Key messages

- Even where infrastructure is developed, its operation often does not address women's needs. Evidence shows that inadequate transport facilities, including its frequency, scope and safety, reduces women's labour market participation more than men’s. Urban designers also often cater for an “average” working person without taking into account the different needs of men and women combining work, family and other responsibilities.

- In many countries around the world, lack of access to energy, water, sanitation, transport and other infrastructure affects women most, hampering education, employment and other opportunities. The negative gender-specific effects from lack of access to or inadequate infrastructure are worsened in some countries by discriminatory legislation and social norms. There is also a large gender gap in the digital economy and related infrastructure.

- Infrastructure is a major cause of pollution and carbon emissions accounting for more than 60% or greenhouse gasses. Pregnant women and young children are at greatest risk from pollution. In areas without access to electricity, women and children are also at great risk from indoor pollution, caused...
in particular by highly polluting cooking fuels. Women and children are also disproportionately affected by natural disasters, which are becoming increasingly severe due to climate change.

- Surveys have shown that women are in general more sensitive to and willing to adopt sustainable consumption practices, including using public transport, purchasing eco-products and recycling. Yet, in most countries, women are not represented in decision-making positions regarding infrastructure development and urban and settlement planning.

- There is a need to integrate a joint gender-sustainability perspective into infrastructure strategies, policies and projects, including financing. A gender-sustainability perspective should be applied throughout the project cycle. To achieve this, it is necessary to involve women’s groups in public consultations on infrastructure projects.

- Public- and private-sector entities involved in infrastructure should systematically collect evidence on the gender-sustainable infrastructure nexus, in order to better inform and support the development of quality and sustainable infrastructure for all. In addition to a breakdown by gender and socio-economic status, there is a need to focus on vulnerable groups, such as minorities, indigenous groups, people with disabilities, and migrants.
It is critical to develop infrastructure that meets the needs and preferences of different groups of society, in particular women, children and other vulnerable groups.

**What’s the issue?**

Good access to high-quality and sustainable infrastructure is an essential determinant of people’s well-being and a basic requirement for businesses to prosper. High-quality and sustainable infrastructure – ranging from digital, transport, energy and water sectors to public parks and recreational centres – underpins inclusive growth and supports sustainable development in line with the 2030 Agenda. The development of quality and sustainable infrastructure are also at the core of the Ise-Shima Principles for Promoting Quality Infrastructure Investment, agreed at the Japanese G7 Summit in May 2016, and the G20’s work on infrastructure financing.

Infrastructure investment required to meet global development needs are estimated at close to 95 trillion dollars between 2016 and 2030, or about 6.3 trillion dollars per year on average (OECD/The World Bank/UN Environment, 2018). Countries will need to invest an additional 0.6 trillion a year over the same period to make these investments climate compatible, in line with the Paris Agreement.

However, addressing the sustainable infrastructure financing gap is only part of the challenge. It is also critical to develop infrastructure that meets the needs and preferences of different groups of society, in particular women, children and other vulnerable groups, such as minorities, indigenous groups, people with disabilities, or migrants. And infrastructure construction must also be done in full respect of human rights, including promoting gender equality and women’s empowerment.

**ACCESS TO QUALITY AND SUSTAINABLE INFRASTRUCTURE FOR WOMEN AND VULNERABLE GROUPS**

Infrastructure is essential to ensure equal opportunities, to connect left-behind regions, to provide access to public services and, in general, to improve quality of life. Good quality habitat and mobility are also at the centre of human rights. Infrastructure strategies, policies and projects should therefore play special attention to access for women, children and other vulnerable groups such as such as minorities, indigenous communities, people with disabilities, or migrants.

Many believe that women will automatically benefit from infrastructure projects in the same way as men, without acknowledging possible distinct impacts on women and men according to their needs and social
roles. For example, transport and urban design plays a major role in people’s lives, but the risks of uncontrolled urbanisation, urban sprawl and slums are often greater for women as they are more likely to be targets of assaults and harassment. Inadequate transport facilities, in particular its frequency, geographical scope and safety, can also reduce women’s well-being and their labour market participation.

Women also tend to spend more time traveling to and accompanying members of the family to schools, childcare centres, hospitals, and other social services, as well as public spaces such as parks and recreation centres. Women are also overrepresented as employees in the social infrastructure sector. The location of these services and their safety must be therefore designed with a gender lens in mind.

The ongoing technological revolution and the associated digital infrastructure also requires fostering equal access to digital services and ensuring opportunities for girls and women to acquire technological skills. The digital environment also creates new risks to girls and women, such as exposure to cyberbullying, sexual harassment and other forms of violence against women facilitated by online services.

Discriminatory legislation and social norms in some countries worsen the negative gender-specific effects of lack of access to or inadequate infrastructure. For instance, in many low-income countries, the gender challenges of infrastructure are compounded by inadequate access to basic services such as water, sanitation and energy, and the concomitant role of girls and women in collecting water and biofuel. Inadequate access to sanitation facilities also affects teenage girls’ school attendance.

