



# STAR REPORT **MALAWI**

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**April 7, 2011**  
Entry into Force  
**September 20, 2013**  
Compact End Date  
**September 20, 2018**

April 2020



**MILLENNIUM**  
CHALLENGE CORPORATION  
UNITED STATES OF AMERICA



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Construction nears completion at the 400kv Nkhoma Substation—a significant transmission upgrade completed as part of MCC's \$350.7 million compact with Malawi.

Andrew Ladson

## EXECUTIVE SUMMARY

The Millennium Challenge Corporation (MCC) partnered with the Republic of Malawi—one of the world's poorest countries—to implement a \$350.7 million compact designed to reduce poverty through economic growth. During compact development, MCC and the Government of Malawi (GOM) determined power to be a key constraint to sustained economic growth in Malawi. At that time, only 9 percent of Malawians and less than 1 percent of the country's rural population had access to electricity. The power sector's failures resulted from inadequate policies and poor sector governance, which have historically stifled investment in the country's power infrastructure.

The Malawi Compact took a systemic approach to strengthening the nation's power sector, recognizing the need for infrastructure, policy reform, and environmental management to comprehensively drive the sector forward as no one of these investments alone would result in sustainable change. The compact consisted of three projects aimed at addressing the country's inadequate and unreliable power supply: the Infrastructure Development Project; the Power Sector Reform Project; and the Environmental and Natural Resource Management Project. In addition, the compact included actions to mitigate social and gender risks related to the projects, including prevention of HIV/AIDS, Trafficking in Persons, and sexual harassment within the Infrastructure Development Project; the compact also included measures to optimize potential benefits to women and local communities, for example, by promoting women's economic



empowerment through job opportunities in the construction sites and through institutional policy reforms to incentivize women's participation within the energy sector.

The overall investment was designed to establish the foundation for a modern power sector upon which the GOM, private investors, and regional partners will have an opportunity to build. The compact supported the most urgent rehabilitation, upgrades, and modernization needs of the power network in order to availability, reliability, and quality of power supply in the country. The compact sought to increase capacity for the power system, develop skills for workers, and through policy reforms to position the GOM to continue progress in the sector. Importantly, the compact supported the creation of an enabling environment for private sector participation in the energy sector. Over time, compact investments are expected to stimulate growth by raising the productivity and profitability of enterprises in key growth sectors such as the agriculture, manufacturing, mining and service sectors; increasing investment and employment income; reducing energy costs to enterprises and households; and expanding access to electricity for Malawians

At the end of compact implementation, MCC and the GOM estimated that the compact investment will generate \$768.4 million worth of net benefits over the next 20 years. The significant infrastructure works were successfully completed, while the results of the compact's difficult policy and institutional reforms were mixed. New generation is forthcoming, but so far is lagging expectations.

In addition to these preliminary results and in line with MCC's commitment to accountability, learning, transparency, and evidence-based decision making, MCC has commissioned independent evaluations of each of the three projects under the compact. These evaluations are conducted by independent experts and subsequently published on our website. Once those evaluations are complete, this report will also be updated to include their findings.

## INFRASTRUCTURE DEVELOPMENT PROJECT

Available and reliable power is a necessity for businesses, homes, medical facilities, and schools, but it has not been available for most Malawians. Enabling the provision of and access to power is critical to economic growth and poverty reduction in Malawi.

The Infrastructure Development Project sought to improve the availability, reliability, and quality of the power supply in Malawi. The project investments in transmission and distribution infrastructure resulted in increased throughput capacity—the volume of electricity that can flow through the system with limited losses—and improved stability

of the electricity grid.<sup>1</sup> The project also supported power availability with the refurbishment of the Nkula A hydropower station.<sup>2</sup>

## POWER SECTOR REFORM PROJECT

Reliable, sustainable power for Malawi requires a stronger infrastructure base. However, these investments must be supported by well-managed utilities, an open and competitive market, and a strong regulatory framework that lead to investments in grid capacity and generation, particularly by the private sector. The Power Sector Reform Project aimed to both improve the capacity and financial viability of Malawi's electric utility and create an enabling environment for future investment in and expansion of the power sector.

The Power Sector Reform Project complemented the Infrastructure Development Project by providing support for the Government's policy reform agenda and building capacity in pivotal sector institutions, specifically: the Electricity Supply Corporation of Malawi (ESCOM)—Malawi's public electricity utility, the Malawi Energy Regulatory Authority, and the Ministry of Natural Resources, Energy and Mining. The compact also supported the restructuring of Malawi's energy market based on the Government's preferred option, leading to amendment of the Electricity Act and unbundling of ESCOM to create two utilities—ESCOM (a transmission and distribution company) and EGENCO (a generation company)—and preparation of new regulatory rules and guidelines. The Power Sector Reform Project consisted of two activities: the ESCOM Turnaround Activity and the Regulatory Strengthening Activity.

## ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT (ENRM) PROJECT

The three districts along the Shire River are home to the bulk of Malawi's population and approximately 98 percent of the country's energy is generated by the three hydroelectric power plants located on the river. Extremely poor and food insecure, most of Malawi's population ekes out a living through hillside, small-scale agriculture, the cutting of firewood, and charcoal production. Consequently, the hydropower plants are threatened by soil erosion from the hillsides and the population of invasive aquatic weeds has exploded due to soil nutrients spurring growth. Poor land management practices and rapid deforestation have further contributed to a cycle of continued food insecurity and increased deforestation.

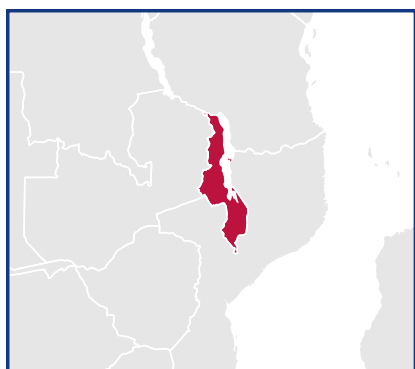
The objective of the ENRM Project was to help the GOM and other stakeholders mitigate the growing problems of aquatic weed infestation and excessive sedimentation in the

<sup>1</sup> Transmission refers to the bulk movement of high-voltage electrical energy from where it is generated (such as a power plant) to an electrical substation. Distribution refers to the local wiring from substations to consumers.

<sup>2</sup> This activity was also supported by complementary funds from the GOM.

Shire River and to reduce costly disruptions to Malawi's downstream hydropower generation by investing in weed and sediment management and the implementation of better environmental and natural resource management in upstream areas. The project consisted of three activities: the Weed and Sediment Management Activity; the Environment and Natural Resource Management Activity; and the Social and Gender Enhancement Fund.

## COUNTRY CONTEXT



Malawi is a landlocked country in southeast, sub-Saharan Africa, which gained independence from the United Kingdom in 1964. The country is split into three regions (southern, central, and northern) with its capital, Lilongwe, in the central region and commercial hub, Blantyre, in the southern region.

Malawi's estimated population as of 2019 is approximately 18 million people. It is one of sub-Saharan Africa's most densely populated countries, with high levels of poverty and inequality, due to an economy heavily based on agricultural production. At the compact's signing in 2011, an estimated 71 percent of the Malawian population lived on less than \$1.90 a day, and the gross national income per capita stood at approximately \$280.<sup>3</sup> Poverty in Malawi is driven by a poorly performing agricultural sector, unstable economic growth, and limited business opportunities.<sup>4</sup>

MCC's relationship with Malawi dates back to December 2004, when it was initially selected for a Threshold Program by MCC's Board of Directors. At the time of selection, Malawi did not pass the MCC scorecard because it failed the Control of Corruption indicator, a must-pass indicator. The \$20.9 million threshold program focused on fighting corruption using a multi-pronged approach of reducing opportunities for corruption and strengthening the government's ability to manage and monitor its finances.<sup>5</sup> During the course of the threshold program, which lasted from September 2005 to October 2008, Malawi improved its performance on the Control of Corruption indicator, subsequently passing both the indicator and the FY2008 scorecard overall. It has continued to pass the scorecard since then.

MCC's Board selected Malawi to develop a compact in December 2007. In 2008, the Government of Malawi, with support from a team of MCC economists, conducted constraints to economic growth and root cause analyses. These analyses found that Malawi was experiencing substantial and consistent power outages of 8 to 12 hours a

<sup>3</sup> <https://www.mcc.gov/who-we-fund/scorecard/fy-2011/MW>

<sup>4</sup> <http://www.worldbank.org/en/country/malawi/overview>

<sup>5</sup> <https://www.mcc.gov/where-we-work/program/malawi-threshold-program>



day, creating significant challenges for both businesses and households. In 2009, Malawi had an installed capacity of only around 284 MW, with an access to electricity level of approximately 5-9 percent (only about 1 percent in rural areas), and per capita supply at approximately 90 kilowatt hours (kWh) per year. Meanwhile the demand for electricity was estimated to be 295 MW and expected to grow to 478 MW by 2015 and 757 MW by 2020. Malawi's power sector was clearly falling behind many of its peers in sub-Saharan Africa and not meeting the needs of Malawians.<sup>6</sup> This rapidly deteriorating situation cost businesses and households hundreds of millions of dollars per year in lost productivity, higher costs of living, and reduced employment income.

A number of stakeholders—including some of the most important and largest businesses in the country—noted that problems in the power sector were creating financial difficulties, which in some cases led to companies foregoing or abandoning investments in Malawi. The analyses also noted that Malawi's ability to diversify its economy beyond agriculture, particularly in rural areas, was being constrained by lack of reliable electricity. Prospects for sustaining growth and diversifying economic production were poor, and delivery of health and education services were adversely impacted. Much of this lost growth represented lost poverty reduction as well.

Within the power sector, in addition to the lack of generation capacity, deteriorating conditions at existing power plants, and an aging and overloaded electricity network, were identified as the leading causes of the high losses and frequent network outages. The condition of the power grid had degraded due a prolonged period of underinvestment in network maintenance and expansion, including limited additions of new generation capacity to match growing demand for electricity. Significant investments were needed to ensure that Malawi's power sector could fulfill the needs of a growing population and goals for a more modern, diversified economy. Without an adequate power supply to service existing customers or expand access, goals for economic growth and poverty reduction would not be met.

MCC feasibility studies estimated that Malawi would need more than \$2.5 billion for the rehabilitation, modernization, and expansion of the entire transmission and distribution system, as well as the increased generation capacity, if the country was to reach its goal of substantially increasing electrification rates by 2020. Therefore, critical investments in infrastructure were identified as a clear need to support the Government of Malawi's objective to increase the reliability of electricity service and support future growth in the country's electrification rate. By investing in Malawi's limited electricity network, it was believed that the compact could serve as a catalyst and lay the foundation for additional investment in generation, especially from the private sector.

<sup>6</sup> Taulo, John L; Gon dwe, Kenneth Joseph; SEBITOSI, Adoniya Ben. *Energy Supply In Malawi: Options And Issues*. J. Energy South. Afr., Cape Town , V. 26, N. 2, P. 19-32, May 2015

However, it was clear that investments in infrastructure alone would not be sufficient to resolve the constraint posed by poor electricity services. Without improvements in the overall management of the power sector, there was a risk that conditions would again deteriorate following completion of the compact and that the private sector investment in Malawi's power sector would not continue. Compared to its neighboring countries, Malawi had yet to adopt significant sector improvements, including those sector and governance reforms that have proven to be successful in rapidly expanding electricity supply and access in similar contexts.

The Government initiated steps in 2004 to improve the trajectory of the country's power sector, including the introduction of an independent regulator (Malawi Energy Regulatory Authority or MERA), changes to management at the public electricity utility (Electricity Supply Corporation of Malawi or ESCOM), and an updated Electricity Act. (The primary stakeholders in Malawi's power sector and their roles at the time of compact development are captured in Figure 1.) However, further action was needed to reach the country's goals. To build on those previous reform actions taken by the Government, the compact aimed to both improve the capacity and financial viability of Malawi's electric utility and create an enabling environment for future investment in and expansion of the power sector through activities focused on strengthening sector institutions, in addition to promoting sector reform and regulation.

Malawi's energy sector was also constrained by its dependence on hydro-electric power. Approximately 98 percent of Malawi's energy generation comes from a series of hydro-powered plants along the Shire River, which are susceptible to adverse hydrological

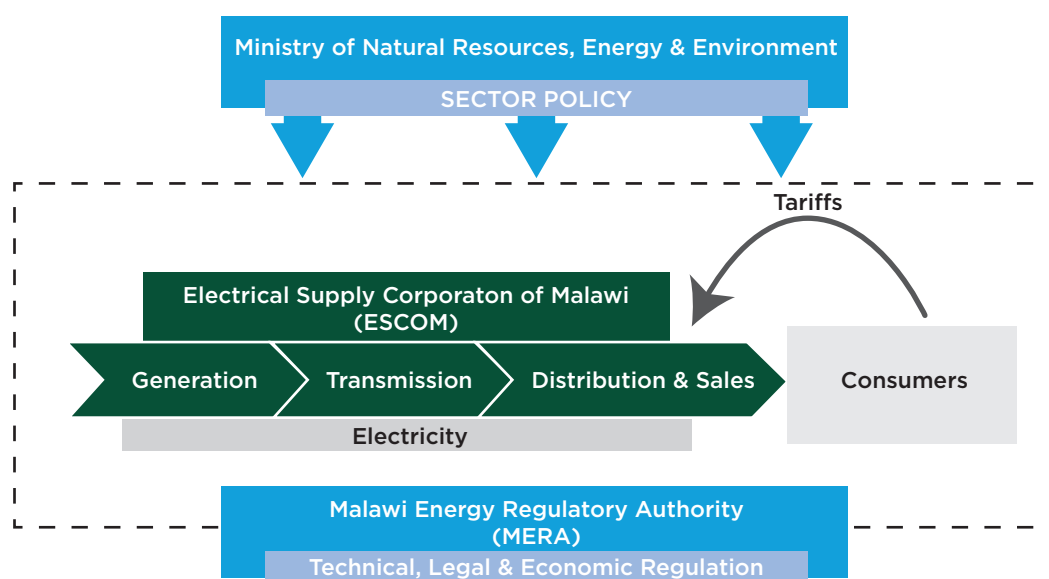


Figure 1: Malawi Power Sector Structure at the time of Compact Development

conditions such as droughts and sediment build-up that significantly reduce hydropower efficiencies and production capacity. Improvements to the power sector that were envisioned under the reform initiatives would ultimately lead to an enabling environment for increased private sector investment in the sector and, therefore, diversification of generation sources beyond hydropower through the private sector investments. However, improved environmental and natural resource management was also needed to improve the sustainability of Malawi's existing generation assets.

Efficient hydropower generation was threatened by poor land-use practices, deforestation of the watersheds, and limited rainfall and increased drought. Compact interventions targeted reducing deforestation and improving land management practices to reduce soil erosion and improve the ability of the watersheds to retain rainfall and release it over longer periods while improving the livelihoods of the communities along the Shire River Basin. Since women play a key role in management of natural and community resources, addressing gender equality was necessary for sustainability of the compact investments.

