Women and Infrastructure: A Synthesis of GrOW Research Findings

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Summary

This paper synthesizes findings from selected research projects funded by the Growth and Economic Opportunities for Women (GrOW) program that reveal the impact of public infrastructure on women’s economic empowerment (WEE) in low-income contexts.

The GrOW program aims to generate evidence on the need for women’s economic empowerment to improve economic growth and reduce economic inequality. One of the program’s emerging themes has been the impact of infrastructure on the demand for and supply of women’s labour in low-income contexts. GrOW also focused on the social norms that impede them from balancing paid and unpaid work — enabling women to earn an income, while managing their household responsibilities and their own well-being.

Evidence from the international literature and GrOW-supported research clearly shows the positive connection between women’s access to infrastructure and positive health and economic outcomes for the entire household. This includes access to jobs for women and a reduction in their unpaid care burden at home.

GrOW-supported research by the Institute of Development Studies (IDS) and others has highlighted the extremely long hours women work and the need to reduce the drudgery they face in carrying out household chores such as looking after the young and elderly, collecting firewood and water, and more. Combined with the time spent in getting to and from work, they are left with no personal time — a phenomenon known as “time poverty.” This negatively affects their health.

The key finding from GrOW research is that basic infrastructure has the potential to reduce the time women spend on home and care work. However, the international literature clearly states that infrastructure projects rarely address this need directly and tend to consider infrastructure to be a universal benefit. This downplays women’s economic and social roles in low-income contexts.

Based on these findings, the paper recommends that policymakers and programmers focus on the following to improve WEE outcomes: better mobility; improved working conditions for women at home and in the workplace; viewing infrastructure as more than just large-scale investment; addressing traditional gender norms that restrict women’s mobility and work choices. The eventual outcome is improved health and well-being for women and their families.
1. Introduction

The Growth and Economic Opportunities for Women (GrOW) program is a five-year, multi-funder partnership between IDRC, the UK’s Department for International Development, and the William and Flora Hewlett Foundation. Launched in June 2013, it ended in May 2018. GrOW aims to fill the knowledge gap about how to overcome the challenges women around the world face in pursuing better paid, productive jobs, and in accumulating assets. It seeks to strengthen the evidence base on women’s economic empowerment and economic growth, drawing lessons to foster learning, and contribute to the global body of knowledge.

GrOW funded 14 research projects in 50 countries around the world, with a focus on South Asia, and sub-Saharan Africa. GrOW’s expected results focus on three key areas: research excellence to strengthen the evidence base on women’s economic empowerment; building the capacities of researchers; and encouraging the use of research by practitioners and policy makers.

As GrOW projects come to completion, the program is exploring ways to synthesize the knowledge generated and situate it within the growing body of related evidence in low- and middle-income contexts.

Emerging evidence points to cross-cutting topics that merit deeper investigation. One of these areas is the impact of infrastructure on women’s lives through the following: mobility, availability of basic services, and how poor access to infrastructure affects women’s time availability and care responsibilities. Findings are situated within the broader literature and evidence through a rapid review of documents produced by international agencies. This paper also presents recommendations for policy and development programming and indicates potential directions for future research.

This note summarises research findings so far, which will be articulated in greater depth in the syntheses. These focus on measurement of women’s economic empowerment, links between gender equality and growth, the care economy, constraints to labour market participation, and the role of social norms.
2. Gender and infrastructure – international evidence

The international literature indicates that infrastructure projects have the potential to increase women’s economic earnings and contribute to international and national efforts to promote gender equality. The following section underscores how infrastructure affects women’s empowerment directly and indirectly.

i) Unpaid domestic work vs. paid work

For women in rural and low-income environments, unpaid care and domestic work — including care for the elderly and children — is a major, yet uncredited contribution to the household’s overall living standards and family’s social well-being. A gender review of the practices of the Private Infrastructure Development Group Facility, funded by InfraCo Asia Development Pte. Ltd., presents current development and infrastructure initiatives. Based on good practices in Sri Lanka, Nepal, and Vietnam, the report shows that large-scale public investments such as infrastructure usually do not consider the impact on unpaid domestic work as a benefit, nor improvements in women’s lives in general (Adam Smith International, 2016). This is despite the evidence from case studies that if public programs are prioritized and designed to help reduce the burden of unpaid domestic and care work among women, it could lessen the time required to carry out this work, and alleviate time poverty (Adam Smith International, 2016).