**INFRASTRUCTURE’S ROLE IN CLIMATE CHANGE, POLLUTION AND ENVIRONMENTAL DEGRADATION AND THEIR IMPACT ON WOMEN**

Today’s infrastructure is among the biggest contributor to carbon emissions and environmental damage accounting for 60% of greenhouse emissions (OECD, 2018c; New Climate Economy, 2018). Poor quality infrastructure contributes to air pollution, lowers water quality and quantity, causes biodiversity loss and the degradation of ecosystems, which may affect women more directly than men.

The relationship between infrastructure and sustainability is clearest in transport and energy, because the emissions produced directly affect human health and the environment. Transport accounts for about a quarter of global carbon emissions, while cities account for 70% of the total (OECD 2018c). Pollution from transport, buildings and power generation (including cookstoves) is also a major health risk, accounting for more than 7 million deaths a year (WHO, 2018). Developing future infrastructure projects must therefore take into consideration the sustainability goals embedded in the 2030 Agenda.

In this regard, evidence shows that pregnant women and young children are at greatest risk from urban pollution, while on high pollution days, it is more often women who stay at home to take care of their children (Montt, 2018). In developing countries, women and children are also at great risk from indoor pollution, caused in particular by highly polluting fuels (IEA, 2018).

Environmental damage and harm to women can also happen during the construction phase of infrastructure projects. Grievances to women can include human rights violations such as denial of land and resource

**The SDG Framework for Infrastructure**

Within the framework of the 2030 Agenda, infrastructure plays a central role in achieving many interrelated environmental objectives, including: SDG 6 on water and sanitation; SDG 7 on sustainable energy; SDG 9 on industry, innovation and infrastructure; SDG 11 on sustainable cities and communities; SDG 12 on production and consumption; SDG 13 on climate action; SDG 14 on life below water and SDG 15 on life on land.

Infrastructure also supports co-ordinated action to deliver on socio-economic goals, including those related to gender equality (SDG 5); health (SDG 3), education (SDG 4), addressing poverty, inequalities, social protection, and ensuring decent jobs for all (SDG 1, SDG 2, SDG 8, SDG 10).

The development of infrastructure depends crucially on sound governance (SDG 16), financing and other tools for implementation, including policy coherence for sustainable development (SDG 17).
tenure, forced relocation or eviction and loss of livelihood. Infrastructure construction can also lead to environmental damage and biodiversity loss, including through deforestation and other human-made transformations of the natural habitat.

**WOMEN AND INFRASTRUCTURE GOVERNANCE**

Surveys have shown that women are in general more sensitive to sustainable consumption practices, including using public transport, purchasing eco-products and recycling. Women also tend to be more risk-averse than men in terms of environmental risk (Norgaard and York, 2005). Women’s education gap with respect to men has reduced over the years and there is a growing percentage of women completing tertiary education, including in technical subjects. Yet, in most countries women are not represented in decision-making positions in infrastructure development (Wilson Centre, 2018).

In many countries, discriminatory legislation and social norms restrict women’s ability to reach positions of responsibility in infrastructure decisions (OECD, 2019b). Improving gender balance across all levels of governments and in the private sector would help accelerate gender and sustainability mainstreaming in infrastructure.

A gender-sustainability perspective should be applied through the project cycle. Including a gender perspective from an early stage allows projects to be planned, prioritised, delivered and managed in consideration of women’s and children’s needs and their interlinkages with other objectives. Public consultations on infrastructure projects could also involve women’s groups.

**THE NEED FOR A JOINT GENDER-SUSTAINABILITY LENS IN INFRASTRUCTURE**

The considerations above call for an integrated policy approach to quality and sustainable infrastructure development with a gender lens, taking into account other societal goals such as economic growth, employment creation, environmental sustainability and well-being. Such an approach must recognise the gender-sustainability nexus, and thereby manage the inherent trade-offs and synergies that may arise between different goals and policies.

There is a need to improve gender disaggregation of infrastructure data in order to better inform and support the development of quality and sustainable infrastructure for all. Public- and private sector-entities involved in infrastructure should systematically collect evidence on the gender-sustainability nexus. In addition to a breakdown by gender, there is a need for evidence on vulnerable groups, such as minorities, indigenous groups, people with disabilities or migrants.

The below graph based on a 2017 OECD survey shows that gender disaggregated data pertinent to infrastructure is scarce in most countries, and is least available in relation to environmental matters.

**COLLECTION OF GENDER-DISAGREGATED DATA ACROSS SECTORS**

(% of responding countries)

Source: OECD (2019a).
Enhancing women’s access to communications infrastructure, from mobile to broadband networks, is crucial to ensuring that they can harness the benefits of the digital transformation. Access to digital networks increases economic opportunities, and it may also help address environmental issues by, for example, facilitating teleworking and reducing the need for commuting.

However, connectivity is not yet ubiquitous or evenly distributed by gender nor by geographic location. Surveys show that women access the Internet less than men do, with a proportion of 45%, as compared to about 51% for men – which corresponds to having 250 million fewer women than men online (ITU, 2017). Women are on average 26% less likely than men to have a smartphone. In South Asia and Africa these proportions stand at 70% and 34%, respectively (OECD, 2018a). Today, worldwide, some 327 million fewer women than men have a smartphone and can access the mobile Internet.