The economic logic of the Malawi Compact was based on reducing the costs of doing business in Malawi by reducing power outages and technical losses, enhancing sustainability and efficiency of hydropower generation, and increasing energy throughput. The reduction in energy costs would result in improved productivity of firms and lower costs of living to households. The Beneficiary Analysis posited that the compact would help households and enterprises in the agricultural, manufacturing, and service sectors.

MCC signed the Malawi Compact in April 2011. In July 2011, MCC placed an operational hold on compact activity in light of significant concerns regarding governance in Malawi, notably its commitment to political pluralism, human rights, and the rule of law.<sup>7</sup> Subsequently, in March 2012, MCC's Board voted to suspend the compact with Malawi due to a pattern of actions by the Government of Malawi that it deemed inconsistent with the democratic governance criteria that MCC uses to select its compact partners.<sup>8</sup> MCC's Board expressed serious concerns about the economic and political situation in Malawi, and emphasized the need for the Government of Malawi to respect the rights of its citizens and civil society organizations to assemble and speak freely.<sup>9</sup> At the time of suspension, the compact had not yet entered into force and no significant funding had been expended. In June 2012, MCC's Board voted to lift the suspension of the Malawi Compact, determining that since new President Joyce Banda's inauguration in April, the President and her government had taken clear steps to reverse the pattern of actions that had led to Malawi's suspension. The remedial steps included improvements

<sup>7</sup> <https://www.mcc.gov/news-and-events/release/millennium-challenge-corporation-places-operational-hold-on-malawi-compact>

<sup>8</sup> For more information on MCC's Suspension and Termination Policy, please visit our website here: <https://www.mcc.gov/resources/doc-pdf/policy-on-suspension-and-termination>

<sup>9</sup> <https://www.mcc.gov/news-and-events/release/release-032312-boardrelease>

to the human rights environment, government accountability, and the resumption of sound economic policy.<sup>10</sup>

The Malawi Compact was amended in July 2013 to respond to changes in the sector and additional information acquired during the operational hold and suspension. The compact entered into force on September 20, 2013 and ended on September 20, 2018. The Millennium Challenge Account-Malawi (MCA-Malawi)<sup>11</sup> implemented the compact on behalf of the government and at the end of the 120-day administrative closure period in January 2019, became the Malawi Millennium Development Trust (MMD). MMD, funded by the Government of Malawi, is tasked with continuing to support the compact partners in sustaining the compact investments for a period of at least one year.

The Malawi Compact was one of MCC's most ambitious reform-focused programs to-date. The number and breadth of reforms asked of Malawi were significant—cutting across the whole power sector and involving legal and policy amendments, financial support from the Government of Malawi, organizational restructuring, regulatory reforms, and a host of process- and skill-based management improvements. In addition to compact reforms extending the sustainability of MCC's infrastructure investments through adequate fiscal management, operations management, and utility governance management, the compact also included an environment and natural resource management project to ensure sustainable power generation and to protect MCC and future private sector investments.

<sup>10</sup> <https://www.mcc.gov/news-and-events/release/release-062112-boardmeeting>

<sup>11</sup> Under MCC's country ownership model, governments receiving MCC assistance are responsible for implementing the MCC-funded programs. Partner governments establish units known as accountable entities, referred to as MCAs, to manage implementation for compact projects.

## AT A GLANCE

### Compact Agreement

<https://www.mcc.gov/content/uploads/2017/05/compact-malawi.pdf>

### Constraints Analysis

[https://www.mcc.gov/content/uploads/2017/05/Malawi\\_CA\\_withCover.pdf](https://www.mcc.gov/content/uploads/2017/05/Malawi_CA_withCover.pdf)

### M&E Plan

<https://www.mcc.gov/content/uploads/ME-Plan-MWI-V5-Jun18-1.pdf>

### Original amount at Compact signing

**\$350.7 million**

### Final Performance Indicators

<https://assets.mcc.gov/content/uploads/Malawi-Closeout-KPI.pdf>

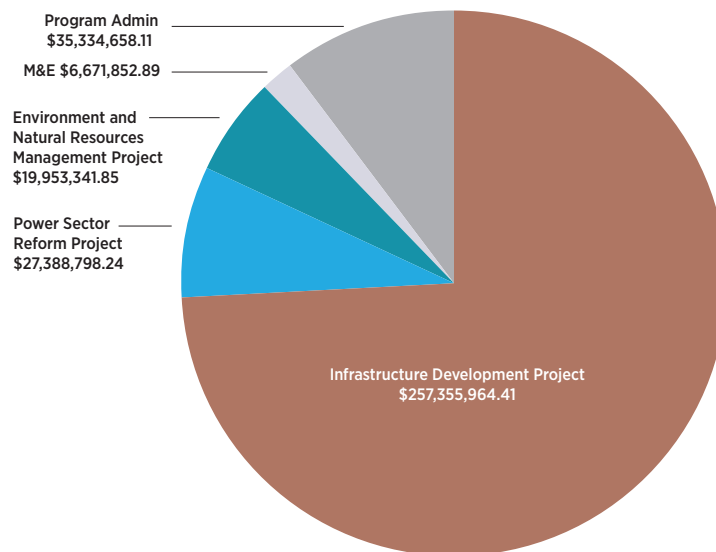
### Amount spent:

**\$346.7 million**

Estimated benefits correspond to \$346.7 million of compact funds, for which cost-benefit analysis was conducted:

Estimated beneficiaries over 20 years, from the start of project implementation: **7,393,789**

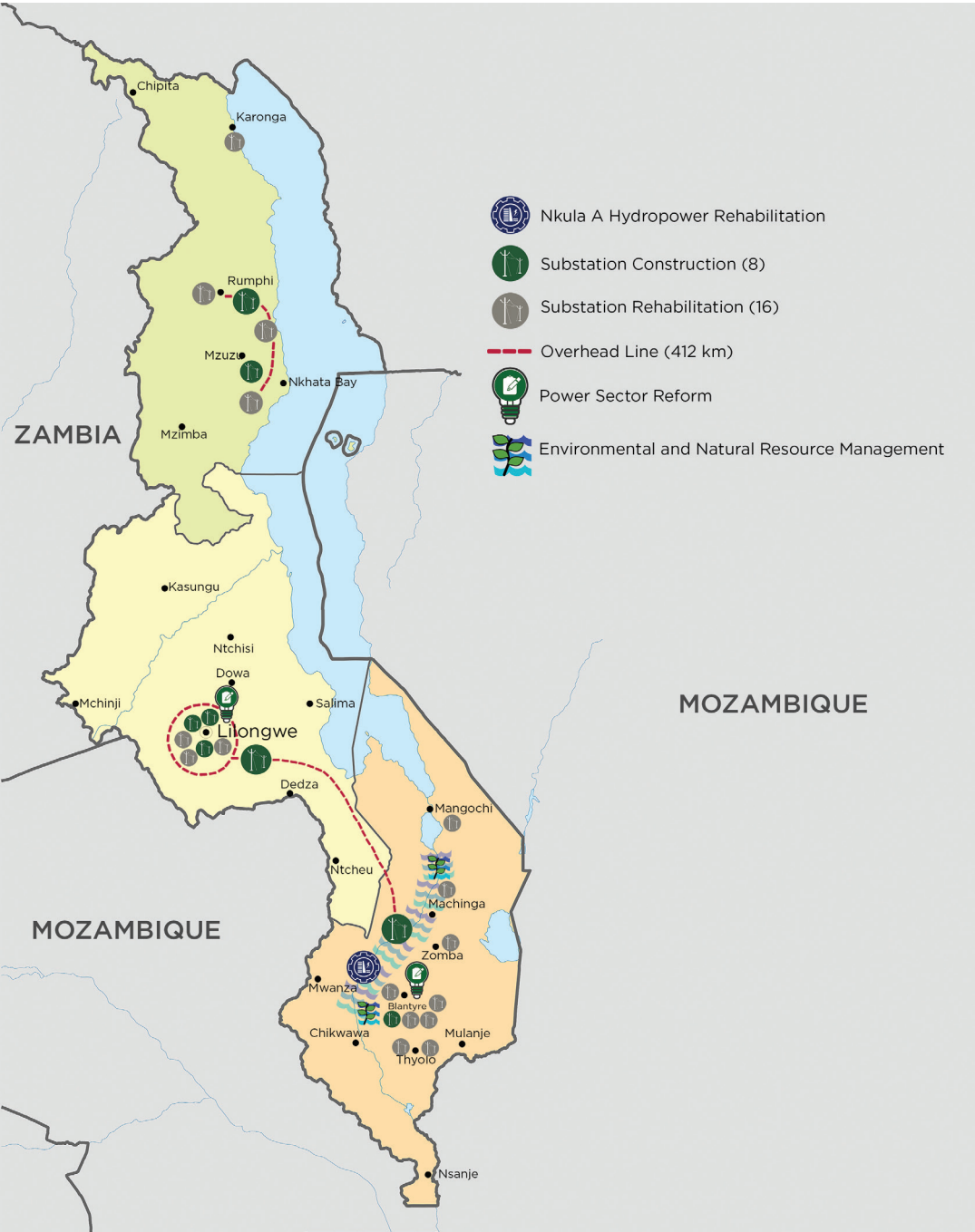
Estimated net benefits for 20 years, from start of project implementation: **\$768.4 million**



Infrastructure Development Project	\$257,355,964.41
Power Sector Reform Project	\$27,388,798.24
Environment and Natural Resources Management Project	\$19,953,341.85
M&E	\$6,671,852.89
Program Admin	\$35,334,658.11
Total	\$346,704,615.50



MALAWI COMPACT MAP



## COMPACT ECONOMIC BENEFITS

Original Compact Project Amount:  
**\$350.7 million**

Total Disbursed:  
**\$346.7 million**

Estimated benefits correspond to \$348.0 million of project funds, where cost-benefit analysis was conducted.

		Estimated Economic Rate of Return over 20 years	Estimated beneficiaries over 20 years	Estimated net benefits over 20 years
Malawi Power Compact	At the time of entry into force	18.7	982,729	\$234 Million
	At compact closure	25.4	7,393,789	\$768.4 Million

This compact used a compact-wide cost-benefit model to generate the estimated economic rate of return (ERR). Therefore, project-specific economic rates of return were not estimated. The economic rate of return at closeout was estimated to be 25.4 percent, seven percentage points higher than the ERR estimated at compact signing. The higher estimated ERR is primarily attributable to two factors:

1. The ERR model at compact signing anticipated an additional 3 MW of generation capacity to Nkula A. However, the project increased the generation capacity of the Nkula A plant by 12 MW (from 24 MW to 36 MW). The closeout ERR model includes the additional 12 MW of generation capacity.
2. The ERR model at compact signing assumed an annual growth rate of residential connections of 0.5 percent. Under this assumption, the total number of residential connections at the end of the 20-year period would be 234,419 connections. However, over the five years of compact implementation, the average annual growth rate of residential connections was between 10 and 15 percent. Therefore, the close-out ERR assumes an annual growth rate of residential connections of 12.5 percent for the remaining 15 years of the ERR model period. Under this assumption, the total number of residential connections at the end of the 20 year period was 2,030,239 connections. The revised number of estimated beneficiaries over the 20 year period is 7,393,789 individuals.

## INFRASTRUCTURE DEVELOPMENT PROJECT

### PROJECT SUMMARY

At the time of compact development, Malawi's insufficient, unreliable, and poor quality power supply posed a burden to existing businesses, compounding other disadvantages of doing business in Malawi, and also reduced the attractiveness of Malawi to external and new sources of investment. As compact development began for Malawi, an energy crisis was rapidly unfolding, causing detrimental effects to Malawi's economic growth prospects. In addition to an overloaded transmission and distribution network, Malawi had one of the lowest generation capacities in southern Africa. This lack of adequate or reliable power led to frequent unplanned blackouts, which often lasted 8 to 12 hours a day in major cities.

No significant generation investments had been made since the year 2000, and one large hydropower plant suffered from damaging flash flooding and was under extensive rehabilitation. No major recent investments had been made to upgrade or expand the transmission system, and there was limited maintenance to keep the grid and power plants operational. The delayed replacement and modernization of equipment resulted in poor quality service for existing customers and inhibited ESCOM from connecting new customers. Additional generation, transmission, and distribution capacity was desperately needed to meet currently unserved, and future increases in, demand in the country.

The \$257.4 million Infrastructure Development Project supported economic development by rehabilitating, upgrading, and modernizing critical elements of Malawi's power system across the whole country, from the northern-most border of the country in Karonga, to the south in Thyolo. The objective of the Infrastructure Development Project was to improve the availability, reliability, and quality of the power supply by increasing the throughput capacity of the national electricity grid, increasing generation capacity, and increasing distribution capacity. These investments were designed to allow businesses to benefit from more consistent power, thereby enhancing their competitiveness by reducing the costs they incurred from the need to run their own diesel generators and/or from lost productivity due to a lack of supply from the grid.<sup>12</sup> In addition, the improved power supply aimed to encourage additional investment from existing and new businesses, thereby supporting accelerated economic growth.

The Infrastructure Development Project included three activities: the refurbishment and upgrading of Nkula A hydropower plant (HPP), upgrade of the transmission backbone network, and rehabilitation and upgrading of key parts of the distribution network,

<sup>12</sup> The unit cost of electricity from petrol/diesel generators is far higher than that of grid-supplied electricity in Malawi, a land-locked country whose fuel is imported from afar.



A complete rehabilitation of hydropower station Nkula A was undertaken as part of Malawi's \$350.7 million Millennium Challenge Corporation compact.

Andrew Ladson

including the extension of the Supervisory Control and Data Acquisition (SCADA) system for additional network coverage.

Historically, a shortage of funds caused by low end-user tariffs for electricity and a dependence on central government budgets or international financing institutions prevented ESCOM from investing adequate funds into the refurbishment and preventive maintenance of their existing hydropower plants. The objective of the **Nkula A HPP Refurbishment Activity** was to improve the availability of power in Malawi by reducing generation outages caused by the poor condition of the plant and by maximizing the potential power output of the plant. Nkula A was commissioned in 1967 as a 24 megawatt (MW) hydroelectric plant. In 2015 it produced about 7 percent of the country's power. Prior to the compact investment, only two of its three turbines had been overhauled since commissioning, with the third not having undergone any major refurbishment at all. All component parts of the Nkula A hydropower plant had long since passed their useful life.

Investments in the power plant were necessary to reduce the likelihood that a portion, or all, of the plant would fail. A loss in generation would have had a significant adverse effect on the country's economy and would have compromised the potential utilization and returns on MCC's other investments in the transmission and distribution projects. The Nkula A HPP Refurbishment Activity included the replacement of all associated structures such as generators, turbines, switch yard equipment, intake structures, and control panels. The refurbishment aimed to improve the reliability of the plant, extend its useful

life by at least 30 years (depending on EGENCO operations and maintenance), and help avoid a partial or total failure of the plant. The refurbishment also increased the plant's generation from 24 MW to 36 MW, an increase of roughly 10 percent of the country's installed capacity, based on 2018 generation capacity.

