial and traditional commuter journeys.

Increased driving among women is in part the result of inadequate public transport planning, particularly for journeys relating to care responsibilities (Smart et al., 2014). Arguably, some of these journeys could be shifted to more sustainable modes of transport, such as cycling. However, cycling infrastructure often also privileges the radial routes (Lam, 2017). Therefore, cities seeking to promote more sustainable modes of transport – such as cycling and walking – must plan safe and inclusive infrastructure for both radial and orbital journeys.

In order to plan and develop transport solutions that enable cities to achieve their sustainable transport targets, decisions-makers should not evaluate their performance exclusively against cost-effectiveness. The value analysis of sustainable transport systems should consider the benefits provided to all populations in terms of emissions avoided and well-being. In order to do so, alternative policy tools and measurement systems need to be included in the policy-making dashboard. C40's current research focuses on consumption emissions in cities and includes alternative measures (not only economic) of valuing policy benefits for cities that wish to recover the cost of over-consumption and move away from consumerism by transforming urban lifestyles and generating better quality of living for all its urban stakeholders.

WE ARE NOW AT A TIPPING POINT WHERE INTELLIGENT MOBILITY INFRASTRUCTURE COULD EITHER LOCK IN HIGH-CARBON, UNSUSTAINABLE GROWTH AND EXACERBATE INEQUALITIES FOR FUTURE GENERATIONS, OR IT COULD FACILITATE CHANGING COURSE TO MORE SUSTAINABLE AND INCLUSIVE URBAN FUTURES

3 GENDER AND INTELLIGENT MOBILITY

'Smart' or 'intelligent' mobility describes how technology is transforming how we move within cities. Intelligent mobility innovations can be leveraged in climate action. But these innovations must be designed, developed and deployed to be inclusive. In other words, they must respond to the needs of diverse and pluralistic urban populations. Current literature on gender and sustainability does not adequately engage with the intelligent dimension of mobility, and literature on intelligent mobility fails to engage sufficiently with gender and social inclusion.

An example of how technological innovation has changed urban mobility is the birth of Transportation Network Companies (TNCs). TNCs are private sector shared mobility companies, such as Uber or Lyft. Car-share examples include ZipCar; bikeshare schemes include Ofo and Mobike; and scooter-share schemes include Bird and Lime. TNCs initially caused tensions with local authorities and inhabitants, but they have fast become important mobility options in cities worldwide. These innovations offer cities an opportunity to redress some of the existing transport inequalities and enable a broader range of people to participate in sustainable mobility solutions.

We are now at a tipping point where intelligent mobility infrastructure could either lock in high-carbon, unsustainable growth and exacerbate inequalities for future generations, or it could facilitate changing course to more sustainable and inclusive urban futures. Cities must take proactive measures to encourage more diverse and inclusive intelligent mobility, as well as technology and innovation more broadly. Moving forward, it is important for cities to be open to and partner with TNCs to provide safe, accessible and inclusive mobility services.

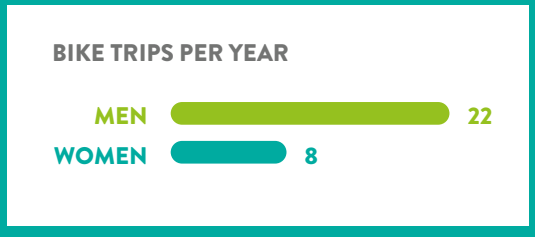
BOX 5

HOW TRANSPORTATION NETWORK COMPANIES ARE GENDERED

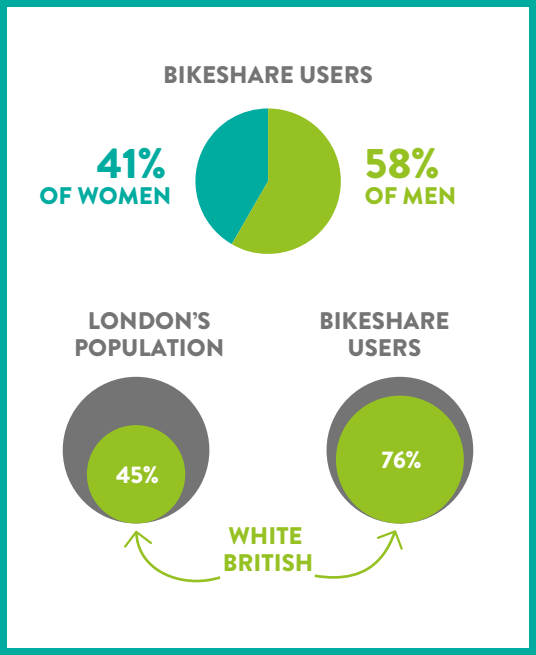
BIKESHARE

Research from the United Kingdom shows that despite an overall gender gap in men and women cycling (an average of 22 versus 8 trips per year), there is slightly more gender balance among bikeshare users: 58% are male, 41% are female (Bikeplus, 2017). However, there are racial disparities in bikeshare usage: while 2011 Census figures report that just 45% of London's population is white British, they represent 76% of the city's bikeshare users (Ibid.). Research from the United States also highlights vast socio-economic and racial disparities in bikeshare usage, partially due to inadequate information about how to use bikeshare among people of colour, people with less education and people with lower incomes (McNeil et al., 2017).

Cities can take a lead in steering bikeshare innovations to be more equitable and inclusive. For example, many cities, including Washington DC, Chicago and New York City, are requesting that dockless bikeshare companies operate in underserved areas to bridge public transport 'deserts' (Surico, 2018). Anecdotal evidence on the impact of these decisions demonstrates that dockless bikeshare has the potential to bridge gender, racial and socio-economic gaps in usage (Sturdivant-Sani, 2018). Therefore, in order to minimise inequalities, cities could continue to work with dockless bikeshare providers, and in bikeshare and cycling more broadly. To monitor these efforts, cites should gather data on dockless bikeshare users and disaggregate it by gender, race and socio-economic status to get a full picture of who is using, and who is not using, dockless bikeshare schemes.



Source: Bikeplus, 2017



CAR-SHARE

Car-share has potential to significantly reduce car ownership and emissions in cities. To maximise this potential, car-share schemes need to be designed in an inclusive manner to meet a diverse array of travel needs. A recent study of car-share usage in Germany found that the predominant users of car-share schemes are men with at least a university-level education (Kawgan-Kagan and Popp, 2018).

Since women tend to do more 'trip-chaining' – that is making multiple stops for different purposes on one trip, such as dropping off children at school on their way to work in the mornings – car-share is less feasible. The absence of child seats in car-share vehicles is another barrier for women, especially those travelling with children. Therefore, to promote more equitable participation in car-share schemes, more family-friendly measures could be adopted, such as increasing locations to pick up/drop off vehicles and providing child seats in more vehicles.

4

TOOLS FOR CITIES TO DEVELOP GENDER EXPERTISE IN CLIMATE ACTION

WOMEN'S SAFETY AUDITS, GENDER-DISAGGREGATED DATA, GENDER BUDGETING AND GENDER-RESPONSIVE PARTICIPATORY PLANNING ARE PRACTICAL TOOLS THAT CITIES CAN ADOPT IN ORDER TO IMPROVE ANALYSIS OF DIFFERENTIATED GENDER NEEDS.

TOOL 1 WOMEN'S SAFETY AUDITS

Women's safety audits are a tool for cities to incorporate a gender perspective into transport investments.

The World Economic Forum suggests that women should be consulted on urban design and transport policies through focus groups, and that safety audits be conducted to understand gendered impacts (Sur, 2015). The United Nations Women's Global Flagship Initiative, Safe Cities and Safe Public Spaces, further recommends women's safety audits as a way for cities to address the pandemic of gender-based violence on public transport and in cities.

Conducting women's safety audits could help develop robust indicators to evaluate female safety on public transport systems and in public spaces, as well as improving women's and girls' safety in urban and transport policy and planning. A 2014 poll by the Thomson Reuters Foundation and YouGov identified the 16 cities with the most dangerous public transport systems for women. The top three cities were Bogota, Mexico City and Lima. Cities in the Global North – Paris, London and New York – also made the list (Thomson Reuters, 2014).

The ranking was based on five indicators:

1. How safe women feel traveling alone at night
2. Risk of being verbally or physically harassed
3. Likelihood that other passengers would come to their assistance
4. Trust in authorities to investigate reports of harassment or violence
5. Availability of safe public transport

These indicators provide a useful foundation for (and could be expanded to create a more comprehensive set of) indicators to evaluate female safety on public transport systems and in public spaces.

