



UN SECRETARY-GENERAL'S
HIGH-LEVEL PANEL ON
WOMEN'S ECONOMIC EMPOWERMENT



INFRASTRUCTURE: A GAME-CHANGER FOR WOMEN'S ECONOMIC EMPOWERMENT

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The HLP Full Report, additional policy briefs, case studies and papers can be found at: www.WomensEconomicEmpowerment.org

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1. Introduction

The High Level Panel (HLP) on Women's Economic Empowerment (WEE) and the momentum it has generated offers unique scope for bringing about real changes in women's lives.

Women's economic empowerment is "about economic equality: such as closing the gender pay gap, increasing job opportunities, or access to loans. But it's also about breaking down barriers that hold women back: from discriminatory laws to an unfair share of home and family care. And it's a game-changer for development: because when more women get the chance to work, it makes their families, communities & countries wealthier." UN High Level Panel

This submission highlights the potential the design, planning, delivery and governance of infrastructure has to be a game changer for improving women's lives, by reducing the demands and drudgery of household and care work, increasing the productivity of their enterprises and enabling them to move into better jobs or more profitable markets. These changes, in turn, can broaden women's aspirations, break down stereotypes and catalyse positive social norm change.

ICED approaches infrastructure planning as a continuum from policy and planning to investment and implementation. The priority sectors for women's economic empowerment (WEE) are energy, water and sanitation, transport, affordable housing and urban upgrading, and information and communication technologies (ICTs). The critical importance of investments in social infrastructure such as health, education, and care services to enable WEE and support healthy and productive workforces is also recognised. This note explains the transformative potential of these infrastructure sectors for WEE, with ICTs, energy and transport in particular offering high return opportunities.

2. Why Infrastructure?

An estimated 783 million people in developing countries lack access to clean water; 1.6 billion are without electricity; 2.5 billion do not have access to adequate sanitation; and nearly 1 billion lack access to an all-weather road (United Nations, 2013 and World Bank, 2010).

Economies are literally and figuratively built on infrastructure. These tend to be high-cost investments that, if done well, can raise economic growth, productivity, and land values, and contribute to poverty reduction. World Bank research indicates that a 10 per cent increase in infrastructure investment contributes to a one per cent growth in GDP (World Bank, 2012). Over half of Africa's improved growth performance between 1990 and 2005 can be attributed to improved infrastructure (OECD, 2012).

Public funding for infrastructure in developing countries accounts for 70-80 per cent of total infrastructure spending, with the balance coming from the private sector, often in the form of public-private partnership (PPP) arrangements¹.

However, it is important to note that infrastructure investment by itself does not result in inclusive growth. The quality and cost of access to services are critical to the potential for these investments to impact low-income and marginalised groups, whose members are disproportionately women. Poorly planned and managed cities and infrastructure can exclude some groups from socio-economic gains and drive a wedge between the rich and the urban and rural poor. Developing mechanisms for marginalised social groups, including women, to have a voice in the design and implementation of local infrastructure investments is key.

¹ PPP projects can use mechanisms such as deductions and penalties if the private sector contractor fails to perform or meet targets, so the public sector retains a level of control. In particular, PPP contracts carry more immediate and clearly defined compliance criteria and penalties. Therefore, women's economic empowerment measures can be designed and implemented through PPP contracts in the form of innovative benefit-sharing clauses, quotas for skilled women workers, supervisors etc.

3. How can infrastructure enable women's economic empowerment?

Infrastructure development can act as a key enabler for WEE in both urban and rural settings in six key areas:

- I. **Time** - Infrastructure provision and improvement can reduce the time women spend on domestic tasks (e.g. fetching water, food, cooking, etc.) (Fontana and Natali, 2008) and free up time for productive, economic activity. As women remain the primary caregivers for young and old across the global south, the single factor of time is of material economic importance at the household level and has a significant impact at the aggregate level (Antonopoulos, 2009).
- II. **Mobility** – Improvements in transportation infrastructure can have significant knock-on effects on women's physical mobility, leading to more, higher paying jobs for women and new opportunities for business expansion. It also has the potential to increase social mobility when combined with skills training, capacity building and social norm change.
- III. **Expanded market activity and new job opportunities** – The construction of new transport, ICT and energy facilities yields new opportunities for labour market participation. Although seen as a male domain in some contexts, the physical process of designing and constructing infrastructure increasingly involves women as contractors², semi-skilled and skilled workers³ and supervisory engineers and demonstrates the potential for women to successfully break through gender barriers and enter traditionally male dominated sectors. In some countries, such as India and Ethiopia, women are employed in large numbers in construction projects. To grow the number of quality jobs in construction, ongoing efforts to train, build the capacity of and connect women workers with employers are necessary. Women are also breaking into new jobs in the transport sector: taking on roles as bus drivers, ticket collectors and taxi drivers. These initiatives are growing across Africa and Asia, providing new employment opportunities and increasing safety and convenience for women passengers. By improving transport and transport access, increasing the availability of information about economic opportunities (jobs or market conditions) and increasing productivity of existing activities, investments in infrastructure can facilitate greater market access.
- IV. **Increased and more stable incomes** – By improving productivity and access to customers and suppliers for existing enterprises, investments in infrastructure can increase and stabilise workers' earnings. Women are more likely than men to be home-based workers and run businesses in informal settlements. Many of these enterprises are held back by the lack of access to basic services. Access to water and energy improves productivity and the provision of drainage and pathways increases demand and reduces the costs of inputs.
- V. **Reduced exposure to risk** – The perceived and actual risk of gender-based violence (GBV) has a significant impact on women's economic participation. It has been estimated that violence against women and girls (VAWG) costs the global economy USD 8 trillion annually (What Works, 2015)⁴. Unsafe market spaces, transport and public spaces expose women workers and traders to violence, and limit their economic opportunities (Taylor, 2011; UN Women, 2015). This is exacerbated by the perception of such risks, which can lead to girls and their families giving up on their economic ambition in the formative stages of their lives and perpetuates girls' exclusion from education and other