To ensure an inclusive digital transformation, it is essential to enhance access and reduce digital divides, including by age, education, gender, income, and geography, that persist across and within countries. The 2016 OECD-IDB Latin America and the Caribbean Broadband Toolkit sets out a comprehensive agenda for policies that can help broaden access to digital technologies in the region, addressing both major supply and demand issues in a holistic and coherent manner (OECD, 2016).

Several good practices exist, based on OECD countries’ experience and outcomes in terms of promoting connectivity to rural populations. Subsidising national and rural broadband networks, promoting municipal networks and designing competitive tenders for private sector network deployment and management or implementing open access arrangements, can all be effective options to improve access (OECD, 2015). Beyond fostering sound regulatory frameworks, certain policies such as universal service frameworks and state...
A fundamental barrier for women to access the Internet is the lack of availability of broadband services. Policies to promote competition and private investment, as well as independent and evidence-based regulation, have been tremendously effective in extending coverage. Scarcely populated areas, such as rural areas, may be more challenging in terms of profitability for market players. In these cases, the cost of deploying some types of infrastructure may be high compared to the expected return on investment (OECD, 2018b). This can affect disproportionally more women in developing countries as they seem to be more often located in rural areas, whereas working age men tend to be mainly in urban areas (UN Statistics, 2016). Affordability of communication services, in both rural and urban areas, is a challenge for all but also affects disproportionally more women and girls, and remains one of the key hurdles in accessing Information and Communication Technologies (ICTs).

In addition to hurdles related to access, such as availability and affordability, women may also lack sufficient education and there may be inherent biases and socio-cultural norms that curtail their ability to benefit from the opportunities offered by the digital transformation. Safety-related issues are also among reason for families’ opposition to the use of the Internet or the ownership of

**Women as users**

Improving women’s access to communication networks and services can contribute substantially to greater gender equality. The use of Internet, digital platforms, mobile phones and digital financial services, for example, can help women earn additional income, increase employment opportunities, and access knowledge and digital government services. In Australia, fast broadband connection at home has encouraged more people to work from home, access education, have smart devices in their homes, and to start their own business. The effects were found to be particularly strong in rural areas and for women. Upon the broadband roll-out, the number of self-employed women grew at an average 2.3% every year, compared to only 0.1% on average in non-National Broadband Network areas (NBN, 2018). The use of digital platforms has also helped reduce barriers to participation in the labour market for women, increasing flexibility and work-life balance for women. Digital services can also facilitate the delivery of medical services, especially for elderly people in remote places.

Well-designed, appropriately located and affordably priced broadband infrastructure can be a powerful tool in the pursuit of gender equality.
WHY IS SUSTAINABLE AND QUALITY INFRASTRUCTURE CRITICAL FOR GENDER EQUALITY?

A mobile phone for women and girls. For example, for women in China and Mexico, harassment is among the top barriers in owning and using a mobile phone. Women and girls using the Internet can be exposed to additional risks, including cyberstalking, online harassment or even sexual trafficking, and it thus becomes crucial to develop measures to protect and prevent gender-based violence online. The European Institute for Gender Equality estimates that one in ten women have already experienced a form of cyber violence at the age of 15. The paucity of data that exist calls for the need to collect harmonized data, on a recurrent basis, related to cyber violence against women and girls, for effective actions to be designed and implemented and progress monitored (c.f. OECD, 2018a).

Enhanced and gender-sensitive applications on top of the infrastructure layer are critical, as are policy interventions addressing long-term structural biases. For example, applications (apps) such as the “SafetiPin” in India could contribute to address issues related to sexual harassment, and to improve security for women in India by helping them navigate the city with less risk. In addition, similar apps could provide the aggregated data from its users to local governments and planners to improve services and make cities safer for women.

Women as contributors

Women can play an active role in decision making related to digital infrastructure and help shape the future infrastructure landscape. However, women are currently under-represented in ICT jobs and top management, and men are four times more likely than women to be ICT specialists. At 15 years of age, on average in OECD countries, only 0.5% of girls wish to become ICT professionals, compared to 5% of boys (OECD, 2018a). Perhaps unsurprisingly, there are also fewer female entrepreneurs in the ICT sector – and those women that do start ICT businesses face socio-cultural gender biases when raising capital (OECD, 2018e).

Yet, women can be crucial contributors to expanding access and use of broadband networks in underserved areas. In India, Wireless for Communities (W4C) fostered the creation of women “barefoot network engineers” and “wireless women entrepreneurs” in communities to help transfer knowledge and develop local content. This project helped to raise women’s empowerment and to create safe spaces, while also making these networks more socially viable by demystifying technology and transferring the control, management and ownership of the technologies to the community (Srivastava, 2018).

The use of Internet, digital platforms, mobile phones and digital financial services can help women earn additional income, increase employment opportunities, and access knowledge and digital government services.
WOMEN AND SUSTAINABLE TRANSPORT

Access to reliable, safe and affordable transport is indispensable for people’s participation in social and economic life, and is an integral part of human well-being. Men and women typically use transport differently, but in the past transport policies have not considered gender-specific patterns of transport use (Sarmiento, 1996).