BOX 6

UN WOMEN INSIGHTS ON THE CASE FOR WOMEN'S SAFETY AUDITS

'Women's safety audits are a participatory tool that enable women users of a space to identify the elements in the built environment that contribute to or limit their sense of safety. It provides detailed information on issues related to women's safety, mobility, accessibility, and relationship with a given public space with the objective to generate concrete recommendations for the short-, intermediate- and long-term to enhance women's safety within a given space.

Source : Laura Capobianco, Advisor – Safe Public Spaces & Lizzette Soria, Technical Specialist. Ending Violence Against Women Section. UN Women.

This tool values the everyday lived experience as a distinct expertise where women are uniquely positioned to speak out about their safety concern and fosters women's active participation in the planning process.

The women safety audit has been adapted in multiple settings and groups, carried out jointly with local government representatives, and evaluated, such that this tool is now recognised internationally as a best practice.'

TOOL 2 GENDER-DISAGGREGATED DATA COLLECTION

Gender-disaggregated data is a tangible way for policymakers to capture and assess differences in the gendered, social, political, economic and environmental preferences, behaviours and actions of individuals across diverse populations.

This gender analysis could then direct gender-informed policy interventions and investments, which helps create more gender-inclusive outcomes. For example, gender-disaggregated data on commuting patterns (i.e., purposes, modes, timings, routes) could help better account for gender differences in how, where, when and why we travel in the city. This data could help ensure that public transport, walking and cycling networks accommodate a diverse array of trips for diverse populations.

BOX 7

INTERVIEW WITH UNFCCC GENDER AFFAIRS OFFICER, MS FLEUR NEWMAN

Why is gender-disaggregated data important for cities?

You cannot assume that people use transport in the same way. In fact, we know that women, men and children use transport differently, based on their roles and responsibilities within their families and societies. Cities need to understand who is using transport, when and why – as well as who is not using transport and why – to be able to improve its services. We need to acknowledge that there are gendered differences and work to better understand those differences.

Collecting gender-disaggregated data is important. But equally important is how that data is interpreted and applied to policy – checking what assumptions cities are making when designing policy, because that impacts the policy outcomes. And so, cities need to not only gather gender-disaggregated data, but also develop policy mechanisms, including engaging gender experts, to understand and apply it.

Cities can be pioneers in gathering gender disaggregated data – especially if it is not happening at the state or national level. Cities can share their data and research with local and national governments who would benefit from the information. The strength of cities is their agility and ability to do things that other levels of government or policymaking can't, because cities are closer to the community.

How does gender-disaggregated data impact how cities are governed, and what are some practical applications of it in improving transport?

Big questions! I would start by looking at how you invest and where. By this I mean understanding if you are prioritising infrastructure that will benefit just one segment of your city population and what that means from an economic perspective and a rights perspective.

From a rights-based perspective, cities want to ensure that their policies are not institutionalising – or systematically creating – barriers to people's mobility. For example, gender-disaggregated data can help cities to ensure that they are not inadvertently creating barriers to women participating in formal work. At the same time, as a minimum, cities should ensure that their policies are not exacerbating people's unpaid care burdens, which now predominantly fall on women – for example, that they can get to schools and hospitals easily and safely.

From a design perspective, understanding who is using transport infrastructure, when and why, is useful for cities to facilitate more journeys. Also, to be able to support citizens with the least capacity to travel – such as a lack of financial resource, time or physical ability.

What barriers are there to gathering and applying gender-disaggregated data in policymaking?

It is harder to track who is not there – who is not using transport because there are barriers preventing them from using it, or because it doesn't meet their needs. It is therefore not sufficient to just gather gender-disaggregated data.

To gather more inclusive data at the household level and beyond, it's important to pay attention to how you gather the data, or you may not reach the people you actually want to reach. Those people may not be participating in public meetings or in the spaces you go to gather data.

The challenge, therefore, is not what's obvious, it's what's not obvious. There are ways to reach broader groups, such as engaging local groups, but this takes time and costs. So, it is really about whether or not it is treated as a priority.

It is important to have a holistic perspective – particularly because some of the people you want to include may have subsidised transport fares that may impact a decision to spend time and money to gather the data. There is undoubtedly tension between the not-mutually-exclusive motivations of creating a society we want to live in and applying a purely economic, profit-driven perspective.

How do you make the case for this kind of research and investment?

It is helpful to find good examples in other cities, to be able to show the kind of holistic outcomes that you can get from good design, rather than just based on cost. For example, studies that show that communities are more satisfied and engaged as a result of holistic policies.

Looking at community or city outcomes from rights-based and effectiveness perspectives is not simple. You need to consider many things. For example, a city might run more efficiently than another just because it has safer streets and is not having to deploy extra police. The city is a system, so it pays to look at it from a systems perspective.

Do you have any best practice examples or tips for mayors interested in gathering and using gender-disaggregated data?

One good practice example came up at a recent event in Bangkok, relating to the Philippines and climate change policy. One of the challenges of climate policy is that it covers lots of different sectors within government, but those sectors are often working in silos. One of the good practices for mainstreaming climate change therefore is bringing everyone together who needs to be at the table. This involves thinking outside the box about who could contribute to the conversation to bring in new ideas and fill the gaps you didn't even know you had. An example of this can be found in the Philippines Office of the President, where a broad cross-section of government is represented through the advisory board of the Climate Change Commission, which is the sole policymaking body of the government. To this end, the advisory board includes a representative of the Philippines's Commission on Women as well as community associations. It seeks to create a policy space that is informed collectively and through the exchange of information. Such a coordinated approach creates opportunities for conversations about why gender matters in the context of climate change across all sectors.

Therefore, the good practice is bringing in people who you may not think need to be there, but who could have something to contribute. That includes local communities. In different cities this would be done in different ways. For example, you may not think that an NGO, or even government body, dealing with violence against women would need to be included in a conversation about transport. They may not even think that they need to either. But they absolutely do. And so, it is important to understand the context and to create an environment in which people can contribute their information in a way that makes them want to come back and do it again.

It may be helpful for cities to have a list of organisations that they could reach out to. Although this runs the risk of excluding some organisations. Maybe they could consider sector by sector in city planning – for example, any organisation working on budgeting issues, then safety and security and so on.

What potential does data have to help us better create cities that work for everyone?

The dream is that data gives us cities that work for everyone, shedding light on areas that are being underserved. It can also shed light on opportunity for innovation to increase gender equality through accessibility. Gender-disaggregated data can translate into more inclusive and liveable cities.

Is there anything else you would like to add?

My sense is that with gender, a more nuanced and detail-oriented approach is needed, because there are so many systemic issues. Systemic biases and barriers will influence data and, in turn, will influence outcomes if they are not factored in. So, when doing research and gathering gender-disaggregated data, it should be assumed that there will be barriers and data gathering methodologies should be designed to overcome these barriers.

TOOL 3
GENDER BUDGETING AND GENDER-RESPONSIVE PARTICIPATORY PLANNING

Gender budgeting and gender-responsive participatory planning are tools that cities can employ to develop gender expertise and address gender inequalities.

Both gender budgeting and gender-responsive participatory planning stem from the recognition that there are variations between women and men – and among different groups of women and men – in terms of their needs, access to resources, access to opportunities and constraints (Aguilar et al., 2015; Alston, 2014; Alber, 2016; Hannan, 2009; and Terry, 2009). Both tools aim to address the underlying structural inequalities that cause these variations by taking into account and responding to the differential needs of women and men (Ibid.).

Gender-responsive participatory planning enables governments to involve a wider range of citizens in decision-making processes, and therefore increase transparency and accountability. Meanwhile, gender budgeting is a tangible way to inject gender into policymaking by enabling policymakers to assess the gendered impacts of public spending. By focusing on the allocation and spending of public resources, gender budgeting allows policymakers to understand how fiscal decisions have a gendered impact, whereby the benefits are not always evenly distributed among society.

The City of Berlin introduced gender budgeting in 2003/2004 to determine whether, and the extent to which, public programmes and services, such as sports facilities, cultural institutions, music school lessons and adult education courses are being used by women and men (Berlin Senate Department of Finance). Another early adopter of gender budgeting is the City of Vienna, which implemented gender budgeting in 2005 as part of a broader gender mainstreaming initiative. All municipal departments must assess who benefits from the public funds and services they deliver, as well as whether and how the distribution of resources impacts existing inequalities between women and men (The City of Vienna).

