



**Infrastructure
for gender
equality
and the
empowerment
of women**

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Foreword



Ms. Grete Faremo
Under-Secretary-General and UNOPS Executive Director

Around the world, too many women and girls miss out on opportunities to improve their lives for a simple reason: the infrastructure around them isn't built with their needs in mind.

Dark, unlit roads and inadequate sanitation facilities mean that women miss out on work or education. Unsafe public transport, where sexual harassment and violence can happen frequently, stops girls from achieving their dreams. Hospitals built without reliable electricity supply and unsafe maternity wards result in many tragic and preventable deaths.

When infrastructure sources are scarce, it hits marginalized groups such as women and girls much harder. They bear the burden of unpaid work, and inadequate infrastructure exacerbates their time poverty, leaving them with fewer opportunities to pursue jobs or education and improve their status.

This needs to change.

Our world's infrastructure needs are immense, and the impact of what we build now lasts for decades. If we build to discriminate, we perpetuate inequality for a long time to come. With an estimated \$97 trillion in global infrastructure investment required to meet sustainable development targets, we have a moral

as well as financial responsibility to ensure that this massive investment leaves no one behind. We simply cannot afford to turn a blind eye on gender-blind infrastructure.

To make infrastructure work for everyone, we need to fundamentally change the way it is planned, delivered and managed. That change begins with inclusive design that ensures our infrastructure works for everyone, including women, girls and other disadvantaged groups. The sheer volume of existing infrastructure that has been designed in a manner that fails to consider the specific needs of this group is alarming. This must stop, and it must stop now to make certain that women and girls are not left behind as the world develops.

This report forms part of a broader effort – by UNOPS and others – to shift the paradigm to ensure that gender is mainstreamed into all stages of the project life cycle, beginning with design.

In shedding light on the problem of gender-blind infrastructure, and developing tools and methodologies to help address the problem, the report hopes to be part of the solution to creating gender-responsive infrastructure that gets us all one step closer to realizing the 2030 Agenda.



Phumzile Mlambo-Ngcuka
Executive Director of UN Women

If we can get infrastructure right, we can make a huge difference in the lives of women and girls, especially those who are currently left furthest behind. If the roads and transport systems safely connect their homes, schools, fields and markets; if power and water provision to homes stops the need for outside collection; if there is universal connectivity to the digital society; and if there is a social services infrastructure that supports families with care – these changes would transform the opportunities open to women and girls.

Realizing the 2030 Agenda means understanding the multiple dimensions that shape women's poverty. Without support, their responsibility for unpaid care and domestic work limits their access to decent work, education and healthcare and stunts their life trajectory. It is no coincidence that gender gaps in poverty are at their widest amongst women between the ages of 25 and 34 years. This is a time when many women have young children and struggle to balance the competing demands of children and paid work. This struggle is even more intense in low-income contexts where infrastructure is missing.

Greater investments in basic infrastructure, such as a continuous supply of piped water and electricity

in the home, are a key part of breaking the vicious cycle of women's time and income poverty. When investments in infrastructure are gender-sensitive, well-designed and implemented, they not only save women time but can generate employment opportunities and boost their incomes. Coupled with time-saving public services, including childcare and transport, and universal social protection systems, such as paid maternity and parental leave, and child and family transfers, inclusive infrastructure would make a major contribution to women's and girls' daily lives and expand women's earning opportunities. Well planned infrastructure is also vital for women's safety, with well-lit streets and transport plans that minimize risks for women and girls travelling alone and support decisions to commute and take on journeys for education or leisure.

This report shows how reflecting women's rights and realities in the planning, delivery and management of infrastructure projects that impact their lives can help to narrow gender inequalities. Moving away from gender-blind infrastructure design to one that ensures responsiveness to women's rights and needs is essential not only to eradicate poverty, but to reignite and accelerate progress for the achievement of the 2030 Agenda as a whole.



Note on COVID-19

Women and girls are particularly exposed to the effects of the COVID-19 pandemic – economically, socially and health-wise. Many women have less job security and less access to social protection than men, making their livelihoods more likely to be affected by lay-offs. In particular, lay-offs in many countries have been focused on the services sector, where the majority of workers are women. This reduces their opportunities to support their families. The pandemic is also causing a rise in gender-based violence, increased demand for domestic and unpaid work (largely carried out by women and girls) and may impact the availability of sexual and reproductive health services as well. These effects are further intensified for women and girls in disadvantaged positions, such as those living in fragile settings.¹

Poor infrastructure can worsen the impact of crises like the COVID-19 pandemic. Gender-blind infrastructure, in particular, does not consider the needs of women and girls; this can limit their access to critical resources such as clean water, proper health and sanitation services, and digital communications technology. Combined with local norms and restrictions, gender-blind infrastructure can deepen inequalities, leave women and girls more vulnerable, and potentially put their lives at risk during times of upheaval.

These considerations must guide our actions as we respond to this pandemic in both the immediate and long-term. This report outlines the ways in which infrastructure can both hinder and support gender equality and highlights the importance of taking gender into account throughout the design, construction and management of infrastructure. Moving forward, this will be crucial in ensuring the safety and development of all — women, girls, men and boys — not just in ordinary circumstances, but in challenging times as well.

Introduction

Women and girls experience numerous barriers when trying to access basic services – such as education and healthcare – or opportunities to improve their livelihoods. While gender equality implies equal rights, responsibilities and opportunities for women, men, boys and girls, women and girls are disproportionately affected by persistent gender inequalities when accessing infrastructure.¹ This is particularly apparent in times of crisis like the COVID-19 pandemic.

However, not all women and girls are equal or equally disadvantaged. The extent to which they are at risk of being excluded depends on where they lie at the intersection of different underserved, disadvantaged or marginalized groupsⁱⁱ in any given context. The implications of this intersectionality need to be understood and recognized. Inclusive infrastructure that addresses these barriers and accounts for diverse needs can enhance access to quality services and development opportunities for the broadest segments of society, especially the underserved, vulnerable and marginalized groups.

Underdeveloped and gender-blind infrastructure is one of the leading causes for the inability of women and girls to access the basic services to support their upward social mobility and reduce the gender gap. Gender-blind infrastructure fails to consider the different roles, responsibilities and particular needs of women, men, girls and boys in a specific context and how this affects their ability to use or access infrastructure. In times of crisis, this can have life-threatening consequences for women and girls. They are at risk not only from poor health infrastructure, but from inadequate infrastructure across all sectors, which can limit access to essential services and prevent them from maintaining security and self-sufficiency during social and economic upheaval. These considerations must guide future infrastructure development.

Approximately 2.1 billion people lack access to safe drinking water and 4.5 billion lack access

to sanitation,² while 975 million people do not have access to electricity and 1 billion lack access to all-weather roads globally.³ The burden of underdeveloped and non-inclusive infrastructure falls disproportionately on vulnerable and marginalized groups, especially women and girls. In this daunting context, inclusive infrastructure planning, delivery and management plays a key role in creating an enabling environment to empower women and girls to make effective choices and transform those choices into effective outcomes – including when it comes to their safety and wellbeing.

Infrastructure development and service delivery is a critical public policy and investment area in many developing countries. It is estimated that \$97 trillion in global infrastructure investment is required by 2040 to support sustainable development;⁴ two-thirds of which is required in developing countries.⁵ Considering the long operational life of infrastructure, not mainstreaming gender in the infrastructure life cycle can reinforce gender inequalities for decades, wasting limited financial resources and putting lives at risk. It is a moral and financial imperative to ensure that this massive investment includes a gender mainstreaming approach to infrastructure planning, delivery and management to achieve sustainability, equality, and economic and social benefits for all.⁶

There is a lot to be gained by ensuring equal access to infrastructure services for women and girls. Not only will it improve and protect the lives and livelihoods of women and girls, but will benefit the entire global economy as well. Numerous studies have demonstrated the social and financial advantages of improving gender equality and empowering women.^{7,8,9} In particular, it is estimated that approximately \$28 trillion could be added to the annual global GDP in 2025 by achieving the equal participation of women and men in the economy.¹⁰ Ensuring equal access to infrastructure services is a critical step to close the gender gap.

To make certain that infrastructure development supports equal access to infrastructure services, driving increased economic opportunities for women and girls, the global community needs to step up and change the way infrastructure is planned, delivered and managed. This requires cross-disciplinary cooperation that spans the entire infrastructure life

cycle where each participant asks: “Will this support all end users?” If the answer to this question is no, participants must work together to find a solution.

While all disciplines have a role to play in mainstreaming gender considerations across the infrastructure life cycle, infrastructure designers have the largest role in ensuring that the infrastructure they design is inclusive, i.e., reflects the needs of all groups in society, including women, girls and other disadvantaged groups. Our existing infrastructure has far too often been designed without considering their needs. This needs to change, urgently.

Incorporating a gender mainstreaming approach into the infrastructure life cycle, starting in the design stage, is part of the current paradigm shift encouraged by UNOPS. On this premise, UNOPS is establishing dialogues with national and local governments, as well as other development partners, to understand how to limit barriers and maximize benefits for all end users when developing and implementing infrastructure projects.