Transport also accounts for about a quarter of global carbon emissions and accounts on average for 50% of pollution (particulate emissions, PM) in urban areas (OECD, 2018c). Promoting public transport and greening road, air and sea transport, is therefore essential to achieving the environmental and climate goals embedded in the Paris Agreement and the 2030 Agenda.

Women as users

Neglecting women’s preferences of transport and mobility may limit their economic participation. There is a negative correlation between commuting time and women’s participation in the labour force (Black and al, 2012). An increase of 1 minute in commuting time in metropolitan areas is associated with an approximately 0.3 percentage point decline in women’s labour force participation (Mölleryd, 2015). This reflects women’s mobility patterns: they do not simply commute but do a lot of additional travel related to household responsibilities, such as shopping and child and elderly care.

Women on average travel less often and for shorter distances than men (Moriarty and Honnery, 2005) and are more willing to reduce vehicle use than men (Polk, 2003; 2004). A study of eight European and Asian cities by Ng and Acker (2018) show that women travel shorter trips on average than men, use public transport more and travel more during off-peak hours. Since women have more complicated travel patterns, involving also non-commute travel, they tend to prefer more flexible modes but, at the same time, public transport modes are also more appealing to women than to men. This implies that flexible modes, especially emerging trends such as shared mobility or mobility as a service, could attract more female than male users. When given better alternatives, women may choose to give up driving altogether. If cities want to further encourage the development of flexible and sustainable modes of transport, policies to address female users’ preferences should be implemented as women could be the main

Taking into account women’s preferences can contribute to greener and more flexible transport design. It can also pay for itself via increased labour force participation by women, and hence higher tax revenues.
users. Taking into account women’s preferences can therefore contribute to greener and more flexible transport design. It can also pay for itself via increased labour force participation by women, and hence higher tax revenues.

In general, despite the evidence on women’s specific travel preferences, most cities do not have transport design programmes that take women’s needs and preferences into account. One city that has done so is Vienna. Prompted by a survey in the late 1990s on the use of public transport by men and women, data is now collected to determine how different groups of people use public transport and spaces before an infrastructure project gets underway (Foran, 2013).

Transport safety and security are also key factors in determining women’s mobility preferences and choices, notably in urban areas where more women than men use public transport and heavily depend on these systems for their mobility needs. Examples provided in the ITF’s Compendium on Women’s Safety and Security: A Public Transport Priority (2018) show that a large majority of women worldwide feel unsafe in public transport and have been victims of some type of physical or verbal harassment and other forms of violence in public spaces. As a result, women often prefer driving when faced with a modal choice, using taxis or other forms of for-hire ride services rather than walking, cycling or using public transport.

For instance, a 2018 survey (D-CYFOR) reports that 28% of women who had used public transport in London in the past 12 months had experienced unwarranted staring, sexual comments, bodily contact, wolf-whistling and exposure. In a survey of Latin American countries, six-in-ten women say they have been physically harassed while using public transport. The statistics are alarming in many Asian countries as well. Women in Bangladesh face high levels of inequality in livelihood opportunities and access to economic assets. According to estimates, around 94% women commuting in public transport have experienced sexual harassment in verbal, physical or other forms. In Jakarta nearly 90% of women found the safety of trains to be poor or very poor, whereas only 35% of men held a similar concern for security (Turner, 2013). Another aspect of safety where women’s needs are often ignored is the resilience of vehicles in case of accidents. One study has estimated that women are 47% more likely to have severe injuries in car accidents as they are not adapted to women’s bodies (Bose et al, 2011).

Women as contributors

The transport sector remains a male-dominated sector. In Europe, the transport workforce is 22% female despite women accounting for 46% of the total workforce. As for the Asia Pacific region, in the 21 APEC economies, women are typically found in fewer than 20% of transport jobs (APEC, 2017). The ratio becomes more important when it comes to senior leadership positions: in the transport, logistics and infrastructure sector, women fill only 14% of them the United States (McKinsey & Company, 2018). Globally, women held only 19% of public service leadership positions in 2018 and females only make up 18% of staff in infrastructure ministries (energy, transport and communications) compared to 38% in socio-cultural ministries (Wilson Centre, 2018). Women are under-represented in all transport modes and across all levels of decision-making. Out of the 59 member countries of the International Transport Forum, only nine countries had female Ministers of Transport in 2018. More actions are clearly required to attract and retain more women decision makers into the transport sector.

WOMEN AND SUSTAINABLE ENERGY

Ending energy poverty while addressing the climate change commitments that go in tandem with reduced human well-being, including health concerns stemming from pollution, calls for improving energy efficiency in industrial and urban areas and providing energy access to all in rural areas and developing countries. Both require a transition to renewable energy. Men and women may use energy differently, and policies need to find solutions to reach both.

Women as users

Recent research by the International Energy Agency (IEA, 2017 and 2018) finds that the most cost-effective strategy for ending energy poverty, providing universal access to electricity and clean cooking facilities in developing countries is compatible with meeting global climate goals, and would prevent millions of premature deaths each year. As women generally spend more time at home than men, they are more exposed to pollutant fuels and inadequate heating. According to the World Health Organization (WHO), over four million people – mainly women and children – die every year as a result of indoor air pollution (WHO, 2016).