GENDER-RESPONSIVE PARTICIPATORY PLANNING ENABLES GOVERNMENTS TO INVOLVE A WIDER RANGE OF CITIZENS IN DECISION-MAKING PROCESSES, AND THEREFORE INCREASE TRANSPARENCY AND ACCOUNTABILITY. MEANWHILE, GENDER BUDGETING IS A TANGIBLE WAY TO INJECT GENDER INTO POLICYMAKING BY ENABLING POLICYMAKERS TO ASSESS THE GENDERED IMPACTS OF PUBLIC SPENDING

More recently, the City of Reykjavik introduced gender budgeting as part of the city's Human Rights Policy. According to city officials in Reykjavik, gender budgeting is a tool help ensure the fair distribution of goods, resources and assets according to people's different needs (The City of Reykjavik, 2016). This can lead to better use of public resources and funds, better governance, greater participation in the budget process, a more robust democracy and more efficient goal setting (Ibid.).

BOX 8

INTERVIEW WITH UN UNDER-SECRETARY-GENERAL AND EXECUTIVE DIRECTOR, UN-HABITAT, MS MAIMUNAH MOHD SHARIF

? Why should cities pilot gender-responsive participatory budgeting and planning?

Climate change has a greater impact on those that are more reliant on natural resources for their livelihoods. These same persons also have the least capacity to respond to and cope with natural hazards, such as droughts, landslides, floods and hurricanes, and areas where poor people live often times also lack the supportive infrastructure. Women, who most often are responsible for ensuring their families are fed, generally face higher risks and greater burden due to climate change in situations of poverty. Women are disproportionately represented amongst the world's poor.

Women and men have different opportunities and access to resources that help them adapt to a changing climate, which in turn impacts the availability of food, fuel, water, the integrity of shelter and the immediate living environment. Women, have less assets, income and savings to cope with the loss and damage from extreme weather events, and due to the fact that women's livelihoods are more often home-based, they also face more direct impacts from climate impacts like flooding and shelter damage.

But women are not only vulnerable to climate change, they are effective actors and agents of change in relation to both mitigation and adaptation. Women frequently possess detailed knowledge and expertise in the area of climate change mitigation and response, disaster reduction and adaptation strategies. Women's responsibilities in households and communities, as stewards of natural and household resources, positions them well to contribute to livelihood strategies, adapted to changing environmental realities. Given these numerous responsibilities and tasks, women should, and need to, be actively engaged in participatory planning and decision-making.If policies and plans are implemented without women's meaningful participation, it can significantly increase existing inequalities and decrease the effectiveness of a holistic climate change response and adaptation.

Factors such as gender inequality in access to social and physical goods; gender gaps in education, income, time use and leisure; and gender-differentiated roles and responsibilities in the household, community and labour markets affect the effective channelling of financing to women.

For these reasons, gender-responsive participatory budgeting and planning are extremely important tools to ensure that no one is left behind in cities. Women and men have very different experiences in cities, so it is vital that planning and budgeting reflect these different experiences, needs and consequential different priorities. Participatory processes also enable authorities to explain priorities and climate projections to concerned communities, thereby enabling them to plan and cater according to the real needs on the ground, leading to better planning and city development..

? In what circumstances do you recommend to pilot one or the other?

Both planning and budgeting are vital steps in local governance. Therefore, they should be used simultaneously and to support each other.

? How does the piloting of gender-responsive participatory planning impact cities and urban climate action?

Using gender-responsive participatory planning helps local authorities to ensure that their resources are used more effectively and holistically to serve their communities.

It also enables authorities to ensure that climate action planning is not negatively impacting on communities, is inclusive and far reaching and that it harnesses local knowledge and local priorities to maximise effectiveness.

By ensuring that gender is addressed equally, you also ensure that vulnerable populations are adequately addressed and included. Participatory planning should also extend to disaster risk reduction and response planning – to ensure that authorities are able to meet the needs of women and men equally.

How does the piloting of gender-responsive participatory budgeting impact cities and urban climate action?

Gender responsive participatory budgeting is a powerful tool to empower women and men, and to ensure that programmes are using resources effectively. Budgeting should reflect local priorities and be responsive to the needs of all in the community.

In climate action budgeting, cities will become more responsive to those most vulnerable to the impacts of climate change – particularly women. Cities will be able to ensure that there are appropriate resources to respond to the needs of their population and effectively cover possible climate impacts.

What are the barriers to implementation?

If there is no political will, participatory processes will either not exist or not have an impact on decisions that influence policy and response. Authorities need to be convinced that these processes will benefit them, with clear positive effects for the local economy, sustainability, safety and resilience. Fortunately, we know that there are positive effects for all of these – but it still takes time to change the traditional ways of working.

Secondly, participatory processes are more expensive and more time-consuming. Therefore, it is often simpler to plan and budget without consultation. However, we know that ultimately this has proven less effective and costlier. In the long run, if plans and programmes are not supported by the community, or do not target those most in need, the response necessary following a disaster has struck, or the toll of climate change has taken effect, is also more expensive.

What are some tips for cities wishing to implement this?

The first step is open and clear communication. Cities need to provide clear and regular information to their residents – in a language and way that the community will understand. Women often have less access to information, due to lack of access to education or male heads-of-household not passing on information. Therefore, cities should guarantee extra efforts are made to ensure that women are receiving the necessary information, in a way that is appropriate to their context.

The next, more difficult step is to actively listen to communities, and be willing to adapt plans and budgets accordingly. This can be challenging for city authorities and professionals but is vital to ensure the effectiveness and inclusivity of participation.

In the city context of gender and climate change, focus is often laid on women as a particularly vulnerable group that is adversely affected by the impacts of climate change. While this is a highly important issue to address, it should not be neglected that other aspects of climate change and climate policy also have gender dimensions. The implementation of gender-sensitive climate policies can maximise potential co-benefits and synergies.

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in collaboration with UN-Habitat and GenderCC-Women for Climate Justice developed a handbook that provides advice on how to successfully take into consideration the full spectrum of challenges and opportunities in the context of urban climate policy: ***Gender and Urban Climate Policy - Gender-Sensitive Policies Make a Difference***

5

CASE STUDIES ON HOW CITIES ARE DEVELOPING GENDER EXPERTISE

THE FOLLOWING TWO CASE STUDIES OF BARCELONA AND SAN FRANCISCO ILLUMINATE SOME ACTIONS THAT CITIES HAVE ALREADY TAKEN TO DEVELOP GENDER EXPERTISE IN URBAN MOBILITY POLICIES AND PROGRAMMES.

CASE STUDY 1 BARCELONA: GENDER JUSTICE - A BETTER CITY FOR EVERYONE

The city of Barcelona has taken a lead in gathering gender-disaggregated data, building its institutional gender expertise and driving gender-inclusive climate action.

In 2016, the city launched a 'Plan for Gender Justice (2016-2020)' – an action plan working towards the elimination of gender inequalities (Ajuntament de Barcelona 2016). The plan has four strategic areas:

1. **INSTITUTIONAL CHANGE**
   Increasing institutional gender expertise via gender training or gender budgeting, for example.
2. **ECONOMY FOR LIFE AND TIME MANAGEMENT**
   Promoting gender equality in employment and entrepreneurial support programmes, as well as promoting a gender-equitable division of domestic work.
3. **CITY OF RIGHTS**
   Addressing structural barriers that infringe upon human and social rights in the city.
4. **LIVEABLE AND INCLUSIVE NEIGHBOURHOODS**
   Ensuring that urban public space is safe for and inclusive of women and girls, which emphasises the need to address gender-based violence.

Under the fourth strategic area, the City of Barcelona developed a new Government Measure: Urban planning with a gender perspective (Ajuntament de Barcelona 2017). The measure puts daily life at the centre of its policies, using an inclusive approach to respond to the needs of all citizens. Daily life is broken down into four areas: productive (paid work), reproductive (carer and domestic work), community, and personal (such as leisure and sport). It recognises that urban planning 'is no neutral matter,' because certain aspects or sectors of society have been favoured at the expense of others over time, and not always consciously. Urban planning with a gender perspective focuses on people's every day experiences – local people are experts and they are consulted to build bottom up collective.

Initiatives provided for under the new Measure include pilot projects for small- and medium-scale urban changes to meet the needs and experiences of daily life, as well as initiatives for institutional change.

Examples of small- and medium-scale urban changes include carrying out safety audits in neighbourhoods; a new bus network; and the integration of gender into a new Superblocks programme that is tackling city challenges such as lack of green space and high levels of air pollution.