In order to reduce power outages (i.e., power cuts or blackouts) and network losses (electricity not delivered), and to ensure voltage levels could be stabilized, the compact also included two activities to improve the transmission and distribution infrastructure.

The **Transmission Network Upgrade Activity** had a number of objectives: i) increase the capacity of the transmission network to reliably move power generated in the south (98 percent of Malawi's power is generated there) to the central and northern regions; ii) reduce technical losses on transmission lines; iii) alleviate transmission bottlenecks in high consumption areas around Lilongwe and in the north; and, iv) support future, planned interconnection with neighboring countries and therefore an increased and potentially lower cost supply of electricity to transmit and distribute through the country. Achieving all of these objectives was considered critical to supporting the sustainable extension of the distribution network, in order to create a more stable and reliable power network, and improve electricity access for enterprises and households.

The three major components of this Activity included:

- ★ Construction of a 173 kilometer (km), 400 kV overhead line stretching from Phombeya to Nkhoma. This represents a significant increase in capacity from the previous maximum transmission rating of 132 kV—a 400 kV line is able to move large amounts of bulk power with lower losses than the old 132 kV lines. The new line will allow for much more electricity to be transmitted, and at greater efficiency, through the country.
- ★ Construction of 400 kv and 132 kV substations at Phombeya and Nkhoma, the “endpoints” for the 400 kV line. These substations will also provide a point of interconnection with Mozambique and Zambia into the Malawi grid when those interconnections are completed. Interconnection will allow Malawi to import power from members of the Southern African Power Pool with surplus capacity. This will provide a much-needed increase in supply, the delivery of which will be supported by the new 400 kV transmission backbone. The interconnection of Malawi's electricity grid with Mozambique is expected to be commissioned in 2021, and is being funded by the World Bank and European Union. It is expected to bring up to an additional 300 MW onto the network.



- ★ Construction and rehabilitation of various segments of intermediate 132 kV and 66 kV overhead lines and substations that are intended to reduce bottlenecks in transmission and thereby reduce outages due to faults in the system in the delivery of power to lower voltage distribution levels.

At the time of compact development, Malawi's distribution lines and substations were insufficient to support reliable service in high demand areas such as Lilongwe and Blantyre, as well as Mzuzu in the north. The system could not meet current demand from the existing, limited customer base without faults (causing outages) or voltage and frequency drops (which can damage customers' electronic equipment), let alone supporting an increase in demand from existing customers or new connections.<sup>13</sup> As with the Transmission Network Upgrade Activity, MCC recognized that the existing distribution system had to be strengthened and stabilized before further, sustainable investments in grid expansion and increased access could be made. **The Transmission and Distribution Upgrade, Expansion, and Rehabilitation Activity** funded investments in network upgrades to support the reliable delivery of power from the transmission side of the grid to the distribution level at which customers receive their electricity.

The Transmission and Distribution Upgrade, Expansion, and Rehabilitation Activity built 367km of distribution lines and built or upgraded 22 substations. In addition, the activity made improvements in the protection and supervisory control and data acquisition systems (SCADA), with increased coverage on the transmission network. SCADA is a digital control system, which is very important in monitoring the network status (voltage, current, and power) and for remote control of sections of the grid. It also supports data collection on network performance. Twenty-six substations, which include six new transmission substations constructed under the Malawi Compact, were integrated into the SCADA system at the National Control Centre (NCC). The NCC was also completely refurbished and modernized. At the compact's end, work at four substations was ongoing due primarily to dependencies on construction works at those substations, which had been delayed. The final works continued under GOM/ESCOM oversight. This investment in SCADA will vastly improve ESCOM's ability to remotely monitor the performance of the grid, identify problems, and respond in real-time, with the potential to reduce outage times.

Gender equality and social inclusion efforts were integrated in the Infrastructure Development Project to address risks to communities and optimize potential opportunities for women and communities near project sites. Construction projects often have an impact on communities located near project sites, especially when it involves a large influx of male workers. There are additional risks when those workers come from another country and speak a different language, as was the case with several contractors on the

<sup>13</sup> According to the Integrated Household Survey (2004-2005), fewer than 6 percent of households nation-wide were supplied with electricity.

Infrastructure Development Project. Risks for the communities often include increases in HIV/AIDS rates, trafficking in persons (TIP), child labor, sexual abuse, and harassment. Evidence shows that women and girls are often at a higher risk for those issues. In order to reduce these risks, the contractors for the project conducted a series of actions such as awareness trainings and sessions for their workforce and communities near the project sites. They also established processes for addressing any reports of alleged incidents. Another important prevention effort was on the inspection and monitoring of compliance at the project sites by MCA-Malawi, MCC, and the supervisory engineer, especially in terms of child labor and trafficking in persons.

In addition to implementing safeguards to address risks to communities and workers, the compact also sought to improve labor and work conditions and strengthen community relations. To accomplish this, contractors worked with MCA-Malawi to develop mechanisms to address workers' rights, often in collaboration with the Ministry of Labor. Important mechanisms included clear grievance handling procedures; review of employee's work schedule, attendance, payments, and benefit records; and encouragement of establishing workers' committees/associations. To improve community relations, contractors: 1) provided project progress reports; 2) provided training on how communities can keep safe around project sites; 3) addressed emerging issues and grievances; and 4) implemented corporate social responsibility programs in communities around the sites.

Women workers on the Malawi compact at the Ntonda substation in Blantyre participated in new skills training such as bricklaying and carpentry.



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## ENCOURAGING WOMEN'S ECONOMIC EMPOWERMENT IN THE INFRASTRUCTURE DEVELOPMENT PROJECT

The compact optimized opportunities for women and communities near the project site through the recruitment of women for construction jobs and strengthening women's economic empowerment. MCA-Malawi set a voluntary target of 25 percent of contractor positions to be held by women among the Infrastructure Development Project contractors—an overall target expected to include decision-making positions and unskilled and administrative jobs. While there were times during construction where contractors averaged 18 percent, with some specific ones reaching 24 percent of their workforce, at the end of the compact, the project had a total of 170 women employed, representing just 7.3 percent of the total workforce. This is still a significant accomplishment given the generally very low participation of women in the construction industry in Malawi.<sup>14</sup> Construction contractors also trained 241 women workers in various skills such as first aid, working at heights, firefighting at the work place, public relations, industrial nursing, carpentry and bricklaying, surveying, steel fixing, printing, office automation, environment and gender equality, health and safety in the workplace, and monitoring.<sup>15</sup>

Recruiting women in a male-dominated sector brings various challenges. These ranged from men accusing women of being slow on the job; women accusing foremen of favoring men when allocating tasks; supervisors forcing female workers to undertake household chores at the supervisors' homes; and men using stereotypical jokes against women. However, the contractors viewed women's inclusion in the Infrastructure Development Project as the greatest milestones most of them have ever reached in this regard, especially in the actual construction works such as bush clearing, back-filling, first aid, and fire-fighting.

The project also envisioned increasing the economic empowerment of women through promotion of business opportunities through supply of basic items like food and locally available construction materials and training women to undertake some occupational skills on the sites. Unfortunately, neither of these initiatives were successful. Local female suppliers lacked the capacity to supply construction materials that met the required technical specifications as most were small-scale suppliers. The plan had also envisaged to conduct on-site certified training for women as skilled workers in carpentry, steel fixing, brick-laying, etc. This did not take place due to time limitations and the health and safety risks the on-site training presented.

<sup>14</sup> While data on female employment in the construction industry is difficult to find in Malawi, the World Bank ILO reported that the percentage of female employment in industry (which includes mining and quarrying, manufacturing, construction, and public utilities) in Malawi was 6.1 percent in 2018. <https://data.worldbank.org/indicator/SL.IND.EMPL.MA.ZS>

<sup>15</sup> GSI Implementation Report Malawi Compact, November 2018

The Infrastructure Development Project was designed to significantly improve the availability, reliability, and quality of the power supply in Malawi. ESCOM, responsible for buying and selling power through its transmission and distribution network throughout the country, now benefits from a new and improved high voltage transmission backbone network with modern substations that will enable the country to connect to and benefit from increased supply and reliability from the Southern African Power Pool.

Finally, the northern region of the country has a stronger, more reliable grid due to the extension of the 132 kV network and new substation constructed under the compact. The compact-funded distribution substations in Mzuzu, a regional center, in combination with others being constructed with World Bank funding, will further increase the capacity and stability of the northern network. Future plans are to extend the 400 kV network to the north and eventually Tanzania, to make it even more stable and reliable. Additionally, distribution extensions are also now possible with new and upgraded substations in and around the major urban areas of Lilongwe, Zomba, and Blantyre. This in turn supports increasing access in these areas, while supporting improved reliability.

The long-term impact of the Infrastructure Development Project interventions relies in large part on the ability of ESCOM to maintain these assets. With assistance of MCA-Malawi, ESCOM and EGENCO developed sustainability plans to oversee the continued use of compact-funded infrastructure assets. The EGENCO commissioning and sustainability plan addresses how the utility will commission, operate, and maintain the Nkula A hydropower plant, transmission and distribution lines, and substations. The key areas that both EGENCO and ESCOM have highlighted that will be necessary to ensure the sustainability of compact investments include: (i) capacity building—staff recruitment, training and attachment of staff to contractors implementing the projects; (ii) stocking of critical spare parts for the maintenance of the installed machines, auxiliary plants, and ancillary plants; (iii) acquisition of supporting equipment; (iv) institution of maintenance, environmental health and safety standards and procedures; (v) financing of operation and maintenance; and (vi) requirement for contractor to furnish all project documents. In addition to the sustainability plans, the two utilities have committed to ensuring that social and gender issues are incorporated in their planning and operation, based on their corresponding Anti-Sexual Harassment and Gender Equality Policies.

## EVALUATION FINDINGS

MCC has commissioned a combined, independent, performance evaluation of the Infrastructure Development Project and Power Sector Reform Project. The description of the evaluation is in the Power Sector Reform Project Evaluation Findings section.

## KEY OUTPUT AND OUTCOME INDICATORS

Activity	Key Performance Indicators	Baseline (2012-2013)	End of Compact Target (2018)	Actual Achieved (09/2018)	Percent Complete
Nkula A HPP Refurbishment Activity	Generation capacity added (Megawatts)	0	12	12	100%
Transmission Network Upgrade Activity	Kilometers of transmission lines upgraded or built—66 Kilovolts	0	34	34	100%
	Kilometers of transmission lines upgraded or built—132 Kilovolts	0	160	160	100%
	Kilometers of transmission lines upgraded or built—400 Kilovolts	0	173	173	100%
Transmission and Distribution Upgrade, Expansion, and Rehabilitation Activity	Transmission substation capacity added—MVA	0	809	809	100%
	SCADA Coverage Transmission (Percentage)	46	68	56.4	47.3%

## EXPLANATION OF RESULTS

Among the outputs under the Infrastructure Development Project, the majority were completed in the final 3-6 months of the compact period. One exception was the investment in SCADA within the transmission system: although the compact had expected to achieve 68 percent coverage of the transmission network through its investments, the



work was not completed by the end of the compact, due primarily to dependencies on construction works at four substations, which had been delayed. The MCA successor entity is working to ensure completion of these works during the post-compact period.

Given that most of the infrastructure works under the compact were completed immediately prior to the end of the compact period, key outcomes related to the project are not yet able to be observed as any observations during compact closeout capture the time period just before works were fully commissioned and thus cannot be attributable to MCC. Indicators measuring grid performance, such as system-level energy losses and load shedding, will be added to updated versions of this report through final evaluation results of the compact's investments. MCC noted that such outcomes tended to fluctuate throughout the life of the compact, with some showing early improvement prior to the compact's investments in infrastructure taking effect.

MCC will be monitoring the long-term changes in these grid-level outcomes during the post-compact period and will be evaluating the effects of the compact on households and enterprises.

## POWER SECTOR REFORM PROJECT

### PROJECT SUMMARY

The compact's infrastructure investments were designed to fill critical gaps in Malawi's power system that constrained the delivery of a reliable supply of electricity. However, these investments represented only a portion of what Malawi's power sector required to meet the country's economic development goals. Further, there was a risk that management and operational challenges, which had led to the sector's poor condition at the time of compact development, would persist in the power sector. The compact, therefore, looked beyond infrastructure and took a more holistic approach to promote future growth and sustainability through the Power Sector Reform Project. The objective of the Power Sector Reform Project was to create an enabling environment for future expansion of the power sector by strengthening sector institutions and enhancing regulation and governance of the sector.

The Power Sector Reform Project was designed to complement the infrastructure modernization funded through the Infrastructure Development Project and support the Government's reform agenda by improving the capacity and financial viability of Malawi's public electricity utility and creating an enabling environment for future investment in the power sector. Prior to the compact, Malawi's power sector had experienced several years of decline stemming from the factors below:

- ★ Underperformance of the utility was driven by the lack of modern management practices and confusing governance and reporting lines by ESCOM that led to operations driven more by political considerations than commercial factors;
- ★ Poor financial conditions in the power sector due to an electricity tariff that did not provide sufficient revenue to cover all operating costs, high levels of accounts receivable, and utility mismanagement. The lack of adequate financing contributed to limited investments and inadequate service delivery;
- ★ Underinvestment in the power sector, particularly in generation, creating a deficit of electricity supply. This was a result of the Government's inability to finance new investments and the poor financial health of ESCOM, which could not be a viable partner for private investment; and
- ★ An outdated and inadequate legal and regulatory framework, which did not provide private investors with sufficient clarity or incentives to take interest in the Malawian energy market, particularly in light of the high country and commercial risk.

Addressing these issues required substantial changes in how Malawi's power sector operated, ranging from amendments to existing laws, to movement away from a history of underpriced electricity services, to breaking with long-held habits that led to persistent low performance at the public electricity utility. The Power Sector Reform Project included the ESCOM Turnaround Activity and the Regulatory Strengthening Activity.

#### ESCOM TURNAROUND ACTIVITY

The objective of the ESCOM Turnaround Activity was to restore ESCOM's operational health and rebuild the utility into a financially strong, well-managed company as it had been in prior decades. The activity sought to improve ESCOM's performance and commercial viability through a strategy for an operational and financial restructuring based on a three-pronged approach: (1) revenue and cost management improvements; (2) ESCOM balance sheet strengthening by converting debt owed to Government into equity and retiring commercial debt; and (3) financial and operational enhancement through strengthened business processes and systems. During the compact term, the ESCOM Turnaround Activity was expected to result in improved financial sustainability, improved operational management and efficiency, and reinforced corporate governance practices at ESCOM. The ESCOM Turnaround Activity included the following Sub-Activities:

*ESCOM Finances* focused on ESCOM's accounting and financial management practices to strengthen accounting systems, to improve internal controls and uses of the utility's

revenues, and to reduce losses resulting from poor billing and collections practices. The compact-funded technical assistance aimed to provide ESCOM with the technical assistance, training, and tools to accomplish these goals. The activity also funded the development of a financial model and an integrated information technology (IT) platform and management information system (MIS) to increase efficiency and controls in financial and operational management by replacing antiquated, complex, and overlapping systems.