To support this paradigm shift, UNOPS has developed – and is currently implementing – a series of methodologies and tools based on the evidence-based infrastructure (EBI) approach, helping governments assess and improve their capacity to plan, deliver and manage infrastructure systems. This includes identifying actions to mainstream gender in infrastructure projects, understanding priority areas for intervention and assessing the level of sustainability, efficiency and resilience of existing infrastructure assets and systems. The tools and methodologies that have been developed to support gender mainstreaming in infrastructure are the *sustainABLE* tool and the Capacity Assessment Tool for Infrastructure (CAT-I), which are discussed in detail in the final section of this report.

By identifying the challenges women and girls face, this report aims to inform future infrastructure decisions – to increase resilience, provide equal opportunities and, in the long-term, create a world where gender equality is not only the norm, but can also be upheld in times of crisis and beyond.



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i. Gender refers to the roles, behaviours, activities and attributes that a given society at a given time considers appropriate for men and women.
ii. Some of these include low-income, differently-abled, elderly, indigenous peoples and children



Infrastructure as an agent for change

Infrastructure holds a key role in the functioning of our world, enabling access to basic services, livelihoods and development opportunities for all. It fosters inclusive growth and maximizes positive impacts, such as improved well-being, sustainable development and the empowerment of women and girls. When planned, delivered and managed following a gender mainstreaming approach, it addresses the gender-based barriers impeding access to services. Incorporating the diverse needs of women and girls in infrastructure development empowers them by incorporating their voices into the decision-making process.

The importance of infrastructure for development and for gender equality and the empowerment of women is demonstrated by its ability to influence the Sustainable Development Goals (SDGs). The recent UNOPS and University of Oxford joint publication entitled *Infrastructure: Underpinning Sustainable Development* shows that infrastructure can positively

influence the achievement of 92 per cent of targets across all 17 SDGs.¹¹ However, it is also true that poor infrastructure can negatively affect the achievement of all goals and lock in these negative impacts for decades. Furthermore, infrastructure influences the achievement of all of the targets within SDG 5, 'Gender Equality', and the 32 SDG targets across 11 of the 17 goals that include a direct reference to gender-related issues.¹²

Inclusive and gender-responsive infrastructure is central to achieving international commitments on gender equality and the empowerment of women and girls. These international commitments include the Convention on the Elimination of all Forms of Discrimination Against Women,¹³ Beijing Declaration and Platform for Action,¹⁴ the Commission on the Status of Women,¹⁵ the New Urban Agenda¹⁶ and the Sendai Framework for Disaster Risk Reduction 2015–2030.¹⁷

Given their long lifespan and high cost, infrastructure systems should be planned, implemented and managed to be sustainable, resilient and inclusive in order to prevent negative impacts that could last decades. Only through sustainable, resilient and inclusive infrastructure can we effectively address the problems of a growing global population, resource scarcity and increasing risk from natural hazards caused by climate change and ensure gender equality and equal access to opportunities for all. Furthermore, given the enabling nature of infrastructure, inclusive infrastructure development in one sector can have a multiplier effect on the delivery of other infrastructure sectors (e.g., energy can improve the delivery of education and health services).¹⁸

Infrastructure systems are sustainable when they are able to limit the negative – and increase the positive – social, economic and environmental impacts on the communities and individuals they serve. For example, the planning and implementation of renewable energy infrastructure that contributes to the reduction of greenhouse gas emissions and pollution also has a positive impact on women's time poverty and health due to the advantages of electricity for domestic activities and replacing the use of biomass fuels for cooking.¹⁹

When infrastructure systems fail, women and girls are usually disproportionately affected by the loss of infrastructure services.

Infrastructure systems are resilient when they are able to withstand shocks and stresses from the environmental, economic and societal context. Infrastructure resilience is particularly critical for women because, when infrastructure systems fail, women and girls are usually disproportionately affected by the loss of infrastructure services. For instance, in the 2004 Indian Ocean tsunami, female deaths outnumbered male deaths by a huge margin in India, Indonesia and Sri Lanka. Because women were the primary household caregivers, they stayed behind to care for children and other family members in houses that were not designed to withstand the shocks of the tsunami, resulting in greater female casualties.²⁰ In the 1991 cyclone and floods in Bangladesh, the death toll among women was five times higher than men. One of the leading causes of this disparity was that the design of the cyclone shelters was not gender-sensitive, discouraging women from seeking shelter during the cyclone. They lacked gender-sensitive sanitation facilities, ramps for heavily pregnant women and private spaces for lactating mothers.²¹

Infrastructure is inclusive when it is planned, designed, implemented and managed with a focus on the needs of all end users, especially vulnerable or marginalized groups such as women, youth, the elderly and persons with disabilities. One of the barriers to inclusive infrastructure is the predominance of men in infrastructure development-related professions. For example, in the European Union's urban public transport sector, women represent only 17.5 per cent of the workforce on average across countries.²² In the water, sanitation and hygiene sector, less than 16.7 per cent of the labour force in a study of 15 developing economies comprise female professionals.²³ The absence of female professionals, particularly in the planning and design of infrastructure, can contribute to the

creation of infrastructure that is gender-blind and does not consider the specific needs or use patterns of women and girls. This can lead to negative impacts and missed opportunities for individuals and communities whose lives infrastructure seeks to improve. Infrastructure enables services or access to services for individuals and there are almost always differentiated impacts on how women, men, boys and girls access these services due to social norms and responsibilities. Giving a voice to the needs and priorities of women and girls, alongside those of men and boys, in the planning, design and management of infrastructure, through both consultations with diverse user groups and increasing the involvement of female infrastructure professionals, as well as implementing policies and standards to support inclusive infrastructure, can lead to gender-responsive, or even gender transformative infrastructure. Gender transformative infrastructure challenges existing discriminatory policies and practices and drives changes that improve the quality of life for all.²⁴

The development of sustainable, resilient and inclusive infrastructure requires the consideration of two interrelated topics: 1) strengthening the enabling environment for mainstreaming gender in infrastructure development; and 2) embedding gender mainstreaming activities throughout the infrastructure life cycle.

A robust enabling environment for gender-responsive infrastructure systems is based on a strong policy and legal framework, well-governed and transparent public institutions, and the presence of well-trained and knowledgeable individuals to support and implement gender mainstreaming activities within the infrastructure life cycle.²⁵ This enabling environment is critical because without it, there is no structure to define, guide and enforce gender mainstreaming activities during the planning, delivery and management of infrastructure.

Embedding gender mainstreaming activities throughout the infrastructure life cycle helps to ensure that infrastructure will not be gender-blind but will enable equal access for women, men, girls and boys. Equal access to infrastructure services supports equal opportunities for women

and girls, empowering them and decreasing their vulnerabilities.²⁶ There are several key activities to support gender equality and the empowerment of women throughout the infrastructure life cycle. For example, engaging equally with women and men community members during consultations and the decision-making process for the planning and design of the infrastructure or incorporating technical training on the operations and maintenance of the infrastructure that includes minimum quotas of women participants.

Infrastructure sectoral issues and opportunities

In many parts of the world, women and girls encounter challenges when trying to access basic services. This may be due to gender-blind infrastructure design, limited control over resources, limited mobility and freedom of movement, personal safety issues, as well as traditional roles and responsibilities in both the public and private spheres. Therefore, it is necessary to plan, implement and manage gender-responsive infrastructure that can act as an enabler for sustainable development without compromising gender equality. This requires the identification of existing differences and inequalities in the local context and addressing the different needs, responsibilities and expectations of women, men, girls and boys. By doing this, infrastructure systems can eliminate barriers and support opportunities for women and girls – such as access to livelihoods, education and healthcare.

Different infrastructure systems such as energy, transportation, water and sanitation, waste and digital communications as well as building types including hospitals, schools, housing, commercial facilities and government buildings present a wide range of challenges and opportunities to the achievement of gender equality and the empowerment of women. This section looks at themes cutting across these systems as well as the challenges and opportunities that are specific to these infrastructure systems.

Cross-cutting themes

An important issue to consider when developing gender-responsive infrastructure is the relationship between infrastructure (or the lack thereof) and how women and girls use their time. Women and

girls spend a large amount of time on unpaid domestic activities due to traditional roles as primary caregivers. In rural and economically disadvantaged areas, inadequate infrastructure services disproportionately affect their time use because they bear the burden of household tasks, like collecting water and firewood, cooking, cleaning and providing childcare. This limits the time available for pursuing educational, economic or social activities – both inside and outside the household – to improve their overall well-being. This lack of discretionary time available is referred to as time poverty.²⁷

Women can play an active role as change-makers and educators for embedding sustainability within different infrastructure sectors. In this sense, gender equality represents both a necessary component and a final objective of sustainable development. Our world cannot achieve sustainable development without closing the gender gap. When women are more involved in public administration, there is a higher likelihood of utilizing public resources for human development priorities such as child health, nutrition and access to employment.²⁸ Therefore, increasing the employment opportunities for women in the infrastructure sector can support the development of gender-responsive infrastructure that meets the needs of all end users. In addition, due to their traditional role as educators in both the household and the community, women can act as change-makers by teaching new generations how to live more sustainably, for example, by recycling waste and adapting to climate change.²⁹

Energy

Energy infrastructure projects that incorporate a gender perspective will help to achieve the goals of universal energy access, environmental sustainability and gender equality, leading to positive developmental outcomes for all. The lack of access to electricity affects 1.1 billion people globally, while over 3 billion people still rely on combustible fuels for household energy needs such as cooking and lighting.³⁰ This affects women and girls disproportionately because nonexistent or irregular electricity supply can considerably increase their time poverty, reducing the number



Giving Sierra Leone the power to change lives

Country: Sierra Leone

Partners: Ministry of Energy, UK Department for International Development (DFID – also known as ‘UK Aid’)

Duration: 2016–2022

UNOPS is implementing a rural renewable energy project in Sierra Leone with the aim of improving energy access for rural communities and rural health centres, including maternal health clinics. The benefits of the project will reach up to 360,000 people living in remote and rural areas.