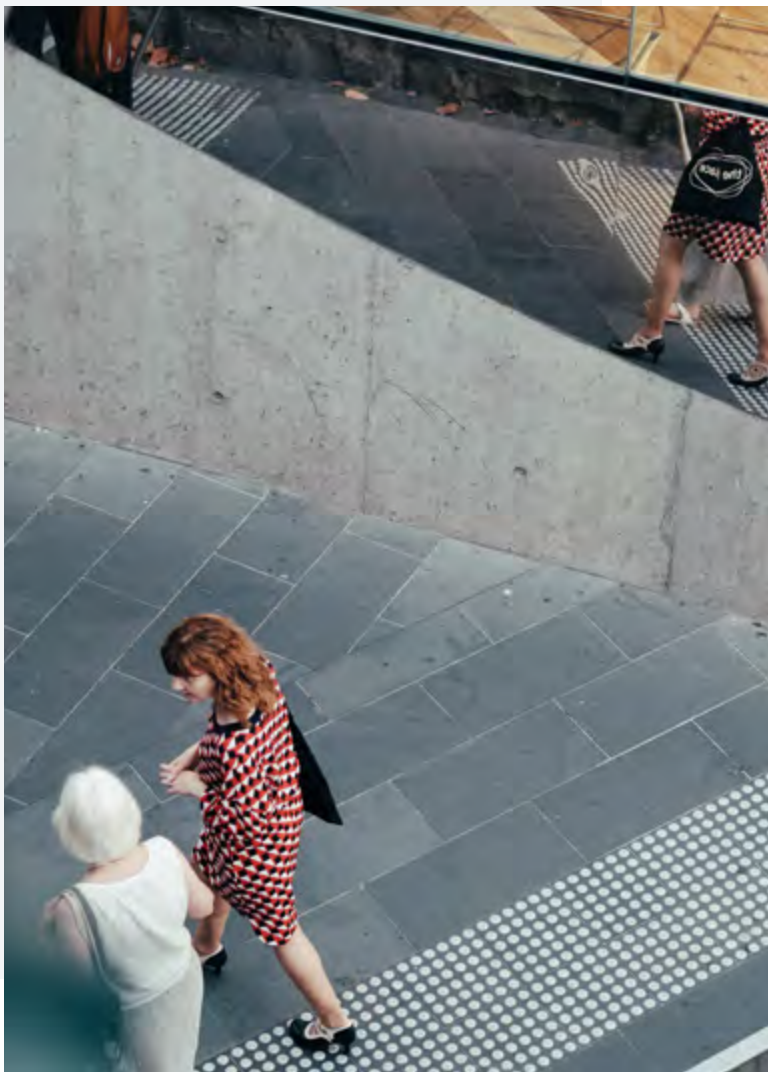
Examples of initiatives to bring about institutional change include: organising skills-acquisition training in gender perspective for technical and executive staff; preparing a manual with gender criteria or experts involved in public-space projects; and drafting gender criteria and indicators for revising projects.

The city is also prioritising sustainable mobility and is gathering gender-disaggregated data to understand women's mobility behaviour, patterns and needs. The data shows gendered differences in journey purposes and times: women primarily travel for family reasons, and then work, whereas men primarily travel above all for work. Women make more short-distance, frequent trips within the city that can be more encumbered, for example travelling with children or prams. Women make more trips throughout the day than men, especially between 11 am – 2 pm and 4 pm – 8 pm, while men make most of their trips between 5 – 8, reflecting gendered distribution of domestic labour. The data also shows that women use public transport more than men do. Therefore, from a gender perspective, it is important to incorporate local connections into public-transport services (Ajuntament de Barcelona 2017, p.7).

Currently, the City and Public Health Agency are evaluating the Superblock programmes in terms of health implications (i.e. noise and air pollution), changes in number of vehicles in the area and use of public space. They are incorporating a gender perspective, gathering data on women's use and experience of the Superblocks, to understand whether the project is improving, exacerbating or not changing existing gender inequalities.

Source: Ajuntament de Barcelona (2017)

Consult the infographic on w4c.org



CASE STUDY 2
SAN FRANCISCO: CLOSING THE DATA GAP FOR A CYCLING SCHEME

The City of San Francisco has collected gender and race-disaggregated data on cycling infrastructure usage in the South of Market District (SoMa) neighbourhood, to better understand cycling as a low-carbon transport solution. The study was conducted by the San Francisco Department of the Environment, with C40 Cities and the University of California, Berkeley.

Increasing biking is a key strategy to achieving San Francisco's ambitious climate and sustainability goals: net zero emissions by 2050 and 80% of all trips by sustainable modes (such as biking, walking or transit) by 2030. Currently, only 3.9% of all trips are by bike, significantly less than the 10% projected for 2030 to help the City to achieve the 80% goal.

Consistent with other studies conducted in the US, the study found that white men are disproportionately represented in city cycling. Women make up just 29% of the people using the new lanes, despite representing 49% of the population. Women, and especially women of colour, cycle less and are more likely to cycle during off-peak hours and for non-work purposes than men. While fear of injury and theft were deterrents for both men and women, older women, expressed concern about cycling safety and risk of falling or collision.

With this knowledge, the City of San Francisco can build a more inclusive urban cycling infrastructure that serves the people's diverse mobility needs. In turn, this will help it to achieve its transport mode shift goals and, ultimately, reduce city emissions.

In the case of San Francisco, physical infrastructure, mainly in the form of protected cycle lanes, secure cycle parking, and adequate street lighting along cycle routes is needed to support existing cyclists, encourage novice or less confident cyclists and to take gendered perceptions of safety into account. Since women are also more likely to use cycle lanes during off-peak hours for non-work trips, both orbital and radial safe cycling routes should be provided to facilitate all types of journeys.

Socio-cultural infrastructure is also necessary to challenge biases that prevent women and ethnic minorities from cycling. This can take the form of partnerships, targeted outreach and education in underrepresented communities. Cultural and social factors largely contribute to the underrepresentation of women, Asian and Hispanic/Latino people in city cycling. Overcoming gender and ethnic biases will require investment in partnerships with these communities to complement investments in protected cycle lanes and secure cycle parking. Therefore, cities must approach infrastructure from a holistic perspective and invest in both physical and sociocultural infrastructure to facilitate more sustainable livelihoods.

Source: C40 Cities (2018).

29%

OF THE PEOPLE USING THE NEW LANES ARE WOMEN, DESPITE REPRESENTING 49% OF THE POPULATION

4. WOMEN'S LEADERSHIP IN CLIMATE ACTION

KEY MESSAGES

The rise in women-led grassroots organisations has elevated gender issues and women's representation at international climate negotiations. They have also empowered women on the ground, by raising awareness, building capacity and driving collective action.

Yet this work often goes unrecognised. Climate solutions can be conceptualised as consumerist and technology-oriented (e.g., renewable energy and autonomous vehicles). We must reframe climate action to include and value grassroots activism that has been spearheaded by women-led organisations.

Women's mentorship programmes and the Gender Assessment and Monitoring of Mitigation and Adaptation (GAMMA) methodology are two practical tools that cities can invest in to increase women's participation, as well as strengthening gender expertise.

Education programmes for girls at school and university are necessary to build leadership skills and increase future generations of women's participation in science, technology and engineering fields.

THIS CHAPTER EMPHASISES THE IMPORTANCE OF STRENGTHENING AND INCREASING WOMEN'S LEADERSHIP AND PARTICIPATION IN URBAN CLIMATE ACTION, PARTICULARLY IN GRASSROOTS ENVIRONMENTAL ACTIVISM AS WELL AS TECHNOLOGY AND INNOVATION.

It provides two tools:

- **investing in mentoring programmes, and**
- **the GAMMA methodology.**

Finally, it includes case studies from Paris and London showcasing the steps cities have taken to increase women's leadership in climate action.

