



SECTION 4

Case Studies

Contents

Case Studies

<i>U.S. Bank Stadium, United States of America</i>	131
<i>El Metropolitano Bus Rapid Transit, Peru</i>	141
<i>Regional Communications Infrastructure Program (RCIP), Malawi</i>	151
<i>Water Sector Trust Fund, Kenya</i>	161
<i>Mi Teleférico Cable Car, Bolivia</i>	171
<i>TransMilenio Bus Rapid Transit, Colombia</i>	183
<i>Cairo Metro, Egypt</i>	199
<i>Last Mile Connectivity Program, Kenya</i>	215

United States of America
U.S. Bank Stadium



Source: Image provided by Alex Tittle, Equity Director for the Minnesota Sports Facilities Authority

A state-led program to encourage more women and minorities to pursue the employment and business opportunities created by the construction of a major sporting and events stadium.

The U.S. Bank Stadium (the Stadium) is the centrepiece of Minnesota’s redevelopment plan¹ and has a strong social inclusion agenda aimed at benefitting local communities. The Stadium is owned and operated by the Minnesota Sports Facilities Authority (the Authority), which was also responsible for its design and build.

The project aims to maximise economic, fiscal and social benefits for the State of Minnesota (the State) and its communities. Several initiatives that aimed to promote an inclusive agenda were implemented throughout its design, construction and operation, and were set out in an Equity Plan.

The Equity Plan was developed following a mandate by the State, which aimed to ensure its socially inclusive values and vision were reflected in the design and construction of projects. It is part of wider efforts to increase social inclusiveness and reduce discrimination and disparity. On completion of the Stadium, the Equity Plan was extended by the Authority to cover the operations phase.

The Equity Plan includes pragmatic goals to integrate women, minorities and low-income residents into the workforce, and women- and minority-owned businesses into the design and construction activities of the project. Specifically, the Equity Plan outlines how to provide employment and equal access to labour market opportunities, and establishes goals for contracts to be awarded to capable, available and willing women- and minority-owned businesses (refer to Table 1: Target goals and additional achievements of the Equity Plan). Veterans and low-income residents were also included in employment initiatives, with much of the engagement led by specialised employment assistance firms.

Businesses			
Target goals		Additional achievements	
9% Minority-owned	11% Women-owned	Veteran-owned	
Workforce			
Target goals		Additional achievements	
32% Minority	6% Women	Veterans	Low-income residents

Table 1: Target goals and additional achievements of the Equity Plan

¹ Minnesota’s redevelopment plan is based around the MPLS Plan, The Minneapolis Plan for Sustainable Growth, which was unanimously adopted by the Minneapolis City Council on October 2, 2009.

Project Overview

Key words	Construction, job creation for women and members of minority communities, performance monitoring
Sector	Leisure facility
Background	The State of Minnesota is one of the most progressive states in the United States (US) with high standards of living and civic participation. It has set ambitious goals for the inclusion of more women, ethnic minorities, veterans and lower income residents in large infrastructure developments. They are aimed at ensuring all members of the community have access to procurement opportunities during the design, construction and operation phases.
Size	Budget: USD 975 million
Stage	Construction complete. The Stadium has been hosting events since 2016.
Why of interest	<ul style="list-style-type: none"> • Transparent state regulations to increase the involvement of women and minority groups in urban development projects • Robust governance and monitoring processes extended to all contractors • Transparent web-based reporting system used to monitor integration of target groups • Establishment of a Task Force for daily monitoring and supervision • Oversight Committee to manage the execution of the Equity Plan with monthly meetings for all stakeholders
Project objectives	<ul style="list-style-type: none"> • Achieve the highest possible distribution of benefits to target women, minorities and low-income residents in Minnesota • Reduce discrimination, social inequality and disparity in large infrastructure projects • Make every effort to ensure contractors and subcontractors, vendors and concessionaires employ women, members of minority communities and lower socioeconomic residents when hiring • Work with employment assistance firms to recruit, hire, and retain female, minority and low-income workers during the construction phase
Project Lifecycle Assessment	<p>Project preparation – a detailed study titled the Disparity Study was conducted in 2010 to identify the status of discrimination against small, minority- and women-owned businesses in Minnesota.</p> <p>Project procurement – design and construction contracts included a specific percentage of work to be awarded to the target groups.</p> <p>Construction – ensuring all aspects of the Equity Plan were implemented, in particular supervision and monitoring of contractors and vendors.</p> <p>Project monitoring and evaluation – web-based database for monitoring and collecting data. The Equity Oversight Committee reported monthly on performance against goals.</p>

Project Description

The U.S. Bank Stadium is an indoor, multi-purpose venue located in the City of Minneapolis, Minnesota, the second largest economic centre in the Midwest of the United States (US). It is the home stadium of the professional American football team, the Minnesota Vikings, which is part of the National Football League (NFL). The Stadium is designed to reflect the climate, culture and vision of the city. The facility hosts major national and international events that bring economic, fiscal and social benefits to the State.

The Stadium is owned and operated by the Minnesota Sports Facilities Authority, which was also mandated to design and build the facility. Initial redevelopment proposals started in 2007. In 2012, funding was approved by the Minnesota State Legislature and the Minneapolis City Council. Construction started in 2013, followed by the opening of the Stadium in 2016.

The 66,200-seat stadium has a 12,300 m² (137,000 ft²) floor area, plus six club spaces that seat up to 65,400 fans, expanding to 72,000 for concerts and other major events. The seven-level stadium includes two general admission concourses, 116 suites, 8,000 club seats, 430 concessions stands, gift shops, restaurants and the Vikings Football museum.

The Minnesota Vikings provided USD 477 million to finance the Stadium, the State put forward USD 348 million, and USD 150 million was funded through a hospitality tax in Minneapolis. The City of Minneapolis will pay a total of USD 678 million, including financing costs, over the 30-year life of the Stadium, which covers operations and construction costs.

The Authority was mandated by the State to promote the involvement of women and members of minority communities in the design and construction of the project, as described in the *Minnesota Statutes - 473J.12 Employment* (as outlined below in the Policy regulation and standards section). An Equity Plan was formulated by the Authority to apply the law to the design and construction of the project. After the completion of the Stadium, the Equity Plan was extended to include the operations phase.

The purpose of the Plan is to implement the Authority's statutory mandate to promote the employment of women, members of minority communities² and low-income residents, create an employment program, hold a job fair, establish goals for construction contracts to be awarded to women- and minority-owned businesses, and establish workforce utilisation goals as required by the Minnesota

City Council³. The Equity Plan includes a transparent procurement, management and monitoring process that enables contractors, vendors and other organisations to be held accountable for meeting agreed targets.

Construction required 4.5 million work hours and created 7,500 construction jobs. Of those jobs, 36% were positions held by minorities, 9% by women, and 4% by veterans. In addition, 90% of the construction budget (a total of USD 400 million) was allocated to local businesses, of which 16% were owned by women, 12% were minority-owned and 1% were businesses owned by veterans.

This work illustrates a number of Action Areas, including **project planning, development and delivery** with a particular focus on women and minorities. Specifically, women, minorities and low-income residents were hired during the design and construction of the Stadium, through the Equity Plan's procurement framework. The appointed architect and contractor had specific goals to meet in relation to working with target groups. In addition, women- and minority-owned businesses were employed under direct supervision of the Authority to complete stadium construction works. The inclusivity focus has been mandated by law so there is also a regulatory context, linked to the Action Area on **policy, regulation and standards**. Although not specifically elaborated on in this case study, **governance and capacity building** is another Action Area the Equity Plan addresses, with a leadership team set up to ensure outcomes were achieved.

² Minorities refer to African Americans, Hispanics, Asian/Pacific Islanders, Native Americans and other non-Caucasians.

³ To reduce social inequity, the City of Minneapolis has, over the decades, promoted the inclusion of women- and minority-owned businesses in public contract and construction activities. To provide guidance on targets that project implementing authorities must follow, a *Disparity Study* has been conducted. See *The State of Minority- and Women-Owned Business Enterprise: Evidence from Minneapolis* (NERA Economic Consulting, 2010)

Key Practices Identified and Applied

Statement of the issue in relation to inclusion and brief introduction

In the past, the State has tried to understand and remedy discrimination against minority- and women-owned businesses as part of contract and procurement activities undertaken by the City of Minneapolis. Based on a detailed study, titled the Disparity Study, it was identified that *'minorities and women are substantially and significantly less likely to own their own businesses. This results from marketplace discrimination in comparison to what would be expected based upon their observable characteristics, including age, education, geographic location and industry. The study finds that these groups also suffer substantial and significant earnings disadvantages relative to comparable non-minority males, whether they work as employees or entrepreneurs'*⁴. Such disparities are symptoms of discrimination in the labour force, stifling opportunities for minorities and women to progress on equal terms. The disparities reflect more than societal discrimination, as they demonstrate the nexus between discrimination in the job market and reduced entrepreneurial opportunities for minorities and women⁵.

How inclusivity has been addressed

The identified practice is the establishment of an Equity Plan to ensure women, minorities and low-income residents were integrated into the workforce, and women- and minority-owned businesses had the chance to bid for design and construction contracts on a major public project.

The Equity Plan, which defines and governs all inclusivity aspects in relation to the project, is examined in this case study to identify how inclusivity has been promoted in this project.

The State has introduced a number of initiatives and regulations to tip the balance back in favour of women and minorities. An example is an ordinance issued for a Small and Underutilised Business Program to assist small, minority- and women-owned businesses in finding new opportunities⁶.

⁴ Ibid, (NERA Economic Consulting, 2010)

⁵ Ibid. The study provides the evidentiary records necessary for the city's consideration of renewed race- and gender-conscious policies.

⁶ The Small and Underutilised Business Program intends to redress discrimination in the marketplace and create opportunities for minority- and women-owned business enterprises.

The case study examines the Equity Plan, as well as the management and monitoring structure that was put in place to ensure the agreed targets were met. A bespoke web-based reporting platform is of particular interest, as it is an innovative, transparent and effective way of monitoring contractual obligations in relation to agreed inclusivity targets.



Figure 1. Provided by Alex Tittle, Equity Director for the Minnesota Sports Facilities Authority

This case study also analyses how the Authority complies with and applies state law⁷ to integrate women and minorities in the workforce and involve businesses owned by women and minorities in the design and construction of the Stadium.

⁷ Minnesota Statutes - 473J.12 Employment, (Minnesota Sports Facilities Authority, 2013a and 2013b).



POLICY REGULATION AND STANDARDS

Implementation

The Authority developed the Equity Plan to define its project-specific inclusivity targets under the following law:

2017 Minnesota Statutes - 473J.12 EMPLOYMENT.

• *Subdivision 1. Hiring and recruitment*

In the design, development, construction, management, operation, maintenance, and capital repair, replacement, and improvement of the stadium and stadium infrastructure, the authority shall make every effort to employ, and cause the National Football League (NFL) team, the construction manager and other subcontractors, vendors, and concessionaires to employ women and members of minority communities when hiring. In addition, the authority shall contract with an employment assistance firm, preferably minority-owned, or owned by a disabled individual or a woman, to create an employment program to recruit, hire and retain minorities for the stadium facility. The authority shall hold

a job fair and recruit and advertise at Minneapolis Urban League, Sabathani, American Indian Opportunities Industrialization Centre (OIC), Youthbuild organizations, and other such organizations. Further, goals for construction contracts to be awarded to women- and minority-owned businesses will be in a percentage at least equal to the minimum used for city of Minneapolis development projects, and the other construction workforce will establish workforce utilization goals at least equal to current city goals and include workers from city zip codes that have high rates of poverty and unemployment.

In compliance with the above legislation, the Authority applied inclusivity targets to integrate women and minorities in the workforce and involve businesses owned by women and minorities in the design and construction of the Stadium. As demonstrated in the table below, the project exceeded its required targets, achieving greater integration of women and members of minority groups, as well as integrating veterans and low-income residents.

Whilst these figures may seem quite modest, it is reported that no other project in Minnesota history has achieved this level of diversity.

	Target goals		Achieved goals			
Businesses contracted	9% Minority-owned	11% Women-owned	12% (USD 109 million) Minority-owned	16% (USD 139 million) Women-owned	1% (USD 13 million) Veteran-owned	
Workforce hired	32% Minority	6% Women	36% (1.3 million hours) Minority	9% (340,000 hours) Women	4% (150,000 hours) Veterans	386 Low-income residents

Table 2: Goals achieved by the Equity Plan after completion of the Stadium



PROJECT PLANNING, DEVELOPMENT AND DELIVERY

Implementation

The Equity Program⁸ consists of separate Equity Plans for the Design, Construction, Operations and Capital Improvements for the Stadium.

The Equity Plan (Construction) establishes the project's inclusivity targets, employment programs and management and oversight bodies, as detailed below.

Inclusivity targets

The Authority's participation goals for construction-related services were based on the Disparity Study⁹ and the gap analysis (see below). The Authority had a legislative mandate to establish and meet goals for the percentage of Stadium construction contracts that would be awarded to capable women- and minority-owned businesses. This percentage was at least equal to the minimum used for City of Minneapolis development projects. The calculation of the goals by the Authority was established using the following:

- the National Economic Research Associates, Inc. for the City of Minneapolis report: The State of Minority- and Women-Owned Business Enterprise: Evidence from Minneapolis, dated October 21, 2010 (also referred to as the Disparity Study);
- registrations of businesses confirmed to be minority- or women-owned; and
- relative local disparity. Using the 2010 census as a baseline, local disparity is based on the total number of local construction or related firms to the total number of construction firms.

The goals for the integration of women- and minority-owned businesses in the project and the project workforce utilisation goals included in the Equity Plan are shown in Table 2 above.

Gap analysis

The Authority's Equity Plan Team (the Team) worked with union groups to undertake a gap analysis to examine the projected labour requirements, and the availability, capacity and willingness of the actual workforce in the Minneapolis metropolitan region. By working with the unions, the Team ensured the targets set out in the Plan were realistic and achievable.

⁸ U.S. Bank Stadium Equity Program, (Minnesota Sports Facilities Authority, 2018b)

⁹ The State of Minority- and Women-Owned Business Enterprise: Evidence from Minneapolis (NERA Economic Consulting, 2010)

The gaps identified were small, which proved the targets were based on actual demand and supply. The outcome of the analysis drove the activities of the various employment assistance programs (see below) and demonstrated that the unions were able to provide the workforce for the project.

Targeted Business Program

The Targeted Business Program set a goal of 11% and 9% of construction contracts to be awarded to women- and minority-owned Minnesota-based businesses respectively. The program defined:

- how the goals should be met;
- the parameters to be respected by the construction manager;
- the obligation to act in good faith to meet the goals;
- the requirements for reporting and monitoring;
- the assistance to be provided by the Authority; and
- the consequences if the construction manager failed to meet the goals or failed to make an effort, in good faith, to achieve them.

Veterans Inclusion Program

The Veterans Inclusion Program aimed to ensure veterans had every opportunity to participate in the project, either through direct employment or as the owners of a small business awarded construction contracts.

Workforce Program

This program set a goal for the number of women and people from a minority community included in the workforce, which was 6% and 32% respectively.

Employment assistance firms

The Authority engaged employment assistance firms to recruit, hire and retain workers from the target groups. The firms, many of them owned by women, minorities or people with a disability, worked with the Authority to ensure the project team had the skills and experience it needed to meet its business and inclusion targets.

Job fairs

The Equity Plan Team and the employment assistance firms held job fairs to promote inclusive work opportunities. They worked with organisations such as the Minneapolis Urban League, Summit Academy Opportunities Industrialisation Centre (OIC), Sabathani American Indian Opportunities Industrialization Centre (OIC), and Youthbuild, which help minorities gain new skills and pursue employment opportunities.

Construction Manager Equity Review Panel

The Construction Manager Equity Review Panel (the Panel) is comprised of ten members who provide advisory recommendations regarding a potential construction manager's experience and commitment to targeting businesses and workforce programs as set out in the Plan. The Panel's recommendation is included in the hiring decision. A 60-minute interview is conducted and the construction manager is required to answer questions in relation to:

- their experience and accomplishments on projects that had clear goals for the business and workforce;
- the skills and experience of team members who would be involved in executing the Equity Plan;
- references from public agencies that can validate past experience; and
- a detailed description of strategies that will comply with the Equity Plan, including plans for events, outreach activities, and innovative ideas to reduce the barriers for small businesses and increase the participation of minorities and women.

Stadium Equity Oversight Committee

The Authority established the Stadium Equity Oversight Committee (the Committee) to facilitate communication with the community regarding the Plan and issues associated with the development of the Stadium, and to help ensure accountability and transparency.

The Committee is comprised of representatives from the Authority, Minnesota Vikings Football, the employment assistance firms, the construction manager, the construction manager Equity Review Panel and various government departments.

Monthly meetings of the Committee were held, which were open to the general public. Discussions were conducted regarding the execution of the Plan and related issues, and recommendations regarding the Plan were formulated by the Committee for presentation to the Authority.

The Committee's staff representatives prepared reports that measured progress against achievement of agreed goals specifically with regard to roles performed by minority groups and other targeted groups. The main goal was to share, in a transparent manner, the performance and implementation of the Plan among all stakeholders.

Supervision and monitoring

As outlined above, specific goals and reporting obligations were set out in the Equity Program. Contractors, subcontractors and vendors had to comply with the Authority's requests to submit data in an electronic format.

Data was submitted to the Authority, as well as to the City of Minneapolis, the Minnesota Department of Human Rights, and other governmental agencies, as directed by the Authority.

Non-compliance, or intentional or reckless false reporting of workforce data, good faith efforts regarding achievement of workforce goals, or the commercially useful function of reported workforce labour by the construction managers, contractors, subcontractors and vendors shall subject them to prosecution and the application of penalties under the Minnesota False Claims Act.

A robust monitoring approach with a web-based database

Contractors, subcontractors and vendors complied with the agreed targets to include businesses owned by women and minorities. On a monthly and cumulative basis throughout the project, contractors, subcontractors and vendors were required to provide certified payrolls for every person who worked on the project, in addition to:

- total hours of employment on the project;
- total hours of employment of women;
- total hours of employment of minorities; and
- employee zip (or post) codes.



Figure 2: Example of workforce participation provided by Alex Tittle, Equity Director for the Minnesota Sports Facilities Authority

A bespoke web-based tool was used for reporting. It provided a platform for all contractors, subcontractors and vendors to share information related to performance requirements on a daily basis. The following inputs were required:

- personal information, such as name, address and phone number;
- ethnicity;
- certification (minority business enterprise, women business enterprise, veteran, etc.);

- number of employees; and
- previous work experience on the project.

On a weekly basis, a member of the Authority visited the Stadium’s construction site to supervise and randomly check on the accuracy of the data provided through the web-based tool. On a daily basis, all contractors, subcontractors and vendors entered data into the web-based monitoring system. The Team approved new contracts or changes to existing ones to ensure targets were met. In addition, the Team was in touch with contractors and workers every day to understand their challenges and to propose solutions regarding the implementation of the Plan.

How communities are targeted

Communities were supported through:

- employment assistance firms reaching out to relevant individuals and businesses;
- a number of government agencies helping businesses to become certified and eligible to participate in procurement activities;
- non-profit business support organisations helping to develop strategies to reduce the barriers for businesses and create effective communication activities;

- the Equity Plan Team attending meetings and explaining the Targeted Business Program to interested stakeholders;
- support offered to bidders and their subcontractors to help them identify suitable businesses owned by women and minorities;
- ‘meet and greet’ sessions held to introduce construction managers to small businesses owned by women and minorities;
- pre-bid meetings held during the bidding process to answer questions about the Equity Plan;
- providing a ruling on hiring and contracting issues, based on the requirements and procedures set out in the Equity Plan;
- ensuring contractors and vendors approached the employment and sub-contracting processes in good faith; and
- the identification and pre-selection of lower income residents using zip codes (post codes) to ensure local workers were included in the hiring and sub-contracting process.

BENEFITS REALISATION

Identified benefit	Benefit description
 <p>Job creation and equal access to labour market opportunity</p>	<p>The Equity Plan generated:</p> <ul style="list-style-type: none"> • USD 139 million in revenue for women-owned businesses; • USD 109 million for minority-owned businesses; and • USD 13 million in revenue for veteran-owned businesses. <p>This exceeded the previously set inclusivity target goals.</p> <p>In relation to workforce goals, minority groups were employed on the project for a total of 1.3 million hours (exceeding the initial goal of 32% by an additional 4%) and women spent more than 300,000 hours in the workforce (a 9% share versus the 6% target).</p> <p>386 workers were hired from marginalised neighbourhoods to increase access to labour opportunities for lower income residents in Minneapolis.</p>
 <p>Social equity and social stability</p>	<p>The project helped to address social inequality and discrimination in the labour force, which has stifled opportunities for minorities and women to progress on equal terms. A number of affirmative and proactive initiatives introduced by the Authority have helped to overcome some of the challenges to social equality.</p>

Stakeholders

Key beneficiaries	Role
Women- and minority-owned businesses	Groups targeted by the Authority and any contractor or vendor to be contracted for work related to the U.S. Bank Stadium.
Women and minorities	Target groups to be hired by the Authority for work related to the U.S. Bank Stadium.
Low-income residents	Workers hired and trained from targeted zip codes (or post codes) in Minneapolis.
Veterans	Hired workers or contracted business owners who have served in the armed forces.
People with disabilities	Hired workers or contracted business owners who are registered as having a disability in the State of Minnesota.
Institutional stakeholders and partners	Role
The Minnesota Sport Facilities Authority	The Minnesota Sport Facilities Authority was created in 2012 to design and construct a new multi-purpose stadium. After completion, the Authority took over the ownership and operation of the Stadium.
Various government departments	A number of government entities are involved in this project including the City of Minneapolis, the Minnesota Department of Labor and Industry, the City of Minneapolis Office of Civil Rights, the Minnesota Department of Human Rights, and the Minnesota Department of Administration.

Lessons Learned

Success factors

Strong leadership and a robust governance structure ensured all programs were well managed, implemented and monitored. The Committee played a key role in engaging with stakeholders and governance structures. The Team led the day-to-day operations and implementation of the Plan with the construction managers, contractors and vendors.

Strong partnerships and a collaborative approach underpinned the successful integration of women- and minority-owned businesses into the day-to-day operational environment. The Team created a forum to openly discuss any challenges and the requirements of the Equity Plan, which, in turn, made collaboration on a micro and macro level much easier.

Transparent web-based reporting tools enabled the Team to monitor the progress of the target groups working at the Stadium each day.

Key challenges

An effective engagement strategy helped contractors, subcontractors and vendors to develop a common understanding of the requirements of the Equity Plan. However, it took time to familiarise people with the new way of monitoring and reporting progress and achieving consistency throughout the process.

Business leaders had to create a culture that would support the Equity Plan's more inclusive approach but it takes time to change people's attitudes and behaviour. It would have been easy to fall back into former practices so a consistent approach was required.

References

01. Equity Oversight Committee. (2016). *Equity Oversight Committee Meeting Brief*.
02. Minnesota Sports Facilities Authority. (2013a). *Minnesota Multi-Purpose Stadium Stadium Operations Equity Plan*. Minnesota Sports Facilities Authority. Retrieved from <https://www.msfa.com/content/EQUITY%20PLAN/FINAL%20EQUITY%20PLAN%202.8.13.pdf>
03. Minnesota Sports Facilities Authority. (2013b). *Minnesota Multi-Purpose Stadium Construction Services Agreement Equity Plan*. Minnesota Sports Facilities Authority. Retrieved from <https://www.msfa.com/content/EQUITY%20PLAN/FINAL%20EQUITY%20PLAN%202.8.13.pdf>
04. Minnesota Sports Facilities Authority. (2016). *MSFA Legacy Report Final*. Retrieved from Neka Creative: http://nekacreative.com/home/wp-content/uploads/2016/11/MSFA_LegacyReport_FINAL.pdf
05. Minnesota Sports Facilities Authority. (2018a). *U.S Bank Stadium*. Retrieved from U.S. Bank Stadium: <https://www.usbankstadium.com/stadium-info/faq>
06. Minnesota Sports Facilities Authority. (2018b). *Equity Program Minnesota Sports Facilities Authority*. Retrieved from Minnesota Sports Facilities Authority: https://www.msfa.com/detail.cfm/page/msfaSite_QHAFKNZD_ADWPNMGQ/
07. Minnesota Sports Facilities Authority. (n.d.). U.S. Bank Stadium Review. *Media Release (p. 3)*. Minnesota Sports Facilities Authority.
08. NERA Economic Consulting. (2010). *The State of Minority and Women Owned Business Enterprise: Evidence from Minneapolis ("Disparity Study")*. Minneapolis: City of Minneapolis. Retrieved from <http://www.minneapolismn.gov/www/groups/public/@civilrights/documents/webcontent/wcms1p-084807.pdf>
09. Olson, R. (2016, May 20). *Work on Minnesota Vikings' new home drawing to conclusion ahead of equity hiring goals*. Star Tribune. Retrieved from <http://www.startribune.com/minnesota-vikings-new-home-draws-to-conclusion-safely-ahead-of-equity-hiring-goals/380305341/>
10. Revisor of Statutes, State of Minnesota. (2017). *2017 Minnesota Statutes*. Retrieved from The Office of the Revisor of Statutes: <https://www.revisor.mn.gov/statutes/cite/473J.12>
11. State of Minnesota. (n.d.). *Minnesota Multi-Purpose Stadium First Phase Capital Improvements Equity Plan*. Minneapolis: Minnesota Sports Facilities Authority. Retrieved from <https://www.msfa.com/content/Gregg's%20RFP/EXHIBIT%20F.pdf>
12. Tittle, A. (n.d.). *Equity Program. (p. 16)*. Minneapolis: Minnesota Sports Facilities Authority.
13. Xcel Energy. (2016). *U.S. Bank Stadium*. Minneapolis: Xcel Energy Inc.

Interviews

- Interview with Tittle, A. (2018, 25 July). Equity Director, Minnesota Sports Facilities Authority. (A. Buetler, Interviewer)

Peru

El Metropolitano Bus Rapid Transit



Source: El Popular (<https://www.elpopular.pe/actualidad-policiales/2018-05-07-metropolitano-llegara-carabaylo-ano>)

Lima's bus rapid transit (BRT) system seeks to improve mobility and access to education, jobs and other opportunities for its low-income residents, mainly on the outskirts of the city.

The Metropolitano (*El Metropolitano* in Spanish), the Lima metropolitan region's BRT system, consists of dedicated bus lanes along the main road corridor connecting northern Lima with southern Lima, and feeder routes linking low-income neighbourhoods on the outskirts of the city with the main bus terminals. The project seeks to enhance the quality of life and economic productivity of low-income residents through the provision of an affordable, efficient, reliable, cleaner and safer public transport system.

The Metropolitano has been operating since 2010. It turned from the traditional, disorganised, unreliable bus service into the backbone of a more efficient and affordable public transport network. The project has connected lower income neighbourhoods to employment areas, education, healthcare and facilities in the city centre.

The Metropolitano transports about 700,000 passengers per day¹ and has provided multiple benefits to the Lima metropolitan region. The most significant benefit is shorter travel times (a 25% and 45% saving when travelling to/from the north/south²) and a reduction of about 400,000 tons of CO₂ emissions due to the use of natural gas to power the fleet³.

The key Action Area identified is **Project Planning, Development and Delivery**. The BRT system in Lima has established inclusive planning and design in transport infrastructure to connect low-income neighbourhoods on the edge of the city with employment opportunities in the city centre and has facilitated access for people with disabilities. The Action Area **Stakeholder Identification, Engagement and Empowerment** is also covered in this case study, as widespread and varied stakeholder engagement was conducted for this project, particularly throughout the design process.

¹ About Us Metropolitano (Instituto Metropolitano PROTRANSPORTE de Lima, 2018a)

² Project Performance Assessment Report Lima Transport Project. (IEG Sustainable Development, The World Bank Group, 2015)

³ More than 400,000 tons of CO₂ reduction from the Metropolitano in 2017 (Metropolitano, 2017)

Project Overview

Key words	Low-income neighbourhoods, accessibility, mobility, stakeholder engagement
Sector	Transportation
Background	Lima is one of the fastest growing cities in Latin America. Many of its lower income neighbourhoods are on the outskirts of the city and have poor public transport networks. Chaotic and informal services, as well as high levels of congestion, pollution and accidents, lead to long journey times, which makes it difficult for people, particularly in low-income groups, to access job opportunities, education and services. Therefore, the Lima metropolitan region identified the need to develop a more affordable, efficient and reliable public transport system.
Size	<p>Project approved (in 2003) for USD 134.43 million, with:</p> <ul style="list-style-type: none"> • USD 45 million from The World Bank (International Bank for Reconstruction and Development (IBRD)); • USD 7.35 million from the Global Environmental Facility; and • USD 45 million from the Inter-American Development Bank (IADB)*1. <p>Final cost (in 2009) was USD 261.9 million. The difference was entirely financed by the borrower, the Metropolitan Municipality of Lima, with a loan guarantee from the Government of Peru.</p>
Stage	The project commenced in 2003. The BRT system has been operating since 2010.
Why of interest	<ul style="list-style-type: none"> • Reducing the geographic divide to improve accessibility to jobs and services for low-income residents • Focus on low-income communities • Saving travel time by establishing efficient, reliable, safer and affordable public transport systems
Project objectives	<ul style="list-style-type: none"> • Improve public transport and mobility conditions for the population of metropolitan Lima, particularly among low-income groups • Reduce traffic congestion • Reduce air pollution and carbon emissions • Reduce traffic accidents
Project Lifecycle Assessment	<p>Project preparation – Integration of main trunk and feeder routes to reach low-income neighbourhoods located on the outskirts of the city.</p> <p>Project procurement – No relevant practices identified.</p> <p>Construction – Pedestrian stairs “Stairs of Solidarity” to improve pedestrian mobility in informal settlements and to more easily reach feeder routes.</p> <p>Project monitoring and evaluation – Web-based database for monitoring and evaluating data managed by a third party. IADB Office of Evaluation and Oversight (OVE) facilitated the evaluation of project success and recommendations.</p>

*1 Project Performance Assessment Report Lima Transport Project. (IEG Sustainable Development, The World Bank Group, 2015)

Project Description

Lima is one of the fastest growing cities in Latin America. The population grew by 11% between 2007 and 2012 and reached a recorded population of about 10 million in 2017⁴. About 42% of people in Lima are classified as extreme poor (stratum E⁵) and 19% are classified as poor (stratum D), and they live on the outskirts of Lima mainly in the northern and southern areas of the city, while higher income residents are located in the centre and south-central areas. About 54% of working age adults are informally employed, which can lead to an unstable market, lower pay and negative consequences for productivity, inequality, growth and trade⁶.

Prior to the introduction of the Metropolitan bus rapid transit (BRT) system, public transport in Lima was chaotic with an oversupply of aging buses, low quality infrastructure, high levels of informality, and poor quality services, which led to traffic congestion, accidents and air pollution. There were many bus routes run by mini-vans (Combis⁷) that connected key locations across the city, however journey times were very long, and service was unreliable.

In the 1970s, Lima pioneered a prototype of the modern BRT system in Latin America and the concept of segregated lanes was first introduced in the city along the Express Highway (Vía Expresa). The system continued until the early 1990s, when the operating company went bankrupt.

The fast-growing population and high motorisation rates have contributed to an increase in travel demand in the city. This has been exacerbated by urban sprawl and the development of informal settlements on the outskirts of Lima. For residents living in these areas, it takes a long time to get to the city centre.

Drawing on the successful experience of other Latin American cities, Lima developed the Metropolitan BRT system of the Lima metropolitan region⁸ in 2003, and it has been operating since 2010. The project was developed with funding from the International Bank for Reconstruction and Development (IBRD), the Inter-American Development Bank (IADB) and the Global Environmental Facility.

According to the loan agreement with the IBRD and IADB, the project sought to “enhance the economic productivity and quality of life by improving mobility and accessibility for the population, especially in the peri-urban poor neighbourhoods, through establishing an efficient, reliable, cleaner and safer BRT system operating on segregated bus lanes”⁹.



Figure 1. Metropolitan BRT trunk system

Source: Lima City of Kings (<http://limacitykings.com/metropolitano/>)

The Metropolitan project consists of about 27 kilometres (km) of dedicated bus lanes running from the north of the city to the south of the city, known as the main trunk routes (*troncal* in Spanish). There are 35 bus stops on raised platforms, two main terminals at both ends of the main trunk, approximately 30 km of feeder roads linking neighbourhoods on the edge of the city with the main terminals, cycleways, environmental enhancements and pedestrian bridges.

The number of passengers has doubled since the service started in 2010¹⁰. Approximately 500 buses, running on compressed natural gas (CNG), transport around 700,000 people per day¹¹. The system is operated by four private bus companies with a concession of USD 174 million for 12 years. It is estimated that CO₂ emissions have been reduced by 400,000 tons, due to the buses running on natural gas¹².

One of the main cited benefits of the Metropolitan is the significant reduction of travel times. According to the Lima Metropolitan Institute Protransporte¹³ (Protransporte), the average travel time from origin to destination for users decreased from 50 minutes to 38 minutes in 2013, while travel time through the corridor from Naranjal (north terminal) to Matellini (south terminal) along the main trunk has fallen from 120 minutes to about 65 minutes¹⁴. This equates to an overall reduction in travel time of 25% and 45% when travelling to/from the north/south on the BRT.

⁴ 10 million people live in the metropolitan Lima (National Institute of Statistics and Information, 2016)

⁵ Based on poverty data from the National Institute of Statistics and Information. A Stratum is a category of income level.

⁶ Presentation BRT Systems and Social Inclusion. (Scholl, et al., 2018)

⁷ Combis are shared mini-vans that informally transport passengers.

⁸ The Lima metropolitan region is comprised of the Metropolitan Municipality of Lima and the Constitutional Province of El Callao.

⁹ Project Performance Assessment Report: Lima Transport Project (IEG Sustainable Development, The World Bank Group, 2015)

¹⁰ Presentation BRT Systems and Social Inclusion (Scholl, et al., 2018)

¹¹ About Us Metropolitan (Instituto Metropolitano PROTRANSPORTE de Lima, 2018a)

¹² From the start of operations until December 2017, (Metropolitano, 2017)

¹³ Lima Metropolitan Municipality has created Protransporte to be the executing agency to deliver the Metropolitano.

¹⁴ Project Performance Assessment Report: Lima Transport Project (IEG Sustainable Development, The World Bank Group, 2015)

Key Practices Identified and Applied



PROJECT PLANNING, DEVELOPMENT AND DELIVERY

Statement of the issue in relation to inclusion and brief introduction

People on lower incomes are often the worst affected by poor public transport services and experience longer travel times, higher exposure to pollution and increased risk of traffic accidents. This is often because they are living on the edge of cities where there is no affordable and efficient network. That creates social exclusion and impedes access to employment opportunities, services and market.

In Lima, about 40% of the extreme poor (stratum E) and 20% of the poor (stratum D) live on the outskirts of the city. The extreme poor often live in informal settlements that lack good public services and infrastructure, e.g. narrow, unpaved roads. This spatial segregation of people from job locations decreases affordability to search and access jobs, thereby increasing unemployment. Travel patterns of people on lower incomes differ in terms of mode and expenditure. They have longer travel times, and greater usage of public transport and non-motorised transport modes due to affordability barriers. About 28% of daily trips by the poor and 35% by the extreme poor in Lima are undertaken on foot, followed by traditional buses, such as *Combis*¹⁵.