The project addresses the critical need for electricity in health facilities, allowing for the proper refrigeration of medicines, the operation of medical equipment and a reliable, continuous electricity supply to provide 24-hour medical services. The provision of stable lighting has led to an increased number of women visiting antenatal and community health clinics to give birth in a safer environment, reducing the risk to them and their children.³¹

The project developed and adopted a Gender Action Plan that responded to the findings from the gender analysis and identified gender-based constraints and opportunities. Some of the gender mainstreaming interventions included consultations with women at all stages of design and implementation, and their inclusion in construction activities with provision of equal pay for equal work.

Classroom and in-the-field training was provided to seven installation teams that included women who were then employed in the installation works. As a result, they comprised 17 per cent of the total employed personnel. The selected private sector operators also focused on providing employment opportunities for women. One of the operators, Power Leone, partnered with Barefoot Women Solar Engineers to hire and train local women to assemble and install electricity metres and to become maintenance engineers, thereby providing employment and skills to female workers.

of productive hours in a day and increasing the unpaid domestic work burden.³²

The responsibility for collecting biomass fuels for cooking – such as wood, dung and crop residues – falls on women and girls in low-income rural households. On average, they spend 18 hours per week on these activities due to the need to travel long distances in search of fuel.³³ Furthermore, women and girls disproportionately suffer from adverse health outcomes due to indoor air pollution caused by the use of unclean, combustible fuels for household energy, accounting for 6 out of 10 of the 4.3 million premature deaths globally in 2012.³⁴

Mainstreaming gender considerations in electrification and the transition to clean energy is critical to address these issues, and reduce gender inequalities. The provision of electric lighting helps to lengthen the day by one to two hours, allowing women to spend more time on productive, income-generating or leisure activities.³⁵ Rural electrification projects that enable the presence of time-saving devices, such as electric water pumps and rice mills, reduce the time spent on unpaid domestic work, freeing up time to spend on other activities.³⁶ Women can also play a role in improving electricity access in rural areas through the deployment of off-grid solar solutions and solar-powered appliances.³⁷ Recognizing the role of women as primary energy users and managers in the household, energy access programs can engage women in training and awareness-building activities to improve the adoption and use of clean energy technologies, such as energy-efficient cookstoves. The provision of clean and efficient energy for cooking can not only alleviate women's time poverty, but also improve their health and quality of life.³⁸

Transportation

Gender-responsive transport infrastructure that recognizes gender-differentiated travel patterns and needs can play a pivotal role in addressing gender inequalities and improving the safety

and security of women and girls when trying to access social and economic opportunities. Unsafe and gender-blind public transportation is a major obstacle to women's mobility. Incidents of gender-based violence are frequent in areas on and around public transportation and can inhibit their use by women and girls. In France, 39 per cent of sexual assaults against women were reported in transit and train stations,³⁹ and a multi-country study from the Middle East and North Africa region found that between 40 per cent to 60 per cent of women had experienced sexual harassment on the street.⁴⁰ Furthermore, a study in India showed that women are willing to attend lower-quality colleges, spend up to twice the cost of tuition and travel up to an additional 40 minutes every day, in order to use safer transport routes or safer modes of transport.⁴¹

Women access and use public transport differently than men. They tend to have trips with multiple stops and destinations and shorter trips to scattered locations during off-peak travel times to combine the completion of their domestic and economic activities.⁴² These additional responsibilities – such as picking up children or buying household goods – mean that women may have to pass through unsafe areas, or wait for public transport in isolated places where the chances of becoming targets of violence increase.⁴³

To address these issues and create transport systems that cater to the mobility needs of all users, some countries are adopting measures to increase the safety and security of women on access routes, at waiting points and while on board public transportation. Some of these gender-responsive measures include: the use of inclusive, mixed land use planning; ensuring clear lines of sight in public spaces; improving lighting on streets and walkways, while also making them wide enough to accommodate strollers and families; ensuring waiting areas are well-lit, comfortable and safe for women; the installation of CCTV surveillance systems; the designation of women-only buses and subway/train cars; and the creation and dissemination of digital mobility safety apps.^{44, 45}



The journey to equality can start with a safe and reliable bus service

Country: Pakistan

Partners: Government of Japan, Government of Pakistan, UN Women

Duration: 2016–2019

UNOPS developed the Sakura Bus Project in order to provide safe mobility for girls and women in the cities of Mardan and Abbottabad in Pakistan. As part of the project, UNOPS delivered 14 buses meant exclusively for women and children under the age of 12. UNOPS further constructed 31 bus stops along a 10 km route in Mardan and an 18 km route in Abbottabad. Each bus stop offers seating arrangements, shade and reliable and uninterrupted electric power supply from solar panels – ensuring that the bus stops are always well-lit.

The project was designed to be self-sustaining, generating enough revenue to cover the long-term

maintenance and operation of the buses. Efforts are also underway to train and recruit women drivers who will join the conductors to run the bus service. Throughout the project UNOPS worked closely with UN Women, as well as various bodies of the Khyber Pakhtunkhwa government, to collect information on safety issues for women, such as lighting, visibility and security at bus stops. Studies were also conducted to identify user needs and to evaluate the existing transportation system, available routes and bus stops. The design and specifications for new buses and bus stops were developed by UNOPS and the Transport and Mass Transit Department of the government of Khyber Pakhtunkhwa. Gender needs were identified and considered at each stage of the project.⁴⁶

Water and sanitation

Access to clean water and sanitation services is essential for the overall health and well-being of all.⁴⁷ It is particularly crucial during health crises like the COVID-19 pandemic, when the primary method of avoiding infection is basic hand hygiene. However, in 2017, 27 per cent of the world's population lacked access to basic sanitation services,⁴⁸ which today would leave them more vulnerable to disease. Similarly, contaminated drinking water and open defecation practices considerably increase the chance of coming in contact with pollutants and pathogens in water and falling sick. Yet 785 million people still lacked access to basic drinking water services in 2017, while an estimated 701 million people still practiced open defecation.⁴⁹

Women and girls have specific needs and priorities for water and sanitation infrastructure, particularly in relation to menstrual hygiene management, pregnancy and birth. Poor quality and gender-blind water and sanitation infrastructure can have significant and lasting adverse impacts on the health and educational and economic opportunities for women and girls. For example, sanitation-related hookworm infections affect about 44 million pregnant women around the world annually.⁵⁰ Furthermore, inadequate water and sanitation facilities for menstrual hygiene management can increase the risk of urinary tract infection among women and contribute to the spread of disease.⁵¹

Moreover, as women often bear the burden of caring for family members falling sick due to unsafe drinking water and sanitation, their time poverty is exacerbated.⁵² In South-East Asia, on average women spend between three and four days of productivity per year for the care of adults and children with diarrheal diseases caused by low standards of sanitation services.⁵³

In 80 per cent of households without access to water on the premises, the daily burden of water collection falls disproportionately on women and girls, increasing their time poverty.⁵⁴ In 25 Sub-Saharan countries, it was found that while men cumulatively spend six million hours a day to collect water, women

spend nearly triple that time – equalling 16 million hours.⁵⁵ In Sub-Saharan Africa and Asia, a round trip to collect water can take on average 20–30 minutes and can take more than one hour in some countries.⁵⁶ When women and girls have the primary responsibility for collecting, using and managing water in their households, they also have significant knowledge about where to find water resources, whether it is safe for use and how to store it.⁵⁷ Unfortunately, this knowledge does not translate into a role in decision-making regarding these resources and services.

Women and girls living in rural areas or informal settlements with the absence of household toilets or communal toilets are vulnerable to gender-based violence when walking to open defecation sites or using unsafe, dark and inappropriately located toilets. In the state of Bihar in India, around 40–45 per cent of the over 870 reported rape cases in 2012 occurred when women left their homes to defecate in the open.⁵⁸ Furthermore, women and girls also lose time when seeking privacy and security to defecate outdoors, and accompanying children to defecate in safe areas.⁵⁹

Additional challenges and constraints in relation to menstrual hygiene management, and the social stigma surrounding menstruation, can further marginalize the role of women and girls in society and inhibit their access to education, healthcare services and employment opportunities. For example, in the Philippines, 20 per cent of schools do not have access to water, making it impossible for girls to wash. In Malawi, only 23 per cent of primary schools have acceptable sanitation facilities, while 81 per cent lack washing facilities.⁶⁰

In agriculture production, women often have limited control over water resources in comparison to men due to their limited access to and ownership of land in many developing countries, resulting in negative impacts on their ability to generate income from their lands.⁶¹ Land tenure security can be influenced by different customary systems, social and inheritance practices, as well as lack of documentation.^{62, 63} When women do not have tenure security, they have less incentive to invest in the necessary

CASE STUDY / Water and sanitation



Enhancing climate resilience and water security in the Maldives

Country: Maldives

Partner: US Agency for International Development (USAID)

Duration: 2014–2018

The Maldives is considered one of the most vulnerable countries to the impact of climate change, and this is compounded by its dependence on climate-sensitive industries, such as agriculture, fisheries and tourism. Freshwater sources in the Maldives are increasingly jeopardized by population growth, erratic rainfall, salinity intrusion and contamination by human waste. The scarcity of water resources can significantly affect the daily life and time poverty of women and girls, since they often bear the primary responsibility for collecting household water for drinking, cooking and washing purposes.