STRUCTURAL FORCES IN SOCIETY, SUCH AS THE GENDERED DIVISION OF LABOUR AND INCOME INEQUALITY, CAN INFLUENCE PEOPLE'S ABILITIES TO ENGAGE IN CLIMATE ACTION (...). IT HAS BEEN ARGUED THAT CLIMATE PARTICIPATION IS A REFLECTION OF PRIVILEGE (...). FOR EXAMPLE, WOMEN WHO HAVE THE RESOURCES TO HIRE DOMESTIC HELP MAY HAVE MORE SPARE TIME TO EDUCATE THEMSELVES ABOUT CLIMATE CHANGE AND ATTEND ENVIRONMENTAL ADVOCACY MEETINGS

1 REFRAMING CLIMATE ACTION

Structural forces in society, such as the gendered division of labour and income inequality, can influence people's abilities to engage in climate action (MacGregor, 2010; Alber, 2015; Alston, 2014; Demetriades and Esplen, 2008; Detraz, 2016; Gaard, 2015; and Kronsell, 2013). It has been argued that climate participation is a reflection of privilege (MacGregor, 2010; Bernier et al., 2015; Hannan, 2009; Djoudi et al., 2016; Demetriades; and Esplen, 2008). For example, women who have the resources to hire domestic help may have more spare time to educate themselves about climate change and attend environmental advocacy meetings. Through their engagement, they gain access to knowledge, resources, decision-makers and networks that they can leverage to elevate themselves in climate leadership (for example by organising campaigns and lobbying governments).

Meanwhile, people who may work multiple part-time jobs on top of childcare and domestic work may be too overburdened to engage in climate change. They may lack the time to attend advocacy meetings, participate in marches, or otherwise engage in collective climate action or community politics. A new study from Boston found that participants in community meetings about housing and development policy predominantly tend to be older, white men who are long-term residents and homeowners in the neighbourhood (Einstein et al., 2018). For example, while women represent 51% of the population that is registered to vote, they comprise just 43% of commenters at community meetings (Ibid.).

The underrepresentation of people from lower socio-economic status in local governing processes also has implications for sustainable transport. People on lower-incomes may unintentionally have lower carbon footprints than their wealthier counterparts because they primarily walk, cycle, or rely on public transport and cannot afford high-consumerist habits such as air travel (Polk, 2009; Kronsell, 2013; and Gaard, 2015). However, their economic precariousness and underrepresentation in local politics makes it less likely for them to have influence and involvement in decision-making (MacGregor, 2010 and Gaard, 2015). This, in turn, may prevent their more sustainable transport behaviours from translating into policy outcomes (Polk, 2009; Kronsell, 2013 and MacGregor, 2010).

In the Global North, climate participation tends to be framed in a highly individualised way that conflates it with consumerism (Alaimo, 2009; Soper, 2009, MacGregor, 2010 and Gaard, 2015). In other words, the emphasis is placed on sustainable consumption, buying 'green' products, such as environmentally friendly household cleaning products, rather than making bigger lifestyle changes to reduce one's environmental impact. This is problematic because aggressive consumption increases carbon emissions, in turn exacerbating climate change. Moreover, market-based responses to climate change detract from grassroots collective action and alienate people with fewer financial resources (MacGregor, 2010). This framework of climate participation suggests that climate action is predicated on sustainable consumption, which means that women and poor people are less able to participate. Women's historical exclusion from, and sustained barriers in, the paid labour market (occupational segregation, the gender pay gap, sexual harassment) diminishes their access to disposable income and capital. Similarly, people with lower incomes have less purchasing power and financial resources to divert to sustainable consumption choices.

Last but not least, the technocratic framing of climate change and climate action results in a myopic focus on technological innovations as climate change solutions. This downplays the relevance of non-technological forms of participation in climate action, such as local grassroots efforts (MacGregor, 2010 and Metcalf, 2015). However, women's grassroots activism has played – and continues to play – a critical role in climate action, especially in raising awareness, building local capacity to act and elevating issues on policy agendas. These efforts often do not receive the recognition they deserve and the support they need to scale up because they are not 'hard' technological solutions. It is important, therefore, to broaden our conceptualisation of climate action beyond consumerist and technology-oriented solutions, and reframe it to include and value the role of grassroots activism.

IN THE GLOBAL NORTH (...) THE EMPHASIS IS PLACED ON SUSTAINABLE CONSUMPTION, BUYING 'GREEN' PRODUCTS, SUCH AS ENVIRONMENTALLY FRIENDLY HOUSEHOLD CLEANING PRODUCTS, RATHER THAN MAKING BIGGER LIFESTYLE CHANGES TO REDUCE ONE'S ENVIRONMENTAL IMPACT. THIS IS PROBLEMATIC BECAUSE AGGRESSIVE CONSUMPTION INCREASES CARBON EMISSIONS, IN TURN EXACERBATING CLIMATE CHANGE

2 WOMEN'S GRASSROOTS ENVIRONMENTAL ACTIVISM

Non-governmental organisations focusing on climate change and women – particularly GenderCC, the Global Gender and Climate Alliance, Women in Cities International (WICI) and the Women's Environment and Development Organisation (WEDO) – have been instrumental in incorporating gender in the international climate agenda and amplifying women's voices at United Nations climate change meetings and negotiations. An example of a successful initiative enhancing women's inclusion and gender issues in local, regional, national and international climate decision-making is the Women's Development Fund (WDF), which was created in 2009 through a partnership between the Government of Finland and the Global Gender and Climate Alliance, with support from WEDO, the United Nations Development Programme, and the Government of Iceland. WDF provides travel support, capacity building, networking, outreach and advocacy for women in politics addressing climate change (Burns and Andre, 2014).

Another example of the strength of women's grassroots activism in driving climate action is the Women's Environmental Network (WEN), formed in 1988. WEN has led multiple campaigns on issues relating to women, gender and the environment, such as the environmental causes of breast cancer and the detrimental environmental and health impacts of sanitary products (Metcalf, 2015). These campaigns have been successful in raising awareness over important environmental issues and brought about powerful collective actions. Unfortunately, these examples of grassroots, participatory climate action are often overlooked, with technology-oriented solutions being prioritised.

Mentoring and capacity building programmes, like WDF and the Women4Climate initiative, help to increase, support, and retain female leadership in climate action. The **C40 Women4Climate initiative** offers a unique mentorship platform where young women and successful climate heroines from C40 cities can develop and implement actions inspired by the 'think local, act global' philosophy. The programme matches mayors, city officials, and committed leaders from the business sector, international organisations and civil society with emerging women leaders developing local projects to tackle climate change. Mentors share their knowledge and experiences, supporting the mentees to develop their projects and become powerful leaders in their chosen field, including politics, non-governmental organisations, business, media, and community groups.

Investing in mentoring programmes for professional women and education programmes for girls is necessary to cultivate and support female leaders in driving climate action. Investments in education programmes for schoolgirls can encourage participation in science, technology and engineering fields and ensure the future generation of women have the skills and confidence to enter this space. Investments in mentoring programmes for professional women can help with retention and promotion in these male-dominated sectors. Moreover, there must be a recognition that gender representation is necessary in prominent decision-making bodies, whether at the local, state, national or international level.