This is supported by the European Bank for Reconstruction and Development’s latest Gender Equality Strategy (2016-2020), which emphasizes that a lack of access to basic infrastructure services affects time use and reduces women’s ability to devote more time to market activities. This would, in turn, help reduce the gender gap in labour force participation (European Bank for Reconstruction and Development, 2015). As evidence, it cites a 2010 joint WHO and UNICEF monitoring survey of sanitation and drinking water in 45 developing countries, which showed that women and children bear the primary responsibility for water collection in the most households (European Bank for Reconstruction and Development, 2015).

The 2016-2023 World Bank Gender equality, poverty reduction and inclusive growth strategy similarly emphasizes the critical links between gender equality-related interventions and infrastructure investment for women (Adam Smith International 2016). The strategy states that investments in electricity, water, roads, information and communication technologies, and transportation can free up time that women need for unpaid care work, paid employment, and access to education and health services. As a result, they can help overcome common barriers to female labour force participation, including inadequate care services for children and elderly dependents and lack of safe and affordable transportation (World Bank Group, 2016).

ii) Public infrastructure specifically assisting women

A 2015 review by the Asian Development Bank found that although basic infrastructure has the potential to reduce the time women spend on home and care work, infrastructure projects rarely address this need directly, even when...
reducing the time burden is a stated aim of the project (Adam Smith International, 2016).

Infrastructure, particularly public works, are often designed and managed by engineers and planners — primarily male — who may not be familiar with women’s basic needs in low-income areas. This mismatch between engineering expertise and gender knowledge means that the link between gender and infrastructure is not taken seriously (Harman, 2015). Furthermore, public infrastructure programs usually consider such investments as benefiting the public in general, rather than individual groups.

However, women as a collective often benefit from public infrastructure interventions such as transport since it helps reduce the time and energy required to travel to work, as well as to health and social facilities such as hospitals, community centres, and schools (ICED, 2017). Therefore, infrastructure design should keep women specifically in mind at the planning stage.

A review of International Fund for Agricultural Development (IFAD) gender equality and women’s empowerment interventions found that provision of infrastructure can address some root causes of gender inequality, such as time poverty. However, these benefits must be intentionally built into program design and consistently followed-up and monitored. The review found that changes in gender roles and relations were more effectively achieved when improvements in women’s access to resources and opportunities were combined with measures to enhance women’s and men’s awareness (IFAD, 2017). Donors such as the Asian Development Bank, have integrated innovative gender-inclusive designs into their infrastructure projects. These include measures to ensure women’s personal security in public transport services, as well as supporting women’s participation in decision-making about local budgetary priorities in small town development (ADB, 2017).

**iii) Rural infrastructure and income earning**

Women’s access to infrastructure is both an urban and rural issue. The Food and Agriculture Organization’s Gender Policy maintains that, by 2025, women’s work burden should be reduced by 20% through improved technologies, services, and infrastructure, thus recognizing the contribution of rural infrastructure to agricultural output and enhanced food security for men and women (FAO, 2013).

"Fuel-efficient cook stoves, biogas systems, solar energy and village woodlots managed by women not only save time for firewood collection but also reduce the inhalation of toxic fumes. Similarly, investments in water management and infrastructure ... also save time for water collection ...It also yields significant benefits for family wellbeing because women, as primary care givers, have more time to attend to other needs of their family”.

**IFAD Gender Equality Policy; Mid-Term Review 2016**

Investment in rural roads also help women earn incomes by increasing their access to markets where they can sell their produce, and to workplaces. For instance, nearly 75% of surveyed female beneficiaries of the Rural Road Improvement Project in Cambodia reported...
an increase in farm produce sales because of road improvements (ADB, 2017). Similarly, the Bangladesh Rural Road and Market project allowed female producers and traders, who earlier had to depend on intermediaries to purchase inputs and sell their goods, direct access to markets through improved roads. This enabled them to earn greater profits and provided opportunities to expand their businesses (World Bank, 2010).

iv) Infrastructure and gender norms

Social and cultural barriers are perhaps the most common ways of restricting women’s participation in the workforce. This is particularly so because constraints on their physical mobility, resources, and time limits women’s social networking compared to their male counterparts. A review of World Bank infrastructure projects found that such projects can help women overcome social barriers. They do so by broadening community networks as more women are connected through new economic opportunities (through better roads, greater access to economic services), and by strengthening their collective action (World Bank, 2010).