*ESCOM Operations* provided ESCOM with technical assistance and capacity building to create and implement new policies to improve operational management. This included work which aimed to strengthen business planning, asset management, procurement procedures, and loss reduction. The logic of this sub activity posits that as ESCOM's financial position improves, stronger operations would make effective use of these resources to deliver better services to ESCOM's customers.

*Corporate Governance* promoted the adoption of more robust commercial and corporate governance principles to improve oversight and strategic decision-making. This included training for the ESCOM Board and support to develop improved processes and guidelines. Improved corporate governance practices were viewed as critical to transition ESCOM to the commercially-oriented approach to doing business that was necessary for sustainable future growth.

Some of the important achievements include:

- ★ Before the Power Sector Reform Project, ESCOM experienced challenges with operational and financial management due to a lack of updated technology to support its operations. Modern utilities require technology that allows them to collect, analyze and deploy many different, interconnected types of data. ESCOM previously used several different IT systems that were not linked to each other, creating room for errors or incomplete information when data was transferred across different systems. In addition, several processes such as billing, connection requests, and inventory management were conducted manually on paper, resulting in errors, delays, and opportunities for fraud. The compact invested in the ESCOM management information system (MIS), a state-of-the-art IT platform that aims to provide ESCOM with the ability to modernize its financial and operational management practices. The MIS integrates all of ESCOM's financial and operational requirements on a common system and digitizes processes that used to be done manually. The MIS system is designed to reduce the scope for error, improve availability of data, and improve efficiency, saving ESCOM and its customers time and money. Additionally, the MIS created ESCOM's first geographic information system (GIS) that mapped the utility's network and customers to create a database that can be used for activities such as billing, maintenance, new connections, and network development. A GIS database is a critical tool for any

modern utility, providing staff with the ability to quickly identify the locations of customers requesting connections and outages in the network. Finally, the compact also provided funding for the development of a detailed financial model, capable of making cash flow projections to assist ESCOM in financial management.

- ★ Businesses require finance to expand their operations through strategic investments. Electricity utilities like ESCOM often also partner with energy producers in long-term contracts that can only be developed when the producers view the utility as a credit-worthy partner. Historically, ESCOM has been viewed as a risky borrower for financing institutions and by independent power producers (IPPs). Addressing this perception through activities to rebuild ESCOM's financial health was a key goal of the Power Sector Reform Project. Following improvements to ESCOM's financial position from 2013-2016, the Public-Private Infrastructure Advisory Facility—a trust fund managed by the World Bank that promotes private sector involvement in infrastructure projects and access to finance for sub-national entities—supported the first third-party evaluation of ESCOM's creditworthiness that led to ESCOM being accorded a local, investment grade credit rating of BBB from Global Credit Ratings in December 2016.<sup>16</sup> The credit rating reflected significant progress in ESCOM's financial position supported by the compact, and provided helpful information to potential investors related to ESCOM's ability to service its debts and to act as a counterparty to the private sector for investment in generation. However, ESCOM's financial position later deteriorated again in 2017 due to failures to adjust tariffs to match costs, low water levels leading to declining energy sales, failure of customers to pay bills, and ongoing administrative inefficiencies. This means that there is more work to do to rebuild the necessary level of confidence in ESCOM's financial health.
- ★ Electricity utilities need to have efficient processes, the right tools, and skilled staff to deliver services to their customers. Better processes mean more efficient use of resources and also result in improved revenues due to consistent service quality. Those revenues can then be re-invested in a virtuous cycle. Prior to the Power Sector Reform Project, ESCOM struggled to overcome inefficient processes that hampered its ability to undertake investments, develop and implement strong maintenance programs, and ensure collection of revenues. With compact support, ESCOM introduced a number of business process improvements and new policies across several areas. This included the production of annual procurement plans and improved integration in business planning processes to strengthen ESCOM's ability to plan and execute maintenance

<sup>16</sup> <https://globalratings.net/news/article/gcr-accords-electricity-supply-corporation-of-malawi-a-first-time-rating-of>

and expansion projects. Revenue protection measures put in place with compact support have helped ESCOM reduce losses and secure funds it is due from customers.

- ★ The compact also sought to promote women's representation in the energy sector and the utility, as well as in decision making positions. Under the Power Sector Reform Project, ESCOM hired a Gender and Social Inclusion (GSI) Manager in January 2016 and ESCOM's Social and Gender Inclusion & Anti-Sexual Harassment Policy was developed by an inter-departmental policy team and approved by the Board of Directors in April 2017. In addition, MCC and MCA-Malawi provided technical support to the development of a Monitoring and Evaluation framework for the policy. Further support included conducting a GSI capacity needs assessment for ESCOM staff and management throughout the country, and developing a GSI capacity building plan.
- ★ As part of ESCOM's Social and Gender Inclusion & Anti-Sexual Harassment Policy implementation, through a partnership with the University of Malawi, The Polytechnic, ESCOM launched a scholarship and internship program for high performing female students in the engineering field in February 2017. The first cohort of six students commenced their internships at ESCOM in June 2017. ESCOM launched another scholarship program for female students at the Malawi University of Science and Technology in November 2017. ESCOM plans to link these students with EGENCO for internship opportunities. In 2017 ESCOM started implementing its career talks program by focusing on three secondary schools in Blantyre with the aim of interesting female students in engineering courses and careers. An important part of the sustainability efforts for the project focused on providing trainings on the gender policy to ESCOM and EGENCO staff. A total of 866 people participated in these trainings (628 for ESCOM and 238 for EGENCO), with approximately 15 percent participation from women, reaching a total of 30 percent of workers within ESCOM and 47 percent of workers within EGENCO.<sup>17</sup>
- ★ At the national level, MCC supported the process to review Malawi's National Energy Policy by providing social and gender expertise to the policy review process. This included the production of a Gender and Energy Status Report through a survey that was conducted in five districts in Malawi. The support also covered all processes of developing the policy and its implementation and monitoring frameworks. The final policy was approved in March 2018.<sup>18</sup> The Project also supported EGENCO as it developed its Social & Gender Inclusion and Anti-Sexual Harassment Policy, set-up a Gender Unit with an appointed Gender Specialist, and participated in the gender and social inclusion capacity building program in the final year of the compact.

<sup>17</sup> At the time of the trainings, ESCOM had a total of 2,036 employees (1,825 men and 211 women), and EGENCO had 509 employees (465 men and 44 women).

<sup>18</sup> <https://energy.gov.mw/index.php/resource-centre/documents/policies-strategies?download=15:energy-policy>



## REGULATORY STRENGTHENING ACTIVITY

The objective of the Regulatory Strengthening Activity was to make Malawi's power sector more attractive for investments in generation and grid capacity, with the potential participation of the private sector. Private sector investment will be a critical factor in the future development of Malawi's power sector with the Government no longer willing or able to fund investment in new infrastructure, especially generation. With scope for significant growth given low levels of electrification and use of electricity, Malawi could be an attractive target for investors bringing capital, technology, and skills. To attract investment, Malawi needs to ensure that there are appropriate incentives, clear processes, and a sound financial basis to give companies the confidence to enter the market.

The Regulatory Strengthening Activity focused on bolstering ESCOM's financial position through tariff reform to ensure the utility could collect sufficient revenues to deliver reliable service. The Activity also aimed to implement best practice regulatory oversight and identify legal and policy changes that would facilitate private investment in a sustainable manner. The Regulatory Strengthening Activity is expected to result in a more cost-reflective tariff regime, improved market structure for private investment, and a strengthened regulatory environment. The Activity included three sub-activities:

The *Enabling Environment for Public and Private Sector Investment Sub-Activity* aimed to address legal and regulatory gaps in the power market, which constrained investment



Customers complete transactions at an Electricity Supply Corporation of Malawi (ESCOM) service center. MCC renovated the center and modernized ESCOM's MIS systems as part of the \$350.7 million Malawi Compact.

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by the private sector. This included the production of an Independent Power Producer (IPP) Framework to provide clarity to investors on how to develop a project in Malawi, and to provide a road map for Malawian institutions to add new generation through private sector investment. This Sub-Activity also funded a study which identified options for restructuring the power market to attract private investment in generation. The compact then supported the restructuring of Malawi's energy market based on the Government's preferred option, leading to amendment of the Electricity Act and unbundling of ESCOM to create two utilities—ESCOM (a transmission and distribution company) and EGENCO (a generation company)—and preparation of new regulatory rules and guidelines.

Finally, this Sub-Activity supported capacity building and assistance to ESCOM to establish new business units—System & Market Operator and Single Buyer functions—necessary for the unbundled power sector and for ESCOM to procure generation through IPPs. For the System and Market Operator, new procedures were created for planning and dispatch of generation, operation of the power system to ensure stability and adequate supply, and metering of electrical flows. The Single Buyer technical assistance supported the production of transmission and generation expansion plans, development of processes and skills to procure new generation capacity, and management of contracts with generators, including EGENCO and potential IPPs. This work resulted in ESCOM's short-term generation expansion plan that is used to procure new sources of power supply and is more aligned to needs and system characteristics.

The *Tariff Reform Sub-Activity* provided support that facilitated ESCOM's application for a tariff increase for the 2014-2017 period, which resulted in a tariff increase. While lower than expected, this increase provided a financial boost for ESCOM and the power sector for the first several years of the compact. In April 2018, ESCOM submitted an application for a tariff adjustment covering the period 2018-2022. The compact funded a cost of service study and provided technical assistance to ESCOM to help submit this tariff application, and in October 2018 MERA announced a determination following a period of public consultations and technical reviews that approved an increase of 31 percent in average tariffs over a four-year period. This outcome will provide some benefits to ESCOM's financial sustainability, even while risks remain if future adjustments are not made in a timely manner. ESCOM is also introducing a social tariff with lower rates provided to customers consuming small amounts of electricity as part of the reform efforts, which if properly implemented should help poorer households have opportunities to benefit from electricity services.

Through the *MERA Capacity Building Sub-Activity*, the compact supported Malawi's regulator in building skills and establishing new processes to enhance its ability to conduct oversight to facilitate growth in the power sector. This Sub-Activity included a benchmarking assessment to identify gaps in MERA's performance against international comparators,

recommendations on key performance indicators (KPIs) to oversee the restructured power market, and capacity building for MERA staff and other stakeholders in areas such as the role of the regulator in review and approval of power purchase agreements (PPAs) and oversight of IPPs, tariff setting and oversight processes, and regulatory oversight in the restructured power market.

Results seen from the Regulatory Strengthening Activity include:

- ★ ESCOM launched a competitive procurement for private investment in the development of solar power plants—Malawi’s first solicitation for IPPs. In September 2018, ESCOM signed its first power purchase agreement with a renewable energy IPP and a ground-breaking ceremony for the 60 MW plant in Salima took place in December 2018.<sup>19</sup> In early 2019, ESCOM negotiated with other winning bidders as preparations for additional plants progress;
- ★ Malawi’s Electricity Act was amended and passed in parliament in 2016 based on options developed under the compact to improve the power market structure and attract more private investment. This also led to the restructuring of ESCOM to align with the new market design; and
- ★ The 2018 tariff application submitted by ESCOM to MERA was based on a more industry-standard tariff methodology, used a data-driven approach from a rigorous study that provided cost requirements, and MERA’s review process was reinforced with compact support. With appropriate political will to approve necessary tariff increases, the tariff application process can provide ESCOM with the resources it needs to support effective operations and growth over the next several years.

In 2014, a set of factors contributed to ESCOM realizing a much improved financial position. This included the introduction of a higher tariff, the commissioning of a new hydropower plant (Kapichira II), and the removal of debt from its balance sheet. Though ESCOM’s financial position improved, it is important to note that ESCOM had poor performance in planning and executing capital investments and routine maintenance during this early period, resulting in a buildup of a large cash stockpile, reflecting how near-term financial improvements can mask weak operational performance. Nonetheless, from 2015-2016, the utility targeted a set of additional initiatives to further bolster its health, including a project to verify customer connections and remove illegal connections and to introduce pre-paid meters to counteract persistent high non-technical losses, and began to spend more money on maintenance and critical projects.

19 <https://www.nyasatimes.com/mutharika-opens-solar-plant-construction-more-investments-to-end-blackouts-in-malawi/>

From 2016 onwards, however, ESCOM's financial position began to deteriorate. This can be linked to the failure of MERA to approve anticipated phased tariff increases and automatic adjustments to the tariff to counteract the effect of inflation and currency depreciation. In addition, low water levels in the Shire River—the source of 98 percent of electricity generation in Malawi—led to lower sales and declining revenues in 2016 and 2017. Further pressure was introduced due to terms agreed to between EGENCO and an emergency power producer in late-2017. Finally, while performance had improved at the end of the compact period, ESCOM was continuing to see relatively high commercial losses (electricity theft) and non-payment of bills, especially by public institutions, which further degraded its cash flow position.

The reforms asked of Malawi under the compact were significant—cutting across the whole power sector and involving legal and policy amendments, financial support from the Government, organizational restructuring, regulatory reforms, and a host of process- and skill-based management improvements. The results of the challenging reforms targeted by the Power Sector Reform Project were mixed, as described in this report and through the table of indicators below. Initial progress in the ESCOM Turnaround Activity provided ESCOM with a window of opportunity characterized by relatively strong financial performance. However, these results were not sustained through the end of the compact, and performance challenges remain. The success and sustainability of many Power Sector Reform Project interventions rests on the assumption that people within the power sector stakeholder institutions will change their behavior and approach to doing their work. Such changes include learning and applying new knowledge and skills, adopting new processes or technology, introducing and responding to new incentives, and adopting a more commercially oriented mindset to managing the power sector.

At the outset of the Power Sector Reform Project, limited effort was invested in attempting to press for the desired changes in an organized manner. However, over the first two years of the compact, it became increasingly clear that this approach was having limited success. Poor accountability at sector institutions, especially ESCOM, at almost every level, including line supervisors, executive management, Board members, and Government oversight ministries was a key factor. This was exacerbated by a lack of mechanisms, such as performance measurements, that could enhance accountability. Additionally, limited buy-in from key stakeholders, including members of ESCOM's management, reduced the impact of some Power Sector Reform Project activities. Finally, the overwhelming scope of changes being proposed and recommendations reinforced inertia on the part of staff who were being requested to perform demanding day-to-day work under challenging circumstances while at the same integrating new and complex recommendations. This extended to the introduction of the ESCOM MIS, which required massive shifts in business processes and skills across the entirety of the utility.

In response to these factors, MCC and MCA-Malawi adopted a more involved role to improve uptake and changes during the final three years of the compact. They did this through follow up with sector stakeholders on specific initiatives and also deployed activities—such as mentoring and on-site advisors—to achieve improved outcomes. Further, some activities such as the ESCOM MIS had built-in change management activities that relied on the use of communication methods such as SMS, Twitter, bulletin boards, t-shirts, etc., to encourage change amongst staff. Throughout other elements of the Power Sector Reform Project, such as the power market restructuring initiative, MCA-Malawi and MCC engaged in substantial efforts to generate required levels of support and pressure for expected changes. This included convening regular and ad hoc meetings to update stakeholders on progress and press for action on specific issues. MCC encouraged all stakeholders to speak out publicly supporting the need for cost-reflective tariffs to support growth in the power sector.