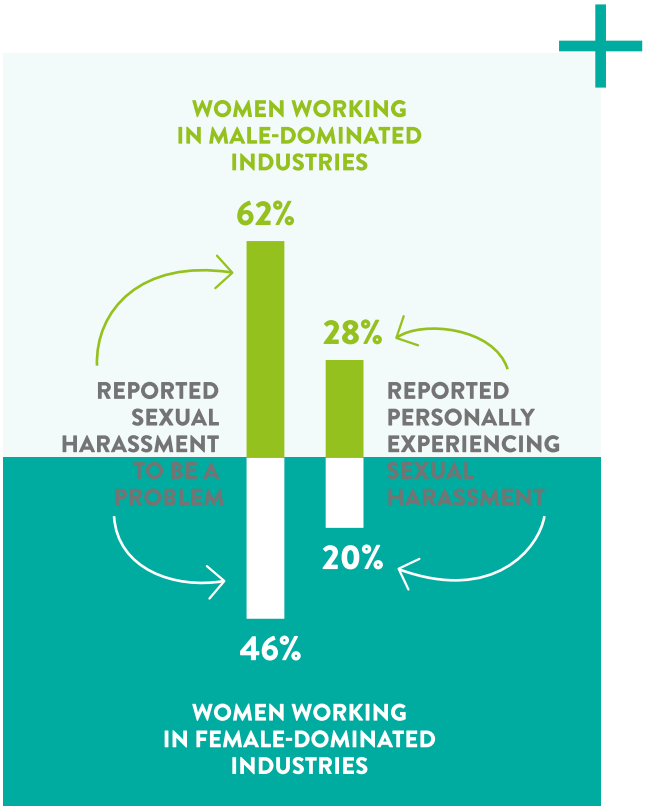
3 WOMEN IN TECHNOLOGY AND INNOVATION

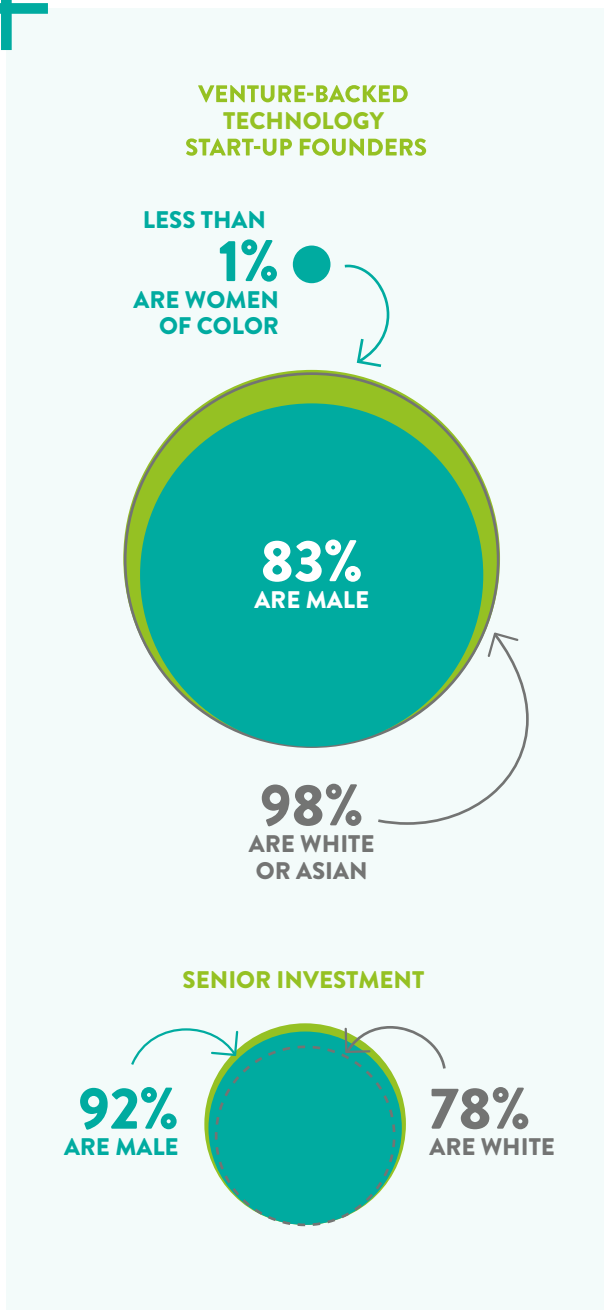
In 2015, women held just 26% of computer and mathematical occupations and 36% of high-tech occupations (Scott et al., 2018). Women – and especially women of colour – are underrepresented, and face challenges, in the technology and innovation sector (Catalyst, 2018). In Silicon Valley technology companies, women of colour comprise 1% or less of all workers (Scott et al., 2018). Among mid-level women in technology, Asian women make up 43%, black women make up less than 3% and Hispanic women make up 3% (Simard et al., 2013). As cities invest more in sustainable transport and energy efficiency, they will need to steer technological innovation to support sustainability goals. This presents an opportunity for cities to work with stakeholders within the sector to increase gender parity.

Studies of women's experiences in male-dominated industries reveal that gender bias and sexual harassment are two of the most pervasive challenges faced by women in the technology industry (Daley et al., 2018; Williams et al., 2016; and McLaughlin et al., 2017). A 2017 survey of women working in the United States found that 62% of women who worked in male-dominated industries reported sexual harassment to be a problem, compared to 46% of women working in female-dominated industries (Pew Research Centre, 2018). 28% of women working in male-dominated industries reported personally experiencing sexual harassment, compared to 20% of women in other industries (Ibid.). This problem begins before women even enter the workforce; women in universities pursuing degrees in male-dominated subject areas experienced more harassment than women pursuing other degrees (Dresden et al., 2017).

< 1%

OF WORKERS IN SILICON VALLEY TECHNOLOGY COMPAGNIES ARE WOMEN OF COLOUR





There is also a lack of diversity in venture capital. Among venture-backed technology start-up founders, 83% are male; nearly 98% are white or Asian; and less than 1% are women of colour (Scott et al., 2018). Venture capitalists hugely influence start-ups by deciding which ones to fund and steering the selection of senior management and board members. However, according to the 2015 Future List survey, 92% of senior investment teams were male and 78% were white (The Information Staff, 2016). If venture capitalists lack diversity, they have a limited ability to help their portfolio companies create diverse and inclusive cultures.

The intelligent mobility sector has received generous injections of venture capital, but women entrepreneurs are underrepresented, and face significant barriers, within venture capital and start-ups (London Sustainable Development Commission, 2018). Furthermore, the power dynamics between investors and entrepreneurs can compound existing sexist attitudes and behaviours (Martineau, 2018). In a recent survey of female founders, 19 out of 88 respondents experienced some form of sexually inappropriate behaviour (i.e., harassment or coercion) from angel or venture capital investors (Ibid.). Women who reported these incidents primarily did so to protect others, while those who did not cited fear of jeopardising their company's funding prospects and fear of retaliation as their main reasons (Ibid.). This shows that gender inequalities intersect with unequal power relations between investors and entrepreneurs to uniquely disadvantage women in the innovation space.

4

TOOLS FOR CITIES TO STRENGTHEN WOMEN'S LEADERSHIP IN CLIMATE ACTION

INVESTING IN MENTORING PROGRAMMES AND USING THE GENDER ASSESSMENT AND MONITORING OF MITIGATION AND ADAPTATION (GAMMA) METHODOLOGY ARE PRACTICAL TOOLS THAT CITIES CAN ADOPT IN ORDER TO STRENGTHEN WOMEN'S LEADERSHIP IN URBAN CLIMATE ACTION.

TOOL 4 MENTORING PROGRAMMES

The **Women4Climate mentoring programme** aims to educate and empower young women in climate action. It is a decentralised programme matching mayors, deputy mayors, committed leaders from the business sector, international organisations and civil society, with emerging women leaders from different sectors, who are developing projects aimed at providing urban climate solutions. Projects range from tech and civic initiatives and research, to awareness raising and community mobilisation. Mentors share their knowledge and experience, supporting mentees to become powerful leaders. Through their mentors, mentees also have access to a larger pool of networks and contacts.

Each mentee selected for the programme receives training that aims to enhance skills development, address gender barriers to women's leadership, and inspire deeper engagement in the climate change arena. The programme also enables mentees/young women from different cities and countries to connect with each other through gatherings and events.

The programme model in each city differs depending on the city's focus. The programme works with local partners to provide training for the mentees in desired skills, such communications and media training. Women4Climate worked with leading communications enterprises such as Facebook and Instagram to provide communications training.

Another pillar of the programme is the **Women4Climate tech challenge**. This is a global competition designed to spark innovation and accelerate climate solutions from women in the tech community to a wide range of urban sustainability issues, such as mobility, food, waste, water, buildings, urban farming and air quality. The contest is open to any woman carrying out an innovative, concrete solution with a measurable impact. Finalists pitch their projects to a jury of mayors at the annual Women4Climate conference. The winner's solution is piloted in cities whose mayor has committed to test the solution.

Source: C40 Cities

TOOL 5 GENDER ASSESSMENT AND MONITORING OF MITIGATION AND ADAPTATION (GAMMA) METHODOLOGY

The Gender into Urban Climate Change Initiative (GUCCI) is an innovative project that strengthens women's leadership and participation in urban climate action, whilst simultaneously developing gender expertise. The GUCCI project was launched in 2015 by GenderCC – Women for Climate Justice, a global network of organisations, experts and activists that work to advance both gender and climate justice. It aims to integrate gender into urban climate policies in cities building capacity at the local level and developing gender-responsive policy recommendations. Currently there are 14 participating pilot cities in South Africa, India, Indonesia and Mexico.

In each pilot city, issues and priorities are systematically identified and local strategies are developed to ensure that climate policies are more inclusive and responsive to the needs of all – particularly women, poor people and other marginalised groups.

Partnering with women's organisations that work on climate change and environmental issues helps build capacity at the local level. It also empowers citizens to learn about, and participate in, urban planning and governance processes. This is an effective way to build and sustain momentum for long-term gender inclusive climate action amidst short-term political cycles.