To support the government of Maldives in fulfilling its major priority to provide safe drinking water and safe sewage disposal systems to its vulnerable communities, UNOPS was tasked with delivering the design, construction and construction management of a complete water treatment and distribution system on the island of Hinnavaru in Lhaviyani Atoll. The requirements for this system are that it is affordable, efficient, sustainable and compliant with the principles of integrated water resource management. In order to deliver the system and make it accessible to everyone, UNOPS carried out an extensive gender analysis, analyzing the rural context gender dynamics and women's time use on fresh water collection for drinking, bathing, cooking and other purposes. Moreover, women were involved in both the consultation process and in the project workforce.⁶⁴

irrigation infrastructure even though their land is usually located further away from water sources than their male counterparts.⁶⁵ This limits the productivity of their land and makes them more vulnerable to periods of drought.

Mainstreaming gender-related actions for water and sanitation infrastructure identifies and responds to the needs of women and girls and increases education attainment rates and employment rates for all. Improving access to water and sanitation is critical to alleviate the time poverty of women and girls. Promoting the role of women in water governance and management, capacity building with women's involvement, and increasing women's participation in local institutions such as water users' organizations can also advance women's leadership and decision-making opportunities.⁶⁶ Gender-responsive toilets that are safe, clean, well located, well-lit and include private facilities for menstrual hygiene management with running water, soap, and disposal bins for used menstrual materials, are key to achieving improved health, education and employment outcomes for women and girls. To ensure the appropriate location and design of household and community toilets, consultation with the local community, including women and girls, helps to ensure their long-term use. Culturally appropriate design solutions for public buildings, such as schools, hospitals and offices, should include sex-segregated toilet facilities to offer privacy and personal safety.^{67, 68} Improving access to water infrastructure in the form of irrigation systems, together with increased land tenure's security for women, could increase their agricultural yields by 20–30 per cent.⁶⁹

Solid waste

Gender mainstreaming in the solid waste management sector can considerably improve women's well-being because of the associated impacts on health and time poverty. As in the case of the water and sanitation sector, solid waste management at the household level is a burden that often falls on women's shoulders. Furthermore, as primary caregivers, women are often responsible for family members who fall ill due to unsanitary

environmental conditions caused by inadequate waste management.⁷⁰

A focus on gender mainstreaming in solid waste management infrastructure and programmes can improve working conditions for the large number of women working in the informal waste picking and recycling sector, and protect them from increased exposure to health risks.⁷¹ For example, in cities across India, 80 per cent of waste pickers are women.⁷² Within this informal sector, women suffer different forms of discrimination, ranging from denied access to the recyclables with the highest value, to exclusion from positions of authority within working groups.⁷³ They often receive lower wages than their male counterparts,⁷⁴ work in precarious conditions and are more exposed to the risks of gender-based violence, occupational health hazards, illnesses and accidents.⁷⁵ A lack of protective equipment also puts these women's health at risk through exposure to hazardous waste, for instance, when handling healthcare waste during the COVID-19 pandemic.

Sanitary landfill sites, collection stations and composting and recycling plants are among the solid waste management infrastructure that can improve the safety and working conditions of women waste pickers when technological solutions for sustainable waste management practices are accompanied by training for both communities and informal workers.⁷⁶ Studies show that women are more likely to work in landfill sites than on the streets as waste pickers, due to lower risks of violence and lower travel time to collection sites.⁷⁷ The provision of adequate tools and personal protective equipment to improve the working environment at landfill sites can also contribute to a reduction in the occupational health and safety risks for informal workers.⁷⁸ At the same time, working in cooperatives and recycling plants can empower women due to the presence of horizontal decision-making dynamics and the possibility of eliminating intermediaries in the selling of the recycled waste.⁷⁹ Due to the lack of economic resources, single waste pickers are often forced to sell collected waste for a low price to intermediaries who turn around and sell that waste in greater amounts to recycling companies at a higher price.⁸⁰



Cleaning up for good

Country: Sri Lanka

Partners: Kattankudy Urban Council, European Union, Mobitel Sri Lanka

Duration: 2011–2017

Under an European Union-funded programme for District Development, UNOPS delivered projects in conflict-affected areas of Sri Lanka, benefitting over 450,000 people. As part of the project, an integrated Solid Waste Management system was delivered in Batticaloa to reduce waste generation and improve collection, processing, recycling, reuse and disposal of waste. The project aimed to increase the resilience of communities to climate- and environment-related shocks, improve the social and public health conditions of communities by upgrading essential urban utilities, develop the local capacity to deliver more efficient public services, and increase public participation in environmental management.

Community awareness sessions were carried out in order to make the beneficiaries aware of their rights and responsibilities in the public services addressed by the project. These sessions would often include

up to 70 per cent women participants, who in most cases were also the main target groups of training programmes and were the biggest champions in the community for UNOPS interventions. The project also promoted cooperation with women's groups to process reusable waste items as a means of income generation. For example, the sewing of bags out of used tetra packs has been carried out by women in Batticaloa.

The project sought extensive contributions from the local community in developing and implementing activities. For instance, when implementing the waste management system in Batticaloa, the community was engaged to help commence waste segregation at the household level, without which the system would not function properly. Community influence networks, such as women's groups, mosque committees, schools and farmers' groups (to promote compost) were identified and leveraged to champion the interventions by UNOPS. This resulted in a positive impact on outcomes and increased local ownership over the project and public services.

The planning and implementation of an efficient and sustainable waste management system, including collection and recycling facilities, can benefit the whole community, especially women who are involved in managing household and community waste. This is a particularly useful approach, as women often play the role of educators within their households and communities, and can effectively contribute to ongoing environmental sustainability efforts by teaching children how to minimize, recycle and reuse waste.⁸¹

Digital communications

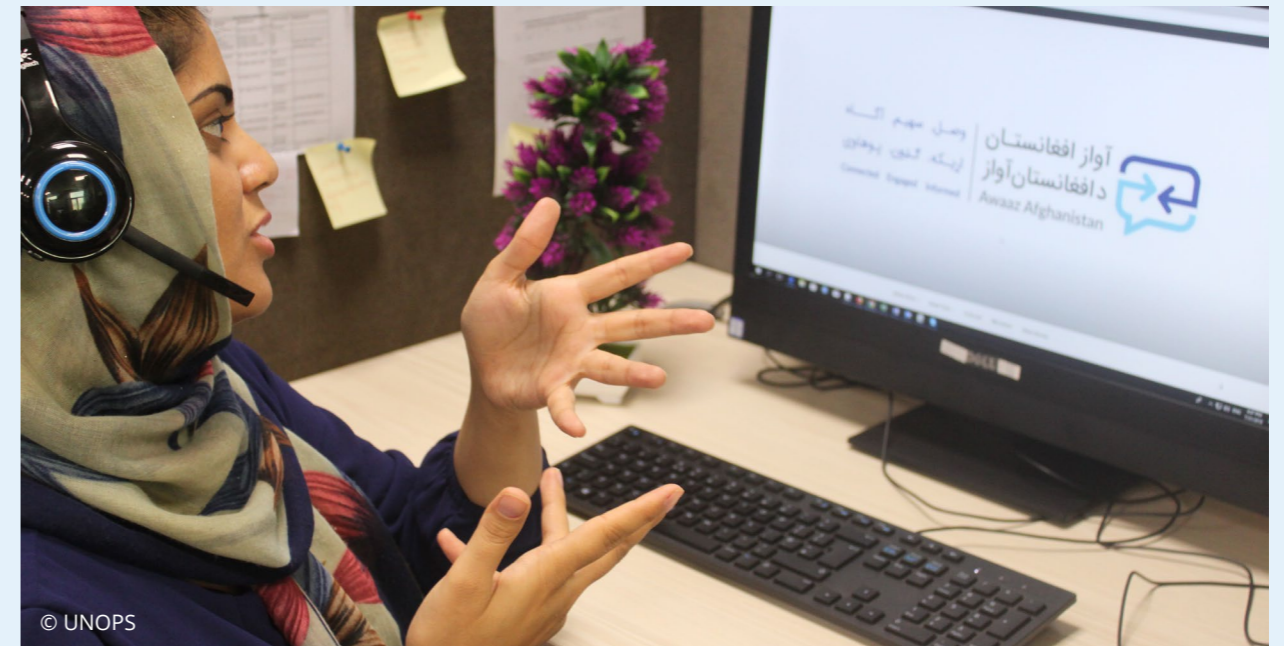
In today's world, access and control over information increasingly symbolizes empowerment. Digital communications infrastructure plays an instrumental role in enabling the sharing of knowledge and consequently, the creation of more inclusive and empowered societies. Within what is called the digital divide – 52 per cent of the world's population is without access to the Internet⁸² – there is a wide gap between male and female digital communications users. There is an estimated Internet usage gap of 11 per cent globally,⁸³ which increases to 23 per cent in Africa and 31 per cent in the least developed countries.⁸⁴ The divide also extends to the use of mobile phones. In low- and middle-income countries, women are 10 per cent less likely to have a mobile phone and 26 per cent less likely to have a smartphone than men. The likelihood of having access to mobile Internet is 70 per cent lower in South Asia and 34 per cent lower in Sub-Saharan Africa.^{85, 86}