The *Metropolitano* was conceived to improve services and to connect low-income neighbourhoods on the edge of the city with employment areas in the city centre. Prior to the BRT, people could cross the city using one form of transport (*Combi*) but travel times were excessive.

Three years ago, the Metropolitan Institute of Transport for Lima (*Instituto Metropolitano Protransporte de Lima*, or *Protransporte*, the agency that implemented the project) estimated that about 80% of *Metropolitano* users come from low-income groups settled on the outskirts of the city¹⁶. A more recent survey by the Office of Evaluation and Oversight (OVE) of the IADB stated that whilst the system has attained its goal of having 60% of its riders from socioeconomic strata C (lower middle income), D and E, the share of ridership by the poor and extreme poor (strata D and E) is about 43% (which is lower than the lower middle income strata at 57%). The reason for this is that the BRT does not reach the areas where the extreme poor live and work.

¹⁵ An Evaluation of the Effects of IDB Supported BRT Systems on Mobility (Office of Evaluation and Oversight, 2016a)

¹⁶ Project Performance Assessment Report: Lima Transport Project (IEG Sustainable Development, The World Bank Group, 2015)

How inclusivity has been addressed

The identified practice is establishing inclusive planning and design to improve accessibility and mobility for low-income groups.

The project aligns with Lima's strategic objectives of becoming a safer, modern and competitive city. It was also consistent with the World Bank's Country Assistance Strategy for the financial years 2002-2006 and Country Partnership Strategy for the financial years 2007-2011. They aimed to encourage sustainable economic growth and reduce poverty by enhancing public transport, creating a direct impact on the productive lives of the poor, reducing air pollution and cutting the transport infrastructure deficit¹⁷.

The *Metropolitano* was conceived to improve public transport, to reduce congestion, pollution and traffic accidents, and to connect low-income neighbourhoods on the edge of the city with employment areas in the city centre.

This was achieved by reconfiguring the traditional and unreliable service to make it a more efficient trunk and feeder network that could be reached by a wider population. The main trunk system connects the low-income neighbourhoods in the north and south of Lima.

The feeder routes were specifically included in the design to reach the low-income neighbourhoods. They were determined by areas of high population and low income. The feeder routes run through neighbourhoods on the outskirts of the city and connect with the north and south terminals located at both ends of the main trunk. New buses replaced the older vehicles in the feeder routes. They help the entire system to be more efficient, more reliable and safe. There are 17 feeder routes which served 55,947,865 users per year in the north area in 2016 and four feeder routes which served 12,208,452 users per year in the south¹⁸.

¹⁷ Peru: Country Program Evaluation for the World Bank Group, (The Independent Evaluation World Bank Group, 2011).

¹⁸ VII Report of Results on Quality of Life in Lima and Callao. (Lima Como Vamos, 2016).

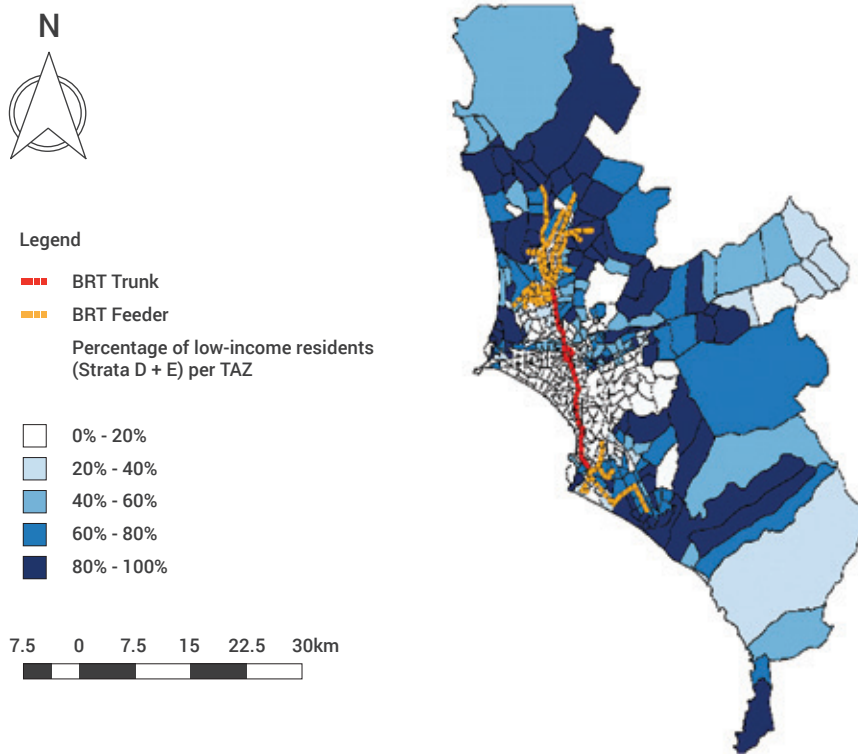


Figure 2. Coverage of BRT in relation to socioeconomic strata in Lima Metropolitan Area, Strata A being the highest and Strata E the extreme poor. Source: OVE (2015)

Implementation

The planning and design of the BRT considered several criteria such as capacity, passenger demand, speed and cost of execution, and reaching low-income neighbourhoods. The location of the main trunk road used existing infrastructure such as the express highway (Vía Expresa). The highway connects areas with high demand for public transit.

Feeder routes in low-income areas

The feeders were identified as essential to reach the low-income areas. Although a demand study was not undertaken, the location for feeder routes was identified in relation to known areas of low-income and high population to the north and south of the city. Figure 2 shows the Metropolitana routes in relation to socioeconomic strata, and highlights that the integrated trunk-feeder network extends to some of the city’s lower income neighbourhoods.

In recognition of the need to continually improve access for people on lower incomes, Protransporte has identified complementary corridors to the east and west of the city, which will improve access for a wider community. This is part of an Integrated Transport System network comprised of the trunk route, feeder routes and metro lines, with works proposed for 2018.

Stairs of Solidarity

An additional project was also introduced to improve access to the system from low-income neighbourhoods. The Stairs of Solidarity (*Escaleras de la Solidaridad* in Spanish) were developed by the Metropolitan Municipality of Lima to improve access to the BRT feeder system for people living in the informal settlements located in the steep hills on the edge of the city. Before this project, residents in these informal settlements had to walk through mud roads on steep hills to reach feeder routes. The roads were unsafe and difficult for women, the elderly and children, and were particularly inaccessible for people with disabilities.

The municipality built stairs for communities and provided them with better access to the feeder routes. With the provision of infrastructure, the quality of life in these vulnerable communities improved. Residents were able to reach the feeder routes of the Metropolitana system and to access services, schools and jobs in a much safer way.

The Stairs of Solidarity have been implemented in different locations and have become one of the flagship programs of the current administration. It demonstrates the local government’s commitment to setting up programs that help overcome barriers and positively impact a wider community.



Figure 3. Pedestrian stairs (Solidarity Stairs).
Source: Lima City of Kings (<http://limacitykings.com/lima-shantytown-tour/>)

Universal Design

To provide access for all, the original design of the BRT included Universal Design principles, supported by the World Bank. The BRT's Universal Design enables access for people with disabilities. The stations include exclusive-use lifts, ramps, dedicated spaces within the bus for people with wheelchairs, and red seats for the exclusive use of pregnant women, the elderly and children.

Supervision and monitoring

No specific monitoring of inclusivity targets is currently undertaken by Protransporte.

Performance evaluation and surveys

'Lima, how are we doing?' (*¿ Lima Como Vamos ?*) is a monitoring and evaluation tool used to analyse changes in people's quality of life. Performance evaluation reports and satisfactory survey reports are released annually. They summarise progress and reference public policies related to environment, mobility, culture, education, public spaces and health for the Lima metropolitan region. The reports include mobility indicators, such as the total number of users of the Metropolitano, transport mode share, origin and destination, number of cards issued and accidents. There are no specific indicators on inclusivity.

The tool aims to investigate urban issues affecting people's quality of life and collect data to inform decision-making, to guide prioritisation and to provide information of interest to all citizens. This is also a tool that measures the views and perceptions of public projects and activities to encourage more people to get involved in the city's development projects.

Multilateral Development Bank assessments

The BRT system was subject to a project performance assessment by the Independent Evaluation Group (IEG) of the World Bank in 2015, and an evaluation by the IADB's Office of Evaluation and Oversight (OVE), as part of an evaluation of three BRT systems across Latin America (also including Cali in Colombia and Montevideo in Uruguay) in 2013 and 2016.

The OVE identified the following:

- The Metropolitano has succeeded in achieving its goal of having 60% of its riders from middle- and lower-income communities (socioeconomic strata C, D and E);
- People from lower income areas have highly positive perceptions of the system speed;
- The system is generally perceived as affordable; however, the extreme poor still find the fare unaffordable; and
- Affordability is a barrier for the poor in using the BRT system for a large share of their trips. Given the integrated and flat fare pricing structure, the poor tend to use the BRT for longer trips because the price then becomes competitive with the traditional transit services.

Some of these findings are relevant in terms of maximising the benefits of inclusivity for BRT systems:

- BRT systems should consider implementing inclusive fare policies. To improve affordability for the poor, targeted vouchers could be used, or preferential tariffs could be added.
- A diagnosis of the mobility needs of the poor should be conducted to achieve inclusivity objectives, including analyses of issues around access, spatial mismatches between skill-appropriate jobs and housing, travel patterns and affordability. In general, income can be an unreliable measure of poverty, so it is better to use social strata data such as quality of housing, ownership of vehicles, etc.
- Inclusion of the extreme poor may need to consider feeders to those areas of low-density population.
- Given the complex urban settings in which BRTs are typically located, an integrated multimodal transport and land use planning approach involving inter-agency coordination is required. This should prioritise investments in physical infrastructure and system design adopting a comprehensive view, based on multiple stakeholder inputs and sound technological, policy and financial analysis. Reforms in support of the system, such as government-supported land use policies, are also required.



STAKEHOLDER IDENTIFICATION, ENGAGEMENT AND EMPOWERMENT

How inclusivity has been addressed

The identified practice is extensive stakeholder engagement with the affected communities, particularly during the design process, leading to community support and resolution of conflict.

Implementation

Community consultation

The Municipality of Lima’s engagement with communities during the design phase was focused on the main trunk road, as the works associated with feeder routes were minor (small improvements to existing roads) and therefore not considered likely to generate resistance. In particular, priority was given to the community surrounding the northern terminal workshop. The proposal was to locate the facility in a low-income neighbourhood, adjacent to a park.





Discussions were held with small groups of people who could have been indirectly affected by the development (for example, by increasing the distance they would need to travel to reach a road crossing). Door-to-door surveys were also conducted in the affected neighbourhoods. A draft map of the project was presented and potential conflicts were identified and discussed. People’s feedback and recommendations were considered as part of the design process. Examples of ideas that were incorporated in the design include the construction of a pedestrian boulevard and an outside gym in the park. It was stated that the level of consultation led to community support for the works and resolved conflicts with local stakeholders.

Awareness campaigns

Stakeholder engagement is not limited to the development stage. Protransporte still undertakes awareness and education campaigns targeted at passengers and the general public to strengthen its values and culture, particularly in relation to pedestrians and drivers. It also encourages people to respect other users and to report any incidents that occur on the system. The campaigns encourage people, particularly women who feel verbally or physically harassed, to report to the staff or security guards. Victims can receive legal, psychological and social counselling. Protransporte reports that the campaign has resulted in a 90% reduction of incidents of this nature¹⁹.

¹⁹ Metropolitan About Us. (Lima Metropolitan Institute of PRO-TRANSPORT, 2018b).

Benefits Realisation

Identified benefit	Benefit description
 <p>Increase affordability and accessibility</p>	<p>Improved accessibility to jobs and schools – usage of the Metropolitan is mainly to attend work (60%) and high school/college (20%).</p> <p>60% of its passengers are from middle- and lower-income areas (socioeconomic strata C, D and E)².</p>
 <p>Job creation and equal access to labour market opportunity</p>	<p>Saving travel time – for lower income people this could mean extra time to carry out additional work. Overall journey time has been reduced from 50 minutes to 38 minutes³.</p>
 <p>Reducing geographic divide</p>	<p>Improved access to the city centre from lower income neighbourhoods in the north and south of Lima. Improved access to the feeder system for communities located in the hills on the city’s outskirts.</p>
 <p>Increasing gender equity</p>	<p>Awareness campaigns encourage women who feel harassed to come forward to security staff, with the aim to increase safety and reduce incidents of harassment.</p>

² An Evaluation of the Effects of IDB Supported BRT Systems on Mobility (Office of Evaluation and Oversight, 2016a)

³ Project Performance Assessment Report Lima Transport Project. (IEG Sustainable Development, The World Bank Group, 2015)

Stakeholders

Key beneficiaries	Role
Low-income communities	Low-income residents living on the outskirts of the city benefit from the BRT system to access employment and education opportunities.
People with disabilities	Stations and buses are now easily accessed by people with disabilities.
BRT system users	Saving travel time has allowed BRT users to spend additional time on other activities.
Women	Reduced incidents of assault have increased accessibility of the BRT system for women.
Institutional stakeholders and partners	Role
Municipalidad Metropolitana de Lima (MML)	The Metropolitan Municipality of Lima (MML) has the strategic vision for Lima to become a safer, modern, competitive, sustainable and integrated city. MML identified that the chaotic and informal public transport system was one of the main barriers to achieving its vision and therefore implemented a bus rapid transit system to enable people to have a better quality of life.
Lima Metropolitan Institute for Transport (Instituto Metropolitano de Transporte de Lima – Protransporte)	Protransporte was set up in 2002 by Municipal Decree No. 035 as the executing agency to be responsible for the BRT system. This financial and administrative autonomous agency provides effective, efficient and sustainable transport solutions for the Lima metropolitan region.
Empresa Municipal Administradora de Peaje (EMAPE)	EMAPE is a public institution under the MML responsible for roads infrastructure and toll management. It supported the construction of the BRT infrastructure financed by the municipality after the original cost was increased.
Urban Transport Management (Gerencia de Transporte Urbano)	Public organisation under MML for the operation of the integrated transport system in the metropolitan area.

Lessons Learned

Success factors

Inclusion of feeder routes to reach low-income neighbourhoods. Improving mobility and accessibility for lower income residents through the BRT system requires integrating the main routes with feeder services and with other public transport systems that reach low-income neighbourhoods. While the Metropolitano was able to do this for a significant number of people, it has recognised the need for further feeder routes and initiatives to include more vulnerable residents.

Improved travel times and accessibility. Increasing the potential for people to get to work more quickly, or allowing, for example, small business owners to reach more customers during the day.

Inclusion of Universal Design principles. BRT international guidelines and best practices have been followed by Protransporte as the executing agency, and Lima Metropolitan Municipality, to embed Universal Design principles and integrate planning for vulnerable groups, such as people with disabilities.

Ongoing anti-harassment awareness campaigns have led to a reduction of 90% in verbal or physical harassment incidents within the BRT system.

Key challenges

Political support for the project and managerial support.

Although this is an infrastructure project, political commitment is essential to identifying the project as a priority and successfully delivering it. Rapid turnover of members of the senior management team and lack of retention of technical professionals have caused delays on the project, especially at the beginning, and can affect the continuity of operational procedures. Additionally, the project became the centre of political debate and dispute, which led to delays in extension of the system.



Figure 4. El Metropolitano BRT.

Source: Lima City of Kings (<http://limacitykings.com/metropolitano/>)

Trade-off between affordability and profitability.

Affordability for all needs to be balanced against the profitability of the project. The challenge is to achieve affordability in lower income areas where demand is low.

Preferential tariffs for lower income users and other vulnerable people.

The current fare for the Metropolitano trunk routes is USD 0.75 (2.5 soles) in trunk routes and USD 0.15 (0.5 soles) for feeder routes that count towards the maximum integrated trip fare of USD 0.75 (2.5 soles). A preferential fare is only available by law for school and university students, who get a 50% discount. An integrated fare of USD 0.75 (2.5 soles) is considered very positive, but the extreme poor still find the fare inaccessible. The affordability of a fixed rate tariff structure is likely to have a greater effect on accessibility for the poor.

References

01. Eto Chero, F. (2003). *Actual Situation and Issues of Public Transport in Lima City*. Protransporte. Retrieved from http://www.protransporte.gob.pe/pdf/info/publi2/situac_TPub_1-25.pdf
02. IEG Sustainable Development, The World Bank Group. (2015). *Project Performance Assessment Report: Lima Transport Project*. The World Bank Group. Retrieved from <http://documents.worldbank.org/curated/en/551201468185372206/pdf/102352-PPAR-P035740-SecM2015-0359-OUO-9-Box394831B.pdf>
03. Independent Evaluation Group. (2011). *Peru: Country Program Evaluation for the World Bank Group, 2003-09*. Washington, DC: The International Bank for Reconstruction and Development/The World Bank. Retrieved from: <https://doi.org/10.1596/978-0-8213-8572-2>
04. Instituto Metropolitano PROTRANSPORTE de Lima (Lima Metropolitan Institute of PRO-TRANSPORT). (2018a). *Information of Corridors*. Retrieved from Protransporte: <http://www.protransporte.gob.pe/index.php/corredores-complementarios/corredores>
05. Instituto Metropolitano PROTRANSPORTE de Lima (Lima Metropolitan Institute of PRO-TRANSPORT). (2018b). *Metropolitano About Us*. Retrieved from Metropolitano Website: <http://www.metropolitano.com.pe/conocenos/>
06. Instituto Nacional de Estadística e Informática (National Institute of Statistics and Information). (2016). *Cerca de 10 millones de personas viven en Lima Metropolitana (10 million people live in the Metropolitan Lima)*. Retrieved from INEI: <https://www.inei.gob.pe/prensa/noticias/cerca-de-10-millones-de-personas-viven-en-lima-metropolitana-8818/>
07. Lima Como Vamos. (2016). *VII Report of Results on Quality of Life in Lima and Callao*. Lima Como Vamos. Retrieved from <http://www.limacomovamos.org/cm/wp-content/uploads/2017/10/InformeGestion2016.pdf>
08. Lima Como Vamos. (2017). *VIII Report of the Perception on Quality of Life in Lima and Callao*. Lima Como Vamos. Retrieved from http://www.limacomovamos.org/cm/wp-content/uploads/2018/03/EncuestaLimaC%C3%B3moVamos_2017.pdf
09. Metropolitano. (2017). *More than 400,000 tons of CO₂ Reduction from the Metropolitano in 2017*. Retrieved from Metropolitano: <http://www.metropolitano.com.pe/prensa/noticias/mas-de-400-mil-toneladas-de-contaminacion-por-dioxido-de-carbono-se-reduciran-a-fines-del-2017-gracias-al-metropolitano/1/>
10. Office of Evaluation and Oversight. (2013). *Comparative Case Studies: IDB-supported Urban Transport Projects*. Inter-American Development Bank. Retrieved from https://publications.iadb.org/bitstream/handle/11319/5986/Approach_paper__Comparative_Case_Studies__IDB_Supported_Urban_Transport_Projects.pdf?sequence=1&isAllowed=y
11. Office of Evaluation and Oversight. (2015a). *Comparative Case Studies of Three IDB-Supported Urban Transport Projects*. Inter-American Development Bank. Retrieved from https://publications.iadb.org/bitstream/handle/11319/6967/Comparative_Case_Studies_Three_IDB_supported_Urban_Transport_Projects.pdf?sequence=1&isAllowed=y
12. Office of Evaluation and Oversight. (2015b). *Comparative Case Studies of Three IDB-supported Urban Transport Projects: Lima Case Study Annex*. Inter-American Development Bank. Retrieved from https://publications.iadb.org/bitstream/handle/11319/7166/BRT_Lima_Case_Study_%28Final_-_Clean%29brik.pdf?sequence=1
13. Office of Evaluation and Oversight. (2016a). *An Evaluation of the Effects of IDB-supported BRT Systems on Mobility and Access for the Poor in Cali and Lima*. Inter-American Development Bank. Retrieved from <https://publications.iadb.org/bitstream/handle/11319/7519/Approach-Paper-An-Evaluation-of-the-Effects-of-IDB-Supported-BRT-Systems-on-Mobility-and-Access-for-the-Poor-in-Cali-and-Lima.pdf?sequence=1>
14. Office of Evaluation and Oversight. (2016b). *Urban Transport and Poverty: Mobility and Accessibility effects on IDB-supported BRT systems in Cali and Lima*. Inter-American Development Bank. Retrieved from <https://publications.iadb.org/bitstream/handle/11319/7695/Urban-Transport-and-Poverty-Mobility-and-Accessibility-Effects-of-IDB-supported-BRT-Systems-in-Cali-and-Lima.pdf?sequence=8>
15. Scholl, L., Martínez, D., Mitnik, O., Yanez, P., Oviedo, D., Innao, M., & Pedraza, L. (2018). *BRT Systems and Social Inclusion: Impacts of BRT systems on accessibility, employment, and housing*. The case of Lima, Peru. (p. 33). Inter-American Development Bank.
16. Vásquez, A. (2015). *A Case Study on Lima's Metropolitano: Five years fighting for accessibility*. Bank Information Center. Retrieved from https://bankinformationcenter.cdn.prismic.io/bankinformationcenter%2F8d918b85-f7fc-4727-bbe9-25d37209066e_peru-metro-study-english.pdf

Interviews

Interview with Rafael Capristan (2018, 1 August). Transport Specialist, Inter-American Development Bank. (K. Prebble, C. Gallego Lopez, Interviewers).

Interview with Lynn Scholl (2018, July). M&E specialist, Inter-American Development Bank. (K. Prebble, Interviewer).

Malawi

Regional Communications Infrastructure Program (RCIP)



Source: Provided by Audrey Mwala, Director – Project Finance and Risk Analysis, Public Private Partnership Commission Malawi

A government-led initiative that uses public institutions to help overcome the challenges of providing information and communications technology in remote areas. The initiative in Malawi targeted inclusion of under-served areas in the benefits from a larger infrastructure program connecting several Eastern and Southern African countries.

The Regional Communications Infrastructure Program (RCIP) was developed to accelerate the roll-out of information and communications technology (ICT)¹ and to ensure that the infrastructure under construction along the Eastern and Southern Africa coast at that time would also benefit communities in inland areas and landlocked countries.

The World Bank supported this program for eight African countries, including Malawi². The implementation of the undersea fibre optic cables and landing stations as part of this program was led by the private sector, with funding from the World Bank, International Finance Corporation (IFC) and other partners. Additionally, terrestrial networks were developed to improve last mile delivery.

The Regional Communications Infrastructure Program Malawi (RCIPMW) aims to improve the quality, availability and affordability of broadband internet connection through a public-private partnership (PPP) model, as implemented by the Malawi Public Private Partnership Commission. It also includes support for the development of the sector, enabling environment, and provision of connectivity to targeted public institutions within the country.

¹ Information and Communications Technology (ICT) refers to technologies that provide access to information through telecommunications, such as internet, wireless networks, cell phones and other communication mediums.

² The program is being rolled out in several phases involving the following countries: Phase 1 – Kenya, Burundi and Madagascar, Phase 2 – Rwanda, Phase 3 – Malawi, Mozambique and Tanzania, Phase 4 – Comoros, Phase 5 – Uganda (The World Bank, 2013).

The RCIPMW has three main components:

- (1) *Enabling environment* (USD 1.9 million): capacity building and training
- (2) *Connectivity* (USD 14.5 million): finance for digital infrastructure investments, including the provision of an underground fibre-optic link from Malawi's capital Lilongwe to Tanzania and Zambia under a PPP arrangement, and the supply of broadband connectivity to institutions and rural areas. The licence for regional fibre links and the virtual landing point was awarded to service provider, SimbaNET, which completed the western regional fibre link through Zambia in August 2015 and the north-eastern fibre link through Tanzania in December 2015.
- (3) *Project management* (USD 3.5 million): including project coordination, procurement, financial management, and monitoring and evaluation.

This case study relates primarily to the 'last mile connectivity' component of the RCIPMW (listed in point 2, above). This component provides internet access and information technology equipment, such as computers and printers, to public institutions, including District Information Offices, teacher training colleges and secondary schools. It supports students and villagers who do not have access to the internet due to lack of education, the absence of private sector internet service provider(s) and affordability.

Relevant to this case study is the inter-agency collaboration needed to reach students and villagers (i.e. farmers), and to provide them with internet access. Studies show that providing ICT can increase economic and social inclusion. In Malawi, ICT access is viewed as an important enabler for inclusion and helps to address growing inequalities in professional and personal development opportunities. In conjunction with its investment in broadband access and outreach programs, the government is also making improvements to its regulatory framework by formulating policies that attract more private sector investors to the ICT sector.

This project does not seek to provide direct access to ICT for individuals across the country. Instead, it uses public institutions to reach people, including students and farmers. It demonstrates efforts to engage with communities that are not only impacted by high levels of poverty and illiteracy, but are also vulnerable due to extreme climate and market dynamics.

Project Overview

Key words	Rural area, poverty, internet, public institutions, ICT access, education
Sector	Information and communications technology (ICT)
Background	Only one in ten people in Malawi have access to information and communications technology (as of 2016). This is due to the high cost and complexity of developing the infrastructure and end-user service offering. However, the government plans to improve access to, and the affordability of, broadband connections. It is initiating projects to reach out to the most disadvantaged groups in society.
Size	USD 19.9 million from the World Bank for the RCIPMW component: <ul style="list-style-type: none"> • Enabling Environment – USD 1.9 million • Connectivity – USD 14.5 million • Project Management – USD 3.5 million
Stage	Project duration: 2009 – 2016 Number of institutions providing hub ICT services: Phase I: 16 institutions Phase II: 30 institutions Phase III: 145 institutions
Why of interest	<ul style="list-style-type: none"> • ICT services hubs have been established to provide internet access to students and villagers • Training provided for teachers (at schools and colleges) and government officials (at District Information Offices) on how to use ICT equipment (i.e. internet, computer and printer), which will be passed on to students and community members • Part of the long-term objective to increase internet access, which will improve economic and social inclusion
Project objectives	<ul style="list-style-type: none"> • Reduce the high cost of internet access and operation • Enable government employees to improve service provision for residents • Build capability and capacity at government offices and educational institutions so knowledge can be passed on to other community members
Project Lifecycle Assessment	<p>Project preparation – Identified institutions that had the potential to reach communities which did not have access to the internet.</p> <p>Project procurement – No relevant practices identified.</p> <p>Construction – Provision of training to government workers and students.</p> <p>Project monitoring and evaluation – Understanding the impact that increased access to information and computer and internet usage has on social inclusion.</p>

Project Description

Malawi is one of the least developed countries in the world. It had a per capita gross national income (GNI) of just USD 320 in 2016 and a total population of 18 million (also in 2016)³. The agricultural sector accounts for a third of the gross domestic product (GDP) and is the main source of income for two thirds of the population. Based on the international poverty line of USD 1.90 per person per day⁴, the poverty rate in Malawi was 70% at the end of 2016⁵.

In Malawi, ICT infrastructure services are still at an early stage of development. Most people access ICT technologies through their personal mobile phones. 45% of the population have mobile phones. Only 4% of households have access to a computer.

At a national level, very few households own personal computers – only 3% own a laptop, while 2% have a desktop computer. Overall internet access remains low, despite a jump from 0.13% in 2000 to 10% in 2016⁶. A national survey revealed the main reasons for this are high costs for home usage and lack of knowledge about how to use the internet⁷.

Access to ICT is an important factor in achieving the country's national economic development goals. It could help to increase living standards in Malawi because it gives residents of low- and middle-income households a way to tackle educational, social and economic challenges. This is evident in remote areas where, beyond its social benefits, ICT access also has economic value⁸.

Areas where ICT has been applied include:

- (1) agriculture, where access to phones and the internet can help disseminate information on planting and crop management, daily commodity prices, etc.;
- (2) government transparency, where streamlining workflows and creating information repositories help to increase accountability, transparency and efficiency; and
- (3) education, where schools are provided with ICT tools to equip students with the necessary skills to participate in the information society and knowledge economy.

³ Economic development document for the Republic of Malawi, 2017, (International Monetary Fund, 2017)

⁴ The poverty line was set at USD 1.90 at 2011 international prices in October 2015 by the World Bank.

⁵ Poverty rate is measured by the percentage of the population living below the international poverty line of USD 1.90 per person per day.

⁶ Percentage of population using the internet in Malawi from 2000 to 2016, (Statista, 2016)

⁷ Survey on access and usage of ICT services in Malawi, (Malawi Communication Regulatory Authority & National Statistical Office, 2015)

⁸ ICT's impact on a country's economy and growth is increasingly clear. World Bank research shows that a 10% increase in mobile phone subscribers leads to a 0.8% increase in economic growth. Similarly, a 10% increase in high-speed internet connections leads to a 1.3% increase in economic growth. ICT in the developing world, (STOA, 2015).

Furthermore, ICT has a significant impact on a country's economic growth. For example, in a study conducted on the impact of the internet in sub-Saharan Africa, it was shown that internet connectivity may help to improve the agricultural sector's supply chain management and operational inefficiencies, as well as promote more transparent pricing and provide access to climate data. That, in turn, would substantially reduce costs and increase farmers' incomes. Through the internet, they can obtain precise weather information and order products online⁹. Farmers with access to the internet are in a better position to decide where, and for how much, they can buy or sell certain products, enabling them to compete on equal terms and face less discrimination due to their location.

Access to the internet also has a positive impact on education by enabling people to learn new skills online. The web can help provide cost-effective access to educational materials, thereby increasing literacy and engagement in low-income and remote areas.

The impact on social inclusion is also important. The development of social networks, which encourage integration in the community and the economy, help people from disadvantaged groups to be better organised and better connected to each other. In addition to fostering freedom of expression, social media has the potential to boost collaboration and social inclusion at all levels of society.

Although there is an upward trend in computer usage, the number of people with access to, and using, the internet remains low. The high cost of the technology relative to personal income is a major challenge in increasing its appeal¹⁰. In response to this, the Malawi Communications Regulatory Authority (MACRA) initiated the Regional Communications Infrastructure Program Malawi (RCIPMW) project. It aims to increase the accessibility and affordability of internet connection by providing ICT infrastructure and equipment donations to educational institutions and government offices.

RCIPMW, which is being delivered in three phases, is part of a multi-country ICT assistance program, with the primary objective of supporting Malawi's efforts to improve the quality, availability and affordability of broadband internet within its territory for both public and private users. The project also aims to provide internet connectivity to public institutions, including teacher training colleges, District Information Offices and secondary schools.

⁹ The impact of internet connectivity on economic development in Sub-Saharan Africa, (Guerriero, 2015)

¹⁰ Retail price of internet access has decreased from USD 120 at baseline (December 2008) to USD 5.8/MB (June 2016) per month per customer. Furthermore, the monthly retail price of broadband internet access (1 Mbps) was dramatically cut by more than 50%, USD 140 (2008) to USD 30 (June 2016). However, this price is still considered to be very high. Implementation Completion and Results Report, (The World Bank, 2018a)

Phases one and two of RCIPMW were completed in 2014, while phase three is still ongoing. As of September 2018, 201 public institutions are benefitting from the project¹¹. As part of this case study, inclusivity aspects of 145 public institutions that received broadband internet access in 2013 were considered. Through the public institutions, internet access should be made available to people living in remote areas who currently do not have access and are unable to afford it.

This project illustrates the application of inclusivity in several Action Areas, the most relevant being **Governance and Capacity Building**, as government institutions are used to reach out to households without ICT access. Malawi has also made efforts at the policy level to address some barriers, which is covered in the Action Area of **Policy Regulation and Standards**.

Key Practices Identified and Applied



GOVERNANCE AND CAPACITY BUILDING

Statement of the issue in relation to inclusion and brief introduction

The gap between the richest and poorest members of society has continued to rise sharply and poverty is extreme and endemic¹². Malawi is also struggling to address gender inequality and ranks towards the bottom of the Global Gender Gap rankings¹³. In 2010, 50% of the population was classified as poor while 25% lived in extreme poverty, which is defined as the 'inability to satisfy food needs'¹⁴.

Given this wide social gap, equal opportunity is not granted to everyone to improve living standards and access economic prospects. This increases economic and social inequality between the high-income groups and the low-income groups. The low-income group has also been found to be very vulnerable to external events (i.e. extreme weather impacting farming yield, inflation, etc.). Rainfall and loss of off-farm employment are dominant factors

¹¹ Regional Communications Infrastructure Program Phase 3: Implementation Status & Results Report, (The World Bank, 2018b)

¹² Nationally, in 2004/5, the richest 10% of the population accounted for 46% of total consumption, while the bottom 40% accounted for 15% of total consumption. The share of consumption attributable to the top 10% increased to 53% in 2011, and that for the bottom 40% declined to 13%. This means that over the period 2004-2011, the consumption of the top 10% rose from being about three times higher to being about four times higher than that of the poorest 40%. In terms of consumption, the richest 10% spend 34% more than the poorest 10%. A Dangerous Divide – The State of Inequality in Malawi, (Mussa & Masanjala, 2015).

¹³ Closing the Divide in Malawi – How to reduce inequality and increase prosperity for all, (Mariotti, C., Hamer, J., and Coffey, C., 2018).

¹⁴ Economic development document for the Republic of Malawi, 2017, (International Monetary Fund, 2017)

resulting in poverty because most of the population rely on agriculture for their daily subsistence¹⁵.

Access to the internet can have a significant economic impact on vulnerable groups in society, particularly farmers, and improving access to technology will reduce the growing digital divide¹⁶. As an example, without access to the internet, farmers may have to leave their communities to travel to the next city to pursue a sale. This increases the cost of doing business and the farmers may find the prices have changed by the time they return to their village. This disconnect makes them more vulnerable to price fluctuations and shocks, and threatens food security.

Education underpins efforts to improve the computer literacy rate. The government has increased public spending on education, with the budget as a share of GDP reaching 5.0% by the late 2000s. However, according to the latest data, only 15.8% of the population above the age of 15 complete primary school, while an even lower number (7.9%) complete secondary school¹⁷. Not surprisingly, 38% of the population who are 15 or older are illiterate, which creates additional challenges for the teams trying to boost ICT equipment usage¹⁸.

How inclusivity has been addressed

The identified practice puts public institutions at the heart of plans to expand ICT access in remote areas.

The government has decided to improve ICT access and literacy in remote areas in Malawi through engagement with public institutions. Institutions have been provided with ICT infrastructure, including broadband access, and equipment, such as phones, computers and printers. In return, the institution's staff members help residents in the community to use the technology for a small fee. For example, people could use the photocopy machine or search for information online with the help of a staff member at their local school, college or information office.

The Practice reduces the costs associated with installing and maintaining an internet connection in rural households and encourages people to use technology provided by public institutions instead. They will receive informal

¹⁵ Vulnerability to Poverty in Rural Malawi, (Mccarthy, Brubaker, & De La Fuente, 2016).