The GUCCI project consists of five work stages (GenderCC, 2018):

1. **Conduct a gender assessment of each pilot city's institutional setting and climate policy.**
2. **Develop recommendations for gender-responsive urban policies in consultation with local stakeholders and communities.**
3. **Advocate for gender-responsive adaptation and mitigation.**
4. **Identify and implement a model action or campaign for gender-responsive local climate policy in each pilot city.**
5. **Collaborate for peer learning, international exchange and outreach.**

To conduct gender assessments, the GUCCI project uses the Gender Assessment and Monitoring of Mitigation and Adaptation (GAMMA) methodology, which consists of the following three stages (Alber, 2016 and GenderCC, 2018):

1 GAMMA I: ASSESSMENT OF THE INSTITUTIONAL AND PROCEDURAL FRAMEWORK.

- Are institutions able, and procedures in place, to address climate change and integrate gender dimensions?
- Method: Interview urban officials and relevant stakeholders based on scorecards to determine a quantitative score from qualitative questions.

2 GAMMA II: GENDER SCREENING OF CLIMATE ACTION PROGRAMMES.

- Does the mitigation and adaptation action programme cover policies that can address priority issues from a gender perspective and contribute to gender equality?
- Method: Screen the entire portfolio of mitigation and adaptation actions for their potential benefits on gender equality.

3 GAMMA III: GENDER ASSESSMENT OF PRIORITY POLICIES AND MEASURES.

- Estimate the effects of the implementation of a certain policy on gender equality and gender relations, and then identify options to improve the policy.
- Method: Collect information on the policy's aims, activities, outputs and impacts (both intended and unintended); ask the right questions and develop options on how to improve the policy.

The GAMMA methodology provides a robust way to examine the gender responsiveness of local adaptation and mitigation policies. It helps identify possible entry points to incorporate a gender perspective and develop recommendations for interventions needed to address gender gaps in policies and procedures.

The results of the assessment can guide citizens and local policymakers towards more sustainable, inclusive and low-carbon cities. Not only is the GAMMA methodology applicable at the urban level, but also it is adapted to the national level to enable a gender analysis of national climate policies. Therefore, both urban and national leaders globally could benefit from adopting the GAMMA methodology to drive more gender inclusive climate action.

Source: GenderCC 2018.

5

CASE STUDIES ON HOW CITIES ARE INCREASING WOMEN'S LEADERSHIP IN CLIMATE ACTION

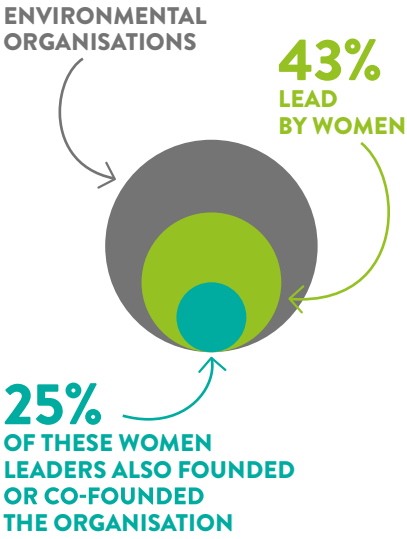
THE FOLLOWING CASE STUDIES OF PARIS AND LONDON HIGHLIGHT SOME BARRIERS TO WOMEN'S LEADERSHIP IN CLIMATE ACTION, AND MAKE RECOMMENDATIONS TO HELP INCREASE THEIR PARTICIPATION.

CASE STUDY 3
PARIS: WOMEN'S LEADERSHIP IN ENVIRONMENTAL ORGANISATIONS

Researchers mapped 104 civil society organisations that engage in climate action in Paris, interviewed female leaders and conducted focus-groups with citizens to investigate the role of women within these organisations.

Organisations range from large environmental NGOs to small grassroots organisations. The mapping revealed that women lead 43% of environmental organisations and 25% of these women leaders also founded or co-founded the organisation. Some of them felt that founding an organisation was the only route to leadership positions, which they were denied in their prior/other workplaces.

Although women's leadership in environmental organisations is considerably higher than that of other civil society organisations, only 20% of the organisations surveyed included a gender perspective in their activities. Where a gender perspective was present, it tended to focus on the role of women in sustainable agriculture or gendered vulnerabilities to climate change impacts in the Global South. Most organisational leaders felt that gender inequalities were less present within their organisations and in civil society more broadly, and are less relevant to climate action.



The exception was organisations that promoted cycling. They were more interested in explicitly addressing gender in their work, viewing cycling as a tool for female empowerment – especially for migrant women without driving licenses – and advocated for more cycling infrastructure. From their perspective, the absence of safe cycle lanes was discriminatory against women and getting more women cycling was a necessary condition for cities to be truly 'bike friendly.' Moreover, they saw the value of increasing women's participation in urban design and planning decisions, as they credited women with raising awareness about built environment issues that men often overlook, such as adequate street lighting.

While organisational leaders interviewed did not feel a need to integrate a gender perspective into their work, all-female focus groups of ordinary citizens expressed that a gender perspective is critical to climate action. Some women felt that sexism and the oppression of women were rooted in the same causes as environmental degradation and the exploitation of nature, and therefore one could not address gender equality without addressing climate action. Many women in the focus group felt that women's engagement in climate action was increasing, especially in developing countries, and getting even more women engaged in climate action would be a game-changer.

The three biggest challenges women leaders of environmental organisations face are public speaking, managing donor relations and having enough time to do it all. Most women cited public speaking as a significant barrier to their leadership development. Some women attributed this to low levels of self-confidence; others felt that public speaking came more naturally to men than women; and others felt that women face more scrutiny and judgment based on their appearances, which makes them more reluctant to be exposed, especially in the media. Meanwhile, many women felt they had to work harder than men to justify their project(s) to donors, who are mostly men. Furthermore, some women were told to tone down their 'girl power' rhetoric to avoid scaring off donors.

Not having enough time was another barrier to women's leadership in environmental organisations. The study found that women leaders were more likely to be involved in their community in other ways, such as in the parent-teacher association at school or the neighbourhood council. In addition to their professional responsibilities and various community commitments, women also had to juggle their childcare and domestic responsibilities. Single mothers, especially, felt that they would be able to be more engaged in climate action if they had more time.

Based on these findings, the researchers recommend the following actions to increase women's leadership in climate action:

PAY ATTENTION TO STEREOTYPES IN PUBLIC DEBATES ON CLIMATE CHANGE.

Stereotypes confine women to certain sectors of climate action (such as food and health) and exclude them from others (such as energy and innovation). Public outreach and discussion at climate events can help change this discourse.

RAISE AWARENESS ABOUT THE IMPORTANCE OF A GENDER DIMENSION IN CLIMATE ACTION IN INDUSTRIALISED COUNTRIES.

Gender-related climate action tends to focus on women in the rural Global South, ignoring industrialised cities in the Global North, including Paris.

MAKE WOMEN LEADERS AS VISIBLE AS POSSIBLE.

Women leaders inspire other women to seek leadership positions. Mentoring schemes therefore should be amplified.

SUPPORT WOMEN TO ASSUME LEADERSHIPPOSITIONS.

More programmes like the former Leadership pour elles are needed. The programme launched in 2014, but is no longer available. It should be reactivated or a similar programme initiated.

COLLECT GENDER-DISAGGREGATED DATA AND INTEGRATE A GENDER DIMENSION IN KEY OFFICIAL DOCUMENTS AND CLIMATE POLICIES.

This provides city leaders and other stakeholders with data, indicators and vocabulary to devise strategies that increase women's inclusion in climate action. The integration of a gender dimension in official documents can provide a key leverage for civil society organisations to take action.

SUPPORT WOMEN WITH DOMESTIC RESPONSIBILITIES TO FACILITATE THEIR PARTICIPATION.

Lack of time remains one of the biggest obstacles to women's involvement in climate leadership. Supporting women with domestic responsibilities – such as providing child care and organising meetings and activities in the evening and weekends – would help women to participate.

Source: C40 Cities (2019).

CASE STUDY 4 LONDON: WOMEN IN CLEANTECH

The London Sustainable Development Commission's (LSDC) Cleantech and Innovation work is designed to support the Mayor of London's commitment to grow the city's green economy and reduce its carbon emissions to zero by 2050. It is advising on ways to make London a world-leading location for low-carbon, cleantech innovation businesses.

'Cleantech' describes those products and services that avoid or repair harmful effects on the environment caused by human activity. These products and services are central to a low-carbon economy and will need to be the norm in a zero-carbon London.