These efforts had mixed results as many of the same factors that created problems with initial engagement with the Power Sector Reform Project remained in place. For example, ESCOM Board members engaged more with oversight and accountability on some areas of ESCOM operations, but not always in an effective manner. ESCOM staff in particular still struggled under a heavy burden of day-to-day work and were challenged to find time to implement new recommendations even if they did find them important.

However, there are areas where changes in behavior or attitudes seem apparent even if not easily measured. For example, MERA took a stronger approach to holding ESCOM accountable for its performance during the compact by withholding tariff increases due to poor results on KPIs and in one case threatening to sue members of the ESCOM Board for dereliction of duty due to performance failures. In late 2016, ESCOM's Director of Finance resigned under duress, having refused to certify an irregular procurement. Later, the ESCOM CEO who was dismissed in late 2017 spoke out when she identified procurement irregularities with a contract for diesel generators. While not definite, it is possible that these staff felt empowered to speak out due to a change in culture in the power sector; although, the very existence of such irregularities is a problem.

At the end of the compact, there was greater recognition and acceptance of the role of private investment in the sector going forward, which marked a change from the past when the Government was responsible for funding large investments in the power sector. Even as Malawi's investment requirements to meet its goals for the power sector have risen, the Government's willingness and ability to fund those investments has declined. Countries around the world have turned to private investment to bring essential capital, skills, and technology to drive growth in the power sector, and have noted publicly the importance of cost-reflective tariffs. Finally, in part as a result of the compact and due to the major changes introduced in the sector, there has been a trend towards increasing



coordination between sector institutions—such as MERA and ESCOM—which was at times lacking in the past.

Through the end of the compact, MCC continued to press for improved performance and uptake of reforms in the sector, including through utilization of the data analysis and reporting functions in the ESCOM MIS, which will enable improved oversight of ESCOM’s operations. In addition, MCC encouraged MERA to continue its efforts to establish effective regulatory oversight and introduce accountability into the sector in a responsible manner. This includes the development of revised KPIs for oversight of the sector.

## EVALUATION FINDINGS

MCC has commissioned an independent performance evaluation of the Power Sector Reform Project. Midline data collection took place in November 2016 and was compared with data collected by the evaluation team in February and March 2015. The final evaluation for the Power Sector Reform Project will be produced in conjunction with the Infrastructure Development Project evaluation. The evaluations are seeking to answer the following core questions:

1. What declines in poverty, increases in economic growth, reductions in the electricity-related cost of doing business, increases in access to electricity, and increases in value added production are observed over the life of the compact?
2. What were the results of the interventions - intended and unintended, positive or negative?
3. Are there differences in outcomes of interest by gender, age, and income?
4. What are the lessons learned and are they applicable to other similar projects?
5. What is the likelihood that the results of the Projects will be sustained over time?

At the household level, the evaluations will focus on household and individual impacts, specifically, income; expenditures, consumption, and access to energy; and individual time devoted to leisure and productive activities. At the enterprise level, the evaluations will focus on the activities’ potential impact on business profitability and productivity; value-added production and investment; employment and wage changes; energy consumption and sources of energy used; and business losses. At the regulatory, institutional, and policy level, the evaluation will explore the potential impacts on utility operating costs and losses; financial sustainability; private investment, particularly in generation; and expansion of electricity access for customers, particularly the poor.



## Status of the evaluation

Component	Status
Baseline	Data collection completed in March 2015. Report released in March 2018.
Midline	Data collection completed in November 2016. Report released in April 2019.
Endline	Report expected by late 2020.

In 2015, the evaluator conducted a process evaluation to assess implementation and identify lessons learned. The report also established a baseline for operational performance of the utility. Findings from 2015 focused on the implementation partners and their effectiveness, and highlighted lessons for policy and institutional reform projects, many of which are implemented through short term consultancies.

*The Key Findings of the 2016 Interim Evaluation of the Power Sector Reform Project* include:

## Quality of Implementation

- ★ The Project is on track to complete steps needed to make key policy reforms in the sector but will require energy sector stakeholders to own the process.

## Utility Financial Performance

- ★ Rising tariffs, impactful technical assistance, and other compact preconditions have had a positive impact on the power utility's financial sustainability.
- ★ Electricity tariffs have risen but remain too low for the utility to recover full operating costs and capital investments.

## Utility Operations and Corporate Governance

- ★ While the Project's activities have produced some improvements in utility operations, midway through the compact, operations and corporate governance were the weak link in the reform process.

## Enabling Environment for Private Investment

- ★ Legislative reforms have improved the investment environment, creating more predictable legal steps for private firms to enter the power sector.

## KEY OUTPUT AND OUTCOME INDICATORS

Activity	Key Performance Indicators	Baseline (2012-2013)	End of Compact Target (2018)	Actual Achieved (09/2018)	Percent Complete
Project level	Operating cost-recovery ratio - Total revenue collected / Total operating cost (Percentage)	113	100	94	6% <sup>20</sup> [% Deviation]
	Current Ratio - Total Current Assets / Total Current Liabilities (Ratio)	6.48	3.00	.66	78% [% Deviation]
ESCOM Turnaround Activity	Average Collection Period—Quarterly (Days)	72	60	101.1	69% [% Deviation]
ESCOM Turnaround Activity	Billing System Installed	N/A	30-April 2018	18-Jan 2018	100%

<sup>20</sup> Percent deviation from the target is calculated for this indicator, as well as others noted in this table, instead of percent complete. Progress for this indicator is best tracked by percent deviation from the target, because the actual should be as close to the target as possible. A percent deviation of 0% implies the target has been reached, and percent deviation closer to 0% implies better achievement than a higher percent deviation. Percent deviation is calculated using the following formula:  $100 \times |\text{Actual} - \text{Target}| / \text{Target}$ . Because this indicator is a ratio of Total Revenue / Total Costs, a deviation above or below the target may reflect either a stronger financial position (a positive result), or a failure to effectively meet their maintenance and capex (spending) targets. A target close to 100% indicates that ESCOM is effectively balancing available revenue with effective execution of core functions to operate the grid.

Activity	Key Performance Indicators	Baseline (2012-2013)	End of Compact Target (2018)	Actual Achieved (09/2018)	Percent Complete
Regulatory Strengthening Activity	Cost-reflective tariff regime (Percentage)	N/A <sup>21</sup>	100	64	N/A
Regulatory Strengthening Activity	Power Market Restructure Report Produced	N/A	31-Dec 2014	30-April 2015	100%
	Electricity Act Amended	N/A	31-Dec 2016	6-June 2016	100%
	Independent Power Producer Framework Approved	N/A	31-March 2017	1-May 2017	100%

## EXPLANATION OF RESULTS

Under the Regulatory Strengthening Activity, a number of key milestones were achieved including difficult legislative and organizational restructuring actions led by the Government. However, completion of those reforms stalled in the last year of the compact, resulting in delayed progress in some critical areas related to tariff reforms and restructuring of the power market. Ultimately, MERA approved a 31 percent tariff increase in October 2018, after a months-long delay by ESCOM in submission of its tariff application (and shortly after the final reporting period of the compact).

### *ESCOM Turnaround*

ESCOM's financial and operational turnaround remains incomplete. Although the ESCOM MIS was operationalized in January 2018, challenges have emerged with the roll-out and application of key reporting modules, which have continued beyond the end of

<sup>21</sup> A baseline for this indicator is unavailable, due to the fact that ESCOM did not have a reliable estimate for its long-run costs at the start of the compact, a key input to this indicator. The Project provided support for a Cost of Service Study which informed the development of the 2018 tariff application, with projections of costs through 2022.

the compact period. As described previously, ESCOM's financial position was strong in the early part of the compact, with the cost-recovery ratio regularly about 150 percent.<sup>22</sup> Following this, ESCOM leveraged these financial improvements to spend more money on maintenance and critical projects, likely contributing to improvements in revenues and loss reduction efforts. However, the declines in the cost-recovery ratio and current ratio reflected in the table above are indicative of challenges the utility has faced with declining revenues as a result of insufficient tariff increases and low energy sales resulting from the effects of drought on hydropower plants. It should be noted that the figures reported on ESCOM's finances do not reflect data from the final quarter of the compact, as ongoing challenges in the use and rollout of the ESCOM MIS have led to difficulties in reporting on these KPIs; the figures reported as "Actual Achieved" are therefore based on Quarter 19 data. Despite the lack of final data, the impact of the overall declines in revenues forced ESCOM to cut back on some operational expenses and investments in its network which could hurt future performance in the power sector. The introduction of a cost-reflective tariff matched with reduced unit costs and improved financial management will be critical for ESCOM to establish a truly sustainable financial position.

ESCOM's ability to turn electricity delivered into cash receipts depends on collecting money from its customers in a timely manner. Historically, ESCOM struggled with high rates of theft, late payments, or simply non-payment by its customers. At the beginning of the compact period, ESCOM began an initiative to move most of its customers to meters that required pre-payment for electricity, rather than relying on collection after electricity was already delivered. This effort was complemented by a project to remove illegal connections, often turning previous non-paying consumers into regular customers. By 2018, more than 90 percent of ESCOM's customers were using these pre-paid meters, cutting down on losses and collection challenges.

Unfortunately, customers that do not have pre-paid meters have proved problematic—including Government and other public or sensitive customers. These customers often accumulate significant arrears to ESCOM, and it is difficult to force them to pay because of political pressure to avoid disconnecting their electricity supply. The indicator for Average Collection Period captures only this problematic group of customers (excluding pre-paid customers), which is why performance has deteriorated. ESCOM has avoided significant reductions in revenues associated with low billing rates despite poor performance on this indicator due to continued progress in adding pre-paid customers. ESCOM is attempting to reach agreement with the Government on adding more public institutions to the pre-paid category which would further insulate the utility from negative financial impacts associated with its most challenging customers.

<sup>22</sup> The cost-recovery ratio is the ratio of a utility's revenues to cover its costs, including operating expenditures, depreciation and capital costs.

### *Regulatory Strengthening*

The Power Sector Reform Project supported the Government of Malawi and other project partners in reaching several key milestones on the path to a more dynamic power sector. At the same time, progress towards compact goals has been mixed. ESCOM did conduct a competitive tender for several solar power IPPs in 2017 using the IPP Framework as a tool to guide them in this new process. Following negotiations with winning bidders, ESCOM signed the first power purchase agreement in September 2018 and ground was broken for a 60 MW solar power plant in December 2018 with operations targeted for late 2019. In early 2019, negotiations continued with other winning bidders. However, challenges in negotiations with IPPs and delays in fully establishing the single buyer unit at ESCOM have led to limited momentum toward additional new generation procurements. Plans for adding new generation exist, but have not been put into implementation despite strong commitment voiced by stakeholders in the power sector. Further work will be needed to fully establish the new market structure in a way that produces the results Malawi needs for power sector growth. During the post-compact period, MCC will be closely monitoring the completion of these reforms as part of its overall assessment of the Government of Malawi's commitment to the achievement and sustainability of compact results.

### Learning from Evaluation Results

There were several key lessons learned from the 2016 interim evaluation of the Power Sector Reform Project for MCC and future partner countries to consider when designing and implementing similar reform projects and evaluations.<sup>23</sup>

Programmatic Lessons: MCC identified the following lessons to the design of upcoming power sector reform projects:

- ★ **Address sector governance constraints head-on:** Utility improvements in financial and operational performance must be paired with meaningful changes in sector governance in order for results to be achieved and sustained over time. During the development of the Malawi Compact, recommended measures to reduce political influence in the affairs of ESCOM and MERA were met with resistance by the Government of Malawi, which did not agree to a number of key changes in the governance of ESCOM and the power sector as a whole. Certain practices, many of which were commonplace in Malawi, can undermine effective management and decision-making within sector institutions—for instance, the appointment of ex-officio membership on the Boards of ESCOM and MERA, which often includes overlapping membership on each, can give rise to conflicts of interest. Similarly, Government failure to respect

<sup>23</sup> For details on how MCC is incorporating these lessons in current and future programming, see here: <https://data.mcc.gov/evaluations/index.php/catalog/110/download/1203>.

the independence of ESCOM can lead to intervention in ESCOM's operational affairs such budgeting and procurement processes, which can undermine ESCOM's ability to allocate resources efficiently, or can create delays in the execution of core business functions. Proposals to confront such issues were raised during compact development and during implementation but ultimately not agreed to or fully implemented by the Government. Although a new Board Charter was developed for ESCOM that requires greater independence and provided greater structure to Board operations, the Board continued to be viewed as politically influenced throughout implementation, and irregular procurements were still occurring, with likely negative effects on ESCOM's finances and operations. These challenges reflect limitations on the extent to which the Government was willing to actually press for more commercially-oriented operations of the power sector. While it is difficult to predict to what degree greater Board independence may have benefitted ESCOM's overall performance, it is clear that the lack of independence from Government intervention has undermined the sustainability of initial gains in ESCOM's operational and financial performance, despite improvements from increased tariffs and revenue growth.

- ★ **Harness early gains to generate greater commitment to critical reforms.** Reform interventions should leverage strategies to build commitment to reform goals, such as supporting activities that lead to visible, tangible results for consumers. Therefore, early-stage interventions should have a clear, near-term path to positive impacts on service delivery. More general management interventions may not lead to desired results quickly enough to build support and commitment for reform goals, especially where improvements are not visible to external stakeholders. In Malawi, conditions to clear ESCOM's balance sheet of debt and increase tariffs early in the compact were critical to providing space for ESCOM's turnaround and sector reforms in general. This shows that the use of targeted conditions can be useful when they result in sufficiently large impacts to offset the challenge of pushing the conditions through. However, the positive benefits of these conditions being fulfilled were not sufficient to bring about anticipated improvements in service delivery that were visible from the perspective of customers.
- ★ **Build in time and flexibility in support of long-term change management:** Reform interventions should be of sufficient duration and flexibility to respond to obstacles and new information, and to adapt to changing circumstances. In line with the evaluation's finding suggesting reduced focus on deliverable quality and greater focus on outcomes, experience on the PSRP clearly demonstrated the challenges associated with implementation of activities designed to achieve sound technical goals. It is critical that MCC and its partners at MCA give sufficient consideration to implementation modalities in addition to identifying needed technical fixes. The PSRP experienced numerous difficulties where recommendations or new policies were not



implemented due to lack of uptake by partner organizations, driven in part by inadequate implementation strategies and in part by lack of demand and accountability for change. Contractor terms of reference should be designed to allow ample time and effort for long-duration, on-the-ground support where technical assistance (TA) can align with opportunities to support ‘learning-by-doing,’ in parallel with ongoing sector initiatives (e.g. tariff reviews) so that partners can actively apply new skills and consultants can adequately follow through on key initiatives. In addition, TA and capacity building efforts should be tailored to enable a learning and feedback process whereby consultancies can identify, adapt to and address emerging issues. In Malawi, initial results yielded useful information that could inform future TA, but shorter, less flexible interventions meant the information could not be used to influence activities that were underway or already completed.