Introducing clean and efficient cooking facilities would go a long way towards addressing this problem, and also help achieve climate goals, reducing greenhouse gas emissions. To provide universal electricity for all, decentralised systems, led by solar PV in off-grid and mini-grid systems, will be the least-cost solution for many regions. This shift would also benefit women the most, as it would free up billions of hours currently lost to gathering fuelwood (freeing up the equivalent of a workforce of 80 million people), reduce deaths, and damaged health from household air pollution.

Recently updated data on energy access shows the number of people without electricity access fell below 1 billion for the first time in 2017, down from 1.6 billion in 2000. While fossil fuels, mainly coal, have remained the main new source for electricity access since 2000, renewables are growing rapidly, providing more than a third of new connections in the last five years. This shift is expected to accelerate in coming years, and by 2030 renewables are set to provide new electricity access for three-quarters of the additional connections needed, according to the IEA report.

The report estimates that providing universal access to energy by 2030 would require an additional investment of USD 31 billion annually, equivalent to less than 2% of global energy investment. The overwhelming majority of this extra investment would need to be directed to sub-Saharan Africa, and most of it to renewables. Of this, the investment required for clean cooking facilities would amount to less than one-tenth of the total.
Women as contributors

Recent studies in Europe have shown that single men directly or indirectly use up to 22% more energy than single women (EIGE). This is of course partly related to the economic status, but attitude surveys also show that women generally are more responsible users of water and energy, and are more willing to engage in waste management and responsible consumption.

The IEA is working with the Clean Energy Education and Empowerment Technology Collaboration Programme (C3E TCP), which is part of the IEA’s technology family to strengthen the role of women in the clean energy sector. Removing barriers toward women’s active participation in sectors where they typically have been under-represented, such as the clean energy sector, requires the implementation of actions in specific areas such as data collection and knowledge building, career development, awards programmes and dialogue.

The C3E TCP launched in May 2018 the Equal by 30 Campaign, a public commitment by public and private sector organisations to work towards equal pay, equal leadership and equal opportunities for women in the clean energy sector by 2030. The Equal by 30 Campaign is bringing together leadership from across the energy sector to galvanise action, and helps all players – from private sector companies to governments at all levels – take action together.

A GENDER PERSPECTIVE ON WATER AND SANITATION

Clean water, hygienic sanitation and good water resources management are fundamental to human health and are key elements for the sustainability of the global ecosystem. Access to safely managed water and sanitation for all also lead to higher economic productivity and health-care savings. In most societies, access to water, sanitation and hygiene (or lack thereof) affect women and men differently, hence the need to look for tailored solutions to address these issues.

The Human Right to Water and Sanitation has been recognised by the United Nations General Assembly, but has yet to become a reality for a substantial share of the population. According to the WHO and UNICEF, as recently as 2015, 2.1 billion people still lacked access to safely managed drinking water services and 4.5 billion lacked access to sanitation compatible with the objectives laid out in SDG 6: the achievement by 2030 of universal and equitable access to safe and affordable drinking water for all (Target 6.1), and access to adequate and equitable sanitation and hygiene for all, paying special attention to the needs of women and girls and those in vulnerable situations (Target 6.2).
Women as users

Inadequate access to water, sanitation and hygiene facilities disproportionally affect poor women and girls, constraining their educational pursuits, economic productivity and often putting at risk their personal safety. A recent WaterAid and UNICEF report showed that around one in three girls in South Asia are missing school days every month, in part because they have no privacy and are unable to wash their hands after changing sanitary towels or pads. A recent study in two rural Indian watersheds, in Gujarat and Rajasthan, found that women travelled an average of three times per day to collect drinking water, depending on the season and that they spent around 50–77 minutes per trip (Varua et al. 2018). An analysis of 25 countries in sub-Saharan Africa (representing 48% of the region’s population), shows that women and girls bear the primary responsibility for water collection in areas where water supplies are not readily accessible (UNDESA, 2012).

Many workplaces in developing countries also lack adequate sanitation facilities, affecting time use, productivity, and employment decisions, especially of women. Having to walk to use distant toilets or open spaces, especially at night, puts women and girls at the risk of physical attack and sexual violence (Sida, 2015).

Women as contributors

Women can play an important role in household and community decisions to improve access to adequate water supply and sanitation. Further, women play a key role in the effectiveness of efforts to prevent risks related to water-related disasters (such as floods, storms and drought) and post-disaster recovery as they typically play key roles in household management (Sida, 2015).

Where opportunities exist, women often take a proactive role to improve access to water and sanitation services for their families or business. This may include accessing microfinance to build a connection to safe water supply or sanitation near the home. These financial solutions have potential to reach significant scale. For example, through specific products and tailored support to financial institutions, Water.org has recently surpassed USD 1 billion in private finance mobilised via microloans for water and sanitation, many of which taken on by women (OECD, 2018d).

International policy discussions have recognised the importance of the gender dimension of water and sanitation, but much more must be done to understand the issues and scale up practical solutions to achieve progress on the ground.