In 2016, the LSDC published **Better Future: A Route Map to Creating a Cleantech Cluster in London.** This seminal report recognised the scale of the challenge set at the COP21 Paris Climate talks, but also the opportunity for London to develop new businesses and technologies to meet the climate challenge.

Since then the LSDC has been providing recommendations for actions that would attract **more women into the sector,** and keep them there.

Businesses with women at strategic and senior management levels have been shown generally to outperform those without. To help London's large and growing cleantech sector reach its full potential, it must therefore draw from the talents and ideas of women as entrepreneurs, innovators and leaders.

THE GENDER-GAP

Anecdotal evidence suggests that the percentage of women in cleantech exceeds that of tech more generally, but that women are underrepresented in leadership positions. Unfortunately, there is not much statistical data available on gender in cleantech to support this anecdotal evidence. One of the few statistics available comes from early stage cleantech start-ups receiving UK grant-funding: 74% have no female founder, 6% had no male founder and only 20% had a mixed gender board. In 2017, only 7% of patents for 'clean' or 'green' inventions filed in the UK were by a team with at least one female.

In the absence of data, looking at comparative studies from technology, innovation and start-ups may provide insight into gender disparities in cleantech. In technology, women represent just 17% of employees, 4% of software engineers and 1% of leadership positions in the combined science, technology, engineering and mathematics (STEM) sector. Furthermore, one in three female innovators report feeling that gender has negatively impacted their career.

BARRIERS TO WOMEN'S PARTICIPATION

One of the biggest barriers to female leadership in these sectors is that venture capital and finance remain male dominated. Only 3% of venture capital partners are women and only 14% of start-up investors (also known as Business Angels) are women. Research shows that start-ups led by men received over 16 times more funding than those led by women. Survey data suggests that men and women calibrate risk differently, with women providing a more balanced assessment of risk, which is more likely to lead to longer-term stability. However, research shows that venture capitalists prefer pitches with more overt confidence, which is more typical of male approaches.

Research also shows that venture capitalists tend to frame questions differently based on the gender of the pitcher. For example, men are more likely to get asked promotion questions that focus on potential gains, whereas women are more likely to get asked prevention questions, which focus on potential losses. Venture capitalists tend to direct more technical questions to men than women, irrespective of their level of expertise. This can impact on women's confidence and indeed, 43% of women surveyed cited lack of confidence as a barrier to success in cleantech; 32% felt it was difficult to be heard in their organisations and 30% felt that investors did not take them seriously. Women also often felt excluded from male-dominated networking events, which tended not to be family-friendly and oriented around perceived male interests, like sports.

LONDON'S WOMEN IN CLEANTECH AGENDA

Based on this research, the London Sustainable Development Commission has developed an action plan to increase women's leadership in cleantech entrepreneurship in London. The Commission is working with the local cleantech community and industry partners, and will convene a steering group to be responsible for the 'Women in Cleantech Agenda' and take forward the commitments made in the action plan by the cleantech community. A number of stakeholders have made commitments which include: exploring setting up a Cleantech fund for women in cleantech; developing best practice guidance for incubators and accelerators; developing an award scheme to showcase women in cleantech.

The six work streams are:

- **Connecting existing networks.**
- **Working with the finance community** to improve gender parity in the companies receiving financing.
- **Strengthening the existing ecosystem,** amplifying activity and developing best practice.
- **Cohesive, strategic and targeted communications** to inspire the next wave of female cleantech entrepreneurs.
- **Working with schools and education institutes** to encourage girls and young women into the field.
- **Addressing unconscious biases and giving women the tools and skills** to succeed in cleantech entrepreneurship.

Source: London Sustainable Development Commission (2018).

Consult the infographic on w4c.org

5. CONCLUSION AND RECOMMENDATIONS

To drive gender inclusive climate action, cities must simultaneously develop gender expertise and increase women's leadership in politics, built environment sectors, and technology and innovation.

CITIES CAN INCREASE GENDER EXPERTISE BY:

CONDUCTING WOMEN'S SAFETY AUDITS.

Sexual harassment and violence inhibit women's and girls' mobility, and thus their agency, social, political and economic inclusion in society. It also inhibits their participation in low carbon mobility solutions. Women's safety audits can improve safety for women and girls in the city, and provide data for robust indicators to systematically assess safety.

COLLECTING GENDER-DISAGGREGATED DATA IN CITIES.

Gender-disaggregated data is required for improved analysis of the differentiated needs of the people within a city. It provides city leaders and other stakeholders with common data, indicators and vocabulary to devise strategies to increase women's inclusion in climate action and address gender inequalities within cities.

INTEGRATING GENDER BUDGETING – PARTICULARLY IN INFRASTRUCTURE INVESTMENTS – AND EVALUATION SCHEMES.

Gender budgeting enables policymakers to assess the gendered impacts of public spending. Adopting gender budgeting in climate finance would also help to identify how investment in technological innovation (and other programmes) to address climate change may disparately impact women and other marginalised populations.

INTEGRATING GENDER-RESPONSIVE PARTICIPATORY PLANNING.

This tool for local governance ensures that their resources serve their community effectively and holistically. Participatory processes enable authorities to explain the different experiences, priorities and needs to men and women, enabling them to cater to their needs. Harnessing local knowledge and local priorities to maximise resource effectiveness in climate planning.

CITIES CAN INCREASE WOMEN LEADERSHIP IN CLIMATE ACTION BY:

INVESTING IN MENTORING PROGRAMMES.

Women's mentoring programmes have huge potential to strengthen female leadership in climate action. They support existing efforts to address gender inequality and climate change at the local level, which can then inform broader efforts at the national, regional and international level. Cities should not only invest in mentoring schemes, but also monitor and evaluate them regularly to improve, scale and replicate them.

USE THE GAMMA METHODOLOGY TO EXAMINE THE GENDER RESPONSIVENESS OF LOCAL ADAPTATION AND MITIGATION POLICIES, IDENTIFY ENTRY POINTS TO INTEGRATE A GENDER PERSPECTIVE AND DEVELOP GENDER-INFORMED RECOMMENDATIONS.

Grassroots women's organisations, local governments and citizens can go through the assessment together to collectively work towards more sustainable and inclusive cities.

RECOMMENDATIONS FOR CITIES, BUILT ENVIRONMENT, CLIMATE AND TECHNOLOGY SECTORS

INVEST IN RESEARCH ON GENDER, CLIMATE CHANGE AND CITIES.

Current research on gender, climate and cities focuses on poor women in rural areas in the Global South. There is a vacuum of knowledge in urban contexts. The suggested direction for future research includes:

- Case study analysis of cities that have conducted women's safety audits.
- Case study analysis of industry-led attempts to increase gender expertise and inclusion (such as technology or transport).
- Research into gendered vulnerabilities to health impacts of climate change in cities, in particular in relation to disasters.

INVEST IN AND INCREASE EDUCATION AND TRAINING ON GENDER ISSUES.

Organisations and companies can demonstrate an institutional commitment to gender equality and inclusion by ensuring that all staff members receive training on gender issues.

SUPPORT DIVERSITY AND INCLUSION IN TECHNOLOGY AND INNOVATION.

Women and people of racial and ethnic minority backgrounds are largely underrepresented, and face significant barriers, in venture capital and start-ups. Cities can support women entrepreneurs by establishing platforms to share knowledge, skills, resources and networks. Cities can also strengthen the existing innovation ecosystem by partnering with the finance community to improve gender parity in companies that are successful in receiving funding.

ADOPT A HOLISTIC APPROACH TO INFRASTRUCTURE – INVESTING IN BOTH PHYSICAL AND SOCIO-CULTURAL INFRASTRUCTURE.

For example, cycling infrastructure requires investment in the physical infrastructure (i.e., cycle lanes and parking) and socio-cultural infrastructure (i.e., education and outreach programmes). It is also essential to ensure that women are included in, and consulted on, physical infrastructure to ensure that their experiences and needs are met.

BE PROACTIVE IN STEERING THE ROLLOUT OF TECHNOLOGICAL INNOVATIONS TO BE INCLUSIVE, ESPECIALLY IN THE URBAN MOBILITY SECTOR.

Technology is disrupting urban mobility in unprecedented ways, and urban policymakers must be open to and plan accordingly for technological innovations in transport whilst simultaneously investing in public transport. New technologies alone will not induce a shift to more sustainable modes of transport and risk perpetuating existing biases in transport planning, unless concerns about social inclusion are at the fore.

To implement the 1.5°C Paris Agreement target and achieve climate action, cities need to include all citizens. These recommendations and tools can guide cities to achieve inclusive climate action.

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