¹⁶ Digital divide is an economic and social inequality, and is about access to, use of, or impact of ICT. The divide refers to inequalities among individuals, households, businesses, or geographic areas, usually at different socioeconomic levels or other demographic categories. (U.S. Department of Commerce, 1995)

¹⁷ Data retrieved from World Bank Education Statistics, (The World Bank, 2010)

¹⁸ Data retrieved from World Bank Education Statistics, (The World Bank, 2015a)

training from government employees. For students, it is a way to learn new skills and utilise new educational and research tools.

Implementation

Training for target institutions and groups

Secondary schools, teacher training colleges and District Information Offices that did not have ICT equipment (such as computers and printers) were identified as target institutions. For all other institutions, the project provided broadband infrastructure and equipment, including a grant to cover the day-to-day running of it, for the first three years¹⁹.

The equipment allocated to each institution was determined by size and estimated demand. The donation was accompanied by general training on how the equipment should be used and maintained. The objective was to help government employees improve the service they provide to the communities and build a business centre around it. They offered access to the equipment for a small fee, which they used to pay for operational expenses, such as the broadband bill²⁰. Training sessions were offered to the institution's staff members with the intention that they would then offer instruction to the community.

For secondary schools, the students were the primary target group and they were given basic training on how to use the computer and the internet. Currently, computer education is not part of the curriculum, although that may change in the future.

The teachers also received training from relevant ministries and the communications regulator, and were responsible for passing their knowledge on to their students. The aim was to expose students to computers as much as possible, creating an awareness of and interest in ICT.

There is a wide range of social benefits associated with improved access to the internet, including skills development. It opens a new world of opportunities for students, nurtures curiosity and encourages them to learn more about what is happening outside their village. Being able to use a computer also improves employability in many roles. Furthermore, it has the potential to strengthen social inclusion through improved communication and access to social networks. Finally, ICT also promotes gender equity, as access to ICT-based economic and educational activities inspires women to contribute to business and home-based activities.

¹⁹ Information on the detailed equipment list (i.e. internet access speed, equipment list) was not made available.

²⁰ The actual fee payable for each service provided by the government institutions has not been made available.

Supervision and monitoring

The Malawi Public Private Partnership Commission was responsible for implementing the project and assigned a team to monitor operational status to ensure beneficiary institutions put the ICT equipment to good use.

The National Statistical Office had no database on ICT access until 2014 when it first conducted a survey on access and usage of ICT services. The first survey took place during the period of RCIPMW implementation, which helped to improve the design in future phases. The survey captured the data and critical indicators at an individual and household level, and the findings inform the government of progressive ICT access strategies and project designs²¹.

Supervising and monitoring usage of the equipment by the students or by other members of the community was not a priority for this project. Instead, the purpose was to donate the equipment to the government institutions and encourage them to create a business centre to help cover their operational costs beyond the initial three years. As future phases progress, monitoring activities are expected to increase.



POLICY, REGULATION AND STANDARDS

Statement of the issue in relation to inclusion and brief introduction

ICT infrastructure in Malawi is underdeveloped and the responsibility for improving it rests with the government. The RCIPMW program was triggered by the country's National Economic Development Plan, which placed special attention on information technology.

The barriers to access to ICT infrastructure, specifically for people living in remote areas, include high cost of internet service (mainly due to the amount of infrastructure investment required and the high operational costs), lack of internet service providers and operators, poor connectivity, limited information on the ICT sector, and illiteracy.

²¹ Chapter 1: Introduction: Survey on Access and Usage of ICT in Malawi, (Malawi Communication Regulatory Authority & National Statistical Office, 2015)

How inclusivity has been addressed

The identified practice is inclusive policy reform to facilitate ICT service provision and access.





There are few ICT service providers at present because it is not financially viable for most companies, due to uncertainty within the industry and a lack of maturity in the market. To offer incentives to companies, Malawi's policy makers are attempting to tackle the dilemma by changing policy.

Implementation

Based on the policy framework document²², the National ICT Policy (2013) aims to provide ICT services, including information technology, telecommunications, broadcasting and postal services, to rural areas, and particularly to vulnerable groups. As ICT becomes increasingly important to economic development, the Government has started to make positive reforms through policy and financial support. Fibre optic cables were installed through the RCIPMW program and an e-school program was made available in public schools, including providing schools with computer laboratories with internet access.

The Strategic Plan 2015-2020, published by the Malawi Communications Regulatory Authority (MACRA), identifies that a growing proportion of young and technologically savvy people between the ages of 10 and 45 demand ICT services. To facilitate access and usage, MACRA has established a financial assistance plan through the Universal Service Fund (USF).

Benefits Realisation

Identified benefit	Benefit description
 <p>Reducing poverty and income inequality</p>	<p>Students in remote areas are given training on how to use computers and the internet, which helps them to gain skills that will be valuable in the future. Exposure to technology enables young people to seek better job opportunities.</p>
 <p>Integration of small business opportunities</p>	<p>Online information helps farmers to better understand market prices and how to maximise their revenues by selecting reputable vendors. People in low-income groups can use real-time information to start their own businesses and increase household income.</p>
 <p>Increasing affordability and accessibility</p>	<p>Internet penetration increased from 0.7% in 2008 to 15.7% in 2016 because of the RCIPMW. The improvement in international internet bandwidth to 11,680 megabits per second (Mbps), from a mere 180 Mbps in 2008, helped to reduce the cost of internet access. The monthly retail price dropped to USD 5.80 in 2016, compared to a prohibitive USD 120 eight years earlier. As of June 2018, 145 educational and government institutions have benefited from the project. Universal access-oriented design of rural communication sub-projects provides subsidies to the private sector to encourage them to invest in rural areas.</p>
 <p>Technical literacy and knowledge sharing</p>	<p>Online training has been conducted for teachers from identified institutions and 163 officers of Ministries, Departments and Agencies (MDAs) and Local Government Agencies (LGAs) to enable them to serve their communities better.</p>

²² An Integrated ICT-led Socio-economic Development Policy and Plan Development Framework for Malawi (Mbvundula, 2003)

Stakeholders

Key beneficiaries	Role
Low-income groups	Low-income groups benefit from long-term universal access.
District Information Offices	The District Information Offices are given free computers and printers to better serve the local community. The offices have the right to charge a minimal fee for certain services.
Secondary schools	The secondary schools are given free computers and printers, which are available to students to use.
Teacher Development Centres and Technical Colleges	The centres are given free computers and printers to better fulfil their teaching mission.

Institutional stakeholders and partners	Role
Malawi Communications Regulatory Authority (MACRA)	MACRA is the national regulator of Information and Communications Technology (ICT) in Malawi and its vision is to ensure the public has universal access to and usage of ICT services across the country.
The Public Private Partnership Commission	The PPP Commission facilitates the implementation of the public-private partnership program through the PPP Policy Framework. One of its key principles is safeguarding the interests of vulnerable groups.
National Statistical Office (NSO)	NSO is engaged in a national survey on ICT services in Malawi.
International Telecommunication Union (ITU)	ITU sets the guidelines and methodology used to capture data on ICT services in Malawi, covering topics such as access to, and usage of, telecommunications.
The World Bank	The financier of the wider Regional Communications Infrastructure Program (RCIP).

Lessons Learned

Success factors

During the preparation stage, the project team **invited communities to engage in consultation** so they could better understand the priorities and potential challenges. The results showed that the educational institutions and training centres that needed the ICT equipment had a limited understanding of business or finance.

While the equipment was given to public institutions for free and accompanied by a grant to cover operational expenses for three years, the government made it clear that the institutions would need to be able to operate a commercially viable business centre in the years that followed to ensure their continued operation. This meant the **beneficiaries had to take responsibility** for maximising the cost-efficiency of the ICT equipment and identifying a practical business strategy.

Key challenges

There have been some cases of the **ICT equipment that was given to public institutions being taken home by officials for personal use**. Although RCIPMW is designed to promote universal access to ICT services, some people have taken advantage of the equipment donation, rather than promoting the national strategy.

Food and other basic needs take priority over ICT services for most residents in rural areas, especially as food insecurity in Malawi remains widespread. 65% of all households (84% of rural households) report that they could not secure sufficient food at least one month per year²³. Furthermore, the poor state of the economy helps explain why many of the beneficiary institutions ceased using the ICT equipment after the three-year grant period expired.

Finally, one of the main reasons for not having internet access at home is that people do not know how to use it. **Low levels of literacy in rural areas make ICT programs hard to implement** and sustain, particularly amongst women, young people and other under-served groups. Only a few officers and teachers are provided with the proper training, so there is a lack of technical professionals to provide the necessary information and support to users.



Figure 1. Malawi's Regional Communications Infrastructure Program (RCIPMW)
Source: Provided by Audrey Mwala, Director - Project Finance and Risk Analysis, Public Private Partnership Commission Malawi



Figure 2. Malawi's Regional Communications Infrastructure Program (RCIPMW)
Source: Provided by Audrey Mwala, Director - Project Finance and Risk Analysis, Public Private Partnership Commission Malawi

References

01. Guerriero, M. (2015). *The impact of Internet connectivity on economic development in Sub-Saharan Africa*. EPS-PEAKS . Retrieved from <https://assets.publishing.service.gov.uk/media/57a0899b40f0b652dd0002f4/The-impact-of-internet-connectivity-on-economic-development-in-Sub-Saharan-Africa.pdf>
02. International Monetary Fund, A. D. (2017). *Malawi: Economic Development Document*. Malawi: International Monetary Fund. Retrieved from <https://www.imf.org/en/Publications/CR/Issues/2017/07/05/Malawi-Economic-Development-Document-45037>
03. Malawi Communication Regulatory Authority, & National Statistical Office. (2015). *Survey on access and usage of ICT services in Malawi*. Zomba: National Statistical Office. Retrieved from http://www.macra.org.mw/wp-content/uploads/2014/09/Survey_on_Access_and_Usage_of_ICT_Services_2014_Report.pdf

²³ Data from 2013, Economic development document for the Republic of Malawi, 2017, (International Monetary Fund, 2017)

04. Malawi, Government of (2006). *Malawi National ICT for Development (ICT4D) Policy*. Government of Malawi. Retrieved from <http://unpan1.un.org/intradoc/groups/public/documents/unpan/unpan033688.pdf>
05. Mariotti, C., Hamer, J., and Coffey, C. (2018). *Closing the Divide in Malawi: How to reduce inequality and increase prosperity for all*. Oxfam. Retrieved from <https://policy-practice.oxfam.org.uk/publications/closing-the-divide-in-malawi-how-to-reduce-inequality-and-increase-prosperity-f-620463>
06. Mbvundula, T. P. (2003). *An Integrated Socio-Economic and ICT Policy and Plan Development Framework for Malawi*. United Nations Economic Commission for Africa (UNECA) and United Nations Development Programme (UNDP). Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.201.768&rep=rep1&type=pdf>
07. McCarthy, N., Brubaker, J., & De La Fuente, A. (2016). *Vulnerability to Poverty in rural Malawi*. Policy Research working paper; no. WPS 7769. Retrieved from <http://documents.worldbank.org/curated/en/939091469543760391/Vulnerability-to-Poverty-in-rural-Malawi>
08. Ministry of Economic Planning and Development. (2003). *Malawi Economic Growth Strategy*. Retrieved from <https://cepa.rmportal.net/Library/government-publications/Malawi%20Economic%20Growth%20Strategy%202003.pdf/view>
09. Mussa, R., and Masanjala, W. H. (2015). *A Dangerous Divide: The State of Inequality in Malawi*. Malawi: Oxfam. Retrieved from https://www.oxfam.org/sites/www.oxfam.org/files/file_attachments/rr-inequality-in-malawi-261115-en.pdf
10. Obayelu, A., and Ogunlade, I. (2006). *Analysis of the uses of information communication technology (ICT) for gender empowerment and sustainable poverty alleviation in Nigeria*. International Journal of Education and Development using ICT, 2(3), 45-69. Retrieved from <https://www.learntechlib.org/p/42240/>.
11. Statista. (2016). *Malawi: internet penetration 2000-2016*. The Statistics Portal. Retrieved from <https://www.statista.com/statistics/640140/malawi-internet-penetration/>
12. STOA. (2015). *ICT in the developing world*. Brussels: Science and Technology Options Assessment. Retrieved from http://www.europarl.europa.eu/RegData/etudes/STUD/2015/563482/EPRS_STU%282015%29563482_EN.pdf
13. The World Bank. (2010). *The World Bank Education Statistics*. Retrieved from <https://data.worldbank.org/topic/education>
14. The World Bank. (2013). *Connecting Eastern and Southern Africa: Installing a Regional Broadband Network for Efficient Internet and Telecommunications*. The World Bank. Retrieved from <http://www.worldbank.org/en/results/2013/03/29/connecting-eastern-and-southern-africa-installing-a-regional-broadband-network-for-efficient-internet-and-telecommunications>
15. The World Bank. (2015a). *The World Bank Education Statistics*. Retrieved from <https://data.worldbank.org/topic/education>
16. The World Bank. (2015b). *Aide Memoire, Regional Communications Infrastructure Program Malawi*. Retrieved from <http://documents.worldbank.org/curated/en/347941472039115459/pdf/107957-AM-P111432-PUBLIC.pdf>
17. The World Bank. (2018a). *Implementation, Completion and Results Report for Regional Communications Infrastructure Program*. Retrieved from <http://documents.worldbank.org/curated/en/414221531333372143/pdf/ICR00004013-07062018.pdf>
18. The World Bank. (2018b). *Regional Communications Infrastructure Program Phase 3: Implementation Status & Results Report*. Africa: The World Bank. Retrieved from <http://projects.worldbank.org/P111432/rcip3-regional-communications-infrastructure-program-phase-3?lang=en>
19. U.S. Department of Commerce. (1995). *Falling through the net: A survey of the have nots in rural and urban America*. National Telecommunications and Information Administration (NTIA). Retrieved from <https://www.ntia.doc.gov/ntiahome/fallingthru.html>
20. Zijlstra, A., Vaira, C., & Boothe, R. (2015). *Transformation-Ready: Using ICT to Fast-Track Africa's Development Path*. The World Bank. Retrieved from <http://documents.worldbank.org/curated/en/274201468184752473/pdf/101712-WP-Box393265B-PUBLIC-WorldBank-ICT-brochure.pdf>

Interviews

Interview with Audrey Mwala (19 & 26 June 2018), Director of Project Finance & Risk Analysis, The Public Private Partnership Commission, Malawi. (A.Keller, Interviewer)

Kenya

Water Sector Trust Fund



Source: Water Sector Trust Fund
(<https://waterfund.go.ke/>)

The Water Sector Trust Fund is a state corporation established under the Water Act 2016. It seeks to increase water access in low-income areas, reduce poverty and improve people's lives.

The Water Sector Trust Fund (WSTF) is a state corporation of the Ministry of Water and Sanitation in Kenya. It was established to improve the development and management of water services in low-income, marginalised and under-served areas.

Its mandate is to help the under-served or any vulnerable group in society and it specifically focuses on key inclusivity parameters such as income, location, gender and accessibility. The WSTF applies inclusivity practices through transparency, a community engagement model, performance-based financing mechanisms, a water operational model and initiatives favouring women and small enterprises. Its procurement procedures comply with the Access to Government Procurement Opportunities (AGPO) initiative, which is a government-led affirmative action program set up to empower young people, women and people with disabilities by providing them with more opportunities to do business with the government.

The WSTF is not a major individual infrastructure project, but rather an overarching program that includes projects of various sizes. They typically involve the provision of metered water connections, network extensions, public sanitation facilities, yard taps or water kiosks. Nonetheless, the WSTF has been selected as a case study to demonstrate how low-income areas can be identified and targeted, and how output-based funding can be applied.

Project Overview

Key words	Gender, employment, community engagement and transparency, financing, entrepreneurship
Sector	Water
Background	The Government of Kenya has been striving to improve water access for people in low-income areas for decades. However, it faces several challenges, including the limited capacity of small-scale service providers, limited water resources, drought and sustained poverty.
Size	<ul style="list-style-type: none"> • USD 107 million (KES 11 billion) • More than 2,200 projects • Has helped more than five million vulnerable people • The average size of the output-based aid^{*1} (OBA) financed projects is USD 1.7 million
Stage	The WSTF has been operating since March 2015. Its work is ongoing.
Why of interest	<p>The WSTF provides conditional and unconditional grants to the counties to help finance the development and management of water services in marginalised and under-served areas, including:</p> <ul style="list-style-type: none"> • the development of water services in rural areas that are not commercially viable for licensees; • the development of water services in under-served, low-income urban areas; and • improving transparency through online tracking and reporting of water access, using the MajiData Platform^{*2}. <p>WSTF projects are included in the Access Government Procurement Opportunities (AGPO) initiative, the national program that helps businesses owned by women, young people and people with disabilities to access government tenders.</p>
Project objectives	<p>WSTF's strategic objectives have been defined for the period 2018 to 2022:</p> <ul style="list-style-type: none"> • to mobilise USD 310 million (KES 31.9 billion) for WSTF investments by June 2022; • to diversify and sustain partnerships; • to develop and implement business models for revenue generation (i.e. on-lending, reserve and guarantee funds mechanisms, consultancy); and • to establish the Levy, Endowment and Revolving funds.
Project Lifecycle Assessment	<p>Project preparation – eligibility criteria to apply for funding (see details under Affordability and Optimising Finance). Output-based financing mechanism to engage the private sector and boost financial viability.</p> <p>Project procurement – procurement mechanisms are transparent with pre-qualifications and reduced competition for women, young entrepreneurs and people with disabilities (as part of the AGPO program).</p> <p>Construction – no specific inclusive technical design specifications, except for public sanitation projects^{*3}.</p> <p>Project monitoring and evaluation – use of MajiData to monitor the number of households and people who have improved water access.</p>

^{*1} Output-based aid is an innovative approach to increasing access to basic services. It refers to development aid strategies that link the delivery of public services in developing countries to targeted performance-related subsidies.

^{*2} MajiData is a pro-poor online database that contains facts and figures on water and sanitation for Kenya's low-income urban areas (www.majidata.go.ke). It has satellite-linked data on water supply, sanitation and solid waste disposal, population, land ownership, land use, area layout, habitation patterns and types of housing, socioeconomic infrastructure and quality of life.

^{*3} All public sanitation projects should include one disabled toilet, a room with baby changing and breast-feeding facilities, and a dedicated waiting area.

Project Description

Kenya has a population of 46 million people, of which a third still rely on surface water or unimproved water sources, such as ponds, shallow wells and rivers, while, as of 2015, 49% of Kenyans use open defecation or unimproved sanitation solutions⁴. Many of these people live in rural areas and urban slums. Only nine out of 55 public water service providers in Kenya provide continuous water supply, leaving people to find their own way of meeting their basic needs⁵.

The WSTF has a mandate to improve water access and water access quality in low-income areas in Kenya. It acts as a driving force, using an innovative financing mechanism, community engagement, empowerment, and technical assistance to reach 1.6 million households and more than eight million people. The online database, MajiData, provides a definition of a low-income area by capturing population, layout and infrastructure, land ownership, type of housing, water supply and sanitation, socioeconomic situation and community characteristics⁶. The application of inclusive principles is essential to achieve the overall target of improving access for 2.95 million people in under-served areas.

This project is relevant to a number of Action Areas. Most relevant is the Action Area of **Affordability and Optimising Finance**, which will be the main focus of this case study. The WSTF provides subsidies to help make projects financially viable and increase water accessibility. **Stakeholder Identification, Engagement and Empowerment** is also covered in this case study, due to the establishment of an online database mapping low-income areas and capturing information on their quality-of-life. The Action Area covering Policy, Regulation and Standards is also relevant, as the Water Act 2016 sets out the regulatory framework for the financing mechanism and the required mandates to all institutions involved, however this Action Area will not be covered in this case study. Other inclusivity measures such as capacity building, private sector participation, and project planning development and delivery are also present in the WSTF.

⁴ Joint Monitoring Program (JMP) Kenya data, (WASH 2015).

⁵ Our Impact – Kenya, (Water.org 2018).

⁶ Definition of low-income areas in Kenya (WASREB 2018a)

Key Practices Identified and Applied



AFFORDABILITY AND OPTIMISING FINANCE

Statement of the issue in relation to inclusion and brief introduction

Lack of access to water in Kenya disproportionately impacts the lowest income groups. In the poorest quintile of income groups, an average of 31% of people have access to improved water sources⁷, compared with a national average of 58%⁸.

In addition, improved or unimproved water sources may be located far from households. Fetching water becomes a time-consuming task and is mostly assumed by women and children. This prevents them from pursuing economic, educational or social activities. It also creates a gender divide and fosters inequality. Women are unable to engage in more empowering, financially rewarding or otherwise beneficial activities.

If a water supply initiative is to address these challenges, licensees must be able to raise enough finance to build the system and be able to fund its operation and maintenance. Despite the significant socioeconomic benefits, water projects in low-income areas may not be financially viable. That is, they can't generate sufficient revenue from users to pay for their construction, operation and maintenance.

How inclusivity has been addressed

The identified practice is a financing mechanism that enables projects to become financially feasible with the help of a performance-based subsidy.

One of the approaches used to tackle financial constraints is the provision of a subsidy to improve the financial viability of a project.

Projects covered by the financing mechanism are typically: (a) new individual water and sewer connections; (b) water kiosks; (c) public water supply points; and (d) public toilets.

⁷ Improved water sources include protected springs, protected wells, boreholes, piped into dwelling, piped water, and rain water collection. Examples of unimproved water sources are ponds, dams, lakes, streams/ rivers, unprotected springs, unprotected wells, and water vendors. (Kenya National Bureau of Statistics and the Society for International Development, 2013)

⁸ Joint Monitoring Program (JMP) Kenya data, (WASH 2015).

Implementation

A tailored financing model has been developed to support the overall objective of the WSTF.

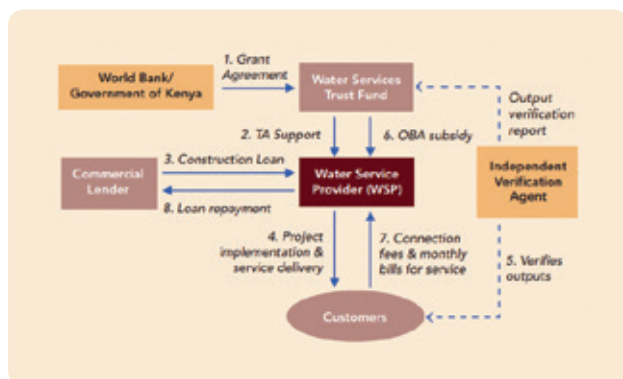


Figure 1. Source: Water Sector Trust Fund Results Based Financing Brochure 2018 (<https://www.waterfund.go.ke/brochures>)

Financing eligibility criteria

The WSTF can allocate funds from the World Bank, the Government of Kenya and other contributors. Water service providers (WSP)⁹ need to file an application to the WSTF to be eligible for finance. Help is provided during the application process in the form of process outlines, forms and spreadsheets. The eligibility criteria are as follows:

- compliance with the Water Regulatory Service Board and support from the county government;
- statement of clear ownership;
- the WSP must be able to prove the project is technically feasible and commercially viable;
- the WSP has secured commercial loans from a commercial bank;
- the project is located in a low-income area;
- it contains an agreed water tariff¹⁰ and operation and maintenance costs, which are not subsidised; and
- a willingness-to-pay analysis and definition of subsidy requirements have been conducted (up to 60% of consumer connection fees may be subsidised).

Subsidy application and allocation process

The financing mechanism is enabled by the Water Act 2016, which sets the regulatory framework for the financing process. The subsidy is paid only after outputs are verified, based on successful completion and evaluation using a standard evaluation form. The form summarises the conditions, operations, maintenance and usage from the perspective of the water facility operator, the verification agent itself, customers/end users and the Public Health Officer. The evaluation process also captures

gender, disability and affordability information in relation to access and participation in operations¹¹.

The application and subsidy allocation processes are defined in detail by the WSTF following the regulatory requirements. In summary, the process includes the following steps:

1. The WSP provides an overview of the project and requests technical assistance funds to develop a financially feasible project.
2. The application is submitted to the WSTF and commercial lender, together with a request for a subsidy.
3. The application is assessed based on financial, commercial, and technical feasibility. The WSTF considers the application for the subsidy. If it is satisfactory, a conditional loan offer from a commercial bank and certificate of eligibility are issued.
4. The WSTF conducts an independent baseline assessment and agrees on outputs against which the subsidy will be paid.
5. A subsidy agreement is signed by the WSTF, and upon acceptance of the conditional loan offer by the WSP, the WSTF releases 10% of the subsidy to the WSP.
6. The technical assistance funds are approved to help the WSP implement and oversee the project and deliver the service to customers.
7. When the project has been implemented, it is independently verified. The outputs are assessed against the project's objectives. If successful, this is followed by a recommendation to the WSTF that the subsidy is released.
8. The subsidy is paid, and the project continues. Customers will start paying connection fees and their monthly water bills and proceeds are used to cover operating and maintenance costs and repay the outstanding balance on the WSP's loan to the commercial bank.

To determine the affordability of the water tariff and the size of the subsidy required, the WSP needs to conduct and submit a willingness-to-pay analysis, as set out in Appendices 11 and 12 of the Tariff Guidelines¹². There are some limitations on the size of the subsidy. A cap on the subsidy is calculated on a per beneficiary basis (USD 115 per beneficiary) and the maximum subsidy is 60% of the amount borrowed for the investment.

⁹ Water service providers are small or medium-sized privately-owned companies that submit a business case and funding proposal to the WSTF. After the project is implemented, they operate and maintain the water supply facility.

¹⁰ As per national water tariff guidelines.

¹¹ The assessment forms are part of the toolkit available online. Depending on the project, some differences apply.

¹² Tariff guidelines provide guidance on tariff setting, willingness-to-pay studies and the calculation of the subsidy requirement as per Appendices 11 and 12 under WASREB – Tariff Guidelines, (WASREB, 2002).

Technical Assistance

The need for technical assistance has been recognised by the WSTF. A WSP may apply for help from the WSTF to develop a “bankable” proposal and seek funding to support the implementation and supervision of the project (i.e. construction supervision).

Supervision and Monitoring

During early project assessment and after project delivery, the independent verification agent from the WSTF undertakes the following:

- a baseline assessment and output verification;
- an assessment of sub-project costs and eligibility for a subsidy; and
- a confirmation of investments made in the targeted low-income areas.

This information is submitted to the WSTF and also shared with MajiData.

During operations and maintenance, the Water Service Regulatory Board undertakes monitoring and reporting on WSP compliance. Monitoring is also undertaken by the WSTF through MajiData. The project evaluation results are captured and linked to the database. MajiData is being updated to also include operational monitoring data on a project basis.



STAKEHOLDER IDENTIFICATION, ENGAGEMENT AND EMPOWERMENT

How inclusivity has been addressed

The identified practice is an online database which identifies communities to be targeted for improved water access and stores information on their quality-of-life.

Implementation

Database capturing information on quality-of-life indicators

Communities are identified and targeted for projects using the WSTF’s online database, MajiData. This database has mapped over 1,880 urban settlements considered to be low-income areas. Information is based on 22 quality-of-life indicators including water supply, sanitation and area characteristics¹³.

When the WSP applies for the subsidies, the communities to receive improved water access¹⁴ are identified and captured as part of the project proposal.






Community engagement

Formal engagement with communities is an important part of the project. A communal structure has been established so individuals from local water communities can liaise with the respective regional water service board, which oversees asset management and contracting with water service providers. In addition to the communal structure, the project evaluation and monitoring data details the extent to which people benefit from water access and how satisfied they are with the service. This information is used by the WSTF to make improvements and inform the development of projects being considered for other locations.

¹³ Maps & Data, (WASREB 2018b)

¹⁴ This could be an improvement to an existing water access point (e.g. water tap instead of an open well) or completely new water points.

Benefits Realisation

Identified benefit	Benefit description
 <p>Reducing poverty and income inequality</p>	<p>Improving people's lives through increased water access, which can lead to more time for income-earning activities, better health and hygiene, and a cleaner environment.</p>
 <p>Social equity and social stability</p>	<p>A system for communication and collaboration is provided through community groups, water service boards and water service providers, leading to improved engagement and less conflict.</p> <p>Providing low-income areas with access to water also reduces social differences and unevenness in relation to county water supply, security, hygiene and sanitation.</p>
 <p>Increasing gender equity</p>	<p>Improved access to water means that women and children spend less time fetching water. Women have also been employed by water service providers for operation and maintenance tasks, giving them additional income and job opportunities.</p>
 <p>Integration of small business opportunities</p>	<p>The financing mechanism offers incentives to establish a registered water service provider and helps grow existing businesses through project implementation, operation and maintenance activities.</p> <p>Transparent programs and training for small businesses to participate in the tender process are provided through the AGPO initiative.</p>
 <p>Increasing affordability and accessibility</p>	<p>As of June 2016, projects benefitting from OBA financing have reached 21,650 people. Competitive and cost-effective structures (through performance-based subsidies) for water supply have been established; subsidies are assessed on a case-by-case basis, and projects consider a community's willingness-to-pay.</p>

Stakeholders

Key beneficiaries	Role
Communities without access to improved water resources	The WSTF seeks to help these communities. They are engaged through community groups and outreach and can also take a proactive role in operational and maintenance activities.
Women and children	Women and children are encouraged to engage with this project and use improved water sources. Women are urged to participate in the operation of water projects, such as kiosks. The WSTF encourages women to get involved in operational and maintenance activities.
Water users' associations	Water users' associations implement their own projects in rural areas, working closely with the water service boards.
Institutional stakeholders and partners	Role
Water service providers	The water service providers implement and provide water supply and sanitation services in urban and rural areas. They can be small or medium-sized companies.
Water service boards	The water service boards oversee the community organisations and water service providers in rural and urban programs.
County governments	The 2010 amendment to the Constitution of Kenya saw the devolution of the government to 47 counties. They are in close cooperation and coordination with the Water Resources Management Authority.
Water Resources Management Authority (WRMA)	This state corporation operates under the Ministry of Water and Irrigation and is mandated to lead water resources management in the country. It provides technical advisory services and assists water resources user associations (WRUAs) in developing sub-catchment management plans.
Kreditanstalt für Wiederaufbau (KfW, German Development Bank) and Gesellschaft für Internationale Zusammenarbeit (GIZ, German Agency for International Cooperation)	KfW has a component of Aid on Delivery (AOD) to provide a 40% subsidy to water service providers for commercial loans aimed at improving service delivery. GIZ is the technical arm of Germany's Federal Ministry for Economic Cooperation and Development (BMZ) and assists the WSTF with technical issues. Its technical advisors are stationed at the WSTF.
The World Bank	The World Bank provides output-based aid (OBA) of an up-to 60% subsidy for commercial loans to water service providers who, in turn, will increase connections to low-income areas.
International Fund for Agricultural Development (IFAD)	Funding instrument for grants to WRUAs and community forest associations (CFAs) for natural resources management.
Other institutions	Various countries and institutions offer assistance to help improve access to water services in Kenya (e.g. Bill and Melinda Gates Foundation, European Union, Finland, Sweden, Denmark).

Lessons Learned

Success factors

A comprehensive project lifecycle approach tailored to its mandate forms the basis of the WSTF. Policy interventions were necessary to define the regulatory framework that enables the financing, community engagement and implementation mechanisms across all project stages. In parallel, key areas addressed at the project level are: (a) financing; (b) supervision; and (c) capacity building of local implementers and water service providers or utilities.

Data-driven decision-making and continuous monitoring are enabled through MajiData. This online tool monitors and tracks the improvement in water access and services in the identified low-income areas. It defines the criteria against which proposals are evaluated and approved. Data captured from project evaluation and monitoring is also used to inform future projects.

Structured and transparent community engagement is enabled through a clear governance structure with defined reporting and monitoring lines; that is, the Water Resource Management Authority, county governments, water service boards, water service providers and community groups.

A long-term focus on the overall objective to improve livelihoods around water resource management, as well as gender and social inclusion, ensures the sustainability of the Water Resources Management Authority's activities and thus, conservation and protection of the catchments.



Figure 2. Source: Water Sector Trust Fund (<https://www.waterfund.go.ke/rbf>)

Key challenges

The WSTF's mandate is set by the Water Act 2016.

This triggered several changes, which the affected organisations and stakeholders needed to recognise and adapt to, such as:

- more responsibility for water and sanitation provision, operation and maintenance has been transferred to the counties. Service providers have a legal mandate to implement water projects that support communities in the long-term. This may result in a lack of coordination and communication in line with the mandated approval processes.
- moving from grants to subsidies and commercial financing that creates self-sustaining water services that are credit worthy. Financial institutions have needed more time than expected to familiarise themselves with the new terms and conditions. Workshops, seminars and open days have been organised to support that process.

There are not enough financially viable project proposals. However, there is an attempt to address this with funding to help develop acceptable proposals (for technical designs, project cash-flows, environmental and social management plans and social connection policies, which are prerequisites for eligibility under the subsidy program).

Low-income households often struggle to raise the connection fee. This is an ongoing inclusivity challenge that is being addressed with different loan structures and subsidies.

There is increasing demand for water facilities but a shortage of commercial structures. Other counties are calling for the introduction and improvement of water and sanitation services because their existing infrastructure cannot meet the needs of the growing population. However, appropriate commercial structures have not yet been developed. Particularly in low-income areas, if people are either unable to pay the connection fees or unwilling to pay for improved water sources, service providers will not invest in infrastructure upgrades. Therefore, there is a need to develop and promote commercial structures, either through grants, subsidies or loans being undertaken by the WSTF, which can sustain investments in these areas.