There are multiple causes that reinforce this gender divide. The cost of digital communications technology and the significant number of women living in poverty are considered the greatest barriers to accessing digital communications services and the Internet. Women are usually paid less than men for equal work and also have more difficulties in accessing financial assets, consequently limiting their ability to own or use any type of technology, including digital communications.⁸⁷ Furthermore,

illiteracy among women and girls, who make up nearly two-thirds of the world's illiterate, and the lack of knowledge of English in rural areas, which is the primary language of the Internet, are significant obstacles to closing the digital gender gap.⁸⁸ Another major constraint to improving the access of women and girls to digital communications technology is the prevalence of misogyny, gender-based cyber harassment, and online violence and crime on the Internet, which have emerged as global threats to the ability of women and girls to safely and securely access the Internet.⁸⁹ Cultural and social norms in many countries also lead men to control women's and girls' free access to and use of digital communications technology.⁹⁰

Increasing access to digital communications technology for women can have significant positive outcomes in multiple dimensions of development. First, it can increase access to education for women and girls, given the wide range of learning opportunities, content and tools available on the web.⁹¹ Second, it can trigger new economic and employment opportunities for women and women-owned businesses by increasing access to international markets⁹² and online service-based industries,⁹³ in which women are more likely to work.⁹⁴ From a social and political perspective, access to digital communications can strongly contribute to an increase in the participation of women in public forums and decision-making processes, due to the new tools available for online consultations.⁹⁵ Finally, digital communications infrastructure can also have a positive impact on the reduction of gender-based violence and insecurity through the development of mobile applications where women can report unsafe areas, quickly reach emergency services and share their position to ensure their personal safety.⁹⁶ Especially during times of crisis, digital communications can be a critical lifeline by providing access to emergency services. For example, instances of gender-based violence against women have increased around the world due to COVID-19.⁹⁷ Technology can facilitate reporting of incidents in cases like this.

CASE STUDY / Digital communications



Connecting people with the information they need

Country: Afghanistan

Partners: Afghanistan Humanitarian Fund, European Union, WFP, UNHCR

Duration: 2017–Ongoing

UNOPS is implementing a humanitarian call centre in Kabul with financial support from the Afghanistan Humanitarian Fund (AHF), the European Commission Directorate-General for European Civil Protection and Humanitarian Aid Operations, the UN High Commissioner for Refugees (UNHCR) and the World Food Programme (WFP). The centre, named 'Awaaz', meaning 'voice' in Dari and Pashto, helped connect internally displaced people and refugees affected by conflict and natural disaster with information on humanitarian assistance. By dialling a toll-free number, any person in Afghanistan with access to a phone can speak with one of ten multilingual operators – half of whom are women – who can

provide callers with information they need to withstand and recover from a crisis and to lodge their feedback and concerns regarding the humanitarian programme.

The call centre has already handled over 108,000 calls from all over the country since its launch in May 2018, with around 20 per cent of these calls coming from women.

Throughout its operation, the call centre has received calls from women to request assistance and report allegations of sexual exploitation and abuse, other forms of violence, as well as fraud, which the call centre staff forward to relevant agencies. For instance, the centre connected a mother and her nine-year-old son suffering from psychological issues due to past traumas with partners providing psycho-social support. They were then provided counselling for a period of six months.⁹⁸

Education infrastructure

Less than half of all countries globally provide boys and girls with equal access to education⁹⁹ and girls remain one and a half times more likely to be excluded from primary school education than boys.¹⁰⁰ For instance, in Sub-Saharan Africa, 9 million girls compared to 6 million boys are unlikely to attend school and in Southern Asia, 5 million girls are excluded from education compared to 2 million boys.¹⁰¹ Among the leading causes for this gender divide is the lack of gender-sensitive education infrastructure. Factors such as the location of schools and inadequate sanitation facilities can influence education attainment rates.

The location and distance of schools from home can be a crucial barrier for girls to access education, especially in rural areas.¹⁰² For instance, in Burkina Faso and Ethiopia, for every 100 boys in school in rural areas there are only 57 and 76 girls respectively.¹⁰³ Schools that require girls to walk a long distance or along busy or dangerous roads can expose them to the risk of gender-based violence, resulting in the reluctance of parents to send their daughters to school.¹⁰⁴ In many societies, children, especially girls, are responsible for household activities and, if commuting to school consumes time meant for domestic or income generating activities, they may be prevented from attending school.

The lack of adequate toilet facilities with running water in schools can compromise the menstrual hygiene management of girls and hence their learning experience. For example, in Sierra Leone, 21.3 per cent of adolescent girls reported missing school when menstruating; in Nepal and Afghanistan, these numbers reached 30 per cent; in Pakistan, this included almost half of all menstruating school girls; and in Somalia, girls in grades 6 to 8 would miss up to 5 days of school per month.¹⁰⁵ The provision of menstrual hygiene management-friendly toilets, appropriate for the local cultural context, is necessary to support the attendance of girls and decrease the number of absent women teachers. In the absence of safe sanitation facilities within school grounds,

girls are forced to travel a distance to access a toilet facility, exposing them to the risk of sexual harassment and violence.

More inclusive education facilities, such as schools located in close proximity to communities and connected by safe public transportation can support education opportunities for girls and provide employment opportunities for women. Introducing culturally appropriate water and sanitation infrastructure in schools with safe, private, sex-segregated toilets, access to water and soap for washing as needed and facilities to change and wash or dispose of menstrual hygiene management materials, is necessary to support the attendance of girls and decrease the absenteeism of women teachers. One such intervention in schools in Nyanza Province, Kenya resulted in the share of girls' enrollment increasing by 4 per cent.¹⁰⁶ Providing facilities appropriate to the local context can only be accomplished through consultation with local users, as user needs will vary based on the local social and cultural practices and norms.

In addition, improved school education can greatly contribute to the elimination of child marriages and reduction in the risk of early childbearing by 75 per cent.¹⁰⁷ Moreover, it is estimated that any additional year of school education can increase an individual's earnings by up to 10 per cent.¹⁰⁸ Interventions in increasing education levels and participation in the labour force for women and girls could result in an increase of 3.6 per cent in the global GDP, and a reduction of 0.5 per cent of people living in extreme poverty globally by 2030.¹⁰⁹

Health infrastructure

The inability to access health services has a huge negative impact on the health and well-being of girls and women. Every day, 830 women die due to preventable childbirth and pregnancy-related causes, with 99 per cent of these deaths occurring in developing countries.¹¹⁰ Moreover, women are the highest proportion of people living with HIV and

CASE STUDY / Education infrastructure



Helping children in Sri Lanka learn in a safe environment

Country: Sri Lanka

Partners: KOICA, Ministry of Education of Sri Lanka

Duration: 2011–2017

With funding from the Korea International Cooperation Agency (KOICA) and in partnership with the Ministry of Education of Sri Lanka, UNOPS developed a project to upgrade schools in the Kilinochchi District in Sri Lanka. UNOPS managed the design and construction of 17 new classroom buildings and sanitary facilities in 12 schools. During the project planning stage, a gender analysis identified the lack of adequate sanitary facilities for

girls and children with disabilities as a barrier to regular school attendance, especially during girls' menstruation. To address this, UNOPS incorporated 59 segregated, safe and private toilet facilities and 66 hand wash units, together with 12 disability-friendly toilets in the design. The assessment also revealed that women teachers who had to travel long hours to reach work did not feel safe during the commute. Therefore, the project also delivered residential staff accommodation for 72 teachers to ensure the retention of qualified staff. This project led to significant improvements in the health and hygiene of all students and subsequently enhanced access to education for girls.

dying due to cardiovascular and noncommunicable diseases.¹¹¹ The leading causes for poor access to health services for women and girls include the remoteness of health facilities and the lack of a safe and inclusive environment to meet their needs in the facilities. These obstacles can be particularly dangerous during a health crisis like the COVID-19 pandemic, which poses its own challenges to women's access to health services.¹¹² Therefore, the development of gender-responsive health infrastructure is critical, not only in increasing access to basic services and reducing the number of maternal deaths, but also in ensuring the safety and well-being of girls and women.