² <http://www.sparcindia.org/housing.php>

³ <http://mahilahousingtrust.org/#Skill>

⁴ Indirect tangible costs, as a loss of potential due to lower earnings and profits resulting from reduced productivity, are particularly difficult to measure, although it is expected that these costs are significant (Day et al, 2005).

socio-economic activities. Initiatives such as SafetiPin (see box below) are using mobile data to reduce such risks. Adequate infrastructure provision, both through clean technologies as well as adequate sanitation, water and storage can also help to alleviate other health and safety risks that disproportionately affect women. These include air pollution, food safety, and personal hygiene, among others.

SafetiPin Initiative, Global – mobile mapping to make communities and cities safer, with a strong focus on women’s safety

Safetipin is a free mobile phone app that allows users to complete safety audits at any location in the city. It aims to make communities and cities safer by collecting and disseminating safety-related information on a large scale using crowd sourcing and other methods. Launched in 2013 in India, the app has also been used in Jakarta, Nairobi, and Bogotá, among other places. In Delhi, the Public Works Department, Police and Department of Transport are using the data on safety, security, lighting, walking paths and bus stops to improve planning, including deployment of limited resources for lighting, security, CCTVs and night-time public transport.

Safetipin has partnered with Uber to generate additional data on safety in cities. Uber drivers will capture images and GPS coordinates while driving, and Safetipin will analyse the images and provide the city government with data that can be used to improve safety in areas that need it most. This partnership with Uber has significant potential to reach scale across many cities.

(Chant and McIlwaine, 2016; SafetiPin Overview, 2016, Uber Newsroom, 2016)

- VI. **Planning, policy and decision-making** – The process of demanding improvements in infrastructure and/or housing by low-income women, especially in urban areas, can in itself be empowering. Globally, bottom up, women-led, community driven approaches led by networks of the urban poor (the majority of whom are poor women) such as Shack/Slum Dwellers International⁵ or Mahila Housing SEWA Trust⁶ have been very successful in negotiating collectively with municipal authorities for improved infrastructure (see Box below). They have also transformed women’s involvement in municipal governance processes. This sort of collective action by women is a key contextual strategy and a pre-condition for ensuring that infrastructure investments lead to the gender sensitive provision of infrastructure, which can have potentially transformative impacts. By engaging in these grassroots movements, women have become more visible as public leaders, and role models for other women and girls.

4. Conditions for success

Infrastructure can enable women to become economically empowered – adequate, affordable and well-designed infrastructure can serve as the first step for poor women to access expanded opportunities. The following conditions play a key role in ensuring that infrastructure can achieve its potential:

- **Challenging social norms** that influence women’s ability to access and use infrastructural resources at all levels (Kabeer, 2102). Infrastructure does not, in itself modify the

⁵ <http://sdinet.org/about-us/what-we-do/>

⁶ <http://mahilahousingtrust.org/#home>

institutional

rules, regulatory framework or social support services that can unlock strategic opportunities for women at scale. However, infrastructure development can facilitate women's economic empowerment when investments are planned from the outset to help loosen restrictive gender relations and norms.

- **Amplifying women's collective voice** to demand services and access to infrastructure.
- **Strengthened asset security** for women through changes to land titling and tenure (Mitlin and Satterthwaite, 2014).
- **Investments in social services and other measures** to allow women to reconcile paid and unpaid work obligations (Antonopoulos, 2009).
- **Governance** and coordinated planning between government agencies.
- **Women's active engagement** in the design, provision, and management of infrastructure investments as well as in planning and policy processes more broadly. Adequate inclusion of women's practical as well as strategic needs captured in surveys that inform infrastructure design and planning is also critical.
- **Digital inclusion** can facilitate the gathering and analysis of robust, real time data on women's infrastructure needs and current deficits, feed into planning, enable women's networking and enhance access to information and opportunities.

Infrastructure gains through empowering women and collective action

Shack/Slum Dwellers International (SDI) is a network of community-based organisations run by the urban poor in over 600 cities across 33 countries (and growing) in Africa, Asia and Latin America. One of its key objectives is to negotiate with local authorities for in-situ upgrading of informal settlements that improve their physical conditions (including but not limited to water, sanitation, drainage, solid waste removal, electricity connections, street lighting and street paving) and enhance the lives of their inhabitants.

For SDI, women's central participation is a critical component of a gender-sensitive mobilisation strategy, which calls for men and women to re-negotiate their relationships within their families, communities, and their own slum dweller "federations". By prioritising women's leadership, federations reduce men's traditionally dominant role in communities in a way that strengthens grassroots leadership. SDI uses the savings and credit methodology to develop women's leadership capacity, financial management skills, and confidence.