Figure 3. Source: Water Sector Trust Fund (<https://waterfund.go.ke/brochures>)

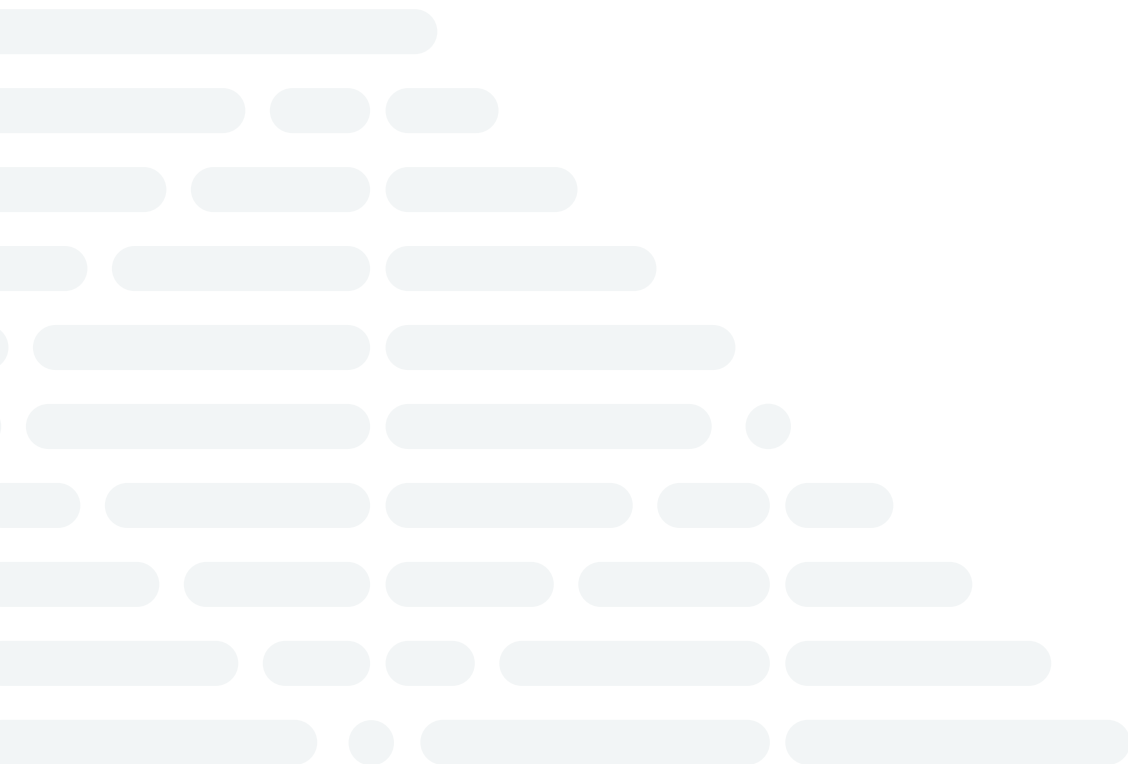
References

01. Kenyan Ministry of Water and Irrigation. (2015). Ministry of Water and Irrigation (Kenyan Water Sector). Water Services Trust Fund, Kenya. Retrieved from: [http://www.waterfund.go.ke/toolkit/Downloads/1.%20Introducing%20MajiData%20\(brochure\).pdf](http://www.waterfund.go.ke/toolkit/Downloads/1.%20Introducing%20MajiData%20(brochure).pdf)
02. Kenya National Bureau of Statistics and the Society for International Development. (2013). Exploring Kenya's Inequality. Nairobi, Kenya: Society for International Development and Kenya National Bureau of Statistics. Retrieved from <http://inequalities.sidint.net/kenya/national/>
03. WASH. (2015). Kenya data. Retrieved from <https://washdata.org/data>
04. WASREB. (2002). WASREB - Tariff Guidelines. Kenya. Retrieved from <https://wasreb.go.ke/downloads/Tariff%20guidelines.pdf>
05. WASREB. (2018a). MajiData. Kenya. Retrieved from <http://majidata.go.ke/>
06. WASREB. (2018b). Maps and Data. Kenya. Retrieved from <http://majidata.go.ke/maps-data/>
07. Water.org. (2018). Our Impact - Kenya. Retrieved from Water.org: <https://water.org/our-impact/kenya/>

Interviews

Interview with Stella Warue (2018, 25 May). Manager, Urban Investments, Kenya Water Sector Trust Fund. (A. Lu, Interviewer).

Interview with Engr. Rose Nyikuri (2018, 25 May). Manager, Water Resources and Climate Change Investments, Kenya Water Sector Trust Fund. (A. Lu, Interviewer).



Bolivia

Mi Teleférico Cable Car



Source: The City Fix (<http://thecityfix.com/blog/in-photos-cable-car-system-takes-transport-new-height-bolivia-el-alto-la-paz-mi-teleferico-gwen-kash/>)

An aerial cable car urban transit system serving the La Paz–El Alto metropolitan area in Bolivia; the first public transport system in La Paz designed for equitable access, and improved accessibility and connection between two socioeconomic urban areas.

Mi Teleférico is an aerial cable car system connecting Bolivia's capital La Paz with the fast-growing centre of El Alto. Together, the two cities create the world's highest metropolitan area at more than 3,650 metres above sea level.

La Paz and El Alto may be close geographically but moving between them by road can take hours, due to the winding route and traffic congestion. Mi Teleférico gives people a more efficient, affordable and reliable way of getting to work and school or accessing services.

Bolivia is the first country to use cable cars as the backbone of the public transport system and Mi Teleférico is the largest aerial cable car network in the world. It is accessible to all, and support and preferential treatment is offered to people with disabilities or mobility challenges, and others in need. Specific programs for women and young people have also been developed to promote social inclusion.

Strong political support from the central and local governments has been key to achieving the project's social inclusion objectives. Social inclusion is the focus of the current government's Agenda Patriótica (national development plan). Support from the government has also been essential to the successful implementation and expansion of the network to reach a wider population.

Project Overview

Key words	Disability/impaired mobility, accessibility, governance, policy and standards
Sector	Transportation
Background	<p>La Paz has a population of more than 800,000 people and is the highest capital in the world at over 3,650 metres above sea level. It is part of the La Paz-El Alto metropolitan area, which has a combined population of 2.8 million citizens.</p> <p>El Alto is a fast-growing city with one million people living at over 4,000 metres above sea level. Every day, 440,000 commuters from El Alto travel to La Paz to work^{*1}. The volume of traffic pushed the existing infrastructure to the brink of collapse. Cars, minibuses and fixed-route taxis often take an hour or more to travel the short distance on the mountainous roads^{*2}.</p>
Size	<p>Phase I: USD 235 million^{*3}</p> <p>Phase II: USD 506 million^{*4}</p>
Stage	<p>Phase I: 2012-2014 (operational): three lines^{*5}</p> <p>Phase II: 2014-2018 (operational): four additional lines^{*6}</p> <p>Phase III: Current (in planning): four new lines^{*7}</p>
Why of interest	<ul style="list-style-type: none"> • The first public transport system in Bolivia to address the needs of people with disabilities or impaired mobility • Innovative transport solution that addresses the challenges of the high altitude La Paz-El Alto metropolitan area • Connects two different socioeconomic urban areas, increasing access to labour market opportunities • Significant political support, alignment with national policies and plans, and legislation and standards developed specifically for the project • Changed the legal and regulatory framework, increased private sector involvement in public infrastructure projects • One of the few mass transport systems in Latin America to achieve financial sustainability with an accumulated surplus of USD 5.8 million
Project objectives	<ul style="list-style-type: none"> • Provide a safe and reliable upgrade to a public transport system that could not cope with growing user demands • Increase affordability and decrease the time it takes to travel between La Paz and El Alto • Reduce environmental and noise pollution produced by the network of gasoline and diesel-fuelled buses and minibuses in the metropolitan area • Reduce over-reliance on the bus network, which is heavily supported by the government's fuel subsidies

^{*1} Estimates from Doppelmayr and the Inter-American Development Bank (IADB).

^{*2} Distance from the International Airport in El Alto to La Paz Train Station is 8 kilometres. The trip takes about 30 minutes by car or over an hour by mini-buses.

^{*3} USD 234,680,000. Ministry of Public Works, Services and Housing, Bolivia (2013).

^{*4} The project was financed by the country's National Treasury with an internal loan from the Central Bank of Bolivia. Funding for the last line (Silver Line) is being discussed with the IADB for a loan of USD 40 million and the line is expected to commence operations in 2019.

^{*5} Red Line (Línea Roja), Yellow Line (Línea Amarilla), and Green Line (Línea Verde).

^{*6} Blue Line (Línea Azul), Orange Line (Línea Naranja), White Line (Línea Blanca) and the first section of the Sky Blue Line (Línea Celeste).

^{*7} Purple Line (Línea Morada), Brown Line (Línea Café), Silver Line (Línea Plateada), and Gold Line (Línea Dorada).

Project Lifecycle Assessment

Project preparation – presidential support and specific legislation was put in place to implement the project. Standards were adapted to the local context through a review of local, national and international practices. Targeted stakeholder engagement (e.g. people with disabilities or impaired mobility) was conducted. Baseline data was collected.

Project procurement – construction, operation and maintenance contracts included requirements for capacity building for the local workforce.

Construction – no relevant practices identified.

Project monitoring and evaluation – targets were set for the employment of women and people with disabilities or impaired mobility within Mi Teleférico. Capacity building was performed. Annual reporting and periodic monitoring of indicators against baseline data continues.

Project Description

Mi Teleférico (which translates to “my cable car”) is an aerial cable car system that serves the world’s highest metropolitan area, La Paz–El Alto in Bolivia. La Paz, the country’s capital, is 3,650 metres above sea level and has a population of more than 800,000 people. The growing city of El Alto, which is more than 4,000 metres above sea level, is located above La Paz on the Altiplano plateau and is a poorer urban area. The majority of its one million residents are Aymaran, an indigenous group of the Andes region.

Mi Teleférico holds two world records: it is the world’s longest ropeway project¹ and the world’s highest cable car system. It currently consists of 23 kilometres (km) of lines and has 20 stations along six routes. It will be expanded to at least 34 km with five additional lines and a total of 30 stations. Each line has a maximum capacity of 6,000 passengers per hour. Each car seats 10 passengers. Cars depart every 12 seconds, and the network is open 17 hours a day. In 2017, an average of 243,000 passengers per day used Mi Teleférico.

The first phase of the project was prepared by Bolivia’s Ministry of Public Works, Services and Housing. Phases I and II were designed and constructed by the Austrian-Swiss company, Doppelmayr Garaventa Group² (Doppelmayr), a world-leading ropeway manufacturer, which employed 1,397 full-time workers. The state-owned enterprise (SOE), Mi Teleférico, operates the assets and has 481 full-time employees.

Doppelmayr was directly contracted for the turnkey contract comprising three lines in Phase I, as well as for the four additional lines during Phase II. It provided the technological and technical expertise to build and operate the cable car system, including design, engineering, project management and construction of the stations, ropeway and the cable cars. It also provided capacity building under the philosophy *aprender haciendo*, that is, learning by doing or on the job training, where international experts train and transfer knowledge to Bolivian workers.

Mi Teleférico is one of the few transport projects in Latin America that does not require a grant or government subsidy. In 2018, it reported an operating surplus of USD 5.8 million, demonstrating the financial sustainability of this socially inclusive business model.

This financial sustainability falls under the **Affordability and Optimising Finance** Action Area. The second Action Area covered in this case study, **Private Sector Role and Participation**, is also relevant because technologies from the private sector have been used to enable more inclusive access, as well as to provide environmental benefits. The project is also an example of successful engagement with stakeholders, which falls under the Action Area on **Stakeholder Identification, Engagement and Empowerment**, particularly during the planning phase. In addition, Mi Teleférico was led by the Bolivian Government and political champion, President Evo Morales, which helped to ensure its success (relevant to Action Area 2: Governance and Capacity Building, although not covered in detail in this case study).

¹ 2018 Guinness Record.

² Please refer to company webpage: <https://www.doppelmayr.com/en/the-group/facts-and-figures/>



Figure 1. Mi Teleférico Cable Car crossing the La Paz-El Alto Highway

Source: The City Fix (<http://thecityfix.com/blog/in-photos-cable-car-system-takes-transport-new-height-bolivia-el-alto-la-paz-mi-teleferico-gwen-kash/>)

Key Practices Identified and Applied

Statement of the issue in relation to inclusion and brief introduction

The public transport system in La Paz-El Alto was chaotic and polluting. Rapid growth in the number of taxi and mini bus services generated heavier than usual traffic congestion in both cities and the lack of available space to build new transport infrastructure created a vicious cycle of inefficiency and unreliability. Private operators were incentivised to offer a service on routes at times that were profitable for the firms and intentionally failed to provide services on licensed routes, which are commercially less attractive.

Many people live in El Alto and work in La Paz. As the level of private car ownership is low, the majority of commuters relied on public transport to get to work, school, or access vital services. The public transport system consisted of buses and minibuses navigating narrow, winding and congested streets, which increased journey times for passengers and contributed to noise and air pollution. Travel costs were high for most people. Those on lower incomes were the worst affected.

There were no dedicated bus stops, so accessing public transport was challenging for people with impaired mobility, the elderly and pregnant women because they were unable to safely board the buses. Furthermore, there were no dedicated seats on buses to help make their journey easier and no public transport options had enough space for wheelchairs.

In 2012, the President of Bolivia, Evo Morales, put forward plans for an ambitious and unconventional infrastructure project to address the transportation issues in El Alto and La Paz. Bolivia was to build a modern, safe, efficient, sustainable and inclusive cable car system in the metropolitan area. In July of the same year, the President drafted a bill for the construction of the cable car. The bill was approved by the Assembly.

The strong drive for an inclusive society at the national level is reflected in Mi Teleférico, from the way its employees and the travelling public have been treated, to the way people who had traditionally been excluded have now been considered.



AFFORDABILITY AND OPTIMISING FINANCE

How inclusivity has been addressed

The identified practices are a strong and well-defined business case, integration of ancillary revenue, and an optimised fare policy to achieve financial sustainability, affordability, accessibility and inclusivity.

Decree No. 1980, in 2014, created a new state-owned enterprise (SOE) to procure a turnkey project for the design and construction of three cable car lines. The new entity was called Mi Teleférico and it was responsible for the

operation and maintenance of the new asset for the state. It was also tasked with defining the business plan, governance, operation and finance of the project, and ensuring sustainability, accessibility, availability and inclusivity goals were achieved. As an autonomous state-owned enterprise, Mi Teleférico has the authority to self-govern and to implement all of its business decisions. All revenue generated is managed and retained by the company after taxes.

The Central Government was solely responsible for financing the initial investment capital for the construction of the project, including all capital expenditure and the creation of the SOE for the cable cars. The National Treasury of Bolivia provided 100% of the financing for Phase I. Financing for Phase II involved a more complex financial structure, and was provided by the Central Government, with a loan from the Inter-American Development Bank also under consideration.

Implementation

Mi Teleférico Business Strategy Plan 2016-2020

Mi Teleférico is one of the very few mass transport projects in the world that does not require public subsidies for operations and maintenance. Less than four years after it began operation, it carries a net surplus of USD 5.8 million from an initial investment of USD 234 million³, delivering a period return of 2.5%.

In 2016, the operator developed a business plan with a clear competitive, financial and market analysis. The objectives, structure and implementation of the new cable car project were clearly defined and justified in its Business Strategy Plan 2016-2020⁴. The plan included:

- a legal framework;
- external analysis of the macro-economic environment;
- internal analysis of the national economic and financial environment;
- risk identification and management;
- value proposition;
- market analysis;
- go-to-market plan;
- corporate structure and governance;
- key performance indicators (KPIs) within predetermined timelines;
- financial reporting and analysis; and
- technical feasibility analysis.

Value proposition	<ul style="list-style-type: none"> • Modern, safe, accessible and inclusive cable car system
Market segments	<ul style="list-style-type: none"> • Vulnerable groups of passengers excluded from existing public transport services
Business model	<ul style="list-style-type: none"> • Revenue from fare collection and ancillary businesses • Operating costs are fixed regardless of demand
Risks	<ul style="list-style-type: none"> • Identify political, social, currency, legal and business risks and develop guidelines to mitigate them
Financial governance and analysis	<ul style="list-style-type: none"> • Corporate financial reporting and audit • Financial analysis requirements • Budgeting and reporting
KPIs	<ul style="list-style-type: none"> • Definition of KPIs for service, operations and management, e.g. % availability, % maintenance, % re-investment, % ancillary business
Technology	<ul style="list-style-type: none"> • Feasibility and Universal Design to ensure most efficient capital expenditure

Table 1. Key elements in Mi Teleférico's business plan

³ Urban Mobility Solutions: Doppelmayr Cable Car La Paz, (Mi Teleférico, 2018d).

⁴ Corporate Strategy Plan 2016-2020, (Mi Teleférico, 2015)

Fare optimisation policy

The main objective of the project was to provide a modern, clean, safe and accessible public transport system that would serve all members of society. The operator set upfront objectives and guiding principles before design options were generated and assessed⁵. Based on these principles, it was able to set the fare policy to achieve its financial sustainability goals while also reaching its social inclusion objectives.

In a 2015 survey⁶, cable cars represented 2% of the share of transport modes available between El Alto and La Paz. The cable car system is priced higher than the minibuses and microbuses at USD 0.43 (BOB 3, 2017 exchange rate) for a one-way trip. Based on empirical data⁷, passengers travelling on Mi Teleférico reduced their average daily travel time by 22%, representing a net economic benefit of USD 0.58 per person (opportunity costs saved to pursue more work, schooling, services, etc.).

For people with mobility challenges (disabled, the elderly, pregnant women, small children), the cable car system is the only reliable and safe option for travelling between El Alto and La Paz. A concessionary fare is available for passengers with disabilities, the elderly and students at a 50% discount or USD 0.20 (BOB 1.5) per one-way trip. In 2017, Mi Teleférico reported 138 trips per day from 2,186 passengers with disabilities, which represented 5.2% of citizens registered with disabilities in the La Paz metropolitan area.

The correct positioning of Mi Teleférico's fare policy, which is based on affordability and willingness to pay, contributed to the financial sustainability of the project and unlocked further socioeconomic benefits for all of its users.



Figure 2. Mi Teleférico electronic card reader.

Source: *The City Fix* (<http://thecityfix.com/blog/in-photos-cable-car-system-takes-transport-new-height-bolivia-el-alto-la-paz-mi-teleferico-gwen-kash/>)

⁵ Objectives, design capacity, availability of the cable car system are summarised in Mi Teleférico's Corporate Strategy Plan 2016-2020 (Mi Teleférico, 2015)

⁶ Survey by Inter-American Development Bank, 2015 by share of transport modal and average costs, available at https://publications.iadb.org/bitstream/handle/11319/8470/telefericos_como_alternativa_de_transporte_urbano.pdf?sequence=1&isAllowed=y

⁷ Cable cars in urban transport: Travel time savings from La Paz-El Alto (Bolivia), (Suárez-Alemán, Serebrisky, & Garsous, 2017)

Ancillary revenue

Mi Teleférico offers an array of ancillary services to the public, institutions and firms. In return, it generates a significant portion of its total revenue from the rental of its commercial spaces, advertising platforms, parking etc. The provision of these services supports operation and maintenance costs, diversifies revenue streams and mitigates the commercial risk from changes in ridership. The revenue from these complementary businesses supports the financial sustainability of Mi Teleférico and increases private sector participation and opportunities for small businesses.

Revenue by source, 2014-2017 (USD)

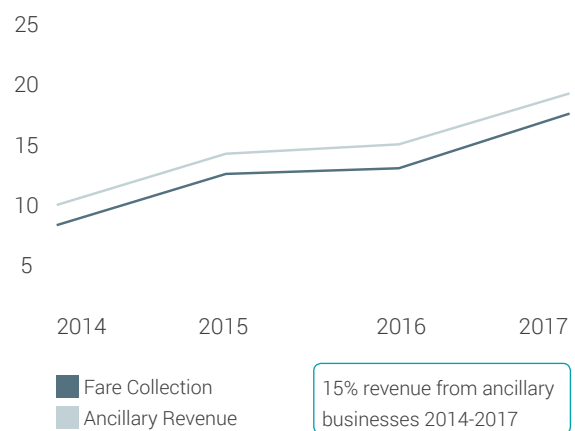


Figure 3. Revenue from farebox and ancillary business
Source: Mi Teleférico Annual Reports 2014-2017



PRIVATE SECTOR ROLES AND PARTICIPATION

How inclusivity has been addressed

The identified practice is the use of the private sector's expertise to introduce new technologies that help to embed inclusivity objectives and train local workers.

Bolivia's leaders had been planning the cable car system for the cities of El Alto and La Paz since the 1970s. In 2012, Law No. 261 was enacted to authorise the Ministry of Public Works, Services and Housing to procure a specialist cable car provider to implement and deliver a turnkey project for three lines of the cable car system.

Doppelmayr Garaventa Group was awarded the contract for this first phase, as well as for four additional lines in Phase II.

Doppelmayr's role was to provide:

- the technical design, engineering, project management, and construction of the stations and ropeway;
- the fleet of cable cars, and;
- the training of local staff for operations and maintenance.

Doppelmayr provided the technological and technical expertise to build and operate the cable car system based on the unique topography of the cities. It also helped the project meet the required environmental, accessibility and inclusion objectives of the Bolivian Government, such as providing facilities for passengers with disabilities, low-carbon emission technology and safety initiatives.

Implementation

Doppelmayr was the sole contractor for the design, engineering, construction and provision of the cable cars. As a turnkey contractor, the private firm was directly contracted to provide all the technology solutions to achieve Mi Teleférico's objectives.

Training

There is a clause in the contract that requires Doppelmayr to train local Bolivians in all technical aspects of the project. The contractor provided capacity building under the philosophy *aprender haciendo*, that is, learning by doing or on the job training, where international experts provide advice, train, and transfer knowledge to Bolivian workers in relation to technical assistance, engineering, design, operations and maintenance.

Universal Design

The project uses Universal Design standards to help ensure facilities are accessible to all users. The stations have ramps, elevators and tactile paving to help disabled passengers.

Smart mobility technology

Smart mobility technology, both software and hardware, has been incorporated into the design of the stations, such as the proprietary Passenger Information Systems for announcements, mobile apps, smartcard tickets, public address systems, telecommunication network coverage (including WiFi), fire alarm systems, biometric controls, electronic access gates, 'smart point' top-up machines, fibre optics, radio communication systems, internet and CCTV systems.

Energy efficiency technology

To improve energy efficiency solar PV panels have been installed on every cable car. They supply the electricity for the internet connections, lighting and communication systems. In the stations, LED lighting has been specified to reduce 49% of electricity consumption.

Mi Teleférico is 100% electric. Most of its power requirements are supplied by hydroelectric power plants in El Alto.



Figure 4. Elderly passenger assisted by station attendant
Source: The City Fix (<http://thecityfix.com/blog/in-photos-cable-car-system-takes-transport-new-height-bolivia-el-alto-la-paz-mi-teleferico-gwen-kash/>)



STAKEHOLDER IDENTIFICATION, ENGAGEMENT AND EMPOWERMENT

How inclusivity has been addressed

The identified practice is early and extensive public stakeholder engagement during the design and operations phases of the project.

Stakeholder engagement has helped authorities to win the support of people living near the cable car route and, in particular, identify where towers and stations would be located. They used meetings and fairs to engage with people throughout the design and construction phases and communicate the key benefits of the project.

The 2014-2018 Mi Teleférico Report states that:

- between 2015 and 2018, there were more than 800 meetings with residents, social organisations and authorities with 4,948 attendees;
- 160 meetings were held with local groups, attracting 14,891 attendees;
- 188,697 people participated in 302 fairs; and
- more than 50 school groups visited the facilities to learn more about the project.

Prior to the start of work on Phase II, more than 20,000 citizens were consulted during a series of public events.

Implementation

Focus groups and workshops with vulnerable community members

During the design stage of the project, focus groups and workshops were held with people with disabilities and the elderly to ensure their needs were understood and taken into consideration. The focus group meetings were arranged by the Vice Ministry of Transport and were invitation-only events. In the interview with Mr. Cesar Dockweiler, the CEO of Mi Teleférico, he stated that although the draft project met most of the requirements identified by the groups, people's feedback was useful in planning for the operation of the system.

Through their engagement with the community, operators also helped to explain to people how the cable car system would work, as it required a major cultural shift. People would now need to use transport stops and show patience while waiting in queues to create order, discipline and shared values.

Creation of a website to educate users

A website was set up for users⁸. It provided information on the system and how to use it, as well as information on the mission and values of Mi Teleférico and relevant legislation. The site also includes links to forms for complaints and shares operational details. In 2018, a mobile phone application was launched to create an even stronger connection with users.

Capacity building and training for vulnerable groups

During operations, capacity building and training has also been undertaken to help vulnerable groups and job seekers to gain employment, and to ensure that people working in the system are trained to assist people with specific needs. For example, in 2016, 59 different types of capacity building activities were completed. They included the maintenance of electrical equipment, first aid, evacuation procedures, fire prevention, Constitutional rights, construction, and technical training. Between January 2017 and March 2018, 136 employees were trained to assist people with disabilities. Training is also provided to help people with disabilities in the workforce. Employment opportunities are provided to people with disabilities and women in Mi Teleférico, who currently represent 4% and 36% of the workforce respectively.

A program titled *Trabajo con Altura* (which translates to "Working with high values") aims to benefit young people who are looking to obtain work experience, and is aimed at public servants and users of Mi Teleférico. Between 2014 and 2018, 886 young people graduated from this program. Additionally, about 30 students have completed internships in the operations, maintenance and finance departments, as well as the project management unit of Mi Teleférico.

Supervision and monitoring

During the design phase, information on KPIs was collected as a baseline. The number of indicators has since been expanded.

During the operations phase, monitoring is undertaken and reported annually in relation to the service level (e.g. the quality of the service, number of users, punctuality, perception of the service, and complaints), and number of users (including disaggregation of those with preferential tickets – people with disabilities, students and the elderly). This is recorded in yearly reports (2015, 2016 and 2017), which are published on issuu.com. A report was also issued in March 2018, covering the period May 2014 to March 2018⁹.

A socioeconomic survey is planned in 2020 to understand the impact on people who live closer to stations, people who regularly use Mi Teleférico, and people who cannot enjoy the benefits of the service. It is intended to establish:






- how has life changed for people with access to Mi Teleférico; and
- how has life changed for people without access to Mi Teleférico.

The operator will compare areas with and without access to be able to analyse the impacts of the cable car system.

⁸ Refer to Mi Teleférico website: <http://www.miteleferico.bo/>

⁹ 2017-2018 Management Report, (Mi Teleférico, 2018b)

Benefits Realisation

Identified benefit	Benefit description
 <p>Social equity and social stability</p>	<p>2,186 people with disabilities in the cities of El Alto and La Paz benefit from the system – this is 5.2% of the disabled population of 41,827 people living in the area. They have undertaken more than 193,000 journeys, with an average of 138 journeys made per day.</p> <p>68,761 students with preferential cards have taken approximately 8.6 million journeys.</p> <p>36,193 elderly people with preferential cards have made 3.5 million journeys.</p> <p>It was reported that between 29 May 2014 and 31 March 2018:</p> <ul style="list-style-type: none"> • if a person took 30 trips on the red line per month, they would have saved 16 hours in travel time; • if someone took 30 trips on the yellow line per month, they would have saved 17 hours in travel time; • if a user of the blue line took 30 trips each month, they would have saved four hours in travel time; and • 30 trips on the orange line per month would have saved people eight hours in travel time. <p>They could have spent more time on leisure activities, with their families, working more productively or improving their health.</p>
 <p>Increasing gender equity</p>	<p>Between May 2014 and March 2018, 36% of employees were women (225 out of 633 people).</p> <p>In 2017, Mi Teleférico opened the <i>Mi Dulce Cabinita</i> (my sweet little cable car) crèche for the children of staff members.</p>
 <p>Increasing affordability and accessibility</p>	<p>The ticket price balances the need to ensure the project is economically viable with the desire to improve accessibility for the most vulnerable groups in society. The project does not need any subsidies from the state and is therefore a model for other developments.</p> <p>Preferential tariffs (a 50% reduction) are available for people with disabilities, the elderly and students. The Mi Teleférico 2014-2018 Report states that people with disabilities have been able to save more than USD 42,130 (290,388 Bolivianos) during their 193,592 journeys.</p>
 <p>Job creation and equal access to labour market opportunity</p>	<p>Between May 2014 and March 2018, 36% of employees were women (225 out of 633 employees).</p> <p>People with a disability make up 4% of the workforce.</p>
 <p>Technical literacy and knowledge sharing</p>	<p>The project has drawn on the experience of teams from around the world. Contractors are required to train Bolivians in all areas of operation, management and maintenance. 551 employees have participated in training since 2014.</p>

Stakeholders

Key beneficiaries	Role
People with disability/ impaired mobility	Target group for the project to ensure equity of access. Equity requirements for this group addressed in design and operation.
Women	Targets for employment - currently 36% of the workforce are women. Events to address women's safety.
Low-income areas	Connection of the lower income area of El Alto to La Paz.
All users and employees	Collective empathy toward vulnerable groups. Targeted media and education campaigns.

Institutional stakeholders and partners	Role
Ministry of Public Works, Services and Housing	Led the development of Phase I of the project.
Doppelmayr Garaventa Group	World-leading ropeway manufacturer. Directly contracted for the design and construction of Phase I and II of the project.
Mi Teleférico	State company set up to operate and expand the project.
InterAmerican Development Bank	Possible provider of funds for cable line extensions.

Lessons Learned

Success factors

Political support was crucial. The President of Bolivia demonstrated his support for Mi Teleférico, which was essential to push the project forward. The philosophy of President Morales is to promote social inclusion for all, and this is reflected in efforts to improve access to low-income areas, and mobility for disabled persons and the elderly.

Building local capacity was set out in the project's contracts. Mi Teleférico's operators insisted that technology and knowledge should be transferred to local people.

Social inclusion is the philosophy of President Morales and was incorporated into the project mission, which specifically addresses accessibility and mobility for disabled persons and the elderly. People were at the heart of this project.

Key challenges

Introducing the project into two cities that had no integrated transport system was a challenge. La Paz and El Alto did not have an integrated transport system prior to Mi Teleférico. Therefore, challenges included teaching people to use dedicated transport stops and travel cards, and queueing procedures. The project included education programs to help address this gap in knowledge.

Addressing workers' attitudes to people with disabilities was a further key challenge. Workers had to be trained to assist people with special requirements. The project also sought to include people with disabilities or impaired mobility in the operation of the cable car. Encouraging the wider workforce to treat everyone as equals continues to be an ongoing learning experience.

References

01. Agencia Municipal de Noticias. (2017). *Mayors sign the Bolivia Chapter on Urban Mobility*. Agencia Municipal de Noticias (AMN). Retrieved from <http://amn.bo/archivo/index.php/en/recursos-periodistas/titulares/73-scat-lapaz/9912-alcaldias-suscriben-en-la-paz-el-capitulo-bolivia-sobre-movilidad-urbana-que-impulsa-politicas-centradas-en-la-gente-y-a-favor-de-este-derecho-fundamental>
02. Doppelmayr. (2015). *La Paz has the World's Biggest Urban Ropeway Network*. Doppelmayr. Retrieved from <https://www.doppelmayr.com/en/urban-report-12015/urban-report-12015-la-paz/>
03. IJGlobal. (2015). *Asset Data: La Paz El Alto Cable Car*. IJGlobal. Retrieved from <https://ijglobal.com/data/project/25406/la-paz-el-alto-cable-car>
04. La Paz Life. (2015). *Mi Teleférico: La Paz's Cable Car System*. La Paz Life Website. Retrieved from <https://www.lapazlife.com/the-worlds-highest-cable-car-ride/>
05. Metcalfe, J. (2014). *Bolivia Deploys the World's Largest System of Cable Cars*. Citylab Website. Retrieved from <https://www.citylab.com/solutions/2014/04/bolivia-deploys-worlds-largest-system-cable-cars/8855/>
06. Mi Teleférico . (2015). *Corporate Strategy Plan 2016-2020*. 22: May. Retrieved from <http://www.miteleferico.bo/?p=4496>
07. Mi Teleférico . (2015, 12 June). *Separata No. 10*. Retrieved from https://issuu.com/miteleferico/docs/separata_n__10
08. Mi Teleférico . (2016a). *Manual of Organisation and Functions*. La Paz: Mi Teleférico . Retrieved from <http://www.miteleferico.bo/?cat=90>
09. Mi Teleférico . (2016b). *Mi Teleférico Magazine No. 14*. La Paz: State Owned Enterprise for Cable Cars "Mi Teleférico ". Retrieved from <https://issuu.com/miteleferico/docs/revista-14>
10. Mi Teleférico. (2016c). *Mi Teleférico Magazine No. 15*. La Paz: State Owned Enterprise for Cable Cars "Mi Teleférico". Retrieved from <https://issuu.com/miteleferico/docs/revista-15>
11. Mi Teleférico . (2017a). *2017 Management Report*. La Paz: State Owned Enterprise for Cable Cars "Mi Teleférico ". Retrieved from https://issuu.com/miteleferico/docs/indicadores_2017
12. Mi Teleférico . (2017b). *Memories 2016-2017*. La Paz: State Owned Enterprise for Cable Cars "Mi Teleférico ". Retrieved from https://issuu.com/miteleferico/docs/memoria_2017
13. Mi Teleférico . (2017c). *Mi Teleférico Magazine No. 16*. La Paz: State Owned Enterprise for Cable Cars "Mi Teleférico ". Retrieved from https://issuu.com/miteleferico/docs/revista_16
14. Mi Teleférico . (2018a). *More than 800 young people graduated from the first work experience program of Mi Teleférico*. Retrieved from <http://www.miteleferico.bo/?p=12599>
15. Mi Teleférico . (2018b). *2017-2018 Management Report*. La Paz: State Owned Enterprise for Cable Cars "Mi Teleférico ". Retrieved from https://issuu.com/miteleferico/docs/los-numeros-de-mi-teleferico-2018__
16. Mi Teleférico . (2018c). *Memories 2017-2018*. La Paz: State Owned Enterprise for Cable Cars "Mi Teleférico ". Retrieved from <https://issuu.com/miteleferico/docs/memoria-2017-2018>
17. Mi Teleférico . (2018d). *Urban Mobility Solutions: Doppelmayr Cable Car La Paz (MI TELEFÉRICO)*. World Urban Campaign. Retrieved from <https://www.youtube.com/watch?v=XKnlq1c5Oxg>
18. Ministry of Public Works, Services and Housing. (2013). *Technical Sheet for Cable Car Project*. Retrieved from Ministry of Public Works, Services and Housing Website: https://www.oopp.gob.bo/uploads/FICHA_TECNICA_DEL_PROYECTO_TELEFERICO_06_03_20131.pdf
19. Ministry of Autonomy. (2014). *Patriotic Agenda*. Retrieved from http://vpc.planificacion.gob.bo/uploads/recursos/AGENDA_PATRIOTICA2025_QUIEN_HACE_QUE.pdf



Figure 5. President Evo Morales greets construction workers,
Source: Mi Teleférico (<https://issuu.com/miteleferico/docs/memoria-2017-2018>)

20. Office of Corporate Management. (2017). *Statue of State Owned Enterprise for Cable Cars "Mi Teleférico"*. Plurinational State of Bolivia, Department of Planning and Management. La Paz: Mi Teleférico . Retrieved from <http://www.miteleferico.bo/?cat=90>
21. Office of Corporate Management. (2018). *Manual of Employment Description and Profiles*. Department of Planning and Management. La Paz: Mi Teleférico . Retrieved from <http://www.miteleferico.bo/?cat=90>
22. Suárez-Alemán, A., Serebrisky, T., & Garsous, G. (2017). *Cable cars in urban transport: Travel time savings from La Paz-El Alto (Bolivia)*. 27. Retrieved from https://publications.iadb.org/bitstream/handle/11319/8470/telefericos_como_alternativa_de_transporte_urbano.pdf?sequence=1&isAllowed=y
23. The Guardian. (2016). *Subway in the sky: has La Paz's cable car made a real difference to the city?* The Guardian. Retrieved from <https://www.theguardian.com/cities/2016/feb/10/la-paz-cable-difference-city-subway-sky>

Interviews

Interview with Esther Ruto (18 June 2018), General Manager Technical Services with Rural Electrification Authority, Last Mile Connectivity Program.
(A. Keller, Interviewer)

Colombia

TransMilenio Bus Rapid Transit



Source: TransMilenio Brochure
(<https://www.transmilenio.gov.co/>)

A bus rapid transit (BRT)¹ system that seeks to address the physical, communication and attitudinal barriers towards people with disabilities, women and other vulnerable groups.