When the design of health facilities fails to address the specific needs of women, it may result in women not making use of the facility. For instance, maternity clinics which do not include separate sanitation facilities and designated delivery rooms located out of hearing from others may fail to attract expectant mothers due to fear for their safety or privacy. Women may then choose to give birth at home, which can increase the risk to their health as well as the health of their newborns.¹¹³

Healthcare infrastructure is gender-responsive if it addresses the needs related to privacy, hygiene and safety of various genders.¹¹⁴ The location of the health facilities should be accessible, with consideration for connectivity with public transport, pedestrian paths and cycling routes.¹¹⁵ The design of health facilities should include the separation of specific spaces to ensure the privacy needs of not just the patients, but also of visitors and staff.¹¹⁶ In some cultural contexts, separate buildings or entrances for men and women may be required for both patients and health workers. Segregated changing rooms and common rooms for men and women health professionals should also be incorporated into the facility design. Moreover, in some contexts, it may be necessary to separate facilities for in-patient care by gender and age, including toilet facilities. Private and sex-segregated bathrooms should be accessible without requiring patients or visitors to pass through other facilities, improving safety and privacy and reducing incidents of gender-based violence. Additionally, adequate waiting areas with childcare rooms should be provided as many women have dependent children accompanying them to healthcare facilities.¹¹⁷

CASE STUDY / Health infrastructure



Better healthcare for women prisoners

Country: Myanmar

Partner: 3MDG

Duration: 2015–2018

With the aim of strengthening Myanmar's health system and contributing to fight HIV, tuberculosis and malaria, UNOPS constructed sex-segregated prison health facilities in four prisons in Myanmar under the Three Millennium Development Global Fund. Due to the overcrowded conditions of prisons and labour camps, there is a high likelihood of the spread of communicable diseases and infections,

such as tuberculosis, HIV, hepatitis and cholera. Therefore, prison health facilities are important for staff and community members, helping to stop the circulation of disease and create a healthy working and living environment. In order to prevent gender discrimination, the design of the health centres was carried out with attention to gender concerns. The design includes the separation of bathrooms and private spaces for male and female staff, and the separation of prison health clinics for male and female patients to ensure their privacy and safety.

Gender mainstreaming in the infrastructure life cycle

While the policies of many countries recognize and state that gender equality is critical to the sustainability of infrastructure, they face challenges translating their policy commitments into practice. In order to ensure that infrastructure positively addresses the needs of all end users, including women and vulnerable groups, there are multiple practical actions that can be embedded across the three stages of the infrastructure life cycle, i.e., planning, delivery and management stages. Some of the key gender mainstreaming actions that can be completed while implementing infrastructure projects are discussed here. A comprehensive list of actions can be found on the online *sustainABLE* tool¹¹⁸ and in the guides on integrating gender into infrastructure development in Asia and the Pacific developed by UNOPS in collaboration with UN Women.¹¹⁹

Cross-cutting actions

Certain actions are critical throughout the infrastructure life cycle to ensure gender-responsive infrastructure and promote gender equality and the empowerment of women. These actions include mainstreaming gender considerations in stakeholder engagement activities, providing gender focused training and capacity building activities for project personnel and the local community, and engaging a social inclusion specialist to guide activities throughout the infrastructure life cycle.

It is important to create tailored approaches to ensure that women and other marginalized groups within communities can participate and provide

genuine inputs in stakeholder consultations. Stakeholder engagement practices should ensure that a representative group of end users is involved, with a specific focus on women's groups and associations. This is important as stakeholder participation is used to engage and inform the interested actors, understand the needs of different types of users, involve them in the decision-making processes, and receive feedback and evaluate project outputs, outcomes and performance. Furthermore, consultations with women's groups and gender specialists are particularly important to identify and address any barriers to participation faced by women and other traditionally marginalized groups and ensure that they are able to engage and participate effectively in consultations.¹²⁰

It is important to create tailored approaches to ensure that women and other marginalized groups within communities can participate and provide genuine inputs in stakeholder consultations.

Training and capacity building activities for project personnel and the local community on gender awareness and gender mainstreaming are also critical across all stages to ensure gender-responsive infrastructure and achieve the maximum impact of investments.¹²¹ Gender awareness training for all project personnel contributes to the prevention of gender-based violence and sexual harassment on project sites.¹²² It also enables project personnel to act in a gender-sensitive manner during other project activities, such as the collection of sex-disaggregated data for monitoring and evaluation.¹²³ Furthermore, incorporating training and capacity building activities for women on the construction and management of infrastructure can increase their capacity to gain employment during the project and improve livelihood opportunities in the long-term.

GENDER MAINSTREAMING IN ACTION: Cross-cutting Actions



During the construction of Bossaso's new local market in northern Somalia, implemented by UNOPS, gender mainstreaming was implemented through community engagement and skill-building training. The market represents the central economic area for the community and, in particular, for women traders that include minorities such as Yemeni refugees. During the project, UNOPS engaged and consulted with nearly 2,000 female and male entrepreneurs to inform the design and construction of the market

to ensure it met the needs of the end users and to increase the sense of ownership over the final product. In addition, over 200 traders, 90 per cent of whom were women, received business skills training and business start-up kits. The newly constructed market, combined with the new skills acquired, helps local traders generate higher income to support their families and contributes to economic development and stability in the region.¹²⁴

The engagement of a gender and social inclusion specialist is a crucial component of mainstreaming gender throughout the infrastructure life cycle. Incorporating this expertise into project activities will make certain that gender is considered when identifying and fulfilling the scope, quality, time, cost and benefits of gender-responsive infrastructure during the entire life cycle.

Planning stage

Mainstreaming gender considerations in the infrastructure planning stage is essential to understanding and incorporating the needs of women and girls, alongside those of men and boys, establishing a long-term vision that overcomes short-sighted budgeting linked to political dynamics, and preventing the reinforcement of gender inequalities.¹²⁵

GENDER MAINSTREAMING IN ACTION: Planning Stage



The UNOPS housing reconstruction project carried out in Gaza is a good practice example of the benefits of carrying out a gender analysis. UNOPS managed the reconstruction of houses destroyed in the 2014 conflict in Gaza for the most vulnerable internally displaced persons, thereby providing relief to the ongoing humanitarian crisis. The project provided cash grants, legal aid, technical infrastructure, construction guidance and quality assurance to enable the most vulnerable or underserved families to reconstruct their houses safely, sustainably and efficiently.

During the planning stage, a gender analysis of the context and previous projects was carried out. This analysis highlighted the lack of gender focus in previous development activities in Gaza and overall in the construction sector. All project indicators and data collected and recorded were disaggregated based on sex, age and disability. This enabled the development of a gender action plan that embedded gender components from the earliest stages of the project. The reconstruction of houses was prioritized

based on the vulnerability of families. The criteria of vulnerability was enhanced to prioritize households headed by single women (widows or divorced women), elderly persons and people living with disabilities.

Through this gender mainstreaming approach, the project specifically addressed women's access to housing, land and property rights through two activities: 1) creating a grant contract that could be co-signed by both women and men heads of household; and 2) providing legal support to women-headed households, helping them to receive legal ownership. Of the 188 beneficiaries that participated in the process for cash grants, 13.1 per cent were women-headed households. The project led to 519 beneficiaries receiving legal assistance on housing, land and property issues, which resulted in 306 beneficiaries obtaining legal ownership of their new homes. The project provided legal ownership to 21 female-headed households in Gaza, where security of ownership is rare and security of ownership for women is even more rare.

During the planning stage, one of the most important actions is to complete a gender analysis, followed by the preparation of a gender action plan (GAP). A gender analysis provides the evidence base for project design considerations to successfully mainstream gender within infrastructure projects. Moreover, it highlights the differences between and among women, men, girls and boys in terms of their relative distribution of resources, opportunities, constraints and power in a given context or project.¹²⁶

During the planning stage, one of the most important actions is to complete a gender analysis, followed by the preparation of a gender action plan.

The constraints and opportunities identified through a gender analysis can be addressed by specific actions detailed in the GAP. The GAP should include sex-disaggregated targets, responsible actors, and indicators to measure progress and outcomes. It should also inform and be integrated into overarching project work plans, monitoring and evaluation (M&E) plans and project budgets for effective gender mainstreaming throughout the project.¹²⁷ In order to effectively implement the GAP, it is essential to support it with financial resources through gender-responsive budgeting (GRB) during project budgeting. The purpose of GRB is to determine the impact of existing expenditures on women and men (and various sub-groups) and to review gender-related allocations of opportunities and resources for gender mainstreaming activities identified in the GAP. It ensures the gender-equitable distribution of project resources to promote equal access for all end users.¹²⁸

Delivery stage

Gender mainstreaming during project delivery incorporates the needs of women and girls, alongside those of men and boys, into the design of infrastructure services and assets.

It also seeks to ensure gender diversity in project and contractor personnel and to create an inclusive and safe work environment. In the infrastructure project delivery stage, gender mainstreaming actions can be carried out during design, procurement and construction activities.

If women's and girls' needs are not incorporated in the design, the likelihood of creating gender-blind infrastructure increases.

The design process is the most crucial component of the infrastructure life cycle to ensure that infrastructure meets the needs of all end users, in particular women and girls. If their needs are not incorporated in the design, the likelihood of creating gender-blind infrastructure increases. Therefore, designers must take a stand to ensure that all their work is gender-responsive. If national universal design codes and standards that incorporate gender considerations exist, then they should be used. If they do not exist, then design professionals have a moral obligation to seek out gender-responsive international standards and guidance for use in their projects.