Infrastructure investment can also help accelerate women’s economic empowerment if they are designed to loosen traditional gender roles and social norms. This type of investment goes beyond physical public works infrastructure and involves making women part of the infrastructure development. In India and Ethiopia, for example, large numbers of women are employed in construction projects as contractors, semi-skilled and skilled workers, and supervisory engineers. This allows them to benefit from result, but it also creates the space to enter traditionally male-dominated sectors. Similarly, women across Africa and Asia are benefiting from targeted investment in transport infrastructure (e.g. roads, modes of transportation) both in terms of usage and as a new stream of employment. Women become employed as bus drivers, ticket collectors, and taxi and motorized rickshaw drivers (ICED, 2017).

IFAD has experimented with gender-transformative projects at the household and community levels by going beyond the usual symptoms of gender inequality and looking at social norms, attitudes, and behaviours, as well as social systems. Such initiatives include: household methodologies to create and implement shared family visions for improved decision making; equitable sharing of workloads and of the benefits of livelihood activities (IFAD, 2017). An evaluation of these initiatives found that reducing drudgery and challenging gender norms have led to transformational changes in individuals living in secluded and marginalized communities. IFAD interventions were less successful in changing formal laws, policies, and government capacities. The evaluation concluded that interventions that address a combination of social norms and gender practices can facilitate changes in gender roles and relations (IFAD, 2017).
3. Evidence from the field: findings from GrOW research

This review found that six GrOW projects in Africa and South Asia yielded lessons about infrastructure and women’s economic empowerment. Better access to markets for labour, products, and services played a key role in allowing women to participate in economic activities while balancing paid, unpaid, and care work. Most women required improved basic services, in particular access to water, public health care, transportation and education (Zambeli et al., 2017; Javed et al. 2018).

GrOW research findings also stressed that reducing rural women’s workload through public infrastructure such as water supplies was a priority. In urban slums, lack of access to toilets, poor drainage, unpaved streets, and other unfavourable environmental conditions were negatively associated with women’s empowerment (Lotia et al., 2018).

i) Mobility

In Pakistan, researchers from Harvard University and the Centre for Economic Research in Pakistan (CERP) evaluated a skills training program for women in rural Punjab through a randomized control trial. The evaluation showed that it is extremely challenging for rural women to travel across village boundaries for vocational training; providing monetary solutions such as stipends only helps modestly; and providing in-village training significantly increases uptake among women in rural areas. By locating training centres in randomly selected villages, the evaluation also shows that it is possible to scale-up the provision of accessible training for rural women. The study also points to how norms can limit women’s movements and their ability to cross village boundaries in this context (Javed et al., 2018).

In Nepal, the government launched the Karnali Employment Programme in 2006 to provide at least 100 days of guaranteed wage employment to extremely poor households. It also sought to create local public assets that would contribute to local livelihoods in the long term. The employment projects included public work programs such as roads, drinking water projects, irrigation canals, and micro-hydropower projects. GrOW-supported research by IDS, looking at women’s paid and unpaid work in India, Nepal, Rwanda and Tanzania, found that the long distances to the worksites made it difficult for women to carry out their dual responsibilities. Most of the women respondents stated that it took them two to three hours to reach the worksite, although the project implementation manual specifically stated that the worksite should be within one
hour’s walking distance of the village (ISST/IDS, 2017).

Similarly, preliminary findings in India indicated that recent government investments in transportation infrastructure, such as access to roads and frequent bus services, had expanded non-agricultural employment opportunities for rural men and women. Using data from the India Human Development Survey, collected in 2005 and 2012, the IDRC-funded study conducted by the University of Maryland (non-GrOW) looked at the impact of village transportation conditions on women’s participation in non-agricultural work. It found that employment in the non-farm sector helps increase women’s control over economic resources, drives economically inactive women into the labour force, and allows them greater decision-making power. However, the study also found that improvements in transportation infrastructure have a weaker positive impact on women’s non-agricultural employment in communities that follow more traditional gender practices (Lei lei et al., 2017).

In Rwanda, IDS partnered with BRAC to produce the National report for Women’s Economic Empowerment Policy and Programming in Rwanda, and found that the distance and time spent traveling to work meant that some women had to work late in the evening on care tasks, leaving them little or no time to rest. Survey data and interviews with 200 women and their families in two different project sites showed that most women walked to work: 54% traveled for up to half an hour and 14% traveled for more than an hour (Rohwerder, 2017). These findings are supported across the multi-country IDS study.