SDI has successfully used community-based informal settlement enumeration methods to collect, map and analyse data about their settlements to influence local government resource flows and development priorities, to mitigate against disaster and conflict and to enable poor communities to be more vocal and visible. Information about the informal settlements locality, size, tenure status, basic amenities, educational, health and social facilities as well as transport and other public services is collected by the community, usually women. The data is utilised as a resource and advocacy tool to support poor, homeless communities in their efforts to secure tenure and address the inequitable distribution of resources and services in cities. Data has been collected in over 600 cities so far.

<http://knowyourcity.info/map.php#/app/ui/about3> and <http://sdinet.org/>

5. Relevance to the Panel's 3 Priority Areas

This submission focuses on the three key entry points for Women's Economic Empowerment that are prioritised by the lead of authors of the High Level Panel report. Specifically, it highlights examples of promising approaches⁷ in the following areas:

- Addressing the care economy
- Expanding opportunities for women who work informally
- Fostering female entrepreneurship and enhancing the productivity of women owned enterprises

5.1 Addressing the care economy

There is a strong inverse relationship between the amount of time that women and girls spend on unpaid care work and their economic empowerment (Chopra, 2015). Women are most likely to bear the burdens of time and energy intensive household activities (World Bank, 2006). Research has demonstrated the economic value and importance of these efforts, even though they are normally excluded from standard national estimates of productive activity. From the economic empowerment perspective, the objective is to:

- Increase the productivity of unpaid care work (e.g. reducing drudgery of domestic labour) and reduce the risks it poses to women's health and wellbeing
- Redistribute care work between women and men, and between individuals and the state and businesses (ensuring women are not left with the entire responsibility for care)
- Enable women to have choices over how to balance unpaid care work, paid employment and leisure time

Investments in access to clean water, sanitation, electricity, roads, safe transportation, and appropriate and affordable housing as well as public and community spaces can increase the productivity and improve the quality of care work (Clark, 2016; Antonopoulos, 2009).

In Bangladesh, access to affordable electricity has reportedly reduced the time spent by women on household tasks by 70%. Inadequate sanitation in India on the other hand, is said to cost the economy USD 213 million due to loss of time at school and work: while in Viet Nam time savings from improved sanitation alone could save USD 41.6 million per year (Asian Development Bank, 2015).

In particular, improvements in energy access and water provision significantly reduce women's time spent on domestic tasks, such as collecting fuelwood and water, and free up women's labour time, enabling them to undertake paid work – either inside or outside the household (Fontana and Natali, 2008). The provision of community spaces can facilitate the organisation of care and improve its quality.

Specific examples where infrastructure interventions can enable WEE by supporting the care economy include:

- **Energy access** - Access to efficient or clean energy technologies can improve women's productivity, health and safety while performing unpaid care work, alleviate time poverty and in turn enable them to engage in paid work. A study in Nicaragua showed the propensity of rural women to work outside the home increased approximately 23% due to more efficient, less time intensive home production work, following the provision of lighting and modern cooking appliances (Grogan et al, 2013). An energy awareness programme in Arusha, Tanzania, where 70% of the population lives in informal settlements on the outskirts of the city, also found that access to affordable clean energy technologies resulted in significant reductions in household expenditure and time spent cooking and collecting fuel (UN Habitat, nd).

⁷ Available evidence of 'proven' interventions in terms of impacts on women's economic empowerment, is currently limited to one or two examples. Systematic research and evaluation is needed to create more robust evidence. Examples of promising approaches and case studies can be found in Annex B along with references to evidence.

- **Transport** - Gender-sensitive transport interventions, including appropriate service routes and schedules, affordable fares, and appropriate/safe vehicle design (e.g. women-only carriages⁸), have addressed women's needs and vulnerabilities. Proximity and affordability of transport options as well as gender-aware planning of transport routes can reduce the time and energy required to make care related journeys, including visits to health and social facilities. Better data and women's involvement in transport and municipal planning processes help ensure such considerations are raised⁹.
- **Social Infrastructure** – The provision and maintenance of formal and informal spaces for child and other care services can both release women caregivers for remunerative activity and provide paid decent employment for caregivers on a large scale – a win-win opportunity for WEE (ENID, Egypt). The provision of formal childcare increased the labour force participation of educated women in Arab communities in Israel (Schlosser 2011). Innovations in this area include mobile crèches in India (ODI, 2016) and the provision of crèches in informal settlements in South Africa.

5.2 Expanding opportunities for women in informal work

Women's informal work encompasses a wide range of activities not covered by legally enforceable job contracts, lacks social protection and job security and may expose workers to unsafe working conditions or personal violence. It also often yields irregular earnings and a low implicit wage rate and may not be carried out in a dedicated workspace. Informal jobs include service providers such as domestic workers or waste pickers, home-based production workers, vendors, and own-account (or self-employed) workers, operating a microenterprise.

High quality infrastructure and the proximity of housing to urban areas can facilitate access to high productivity waged work (Winters et al., 2008) in the informal and formal economy. Planning of slum improvement programmes and new urban settlements, good transportation infrastructure, and well-located wholesale markets can support women's livelihoods (Roever, 2014). If provided with a suitable and safe place to work, women traders may be able to develop substantial businesses.