WOMEN AND URBAN AND SETTLEMENT DESIGN

Urban and settlement design, including housing, is at the core of social and economic interactions in societies and communities. ACCESSIBLY to social and economic infrastructure (education, labour opportunities, health services, childcare facilities, green commons, cultural or religious institutions etc.) have an import impact on human physical and mental health. Different social roles and physical needs of men and women call for taking into account gender when shaping cities and other settlements. Safety is another major aspect that affects men and women differently in cities and settlements.

An advantage of women’s involvement in the governance of city infrastructure is their greater sensitivity to environmental risks.

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2. See, for example, outcomes from the 1981-90 International Drinking Water and Sanitation Decade; the 1992 International Conference on Water and the Environment in Dublin; the 2010 Resolution (64/292) of the United Nations General Assembly on access to clean water and sanitation as a human right.
Cities also account for 70% of the total global carbon emissions, mainly from transport and buildings (UN Environment). Pollution from transport, buildings and power generation is also a major health risk, accounting for more than 7 million deaths a year. (WHO, 2018).

**Women as users**

Conditions in many cities hinder gender equality, even in better-off households. Typical city design, with segregated areas for residences, workplaces and shopping, reflects the one-earner household paradigm and smaller cities of the 20th century; commute time between these areas makes it particularly difficult for a single individual to take on a double or triple burden of childcare, breadwinning and elderly care. Due to societal norms, women are more likely to be obliged to stay at home as primary caregivers in residential areas. Women are also more often than men obliged to combine multiple jobs, and more often lead to single-parent households. For instance, in the United States 6.7% of women aged 20 to 24 work multiple jobs compared to 4.6% of men in the same age group (Wilson, 2015). In addition, 80% of custodial parents are mothers (Grall, 2015).

Air pollution may also affect differently men’s and women’s health. A US study shows that air pollution is as bad as smoking in raising the risk of miscarriage (Leiser et al, 2019). A 10-ppb increase in 7-day average levels of nitrogen dioxide was associated with a 16% increase in the odds of spontaneous pregnancy loss. Pollution can also affect women’s labour force participation indirectly, because of their role in childcare. In Santiago, Chile, high pollution days (over 100 μg/m3) are common and double the gender gap in working hours as women are more likely to stay at home with their children (Montt, 2018).

Women and children are also particularly affected by natural disasters, accounting for more than 75% of displaced persons. In addition to the general effects of natural disaster and lack of health care, women are vulnerable to reproductive and sexual health problems, and increased rates of sexual and domestic violence. Moreover, traditional gender roles dictate that women become the primary caretakers for those affected by disasters – including children, the injured and sick, and the elderly – substantially increasing their emotional and material workload (WHO).

**Women as contributors**

While women account for a large proportion of employment in the public sector in regional and local governments, they are underrepresented in decision-making responsibilities. Few capitals in the world have women mayors, but often those that do – for example, Madrid, Paris and Singapore – have put sustainability and inclusiveness at the core of their agenda.

An advantage of women’s involvement in the governance of city infrastructure is their greater sensitivity to environmental risks. For example, in the city of Kitakyushu, Japan, the active role of women’s associations in the 1970s led the city on a new path of sustainable development, due to their heightened apprehension about the health risks caused by the city’s industrial structure. The movement towards a more environmentally friendly economy, combined with the need to rethink the industrial structure of the city due to the crises of the steel industry, brought Kitakyushu towards new industries, including assembly and automobile industry, renewable energy and recycling industry.
Increased labour market participation, reduced women’s vulnerability, and greater social and environmental protection, leading to increased well-being for all. Infrastructure also tends to be a male-dominated industry, in part because traditionally it involved heavy manual input. Gender-aware infrastructure governance can be a catalyst for having infrastructure projects that are responsive to social needs and create social benefit by actually fulfilling their final objectives. In order to achieve this, infrastructure governance must not only ensure gender mainstreaming throughout the governance cycle and financing; it must include a gender lens in strategic planning, consultation process, project implementation, coordination across levels and entities of government, adequate use of data and monitoring operational quality. Such mainstreaming is key for sustainable economic and social outcomes of these projects, such as increased labour market participation, reduced women’s vulnerability, and greater social and environmental protection, leading to increased well-being for all.

Including a gender perspective from an early stage allows projects to be planned, prioritised, delivered and managed in consideration of women’s and children’s needs and their interlinkages with other objectives. It is equally important to ensure the participation of women throughout the entire cycle of the infrastructure project, including in the consultation and decision-making process, to achieve better outcomes for all.
The strategic long-term vision needs to have a joint gender-sustainability perspective, allowing infrastructure to be planned, prioritised, delivered and managed in consideration of women’s and children’s needs and their interlinkages with other sustainable development objectives.

In recent years, the national governments or/and parliaments in some countries such as France, Iceland, Norway, Finland, Spain, Sweden and New Zealand have made major advances towards gender balance. For instance, gender quotas legislate for a 40% female presence in Norway’s parliament and on business boards. In all these countries, the drive for greater gender equality in the legislative and executive powers has been accompanied with a greater policy focus on inclusiveness, sustainable development and climate change as core government priorities.