- ★ **Ultimate reform goals may be built on smaller but critical early investments** in a utility’s financial management and information systems, as well as a gradual process of transferring knowledge to key institutions and building of relationships among compact stakeholders. Success in the achievement of any long-term goals depends on building a base of high-quality data and improving the systems to support data-driven decision-making. This can involve early but often laborious work to clean up utility accounting systems and databases, while also allowing for the time necessary to establish strong working relationships and knowledge transfer. Project plans and timelines should account for this full range of activity to be successful, especially given the importance of ensuring that reform activities lead to visible, tangible improvements to build support (as described above). Under the PSRP, significant effort was undertaken to improve accounting and financial data and management, which later served as inputs to the ESCOM MIS and the cost-of-service study and tariff application. This work also improved the quality and availability of information which could be used by decision-makers to assess progress and manage for results; although, the data was not always used to that end in Malawi.

Evaluation Lessons: Future evaluations of policy and institutional reform projects will take the following issues into consideration in their design and implementation:

- ★ The quality of deliverables *alone* is not the most crucial determinant of success or impact of TA interventions. As such, evaluations should assess whether and how these deliverables were absorbed and acted upon by the relevant actors, and the efficacy and effectiveness of follow-on efforts to implement strategies, plans, and recommendations that emerged from the deliverables.
- ★ Evaluations of reform projects should include an assessment of the political economy of the power sector and how this influences the prospects for successful reform. In

addition, evaluations should examine the influence of changes in mindset or perspectives on key reform goals (e.g., private sector investment, cost-reflective tariffs, etc.) among key stakeholders. The impact of a multi-year, intensive, high-profile compact on the knowledge, attitudes and practices of these stakeholders may be significant both in effect and in influencing the future reform trajectory of the power sector.

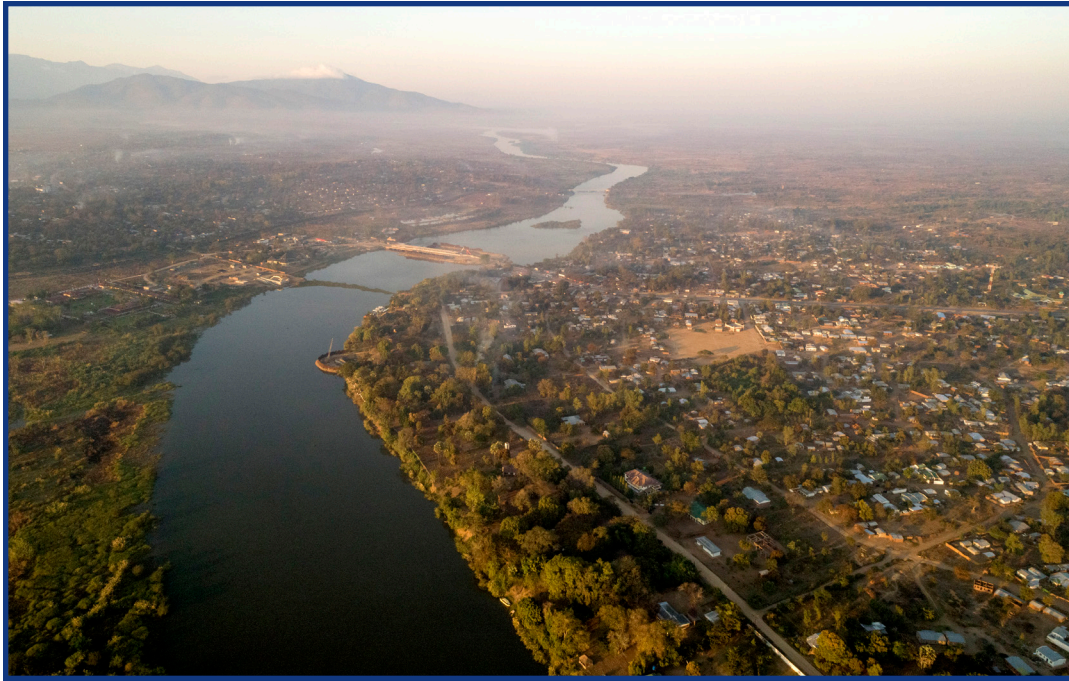
- ★ Evaluations should explore the role and scope of MCC engagement that is required during implementation of reform-heavy projects, beyond the direct management and oversight of the MCA. In particular, evaluations should provide insight on the extent to which project success hinges on high levels of direct engagement by senior management (in terms of high-level visits), resident country missions, and MCC project leads.
- ★ Reform evaluations should assess the strengths, weaknesses, and overall adequacy of the change management and decision-making architecture within key project partners such as ESCOM. Evaluations should also examine the application of best practices and strategies in TA to gather lessons that can inform future TORs for such consultancies—e.g. how to build in flexibility, establish buy-in, ownership, etc., while still remaining consistent with the Project objectives.

## ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT PROJECT

### PROJECT SUMMARY

Nearly all of Malawi's electricity is generated by hydropower on the Shire River—a 402 km (250 mile) river stretching from Lake Malawi directly into Mozambique's Zambezi River. Sedimentation and aquatic weed infestation of the river pose a considerable threat to Malawi's power production. Weeds and sediment lower the water levels of the river, and their accumulation in reservoirs reduces the amount of water that can be held there. This means less power can be generated by Malawi's hydropower plants. According to a 2014 study, sedimentation in the reservoir at the Nkula hydropower plant resulted in a nearly 70 percent loss of capacity. Weed and sediment can also cause damage to machinery and equipment, resulting in costly repairs and inefficient power generation.

Poverty is also a key driver of deforestation in Malawi, leading to further sedimentation and aquatic weed infestation of the river. Extremely high levels of poverty and an inaccessible electricity grid has led most Malawians to rely on biomass—such as charcoal—to cook their food, heat their water, and light their homes. Many families and communities cut down trees to earn income by producing charcoal. This reliance on wood and charcoal has led to devastating, rapid deforestation across the country. Deforestation results in increased erosion, reduced soil fertility, flooding, river sedimentation, and an



CC Malawi's ENRM Project was designed to improve the availability of electricity in Malawi by reducing chronic weed infestations and excessive sediment buildup in the Shire River Basin, which can disrupt hydropower generation. The project also helps implement modern environmental and natural resource management techniques in upstream areas.

Kyle LaFerriere

environment that increases aquatic weed infestation—not only threatening an already food insecure country, but also decreasing the ability to produce hydropower electricity. Poor land management practices and rapid deforestation contribute to a cycle of continued food insecurity and yet more deforestation.

During compact development, MCC conducted a baseline environmental, gender, and social assessment of the Upper and Middle Shire River Basin.<sup>24</sup> The assessment identified “hot spot catchment areas” that whittled down large geographic areas that contribute most to soil erosion of the Shire River to smaller areas disproportionately affecting hydropower generation. The identified hotspots had high potential for erosion combined with very rapid land-use change, such as the conversion of forested hillsides to agriculture. This helped MCA-Malawi identify seven areas in the Upper Shire and ten in the Middle Shire province where communities could benefit from compact-funded activities.<sup>25</sup>

The baseline assessment also identified gender-based inequalities that affected access, control, and use of natural resources in the Upper and Middle Shire River Basin. According to the study, among the poor in Malawi, women face a variety of gender-based constraints as farmers and managers of natural resources. For this reason, it was critical to understand their livelihood strategies. In particular, the baseline assessment revealed

<sup>24</sup> These two segments of the Shire River Basin are upstream from Malawi's main hydropower plants.

<sup>25</sup> In coordination with the World Bank, MCC prioritized five of the 10 hotspots in the Middle Shire, and the World Bank program worked in the other five.

that even under matrilineal systems that are predominant in this geographic area, decision-making power on land usually lies with men who have greater control over the assets. The baseline work in the Upper and Middle Shire included the development of an action plan for both provinces that spelled out a combination of environmental and natural resource management activities—like conservation agriculture and forestry—as well as social and gender interventions that, if used in combination, could target the specific needs of given communities. Over the long-term, these action plans provided a strategic vision for how to reduce sedimentation and ensure a positive shift to environmental management practices, based on capacity building skills in natural resource management and social and gender empowerment.

The objective of the Environmental and Natural Resource Management (ENRM) Project was to mitigate the growing problems of aquatic weed infestation and excessive sedimentation in the Shire River Basin to reduce the costly disruptions to Malawi's hydropower generation. The compact was designed to reduce blackouts caused by invasive weeds entering the turbines and sediment that reduces the water retention capacity at the dams, by investing in the mechanical removal of weed and sediment in the river basin and implementing better environmental and natural resource management in upstream areas, tackling the source of the sedimentation. Over the long-term, the project was designed to reverse the degradation of the Shire River Basin and improve the sustainability of hydropower generation in Malawi by maintaining the quantity and quality of water in the Shire River. This approach aimed to enable a long-term, sustainable, and institutional foundation to Malawi's power sector, supporting the compact's infrastructure and policy investments.

The ENRM Project included three main activities, reflecting a strategy that addressed both the causes as well as the symptoms of poor land-use management. The Weed and Sediment Management Activity addressed the cause, the ENRM Activity addressed the symptoms, and the Social and Gender Enhancement Fund (SGEF) Activity ensured equitable participation of all stakeholders to maximize results.

#### WEED AND SEDIMENT MANAGEMENT ACTIVITY

To mitigate the impact of the weeds and sedimentation, this activity supported the purchase and use of large-scale equipment, including a dredger, weed-harvesting equipment, conveyers, and disposal trucks. The activity also constructed environmentally-appropriate disposal sites for the weeds and sediment and designed an associated Sediment Management Strategy, in line with international best practices, for EGENCO to manage as part of their operations and maintenance. To financially sustain the operation and maintenance of such activities, costs were built into the electricity tariff to fund EGENCO's long-term strategy.





MCC Malawi's ENRM Project was designed to improve the availability of electricity in Malawi by reducing chronic weed infestations and excessive sediment buildup in the Shire River Basin, which can disrupt hydropower generation. The project also helps implement modern environmental and natural resource management techniques in upstream areas.

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MCA-Malawi initially procured two dredgers under the Sediment Management Strategy, one for the Kapichira power plant and a second for the Nkula plant. MCA procured two harvesters, two conveyors, and two tipper trucks. Due to the contractor's inability to deliver the dredgers in time, MCA had to re-procure the dredger, using more standardized specifications. A single dredger was purchased for Kapichira.

Originally, EGENCO was supposed to supply the disposal area based on the designs provide by MCA-Malawi's Sediment Management Strategy. MCC and MCA-Malawi viewed this as a long-term operational strategy that EGENCO would need to expand. Unfortunately, due to the liabilities inherited from the unbundling from ESCOM, EGENCO was not in a financial position to build the disposal area immediately. MCA-Malawi took over the implementation of the disposal strategy and hired a firm to build the landfill for the disposal area, the pipeline and the associated civil works at Kapichira. Since this work was taken over from EGENCO very late in the compact, it was not completed before the end of the compact. Following closeout, MCA-Malawi's successor agency, MMD, and EGENCO provided management and oversight of the activity with the support of a supervising engineer, and the work was completed in late 2019. Once completed, the disposal area is expected to allow the dredger to be used for the next twenty years, or the expected operational life of the dredger.

The Weed and Sediment Management Activity interventions were designed to ensure that the mechanical removal of weeds and sediments from the Shire Basin did not

produce environmental harm to local communities, or in the case of the sediment, downstream. Weeds are harvested and disposed in a former quarry where they are allowed to dry. This is an improvement over the former approach used by EGENCO of disposing of these weeds in a forest reserve where there was a forest fire risk from the debris as well as potential for the seeds from the hyacinth to be washed back into the Shire River.

#### ENRM ACTIVITY AND SOCIAL AND GENDER ENHANCEMENT FUND ACTIVITY

While the dredgers and weed harvesters tackled the consequences of poor land management, the ENRM Activity was aimed at addressing the root causes of this problem by reducing environmental and natural resource degradation, promoting more sustainable land use practices, and enhancing rural incomes. Critical to addressing these root causes, the Social and Gender Enhancement Fund (SGEF) Activity also addressed gender barriers that limit decision-making authority from women at the household level.

The Malawi Compact funded grants to eleven NGOs that had proven experience in administering activities that improved natural resource management and gender equality. These grants were designed to serve as a pilot program, providing proof of concept that a grant mechanism could mobilize and target resources to arrest soil erosion and improve land management in Malawi. MCA-Malawi anticipated the pilot would be continued by the Environmental Trust, sustainably funded through a Payment for Ecosystem Services mechanism described below. MCC would evaluate the impact of the grants to gather lessons learned and best practices in changing environmental and social behaviors in natural resource management.

The grant program provided two funding windows: a window for Environment and Natural Resource Management and a second window under the Social and Gender Enhancement Fund (SGEF). The SGEF recognized that poverty and gender-based inequalities contribute to poor land management practices. Applicants were encouraged to apply to one or both of these windows. In practice, all grantees took an integrated approach that promoted improved land management techniques while also targeting the economic and social needs of men and women to enhance their engagement and adoption of such practices. The grantees worked with the communities in targeted areas to plant trees, improve agricultural practices, use techniques to slow soil erosion, and promote gender equality.





Members of the Tiyanjane Horticultural Club demonstrate grafting of seedlings to create higher-value, improved varieties of fruit trees. The club benefited from the Social and Gender Enhancement Activity to improve sustainable management of resources.

Andrew Ladson

Under the ENRM funding windows, grantee activities were designed to improve livelihoods while reducing soil erosion. The types of projects allowed under the program included those that funded:

- ★ Support to communities in policy and legislation application and in improving their participation in environment and natural resources management decision making;
- ★ Management and sustainable utilization of forests and promotion of individual woodlots, tree planting and management;
- ★ Piloting, demonstrating, and promoting on-farm soil and water conservation measures, sustainable crop techniques, and agroforestry;
- ★ Initiatives to reduce demand for and improve sustainability of wood energy use; and
- ★ Projects to stabilize and enhance rural incomes, employment, and businesses.