TransMilenio is the one of the world's largest bus rapid transit (BRT) systems². It is a network of high capacity buses carrying 2.3 million passengers a day around Bogotá in Colombia.

TransMilenio was created in 1999 to alleviate heavy congestion in the capital and to provide an efficient and cost-effective transportation system for Bogotá's eight million citizens. Plans for the BRT system received strong political support, as well as adequate financial backing and committed participation from the traditional transport industry. It went from a well-defined but general idea to an operational project in just three years. Its successful business model has been replicated in many cities around the globe and it is one of the most cost-effective mass transport solutions available.

In 1999, TransMilenio S.A. was created as a public-private partnership (PPP) to construct and operate the BRT system. In this partnership, the public sector was responsible for the investment needed to develop the infrastructure, and the private sector was responsible for the system's operation and maintenance. Later, in 2012, the Integrated System of Public Transportation (SITP)³ was established to operate all public transport systems across Bogotá, including TransMilenio and the other bus and taxi operators.

This case study reflects on the role and responsibility a transport infrastructure project can have in creating a more inclusive society. TransMilenio BRT has evolved from its original mission of providing mass transport services to collaborating with other agencies to lead the inclusivity agenda for the citizens of Bogotá. In recent years, it has incorporated inclusive and social governance into its operations and administration. Since 2016, TransMilenio and its concessionaires have jointly developed a model of social responsibility and sustainability, promoting civility, empathy, tolerance and solidarity among passengers and citizens of Bogotá.

¹ BRT systems are networks of high capacity buses that mostly use exclusive lanes. They combine the capacity of a metro system with the low cost and simplicity of a bus system.

² Some examples of large BRT systems are Jakarta Koridor, Cambridge Busway, Amsterdam Zuidtangent, São Paulo ABD, and Ottawa BRT. BRTs are the backbone of public transport systems in Latin American cities. They move 21 million passengers a day in 55 cities.

³ In Spanish, *Sistema Integrado de Transporte Público* (SITP) is the operator for all public transportation in Bogotá, Colombia. It is organised and managed by TransMilenio.

Project Overview

Key words	Accessibility, disabilities and impaired mobility, women, governance, low-income, inter-agency cooperation
Sector	Transportation
Background	Colombia's urban population has increased significantly over the past 40 years due to socioeconomic factors, with Bogotá, the capital, absorbing a large number of migrants from rural areas. This has created major challenges for infrastructure operators and developers, including in the transport sector. The city and its residents desperately needed a cost-effective and inclusive transport system.
Size	<p>Phase I (1998): USD 213 million¹.</p> <p>Phase II (2014): USD 329.2 million, of which USD 123.9 million was a loan from the International Bank for Reconstruction and Development (IBRD) and USD 10 million was a loan from the Inter-American Development Bank (IADB). The remainder of the amount was contributed by the Capital District of Bogotá².</p> <p>Phase III (pre-financing stage): an estimated USD 860 million³.</p>
Stage	Operational
Why of interest	<ul style="list-style-type: none"> • It is one of the largest mass transport projects in Latin America • It was created to improve access to, and the quality of, public transport for citizens and to connect low-income residents to the city centre • Adapted international best practices and guidelines for Universal Design • Strong political leadership and inter-agency coordination • Social inclusivity programs for vulnerable groups - people with disabilities, women, homeless and informal vendors (traders who operate without a permit) • Stakeholder engagement programs that focus on social inclusivity and collective ownership awareness
Project objectives	<ul style="list-style-type: none"> • Provide a comfortable, safe and modern transport service • Provide a service that meets minimum standards of quality in terms of travel time • Transform the transport system into one that promotes equal access for all social classes • Comply with internationally recognised quality standards, fulfilling the minimum requirements for engineering, to provide a comfortable, safe and effective service
Project Lifecycle Assessment	<p>Project preparation – the project had strong political support. Project development objectives were consistent with the city's strategic plans. Accessibility design requirements were incorporated into the infrastructure based on national and international standards. A standardised layout was used for all stations, including accessible facilities for passengers with disabilities.</p> <p>Project procurement – procurement of buses that enable easy access for passengers with disabilities, and improved vehicle design.</p> <p>Construction – public spaces were built in lower income neighbourhoods. Residents were involved in the design process and members of the local community were employed.</p> <p>Project monitoring and evaluation – the number of passengers and quality of service are monitored⁴ on a yearly basis through user surveys, and demand and supply data has been captured from 2008. Recent adaptation of ISO 26000 social responsibility guidelines, collection of data on users, annual reports on service, and inclusion of corporate social responsibility (CSR) targets since 2017.</p>

¹ Phase I - total investment: USD 213 million. Financed with a local fuel surcharge (46%), general local revenues from a capital reduction of the partially privatised Power Company (28%), a credit from the World Bank (6%), and grants from the National Government (20%). TransMilenio: A high capacity – low cost bus rapid transit system developed for Bogotá, Colombia, (Hidalgo, D., no date).

² ICR Review Bogotá Urban Services Appraisal Report, (Independent Evaluation Group, World Bank, 2015).

³ JGlobal - Asset Data Sheet, (JGlobal, 2018)

⁴ Transmilenio has several monitoring systems to produce consolidated annual reports, publicly available on its website. The service surveys are titled, "How are we doing?" or *¿Cómo vamos?* in Spanish.

Project Description

The TransMilenio BRT system consists of several interconnected BRT lines that mostly run in their own lanes. The first phase of implementation was completed in 2002, with the second phase completed in 2006. By 2012, TransMilenio had 12 lines running through the city.

The main lines are known as trunk lines and cover 112 kilometres (km). Feeder lines that provide access to the trunk lines cover 440 km of routes in the outlying districts. The most recent lines consist of 1,795 km of complementary, urban and special zonal areas.

There are more than 3,500 buses⁴, which carry up to 240 passengers per bus. The buses have a maximum operating speed of 28 km per hour during peak time⁵.

On average, 2.3 million people use TransMilenio daily⁶. They board from raised floor stations that are accessed via footbridges or pathways.

TransMilenio is the first BRT system in the world to reach operational productivity levels equivalent to a metro system⁷. At its peak load, it is the busiest BRT system in the world, carrying more than 250,000 passengers per hour. It is also one of ten BRT systems worldwide to hold the highest Gold rating using the 2013 BRT Corridor Standard, which is based on international best practices for connectiveness, coverage, size and service⁸.

At its inception 18 years ago, the main objective of TransMilenio was to provide a modern and efficient transport scheme for all of Bogotá's citizens. In many cities, the BRT system is used as a tool to promote economic growth, alleviate poverty and achieve social and political integration while improving the environment and regenerating public space. In Bogotá, it also aimed to improve efficiency and safety by providing a fast, reliable and accessible service, especially to low-income neighbourhoods on the outskirts of Bogotá.

It is a mass transport solution that supports private sector involvement in service provision. TransMilenio also offers environmental benefits through reduced air pollution and emissions.

From the start, the project had strong political support, driven by the Mayor of Bogotá, and was developed in line with national and city government policies and strategies. The system was designed to meet national and international standards, drawing on lessons learned from similar projects. It went from the drawing board to operational within three years.

Design and planning were carried out by public institutions including the Bogotá Mayor's office, the Urban Development Institute (IDU), the District Institute of Culture and Tourism, the Secretary for Transportation and Traffic, the Department of Planning, the Secretary of Finance, and the state-owned enterprise, *Metrovivienda*⁹. The IDU was placed in charge of building and maintaining the infrastructure necessary to operate the BRT system.

There has been some criticism of TransMilenio over the past 18 years, mainly in relation to congestion and safety issues. In response, in 2016, TransMilenio and its concessionaires jointly developed a model of social responsibility and sustainability, promoting civility, empathy, tolerance and solidarity among passengers and citizens. As such, TransMilenio has broadened its original mandate to include a social inclusivity agenda, and specialised teams have been created to address outstanding barriers to inclusion.

For the purpose of this case study, the Action Areas identified are **Stakeholder Identification, Engagement and Empowerment, Governance and Capacity Building, Policy, Regulation and Standards, and Private Sector Roles and Participation**. The focus is on Practices that enhance the experience for people with disabilities and impaired mobility, women, homeless and informal vendors. Other relevant Action Areas include Project Planning Development and Delivery, and Affordability and Optimising Finance, however these will not be analysed in detail in this case study.

4 In June 2018, there are 3,568 buses with less than 10 years of deployment, ranging from large bi-articulated buses (240-passenger capacity) to minibuses (19-passenger capacity).

5 Maximum speed achieved in selected sections of the main routes in 2017. The average speed is 25 kilometres per hour.

6 From June 2017 to June 2018, TransMilenio reported an average daily ridership demand of 2,330,000 passengers during weekdays and 250,000 passengers per hour during peak hours.

7 TransMilenio carries more than 400,000 passengers per direction per hour during peak hours, close to the operational carrying capacity of a low capacity metro.

8 The BRT Corridor Standard includes five best practices: service planning; infrastructure; station design and station-bus interface; quality of service and passenger information systems; and integration and access. It was conceived by the Institute for Transportation and Development Policy (ITDP) in 2012. The ITDP is a non-governmental non-profit organisation that focuses on developing BRT systems, promoting biking, walking, and non-motorised transport, and improving private bus operators' margins.

9 Bogotá's State-Owned Enterprise (SOE) for the construction and acquisition of social housing assets.

Key Practices Identified and Applied



STAKEHOLDER IDENTIFICATION, ENGAGEMENT AND EMPOWERMENT

How inclusivity has been addressed

The identified practices include regular disaggregated data collection to identify vulnerable stakeholder groups and monitor project implementation as it relates to these groups, a dedicated stakeholder communications team and an innovative program to empower stakeholders to confidently use the BRT system.

Implementation

Data collection

For the past 10 years, the Chamber of Commerce of Bogotá has been conducting semi-annual surveys¹⁰ on the public's perception of the transport system, and the findings show that, in general, people's view of the level of safety has always been low. In 2014, Bogotá ranked the worst amongst 16 cities surveyed with the most dangerous transport systems for women¹¹. In a parallel survey by the Observatory on Women and Gender Equity of the Secretariat of Women, 75% of the women said they had been victims of sexual harassment in the most recent month and 48% felt fearful when entering the BRT system¹².

During the development of the second phase of TransMilenio BRT, new routes were identified to reach some of the low-income neighbourhoods on the edge of the city. They were identified according to the income levels (known as strata) recorded in the SISBÉN¹³ database. The project focused on Strata 1 and 2 - the lowest income areas.

Stakeholder engagement

As outlined in detail in the Governance and Capacity building section, a dedicated communications team was established to focus on inclusivity. It manages stakeholder engagement based on the agreed objective of improving social inclusivity for the most vulnerable groups, such as women, people with disabilities, the homeless and informal street vendors.

Simulation centre for TransMilenio BRT System

In 2017, in a cross-governmental agreement with TransMilenio, an innovative pilot program to support people with disabilities was created. A simulation centre was established to help passengers experience boarding, alighting, transferring and moving through the TransMilenio BRT system in a safe, inclusive and stress-free environment. The program hopes to empower people with disabilities so they can use the BRT system on their own and familiarise themselves with the support services available.

People can take a virtual tour of the facilities in the stations and see several different models of buses for passengers with different types of disabilities. The centre is also used as a social space and inclusivity workshops are held to improve awareness of people's needs.

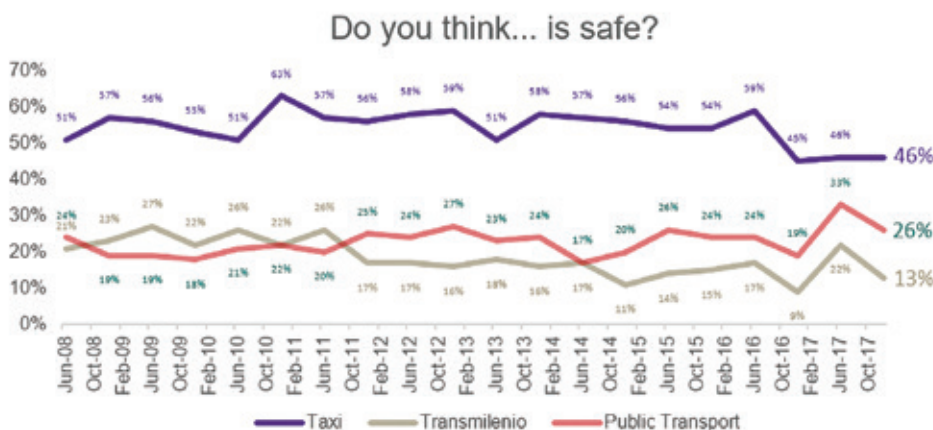


Figure 1. Percentage of the surveyed citizens who think it is safe to travel in taxis, TransMilenio or the Public Transit System except the BRT system.

Source: Historical data from the Survey on Perception of Safety and Victimization in Bogotá.

¹⁰ Perception of Safety and Victimization Survey in Bogotá, (Chamber of Commerce of Bogota, 2018)

¹¹ Bogotá mayor defends programme for women's safety on buses, (Moloney, 2014)

¹² Women Travel Safe in Transmilenio, (District Secretariat of Women, 2014)

¹³ Identification System of Potential Beneficiaries of Social Programmes or Sistema de Identificación de Potenciales Beneficiarios de Programas Sociales (SISBÉN) in Spanish. The system identifies and categorises low-income citizens to allow them access to public aid services.



GOVERNANCE AND CAPACITY BUILDING

Statement of the issue in relation to inclusion and brief introduction

Prior to the introduction of TransMilenio, Bogotá's public transport system was inefficient and underutilised, and therefore, by default, the use of private vehicles was encouraged. In 1999, more than 850,000 private vehicles used 95% of the road network and carried about 19% of Bogotá's population¹⁴. Most of the public transport operators were informal and private companies competed fiercely for riders, often compromising people's safety and health. In the year before TransMilenio was introduced, there were 52,764 accidents and 1,174 deaths related to traffic incidents, according to the city's reports. Most people relied on these private and low-quality services during their daily commute to jobs and services. There were no dedicated facilities for people with disabilities or impaired mobility.

In addition, decades of civil conflict exposed people to displacement, unrest and violence. From the 1970s to the 2000s, people moved from rural areas to the outskirts of urban areas due to political and social unease. It is estimated that two-thirds of the Colombian population living below the poverty line now live on the edge of urban areas¹⁵. Connections to these low-income neighbourhoods were poor, particularly at night time. People with disabilities or impaired mobility struggled to access transport services at all. Women were vulnerable in the crowded, disorganised and unsafe environment and elderly passengers were neglected.

Communication barriers appeared during the construction phase, when the works caused major disruption throughout the city; and during operations, because the BRT system was perceived by the community to be of low-quality, particularly in relation to congestion and safety. These issues resulted in a need to improve people's perception of the system and develop a distinctive image through extensive media campaigns, workshops and targeted engagements.

Attitudinal barriers such as prejudice, discrimination, stigmas and low tolerance of vulnerable groups are often observed during the day-to-day running of this busy public transport system. Improving some people's attitudes toward vulnerable groups has been a priority in more recent years. Interventions have focused on the operational workforce and users, to improve their support and empathy towards women, people with disabilities and the elderly.

Negative attitudes towards other users such as informal vendors and homeless people (who use bus stops as shelters) have also been addressed in recent years in line with wider national- and district-level legislation and policies.

How inclusivity has been addressed

The identified practices are the establishment of a Manual of Social Management which sets out specific guidelines to implement inclusive infrastructure in Bogotá, and a stakeholder communications team to focus solely on promoting inclusivity through awareness campaigns and education.

In 2016, TransMilenio worked with Bogotá City Hall to develop a prescriptive Manual of Social Management¹⁶, which is updated annually and sets out guidelines for the implementation of intervention strategies, and describes the principles, stages of planning, organisation, execution and document control requirements, as well as the procedures that support them. A team of experts was employed to carry out TransMilenio's social management intervention strategies and engage directly with communities, operators, institutions and target groups.

There have been ongoing reviews and an evaluation of ways to improve accessibility for all citizens throughout the operation of the BRT system. However, since 2016, these reviews have been consolidated, following the establishment of the dedicated team of experts within TransMilenio's social management¹⁷ team and communications team¹⁸. Implementing TransMilenio's social inclusivity agenda has involved collaboration among many stakeholders, from concessionaires, contractors, designers and operators to all members of society, supported with specific inclusivity policy, communications programs and monitoring.

¹⁴ Bogotá, Colombia Bus Rapid Transit Project – Transmilenio: Case Study (United Nations Development Programme, 2008).

¹⁵ Ibid.

¹⁶ In Spanish, *Manual de Gestión Social*. Created in 2016, the manual is updated annually.

¹⁷ In Spanish, *Gestión Social*

¹⁸ In Spanish, *Subgerencia de Comunicaciones y Atención al Usuario*.

Implementation

Institutional Collaboration

The design of the system was overseen by TransMilenio S.A. and was based on inter-agency collaboration, including the Bogotá Mayor's office, the Fund for Education and Road Safety of the Secretary of Transit and Transportation (FONDATT), the IDU, the District Institute of Culture and Tourism, the Secretary for Transportation and Traffic, the Department of Planning, the Secretary of Finance, and *Metrovivienda*.

A dedicated communications team to focus on inclusivity

The communications team is responsible for implementing the communications strategy to promote social inclusivity. It manages stakeholder engagement based on the agreed objective of improving social inclusivity for the most vulnerable groups, such as women, people with disabilities, the homeless and informal street vendors. The activities of this office include:

- communication campaigns to promote social inclusivity on specific commemorative dates¹⁹ through public campaigns and social media platforms;
- staff training programs on gender equity and anti-discrimination;
- workshops for operators on social inclusivity and anti-discrimination;
- inserting public policy for gender equity into TransMilenio's institutional policy, strategy, operations, and support;
- working with the Institute for Social Economy (IPES)²⁰ to implement a framework that helps informal vendors in the TransMilenio network move towards socially responsible alternatives for income generation (see Program for informal vendors section); and
- coordination with the Secretary of Mobility Development²¹ to support workshops for operators and agents on services for passengers with disabilities.

¹⁹ International Day of Women's Rights, Day of Social Responsibility in Bogotá, Equity Week, Month for People with Disabilities and the International Day for the Elimination of Violence Against Women.

²⁰ *Instituto para la Economía Social* (IPES), Bogotá's Government Office in charge of providing the informal economic activities of its citizens with formal and productive alternatives of income generation.

²¹ *Secretaría Distrital de Movilidad* (SDM), City Government's Office responsible for master planning, design, coordination, execution and evaluation of the city's transport strategies.

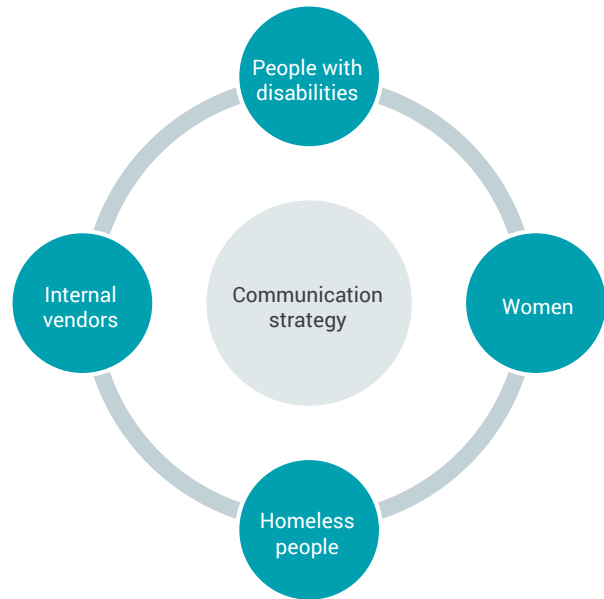


Figure 2. Priority groups for TransMilenio's social inclusivity interventions in 2017

Public campaign to raise awareness

In October 2017, the City of Bogotá and TransMilenio launched a campaign to promote social inclusivity for people with disabilities, and specifically, people with a visual impairment and people with mobility issues. The messages "I move with Braille"²² and "TransMilenio moves for everyone"²³ were shared via social and traditional media, and at public events and workshops. The campaign aimed to:

- educate people about the use of Braille across the city's public transport system;
- explain the importance of Braille;
- reduce vandalism and damage to Braille signage across the network;
- inform travellers of the tools available to them if they have a visual impairment;
- communicate the value of all the available services, fare concessions and infrastructure for passengers with disabilities; and
- promote proper civil behaviour and empathy toward people with disabilities.

Training for staff and operators

TransMilenio has supported several inter-agency training workshops for employees and operators to improve service quality, including putting trained staff in every station so they can help passengers with disabilities. In 2017, TransMilenio trained 11,200 staff members and 12 operators in the BRT system.

²² *Me Mobilizo con Braille* in Spanish

²³ *Transmilenio se Mueve para Todos* in Spanish

Practical advice for the public

A guide for helping people with disabilities or reduced mobility has been developed and is available on the TransMilenio website²⁴. It provides practical advice on how to correctly address people with disabilities or reduced mobility in a civil and inclusive manner. It relates to people with:

- hearing disabilities;
- cognitive and mental disabilities;
- motor disabilities and reduced mobility;
- visual disabilities; and
- people with a guide dog.



Figure 3. Example of the guide for people with hearing disabilities

Collaboration with Bogotá City's Secretariat of Women

TransMilenio works with the Secretariat of Women at Bogotá's City Council to implement its Gender Equity Plan, which increases people's awareness of the challenges faced by women in Bogotá. This inter-agency collaboration aims to guarantee safe travel for women in Bogotá. It focuses on two areas in particular: gender stereotypes and stopping violence against women. Workshops and media campaigns were run to question the social roles that have been assigned to women and men, and explore how this leads to inequality.

Gender equity initiatives

Within TransMilenio, several initiatives have been implemented to improve safety for female passengers and promote equity for women working on the network. Awareness campaigns have focused on reducing violence against women, the number of security guards on the system has been increased, surveillance cameras have been installed and extra training has been provided for staff members.

Specific actions implemented in 2018 include:

- the process for passengers to report sexual harassment within TransMilenio's facilities was revised;
- objectives were defined for the terms of reference of

the Transport Gender Lab²⁵ for the Inter-American Development Bank (IADB);

- clauses to guarantee women's rights and promote gender equity have been incorporated in the terms of reference for Phase I of the new cable car system planned for Bogotá;
- internal and external communication campaigns to promote gender equity;
- technical assistance for the Secretariat of Women to run workshops for operators on gender equity, safety and anti-discrimination; and
- participation in the 2018 Ranking of Equity and Gender²⁶.

In 2019, TransMilenio will implement its new Gender Equity and Inclusion Policy, which will set out specific measures to be implemented within the public transport system (that is, on the BRT, SITP and on TransMicable, the new cable car network that is planned for Bogotá).

Increasing affordability for vulnerable groups

Lower fares are available for the following groups:

- the elderly (people over 62 years old);
- people with disabilities - TransMilenio provides a 40% monthly discount off the maximum fare over 25 journeys; and
- BRT users with the SISBÉN incentive card – this is a benefit directed at people from low-income neighbourhoods as recorded in the SISBÉN database and recognises that these passengers may need to use several feeder services to reach the main trunk network.

Program for informal vendors

An inter-agency agreement was developed by the Institute for Social Economy (IPES) of Bogotá City Council and TransMilenio. Under this agreement, elderly vendors and vendors with disabilities are allowed to sell a pre-approved list of goods in designated areas within the stations. The program aims to create small business opportunities for the vendors and enable them to generate income for themselves and/or their immediate family members.

It is currently being run as a pilot scheme. The impact of this business model on the BRT system, its passengers and on the small business vendors will be evaluated before its possible introduction.

²⁵ Seven cities across Central and South America including Bogotá (Colombia), Buenos Aires (Argentina), Mexico City (Mexico), the State of Jalisco (Mexico), Guatemala City (Guatemala), Quito (Ecuador) and Santiago (Chile) are part of this initiative that seeks to generate a network of knowledge on the design and implementation of policies and initiatives that support gender equality and inclusion in transportation systems. The network of cities works specifically to promote the adaptation of infrastructure relative to urban transport systems according to the specific needs of women.

²⁶ In Spanish, Ranking *PAR de Equidad de Género en las Organizaciones* 2018. An independent evaluation and ranking of gender equity in organisations in Colombia and Peru.

²⁴ Please refer to website; <http://www.transmilenio.gov.co/Publicaciones/GUÅKA>

Initiatives addressing homelessness

TransMilenio participated in the development of the Public Policy on Homelessness, prepared by Bogotá City Hall, and supported the interventions organised by its Secretariat of Social Integration (SDIS)²⁷ to identify and address the factors that contribute to homelessness. TransMilenio's communication managers worked with 312 people who were seeking shelter in its facilities to help them understand how to interact with passengers appropriately. The BRT operator also collaborated with Bogotá's law enforcement officials to find them alternative accommodation in local refuges.

As a result of the initiatives, passengers reported feeling more secure in their engagement with homeless citizens at stations across the network. Their level of concern decreased from 45% in 2016 to 34% in 2017²⁸.

Supervision and monitoring

Annual *Cómo Vamos* [How are we?] citizen surveys were carried out in Bogotá between 1998 and 2014 and were used to measure satisfaction with TransMilenio in the early years of its operation. The survey is an evaluation tool based on public perception indicators designed for different areas across the city. It was generic in nature and related to travel times and use. However, it did not target any specific potentially vulnerable group. It reported perception indicators including public space and public service provision (electricity, water, sewage, etc.). The survey also covered mobility and several questions related to the perceived performance of public transport in general.

The TransMilenio management team is supervised and monitored by several public offices and non-governmental organisations. Management reports are publicly available from 2010, including traffic statistics and service levels. Results are published on the TransMilenio website, along with clear guidelines regarding its social inclusion programs and activities. Social inclusivity reporting is included in TransMilenio's annual reports with details of all programs, events, plans and results, and reports are published on its website.

In 2017, the TransMilenio communications team published a general report on its social inclusivity program, which is also publicly available on its website. Governance, internal control and monitoring mechanisms are described in the Manual of Social Management with details on the list of events and social inclusion interventions. The communications team, along with a team of specialised social management staff²⁹, controls and monitors TransMilenio's social inclusivity program with weekly follow-up meetings to ensure compliance.

²⁷ *Secretaría de Integración Social*, government office created to assist the homeless and displaced citizens of Bogotá.

²⁸ Social Responsibility report for TransMilenio, (Transmilenio S.A., 2018b).

²⁹ In Spanish, *Profesional Especializado de Gestión Social*.



POLICY, REGULATION AND STANDARDS

Statement of the issue in relation to inclusion and brief introduction

In 1996, the Colombian government created the National Urban Transportation Program³⁰, supported by IBRD financing. The Program centred its strategy on the development of BRT systems and TransMilenio was proposed as part of this plan.

The project had strong political support, driven by the Mayor of Bogotá, Enrique Peñalosa, and was developed through alignment and consistency with several government policies and programs, including the Bogotá Ten-year Spatial Plan³¹ and the Comprehensive Neighbourhood Upgrading Program³².

How inclusivity has been addressed

The identified practices are an inclusive approach to governance and the early development of a comprehensive set of inclusive design and planning standards.

An inclusive approach to governance was developed from the outset and became the backbone of the project design. This covered specific objectives to respect diversity and create a transport system that could be accessed by all. It recognised the need to engage low-income residents by providing a route into the city centre, and to design the system so people with disabilities or reduced mobility were able to access public transport.

These objectives were translated into a comprehensive set of project design standards, drawing on national and international design benchmarks and guidelines, and lessons learned from similar projects. TransMilenio's approach was based on the ISO 26000:2010 Guidance on Social Responsibility with emphasis on the fundamental principal of "active participation and engagement of the community". In line with project objectives, the standards incorporated the concept of Universal Design. It includes several achievable principles in its governance practices, such as transparency, environmentally-friendly infrastructure and service for passengers with disabilities, women and the elderly.

³⁰ In Spanish, *Programa Nacional de Transporte Urbano*.

³¹ *Plan de Ordenamiento Territorial* in Spanish

³² *Programa de Mejoramiento Integral de Barrios (PMIB)* in Spanish

Implementation

Policy creation to ensure inclusivity for citizens

The Government of Colombia and the City Council of Bogotá have been progressive in addressing inclusivity in their laws, regulations and policy. The policies mostly focus on accessibility for people with disabilities and gender equity.

As early as 1997, the challenges faced by people with disabilities were recognised and a legal framework that required all transport operators to ensure their services were accessible³³ was developed.

Following the construction of the first phase of TransMilenio in 1998, other legislation and policies have been passed at the national and district levels to strengthen inclusivity within infrastructure. At the city level, the City Council of Bogotá ordered a decree³⁴ in 2007 to adopt the Public Policy for Disability for the Capital, and specifically proposed that infrastructure be people-oriented to ensure accessibility for people with limited mobility.

The Social Responsibility Agreement 494, 2012 was passed by the City Council of Bogotá to promote social responsibility. The Agreement dictates that TransMilenio must implement certain events and actions. Additionally, it requires monitoring and reporting of TransMilenio's social impact activities.

In 2013, the National Planning Department of Colombia recognised that universal accessibility and social inclusion should be included in its national policy³⁵ for public works and infrastructure. In that same year, guarantees for universal access were addressed in the Sanctuary Law³⁶, which gives people with disabilities certain rights to public transport, and sets a target of 80% of total accessibility within 10 years.

Regulatory framework for gender equity in transport

Gender equity in the transport sector is supported by a comprehensive regulatory framework. Colombia ranks quite highly in the Americas on gender equity, ranking in the top 25th percentile in gender equity in 2017³⁷.

The Constitution confirms the state is obliged to promote conditions for real and effective equity³⁸. Furthermore, gender equity is supported by laws, decrees, resolutions,

judgements and agreements³⁹. The strong regulatory framework has been reflected in the development of TransMilenio's Manual of Social Management and Gender Equity and Inclusion Policy 2018⁴⁰, which implements guidelines, practices and performance metrics to address three identified challenges: violence against women, inequalities in the workforce and low representation of women at the operational level.

Priority boarding and alighting zones for passengers with special needs

In 2018, a priority boarding program was introduced at the busiest station, The Americas Station⁴¹. A designated priority boarding area was reserved on the platforms and additional staff are available to help passengers get on and off the bus safely. The program aims to lower disruption, and reduce accidents and criminal acts against people with special needs during peak hours.

Supervision and monitoring

Since 2016, TransMilenio has provided monthly traffic statistics to different government secretaries for analysis and to support the formulation of policies. They cover demand, supply and the profile of passengers.

In addition to the social challenges detailed above and despite strong political support, the project encountered several other barriers to inclusivity. In the feeder systems, standards for accessibility were not fully met and several planned designs were not implemented. There were also incidences where, due to constraints (e.g. project budgeting and timeline) and a lack of shared vision between the contractors and the operator, the intention during design was not carried through to construction by the contractors. As result, non-compliance had to be addressed.

Throughout its operation, opportunities to address outstanding physical barriers have been identified, such as making it easier for people with other disabilities (e.g. audio or visual), the elderly, and women with young children. Lowering the physical barriers has required continuous effort by TransMilenio.

³³ Article 59, Law 361, 1997, Colombia

³⁴ Decree 470, 2007, Bogotá

³⁵ National Public Policy regarding Disability and Social Inclusion, (Correa-Montoya & Castro-Martínez, 2016)

³⁶ Article 14, Sanctuary Law 1618, 2013.

³⁷ Colombia ranks 36th of 144 countries for gender equality in 2017 in the World Economic Forum's report.

³⁸ Articles 13, 42, 43 of Colombia's Constitution.

³⁹ Law 22 in 1967: anti-discrimination at work; Law 51 in 1981: elimination of discrimination against women; Agreement 091 in 2003: Bogotá's Plan of Equal Opportunities for Women; Judgement C-804 in 2006: usage of inclusive language; Decree 160 in 2010: gender equity in politics, plans, programs and public projects; Resolution 489 in 2015: structure to implement gender equality at workplace.

⁴⁰ The new policy covers all the operators within the TransMilenio system and will be applicable in 2019 after management review and approval.

⁴¹ Located in the south-west of the city, The Americas Station is the main station for the feeder routes from Bosa, one of the poorest districts in Bogotá. It has the largest percentage of elderly passengers and people with disabilities registered in the BRT system. During peak hours, the platforms are overcrowded and passengers board the buses in a disorganised and sometimes violent way, often causing disruptions or accidents and leading to criminal activity. Passengers with special requirements are at risk and struggle to board the buses in these circumstances.



PRIVATE SECTOR ROLES AND PARTICIPATION

How inclusivity has been addressed

The identified practice is incorporating and maximising inclusivity benefits through private sector design requirements and contractual obligations.

Implementation

Contractual obligations

Design requirements are communicated to contractors, who are obliged, through their contracts, to ensure everyone can access TransMilenio's facilities and services and that this intention is reflected throughout their work, from the original design to the final installation. They were also required to conduct a comprehensive audit to maintain the system's service levels.





As part of TransMilenio's ongoing improvements to address the physical barriers, it has incorporated:

- standardised station design;
- preferential access and appropriate signalling for passengers with a visual impairment;
- audio devices to announce the opening and closing of gates;
- physical barriers on the platforms to warn users of the potential for falls;
- hand rails to assist passengers when they are on the bridges and in stations;
- bridges, elevators and ramps to improve accessibility;
- wheelchair access for passengers with disabilities, and extra space for pregnant women, young children and the elderly;
- elevated stations to help passengers with wheelchairs easily board and alight from the buses;
- buses on the feeder routes equipped with mechanical ramps to help passengers in wheelchairs get on and off the vehicles;
- assigned priority seats in the buses and dedicated space for wheelchairs; and
- special payment cards in Braille and audio devices to inform and alert visually impaired passengers.

Currently TransMilenio, through inter-agency cooperation with IDU, is investigating the use of cable cars (with wheelchair access) to help people living in elevated areas on the outskirts of the city where there is a higher concentration of people with disabilities. Disaggregated data from the Health Secretariat is being used to identify these sites. Several pilot studies have been initiated prior to full scale roll-out.

Benefits Realisation

In relation to this case study, the following benefits have been identified. However, it should be noted that quantitative results from TransMilenio's more recent social inclusion activities have yet to be reported.

Identified benefit	Benefit description
 <p>Social equity and social stability</p>	<p>Increasing public awareness and empathy towards vulnerable groups of people helps to lower incidents of vandalism and crime, improves safety and service quality, and increases the number of passengers using the system. People's general perception of safety improved 5% in 2017¹.</p> <p>Improved access for people with disabilities – TransMilenio was the first public transport system in Bogotá available to the identified target groups.</p> <p>Improved connectivity between low-income neighbourhoods and the city centre, with an increase in accessibility for 14 of the poorest boroughs (known as zoning planning units, or UPZs).</p>
 <p>Increasing affordability and accessibility</p>	<p>Travel times were reduced, improving citizens' quality of life. Travel time decreased by 25% along TransMilenio's Avenue Suba BRT corridor in 2008. Overall, the average travel time for passengers reduced from 48 to 31 minutes². This improvement and the new routes provided have increased access to employment, education, health, economic and social opportunities.</p> <p>Lower tariffs for people with disabilities, the elderly and low-income groups. A special card is used that provides a 40% monthly discount off the maximum fare over 25 journeys. In addition, people registered on social welfare also receive a 25% discount on a maximum of 30 journeys per month.</p>
 <p>Increasing gender equity</p>	<p>Improving safety for women in transit and encouraging passengers to denounce criminal acts against women within the stations.</p> <p>Increasing people's awareness regarding women's rights and equity at work.</p>
 <p>Integration of small business opportunities</p>	<p>Pilot project that integrates and legalises the activities of elderly and disabled informal street vendors within TransMilenio's small business program to provide them with sources of sustainable income.</p>

¹ Survey by the Chamber of Commerce of Bogotá in 2017, 78% of surveyed citizens reported feeling unsafe when using the public transit system in comparison to 83% in 2016.