Specific examples where infrastructure interventions can support WEE by expanding opportunities for women working in the informal economy include:

- **Electricity** - Women home-based workers' ability to start and grow businesses is often dependent on the accessibility and affordability of electricity at home (DFID, 2016; O'Dell, 2014). The mass roll-out of electricity to rural areas in South Africa raised female entrepreneurship and informal sector employment in electrified communities by 9.5 per cent (Dinkleman, 2011). Connecting households to the electric grid enables people to buy and use mobile phones, fridges and other time saving technologies that can increase the productivity of home-based work and create wider business opportunities. Clean energy enterprises (see next section) are an important means to expand access to energy for low income workers and neighborhoods.
- **Safe, affordable transport**, designed with women as well as men's needs in mind, can improve mobility and access to more remunerative or larger markets in both rural and urban locations. The accessibility and cost of public transport is also a key factor for home-based workers and market place vendors, who commute to markets on a regular basis to buy raw materials and other supplies, negotiate orders, and sell finished goods (Chen, 2014).
- **Housing** plays a vital role in the informal economy, particularly for home-based workers. The location, affordability and design of housing directly impacts women's income generating opportunities, as well as their access to decent working conditions. Support for upgrading existing services and flexible regulatory environments that support mixed-use development are also key (Mitlin and Satterthwaite, 2014). When designing urban housing upgrading schemes, new apartment blocks offered slum residents improved WASH services, but the resulting decrease in living space meant that disadvantaged women with childcare responsibilities were no longer able to easily work from home (Tacoli and Satterthwaite, 2013).

⁸ In Israel, Japan, India, Egypt, Iran, Brazil, Mexico, Indonesia, the Philippines, Malaysia and the United Arab Emirates

⁹ Typically, snapshot data that informs transport planning is gathered during peak working hours, rather than at times where women doing care related journeys might be travelling.

- **ICT** and particularly mobile telephony is increasingly enabling women vendors and micro-entrepreneurs to access information about markets in both rural and urban areas and to connect with each other. Market information has the potential to increase women's earnings by reducing transaction costs and price variability and enabling direct payments (through mobile money transfers) which can lessen cash constraints. Mobile telephony can also help previously isolated home-based workers communicate with contractors and each other. To maximise this potential, gender differences in terms of access to and usage of mobile telephony and mobile payments need to be better monitored and analysed and that should inform how those services are provided and regulated.
- **Adequate water and sanitation** (in public spaces as well as in housing) can significantly impact street vendors and the profitability and growth prospects of home-based workers and enterprises. In a survey of eight urban areas, restricted access to toilets, running water a reliable power supply and waste removal services were shown to undermine productivity (Roever, 2014); as was inadequate shelter in marketplaces, due to heavy rainfall.

As with slum and shack dweller associations, women have also been prominent in informal sector worker organisations, locally, nationally and globally – particularly through Women Informal Employment Globalizing and Organizing (WIEGO). Engaging with these organisations is critical to addressing women's needs around infrastructure¹⁰. The box below is an example of how informal workers have organised to influence local and municipal planning.

Involving informal workers in local and municipal planning

Women make up a large portion of India's 10 million urban street vendors. In March 2014, the Indian parliament passed the Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act. The Act was the direct result of advocacy efforts by the Self-Employed Women's Association (SEWA) and the National Association of Street Vendors of India (NASVI) who fought for the legislation for decades and participated in a four-day hunger strike.

The Act recognises street vendors, treats them as positive agents in the economy, and includes dispute resolution mechanisms to address their day-to-day problems.

The law requires local governments to allow street vendors to be involved in local government planning processes and participate in Town Vending Committees alongside local government representatives, non-governmental organizations and community organizations. By giving them a voice, it encourages inclusive planning at the local level.

(UN Women 2015; Inclusive Cities blog)

5.3 Fostering female entrepreneurship and enhancing the productivity of women-owned enterprises

Women workers in the informal economy are often entrepreneurs and business owners. Infrastructure can create business opportunities in higher-growth sectors and help entrepreneurs formalise or grow their businesses and provide employment for others. Constraints faced by female-owned firms and their concentration in particular sectors (that often have low-growth potential) have been shown to be influenced by the marginal value of time for home production, and constraints on where women can establish their businesses (Keyane and Wydick, 2001; Kantor, 2005).

Specific examples where infrastructure investments have the potential to impact and influence women's entrepreneurship include:

- **Energy access** can enhance businesses' productivity and income and growth potentials. Women's businesses are primarily concentrated in sectors characterised by low technological levels, low profit margins and local markets where incomes and economic growth are low (Smith, 2015). In order for small firms to make basic upgrades to their

¹⁰ <http://wiego.org/>

production technology, they must first have access to reliable and affordable energy. Upon receiving access, the greatest gains typically accrue to the lowest productivity businesses enabled to make this step change.

- **Energy entrepreneurship** – The production and distribution of cleaner, small scale energy technologies is an emerging market that provides opportunities for women to work as sales agents, employees and entrepreneurs within their value chains. The Solar Sister Initiative in Nigeria, Tanzania, and Uganda (see Box below) has employed women as vendors to promote clean energy. Other similar initiatives in urban areas have provided employment opportunities for a number of previously unemployed women: for example in Bamako, Mali, women work in the production and marketing of solar cookers (UN Habitat, nd). As household energy managers and members of networks, women can play a key role in increasing awareness and delivery of new domestic energy products and services, particularly in hard to reach communities (Energia, 2015).

Solar Sister, Uganda, Nigeria and Tanzania – women’s enterprise and capacity building through clean energy

Solar Sister is a network of women in Uganda, Nigeria and Tanzania that reaches the most low-income and remote areas with affordable solar lamps, mobile phone chargers, and fuel-efficient stoves.