Gender-responsive infrastructure design solutions must give due consideration to the needs of all end users, in particular women and girls, and alleviate gender-based disparities in access to basic services. This is accomplished by carrying out a gender analysis and preparing a gender action plan during the planning stage to identify the specific needs of women, girls, men and boys and incorporating those needs into the infrastructure design.¹²⁹ For example, gender-responsive design considerations may include: the inclusion of breastfeeding rooms in public or office buildings; making certain that streets, walkways and public spaces are well-lit; and ensuring that the design of toilet facilities provides safe, private facilities for menstrual hygiene management, including running water, soap and a private space to clean or dispose of used menstrual

**GENDER MAINSTREAMING IN ACTION:
Delivery Stage**



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In an effort to help combat high maternal and child mortality rates, UNOPS built 82 health centres in Myanmar, using a gender-responsive design approach to ensure the accessibility of health services for vulnerable and marginalized groups in some of the hardest-to-reach areas. UNOPS completed the designs and managed the construction of the centres with financial support from 3MDG. The health clinic designs incorporated many gender-responsive aspects, including: sex-segregated toilets and other private spaces for female and male staff and patients; living accommodations on-site for female staff to prevent unsafe travelling to and from the health centres; and the location of delivery and recovery rooms in a separate area of the facility to respect the privacy of female patients. The designs were standardized (with four options for different geographies) and have been adopted by the Ministry of Health and Sports. Resilience and sustainability were also incorporated into the designs to resist natural hazards, such as earthquakes and wind loads, and to make use of renewable power sources and waste management technology. The project is helping improve livelihoods and local

economies by creating jobs for local workers. In 2017, approximately 48,000 labour days were created for local workers, of which more than 6,000 days were created for women.¹³⁰

A good practice example of gender mainstreaming in the infrastructure procurement process was carried out by UNOPS in the crossing points project in Kosovo*. UNOPS managed the construction of three common crossing points between Kosovo and Serbia, funded by the European Union. UNOPS added a gender evaluation criteria in the solicitation documents for construction works. Bidders were required to provide a summary of their gender mainstreaming approach for the required works and include a staff organogram with the ratio of women to men, as well as a disbursement mechanism for personnel who are in different districts of the country. This process ensured that all the submissions received had qualified female personnel included in engineering and management roles in the team composition.¹³¹

*All references to Kosovo are made in the context of UNSCR 1244.

materials. Infrastructure design professionals should seek to incorporate design solutions that maximize positive impacts and avoid negative impacts on the ability of women and girls to access services and economic opportunities.¹³²

Infrastructure design professionals should seek to incorporate design solutions that maximize positive impacts and avoid negative impacts on the ability of women and girls to access services and economic opportunities.

The procurement process is also a tool to empower women and support gender equality in a very male-dominated field. Gender-responsive procurement frameworks and gender-sensitive eligibility criteria for contractors can increase the participation of women-owned businesses in the tendering process.¹³³ Another method of mainstreaming gender in the procurement process is by requiring that bidding organizations demonstrate a commitment to gender equality – for example, by documenting the presence of non-discrimination and anti-sexual harassment policies at the organizational level for participating firms in order to promote diversity in the workplace.

During the construction process, promoting diversity of the workforce through the inclusion of local women and eliminating barriers to their access to jobs in construction can create livelihood opportunities. In order to achieve diversity, various actions can be undertaken by project managers and construction supervisors. These actions may include: the enforcement of labour rights; the creation of a safe working environment through policies against sexual harassment and gender discrimination; equal pay for equal work for women and men; private, safe sex-segregated toilets with facilities for menstrual hygiene management, including running water, soap and a private space to clean or dispose of used menstrual materials; and skills building and

training on construction practices to build local capacity, with particular focus on women.^{134, 135} Using gender-sensitive construction supervision, these actions can be completed on-site to ensure that the construction process maximizes positive impacts and minimizes negative impacts for the women and men involved.

Management stage

During the management stage of the infrastructure life cycle, gender mainstreaming actions can be instrumental in identifying the true beneficiaries of the project, assessing the extent to which it meets end user needs, and ensuring that users – especially women and girls – benefit from the delivery of the project and infrastructure services.¹³⁶ Gender mainstreaming can also contribute to the creation of new employment opportunities for women and create or improve a sense of community ownership over the infrastructure.¹³⁷

Gender-responsive M&E is a mechanism to measure performance and report on outcomes and the related progress of infrastructure services with respect to their ability to reduce gender inequalities. The indicators used to measure performance require the collection and analysis of sex-disaggregated data and should involve both men and women in the process.¹³⁸

Adopting measures to facilitate the engagement of women and women-owned businesses in the operations and maintenance (O&M) of infrastructure, removing barriers to their participation in O&M jobs and contracts, is a means to support the economic empowerment of women.¹³⁹ Some of these measures may include: promoting the employment of women and minorities through the establishment of non-discriminatory hiring practices; developing standards to ensure equal pay for equal work for women and men; creating safe and secure working conditions for all; increasing outreach efforts to community-based women's organizations and women-owned businesses; and developing skills training and capacity building in O&M, with particular focus on the participation of women.¹⁴⁰

**GENDER MAINSTREAMING IN ACTION:
Delivery Stage**



The 2010 earthquake in Haiti resulted in the destruction of several hundred thousand homes. UNOPS was tasked with the rehabilitation of more than 9,000 low-income housing and community infrastructure works in eight neighbourhoods. UNOPS adopted a labour-intensive, participatory approach during project implementation to ensure the generation of employment opportunities that included a strong gender component. Skills training was further provided to the local community. This resulted in 95 per cent of the workforce residing in the same neighbourhoods that were to be rehabilitated, of which more than 30 per cent of this total were women. Local women acquired

skills training to participate in the project, supporting their empowerment through employment in the construction sector. These women provided in-kind contributions, in the form of their labour, for the rehabilitation and reconstruction of their homes. The programme prioritized vulnerable households as beneficiaries, which resulted in a significant number of women-headed households and persons with disabilities as beneficiaries. Targeted consultations were conducted with local women to identify spaces that they considered dangerous in their neighbourhoods. Street lighting was then installed and reinforced in these areas, which reduced incidents of violence in these communities.

**GENDER MAINSTREAMING IN ACTION:
Management Stage**



The mainstreaming of gender concerns was carried out during M&E of the rural access improvement project in northern Afghanistan, funded by the Swedish International Development Cooperation Agency (SIDA) and implemented by UNOPS.¹⁴¹ The results of the M&E process were captured in an impact assessment report that

included the measurement of outcomes, using sex-disaggregated data.¹⁴² This helped to identify the outcomes of the gender mainstreaming actions undertaken throughout the project, track progress against project targets, provide recommendations for ensuring project effectiveness and enable the dissemination of lessons learned for future projects.



UNOPS approach and contribution to gender mainstreaming in infrastructure

UNOPS has 25 years of experience in infrastructure development and infrastructure-related services. This includes the design and construction of infrastructure, as well as technical assistance in the planning, delivery and management of infrastructure (e.g., gender analysis, gender action plans, feasibility studies and environmental and social impact assessments). UNOPS experience centres around most infrastructure types: civic (e.g., courts, police stations, prisons, government offices), health, education, transport, energy, digital communications, potable water, wastewater and solid waste management facilities. Figure 1 represents the percentage of infrastructure expenditure in 2019, highlighting the breakdown of infrastructure project types by sector.

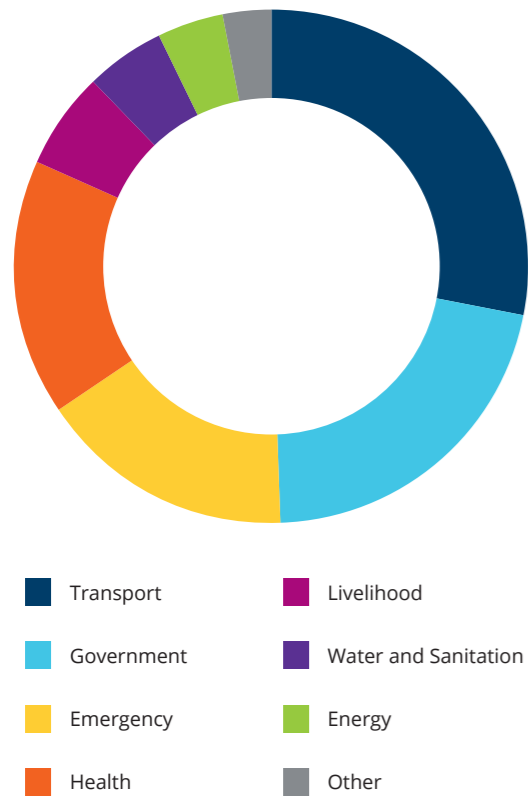
UNOPS is using this experience and its mandate in infrastructure to promote and support gender equality and the empowerment of women by mainstreaming gender in all infrastructure projects.

Guidance and tools for gender mainstreaming in projects

To ensure that all UNOPS infrastructure projects incorporate gender mainstreaming in project activities, UNOPS has created guidance and tools.

In collaboration with UN Women, UNOPS jointly developed a guidance series to integrate gender into all stages of the infrastructure project life cycle, from start to finish.¹⁴³ This series is designed to provide

Figure 1: UNOPS infrastructure expenditure by thematic sector in 2019*



*Thematic sectors based on the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) framework for classifying the specific area of the recipient's economic or social structure the activity is intended to foster.

practical guidance on gender-sensitive and socially inclusive infrastructure, describing the most important considerations for gender mainstreaming and social inclusion, and provide specific tools and checklists to implement best practices. This guidance is intended to help UNOPS personnel and others mainstream gender considerations into their projects.