² IEG ICR Review (2015), Report Number ICRR14775

Stakeholders

Key beneficiaries	Role
People with disabilities	People with additional requirements, for example, mobility challenges or visual impairments, who are accessing and transiting within the BRT system are considered in the infrastructure and related services.
Women	The safety of female passengers and gender equity in the workforce are top priorities in TransMilenio's social inclusivity strategy and practices.
Informal vendors	Small and informal vendors selling services and goods within the BRT installations are relocated in collaboration with law enforcement. A pilot program to offer the most vulnerable vendors an opportunity to legally operate in TransMilenio was introduced.
People facing homelessness	People who are not transiting through the BRT system but use the facilities for long periods of time are moved to shelters and other accommodation.
Staff	Staff in management and operations at TransMilenio and other BRT operators receive training to provide services to vulnerable groups. They also receive training on gender equity at work.
All users	All BRT users have a role in understanding the needs of others, e.g. people with disabilities. All users are targeted for media and education campaigns.
Institutional stakeholders and partners	Role
Secretaries	Bogotá's public institutions directly involved in designing and implementing social inclusivity programs, policies and guidelines along with TransMilenio.
Mayor's office	Regulators of TransMilenio – primarily through the transit and transport secretariat.
Ministry of Transport	Regulators of TransMilenio – in charge of national policies and plans.
TransMilenio S.A.	A public-private partnership, comprised of regulators, managers and operators of the system.
The <i>Instituto de Desarrollo Urbano</i> [the Institute of Urban Development] (IDU)	Responsible for building and maintaining the infrastructure, which includes bus lanes, terminals, parking and maintenance yards, as well as pedestrian overpasses, plazas and footpaths.
Contractors	Legal entities procured to provide design, engineering, construction and maintenance works. They are also required to meet TransMilenio's social inclusivity standards.
Operators	Firms and companies operating the buses or other services for TransMilenio. They are engaged to deliver inclusive services and practices.
NGOs	Other organisations engaged to collaborate, participate and assist TransMilenio in its inclusivity work.
Multilateral institutions	World Bank (IBRD), and IADB, which provided supporting funds and expertise.

Lessons Learned

Success factors

Institutional and regulatory intervention, inter-agency cooperation and enforcement policies. Alignment with other plans and programs resulted in early political support for the project.

Transparent governance. TransMilenio's management team set clear direction for the roles and responsibilities of the firm, its employees and the operators of the BRT system. The Manual of Social Management outlines TransMilenio's social inclusivity strategy to ensure all programs and applications are implemented, managed, monitored and reported.

Inter-agency collaboration between international and local public institutions helped to implement social inclusivity across the city and scale-up the reach and impact of their programs and activities.

Public consultations and participatory planning foster community ownership that is essential for the sustainability of the investment.

A dedicated team of professionals to implement an inclusivity strategy, engage with different stakeholders and perform monitoring and reporting. The communications team and the social management team work exclusively on implementing TransMilenio's social management strategy and they serve as the first point of contact for the community.

Key challenges

Transforming public perception in relation to vulnerable groups is a constant challenge for TransMilenio. The provision of infrastructure to assist vulnerable groups alone is not sufficient if other users do not respect the spaces designed for these groups. There is a constant challenge for all parties to be united and socially inclusive. This is an evolutionary process that can only be achieved through communication and awareness.

Long- and short-term expectations. Social inclusivity is a tool but not a solution to all of society's problems. Milestones set during the implementation phase of inclusivity works require constant adjustment. As such, actions and goals tend to be dynamic rather than quantitative and short-term.

Incorporating inclusivity and accessibility into the technical components of future projects requires strong engagement with different stakeholders, operators, contractors and designers to identify innovative ways of improving accessibility and inclusivity. Clear governance, supervision and enforcement need to be common practice. Pilot projects have been used in some instances to identify best practices that work during full-scale implementation.



Figure 5: Disabled passenger using TransMilenio bus,
Source: TransMilenio Brochure (<https://www.transmilenio.gov.co/>)

References

01. Aequales. (2018). *Bases at Par: 2018 Ranking of Gender Equity in the Organisations*. Retrieved from https://par.aequales.com/uploads/documents/7/Documento_Bases.pdf
02. Bocarejo, J., and Tafur, L. (2013). *Urban Land Use Transformation Driven by an Innovative Transportation Project, Bogotá, Colombia*. Global Report on Human Settlements, UN Habitat. Retrieved from https://unhabitat.org/wp-content/uploads/2013/06/GRHS.2013.Case_Study_Bogota.Colombia.pdf
03. Camargo Triana, W. F. (2013). *Urban Transport Planning for Sustainable Urban Development. Policies and project for sustainable transport in Bogotá. A different approach for human development*. Retrieved from <https://sustainabledevelopment.un.org/content/documents/3762 triana.pdf>
04. Chamber of Commerce of Bogotá. (2018). *Perception and victimization survey*. CCB. Retrieved from <https://www.ccb.org.co/en/Transformar-Bogota/Security/Security-Observatory/Perception-and-victimization-survey>
05. Climate Bond Initiative. (2017). *Bus Rapid Transit Criteria and Guidelines*. Climate Bonds Initiative. Retrieved from <https://www.climatebonds.net/files/files/Bus%20Rapid%20Transit%20Criteria%20and%20Guidelines.pdf>
06. Correa-Montoya, L. and Castro-Martinez, M.C. (2016). *Disability and Social Inclusion in Colombia*. Saldarriaga-Concha Foundation Alternative Report to the Committee on the Rights of Persons with Disabilities. Retrieved from https://tbinternet.ohchr.org/Treaties/CRPD/Shared%20Documents/COL/INT_CRPD_CSS_COL_24466_E.pdf
07. Cortes Pedraza, G. P. (2015). *Accessibility of Transmilenio from the Passenger's Perspective*. Bogotá: National University of Colombia. Retrieved from <http://bdigital.unal.edu.co/50932/1/1032361361.2015.pdf>
08. District Secretariat of Women. (2014). *Women Travel Safe in Transmilenio*. IDE CA. Retrieved from https://www.ideca.gov.co/sites/default/files/files/HackatonUrbano_Seguridad/Resultados%20agregados%20del%20piloto%20Mujer%20viaja%20segura%20enTransmilenio.pdf
09. Hidalgo, D. (no date). *TransMilenio: A high capacity - low cost bus rapid transit system developed for Bogotá, Colombia*. Retrieved from <http://www.codatu.org/wp-content/uploads/Transmilenio-A-high-capacity-low-cost-bus-rapid-transit-system-developed-for-Bogota-Colombia-D.-HIDALGO.pdf>
10. Hidalgo, D., & Graftieaux, P. (2006). *Case Study Transmilenio, Bogota, Colombia*. The World Bank. Retrieved from <http://siteresources.worldbank.org/INTURBANTRANSPORT/Resources/Hidalgo-Graftieaux-BOGOTA.pdf>
11. IJGlobal. (2018). *Asset Data: Bogotá Bus Rapid Transport (BRT) System*.
12. Inclusive Cities Observatory. (2015). *Public Policy on Homelessness*. United Cities and Local Governments. Retrieved from https://www.uclg-cisdg.org/sites/default/files/PP_Homelessness.pdf
13. Independent Evaluation Group, World Bank. (2015). *Report No. ICRR14775, Documents of the World Bank*. The World Bank Group. Retrieved from <http://documents.worldbank.org/curated/en/140911468186530431/pdf/ICRR14775-P074726-Box393191B-PUBLIC.pdf>
14. Inter-American Development Bank. (2013). *Comparative Case Studies: IDB Supported Urban Transport Projects*. Retrieved from <https://publications.iadb.org/handle/11319/6967>
15. Moloney, A. (2014). *Bogotá mayor defends program for women's safety on buses*. Thomson Reuters Foundation News. Retrieved from <http://news.trust.org/item/20141030015320-12216/>
16. Moncada, J. S. (2015). *Transmilenio Catalising Bogotá's Sustainable Social Responsibility*. Advisory Degree Seminar, Militar University of Nueva Granada (p. 20). Faculty of Science of Economics. Retrieved from <https://repository.unimilitar.edu.co/bitstream/10654/14034/2/TRABAJO%20DE%20INVESTIGACION%20RSS%20EN%20TM.pdf>
17. The World Bank. (2009). *Site Resources The World Bank*. The World Bank. Retrieved from <http://siteresources.worldbank.org/INTCOLUMBIA/INSPANISH/Resources/TransporteColombia.pdf>

18. The World Bank. (2010). *Transforming Urban Transport Systems in Colombia*. Retrieved from <http://www.worldbank.org/en/results/2010/04/23/urban-transport-columbia>
19. The World Bank. (2014). *ISR16359: Implementation Status and Results Colombia Bogotá Urban Services Project*. The World Bank. Retrieved from <http://documents.worldbank.org/curated/en/331101468019152508/pdf/ISR-Disclosable-P074726-10-15-2014-1413413420749.pdf>
20. The World Bank. (2015a). *ICR00003364: Implementation Completion and Results Report for Bogotá Urban Services Project*. The World Bank. Retrieved from <http://documents.worldbank.org/curated/en/637581485977383767/pdf/ICR3364-P074726-PUBLIC.pdf>
21. The World Bank. (2015b). *Bogotá TransMilenio Bus Rapid Transit*. Retrieved from <https://olc.worldbank.org/content/bogota-transmilenio-bus-rapid-transit>
22. Transmilenio S.A. (2017). *Manual of Social Management*. Transmilenio. Retrieved from http://www.transmilenio.gov.co/Publicaciones/la_entidad/transparencia_y_acceso_a_la_informacion_publica_transmilenio/6_planeacion/manuales_y_procedimientos/msc001_manual_de_gestion_social
23. Transmilenio S.A. (2018a). *Offer and Demand Statistics for Transmilenio May-June 2018*. Transmilenio. Retrieved from http://www.transmilenio.gov.co/Publicaciones/estadisticas_de_oferta_y_demanda_bimensual_del_sistema_integrado_de_transporte_publico_sitp_mayo_junio_2018
24. Transmilenio S.A. (2018b). *Social Responsibility. Transmilenio*. Retrieved from http://www.transmilenio.gov.co/Publicaciones/atencion_al_usuario/gestion_social/responsabilidad_social
25. Transmilenio S.A. (2018c). *Transmilenio Management Report 2018*. City Council of Bogotá, Colombia. Retrieved from <http://www.transmilenio.gov.co/loader.php?lServicio=Publicaciones&lTipo=WfaccionA&lFuncion=visualizar&id=14601&bd=m>
26. Transmilenio S.A. (n.d.). *Annual Report 2017, Social Accessibility*. Transmilenio. Retrieved from http://www.transmilenio.gov.co/Publicaciones/informe_de_gestion_de_2017_con_accesibilidad
27. Transmilenio S.A. (n.d.). *BRT Bogotá: TransMilenio System*. (p. 22). Transport, Health and Environment Pan-European Program, United Nations Economic Commission for Europe. Retrieved from <https://thepep.unece.org/sites/default/files/2017-07/05.rodriguez.pdf>
28. United Cities and Local Governments. (2015). *Public Policy on Homelessness (part of the "Bogotá Humana" plan)*. UCLG. Retrieved from <https://www.uclg-cisd.org/en/observatory/public-policy-homelessness-part-bogota%C3%A1-humana-plan>
29. United Nations Development Program. (2008). *Examples of Successful Public-Private Partnerships (Vol. 15)*. Special Unit for South-South Cooperation, UNDP. Retrieved from <http://tcdc2.undp.org/GSSDAcademy/SIE/Docs/Vol15/10Colombia.pdf>

Interviews

Interview with Diego Moya (2018, June 25). Urban Architect, TransMilenio. (K. Prebble, C. Gallego, Interviewers).

Interview with Yanira Vargas (2018, August 10). Social Management Specialist, TransMilenio. (S. Tseng, Interviewer).



Egypt

Cairo Metro



Source: Egyptian Streets (<https://egyptianstreets.com/2015/10/25/9-things-you-should-know-about-the-cairo-metro/>)

The expansion of the metro network in Cairo required adherence to environmental and social safeguards, which incorporated inclusive stakeholder engagement. The expansion also created training and employment opportunities for young people.

The Cairo Metro (the Metro), Africa's first urban railway, is owned by the National Authority for Tunnels (NAT), a government agency set up by the Ministry of Transport in 1983, and operated by the Egyptian Company for Metro Management and Operations (ECM). It was built to:

- serve the people of Cairo (the city was home to 10 million residents in 1987 when the first line opened, and almost twice as many people (19.7 million) in 2016);
- reduce severe congestion on the road network; and
- be the centre of a modern, integrated and efficient public transport system.

The Metro has three lines. Line 1 opened in 1987, and Line 2 was completed nine years later in 1996. The construction of Line 3 began in 2006.

Line 3 is being built in four phases. Phase I opened in 2012 and Phase II welcomed its first passengers in 2014. Phase III, which is the primary focus of this case study, is still under construction and is due for completion in 2024. There are plans for a fourth phase, as well as two new lines.

When it is complete, Line 3 will be the first metro line to cross Cairo, linking the east and west of the city. In the third phase of construction, the existing infrastructure is being extended to the west by 17.7 kilometres (km). The project is a key component of the Greater Cairo Transport Master Plan because it will provide two densely populated, socially disadvantaged districts (Imbaba and Boulak El Dakrou) with safe and reliable access to the city centre and central business districts.

Line 3 - Phase III is being developed under the ownership of NAT, with international funding from the French Development Agency (Agence Française de Développement (AFD)), and co-financing from the European Investment Bank (EIB). To meet national legislative requirements, as well as the environmental and social governance processes of the lenders¹, an environmental and social impact assessment (ESIA) was prepared and updated to meet international standards². A stakeholder engagement plan (SEP) was also developed to ensure discussions about the benefits of the project continued, especially in areas where there were concerns about the impact it would have. The results of the second round of engagement have been disclosed in a Public Consultation Report³.

¹ The European Investment Bank's Statement of Environmental and Social Principles and Standards (2009) and the World Bank Operational Policy 4.12 (2001).

² Cairo Metro Line 3 – Phase III Environmental and Social Impact Assessment Study, (Grontmij & EcoConServ, 2012)

³ Ibid

The stakeholder engagement process helped to inform the operator's approach to resettlement and its response to the economic displacement of certain groups. For example, informal shop owners (traders who sell goods and services but are not legally permitted to do so) were asked to move from the area in which they had been operating and risked losing revenue while they waited for the new metro line to open⁴.

This case study considers the employment opportunities associated with the construction of Line 3 - Phase III. It also considers youth employment and training, including on Line 2.

The approach to investment on Line 2 is also discussed. The European Bank for Reconstruction and Development (EBRD), as part of an integrated approach to investment in Cairo's transport sector (which comprises a series of investments across all modes of transport), is financing the rolling stock for Line 2. Part of the agreement is that contractors will provide training and employment opportunities during operation and maintenance.

Project Overview

Key words	Stakeholder engagement, youth, training
Sector	Transportation
Background	Cairo is one of the world's largest cities, with a population of just under 20 million. Its metro system has three lines. A fourth and a fifth are expected to be built in the future. This case study considers Phase III of Line 3, which is currently under construction, and Line 2, which is already moving passengers around the city. 500 million passengers and 12 million tons of freight are transported on the urban rail network each year.
Size	A total of EUR 2 billion, including: <ul style="list-style-type: none"> • EUR 44 million: grant from the European Union's Neighbourhood Investment Facility; • EUR 300 million: AFD – lead financing institution; • EUR 600 million: EIB – co-financing institution; • EUR 700-900 million: Government of Egypt; and • EUR 435 million: other contributors^{*1}.
Stage	<p>Line 1: Opened in 1987, final extension completed 1999.</p> <p>Line 2: Opened in 1996, final extension completed 2005.</p> <p>Line 3:</p> <ul style="list-style-type: none"> • Phase I (2007-2012) • Phase II (2009-2014) • Phase III (2016-2024) • Phase IV (still in planning) <p>Lines 4 and 5: expected in the future.</p>
Why of interest	<ul style="list-style-type: none"> • Identifies different types of stakeholders and how they may be impacted by the project, including a review and update of the approach to stakeholder engagement and identifying vulnerable people • An interesting approach to youth employment and training opportunities

⁴ Note: Whilst the relocation of a shanty-town impacted by the metro project forms an important part of the project, it has not been the subject of this case study.

^{*1} Neighbourhood Investment Facility: Operational Annual Report 2014, (European Commission, 2015)

Project objectives

- Increase access to public transport, provide an integrated transport system, and reduce traffic congestion
- Provide reliable and efficient transportation for more than 1.5 million people
- Create job opportunities during construction and operation
- Connect socially disadvantaged districts with the city centre and central business districts

Project Lifecycle Assessment

Project preparation – Independent consultants conducted a social inclusion baseline survey and a stakeholder engagement plan.

Project procurement – No relevant practices identified.

Construction – Jobs created for skilled and unskilled labour.

Project monitoring and evaluation – A mechanism will be put in place by NAT and partner non-governmental organisations (NGOs) to address grievances related to land acquisition and the construction phase of the project.

Project Description

Cairo is the largest city on the African continent. In 2016, just under 20 million people called the city home, up from 10 million three decades earlier. Cairo's rapid population growth, along with urbanisation, has created challenges for authorities. Reducing road congestion is one of the government's top priorities.

The Cairo Metro, which is the first network of its kind in Africa, was constructed to help address this issue. It provides an integrated public transport system and a modern and efficient service. It was considered as long ago as the 1930s, but detailed studies were not undertaken until 1975 and continued until 1981. The first line (Line 1) was opened in 1987.

Cairo Metro is owned by the National Authority for Tunnels (NAT), a government agency set up by the Ministry of Transport in 1983, and operated by the Egyptian Company for Metro Management and Operations (ECM). Foreign and local companies have been involved in the design and construction of the system.

Cairo Metro currently consists of three lines. Line 1 forms the backbone of the network. It passes through the most important residential and business districts of the city. Line 2 was opened in 1996 and connects to several other railway stations. Line 3, which is still being constructed, crosses Lines 1 and 2 in an east-west direction. It will extend from the north west of Greater Cairo at Imbaba to the north east at Heliopolis and will also serve the city's international airport. Line 3 is being built in four phases. Phase I opened in 2012 and was followed by Phase II in 2014. The third phase, which is the primary focus of this case study, is due for completion in 2024. A fourth phase is expected in the future.



Figure 1. Cairo Metro Network Line 1, 2 and 3 (partially operational).
Source: Egyptian Streets (<https://egyptianstreets.com/2015/10/25/9-things-you-should-know-about-the-cairo-metro/>)

Line 3 - Phase III will be approximately 17.7km of dual track and will comprise 15 stations, including eight underground stations, five elevated stations, and two street-level stations (indicated in green in Figure 1).

More than 1.5 million people per day are expected to use Line 3 in its entirety once it is completed. Of those passengers, 971,000 are likely to use the segment constructed during Phase III⁵.

Line 3 Phase III is an important component of the Greater Cairo Transport Master Plan. As well as connecting the east and west of the city, it will also provide two densely populated, socially disadvantaged districts (Imbaba and Boulak El Dakrou) with a safe and reliable service to the city centre and central business districts.

However, to construct the line, land will need to be acquired. This will lead to temporary and permanent economic and physical displacement. Building work will also create additional noise, dust and congestion. The operator should aim to mitigate the potential impact and disruption as much as possible during design and construction.

Line 3 Phase III addresses inclusivity in the Action Area of **Stakeholder Identification, Engagement and Empowerment**, which was taken into consideration in the early stages of the project. Stakeholder engagement was part of the environmental and social impact assessment (ESIA) process. It included the collection of detailed data and used the results of a sustainable livelihoods analysis (SLA) to identify vulnerable people and meet the lenders' environmental and social safeguard requirements.

This case study also considers youth employment and training. At the national level, according to the 2018 population estimate, there are 20.2 million young people aged between 18 and 29 in Egypt. They represent 21% of the total population.

The country's unemployment rate, recorded by Egypt's Central Agency for Public Mobilisation and Statistics (CAPMAS), was 10.6% in the first quarter of 2018, and dropped to 9.9% in the second quarter⁶. However, for young Egyptians between the ages of 15 and 24, the unemployment rate was 34.4% in 2017⁷, meaning that a larger portion of this group is unable to find work compared to the overall national employment rate.

A lack of professional skills, inefficient job-matching services, inconsistent information regarding the job market and poor quality of jobs are considered to be the main reasons for the high unemployment levels.

⁵ Cairo Metro Line 3 – Phase III Environmental and Social Impact Assessment Study, (Grontmij & EcoConServ, 2012)

⁶ Central Agency for Public Mobilization and Statistics, (Central Agency for Public Mobilization and Statistics, 2018)

⁷ Unemployment, youth total (International Labour Organization, 2017); Compared to the world average of 13.5%, World Bank Indicators, accessed 2018

NAT is seeking to address some of these problems through the work on Line 3 Phase III by insisting construction contractors invest time in training the workforce. On Line 2, as part of the EBRD's integrated approach (IA) to investment in Cairo's urban transport sector, training and employment opportunities are provided during operation and maintenance .

Therefore, this case study also covers the Action Area **Governance and Capacity Building** in relation to youth employment and training.

Key Practices Identified and Applied



STAKEHOLDER IDENTIFICATION, ENGAGEMENT AND EMPOWERMENT

Statement of the issue in relation to inclusion and brief introduction

The temporary footprint (needed for construction) and permanent footprint of the project will result in land acquisitions and lead to short- and long-term economic and physical displacement. The construction work will also generate noise, dust and congestion in some areas.



Figure 2. Indicative layout of Phase III of Line 3 showing neighbourhoods. Source: National Authority of Tunnels, Egypt (<http://www.nat.org/egy/english/phase3line3.html>)

Proposed route

Phase III of Line 3 will pass through a number of different neighbourhoods within the governorates of Cairo and Giza, as shown in the indicative layout in Figure 2. These neighbourhoods range from administrative and commercial districts and high-income residential areas, to low-income housing, agricultural and slum areas, and are summarised in the box below:

- Nasser - primarily an administrative and commercial sector. Includes the Supreme Court, cinemas and hotels.
- Maspero - a commercial and residential neighbourhood, informal expansion of shops. Highly populated, with a middle- and low-income population.
- Zamalek - embassies and higher income residential areas.
- Kit-Kat square - commercial area with street vendors, densely populated low-income housing.
- Sudan - commercial area and middle-income housing.
- Imbaba Airport - densely populated, low-income area with some areas resembling slums.
- El Bouhy - commercial and low- to middle-income housing. Market area.
- El Wehda - densely populated, low-income housing.
- Ring Road and Rod El Faraq Corridor – agricultural, low-income and slums.
- Twafiqiya - commercial area and middle- and low-income housing.
- Wadi El Nil - middle- and higher-income housing.
- Gamet El Doual El Arabia – commercial area and banks. Middle- to upper-income housing.
- Boulak el Dakroul - low-income housing, often informal. Market.
- Cairo University - low-income housing.

There is concern about the impact of construction work on the following areas:

- temporary and permanent economic and physical displacement, in particular in El Bohy, Maspero and the Ring Road, as well as Bolak Abu El Ela. A total of 1,382 people will be displaced by the project⁸, including tenants, owners, workers and squatters. This includes land, home and store owners who will be permanently displaced, tenants of shops who will lose their income in addition to being relocated, and workers who will

be affected by the change in their place of work. Commercial tenants and workers will be affected the most financially;

- restricted access during construction works, including to services such as health facilities;
- potential for subsidence of buildings from excavations and vibration;
- impact on the quality of life of residents who live next to construction sites, including concerns about noise and air quality;
- increased congestion during construction works due to restricted access and movement of construction vehicles;
- potential for accidents during construction (movement of construction traffic and equipment);
- potential for waste to accumulate, which is a health hazard; and
- visual impact of the above-ground stations.

Engagement with stakeholders and the collection of socioeconomic data has been a critical component of this project, as operators seek to limit the impact of the work on the community.

How inclusivity has been addressed

The identified practice is inclusive and extensive stakeholder engagement activities, with a focus on social groups that are economically and socially impacted by the project.

Line 3 Phase III is being developed under the ownership of NAT, with international funding from AFD and EIB. For that reason, the project was required to meet the environmental and social safeguarding standards of the two organisations. They included the EIB's Statement of Environmental and Social Principles and Standards (2009) and the World Bank Operational Policy 4.12.

The stakeholder engagement was led by two ESIA consultants engaged by the AFD. In 2011, the consultant EQI undertook the first stage of stakeholder engagement and field surveys, which provided information on the people and organisations who would be affected by the project. However, in 2012, the lenders identified gaps in the ESIA process when the results were measured against their own environmental and social safeguards, so AFD commissioned consultants Grontmij and EcoConServ to review and update the ESIA and the associated stakeholder engagement process (that is, they introduced a second stage).

The different stages of stakeholder engagement and data collection are outlined below:

⁸ Resettlement Action Plan Metro Line- Phase Three Line Three Final Report. (EcoConServ Environmental Solutions, 2015)

Stage 1:

- In October 2011, a field survey of 225 households (an average of 15 households within the proximity of each of the 15 Metro stations of Line 3 Phase III) was conducted by consultant EQI. It sought respondents' opinions on the planned Metro service and construction, and their concerns regarding the possible impact and disruptions;
- Three scoping meetings were held in October 2011 to provide members of the public with information on the project. The locations for these meetings were the Cairo governate (in Zamalek district) and Giza governate (one in Imbaba district and one in Mohandessin district, which includes El Bohy). They were open to all residents along the route of the proposed line; and
- A public disclosure meeting on the findings of the ESIA was held in December 2011. This meeting was held in Zamalek and was open to residents living along the route of the proposed line.

Stage 2:

To meet the lenders' environmental and social safeguard requirements, Grontmij and EcoConServ prepared an updated ESIA report and a stakeholder engagement plan (SEP) in 2012.

In the original ESIA, there was insufficient information on vulnerable groups. Therefore, the updated process sought to provide more detail on the people who would be affected and to classify vulnerable groups in line with international best practice. That required consideration of groups such as indigenous people, ethnic minorities, women, migrants, young people and the elderly. The methodology used to identify vulnerable groups and to assess the project's impact on them was based on the sustainable livelihoods approach (SLA), described in greater detail below.

The updated stakeholder engagement process, as recorded in the SEP, sought to address information requests and issues deemed to have not been fully addressed during the first stage of the consultation process, according to the ESIA consultants. It also aimed to provide new information (e.g. exact station sites and alignments of the metro line) not previously presented to stakeholders. In particular, the new engagement process had to meet the social safeguard requirements of the EIB. This included adhering to European Union standards, as set out in the Aarhus Regulation, which grants the public certain rights regarding access to information, participation and access to justice in governmental decision-making processes⁹.

⁹ The Aarhus Convention is a multilateral environmental agreement. It grants the public rights regarding access to information, public participation and access to justice in governmental decision-making processes on matters concerning the local, national and transboundary environment. It focuses on interactions between the public and public authorities.

The SEP prepared by Grontmij and EcoConServ also referenced the following principle in relation to inclusivity:

*"Engagement must be inclusive: Care should be taken to identify, invite and engage with all categories of local stakeholders, particularly those categories (e.g. special needs citizens, local transportation providers, low-income households) who may be unable or intimidated to attend public consultations and lack effective representation. Special attention should also be given to those who might be affected negatively by the project, and that their concerns are taken into consideration."*¹⁰

A report with final recommendations for sustained engagement with stakeholders through to the completion of Line 3 Phase III was prepared and disclosed by the ESIA consultant following the second stage of stakeholder engagement activities¹¹.

Implementation**Multiple data collection methods**

People who were most likely to be affected by construction activity were contacted directly as part of the ESIA process undertaken by EQI, and Grontmij and EcoConServ, and a large volume of quantitative and qualitative data from various primary and secondary sources was accessed to better understand different social groups. Information from secondary sources, such as census data, was collected from various government organisations. Primary data collection from stakeholders was also undertaken, in two stages, to obtain baseline data, to identify vulnerable groups, and to garner people's perception of the project's potential impact.

The initial ESIA consultant, EQI, used a structured questionnaire to collect quantitative data in the field. The questionnaire content covered:

- basic information about the people living and working near the construction sites, the beneficiaries and communities;
- people's perception of the project and its anticipated impact;
- the current type of transportation used; and
- relocation activities.

The questionnaire also asked for the community's views on the proposed project and how willing they were to support it. Only residents were interviewed during stage one.

¹⁰ Cairo Metro Line 3 – Phase III Environmental and Social Impact Assessment Study, (Grontmij & EcoConServ, 2012)

¹¹ Ibid

A second round of structured questionnaires was developed to include people who missed out during the first survey, for example, vendors, shopkeepers and students. This process was led by Grontmij and EcoConServ.

The questions guiding the survey were:

- which policies and legislation have influenced the project?
- which socioeconomic factors should be considered?
- how do people feel about the project?
- how will the work affect them?
- how can the project be implemented with minimal disruption to the community?
- what mechanisms need to be applied to create an appropriate stakeholder engagement plan?
- what is the capacity and organisational framework that will be applied during the implementation of the stakeholder engagement plan?

225 residents and 135 vendors, shopkeepers, workers and students were interviewed between the first and second stages of consultation, despite some shortcomings in the way relevant social groups were represented.

Sustainable Livelihoods Approach

The original ESIA did not meet lender requirements because of a gap in identifying vulnerable groups of people. Therefore, one of the key aspects of the work in stage two was addressing that concern. The methodology used to identify vulnerable groups and to assess the potential impact on them was based on the sustainable livelihoods approach (SLA)¹², which describes the context, motivations and resources of vulnerable households.

It included:

1. assets (social, physical, economic, human and natural assets);
2. risks and vulnerability surrounding individuals; and
3. policies and organisations that govern the implementation of mitigation measures.

The level of vulnerability and the severity of the impact was assessed by reviewing the individual's asset base. If a person has fewer assets, they also have less choice, making it more difficult for them to cope. More attention should be paid to these groups when compensation schemes and/or mitigation measures are being designed.

¹² The Sustainable Livelihoods Approach (SLA) is a method of analysing and changing the lives of people experiencing poverty and disadvantage. It is a participatory approach based on the recognition that all people have abilities and assets that can be developed to help them improve their lives and it allows for the identification of priorities for development activities. The approach has been adapted by various International Finance Institutions.

Vulnerable groups were included in the ESIA report (2012) if they would have been in need of resettlement because of the project, if their livelihoods were at risk, or because they might be affected disproportionately by environmental impacts such as waste, emissions or noise. The consultants believed certain groups would be more vulnerable to environmental impact than others due to higher level of exposure or lack of alternatives or coping strategies. Examples include people who work in shops and have no insurance or health care coverage, people who sell goods in the streets that would be blocked during construction, families in El Bohy market which was to be demolished, and students who enrolled in schools close to their house in Imbaba and would now have to relocate.

Resettlement Action Plan

The ESIA report identified the need for a Resettlement Action Plan (RAP) to make provisions for the people affected economically or physically by the development, including vulnerable groups.

A RAP, commissioned by the EIB, was prepared by EcoConServ in 2015. The RAP met national and EIB standards and requirements. The RAP study team included two experts who specialised in gender issues.

A gap analysis between national requirements and EIB requirements for resettlement indicated several divergences, including the following that are not provided for in national law and, therefore, were addressed in the RAP:

- resettlement assistance;
- full market replacement value;
- squatters' rights;
- income disturbance allowances; and
- vulnerable groups.

By reviewing the gaps between national and international standards, the RAP covered a wider range of people who were entitled to compensation. The compensation framework identified in the RAP covered compensation for all types of Project Affected Persons (PAP)¹³ in line with EIB requirements (such as squatters, disturbance allowances, etc.).

The RAP study team undertook further consultation and detailed data gathering via socioeconomic questionnaires, focus group discussions and semi-structured interviews.

¹³ A PAP in this context refers to all persons impacted by the involuntary resettlement, land acquisition, relocation, or loss of incomes that come about due to a project. This includes all members of a household (women, men, girls, boys, and several generations in the case of extended households).

The following activities were conducted during the preparation of the RAP for the PAPs:

- public consultation was conducted with the PAPs for El Bohy in February 2013 where all PAPs were invited. The total number of participants was 109. The majority of participants were illiterate. Women and people living in extreme poverty were invited. El Badr mosque played a major role in reaching the vulnerable groups;
- meeting with the Board of Directors of El Badr Mosque, El Bohy in February 2013;
- public consultation with PAPs in Bolak El Dakroun in February 2013. 44 people took part and again, the majority of participants were illiterate;
- public consultation with the PAPs in Bolak Abu El Ela in February 2013. 18 shop owners and tenants attended;
- meeting with Dar El Tefl School Board members in March 2013; and
- group discussion with owners and tenants of a building to be affected.

Questionnaires were developed with input from the EIB, and pre-tested on people from the community. The test phase was followed by the completion of the questionnaires. The questionnaires were used to obtain data on PAPs, regardless of the legal status of the affected persons and the affected asset.

Specialist training on data collection

Local surveyors (enumerators) were employed to carry out the RAP surveys, under the supervision of the RAP consultant's household survey quality assurance specialist. Before launching the surveying process, surveyors received intensive training on:

- how to collect data;
- communication skills;
- how to fill in questionnaires with the PAPs; and
- the ethics of data collection.

Following the training, the surveyors were evaluated and a shortlist of data collectors was developed.

Disaggregation of vulnerable groups

In parallel with the data collection process, databases were designed and constructed. During the data collection phase, the completed questionnaires were monitored by data monitoring officers. After sending the questionnaires to the office, they were checked again for quality. Once quality was assured, the data was entered into the designed software. The household survey experts were responsible for analysing the data and interpreting the findings, with involvement from the team of resettlement specialists.

From a vulnerability perspective, the RAP states that the study team worked to ensure disaggregation of the various social groups by age, gender, occupational status, educational status, livelihoods security, access to physical

assets, etc. The level of vulnerability of the affected persons and the severity of the impact was then assessed and determined by looking into the PAPs' asset base using the SLA approach.

Focus group discussions

In addition to the above, the study team also used qualitative research methods aimed at assisting the study team in gaining an in-depth understanding of the current socioeconomic and legal conditions of the PAPs, their sources of livelihood, as well as their compensation preferences. This included focus group discussions (FGDs) with the following:

- people earning low incomes who receive financial support from El Badr Mosque;
- people and their relatives who rely on the health centre at El Badr Mosque;
- Bolak Abu El Ela shop owners, tenants and workers;
- female heads of households at the El Bohy market; and
- widowed women who raise their children with no other source of income except selling goods in the street.