There are five elements of the OECD Framework for Better Governance of Infrastructure that are particularly relevant to achieve this objective: (i) a strategic vision for infrastructure; (ii) integrate a consultation process; (iii) co-ordinate infrastructure policy across levels and entities of government and; (iv) generate, analyse and disclose useful data; (v) asset performance throughout its life cycle (OECD, 2017).

1. **A STRATEGIC VISION FOR INFRASTRUCTURE**

Designing a strategic vision for infrastructure is crucial since it allows setting a long-term vision that informs the decision-making process for future infrastructure according to what social needs are going to be addressed. The strategic long-term vision needs to have a joint gender-sustainability perspective, allowing infrastructure to be planned, prioritised, delivered and managed in consideration of women’s and children’s needs and their interlinkages with other sustainable development objectives, such as reducing pollution and fighting climate change.

Moreover, including a gender perspective in the strategic planning process might also help to outgrow the political and short-term arguments to allocate resources in a gender-biased way (such as political cycles and social dynamics). It can also be a key element to foresee coming demographic features and imbalances helping to prevent that the gender gap grows and is transferred to new generations (transfer of the intergenerational gender gap). The presence of women in leadership and decision-making positions at all levels of government is critical to achieve this goal.

2. **INTEGRATE A CONSULTATION PROCESS**

Involving stakeholders such as users, men and women, civil society organisations, including gender-related groups, and the private sector can improve legitimacy, buy-in, project quality, and ultimately the effectiveness of infrastructure assets and services. To ensure the participation of women throughout the entire cycle of the infrastructure project, including the consultation process, would help to incorporate their perspective from the very start of the project. Including a gender perspective in the vision of the project itself, would allow to foresee its implications for women and, accordingly, make a better assessment of the investment needs of the project and its sustainability. Given women’s heightened sensitivity to environmental risks, the involvement of women in consultations can also ensure that resources and policies are more supportive of sustainable infrastructure.

This two-way flow of information may allow having access to timely inputs (decreasing future transaction costs), enhance the legitimacy of the project amongst the stakeholders and bring a sense of shared ownership. As stated in the Framework, public consultation also creates opportunities for communities and social groups to become advocates of their benefits and provides incentives for good performance (OECD, 2017).
3. CO-ORDINATE INFRASTRUCTURE POLICY ACROSS LEVELS AND ENTITIES OF GOVERNMENT AND ENSURE POLICY COHERENCE

Addressing the gender gap requires a shared and co-ordinated vision across all levels (vertical) and entities (horizontal) of government. A gender perspective must be fully integrated in the national and subnational infrastructure perspectives, projects and programmes, in order to have a holistic and coherent policy approach that takes into account the trade-offs and complementarities (including transgenerational, gender and environmental implications).

In that sense it is necessary to: 1) advance national social policy and women’s well-being objectives with sustainability goals in mind; 2) tackle the gender imbalance in access to resources, asset control and public and private governance, with a specific focus on the utilities, energy and transportation sector and; 3) address the gender and sustainability impact of transboundary policies (trade, investment, water management, migration, etc.), cross-border corporate activity and other spill-over effects.

4. GENERATE, ANALYSE AND DISCLOSE USEFUL DATA

Putting in place systems that ensure a systematic collection of relevant data and institutional responsibility for analysis, dissemination and learning from this data is another challenge identified in the OECD Framework for the Governance of Infrastructure. In the absence of (or in combination with) formal data collection, crowd-sourced mapping could provide useful insights.

The collection of data that would allow for an analysis with a gender perspective could help improve and reinforce all of the three previous points: it would contribute to a better understanding of the social needs based on gender, the results and impacts of the infrastructure projects to each gender, and improve internal governance processes with a gender perspective. In that sense, collected data should include a results and impact assessment with a gender perspective, allowing the unveiling of secondary and unseen effects, including regarding the differential impact of pollution, climate change, biodiversity loss and other forms of environmental damage on women.

5. MAKE SURE THAT THE ASSET PERFORMS THROUGHOUT ITS LIFE CYCLE

There are multiple entry points to introduce a gender and sustainability perspective into the life-cycle of an infrastructure project. As it can be difficult to maintain performance and value for money of infrastructure service delivery, it will be equally difficult to maintain a gender responsive performance of infrastructure services. The responsibility for identifying potential problems concerning the gender challenge during the operational phase of the infrastructure project should be clearly defined and mechanisms need to be in place to monitor, communicate and address potential shortcomings.

Investors have a clear responsibility in this regard to ensure the monitoring of infrastructure projects to ensure that they meet sustainability and gender goals. Their monitoring role extends to the global supply chains and the behaviour of suppliers towards women employees and the environment all along the chain.

Investors can also make use of strategies, such as impact investment, which seek to deliver improvements in well-being of vulnerable groups, including women and children, providing employment and training opportunities while protecting the environment.
What should policymakers do?

While there is increasing awareness of the differential gender impact of infrastructure projects, few countries have so far advanced an integrated gender-sustainable infrastructure agenda or carried out effective mainstreaming in a sector that is essential for the well-being of women and families and for sustainable development. In fact, infrastructure projects still most often are made to cater for the average working person, which traditionally tended to be male, and take little account of the different use and access needs or preferences, by gender.