Solar Sister’s business model deliberately creates women-centred direct sales networks. Management staff train and recruit locally-hired Business Development Associates (BDAs) that work as Solar Sister field staff. In turn, each BDA recruits, trains, and supports a group of 1-25 self-employed Solar Sister Entrepreneurs (SSEs). In total, Solar Sister has recruited and trained 65 BDAs and over 2,000 SSEs, the majority of whom are women.

By hiring women employees and engaging with women entrepreneurs, Solar Sister provides women with their own source of income, access to new productive capital and income-generating opportunities, and greater financial stability and independence.

To date, the Initiative has created micro-businesses for 171 Solar Sister entrepreneurs in Uganda, Nigeria and Tanzania, and has brought the benefits of solar power to more than 31,000 Africans. Solar Sister’s goal is to make women an integral part of the clean energy value chain in Africa. By generating income for entrepreneurs and savings for her customers, every dollar invested in a Solar Sister entrepreneur generates over USD 48 in economic benefits in the first year alone. For example, a solar lantern costing USD 18 can save a customer USD 163 over a five-year period by reducing kerosene usage. Another USD 45 solar lantern plus mobile phone charger can save a customer USD 225 by reducing kerosene usage and eliminating mobile charging fees over the same period.

(Soria, L. Farley, K. and Glinski, A., 2016; UNFCCC, nd)

- **ICT**, including mobile banking platforms, can help women grow their businesses by facilitating access to finance (savings and credit), information and new markets. When businesses become integrated into more demanding global value chains with tighter time constraints and greater product quality standards etc., using new technologies and data becomes increasingly important (De Haan, 2016).
- **Financing** – In order to register, formalise and grow a business, business owners need to be able to access information and finance that ICTs can provide. Financing mechanisms, including subsidies and credit lines that provide women led SMEs with the funds needed to invest in transport, small scale generators and/or storage facilities etc., help support women’s business expansion and growth.
- **Transport and storage** improvements (including to pathways and roads) facilitate personal mobility and expand the size of local markets accessible to women’s businesses geared to women consumers. As businesses expand and trade in larger volumes, improved bulking and storage facilities and larger movement of goods (inputs or outputs) integrate and expand

markets and facilitate entry to geographically larger and more lucrative market opportunities. Storage and transport facilities suited to perishable goods, at appropriate scales, may be particularly important to women led trading businesses.

Conclusion

This briefing note has highlighted **existing opportunities for infrastructure to support women's economic empowerment**:

- By exploring the evidence on the **way infrastructure can address the care economy through a reduction in the drudgery associated with women's care responsibilities**, it is clear infrastructure's most significant contribution to WEE is **increasing the time women can spend pursuing economic opportunities**. Access to energy, the provision of affordable transport that is responsive to women's mobility patterns, and the provision of social infrastructure for child and other care services have been highlighted in particular.
- By increasing accessibility to water, electricity, markets, safety and security and making markets more competitive, infrastructure expands **opportunities for women in the informal economy**.
- **In the area of entrepreneurship**, infrastructure can help scale women owned businesses by **increasing their productivity and access to higher growth sectors**. In order to upgrade production technologies, entrepreneurs must have access to reliable energy. Once electricity is made available, ICT infrastructure can provide access to finance, information and transport that enables entrepreneurs to overcome mobility constraints and tap into wider markets. Infrastructure can also provide innovative business opportunities for women, most notably those working as energy entrepreneurs and transport providers.

A **clear continuum** has emerged from this briefing note with regards infrastructure's role in addressing constraints and opportunities that lead to women's economic empowerment.

1. There is a need to further **build and integrate data and knowledge of women's needs** with regards to transport, energy, and infrastructure in urban settlements, the informal economy, and the care economy.
2. Given the large infrastructure deficit, and its lack of capacity to meet women's basic needs, infrastructure investments need to continue to **prioritise the provision of adequate and affordable water, sanitation, and energy access** etc., as a first step towards facilitating more economic opportunities for women.
3. Beyond fulfilling these immediate needs, infrastructure can play a role addressing constraints that limit **women's mobility, time and productivity** and enable them to access new markets and take up new opportunities engaging in decent work, and skilled employment and enterprise.
4. Helping women build skills and enhancing access to information, finance and technology can grow the number of employment and entrepreneurship opportunities for women in the infrastructure sector. This can be achieved by **improving transport and creating market linkages; scaling up energy access and unlocking business growth opportunities; or leveraging digital innovation**. As part of this there may be scope for facilitating women's own investments in localised shared infrastructure improvements.
5. Finally, **integrated policy and planning that prioritises women** and hardwires gender into every stage of infrastructure development can enable women to demand change and reach their potential. As such the process by which decisions are made on infrastructure investments is also critical.

Some of the most promising opportunities to increase WEE at scale, have involved **new technology**. The Briefing Note has identified how the use of digital technology can be used to gather real time data and inform settlement planning; map public space risks for women; and connect women to finance and market opportunities. Clean energy technology has also been at the heart of innovative women's enterprise models.

Another potentially great area is **PPPs** in infrastructure investments. If designed well, PPPs can target wider benefits to women. Innovative benefit-sharing clauses, quotas for skilled women workers, supervisors etc. and penalties for non-compliance can also be inserted into PPP contracts. Getting the private sector to engage in the WEE agenda in an authentic, sustainable and scalable way will require **building a case for and demonstrating women’s comparative advantages** as entrepreneurs, managers, designers and builders of infrastructure.