Semi-structured interviews were also held with NAT, representatives of the governorate and the municipality, NGOs, mosques and health centres that may be affected by the project, as well as political parties and community leaders.

Public stakeholder meetings

Stakeholder engagement meetings were also undertaken during the first and second stages of the stakeholder engagement process. Stakeholders included:

- local residents (owners and tenants) in nearby communities and commuters travelling to/from these areas;
- small business owners/managers and leading employers in the affected communities;
- community-based NGOs and informal groups of local citizens;
- real estate and farm property owners near, or directly impacted by, construction;
- public and private transportation providers (such as bus, micro-bus, tuk-tuk) that serve nearby communities;
- school, youth centre, and hospital administrators in community facilities;
- government ministries; and
- administrative officials and municipal executives in the affected areas of the Cairo and Giza governorates.

In the first stage of consultation, three public meetings were held in the Cairo and Giza governates to share information about the project and ask for people's feedback, and one public meeting was held to disclose the findings of the initial ESIA.

Stakeholder Engagement Plan

As part of the second stage, the ESIA consultants Grontmij and EcoConServ reviewed the original stakeholder engagement process and prepared a SEP, which recorded the activities already undertaken, proposed new engagement opportunities and made recommendations for work to be led by NAT during the construction phase of the project.

The methods for engagement identified in the SEP and implemented in 2012 included initial meetings with local officials and responsible authorities to present and finalise the plans, and the rationale and proposed schedule for upcoming stakeholder engagement activities.

The ESIA consultants' review of the initial stakeholder engagement process found there was general acceptance and appreciation of the Line 3 Phase III work, with the exception of two communities, where complaints and resistance had emerged. Whilst overall support for the project had been high in lower income neighbourhoods, where they welcomed easier access to the city centre, in the higher income area of Zamalek, residents opposed the extension of the Metro because they did not believe they would use it. They also worried about a potential increase in traffic congestion during the construction phase and the impact of connecting their neighbourhood to lower income areas. In Imbaba/Al Bohi, people were concerned that the over-ground structures that had been proposed were intrusive and that they would not be able to avoid severe traffic congestion during construction.

The ESIA consultants advocated an open dialogue with the communities, and the proposed approach was planned in close cooperation between the ESIA consultants and NAT. It was agreed that two additional public meetings should be held, one in each area. The wider public, including the following people, also attended:

- members of low-income communities;
- those without a high level of education;
- unemployed housewives;
- workers, craftsmen, drivers, and students; and
- farmers from the Ring Road.

Providing the community with knowledge and resources

Prior to the meetings, factsheets on the design, alignment, construction timeframe and the land or property required for each station and segment of Line 3 Phase III, were disseminated in print and via the NAT website.

Draft plans were presented to communities, covering monitoring and risk mitigation, and the grievance process that would be managed by NAT and partner NGOs.

A public consultation document was prepared and disclosed following the two public meetings. It reports that attendees appreciated being given the opportunity to engage. In Zamalek, residents established a relationship with a NGO that was active in the area and offered to act as facilitator for channelling complaints to NAT.

The ESIA consultant recommended that the non-technical summary of the ESIA, the consultation factsheets and contact information for Line 3 Phase III construction issues and complaints should be made available via the NAT website (www.nat.org.eg) to enable people to speak directly with NAT.

The ESIA consultant also suggested that NAT and local government officials continue to make public service announcements and share construction plans with communities, from the start to the end of the project, and that NAT should establish an ombudsperson and public liaison office and maintain a partnership with community-based or advocacy NGOs in communities that had concerns.



GOVERNANCE AND CAPACITY BUILDING

Statement of the issue in relation to inclusion and brief introduction

Youth unemployment and the lack of training opportunities are significant issues in Cairo. The youth (15 to 24-year-olds) unemployment rate in Egypt was 34.4% in 2017¹⁴. This is, in part, because the education and training system has failed to equip young people with skills that match the jobs available. It can also be explained by the limited job opportunities and inadequate youth employment regulations.

According to the ESIA report¹⁵, 50% of the total population in the area surrounding Line 3 Phase III is 15 to 45 years old. The project area is also known to have high unemployment amongst young people¹⁶, which reflects the national situation.

¹⁴ Unemployment, youth total (International Labour Organization, 2017)

¹⁵ Cairo Metro Line 3 – Phase III Environmental and Social Impact Assessment Study, (Grontmij & EcoConServ, 2012)

¹⁶ Out of this number, 1/3 are inactive non-students, and the remaining 2/3 are unemployed non-students.

How inclusivity has been addressed

The identified practice is the provision of employment, expertise and training opportunities to youth and other vulnerable groups throughout the project lifecycle.

The construction of Line 3 Phases I and II generated numerous construction-related jobs and addressed unemployment issues for the unskilled workers, highly skilled workers and administrative staff involved in the project.

This has been achieved through an inclusive procurement process, whereby bidders are encouraged to make training available as part of the tender process, through a requirement for construction contractors to facilitate training resulting in specific qualifications within a stipulated period of time and through a bespoke Inclusion Action Plan involving the project's key stakeholders.

According to NAT's latest records, 3,000 to 4,000 job opportunities will be provided during the construction of Line 3 Phase III, and more than 1,500 permanent jobs will be created during the operational stage¹⁷.

Implementation

Inclusive procurement process

Line 2 of the Metro is one of the projects identified under the EBRD's Integrated Approach (IA)¹⁸ to Greater Cairo's urban transport sector, where identified projects are required to introduce youth inclusion through providing an inclusive procurement process. As part of the tender process, bidders are encouraged to make onsite training placements available, in partnership with participating local vocational schools and job centres.

Economic inclusion is integral to development for the EBRD, particularly in view of growing youth unemployment, the low participation of women in the workforce in some countries of operation, and the stark differences in economic performance between its regions. This element of the project has, therefore, been designed to promote inclusivity by creating onsite training opportunities for unemployed young people.

¹⁷ Interview with Dr. Eng Ashraf A.M. Abu-Krishna (2018, June 30). Tunnelling & Construction Consultant, Vice Chairman, National Authority for Tunnels (NAT).

¹⁸ Egypt: Cairo Integrated Transport Project - Inclusion Component (European Bank for Reconstruction and Development, 2015, October 22)

Inclusion Action Plan

The EBRD has engaged with the main stakeholders – Egyptian Company for Metro Operations (ECM), Industrial Training Council (ITC), Misr El Kheir and the International Labour Organization (ILO) to discuss the possibility of receiving practical assistance to support training initiatives. The EBRD has also commissioned a consultant to provide an overview of youth unemployment in Egypt, assess employment and training opportunities during operation and maintenance, and develop a bespoke action plan. An Inclusion Action Plan considers the following aspects:

- The number of jobs and onsite training opportunities that will become available as part of the maintenance contracts;
- Development of a clear inclusion methodology and bespoke action plans, involving key stakeholders (for example, client(s), relevant ministries, the National Procurement Office, vocational training institutions, job centres, main international and local contractors and sub-contractors) to open up onsite training opportunities (and related employment opportunities) to young people. The plans should draw on models of international best practice and respond to the specific circumstances and requirements of the construction industry and other local stakeholders in Egypt so as to be relevant and effective in that context. Each action plan also needs to include cost models and specific recommendations as to how to integrate the inclusion component within the overall project design and delivery plan.
- Identification of project delivery, capacity building and monitoring support required throughout project implementation. This should include:
 - i. specific technical support to the project proponent and key stakeholders to ensure the effective implementation of the inclusion methodology;
 - ii. capacity building to the project proponent and relevant stakeholders; and
 - iii. ongoing impact monitoring (including the number of young women and men trained, skill levels achieved, and - where possible - future progression) to establish the impact achieved, to identify lessons learned, and recommend actions to optimise the methodology.
- Direct engagement with the National Procurement Office in Egypt to integrate similar inclusive procurement models across other areas of public procurement in the country in order to achieve wider systemic impact¹⁹.

¹⁹ Ibid






The EBRD investment aims to open up economic opportunities for unemployed young people (men and women under the age of 25) by introducing a requirement in the procurement process that encourages private sector suppliers to offer onsite training opportunities to unemployed young people in subjects related to rolling stock maintenance, and developing vocational training curricula in disciplines that are directly related to the investment.

Training by construction contractors

According to the interview conducted, there is a plan to encourage more women to join the project and provide training programs for unemployed young people. However, one of the difficulties faced is the lack of specialised institutions in the country that can provide the level of expertise required for roles in operations and maintenance²⁰.

For Phase III of Line 3, the construction contractors and sub-contractors are responsible for facilitating the training process and this is stipulated in the agreement between NAT and the contractors. Specific qualifications must be achieved within a fixed time period.

Benefits Realisation

Identified benefit	Benefit description
 <p>Integration of small business opportunities</p>	<p>People living in areas where the line is proposed, such as the Ring Road, have started to develop small businesses in the area (i.e., cafes, restaurants) after they were informed of the proposed Line 3 Phase III location. The businesses will serve the workers and the passengers in the future^{*1}.</p>
 <p>Increasing affordability and accessibility</p>	<p>Metro Line 3 increases accessibility to public transportation and provides access to jobs and health centres in the centre of town. For instance, people in Boulak El Darkroun and Imbaba feel that the project will provide better mobility for its residents.</p>
 <p>Job creation and equal access to labour market opportunity</p>	<p>The Metro system has generated numerous construction-related jobs and addressed unemployment issues for the unskilled workers, the highly skilled workers and the administrative staff.</p> <p>According to the interviewee, 3,000 to 4,000 job opportunities will be provided during construction work in Phase III of Line 3 and more than 1,500 permanent jobs will be provided in operational stages^{*2}.</p>
 <p>Technical literacy and knowledge sharing</p>	<p>Contractors are required to provide training opportunities during the construction of Line 3 Phase III. However, it is too early to assess the outcome of this requirement. It is also too early to assess the outcome of the EBRD strategy for training in relation to the provision of rolling stock for Line 2.</p>
 <p>Social equity and social stability</p>	<p>Given the demographic context of Cairo, the project has elements of inclusivity, covering improved mobility and job creation to lower income neighbourhoods.</p>

^{*1} Cairo Metro Line 3 – Phase III Environmental and Social Impact Assessment Study, (Grontmij & EcoConServ, 2012)

^{*2} Interview with Dr. Eng Ashraf A.M. Abu-Krishna (2018, June 30). Tunnelling & Construction Consultant, Vice Chairman, National Authority for Tunnels (NAT).

²⁰ Interview with Dr. Eng Ashraf A.M. Abu-Krishna (2018, June 30). Tunnelling & Construction Consultant, Vice Chairman, National Authority for Tunnels (NAT).

Stakeholders

Institutional stakeholders and partners	Role
National Authority for Tunnels (NAT)	NAT is a government agency under the jurisdiction of the Ministry of Transport, incorporated in 1983. It is the entity that owns the Metro system and is responsible for planning and construction of metro lines in Egypt, including Metro Line 3 Phase III.
Egyptian Company for Metro Operations (ECM)	ECM is the operator of the metro system, and therefore will be responsible for the operation of Line 3 Phase III when construction is complete. ECM will also be responsible for the project's environmental performance once the line becomes operational.
Ministry of Transport	The Ministry of Transport is responsible for developing plans to establish subway networks.
Ministry of Finance	The Ministry of Finance transfers funding to NAT to expand the Metro and pay for the purchase of supplies.
Ministry of Education and Technical Education	It is responsible for developing the education system in Egypt and providing qualified workers to the job market.
European Investment Bank (EIB)	As the co-financier for the project, EIB approves the ESIA as per the requirements of the finance package.
Agence Française de Développement (AFD)	As the lead financier for the project, AFD approves the ESIA as per the requirements of the finance package.
Industrial Training Council (ITC)	ITC is responsible for the development and award of vocational competence-based qualifications in Egypt.
Egyptian National Railway	Egyptian National Railway provided for an annual concession fee of USD 1.79 million (LE 32 million), later amended in 2009 to 25% of metro operating annual income until the opening of Line 3.
Egyptian Environmental Affairs Agency (EEAA)	EEAA is the agency responsible for ensuring that an environmental and social assessment is conducted in compliance with national legislation.
SYSTRA	SYSTRA is a transport planning consultancy. SYSTRA's recent contracts for Line 3 include project management and works supervision for construction Phases I and II, and preparing basic designs and tender documents for Phases III and IV of Line 3.
EQI	Consultants hired by AFD to conduct the initial ESIA.
Grontmij and EcoConServ	External consultants hired by AFD to update the ESIA and stakeholder engagement process to support project planning.

Key beneficiaries	Role
Low-income people	Low-income groups were given particular attention during the demographic data collection process and the stakeholder engagement process. The project will link lower income neighbourhoods to the city centre.
Vulnerable groups	The team conducted a study that involved collecting data that could help identify vulnerable groups and those that could be economically and physically displaced by the project. This included, for example, street vendors who were compensated through the RAP process and through the provision of another market to allow them to restart their business; and informal shop owners not covered by insurance or health care who were paid a percentage of their lost business revenue* ¹ .

*1 The exact amount of compensation could not be retrieved.

Lessons Learned

Success factors

The approach to the ESIA process and stakeholder engagement for Line 3 Phase III, driven by the need to fulfil lender requirements, has resulted in **the collation of a comprehensive socioeconomic baseline dataset** and the implementation of an **extensive stakeholder engagement process**. In the interview, it was identified that this is the first time that such an extensive undertaking in relation to stakeholder engagement for an infrastructure project had been conducted in the country, to ensure that the concerns of all the communities potentially affected by the project had been heard²¹.

The review of the stakeholder engagement process

provided an opportunity to identify gaps in the process to date that could be addressed through further consultation. The secondary round of public consultations was reported by the ESIA consultant to have been well received by the two communities that had previously been against the project and helped gain acceptance of the work, as well as identify mitigation measures to be incorporated into the project design and construction phase.

The incorporation of international standards helped set objective benchmarks for the project, which focused on all vulnerable groups in relation to the requirement for compensation for economic and physical displacement. As such, a RAP to EIB standards was prepared in 2015 and this included additional stakeholder engagement with affected parties, as well as detailed questionnaires to collect disaggregated data on project affected persons.

Both the ESIA and RAP process used the SLA approach to identify vulnerable groups, so that they could be catered for in terms of engagement and so that their needs could be incorporated into the planning process.

In relation to youth employment, **construction work suppliers are contractually required to provide proper expert knowledge** to the workers. This, supplemented by necessary training, facilitates the transfer of knowledge and the upskilling of workers²². The government's wider initiatives to improve vocational training provide an opportunity to align training with large infrastructure project needs.

In respect of Line 2 and youth employment, the EBRD's IA encourages transport infrastructure projects in Cairo to provide **specific requirements for training within contracts**. The EBRD has approved a multi-year EUR 750 million investment, and one of the projects falling under this IA approach is the Cairo Metro Line 2. The contract for the procurement of additional trains promotes youth inclusion by encouraging private sector contractors to open onsite training programs for the youth to help enhance their skills and improve employability²³.

²¹ Interview with Dr. Eng Ashraf A.M. Abu-Krishna (2018, June 30). Tunnelling & Construction Consultant, Vice Chairman, National Authority for Tunnels (NAT).

²² Ibid

²³ Strategy for Egypt: As approved by the Board of Directors at its meeting on 8 February 2017. (European Bank for Reconstruction and Development, 2017)

Key challenges

During the data collection exercise to identify vulnerable groups, **not all stakeholders fully understood the purpose of the survey, while some were reluctant to provide personal data** (e.g. incomes). Therefore, they were not always supportive or honest in their answers, which can compromise the integrity of the data. The poor quality of collected data can lead to a costly and time-consuming exercise of validating data accuracy²⁴.

The **evaluation mechanism for projects needs to be more transparent**. For instance, it was reported in the interview that quarterly monitoring reports were prepared by NAT and submitted to the lender for Line 3 Phase III, however, these are not made available to the public.

Displacement of people because of the project was challenging, especially in neighbourhoods such as Zamalek, where residents identified that they would not use the Metro. Identifying these issues and fully engaging with these residents through further stakeholder engagement was useful to understand and address these concerns.

While contractors are encouraged to hire young unemployed people, there is no legal requirement (either in local law or in the loan documents between the government and the financing institutions) which makes this a binding obligation.

²⁴ Interview with Dr. Eng Ashraf A.M. Abu-Krishna (2018, June 30). Tunnelling & Construction Consultant, Vice Chairman, National Authority for Tunnels (NAT).

References

01. CEIC. (2016). *Egypt Labour Force Participation Rate*. CEIC Data's Global Database. Retrieved from <https://www.ceicdata.com/en/indicator/egypt/labour-force-participation-rate>
02. Central Agency for Public Mobilization and Statistics. (2018). *Press Release*. Central Agency for Public Mobilization and Statistics. Retrieved from http://capmas.gov.eg/Pages/GeneralNews.aspx?page_id=1
03. EcoConServ Environmental Solutions. (2015). *Resettlement Action Plan Metro Line- Phase Three Line Three Final Report*. European Investment Bank. Retrieved from http://www.nat.org.eg/arabic/tender/Report%20final%20line3_%20phase3English.pdf
04. Egypt National Authority for Tunnels. (2013). *Cairo Metro Project*. National Authority for Tunnels (NAT). Retrieved from <http://www.nat.org.eg/english/index.html>
05. European Bank for Reconstruction and Development. (2015a). *Cairo Metro Line II Purchase of trains*. Cairo: European Bank for Reconstruction and Development. Retrieved from <https://www.ebrd.com/work-with-us/projects/psd/cairo-metro.html>
06. European Bank for Reconstruction and Development. (2015b). *Cairo Urban Transport Integrated Approach Inclusion Element*. Cairo. Retrieved from <https://www.ebrd.com/work-with-us/procurement/pn-49551.html>
07. European Bank for Reconstruction and Development. (2015, October 22). *Egypt: Cairo Integrated Transport Project - Inclusion Component*. European Bank for Reconstruction and Development. Retrieved from <https://www.ebrd.com/work-with-us/procurement/pn-49551.html>
08. European Bank for Reconstruction and Development. (2016). *Framework Contract: Cairo Urban Transport Integrated Approach Inclusion Element Final Repprt*. London : Avistun Ltd.
09. European Bank for Reconstruction and Development. (2017). *Strategy for Egypt: As approved by the Board of Directors at its meeting on 8 February 2017*. European Bank for Reconstruction and Development. Retrieved from <https://www.ebrd.com/what-we-do/strategies-and-policies/egypt-strategy.pdf>
10. European Commission. (2011a). *Cairo Metro Line 3 - Phase III*. International Cooperation and Development. Retrieved from https://ec.europa.eu/europeaid/blending/cairo-metro-line-3-phase-iii_en
11. European Commission. (2011b). *International Cooperation and Development*. Cairo Metro Line 3 - Phase III. Retrieved from https://ec.europa.eu/europeaid/blending/cairo-metro-line-3-phase-iii_en
12. European Commission. (2015). *Neighbourhood Investment Facility: Operational Annual Report 2014*. Brussels: European Commission. Retrieved from <https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/neighbourhood/pdf/key-documents/nif/20151022-2014-report-optimised-final.pdf>
13. European Investment Bank. (2009). *The EIB Statement of Environmental and Social Principles and Standards 2009*. European Investment Bank. Retrieved from http://www.eib.org/attachments/strategies/eib_statement_esps_en.pdf
14. Grontmij & EcoConServ. (2012). *Cairo Metro Line 3 – Phase 3 Environmental and Social Impact Assessment Study*. Egypt. Retrieved from <http://www.eib.org/attachments/registers/47052553.pdf>
15. Institute of National Planning Egypt. (2010). *Egypt Human Development Report*. Cairo. Retrieved from http://hdr.undp.org/sites/default/files/reports/243/egypt_2010_en.pdf
16. International Labour Office. (2017). *Towards Evidence-Based Active Labour Market Programmes in Egypt: Challenges and Way Forward*. Impact Report Series, Issue 4. Retrieved from http://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_545383.pdf
17. International Labour Organization. (2017). *Unemployment, youth total as % of total labour force ages 15-24*. Retrieved from <https://data.worldbank.org/indicator/SL.UEM.1524.ZS>
18. The World Bank Group. (2001). *Operational Manual OP 4.12 - Involuntary Resettlement*. World Bank. Retrieved from <https://policies.worldbank.org/sites/ppf3/PPFDocuments/090224b0822f89db.pdf>
19. The World Bank Group. (2014). *Cairo Traffic Congestion Study*. Retrieved from <https://openknowledge.worldbank.org/handle/10986/18735>

Interviews

Interview with Dr. Eng Ashraf A.M. Abu-Krishna (2018, June 30). Tunnelling & Construction Consultant, Vice Chairman, National Authority for Tunnels (NAT). (T. Ashour, Interviewer).



Kenya

Last Mile Connectivity Program



Source: Presentation for the World Bank
(http://cega.berkeley.edu/assets/miscellaneous_files/CEGA_Energy_REPP_June2015.pdf)

A government initiative to connect Kenyan households to the national electricity grid.

The Government of Kenya (GoK) has introduced a series of projects to stimulate economic growth and create jobs. They include the Last Mile Connectivity Program (LMCP), which aims to ensure everyone has access to electricity by 2020.

The project focuses on rural areas and slums where connectivity is poor. People who do not have access to electricity are unable to achieve the same standard of living as the households that do, and they have limited access to economic opportunities.

Connecting low-income households to electricity in rural areas has been a challenge for decades. This is because of the “high costs of supplying rural and peri-urban households” with electricity, a “lack of appropriate incentives”, “weak implementing capacity”, “population growth”, and the “cost of the internal wiring of consumers’ premises”¹.

The Last Mile Connectivity Program addresses some of these challenges by lowering the cost of connection from USD 398 (KES 35,000) to USD 171 (KES 15,000)² per household, with the help of subsidies. Subsidised loans are also available for households unable to afford this subsidised connection fee.

This project illustrates how to overcome the so-called “last mile”³ by reaching out to groups in society that did not benefit from previous electrification projects in Kenya. It also identifies socioeconomic and technical complexities that may need to be addressed in the long-term.

The Last Mile Connectivity Program follows the African Development Bank’s (AfDB) gender and social inclusion strategies for enhancing social benefits and implementing complementary activities. It also follows the environmental and social governance requirements of the National Environment Management Authority of Kenya (NEMA) and the World Bank.

¹ Development of a Power Generation and Transmission Master Plan, Kenya, (Lahmeyer International GmbH, 2016)

² Exchange rate used as per Economics of “Last Mile” Electrification study, (Lee, Miguel, & Wolfram, 2015)

³ In this case, the “last mile” in Phase I of the Program referred to the final connection to unserved households living within 600 metres of an existing transformer. In later phases, this was expanded to also include new transformers and the extension of the low-voltage network.

Project Overview

Key words	Affordability, access to electricity connection, pro-poor, rural
Sector	Energy
Background	The Last Mile Connectivity Program improves access to electricity in slums and rural areas in Kenya and aims to help achieve universal access. In April 2018, 73% of the population had access to electricity* ¹ .
Size	Phase I – III: USD 450 million total Phase IV: EUR 180 million
Stage	<p>Phase I: Financed jointly by the GoK with USD 150 million loan from the AfDB. It involved connecting households located within 600 metres of an existing transformer.</p> <p>Phase II: Financed by the GoK with USD 150 million loan from the World Bank. Targeted areas on the outskirts of cities and towns. Involved the installation of new transformers and the extension of the low-voltage network.</p> <p>Phase III: Financed by the GoK with USD 150 million loan from the AfDB. Involved the installation of new transformers and the extension of the low-voltage network.</p> <p>Phase IV: Financed by the GoK with EUR 90 million loan from the French Development Agency (Agence Française de Développement (AFD)), EUR 30 million grant from the European Union (EU) and EUR 60 million loan from the European Investment Bank (EIB). Involved increasing connections to distribution transformers and the installation of additional transformers.</p>
Why of interest	<ul style="list-style-type: none"> • Initiative aimed at increasing access to electricity in urban and rural areas • Study of rural households on sensitivity to price and demand for electrification • Specialised loan packages for people unable to afford the subsidised connection fee • Proximity of new transformers to public facilities in all communities, e.g. local health clinic to ensure connectivity
Project objectives	<ul style="list-style-type: none"> • Respond to the most urgent needs of the rural population regarding electricity connectivity • Support the country's objective to reach universal access by 2020 • Increase affordability by providing subsidies and loans, and lowering the connection fees
Project Lifecycle Assessment	<p>Project preparation – identifying the transformer location, consulting with the communities, and conducting surveys on technical readiness and project design, including budget.</p> <p>Project procurement – national legislation exists in Kenya to promote inclusion in procurement practices (however its implementation has not been assessed in this case study)*².</p> <p>Construction – stakeholder engagement, connecting households, fee collection and loan agreement as necessary.</p> <p>Project monitoring and evaluation – monitoring of active household connections and loan repayments.</p>

*¹ Kenya leads East Africa peers in access to electricity, (Kenya Power, 2018, May 8)

*² More details on government procurement legal requirements can be found at <https://www.agpo.go.ke/pages/about-agpo>

Project Description

In 2015, the government announced the Last Mile Connectivity Program to provide universal access to electricity by 2020. The ambitious strategy, which is being rolled out in phases, was developed based on international good practice and experience. It achieves economies of scale and aims to provide five million new connections in five years, primarily targeting informal settlements in urban areas and low-income households in rural areas. It has contributed to Kenya having one of the world's fastest rates of progress on the Sustainable Development Goal (SDG) 7 on access to electricity⁴. At the end of April 2018, 73.4% of people in Kenya had access to electricity, up from 56% in 2016⁵.

A study on barriers to electrification in rural Kenya in 2014⁶ identified that electrification rates were very low, despite previous significant investments in grid infrastructure. Taking a large sample of households, the study identified that half of the unconnected households were "under grid"⁷, or clustered within just 200 metres (m) of a low-voltage power line, where connecting to the grid should be relatively low-cost. It highlighted the potential opportunity to reduce energy poverty by targeting "last-mile" connections (the final stage of the electricity system) in "under grid" communities and argued that "to leverage existing infrastructure and economies of scale, subsidies and new approaches to financing connections are necessary".

Key challenges to achieving the goal of universal access include people's ability to afford the connection fee, their ability to pay electricity bills and the cost of wiring the house. Prior to 2015, the connection fee of USD 398 (KES 35,000)⁸ was considered high, relative to most households' annual income of below USD 1,000⁹. Residents in most low-income areas were unable to afford the cost of electrification, and viewed electricity as a luxury, which affects their willingness to pay. Households in rural areas prioritise spending on food and clothing and may prefer to spend their disposable income on social and leisure activities.

The absence of electricity due to affordability, income and willingness to pay may affect people's quality of life, and it prevents households from pursuing income generating activities. Children and other certain groups in society (e.g. women) trying to enhance their skills or take part in educational activities have fewer hours per day to read or study because they do not have quality lighting. Communities without access to electricity have a limited ability to operate health centres at night, which is essential for pregnant women and the critically ill. Furthermore, without electricity, health centres cannot operate basic electronic laboratory equipment or the fridges that store vaccinations and other items.

Working closely with the Rural Electricity Authority (REA), a group of researchers conducted a randomised evaluation to measure the price sensitivity of electricity connection. After gathering baseline data, the Ministry of Energy announced it would help families to get connected at a cost of USD 171 (KES 15,000). The Phase I criteria for applicants to enjoy the low connection fee was that the household needed to be within 600 metres of an existing transformer.

Though the poverty line was not explicitly considered during the community selection or prioritisation process for the Last Mile Connectivity Program, the communities were identified with the help of constituency representatives and the Members of the County Assembly. Many of these communities that do not have access to electricity are poor and have limited opportunities to improve their skills or engage in additional income-generating activities.

Given the financial and technical constraints, many Kenyans (off-grid and "under the grid") may obtain energy from private sector providers that have pioneered pay-as-you-go (PAYG) distribution models for off-grid solar devices and mini-grids¹⁰. The complementary interface of off-grid solutions with traditional grid extension has been recognised by the Government of Kenya and the World Bank. Both institutions support the Kenya Off-grid Solar Access Project (KOSAP), launched in 2018. Its aim is to expand electricity services to under-served areas through mini-grids and off-grid solar devices. KOSAP will run alongside the Last Mile Connectivity Program.

⁴ Tracking SDG7: The Energy Progress Report 2018, pages 2-3 (The World Bank, 2018a)

⁵ The World Bank Database shows that in 2016, the overall electrification rate in Kenya was 56% (with the rural electrification rate being 39% and urban 77.6%).

⁶ Barriers to Electrification for "Under-Grid" Households in Rural Kenya (Kenneth Lee, E. B., 2014)

⁷ "Under the grid" refers to households that are close to a low-voltage line, and should be able to connect at a relatively low cost, but for various reasons may still not be connected.

⁸ Exchange rate used as per Economics of "Last Mile" Electrification study, (Lee, Miguel, & Wolfram, 2015)

⁹ Rural Electric Power: Evaluation of Household Electricity Connections in Kenya, Innovation for Poverty Action and Kenya Power (Innovations for Poverty Action (IPA), 2015)

¹⁰ Knowledge from Atkins' ongoing energy access projects in East Africa and experts based in Kenya. In Kenya, it is estimated that over three million off-grid solar devices have been distributed since 2014, Off-Grid Solar Market Trends Report 2018 (Global Off-Grid Lighting Association (GOGLA), 2018).

The LMCP illustrates a number of Action Areas on inclusive infrastructure. Most relevant from an inclusivity perspective is the effort to optimise the electricity connection fee to make access more affordable to households not yet connected to the grid, relevant to the Action Area on **Affordability and Optimising Finance**. The project features elements of policy (Action Area: **Policy, Regulation and Standards**) and of active community engagement (Action Area: **Stakeholder Identification, Engagement and Empowerment**). The focus is on 'energy poverty', often in low-income communities, while separate consideration was given to specific groups, such as women and children.

Key Practices Identified and Applied



AFFORDABILITY AND OPTIMISING FINANCE

Statement of the issue in relation to inclusion and brief introduction

Prior to 2015, the electricity connection fee, at a fixed price of USD 398, was unaffordable for households in low-income areas. In addition, households had to pay the upfront in-house wiring costs¹¹, buy electric appliances and pay the electricity bills. Many people viewed the connection as a luxury and were not willing to pay for it, even if they could afford it¹².

In many low-income households, the electricity they use will be for lighting. Based on 2005 and 2006 data, the median monthly expenditure per household on kerosene for lighting was USD 1.55 (KES 156), while the median expenditure on electricity per household was USD 3.30 (KES 332)¹³. The difference created a perception that electricity costs are high, and many households preferred the cost of continued use of kerosene for lighting.

The demand for electricity connections remained low, especially in rural areas, because of the economy, household income and expenditure structure. The need for food and clothing was prioritised over the use of electricity. Even when households were given financial assistance and offered subsidised connection fees, the electrification rate in rural areas was just 39% in 2016¹⁴.

There were other challenges too, including a shortage of investment and difficult geography.

¹¹ The household needs to engage a qualified electrical contractor who is registered by the Energy Regulatory Commission to do the wiring and issue the commencement of work certificate, completion of work certificate and wiring certificate.

¹² Experimental Evidence on the Demand for and Costs of Rural Electrification, (Lee, Miguel, & Wolfram, 2016)

¹³ Household Lighting Fuel Costs in Kenya, (Ondraczek, Stöver, Lay, & Jacobson, 2012).

¹⁴ Electrification rate in Kenya, (The World Bank, 2018b)

The communities are remote and far apart, which led to higher construction, implementation and operating costs. Private sector participation was limited due to the higher risk of financial loss and the large investment needed with uncertain return.

How inclusivity has been addressed

The identified practice is the lowering of the electricity connection fee and the availability of loan products to help increase the access rate.

Selection of communities

Communities were selected by constituency representatives and Members of the County Assembly (MCA), who shared the information with the Rural Electricity Authority (REA). The key criteria were whether the community already had access to electricity and its technical readiness¹⁵. Before houses could be connected, they needed to be technically ready, and cables and power points had to be installed before construction work started. The prioritisation of communities depended on the county's willingness to support certain communities. The REA's priorities were based on technical rather than social criteria – for example, Phase I included households within 600 metres from the existing grid, and in Phase II, this was extended to include all communities one to two kilometres from the existing grid. The second criterion to be met was a minimum population density per new transformer (included in Phase II), which had to be within a 600-metre radius of that transformer. The location of the new transformer was determined following a survey.

Determination of an affordable connection fee

Prior to the Program, the initial connection fee was USD 398 per household. In 2014, the World Bank, the Berkeley Energy and Climate Institute, and the Development Impact Lab, together with the Rural Electricity Authority (REA) and Kenya Power, responded to concerns that it was too costly. They conducted research to support the REA's estimate of a more appropriate connection fee and set up a database for subsequent projects. To support this process, a baseline survey was conducted in relation to 150 installed transformers¹⁶ in Busia and Siaya counties, identified as locations with vulnerable groups, in terms of economic development, low electrification rate and relative high-density population.

¹⁵ Technical readiness means the number of households that already have the required electrical distribution network inside the house.

¹⁶ Selection criteria included the following: distance between any two transformers was at least 1.6 kilometres, each transformer is an REA project and the transformer must have been in use for at least one year.

The research team visited communities and conducted surveys to build a sample database, which consisted of 12,001 surveyed unconnected households. As per the REA construction cost management plan, households that were within 600 metres of a transformer and also no more than 400 metres away from a low-voltage line were selected from this database. Based on that threshold, 2,504 households in total (including 2,289 unconnected and 215 connected) were studied in more detail to understand electricity spending patterns and preferences.

According to the results, each unconnected household had an average of 2.99 young people and the monthly lighting spend was USD 5.52, in comparison to USD 15.38 for the connected household. The research results showed that the demand for connection declines rapidly with an increase in connection fee. The theoretically accepted price point concluded from the survey was much lower than the price set by policymakers. Despite large investments in grid infrastructure in the past, the rate of connectivity was low even for relatively well-off households and businesses.

The focus of the practice addressed in this case study is on the connection fee only and does not consider the general electricity tariff and its affordability¹⁷.

Implementation

Reduced connection fee

In May 2015, the Ministry of Energy and Petroleum announced a reduction in the electricity connection fee from USD 398 to USD 171, which was enabled by public investments and subsidies. The lower connection fee is only applicable to households in communities covered under the Last Mile Connectivity Program, for which the Government of Kenya secured USD 364 million in funding from the African Development Bank, the World Bank and the European Investment Bank.

For those households unable to pay the connection fee at the time of connection, they can pay in instalments over three years. This translates to payments of USD 4-5 (KES 416) per month, which will be added to their monthly bill after they successfully apply for a Stima Loan¹⁸. The rationale for reducing the cost of the connection fee was the economies of scale that could be achieved – when one

¹⁷ The applicable electricity tariff for the 50-1500KWh usage band is KES 22.77 for domestic use. This is a significant increase from KES 16.18 in 2008. Since a peak in July 2014, the government aims to further reduce the tariffs through the introduction of new, low-cost power generation sources.