A first step in building the case for applying a gender lens in infrastructure projects involves putting in place systems that ensure a systematic collection of relevant gender disaggregated data (usage and provision) on access to and use of infrastructure by its type – such as transportation, energy, water and sanitation, digital, safety and resilience, financial, health, education, culture, green spaces, etc.) to inform infrastructure project planning and design.

A second step is developing frameworks for infrastructure design that take into account interlinkages between infrastructure and women’s and men’s well-being as well as societal goals regarding environmental protection and spatial planning. As part of this process, there is a need to undertake a gender analysis during project development and design phases, as well throughout the project life cycle. Such analysis should be linked to the strategic vision for infrastructure, which should include gender-specific priorities, needs and usage of different facilities (e.g., water, energy or health facilities) as well as environmental objectives. This demands also understanding trends such as urbanisation, changes in women’s participation in the labour force, the growth of part-time employment, the trend to single parent households, and migration. An integrated agenda must also focus on necessities, especially in developing countries, given infrastructure’s potential to bring about massive improvements in the well-being of girls and women, while ensuring more sustainable development.
There is also a strong potential in using government tools such as gender-smart procurement and gender budgeting to enable gender-sensitive infrastructure projects (by better taking into account the needs of different groups of population in procurement decisions, greater gender balance in evaluation panels for specific bids or infrastructure related contracts, etc).

A third step is the “how”, and involves addressing the gender sensitive governance deficit in decision-making and throughout the value chain of infrastructure projects. This requires reviewing the presence of women in decision-making positions in both the public and private sectors, in particular ministries of planning and infrastructure, but also at different levels of government, as well as boosting women’s presence in the boards and top management positions of infrastructure companies. It is essential that women are well represented in the public positions that matter for decision-making all along the infrastructure investment cycle in order to ensure that infrastructure projects take into account the different needs and use of infrastructure by different groups of women and men, as well as environmental considerations. It also requires well-developed consultation processes that engage women from different socio-economic backgrounds.

The private sector plays a central role by ensuring responsible business conduct within and across borders, respecting basic human rights, promoting equal labour rights between men and women, improving working conditions for women and avoiding negative environmental externalities, both within the company and along its supply chain. For example, infrastructure companies should be aware of gender issues when operating in contexts where women face severe discrimination or where enterprise activities significantly affect the local economy, environment and access to land and livelihoods. Infrastructure companies also have a responsibility to ensure that women employees are offered opportunities for training and career development opportunities.
How can the OECD help?

The OECD is well placed to help countries implement this integrated agenda by building on various axes of work. First, the OECD has two recommendations that promote gender equality, the 2013 OECD Recommendation of the Council on Gender Equality in Education, Employment and Entrepreneurship, and the 2015 Recommendation of the Council on Gender Equality in Public Life. Second, the OECD is advancing Gender Mainstreaming via its Toolkit for Gender Mainstreaming and the OECD Gender Policy Platform: Accelerating Gender Mainstreaming through the SDGs, which can be tailored to the infrastructure sector. Third, the OECD is advancing policies to enhance the quality, sustainability and responsible use of infrastructure, building on the OECD Framework for the Governance of Infrastructure; the OECD’s Horizontal Project on Sustainable and Quality Infrastructure; the OECD Council Recommendation on Water; the 2016 OECD Guidelines for Multinational Enterprises, including OECD Guidelines for Responsible Investment and OECD Due Diligence Guidance for Responsible Business Conduct.

Future OECD work in this area will aim to the research and policy agenda along three axes. First, current data collection exercises will be expanded to obtain a gender perspective of access to and use of infrastructure (broadly defined) across and within countries as well as on the implications of infrastructure development for women’s health and the environment. Such work could be launched as part of the OECD’s Horizontal Project on Sustainable and Quality Infrastructure. Second, the OECD Framework for the Governance of Infrastructure could be extended or complemented with specific guidance (e.g. a toolkit) in order to incorporate a gender perspective. Similar adjustments could be made to sectoral guidance, for the transport, energy and water sectors, among others.

The OECD could also support countries in reviewing their infrastructure strategies to align them the gender-sustainability nexus. A third line of work could involve active engagement with governments and the private sector to increase women’s representation in infrastructure decision-making processes and the application of the gender chapter of the OECD Due Diligence Guidance for Responsible Business Conduct.

Finally, there is a need to consider a broad, global partnership to accelerate this agenda, engaging with the UN family, other international organisations, MFIIs, private corporations and civil society to accelerate transformations in society and economic processes to deliver on the gender equality and sustainability goals.
References


Wilson Centre (2018), Roadmap to 50x50: Power and Parity in Women’s Leadership.
Sustainable Connectivity
Closing the Gender Gap in Infrastructure

Good quality and sustainable infrastructure that meets the needs of women, men, children, minorities, people with disabilities and other vulnerable groups is essential for human well-being, economic growth and environmental sustainability. This Policy Paper shows how women and men may use infrastructure differently according to their needs, social roles or preferences. Building on OECD policy tools and several axes of work, it provides a framework to help countries align their infrastructure policies and projects with other societal and environmental goals, including supporting gender equality.

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For more information:

sigita.strumskyte@oecd.org

http://www.oecd.org/environment

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