Finally, unlocking the transformative potential of infrastructure requires that investments in and provision of infrastructure **systematically consider the needs of the vast majority of women who spend most of their time working in the care and informal economies.**

Actor specific Recommendations

The following recommendations were taken from a round table discussion which brought together ICED and DFID experts on gender, infrastructure, private sector development and women’s economic empowerment. Drawing on the key findings of the briefing note, the roundtable shared best practice across DFID’s diverse areas of focus and compiled a select number of recommended practical steps which can be taken by different actors.

Actor	Selected Practical Actions
Donors	<ul style="list-style-type: none"> • Provide funding and support to build and grow women owned organisations that collectively bargain for improved infrastructure services. • Design programmes which enable and encourage women to influence processes and leverage their collective voice. • Shift the focus from implementing ‘safeguards’ that ‘do no harm’ to articulating more ambitious targets that promote positive outcomes for women and girls’ empowerment. • Promote capacity building and training for women, so women can move from unskilled to semi-skilled and skilled work in infrastructure projects. • Provide seed capital that funds innovative infrastructure projects, demonstrates their value, and grooms women to become contractors.
Private Sector	<ul style="list-style-type: none"> • Ensure infrastructure investments are gender sensitive, particularly by moving beyond mitigation to targeting women’s economic empowerment directly. • Embed clauses in contracts, performance standards or social safeguard mechanisms that support women’s economic empowerment. • Demonstrate the value added of including women in infrastructure investments. • Build the skills of women labourers so they can move from unskilled to semi and skilled work (e.g. employ female project supervisors and engineers). • Partner with NGOs and CSO to reach women. • Lead the way in providing infrastructure by and for women. Support innovative approaches that improve women’s mobility, employment and empowerment through initiatives such as female taxi driver services, motorbike taxi drivers etc.

National Government	<ul style="list-style-type: none"> • Ensure that policy and legislation recognise the diverse needs, constraints and opportunities of both women and men. • Hardwire gender into lead departments. • Break down silos between different government departments and agencies involved in designing and implementing infrastructure projects. • Solicit technical support to negotiate better infrastructure contracts with the private sector that benefit and incentivise employment opportunities for women in the infrastructure sector. • Introduce clauses in PPP contracts that require involving women's groups in the design process and incentivise the expansion of opportunities for women to work in the delivery and operation of infrastructure.
Municipal Government	<ul style="list-style-type: none"> • Establish clear mechanisms to promote and include women's voices in planning processes. • Extend the use of infrastructure scorecards to improve the delivery of gender sensitive infrastructure services. • Encourage women's engagement - specifically in transport planning and the provision of street lighting - in order to address violence against women and girls. • Employ women contractors for infrastructure projects especially communal infrastructure such as latrines.
NGOs and Civil Society	<ul style="list-style-type: none"> • Promote the voice of women's collectives to demand infrastructure that meets their needs and aspirations. • Partner with the private sector to build the capacity and capabilities of women in construction and other skilled occupations.

References

- Ahmed, F. (2016) *Rural Nepal Women Empowered to Maintain Roads*. World Bank blog. Available at: <http://blogs.worldbank.org/endpovertyinsouthasia/rural-nepal-women-empowered-maintain-roads>
- Amponsah, F., Turner, J., Grieco, M., Kwablah, Andrews and Guitink, P. (1996) 'Commercial use of non-motorized transport: evidence from Accra, Ghana', *Transportation Research Record*, 1563
- Antonopoulos, R. (2009) *The unpaid care work - paid work connection*. ILO. Available at: http://www.ilo.org/wcmsp5/groups/public/---dgreports/---integration/documents/publication/wcms_119142.pdf
- Asian Development Bank (2015) *Balancing the Burden? Desk Review of Women's Time Poverty and Infrastructure in Asia and the Pacific*. Asian Development Bank.
- Baden (1997) *Economic Reform and Poverty: A Gender Analysis*. Brighton: IDS.
- Besley, T., Burgess, R., & Esteve-Volart, B. (2005). Operationalising pro-poor growth: A country case study on India. Joint initiative of AFD, Federal Ministry for Economic Cooperation and Development (BMZ), UK Department for International Development, and the World Bank.
- Caballero and Alcahuasi (2007) *Gender in Peru: Can women be integrated into transport projects?* World Bank En Breve 112
- Carlsson Rex, H. and Jie Tang, Shining a Light on Women: Results from the Power to the Poor Rural Electrification Pilot in Lao PDR, World Bank. Available at: <http://www.esmap.org/esmap/node/565>
- Chant, S. and McIlwaine, C. (2013) *Gender, Urban Development and the Politics of Space*. E-International Relations. <http://www.e-ir.info/2013/06/04/gender-urban-development-and-the-politics-of-space/>
- Chen, M. (2014) *Informal Economy Monitoring Study Sector Report: Home-Based Workers*. Cambridge, MA, USA: WIEGO.
- Chopra, D. (2015) *Balancing Paid Work and Unpaid Care Work to Achieve Women's Economic Empowerment* (IDS Policy Briefing Issue 83). IDS. http://opendocs.ids.ac.uk/opendocs/bitstream/handle/123456789/5623/PB83_AGID316_Balancing_Online.pdf;jsessionid=AA6E09A302622623054B93891D32AC4D?sequence=1
- Clark, H. (2016) *Keynote speech on Women's Economic Empowerment for Sustainable Development in Rural Areas*. <http://www.undp.org/content/undp/en/home/presscenter/speeches/2016/03/18/helen-clark-keynote-speech-on-women-s-economic-empowerment-for-sustainable-development-in-rural-areas-.html>
- Cobert, B. Helms, B. and Parker, D. (2012) *Mobile money: Getting to scale in emerging markets*. Available online at: <http://www.mckinsey.com/industries/social-sector/our-insights/mobile-money-getting-to-scale-in-emerging-markets#0>
- Day, T. McKenna, K. Bowlus, A. (2005) *The Economic Costs of Violence Against Women: An Evaluation of the Literature*
- De Haan (2016) *Enhancing the productivity of women-owned enterprises: A Background Paper for the UN High Level Panel on Women's Economic Empowerment*. Ottawa: IDRC.
- Desai, S. Vashishtha, P and Josh, O. (2015) *Mahatma Gandhi National Rural Employment Guarantee Act: A Catalyst for Rural Transformation*. New Delhi: National Council of Applied Economic Research.
- DFID (2014) *Economic development for shared prosperity and poverty reduction: a strategic framework*. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/276859/Econ-development-strategic-framework.pdf