GrOW-supported research on female mobility in public transport in Pakistan, led by the Urban Institute, showed that women were subject to rampant sexual and verbal harassment on public buses and were reluctant to report this to authorities (Malik et al. 2018). This limited women’s use of public transport, often the only means for most low-income women to get to work in urban areas. Women also tended to spend more than men on public transit for the same level of use, likely because women choose more expensive methods considered to be safe, such as Uber (Malik et al. 2018).

ii) Work as drudgery

Authors of the IDS study who looked at women’s paid and unpaid work across four countries in Africa and Asia found that, in general, the quality of work women engaged in was of low quality and high pressure, leading to continuous juggling of time between home and work, and little satisfaction from either. GrOW research found that, in addition to distance from work sites, poor pay and difficult labour conditions added to the drudgery of women’s work. Payment delays by employers, low rates of pay, and limited

IDRC / Bartay
skills development all contributed to women’s feelings of being overburdened.

Women also repeatedly spoke of the time spent in securing clean water and firewood. They indicated that the provision of improved stoves, use of biogas, and provision of piped water and water tanks could reduce the time needed to carry out these tasks (Rohwerder et al., 2017). Similarly, the 2008 Rwanda government’s Umerenge program found that women overwhelmingly considered that combining paid work, unpaid work, and care work was stressful and exhausting. Women frequently multitasked – or “time stretched”, to the point that even husbands acknowledged that it was exhausting for their wives to combine paid and care work (Rohwerder et al., 2017).

The IDS study with BRAC in Tanzania on balancing unpaid care work and paid work in four districts similarly explored how women and household members balanced the unpaid work of caring with income-earning opportunities. The study found that poor water and electricity infrastructure, distant health facilities, and bad roads all contributed to the time women spent on care tasks, reducing the time they could invest in cash-earning activities. Bad roads also increased the time spent on care activities — to reach health facilities, for instance (Zambelli et al., 2017).

Most study respondents reported an overwhelming feeling of tiredness as they struggled to manage everyday life amid environmental hazards, diseases, and economic precariousness. This, however, was complemented by a sense of responsibility, pride, and determination which allowed them to keep going (Zambelli et al., 2017).

By examining the Karnali Employment Programme and the Enterprise Development Programme in Nepal, the IDS researchers found that the lack of public services such as roads and transportation added to the drudgery for women involved in produce farming, who had to carry the produce and walk long distances to sell them (Ghosh et al., 2017). The study looked at the causes and consequences of the double burden on the physical and emotional wellbeing of women and their children.

Similarly, across the four sites studied by IDS under the Mahatma Gandhi National Rural Employment Guarantee Act, Indian women in paid work repeatedly spoke of constantly rushing, multitasking, and juggling home and work roles. To manage their double burdens, women ended up stretching their time and energy to meet their responsibilities rather than reducing unpaid care work (Zaidi and Chigateri, 2017). The consequence for these women, and other across the IDS study, was physical and mental depletion.

**iii) Public infrastructure**

Public infrastructure is a key component in enabling women to participate in market opportunities. The GrOW-supported IDS study on ActionAid’s Food Security and Economic Empowerment Programme in Northern Rwanda emphasized the need for synergies between programs and service provision. For example, during construction of a road between a village and a town, there was additional need for “feeder roads” to connect the different villages and facilitate access to the market (Action Aid, 2017).

The IDS research in Nepal highlighted access and proximity to public resources and services such as water taps, electricity, roads, etc. as key factors in the organization of unpaid care work in the household. Women’s participation in paid
work was influenced by a complex mix of the type of available employment, gender norms on mobility and sexuality, and the support available for unpaid care work. Mobility-related gender norms were, to some extent, responsible for determining women’s paid work opportunities (Ghosh et al., 2017).

In Nepal, women seed producers pointed to the lack of irrigation facilities in the area as a barrier to their economic gains: having to irrigate their crops manually increased their workload. GrOW research by IDS and Oxfam Nepal has shown that the introduction of mechanized devices such as seed sorting machines and threshers helped to reduce women’s time poverty (ISST/IDS, 2017).

Similarly, the IDS India project National Report, found that it was essential to reduce the time and energy women and girls spent on unpaid care and household work by providing accessible public resources and services such as roads, irrigation canals, water, fuel, electricity, flour mills, health centres, and schools (Zaidi and Chigateri, 2017).

iv) Safety and health

A sizeable amount of evidence connects high work demands to women’s mental health condition. A GrOW-supported project in rural India, led by McGill University, IFMR, and Seva Mandir on the provision of childcare, found that the nature of the work was important: housework was associated with mental distress whereas other types of work were not. This is because household work is expected of women and not valued as an economic resource, despite its arduous demands. In addition, work performed within the home may be more detrimental to mental health because it can limit interactions with other women, often a source of social de-stressing (Richardson et al., 2017).