¹⁸ The Stima Loan Program has not been specifically created for the Last Mile Connectivity Program, however households covered by the project can make use of it. All customers are required to deposit 20% of the borrowed amount and pay an administration fee of 5%. They are advanced a loan valid for 24 months with no interest charges. Repayment of the loan commences one month after connection. (Kenya Power, 2018, September 12)

additional household connects, the cost per household becomes less expensive. The experimental average total cost (ATC) curve prepared by the research team showed the budgeted ATC per connection decreased as the proportion of the community connected increased. The ATC dropped dramatically from USD 3,500 per installation with no connections, to USD 1,000 with 15 homes connected¹⁹. This finding had major implications for the design of the project:

- the location of the transformer needed to cover as many households as possible, with a mandatory requirement to also connect a health centre; and
- the identified transformer coverage was limited to a 600-metre radius due to the technical limitations of the transformer and voltage loss.

The exact location of the transformer (and consequently, the households covered within the 600-metre radius) was determined following a site survey by the REA, which designed the network grid, prepared the budget and defined material requirements.



POLICY, REGULATION AND STANDARDS

How inclusivity has been addressed

The identified practice is the establishment of an independent energy regulator and an oversight authority tasked with enhancing connectivity and promoting socioeconomic development.

Implementation

Independent regulatory body

The most relevant legislation in relation to the project is the Kenya Energy Act No. 12 of 2016. It set up the Energy Regulatory Commission (ERC), an independent regulator responsible for formulating licensing procedures, issuing permits, making recommendations for further energy regulations, setting and adjusting tariffs, approving power purchase agreements (PPAs) and preparing national energy plans.

¹⁹ "Last Mile" Electrification study, (Lee, Miguel, & Wolfram, 2015)

Electricity oversight and promotion authority

Most relevant for the Last Mile Connectivity program is the Rural Electrification Authority (REA), established to enhance rural electrification in the country. As part of the program, the REA oversees the connection of potential customers located near installed transformers supplying public utilities. The REA became operational in July 2007 with the mandate of accelerating the pace of rural electrification to promote sustainable socioeconomic development.

Energy legislation

Under the Energy Act, the REA is tasked to undertake the following functions:

- manage the Rural Electrification Program Fund;
- develop and update the rural electrification master plan;
- promote the use of renewable energy sources including small hydro, wind, solar, biomass, geothermal, hybrid systems and oil-fired components, considering the specific needs of certain areas. For example, the potential for using electricity for irrigation and support for off-farm income generating activities;
- implementation and sourcing of additional funds for the rural electrification program; and
- management of the delineation, tendering and award of contracts for licences and permits for rural electrification.



STAKEHOLDER IDENTIFICATION, ENGAGEMENT AND EMPOWERMENT

How inclusivity has been addressed

The identified practice is the establishment of a dedicated stakeholder engagement team to coordinate with local leaders and members of the community.

Implementation

Community engagement

Public consultations aimed at understanding project impact and benefits, risks and potential mitigation measures started in January 2014.

Before any construction work could start, local communities and other stakeholders were consulted. The same group also participated in screening residents' actual electricity demand, identifying potential technical constraints to determine the key issues and agreeing how to address the concerns of various parties.

The REA assigned a team of consultants to undertake stakeholder engagement. The team worked with the local Member of the County Assembly and community leaders to organise regular gatherings where all households without access to electricity (including the most vulnerable, such as women and the households with the lowest income) were invited²⁰. At the end of the meetings, the team recorded the names and contact details of attendees. By doing so, the team established communication channels that they could use to secure buy-in as the project developed.




Communities located more than one to two kilometres from the existing electricity grid were not considered for electrification. Households located outside the 600-metre radius of the transformer were also unlikely to benefit. If a household beyond the 600 metres wished to be connected, a request could be made to Kenya Power. Subsequently, a survey would be conducted to identify how many other potential customers could benefit from the connection. A proposal for connecting them as part of a wider scheme is then made to spread the cost of connection among all the potential customers²¹.

Overall community engagement activities identified were general in nature. The case study has not identified any specific focus on women, young people or the extremely poor.

²⁰ The project follows the Environmental and Social Impact Assessment (ESIA) guidelines of the National Environment Management Authority (NEMA) of Kenya.

²¹ Last Mile Connectivity Program Q & A, (Kenya Power, 2018)

Benefits Realisation

Identified benefit	Benefit description
 <p>Increasing affordability and accessibility</p>	<p>The reduction of the connection fee from USD 398 to USD 171 increases the affordability of electricity. Furthermore, the Government of Kenya cooperates with external financiers to provide low-income families who cannot afford the fee with a loan package, allowing them to make payments by instalments through the Stima Loan Program. The following targets for the LMCP were set for each phase and progress is ongoing:</p> <p>Phase I: 314,200 households targeted</p> <p>Phase II: 312,500 households targeted</p> <p>Phase III: 385,700 households targeted</p> <p>Phase IV: 397,000 households targeted*¹</p>
 <p>Social equity and social stability</p>	<p>Access to electricity reduces social inequality, although this alone does not address all challenges to achieving social equity.</p> <p>Connecting communities to health clinics improves public access to health care services and further reduces disparities with other connected communities.</p>
 <p>Reducing poverty and income inequality</p>	<p>Communities targeted under the project are poor. Access to electricity increases their living standard through improved lighting, the ability to power electronic equipment, and their ability to pursue revenue generating and leisure activities. Nonetheless, a direct link between access to electricity and reduced income inequality could not be established in this case study.</p>

*¹ Last Mile Connectivity Program Q & A, (Kenya Power, 2018)

Kenya

Last Mile Connectivity Program



Source: Presentation for the World Bank
(http://cega.berkeley.edu/assets/miscellaneous_files/CEGA_Energy_REPP_June2015.pdf)

A government initiative to connect Kenyan households to the national electricity grid.

The Government of Kenya (GoK) has introduced a series of projects to stimulate economic growth and create jobs. They include the Last Mile Connectivity Program (LMCP), which aims to ensure everyone has access to electricity by 2020.

The project focuses on rural areas and slums where connectivity is poor. People who do not have access to electricity are unable to achieve the same standard of living as the households that do, and they have limited access to economic opportunities.

Connecting low-income households to electricity in rural areas has been a challenge for decades. This is because of the “high costs of supplying rural and peri-urban households” with electricity, a “lack of appropriate incentives”, “weak implementing capacity”, “population growth”, and the “cost of the internal wiring of consumers’ premises”¹.

The Last Mile Connectivity Program addresses some of these challenges by lowering the cost of connection from USD 398 (KES 35,000) to USD 171 (KES 15,000)² per household, with the help of subsidies. Subsidised loans are also available for households unable to afford this subsidised connection fee.

This project illustrates how to overcome the so-called “last mile”³ by reaching out to groups in society that did not benefit from previous electrification projects in Kenya. It also identifies socioeconomic and technical complexities that may need to be addressed in the long-term.

The Last Mile Connectivity Program follows the African Development Bank’s (AfDB) gender and social inclusion strategies for enhancing social benefits and implementing complementary activities. It also follows the environmental and social governance requirements of the National Environment Management Authority of Kenya (NEMA) and the World Bank.

¹ Development of a Power Generation and Transmission Master Plan, Kenya, (Lahmeyer International GmbH, 2016)

² Exchange rate used as per Economics of “Last Mile” Electrification study, (Lee, Miguel, & Wolfram, 2015)

³ In this case, the “last mile” in Phase I of the Program referred to the final connection to unserved households living within 600 metres of an existing transformer. In later phases, this was expanded to also include new transformers and the extension of the low-voltage network.

Project Overview

Key words	Affordability, access to electricity connection, pro-poor, rural
Sector	Energy
Background	The Last Mile Connectivity Program improves access to electricity in slums and rural areas in Kenya and aims to help achieve universal access. In April 2018, 73% of the population had access to electricity* ¹ .
Size	Phase I – III: USD 450 million total Phase IV: EUR 180 million
Stage	<p>Phase I: Financed jointly by the GoK with USD 150 million loan from the AfDB. It involved connecting households located within 600 metres of an existing transformer.</p> <p>Phase II: Financed by the GoK with USD 150 million loan from the World Bank. Targeted areas on the outskirts of cities and towns. Involved the installation of new transformers and the extension of the low-voltage network.</p> <p>Phase III: Financed by the GoK with USD 150 million loan from the AfDB. Involved the installation of new transformers and the extension of the low-voltage network.</p> <p>Phase IV: Financed by the GoK with EUR 90 million loan from the French Development Agency (Agence Française de Développement (AFD)), EUR 30 million grant from the European Union (EU) and EUR 60 million loan from the European Investment Bank (EIB). Involved increasing connections to distribution transformers and the installation of additional transformers.</p>
Why of interest	<ul style="list-style-type: none"> • Initiative aimed at increasing access to electricity in urban and rural areas • Study of rural households on sensitivity to price and demand for electrification • Specialised loan packages for people unable to afford the subsidised connection fee • Proximity of new transformers to public facilities in all communities, e.g. local health clinic to ensure connectivity
Project objectives	<ul style="list-style-type: none"> • Respond to the most urgent needs of the rural population regarding electricity connectivity • Support the country's objective to reach universal access by 2020 • Increase affordability by providing subsidies and loans, and lowering the connection fees
Project Lifecycle Assessment	<p>Project preparation – identifying the transformer location, consulting with the communities, and conducting surveys on technical readiness and project design, including budget.</p> <p>Project procurement – national legislation exists in Kenya to promote inclusion in procurement practices (however its implementation has not been assessed in this case study)*².</p> <p>Construction – stakeholder engagement, connecting households, fee collection and loan agreement as necessary.</p> <p>Project monitoring and evaluation – monitoring of active household connections and loan repayments.</p>

*¹ Kenya leads East Africa peers in access to electricity, (Kenya Power, 2018, May 8)

*² More details on government procurement legal requirements can be found at <https://www.agpo.go.ke/pages/about-agpo>

Project Description

In 2015, the government announced the Last Mile Connectivity Program to provide universal access to electricity by 2020. The ambitious strategy, which is being rolled out in phases, was developed based on international good practice and experience. It achieves economies of scale and aims to provide five million new connections in five years, primarily targeting informal settlements in urban areas and low-income households in rural areas. It has contributed to Kenya having one of the world's fastest rates of progress on the Sustainable Development Goal (SDG) 7 on access to electricity⁴. At the end of April 2018, 73.4% of people in Kenya had access to electricity, up from 56% in 2016⁵.

A study on barriers to electrification in rural Kenya in 2014⁶ identified that electrification rates were very low, despite previous significant investments in grid infrastructure. Taking a large sample of households, the study identified that half of the unconnected households were "under grid"⁷, or clustered within just 200 metres (m) of a low-voltage power line, where connecting to the grid should be relatively low-cost. It highlighted the potential opportunity to reduce energy poverty by targeting "last-mile" connections (the final stage of the electricity system) in "under grid" communities and argued that "to leverage existing infrastructure and economies of scale, subsidies and new approaches to financing connections are necessary".

Key challenges to achieving the goal of universal access include people's ability to afford the connection fee, their ability to pay electricity bills and the cost of wiring the house. Prior to 2015, the connection fee of USD 398 (KES 35,000)⁸ was considered high, relative to most households' annual income of below USD 1,000⁹. Residents in most low-income areas were unable to afford the cost of electrification, and viewed electricity as a luxury, which affects their willingness to pay. Households in rural areas prioritise spending on food and clothing and may prefer to spend their disposable income on social and leisure activities.

The absence of electricity due to affordability, income and willingness to pay may affect people's quality of life, and it prevents households from pursuing income generating activities. Children and other certain groups in society (e.g. women) trying to enhance their skills or take part in educational activities have fewer hours per day to read or study because they do not have quality lighting. Communities without access to electricity have a limited ability to operate health centres at night, which is essential for pregnant women and the critically ill. Furthermore, without electricity, health centres cannot operate basic electronic laboratory equipment or the fridges that store vaccinations and other items.

Working closely with the Rural Electricity Authority (REA), a group of researchers conducted a randomised evaluation to measure the price sensitivity of electricity connection. After gathering baseline data, the Ministry of Energy announced it would help families to get connected at a cost of USD 171 (KES 15,000). The Phase I criteria for applicants to enjoy the low connection fee was that the household needed to be within 600 metres of an existing transformer.

Though the poverty line was not explicitly considered during the community selection or prioritisation process for the Last Mile Connectivity Program, the communities were identified with the help of constituency representatives and the Members of the County Assembly. Many of these communities that do not have access to electricity are poor and have limited opportunities to improve their skills or engage in additional income-generating activities.

Given the financial and technical constraints, many Kenyans (off-grid and "under the grid") may obtain energy from private sector providers that have pioneered pay-as-you-go (PAYG) distribution models for off-grid solar devices and mini-grids¹⁰. The complementary interface of off-grid solutions with traditional grid extension has been recognised by the Government of Kenya and the World Bank. Both institutions support the Kenya Off-grid Solar Access Project (KOSAP), launched in 2018. Its aim is to expand electricity services to under-served areas through mini-grids and off-grid solar devices. KOSAP will run alongside the Last Mile Connectivity Program.

⁴ Tracking SDG7: The Energy Progress Report 2018, pages 2-3 (The World Bank, 2018a)

⁵ The World Bank Database shows that in 2016, the overall electrification rate in Kenya was 56% (with the rural electrification rate being 39% and urban 77.6%).

⁶ Barriers to Electrification for "Under-Grid" Households in Rural Kenya (Kenneth Lee, E. B., 2014)

⁷ "Under the grid" refers to households that are close to a low-voltage line, and should be able to connect at a relatively low cost, but for various reasons may still not be connected.

⁸ Exchange rate used as per Economics of "Last Mile" Electrification study, (Lee, Miguel, & Wolfram, 2015)

⁹ Rural Electric Power: Evaluation of Household Electricity Connections in Kenya, Innovation for Poverty Action and Kenya Power (Innovations for Poverty Action (IPA), 2015)

¹⁰ Knowledge from Atkins' ongoing energy access projects in East Africa and experts based in Kenya. In Kenya, it is estimated that over three million off-grid solar devices have been distributed since 2014, Off-Grid Solar Market Trends Report 2018 (Global Off-Grid Lighting Association (GOGLA), 2018).

The LMCP illustrates a number of Action Areas on inclusive infrastructure. Most relevant from an inclusivity perspective is the effort to optimise the electricity connection fee to make access more affordable to households not yet connected to the grid, relevant to the Action Area on **Affordability and Optimising Finance**. The project features elements of policy (Action Area: **Policy, Regulation and Standards**) and of active community engagement (Action Area: **Stakeholder Identification, Engagement and Empowerment**). The focus is on 'energy poverty', often in low-income communities, while separate consideration was given to specific groups, such as women and children.

Key Practices Identified and Applied



AFFORDABILITY AND OPTIMISING FINANCE

Statement of the issue in relation to inclusion and brief introduction

Prior to 2015, the electricity connection fee, at a fixed price of USD 398, was unaffordable for households in low-income areas. In addition, households had to pay the upfront in-house wiring costs¹¹, buy electric appliances and pay the electricity bills. Many people viewed the connection as a luxury and were not willing to pay for it, even if they could afford it¹².

In many low-income households, the electricity they use will be for lighting. Based on 2005 and 2006 data, the median monthly expenditure per household on kerosene for lighting was USD 1.55 (KES 156), while the median expenditure on electricity per household was USD 3.30 (KES 332)¹³. The difference created a perception that electricity costs are high, and many households preferred the cost of continued use of kerosene for lighting.

The demand for electricity connections remained low, especially in rural areas, because of the economy, household income and expenditure structure. The need for food and clothing was prioritised over the use of electricity. Even when households were given financial assistance and offered subsidised connection fees, the electrification rate in rural areas was just 39% in 2016¹⁴.

There were other challenges too, including a shortage of investment and difficult geography.

¹¹ The household needs to engage a qualified electrical contractor who is registered by the Energy Regulatory Commission to do the wiring and issue the commencement of work certificate, completion of work certificate and wiring certificate.

¹² Experimental Evidence on the Demand for and Costs of Rural Electrification, (Lee, Miguel, & Wolfram, 2016)

¹³ Household Lighting Fuel Costs in Kenya, (Ondraczek, Stöver, Lay, & Jacobson, 2012).

¹⁴ Electrification rate in Kenya, (The World Bank, 2018b)

The communities are remote and far apart, which led to higher construction, implementation and operating costs. Private sector participation was limited due to the higher risk of financial loss and the large investment needed with uncertain return.

How inclusivity has been addressed

The identified practice is the lowering of the electricity connection fee and the availability of loan products to help increase the access rate.

Selection of communities

Communities were selected by constituency representatives and Members of the County Assembly (MCA), who shared the information with the Rural Electricity Authority (REA). The key criteria were whether the community already had access to electricity and its technical readiness¹⁵. Before houses could be connected, they needed to be technically ready, and cables and power points had to be installed before construction work started. The prioritisation of communities depended on the county's willingness to support certain communities. The REA's priorities were based on technical rather than social criteria – for example, Phase I included households within 600 metres from the existing grid, and in Phase II, this was extended to include all communities one to two kilometres from the existing grid. The second criterion to be met was a minimum population density per new transformer (included in Phase II), which had to be within a 600-metre radius of that transformer. The location of the new transformer was determined following a survey.

Determination of an affordable connection fee

Prior to the Program, the initial connection fee was USD 398 per household. In 2014, the World Bank, the Berkeley Energy and Climate Institute, and the Development Impact Lab, together with the Rural Electricity Authority (REA) and Kenya Power, responded to concerns that it was too costly. They conducted research to support the REA's estimate of a more appropriate connection fee and set up a database for subsequent projects. To support this process, a baseline survey was conducted in relation to 150 installed transformers¹⁶ in Busia and Siaya counties, identified as locations with vulnerable groups, in terms of economic development, low electrification rate and relative high-density population.

¹⁵ Technical readiness means the number of households that already have the required electrical distribution network inside the house.

¹⁶ Selection criteria included the following: distance between any two transformers was at least 1.6 kilometres, each transformer is an REA project and the transformer must have been in use for at least one year.

The research team visited communities and conducted surveys to build a sample database, which consisted of 12,001 surveyed unconnected households. As per the REA construction cost management plan, households that were within 600 metres of a transformer and also no more than 400 metres away from a low-voltage line were selected from this database. Based on that threshold, 2,504 households in total (including 2,289 unconnected and 215 connected) were studied in more detail to understand electricity spending patterns and preferences.

According to the results, each unconnected household had an average of 2.99 young people and the monthly lighting spend was USD 5.52, in comparison to USD 15.38 for the connected household. The research results showed that the demand for connection declines rapidly with an increase in connection fee. The theoretically accepted price point concluded from the survey was much lower than the price set by policymakers. Despite large investments in grid infrastructure in the past, the rate of connectivity was low even for relatively well-off households and businesses.

The focus of the practice addressed in this case study is on the connection fee only and does not consider the general electricity tariff and its affordability¹⁷.

Implementation

Reduced connection fee

In May 2015, the Ministry of Energy and Petroleum announced a reduction in the electricity connection fee from USD 398 to USD 171, which was enabled by public investments and subsidies. The lower connection fee is only applicable to households in communities covered under the Last Mile Connectivity Program, for which the Government of Kenya secured USD 364 million in funding from the African Development Bank, the World Bank and the European Investment Bank.

For those households unable to pay the connection fee at the time of connection, they can pay in instalments over three years. This translates to payments of USD 4-5 (KES 416) per month, which will be added to their monthly bill after they successfully apply for a Stima Loan¹⁸. The rationale for reducing the cost of the connection fee was the economies of scale that could be achieved – when one

¹⁷ The applicable electricity tariff for the 50-1500KWh usage band is KES 22.77 for domestic use. This is a significant increase from KES 16.18 in 2008. Since a peak in July 2014, the government aims to further reduce the tariffs through the introduction of new, low-cost power generation sources.

¹⁸ The Stima Loan Program has not been specifically created for the Last Mile Connectivity Program, however households covered by the project can make use of it. All customers are required to deposit 20% of the borrowed amount and pay an administration fee of 5%. They are advanced a loan valid for 24 months with no interest charges. Repayment of the loan commences one month after connection. (Kenya Power, 2018, September 12)

additional household connects, the cost per household becomes less expensive. The experimental average total cost (ATC) curve prepared by the research team showed the budgeted ATC per connection decreased as the proportion of the community connected increased. The ATC dropped dramatically from USD 3,500 per installation with no connections, to USD 1,000 with 15 homes connected¹⁹. This finding had major implications for the design of the project:

- the location of the transformer needed to cover as many households as possible, with a mandatory requirement to also connect a health centre; and
- the identified transformer coverage was limited to a 600-metre radius due to the technical limitations of the transformer and voltage loss.

The exact location of the transformer (and consequently, the households covered within the 600-metre radius) was determined following a site survey by the REA, which designed the network grid, prepared the budget and defined material requirements.



POLICY, REGULATION AND STANDARDS

How inclusivity has been addressed

The identified practice is the establishment of an independent energy regulator and an oversight authority tasked with enhancing connectivity and promoting socioeconomic development.

Implementation

Independent regulatory body

The most relevant legislation in relation to the project is the Kenya Energy Act No. 12 of 2016. It set up the Energy Regulatory Commission (ERC), an independent regulator responsible for formulating licensing procedures, issuing permits, making recommendations for further energy regulations, setting and adjusting tariffs, approving power purchase agreements (PPAs) and preparing national energy plans.

¹⁹ "Last Mile" Electrification study, (Lee, Miguel, & Wolfram, 2015)

Electricity oversight and promotion authority

Most relevant for the Last Mile Connectivity program is the Rural Electrification Authority (REA), established to enhance rural electrification in the country. As part of the program, the REA oversees the connection of potential customers located near installed transformers supplying public utilities. The REA became operational in July 2007 with the mandate of accelerating the pace of rural electrification to promote sustainable socioeconomic development.

Energy legislation

Under the Energy Act, the REA is tasked to undertake the following functions:

- manage the Rural Electrification Program Fund;
- develop and update the rural electrification master plan;
- promote the use of renewable energy sources including small hydro, wind, solar, biomass, geothermal, hybrid systems and oil-fired components, considering the specific needs of certain areas. For example, the potential for using electricity for irrigation and support for off-farm income generating activities;
- implementation and sourcing of additional funds for the rural electrification program; and
- management of the delineation, tendering and award of contracts for licences and permits for rural electrification.



STAKEHOLDER IDENTIFICATION, ENGAGEMENT AND EMPOWERMENT

How inclusivity has been addressed

The identified practice is the establishment of a dedicated stakeholder engagement team to coordinate with local leaders and members of the community.

Implementation

Community engagement

Public consultations aimed at understanding project impact and benefits, risks and potential mitigation measures started in January 2014.

Before any construction work could start, local communities and other stakeholders were consulted. The same group also participated in screening residents' actual electricity demand, identifying potential technical constraints to determine the key issues and agreeing how to address the concerns of various parties.

The REA assigned a team of consultants to undertake stakeholder engagement. The team worked with the local Member of the County Assembly and community leaders to organise regular gatherings where all households without access to electricity (including the most vulnerable, such as women and the households with the lowest income) were invited²⁰. At the end of the meetings, the team recorded the names and contact details of attendees. By doing so, the team established communication channels that they could use to secure buy-in as the project developed.




Communities located more than one to two kilometres from the existing electricity grid were not considered for electrification. Households located outside the 600-metre radius of the transformer were also unlikely to benefit. If a household beyond the 600 metres wished to be connected, a request could be made to Kenya Power. Subsequently, a survey would be conducted to identify how many other potential customers could benefit from the connection. A proposal for connecting them as part of a wider scheme is then made to spread the cost of connection among all the potential customers²¹.

Overall community engagement activities identified were general in nature. The case study has not identified any specific focus on women, young people or the extremely poor.

²⁰ The project follows the Environmental and Social Impact Assessment (ESIA) guidelines of the National Environment Management Authority (NEMA) of Kenya.

²¹ Last Mile Connectivity Program Q & A, (Kenya Power, 2018)

Benefits Realisation

Identified benefit	Benefit description
 <p>Increasing affordability and accessibility</p>	<p>The reduction of the connection fee from USD 398 to USD 171 increases the affordability of electricity. Furthermore, the Government of Kenya cooperates with external financiers to provide low-income families who cannot afford the fee with a loan package, allowing them to make payments by instalments through the Stima Loan Program. The following targets for the LMCP were set for each phase and progress is ongoing:</p> <p>Phase I: 314,200 households targeted</p> <p>Phase II: 312,500 households targeted</p> <p>Phase III: 385,700 households targeted</p> <p>Phase IV: 397,000 households targeted*¹</p>
 <p>Social equity and social stability</p>	<p>Access to electricity reduces social inequality, although this alone does not address all challenges to achieving social equity.</p> <p>Connecting communities to health clinics improves public access to health care services and further reduces disparities with other connected communities.</p>
 <p>Reducing poverty and income inequality</p>	<p>Communities targeted under the project are poor. Access to electricity increases their living standard through improved lighting, the ability to power electronic equipment, and their ability to pursue revenue generating and leisure activities. Nonetheless, a direct link between access to electricity and reduced income inequality could not be established in this case study.</p>

*¹ Last Mile Connectivity Program Q & A, (Kenya Power, 2018)

Stakeholders

Key beneficiaries	Role
Communities without electricity access, poor people in rural areas	The key role of these groups is to be present in the engagement and consultation process and participate in the project while sharing their views and concerns. As the main target group and beneficiary, this group is viewed as the key stakeholder. The households who cannot afford the connection fee are involved in the consultation before construction work, and they are provided with a subsidised price and financial assistance (if they are unable to afford the connection fee, they are allowed to pay through instalments for a period of three years).
Institutional stakeholders and partners	Role
Rural Electrification Authority (REA)	REA is a government entity charged with implementing the Rural Electrification Program and has been operating since July 2007. It is responsible for the project design, procurement and construction of the new electrification systems in the communities. When the projects are complete, they are handed over to Kenya Power.
Ministry of Energy	The ministry is charged with the development of energy resources for national development and ensuring every Kenyan has access to electricity by 2020.
Kenya Power and Lighting Company (KPLC)	Kenya Power, also referred to as Kenya Power and Lighting Company (KPLC), is a limited liability company with a 50.1% public controlling stake which transmits, distributes and retails electricity to customers throughout Kenya.
African Development Bank (AfDB)	Financier of the loan package provided to the Government of Kenya, which is partly used to provide subsidies to households that cannot afford the cost of the connection fee.
World Bank	Financier of the loan package provided to the Government of Kenya in support of Phase II of the Program, which covers all 47 counties targeting peri-urban areas.
Agence Française de Développement (AFD)	Financier of a loan package provided to the Government of Kenya in support of Phase IV of the Program, which involves the maximisation of existing distribution transformers and the installation of additional ones.
European Investment Bank (EIB)	Financier of a loan package provided to the Government of Kenya in support of Phase IV of the Program, which involves the maximisation of existing distribution transformers and the installation of additional ones.
European Union (EU)	Provider of a grant to the Government of Kenya in support of Phase IV of the Program, which involves the maximisation of existing distribution transformers and the installation of additional ones.

Stakeholders

Key beneficiaries	Role
Communities without electricity access, poor people in rural areas	The key role of these groups is to be present in the engagement and consultation process and participate in the project while sharing their views and concerns. As the main target group and beneficiary, this group is viewed as the key stakeholder. The households who cannot afford the connection fee are involved in the consultation before construction work, and they are provided with a subsidised price and financial assistance (if they are unable to afford the connection fee, they are allowed to pay through instalments for a period of three years).
Institutional stakeholders and partners	Role
Rural Electrification Authority (REA)	REA is a government entity charged with implementing the Rural Electrification Program and has been operating since July 2007. It is responsible for the project design, procurement and construction of the new electrification systems in the communities. When the projects are complete, they are handed over to Kenya Power.
Ministry of Energy	The ministry is charged with the development of energy resources for national development and ensuring every Kenyan has access to electricity by 2020.
Kenya Power and Lighting Company (KPLC)	Kenya Power, also referred to as Kenya Power and Lighting Company (KPLC), is a limited liability company with a 50.1% public controlling stake which transmits, distributes and retails electricity to customers throughout Kenya.
African Development Bank (AfDB)	Financier of the loan package provided to the Government of Kenya, which is partly used to provide subsidies to households that cannot afford the cost of the connection fee.
World Bank	Financier of the loan package provided to the Government of Kenya in support of Phase II of the Program, which covers all 47 counties targeting peri-urban areas.
Agence Française de Développement (AFD)	Financier of a loan package provided to the Government of Kenya in support of Phase IV of the Program, which involves the maximisation of existing distribution transformers and the installation of additional ones.
European Investment Bank (EIB)	Financier of a loan package provided to the Government of Kenya in support of Phase IV of the Program, which involves the maximisation of existing distribution transformers and the installation of additional ones.
European Union (EU)	Provider of a grant to the Government of Kenya in support of Phase IV of the Program, which involves the maximisation of existing distribution transformers and the installation of additional ones.

Lessons Learned

Success factors

Reducing the electricity access connection fee is the key success factor. The baseline study of willingness to pay was conducted at the planning stage, early enough to influence the overall project design and to determine an affordable fee. As a result, the Government of Kenya lowered the price by almost 60% for certain households and provides a loan package to finance the upfront cost.

Stakeholder engagement in the project planning and assessment process was important. Stakeholders were consulted during the project planning and implementation stages.

The cost-benefit trade-off finding was also crucial. The average total cost per connection decreases as the number of people connected increases, hence the requirement to have a minimum number of households within a 600-metre radius of the transformer. There is a clear cost/benefit ratio. The downside is that households beyond the 600-metre radius do not get electricity access, creating exclusion. They can submit a special request and will be issued with a proposal to be connected, but with associated costs. People can then decide to accept the proposal or wait until subsequent phases are implemented.



Figure 1. Customers completing household surveys. Source: Presentation for the World Bank (http://cega.berkeley.edu/assets/miscellaneous_files/CEGA_Energy_REPP_June2015.pdf)



Figure 2. Kenya Power installs prepaid meters, Source: Presentation for the World Bank (http://cega.berkeley.edu/assets/miscellaneous_files/CEGA_Energy_REPP_June2015.pdf)

Key challenges

Public funding constraints are a key challenge for Kenya's infrastructure development authorities in general. Low population density and low incomes in rural areas lead to higher investment requirements. The remote location of the projects and uncertainty over payments from households add to the problem.

A lack of detailed socioeconomic data in gender, income levels and age makes it difficult to develop specific solutions for vulnerable groups. The collection of detailed and disaggregated data is costly and requires a long-term perspective to realise benefits.

Cost of electricity access is still high for many households. Although affordability has increased, in many poor households, household incomes still do not cover the payments required to maintain a connection and willingness to pay is low, given other priorities such as food and clothing. In households where there is limited use and affordability of electrical appliances, it may be appropriate to consider lower levels of access than the grid connections, such as household solar, which allows for lighting and phone charging.

References

01. Bloomberg New Energy Finance . (2018). *Powering Last-Mile Connectivity* . Bloomberg. Retrieved from <https://data.bloomberglp.com/bnef/sites/14/2018/02/Powering-Last-Mile-Connectivity-BNEF-and-Facebook.pdf>
02. Costa, D. L. (2013). *Energy conservation "nudges" and environmentalist ideology: Evidence from a randomized residential electricity field experiment*. Journal of the European Economic Association, 11(3), 680-702.
03. Global Off-Grid Lighting Association (GOGLA). (2018). *Off-Grid Solar Market Trends Report 2018*. International Finance Corporation. Retrieved from https://www.lightingglobal.org/wp-content/uploads/2018/02/2018_Off_Grid_Solar_Market_Trends_Report_Summary.pdf
04. Innovations for Poverty Action (IPA). (2015). *Rural Electric Power: Evaluation of Household Electricity Connections in Kenya, Innovation for Poverty Action and Kenya Power*. Innovations for Poverty Action (IPA). Retrieved from <https://www.poverty-action.org/printpdf/7531>
05. Kenneth Lee, E. B. (2014). *Barriers to Electricity for "Under Grid" Household in Rural Kenya*. National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w20327>
06. Kenya Power. (2016). *Environmental and Social Screening Project Report for Last Mile Connectivity Project*. Kenya Power. Retrieved from http://kplc.co.ke/img/full/OGfvfctWGnhz_LMCP-ENVIRONMENTAL%20SCREENING%20REPORT%202016.pdf
07. Kenya Power. (2018). *Last Mile Connectivity Program Q & A*. Kenya Power. Retrieved from <http://www.kplc.co.ke/content/item/1694/last-mile-connectivity-program-q--a>
08. Kenya Power. (2018, May 8). *Kenya leads East Africa peers in access to electricity*. Kenya Power. Retrieved from <http://www.kplc.co.ke/content/item/2485/kenya-leads-east-africa-peers-in-access-to-electricity>
09. Kenya Power. (2018, September 12). *Stima Loan*. Kenya Power. Retrieved from <http://kplc.co.ke/content/item/77/stima-loan>
10. Lahmeyer International GmbH. (2016). *Development of a Power Generation and Transmission Master Plan, Kenya: Long Term Plan*. Ministry of Energy and Petroleum, Kenya. Retrieved from <https://www.erc.go.ke/power-generation-and-transmission-master-plan-kenya-long-term-plan-energy-efficiency/>
11. Lee, K., Miguel, E., & Wolfram, C. (2015). *Economics of "Last Mile" Electrification*. Washington, D.C: The World Bank. Retrieved from http://cega.berkeley.edu/assets/miscellaneous_files/CEGA_Energy_REPP_June2015.pdf
12. Lee, K., Miguel, E., & Wolfram, C. (2016). *Experimental evidence on the demand for and costs of rural electrification*. National Bureau of Economic Research. Retrieved from https://economics.stanford.edu/sites/default/files/leemiguelwolfram_2016-04-19.pdf
13. Ondraczek, J., Stöver, J., Lay, J., & Jacobson, A. (2012). *Household Lighting Fuel Costs in Kenya*. Market Intelligence Note (2), p. 9. Retrieved from <https://www.lightingafrica.org/wp-content/uploads/2016/07/LightingAfrica-KenyaKeroseneUse-Dec2012-rev.pdf>
14. The World Bank. (2018a). *Tracking SDG7: The Energy Progress Report*. Energy Sector Management Assistance Program (ESMAP). Retrieved from <https://trackingsdg7.esmap.org/downloads>
15. The World Bank. (2018b). *The World Bank Database*. Retrieved from <https://data.worldbank.org/>
16. The World Bank Group. (2006). *Kenya Energy Act 2006*. Public-Private-Partnership Legal Resource Center. Retrieved from <https://ppp.worldbank.org/public-private-partnership/library/kenya-energy-act-2006>
17. The World Bank Group, Energy Sector Management Assistance Program (ESMAP) & Climate Investment Funds. (2017). *Mini Grids in Kenya: A Case Study of A Market At A Turning Point*. Washington DC 20433: The International Bank for Reconstruction and Development, The World Bank Group. Retrieved from <http://documents.worldbank.org/curated/en/792001512392701402/pdf/ESM-cKenyaMiniGridsCaseStudyConfEd-PUBLIC.pdf>

Interviews

Interview with Esther Ruto (18 June 2018), General Manager Technical Services with Rural Electrification Authority, Last Mile Connectivity Program. (A. Keller, Interviewer)