- Dinkleman, T. (2011) "The effects of rural electrification on employment: New evidence from South Africa," *American Economic Review* 101, no. 7 (2011): pp. 3078–3108
- EBRD (2015) *Supporting Women's Employment in the Passenger Transport Sector in Kazakhstan: Lessons on Equal Opportunity from Almatyelectrotans*.
- Energia (2015) *Expanding energy access through women's economic empowerment: ENERGIA's WE programme, 2014 – 2017*. Available online at: <http://www.energia.org/cms/wp-content/uploads/2015/02/ENERGIAs-WE-programme.pdf>
- Fia Foundation (2016) *Safe And Sound International Research On Women's Personal Safety On Public Transport*. Research Series, Paper 6
- Fontana and Natali (2008) *Gendered Patterns of Time Use in Tanzania: Public Investment in Infrastructure Can Help*. Brighton: Institute of Development Studies.
- Gender and Infrastructure Workshop for the Africa Region (2011). *A Collaborative Initiative of the Multilateral Development Banks Gender Working Group*.
- Grogan, L. and Sadanand, A. (2013) "Rural electrification and employment in poor countries: Evidence from Nicaragua," *World Development* 43: 252-265.
- Guislain, P. (2016) *Sustainable Mobility for All: A Proposed Common Framework*. PowerPoint Presentation. World Bank Group.
- Hoeffler and Fearon (2015) "Benefits and Costs of the Conflict and Violence Targets for the Post-2015 Development Agenda"
- Holmes, R. Morgan, J. and Hagen-Zanker, J. (2010) *Progress in providing employment for the poor: Development Progress stories: The national public works programme in India*. London: Overseas Development Institute.
- Kabeer, N. (2012) *Women's economic empowerment and inclusive growth: labour markets and enterprise development*. IDRC and DFID SIG Working Paper.
- Kantor, P. (2005). *Determinants of women's microenterprise success in Ahmedabad, India: Empowerment and economics*.
- Levy, C. (2013) *Travel choice reframed: "deep distribution" and gender in urban transport*. *Environment and Urbanization* 25: 47-63.
- Malaza, N. Todes, A. and Williamson, A. (2009) *Gender in Planning and Urban Development*. London: Commonwealth Secretariat. Available at: http://www.delog.org/cms/upload/pdf-gender/Gender_PlanningUrbanDevelopment.pdf
- Mitlin and Satterthwaite (2014) *Reducing Urban Poverty in the Global South*. London: Routledge
- Ndiaye, OK. (nd) *Is the success of M-Pesa empowering Kenyan rural women?* *Feminist Africa* 18.
- O'Dell, K. et al. (2014) *Women, energy, and economic empowerment: Applying a gender lens to amplify the impact of energy access*. Deloitte University Press. http://d27n205l7rookf.cloudfront.net/wp-content/uploads/2014/09/DUP_950-Women-Energy-and-Economic-Empowerment_MASTER1.pdf
- ODI (2016) *Women's work Mothers, children and the global childcare crisis*. London: ODI.
- OECD (2012) *Poverty Reduction and Pro-Poor Growth: The Role of Empowerment*. OECD Publishing.
- Outram and Korn (2015) *Guidance Note: Mainstreaming Gender in DFID's Infrastructure Programmes*. Birmingham: GSDRC.

PIDG (nd) *Installing, operating and maintaining a countrywide mobile network in Pakistan*. Case study. Available online at <http://www.pidg.org/resource-library/case-studies/pidg-case-study-pakistan-mobile.pdf>

Pozarny, P.F. (2016) *Gender roles and opportunities for women in urban environments*. Birmingham, UK: GSDRC. <http://r4d.dfid.gov.uk/pdf/outputs/GovPEAKS/HDQ1337.pdf>

Roever (2014) *Informal Economy Monitoring Study Sector Report: Street Vendors*. Cambridge, MA, USA: WIEGO.

Sankrit, R. (2011) 'Impact of energy access on livelihoods of women home-based workers: SEWA Bharat's intervention in Bihar, India', in *Boiling Point*, Issue 66. <http://www.energia.org/cms/wp-content/uploads/2016/02/DFID-Energia-Ashden-Report-Public-Summary-Feb-2015-1.pdf>

Schlosser, A (2011) "Public Preschool and the Labor Supply of Arab Mothers: Evidence from a Natural Experiment". Tel Aviv: The Eitan Berglas School of Economics, Tel Aviv University.