UNOPS, in partnership with UN Women, also developed a training module on Mainstreaming Gender Equality in Infrastructure. This course is aimed at all UN personnel and others who are interested in learning about gender and infrastructure. It helps users to: 1) understand why and how gender mainstreaming is important to planning, building, operating and maintaining infrastructure; 2) recognize the importance of

human-centred infrastructure design and the purpose of infrastructure to provide services; 3) recall the fundamentals of how to mainstream gender equality in infrastructure project design and planning; and 4) understand and apply practical approaches and resources available on gender mainstreaming in specific infrastructure types.¹⁴⁴

In addition to guidance and training, UNOPS has developed an additional resource, *sustainABLE* (sustainable.unops.org), in collaboration with the University of Oxford-led Infrastructure Transition Research Consortium (ITRC) to help infrastructure and development practitioners identify practical and real world actions that will promote gender equality and the empowerment of women in their infrastructure projects. Furthermore, the *sustainABLE* tool identifies which actions will support the achievement of specific SDG targets.

The *sustainABLE* tool is a free resource for infrastructure development practitioners and has four main objectives:

- To explain the range and magnitude of influence that infrastructure projects can have on the different SDG targets;
- To provide a range of recommended actions throughout the infrastructure project life cycle to ensure that the project supports the achievement of all SDG targets related to a chosen theme;
- To inform the international community on the relationship that exists between critical development themes, such as women's empowerment, environmental protection, and disaster risk reduction, and the targets of the SDGs;
- To provide a platform for knowledge sharing with case studies and good practices to support the achievement of the SDGs as part of the 2030 Agenda for Sustainable Development.



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Infrastructure project delivery

Using the guidance and tools outlined in the previous section, UNOPS supports its partners with the design, procurement and construction of a wide range of infrastructure solutions to support countries in achieving sustainable, resilient and inclusive development.

Maternal and neonatal health in Kenya



UNOPS strengthened maternal and child healthcare across five counties in Kenya with the aim of reducing maternal mortality and neonatal deaths. The project involved upgrading healthcare infrastructure, completing healthcare facility assessments and providing training for healthcare workers. UNOPS completed assessments for 98 health facilities. As a result, 31 maternity units were rehabilitated, 11 maternity units were newly constructed and nine operating theatres were built.

The health facilities were rehabilitated using a range of green technology retrofits and solar powered solutions to enable the facilities to be fully functional on solar energy, to minimize electricity usage and to provide continuous access to water services. The healthcare centres seek to provide an estimated 1.6 million people with access to improved healthcare facilities across five counties: Garissa, Homa Bay, Kakamega, Nairobi and Turkana.

Various actions were undertaken throughout the project to mainstream gender issues. For example, the engagement of gender focal points and health

experts in the design stage ensured that the facilities achieved a functional flow that creates a safe environment for childbirth. The collection of sex-disaggregated data provided the evidence needed to develop gender-responsive solutions. In addition, training sessions were conducted to increase the knowledge, sensitivity and awareness of men regarding motherhood and childbearing.

Resilient police facilities in Nepal

UNOPS built 23 modern seismic resistant police units in rural and earthquake-affected areas in Nepal, with funding from DFID under its Integrated Programme for Strengthening Security and Justice. The programme aims to improve security and justice services for 1.85 million underprivileged people – including 1 million women and girls.

The project incorporated gender mainstreaming actions during all stages. These actions included stakeholder analysis and community engagement before and after the implementation of the project to inform communities about project activities. Reporting mechanisms were defined and introduced and two gender and safeguarding focal points were appointed to curtail discrimination, harassment, sexual exploitation and abuse as well as to document complaints and grievances. Furthermore, training and capacity building activities were directed towards female police officers after low levels of participation by women were identified.

Each police unit was constructed to be sustainable, resilient and accessible to diverse users. In particular, designs for the buildings included gender considerations and also paid attention to the unique needs of children and persons with disabilities. UNOPS constructed separate detention rooms, toilets and barracks for women and men. Separate sections were allocated for juveniles. Under the capacity development component of the project, UNOPS is also strengthening operation and maintenance systems, performance management systems, training and development activities, as well as research and planning functions for the Nepali Police. The programme also included the outfitting of police officers in Nepal's Metropolitan Traffic Police with a range of body-mounted digital recording equipment.

Advisory services

As well as directly delivering a range of infrastructure to support governments, UNOPS can also support governments at all levels by providing advisory services on gender mainstreaming in the planning, delivery and management of their infrastructure systems and improve access to infrastructure services for all.

UNOPS has adopted an evidence-based infrastructure approach to support governments with the planning, delivery and management of national infrastructure systems. The approach is based on first understanding the needs of our partners by identifying key challenges and opportunities for action. These actions are then crafted into specific, tailored solutions for our partners.

To support this process, UNOPS has developed a series of tools and methodologies that are applicable to developing economies on their inclusive, sustainable and resilient development journey.

Capacity Assessment Tool for Infrastructure (CAT-I)

The Capacity Assessment Tool for Infrastructure (CAT-I) is a tool to assess and identify the gaps in government capacity (at national, regional

and municipal levels) to effectively plan, deliver and manage sustainable, resilient and inclusive infrastructure systems. CAT-I looks at all aspects of the institutions and knowledge components of an infrastructure system, namely, the policies, financial mechanisms, procurement procedures, regulation, enforcement mechanisms, and codes and standards which govern an infrastructure asset's life cycle.

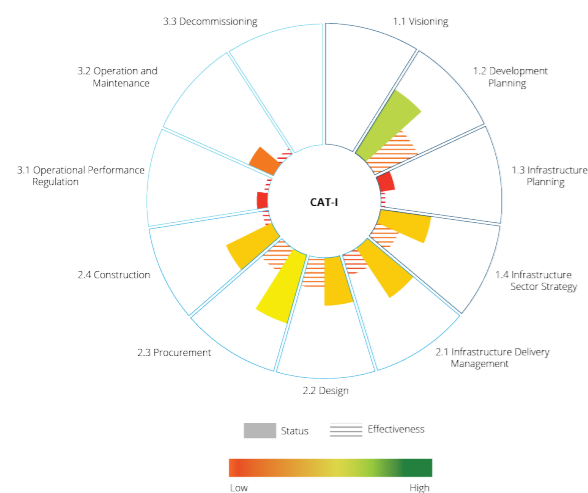
The specific objectives of CAT-I are to:

1. Create a common language and framework for infrastructure capacity development;
2. Identify capacity gaps in the planning, delivery and management of infrastructure systems;
3. Support the identification of potential solutions to build capacity;
4. Create a pipeline of programmes and projects to build capacity; and
5. Show progress against a measured baseline.

Recently, CAT-I has been used in collaboration with Mato Grosso State in Brazil. The results assisted the government in updating and improving legislation to support upstream planning and ensure that the right assets are selected and implemented to promote sustainable, resilient and inclusive development.

CAT-I was developed by the UNOPS Infrastructure and Project Management Group in close collaboration with partners in Mato Grosso (Brazil), Nepal, Serbia and with UNOPS infrastructure experts and practitioners from around the world.

Figure 2: CAT-I Visualization



Conclusion

Infrastructure assets are never gender-neutral. They are perceived and used differently by women, men, girls and boys due to the different roles and responsibilities that cultures and societies assign to different genders. At the same time, the quality and condition of infrastructure also affect the lives and livelihoods of men and women differently, with the latter being more vulnerable and experiencing additional burdens and safety issues when infrastructure is absent or working ineffectively.

For these reasons, governments at all levels should use an evidence-based decision-making process for the planning, delivery and management of their infrastructure systems to ensure sustainable, resilient and inclusive development.

Gender-responsive infrastructure design has the power to address gender inequalities and empower women by responding to diverse needs in society.

Moreover, specific gender mainstreaming actions should be included within the planning, delivery and management stages of the infrastructure life cycle. This will ensure that the infrastructure built is able to guarantee equal quality services to both women and men, and ensure accessibility and safety. Inclusive infrastructure systems will have considerable effects on the development of human capital, economic opportunities and, ultimately, the safety, equality and empowerment of women and girls, supporting sustainable development for all.

Gender-responsive infrastructure design has the power to address gender inequalities and empower

women by responding to diverse needs in society. It can maximize the benefits of infrastructure investments for all and accelerate the socio-economic mobility of women, girls and other underserved or disadvantaged groups. It is in the design stage that the global community must focus its attention. As infrastructure and development professionals, we must work together to ensure that all designs are context-specific, gender-responsive and leave no one behind. Times of crisis, such as the COVID-19 pandemic, present an opportunity to reevaluate current infrastructure and make informed future decisions that will protect and empower women, men, girls and boys alike.

Given UNOPS experience in sustainable and inclusive infrastructure development, it stands ready to champion new and innovative ways to support its partners with gender-responsive infrastructure development. UNOPS is well-positioned to provide technical assistance and support in the planning, delivery and management of gender-responsive infrastructure projects worldwide. The application and continuous development – based on global best practices throughout the infrastructure life cycle – of the EBI initiative, along with the *sustainABLE* and CAT-I tools, in various development contexts, has proven UNOPS ability to adapt its approach to infrastructure development to one that supports governments and communities in their path toward gender equality and sustainable development. UNOPS is ready to carry on the discussion with governments and institutions at the local, regional and national levels to find viable and concrete infrastructure solutions for the benefit of women and girls, and society as a whole.

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