The SGEF funding window enhanced the ENRM funds with targeted efforts aimed at ensuring that women and men benefitting from the grants gained increased knowledge about the sustainable management of land and natural resources. This was done through a range of different strategies to integrate both ENRM and SGEF goals by NGOs, such as:

- ★ **REFLECT Circles and adult literacy:** All grantees used REFLECT Circles to enhance communication between women and men and equip communities in the targeted areas with the knowledge to improve land use and watershed management practices.<sup>26</sup> This methodology created a high level of awareness from women about their particular roles and challenges accessing and managing natural resources. MCC and MCA-Malawi developed a manual in Chichewa and English to help facilitators integrate natural conservation and gender equality issues in their discussions. In addition, grantees facilitated capacity building activities for REFLECT Circles' facilitators to strengthen their skills. The discussion within the REFLECT Circles raised environmental problems that contributed towards electricity generation disruptions and how they affected women's livelihoods. Through compact support, 448 REFLECT Circles were created and 526 REFLECT Circle facilitators (297 women and 229 men) were trained. Furthermore, 411 facilitators received certified training provided by the Department of Community Development and were added to the Government payroll due to the high demand from the target communities to keep these groups operational after the compact ended.<sup>27</sup>
- ★ **Leadership and assertiveness training for women:** All grantees promoted leadership and assertiveness training for women from the impact areas, helping them to identify their leadership styles and apply new knowledge, skills and tools learned through the trainings. Participants received feedback and refined their skills through role playing and practice. Grantees encouraged women to enroll in local committees and structures in order to capitalize on the knowledge gained through the programs. The project trained 4,222 women on leadership and assertiveness.
- ★ **Training on gender equality for leaders:** Training of traditional leaders was a critical component of SGEF activities. The training was designed to encourage participants to use their authority to influence the promotion of women's rights and increase women's opportunities to have decision-making power and leadership in land management issues within their communities. Women leaders also received training under this project, resulting in increased participation of women in different committees and creating a high level of awareness and confidence among women leaders. A total of 7,436 community leaders were trained in gender equality issues, out of this total 3,264 men leaders participated in trainings promoting gender equality.<sup>28</sup> The significant number of men trained had important positive effects on gender equality since they already have existing platforms, structures, and social networks through

26 REFLECT was developed by ActionAid in 1993 and first used in El Salvador (South America), Bangladesh (Asia) and Uganda. REFLECT is now used in over 60 countries to tackle problems in agriculture, HIV/AIDS, conflict resolution and peace building. It is based on the theory pioneered by the Brazilian educator Paulo Freire Link

27 ENRM Grantees guidance questionnaire for the GSI Implementation Report Malawi Compact

28 ENRM Grantees guidance questionnaire for the GSI Implementation Report Malawi Compact

which they influence other men and their communities. For instance, leaders trained by one grantee have ensured that women have equal participation in village structures.

- ★ **Village Savings and Loans (VSLs):** Through the ENRM project, grantees supported VSLs with training for facilitators and agents in ENRM issues and gender-sensitive approaches, as well as guidelines for strengthening the integration of ENRM consideration in the VSL schemes. Grantees used funding to build the capacity of the VSL groups, agents, and members to promote a savings culture, introduce micro-loans for sustainable income generating activities, and reduce the reliance on the charcoal business. To support the technical capacity of grantees, MCA-Malawi produced a manual in March 2018. This marked the first time VSLs in Malawi had a manual integrating both ENRM concepts and gender equality principles into their operations. The participation of women was remarkable across all VSL groups, and the positive outputs in terms of access to capital and savings demonstrated economic empowerment for women. Savings achieved by women members of VSLs were used for sustainable income-generating activities and other household needs such as schooling fees, inputs for agriculture, and house improvements. A total of 907 VSL groups composed of 21,491 women and 5,605 men were supported.
- ★ **Training on business and marketing skills for women:** Improving literacy and numeracy skills is the first step to strengthen women's capacity to manage household assets and increase income-earning opportunities. Grantees complemented REFLECT Circles and VSL activities with trainings focused on business and marketing skills. With compact support, grantees trained 5,421 women and 3,328 men on business skills and marketing.
- ★ **Promotion of alternative income generating activities:** Grantees implemented activities to reduce the dependence of poor families on the charcoal trade by introducing them to new and sustainable income-generating opportunities. These alternative income generating activities both achieved the goal of adoption of sustainable agricultural practices and provided opportunities for people to lift themselves out of poverty by launching new businesses while improving women's decision-making power over key productive resources.

The SGEF reached about 73,676 people in the Upper and Middle Shire River Basin (49,477 women and 24,199 men). Eight out of the eleven grantees achieved and exceeded the targets stated in their proposals before the first year of implementation. Across all grantees, women participated more than men in the SGEF interventions.

Because MCC can only fund compact activities for five years, the ENRM Activity also included the establishment of an environmental trust (the Shire BEST Trust) as part of

a longer-term strategy to help the Government address the drivers of poor land natural resource management. Setting up the Trust—with the lessons learned from the pilot grant program—would continue sustainable operations of similar projects in the future. The Trust is intended to be a public-private partnership, where private sector partners in Malawi could provide funding, such as through their corporate social responsibility programs. MCC also supported a Payment for Ecosystems Services (PES) scheme—an international best practice—through the inclusion of a small fee within the energy tariff.<sup>29</sup> Therefore, Malawians would be helping to sustain the Shire Basin every time they turn on a light, and ensuring that same light stays on in the future. The Shire BEST Trust is intended to be a long-term partnership between government and private stakeholders dependent on electricity from hydropower and/or with a long-term stake in maintaining water availability from the Shire River.

At the completion of the compact, the Trust was in its very early stages of development—it has been legally registered, has established a board of key stakeholders, and has its core governance manuals in place. The Trust Board will work on providing the minimal requirements to sustain the Trust and to effectively use the PES financial resources generated from the tariff implemented in late 2018. This includes supporting the new board of Trustees, developing a Strategic Plan and Business Plan, assisting the Trust in hiring a firm to implement grant activities, and providing them with some initial fundraising materials to use with potential donors. Since the tariff was implemented after compact end date, the Trust board members had to finalize the operational stand up of the Trust using all the documentation developed during the compact. MCA and MCC worked closely with them to also identify other bridge-funding opportunities to assist them during this transition period to more long-term funding through the PES. As of early 2020, the Trust had signed a Payment for Ecosystem Services agreement with EGENCO and money was flowing from the tariff through EGENCO to the Trust. The Trust is still pursuing opportunities funding from other donors but is operational with a coordinator and its own offices.

## EVALUATION FINDINGS

MCC has commissioned a rigorous, independent performance evaluation of the ENRM Project to determine how the overall project and individual activities help to improve the efficiency of hydropower generation and reduce costly generation disruptions. The ENRM Project evaluation will answer the following overarching questions:

1. How has land use along the Shire River changed during the ENRM Project?

<sup>29</sup> Payment for Ecosystem Services are programs where a beneficiary or user of an ecosystem service (such as hydropower use by electricity users) make a direct or indirect payment to the provider of that service, which is then used to maintain the natural resource. PES programs can also benefit the conservation of the ecosystem being used.

2. If the Project activities were expanded throughout the area, how would the activities affect sedimentation in the Shire River based on alternative modeling scenarios? How would reductions in sedimentation affect hydropower production based on the alternative scenarios?
3. Based on the results of each activity's evaluation, which implementation factors supported or hindered the effectiveness of the ENRM Project overall?
  - a. How did ENRM Project implementation vary from what was planned and why?
  - b. How did these changes in implementation affect overall outcomes?
4. Did the ENRM Project achieve its targeted intermediate and final outcomes and contribute to higher-level compact objectives? Why or why not?
  - a. Were there any unintended consequence of the program (positive or negative)?
5. Based on the results of each activity's evaluation, what are stakeholders' perceptions of sustainability of outcomes achieved under the ENRM Project, and why? What could or should be done to increase sustainability?

To address the first two research questions, the evaluation will include a remote sensing analysis to examine land use changes over time in the Shire River Basin. The evaluator will also model how changes in land use management affect sedimentation rates in the Shire.

The performance evaluations of the ENRM and SGEF grant facility and the Shire BEST Trust will examine activity implementation, achievement of results, and longer-term sustainability. The performance evaluation of the ENRM and SGEF grants will include in-depth qualitative case studies with five grantees to examine activity implementation, changes in sustainable land management practices, changes in gender roles and household decision-making, and sustainability of results. Lastly, the evaluation of the Weed and Sediment Management Activity will include an interrupted time series analysis to estimate impacts of the activity on the operations and productivity of the hydropower plants. Specifically, the evaluation of the Weed and Sediment Management Activity will address the following questions:

1. How was the Activity implemented?
  - a. Was the Activity implemented as planned? Why or why not?
  - b. Which implementation factors supported or hindered the effectiveness of the Activity?
  - c. Did the equipment purchased perform as expected in terms of the quantities of sediment dredged and weeds harvested?

2. To what extent did the Activity restore active storage at the hydropower plants during the compact and after it ended?
3. Did the new weed harvesters and dredgers affect power plant operations during the compact and after it ended?
  - a. To what extent did the equipment change power generation?
  - b. How did the use of the equipment and related improvements vary by hydro-power plant?
4. How do the power plants ensure appropriate maintenance and repair of the equipment provided under the WSM activity?
5. What are stakeholders' perceptions of the sustainability of outcomes of the Activity?

#### Status of the evaluation

Component	Status
Baseline/Interim	Data collection completed in November 2018. Report released in April 2020.
Endline	Data collection expected completion in 2020. Report expected in 2021.

The *Key Findings of the 2018 Interim Evaluation of the ENRM Project* include:

#### *Weed and Sediment Management Activity*

- ★ Dredge delivery was significantly delayed or canceled because of poor contractor selection and performance. By compact closeout, the weed removal equipment and one dredge were delivered, although the dredge was not yet in use.
- ★ Due to equipment delays, the project has yet to show a reduction in disruptions to hydropower generation.
- ★ Malawi's Electricity Generation Company (EGENCO) and the government have committed funds to complete implementation of the WSM Activity.

#### *ENRM and SGEF Grant Facility*

- ★ The grant facility was successfully implemented but was constrained by a three-year intervention window and cost-reimbursement contracts that slowed grant implementation. The grant-making process sometimes relied on subjective criteria and undocumented decisions.



- ★ The grant facility exceeded several of its targets but did not have the resources or capacity to monitor key outcomes like farming practices.

#### *Environmental Trust*

- ★ The lack of early agreement between MCC and MCA-Malawi on the trust structure, a focus on implementing the grant facility, and poor contractor performance resulted in trust operations not being launched before compact closeout. It is uncertain if the environmental trust will be launched and sustained in the coming years.

The *Key Findings* of the 2018 Interim Evaluation of the ENRM Grant Facility Case Studies include:

#### *Implementation of case study grants*

- ★ All five case study grants were established through community buy-in and in partnership with government agencies and local leaders.
- ★ All five grants used participatory, hands-on ENRM training methods, which were appreciated by community members.

#### *ENRM outcomes*

- ★ The evaluation found widespread adoption of ENRM practices in sustainable agriculture and forest restoration for all five grantees, as well as participation and adoption of ENRM activities by women.

#### *SGEF outcomes*

- ★ Village savings and loans (VSLs) were popular and succeeded in increasing women's economic empowerment and participation in financial decision-making in households.
- ★ VSLs and Reflect Circles, a participatory approach to adult learning and social change, supported change in decision-making in households, in the division of labor in households and on farms, and in community leadership.

#### *Overall outcomes and sustainability*

- ★ Grants were found to be more effective when environmental practices and gender equality activities were integrated.
- ★ Participants were confident that grant activities would be sustained because of the benefits gained from adopting ENRM practices and participating in VSL groups, such as higher yields and economic empowerment.

## KEY OUTPUT AND OUTCOME INDICATORS

Activity	Indicators	Baseline (2012- 2013)	End of Compact Target (2018)	Actual Achieved (06/2018)	Percent Complete
Project level	Electricity not generated due to weeds and sedimentation (Megawatt hours)	4,640	2,320	10,094.3	-235.1%
Weed and Sediment Activity	Dredged material placement area constructed at Kapichira	N/A	31 May 2018	Not achieved	Not achieved
ENRM Activity	Leaders trained on natural resource management issues	0	6,745	7,751	114.9%
Social and Gender Enhancement Fund Activity	Number of women who enroll and complete leadership training	0	2,787	4,222	151.5%
	Community members participating in operational Village Savings and Loans (VSLs)	0	19,245	27,096	140.8%

## EXPLANATION OF RESULTS

The Weed and Sediment equipment was delivered much later in the compact than originally intended, in part due to difficulties with the performance of the contractor, but also related to the need to holistically manage the disposal of waste material, particularly large quantities of sediment. The harvesters were commissioned and will be put to use during the rainy season from November to March. It is during the rainy season when mats of weeds tend to dislodge and clog the turbines of the hydro-plants. Production of the weed harvesters, though, could be impacted by the move of the installation at Liwonde to the other side of the river when the new World Bank-supported weed harvesting crane and boom are installed. The MCC-funded weed harvesters will work in tandem with the World Bank project.

Similarly, the dredger was delayed and ultimately delivered and assembled at Kapichira post-compact (November 2018), although it initially could not be launched due to low water levels in the head pond. With the delays in the completion of the dredged material placement area, the dredge may not be used to its full potential during the first rainy season when more sediment accumulates. The real impacts from the equipment will most likely be seen when the capital dredging starts during the 2019/2020 rainy season, as well as some dredging during the dry season before that when the disposal area is ultimately completed. In light of the overall challenges and delays under the Weed and Sediment Activity, the figures for “Actuals Achieved” at the end of the compact for the key outcome shown above is not reflective of the compact’s impact. The significant increase in electricity not generated observed at the close of the compact was primarily due to greater siltation at the Tedzani hydropower station during that time period. As with the broader infrastructure investments, MCC will be monitoring the long-term changes in hydropower efficiency and production during the post-compact period.

The small grants work exceeded many of its targets, according to grantee reporting. The surpassing of targets may be related to various factors, but is likely due in part to the shifting of additional funds to a number of the better-performing grantees during the second and third years of grant implementation. Additionally, it is possible that grantees exceeded training targets by recruiting larger numbers of participants to attend their training sessions. Therefore, it remains to be seen whether the exceeding of output targets will translate into broader impacts and behavior change among participants. During the post-compact period, MCC will be evaluating the long-term behavioral change coming out of the grant activities and the sustainability of these interventions with case-studies focused on five of the 11 grantees.

## Learning from Evaluation Results

MCC has identified the following programmatic and evaluation lessons based on the Interim Report for Evaluation of the Environmental and Natural Resources Management (ENRM) Project.

Programmatic lessons: MCC identified the following lessons for the design of future environmental and natural resource management-focused projects:

- ★ *Program implementers should be identified and selected based on the expertise and experience needed to translate complex programmatic details and due diligence analyses into well-targeted and effective activities.* During early phases of implementation, MCC and MCA-Malawi sought to distill an extensive set of recommendations from due diligence assessments into succinct objectives. For the ENRM Activity, this due diligence used extensive modeling and land-use change projections to highlight the erosion hotspots as well as to craft several priority interventions tailored to local needs to reverse land-use trends. For the Social and Gender Enhancement Fund Activity, this entailed a robust social and gender assessment of relevant communities to inform project design. In addition, the grant selection process emphasized that proposals would be evaluated against the appropriateness of the intervention relative to the grant facility objectives, while also rating the capacity of applicants to implement their programs. Although the proposed interventions and locations aligned well with MCC's due diligence recommendations, grantees had varying levels of experience in implementing key activities, and the high level of effort required for MCA-Malawi to conduct oversight and capacity building ultimately limited its ability to support effective implementation.

MCC is addressing this lesson by convening discussions across the agency to undertake a holistic review of experiences with administering grant facilities within its compacts, taking the challenges noted above into consideration.