GrOW research in India highlighted the health burdens on women due to their dual roles: women constantly complained of fatigue, lack of sleep, and chronic pain from lifting heavy objects at work and at home. The combination of long hours of paid work, hard labour, and poor facilities at the worksites on the one hand, and the time-consuming, intensive, onerous nature of care work on the other affected women’s wellbeing. Women had little time for personal care, hygiene, and leisure, particularly in urban areas (Zaidi and Chigateri, 2017).

Another GrOW-supported study by LEAD Pakistan in three urban slums in Pakistan, India, and Bangladesh demonstrated that safety was compromised by environmental degradation. The study found that bad roads were one of the most pressing issues faced by slum residents. Roads that were submerged for many days during the rainy season restricted mobility within the slums. The accumulation of rainwater on streets and inside homes, together with clogged drains, also created a breeding ground for contagious diseases. These were more common in slums with roads built with temporary materials such as mud, since they retain water for much longer periods.
The impact of these conditions were most distressing for women, as men tended to leave the slum during the day and women remained in or near the home (Lotia et al, 2017).

Safety considerations at work also created a stressful environment for women. In the IDS research on the Karnali Employment Project in Nepal, women spent up to eight hours at worksites without drinking water or toilets. The lack of toilets becomes a safety issue for women who have to leave the worksite or find a secluded spot elsewhere (ISST/IDS, 2017). In the LEAD Pakistan study, the lack of toilets in slums led women to wait until dark to relieve themselves, leaving them vulnerable (Lotia et al, 2017).

The IDS study also found that safety equipment such as helmets, boots, gloves, and goggles were not provided in hazardous work areas, increasing the risks of poor health and injury (ISST/IDS, 2017).
4. Linking evidence to policy: selected recommendations

GrOW research has shown that women’s economic empowerment in low-income contexts remains restricted by the overwhelming time burden of engaging in both paid and unpaid work, lack of decent job opportunities, and limited access to economic opportunities.

Addressing women’s double burden is a key priority in low-income contexts. This paper has highlighted the role of public infrastructure in helping reduce the time women spend on unpaid work and enhancing access to paid work. Specific recommendations resulting from GrOW research and supported by the wider literature on the subject include:

Recognizing mobility, safe transport, more and better roads as key factors in providing women with access to markets and employment, as well as to schools, hospitals, water facilities, and other communities.

**Recommendation:** Infrastructure programs should specifically recognize that women benefit from transit in different ways than men. Indicators supporting women’s mobility should be built into infrastructure programs at the outset, and programs should be designed with women’s safety in mind, combined with awareness raising initiatives.

Recognizing that poor working conditions at home and the workplace are rarely addressed as part of infrastructure design. This, in turn, negatively influences women’s ability to be productive, thus affecting their economic decision-making ability, as well as their overall well-being.

**Recommendation:** Public infrastructure design and programming must include employer policies and guidelines specifically addressing women. These include designing transport mechanisms that can help reduce the time to travel to/from work; provide safe routes; and provide onsite facilities for mothers, such as daycare, breastfeeding areas, toilets, etc.
Recognizing that public infrastructure also includes customized services such as mechanization techniques in agricultural regions and means for women to undertake household duties efficiently.

**Recommendation:** Public infrastructure programs must ensure access to facilities that reduce the time burden of household tasks, such as access to clean water, fuel, and to health and daycare facilities.

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Recognizing that restrictive social and gender norms directly impact the social and economic capacity of women.

**Recommendation:** Facilities that can bring women together socially at or outside work should be integrated as a “soft” component into public infrastructure designs. Policies to educate both men and women in safe travel practices, safety at work, etc. should be promoted. Men should also be involved in employer-led or community-based discussions on ways to support women in housework. This awareness could reduce women’s double burden.
References


Malik, Ammar Dr., Irvin-Erickson, Yasemin Dr. and Kamiran, Faisal, Dr. (2018). Mobility as Empowerment. Are harassment, fear of victimization and public transport design impeding women’s access to economic opportunity in Lahore? [Presentation by Urban Institute at "Empowering Women for Growth and Prosperity”].