Smith, H. (2015) *Women's Economic Empowerment, Private Sector Development Synthesis Note*. Donor Committee for Enterprise Development.

Soria, L. Farley, K. and Glinski, A. (2016) *With Solar Sister, Forward We Go": A Qualitative Assessment Exploring How Solar Sister Brings Light, Hope, and Opportunity to Women in Africa*. Washington DC: ICRW

Tacoli C. & Satterthwaite D. (2013) Editorial: Gender and Urban Change. *Environment and Urbanisation*, Vol. 25: 3-8. <http://eau.sagepub.com/content/25/1/3.full.pdf+html>

Taylor, A. (2011) *Women and the City: Examining the Gender Impact of Violence and Urbanisation*. Action Aid. <http://www.actionaid.org/publications/women-and-city-examining-gender-impact-violence-and-urbanisation>

Törnqvist, A. and Schmitz, C. (2009) *Women's Economic Empowerment: Scope for Sida's Engagement*. Sida. http://www.enterprise-development.org/wp-content/uploads/SidaEngagement_WomensEconomicEmpowerment.pdf

Tzannatos, Z. (1999). Women and labor market changes in the global economy: Growth helps, inequalities hurt and public policy matters. *World Development*, 27(3), 551–569.

UNFCCC (nd) *A Women Powered Clean Energy Revolution*. Available online: http://unfccc.int/secretariat/momentum_for_change/items/7072.php

UN Habitat (2013) *State of Women in Cities 2012-2013: Gender and the Prosperity of Cities*. Nairobi: UN Habitat.

UN Habitat (nd) *Enhanced Energy Access for the Urban Poor: Best Practice Case Book*. Available online at: http://www.avsi-usa.org/uploads/6/7/4/2/67429199/avsi_coelba3.pdf

UN Women (2015) *Progress of the World's Women 2015-16: Transforming Economies, Realizing Rights*. New York: UN Women.

What Works (2015) *Counting the Costs of Violence Against Women and Girls In Ghana*.

Weigo (2013) *Informal Workers and Collective Bargaining: Five Case Studies*. Weigo Organizing Brief No. 9. Available at: <http://wiego.org/sites/wiego.org/files/publications/files/Budlender-Infomal-Workers-Collective-Bargaining-WIEGO-OB9.pdf>

Winters, P. et al. (2008) *Rural wage employment in developing countries*. Rome: FAO

World Bank (2006) *Gender, Time Use, and Poverty in Sub-Saharan Africa*. World Bank working paper.

World Bank (2010): 'Making infrastructure work for women and men: A review of World Bank Infrastructure projects (1995-2009)'

World Bank. (2001). Engendering development: Through gender equality in rights, resources, and voice. New York: Oxford University Press.

World Bank (2012) "Infrastructure Strategy Update FY2012-2015, Transformation Through Infrastructure".

Annex A: Suggested ways to mainstream gender and women's economic empowerment into infrastructure projects

The table below provides potential entry points for gender mainstreaming/women's economic empowerment within the infrastructure project process¹¹.

Mainstreaming Mechanism	Gender/Women's Economic Empowerment (WEE) Outcomes
Action planning	<ul style="list-style-type: none"> Ensuring Gender Action Plans (GAPs) consider and plan for WEE opportunities
Gender analysis and impact assessment	<ul style="list-style-type: none"> Easier identification of gender-specific priorities Using social and demographic profiling (using sex disaggregated data) to ensure delivery of the most appropriate services
Gender involvement and consultations	<ul style="list-style-type: none"> Enhancing women's and girls' benefits and opportunities for WEE supported Increased independence and community voice amongst women Sensitivity-awareness due to socio-cultural constraints that may inhibit women's participation
Capacity building and gender mainstreaming skills	<ul style="list-style-type: none"> Increased gender awareness amongst project staff through appointment of gender specialists or integration of gender programmes for managers Actively employing women in senior decision making roles
Supporting wider activity and participation	<ul style="list-style-type: none"> Encouraging wider participation of women across project lifecycle
Supporting women into employment and other income generating opportunities	<ul style="list-style-type: none"> Targets for female employment at various project stages to help increase economic independence of women Employment incorporating training and development to enhance women's skill set Providing more female only facilities will encourage women to remain in their jobs Catalysing WEE beyond the workplace by removing barriers preventing women from taking up senior positions
Contractual mechanisms	<ul style="list-style-type: none"> Establish and include key performance indicators (KPIs) that benefit women into contracts to ensure contractors follow best practice
Allocate funding to support gender mainstreaming activities	<ul style="list-style-type: none"> Specifically allocate resources to achieve goals around gender equality to ensure women's benefits are delivered and measured
Delivering accessible services	<ul style="list-style-type: none"> Setting usage costs at a rate that women can afford and supporting appropriate use of credit to maximise benefits to women Providing women-specific public facilities Maximising marketing and infrastructure information to ensure that women's needs as customers are met
Monitor and evaluate against gender impacts	<ul style="list-style-type: none"> Including gender from the start in social and environmental impact assessments as a priority Using gender disaggregated data and analysis and appropriate key gender sensitive indicators

¹¹ Adapted from: IFC (2012)

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