- ★ *Project teams within MCC and the MCA should be sufficiently staffed to draw on expertise from key sectors such as gender and social inclusion and environmental performance, while not overburdening team members who have broader responsibilities for cross-cutting work.* ENRM was one of three projects under the Compact. However, it was not staffed separately within the MCC Country Team or by MCA like the other Compact projects. Instead, it was co-managed by the environmental and social and gender teams, which both have oversight responsibilities across the whole compact. As such, ENRM was implemented in addition to the cross-cutting duties undertaken for other compact activities. As a result, ENRM did not get dedicated focus, especially when problems arose such as a difficult resettlement that threatened the



Mary Chaima stands outside of her grocery store, made possible by the Social and Gender Enhancement Activity to improve sustainable management of resources, reduce natural resource degradation, increase economic opportunities, and help decrease outages at downstream hydropower plants. Mary transitioned from selling charcoal to being a grocer.

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completion of the largest activity. Small dollar value projects could require high levels of effort for administration and oversight from MCA and MCC staff; therefore, it is important to adequately staff each project to provide administrative oversight and technical support.

MCC is addressing this lesson by organizing internal working groups tasked with reviewing staffing strategies and practices, and identifying models to ensure right-sizing of project staff within both the MCC Country Team and for MCAs.

- ★ *Planning for long-term sustainability of interventions should be a focus from the start of program design and implementation, with particular efforts directed towards establishing or capacitating institutions that will exist beyond the compact.* The ENRM Project sought to establish an environmental trust overseen by a mix of public and private sector stakeholders, and to institute a sustainable financing mechanism through the electricity tariff that could support continued interventions in sustainable land management beyond the life of the compact. The process of operationalizing sustainability mechanisms requires significant investments in time and appropriate expertise, and should begin in the early stages of implementation. Setting up a new institution operationalizing a novel funding approach (in this case, a payment for ecosystem services model) took considerable effort to get support and buy-in, even from the MCA. Critical time for setting up the institution was lost by carrying out a feasibility study after the compact had entered into force. This should have been done before entry into force to ensure MCA and stakeholder buy-in; instead, one year of implementation was lost in the process. In addition, the project set out to test the viability of the trust

model but encountered challenges in fully capacitating the trust due to early delays in agreeing on the optimal vision to support sustainability.

MCC will incorporate this lesson by endeavoring to complete critical studies and analyses related to sustainability planning during compact development, and before implementation begins. In addition, MCC will work with its partner countries to identify key sustainability issues during early stages of project definition, achieve consensus on core strategies, and document agreed-upon approaches at the time of compact approval.

- ★ Carefully consider whether to use a grant facility as opposed to other implementation modalities in order to achieve project objectives. Given the limited time and resources available during the five-year period of the compact, both the up-front and recurring costs of implementing a grant facility diverted vital staff time and attention away from other priorities of the ENRM Project, including the effort to establish a permanent environmental trust. In addition, the time required for establishing a grant facility, operations manual, and selection of grant awardees cut into the amount of time available for implementation, leaving only 3 years to support interventions intended to promote long-term behavior changes among beneficiaries. Moreover, implementation was constrained by a reliance on relatively smaller grants awarded to multiple organizations over a wide geographic area, which led to a higher resource burden on MCC and MCA-Malawi in terms of conducting programmatic oversight and capacity building. As MCA-managed grant facilities must cease operations at the close of a compact, the time investments and resources put into building up capacity are unable to be preserved beyond the life of the compact, leaving local partners with an uncertain source of continued support.

MCC is addressing this lesson by convening discussions across the agency to undertake a holistic review of experiences with administering grant facilities within its compacts, as described for lessons noted above.

- ★ Integrate social and gender-focused activities within the context of overall ENRM interventions. The interim evaluation findings suggest that within the case study grantees, the inclusion of targeted social and gender-related activities, such as supporting village savings & loan groups, and leadership trainings for women, helped to augment the results of broader outcomes relating to adoption and support for improved land management techniques, at both the household and community levels. In addition, the interim evaluation underscores changes in perception of gender roles at the household and community level in the targeted areas. According to findings from the case studies, participants perceived that the SGEF interventions generated greater joint household decision-making regarding household finances, more egalitarian



division of labor, more leadership opportunities for women, and greater participation in community decision-making by female heads of households. While a longer-term transition to sustainable land management practices will be assessed in a future analysis, the experience of several grants demonstrates the benefits of incorporating social and gender-related dynamics within communities and households in any efforts to improve natural resource management, since both women and men are involved in using, caring for, and benefiting from natural resources. Such activities have also been shown to improve gender equality in the communities involved, including increased women's participation in intra-household decisions about resource allocation, and greater opportunities to take on leadership roles in their communities.

- ★ Align the promotion of sustainable land management practices with the economic incentives of beneficiaries. While participants in several of the grant programs expressed support for conservation measures that can slow land degradation and reduce soil erosion, those who made changes in their own agricultural practices also pointed to the tangible benefits they directly experienced from adopting improved techniques. Interim evaluation findings suggest that many beneficiaries felt that engaging in sustainable land management activities was valuable for them, as it resulted in higher crop yields, while others found opportunities in alternative income-generating activities. Therefore, the visible benefits of the practices helped motivate adoption, in some cases even leading to positive spillover effects wherein non-participants in villages outside of the intervention areas adopted similar practices, after seeing the benefits in neighboring villages.
- ★ Interventions attempting to change long-standing norms and practices must be supported with the in-depth strategies, expertise, and tools needed to effect such changes. The ENRM and SGEF activities sought to significantly alter deeply rooted behaviors related to gender dynamics and agricultural practices within households and communities, an effort that generally involves sustained engagement over an extended time period, beyond what was afforded under the grant facility. Such interventions generally require intensive focus and effective methodologies for conducting detailed assessments, community mobilization, and application of both innovative and proven techniques for promoting behavior change and introducing alternative income-generating activities. This project could have benefited from technical capacity and appropriate tools to enable monitoring of short-term indicators of behavior change. Besides the land use maps done by four grantees, there were no specific indicators to report project achievements in relation to this area. To have lasting impact, additional work would also be needed across the value chain of productive activities so that farmers see the tangible benefit of better land-use practices.

Evaluation lessons: Future evaluations of environmental and natural resources management-focused projects will take the following issues into consideration in their design and implementation:

- ★ Evaluations of grant facilities pose unique challenges for evaluations and may require a different approach for evaluation design. Grant facilities typically fund multiple disparate and geographically dispersed interventions that link only indirectly to a broader set of project objectives, and often include designs that were proposed or decided upon only after a compact has begun implementation. This may leave evaluators with a limited amount of time between grant signing and the start of implementation for designing a prospective evaluation and conducting baseline studies. In addition, data quality often varies between grantees, and can complicate an evaluator's ability to verify details on implementation milestones and outputs achieved based on MCA's monitoring data or documentation.
- ★ The selection process for awarding individual grants under a grant facility does not adhere to equivalent standards for documentation and due diligence as used for conventional MCC projects, and rarely have program logics and clear targets that facilitate evaluation design and planning. This often leads to lack of clarity behind the logic of a grant intervention or selection of beneficiaries compared to a conventional project, limiting the evaluator's ability to validate baseline assumptions that underlie the rationale for the activity. MCC is working on a leveraged grant facility guidance document that will help address these concerns and shift grant identification to an earlier phase of compact development.

## COMPACT CHANGES

### INFRASTRUCTURE DEVELOPMENT PROJECT

**Nkula A Hydropower Plant:** The design of the *Nkula A HPP Refurbishment Activity* originally envisioned a refurbishment of the existing turbines to original or better specification. The turbines were designed and built robustly, and ran for 50 years with minimal maintenance. However, during the issuance of the tender documents, tenderers were offered two options to bid on: provide new turbines or refurbish the existing turbines. The tender stated a fixed price contract, and the tenderers, reticent to opt for the refurbishment option because of the higher unknown risks, all tendered for new turbines.

### POWER SECTOR REFORM PROJECT

**ESCOM Corporate Governance:** MCC and MCA-Malawi agreed to change the condition in the compact that required a study to assess the practices and performance of ESCOM's

Board against international comparators to be completed prior to the second year of the compact. This study was instead required to begin prior to the end of the third year of the compact. The delay in conducting the study was linked to the significant amount of work planned at ESCOM under the Power Sector Reform Project during the second year of the compact. Pursuing the study at the same time would have resulted in challenges in ensuring the appropriate level of attention to the development and follow through of the Corporate Benchmarking Study. The study was funded later in the compact as anticipated; however, the impact of the study was limited due to a general lack of interest in corporate governance improvements on the part of the Government and, by extension, the ESCOM Board.

Further, MCC agreed to remove a requirement in the compact to have all ESCOM interaction with the Government take place through the Department of Statutory Corporations (DSC). This was removed due to the fact that the Ministry of Natural Resources, Energy & Mining (MNREM) had assumed the lead in Government interactions with ESCOM. However, in practice ESCOM leadership was still subject to influence from different parts of the Government, including the DSC, MNREM, Ministry of Finance and the Office of the President through a variety of formal and informal mechanisms. The informal mechanisms in particular were not conducive to the introduction of improved norms and practices of corporate governance sought by the compact.

**Rural Electrification:** The compact included support for the Government to clarify the Rural Electrification Act. However, during implementation, other donor partners began work on rural electrification and national energy policy, and MCC did not provide this support as a result.

## ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT PROJECT

Under the Weed and Sediment Management Activity, EGENCO was originally supposed to construct the disposal areas for the dredge material. With the unbundling of ESCOM and EGENCO later in the compact lifecycle, EGENCO did not have the financial resources required to build the disposal area. Instead, MCC used compact resources to initiate construction.

## COMPACT SUSTAINABILITY

The Malawi Compact took a systemic approach to strengthening the nation's power sector—recognizing the need for infrastructure, policy reform, and environmental management in order to drive the sector forward as no one investment alone could result in sustainable change. Sustainability of the compact was integrated across all three projects.

*Infrastructure:* Both ESCOM and EGENCO developed sustainability plans as part of project implementation. These plans outline archiving procedures for detailed design and as-built drawings; and procedural and financial operations and maintenance planning. Emphasis was placed on ESCOM's and EGENCO's involvement in final inspections of the works, particularly of the Nkula A hydro power generator and various substations as part of the capacity building for ESCOM and EGENCO. In addition to the sustainability plans, the compact provided training to the appropriate EGENCO and ESCOM staff for proper operation and maintenance of the new assets and both utilities' personnel participated in the functional tests and trial runs prior to commissioning of the assets. After the compact period, ESCOM is expected to upgrade transmission and distribution substations that are currently or will soon become overloaded. This will also prepare the system for future increases in generation capacity.

*Policy Reform:* The Power Sector Reform Project was designed to not only strengthen the sustainability of MCC's compact investment but all of Malawi's power sector. Through activities that sought to improve the financial and operational health of ESCOM and update the legal and regulatory framework to support increased investment, the project intended to help Malawi secure the resources necessary to achieve sustainability and growth in the power sector. The project required comprehensive changes from a capacity, procedural, institutional, and political point of view, touching a diverse set of stakeholders throughout the sector. Achieving and then sustaining these changes was dependent on a wide set of assumptions, as outlined in the project summary above.

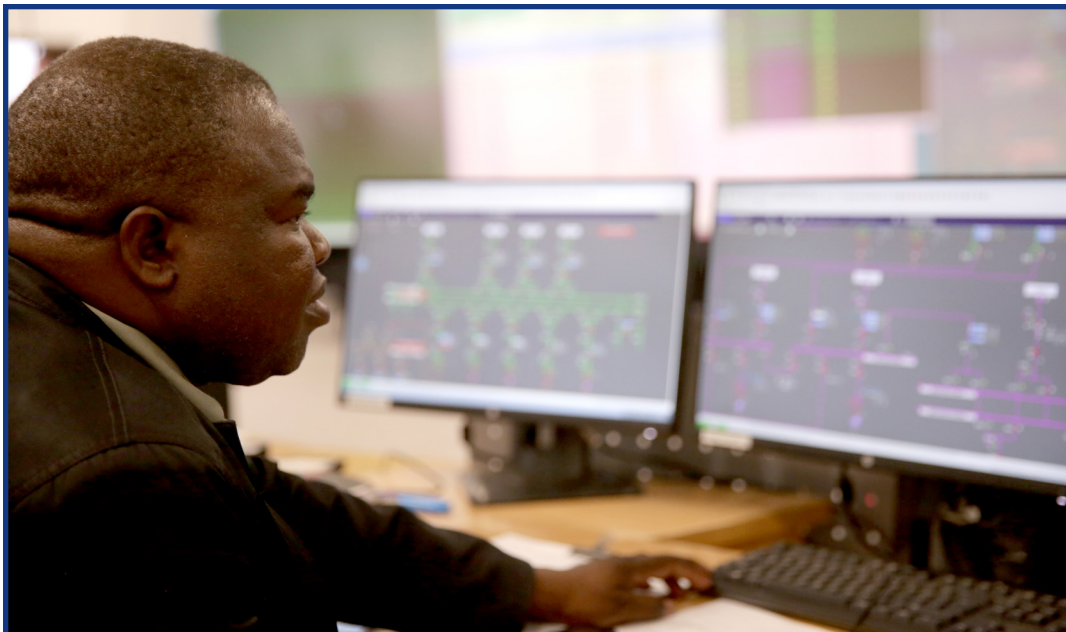
In practice, many of the assumptions made at the outset of the compact were not fully realized during implementation, impacting the compact's ability to deliver planned results. For example, political will for tariff reform was only partially present—initial tariff adjustments led to improved financial outcomes for ESCOM, but were not followed through to the end of the compact. Legal reforms to restructure the power market, including an amendment to the Electricity Act, lost momentum and expected changes to the operation of Malawi's power sector had yet to be fully implemented at the end of the compact. Efforts to add new generation through private sector investment moved forward tentatively but were delayed due to the novelty of these processes in Malawi and resistance to change from some stakeholders.

The compact introduced a number of rapid changes to Malawi's power sector that have resulted in improvements in some areas while progress has been limited in others. These reforms provide a basis for continued improvements in how Malawi's power sector operates and the outcomes it produces. However, the sustainability of the Project and compact investments as a whole will be dependent on the Government and other stakeholders maintaining their commitment to reform goals.

***Tariff Reform & Financial Sustainability:*** ESCOM's financial health is critical to the sustainability and growth of the sector as a whole. Without a financially viable ESCOM, existing investments will be hard to maintain (including servicing IPP payments and maintaining EGENCO's financial position) and new investments will be starved of resources or dissuaded due to the poor financial position of the sector. In order for ESCOM's financial health to improve, it is critical that tariff reform continue and become more firmly established. Further, ESCOM must be able to collect revenues from its customers on a timely basis.

Despite initial optimism following an increase to the tariff in 2014 and an additional adjustment in 2015, additional regular increases were not implemented during the compact period, resulting in a declining financial position for ESCOM and the power sector as a whole. Additional challenges have resulted due to new costs to ESCOM related to energy purchases that have not been passed on to consumers, resulting in costs exceeding revenues for several months.

In the last year of the compact, MCC continued to press the Government, ESCOM, and MERA to commit to the steps necessary to secure financial sustainability in the power sector, most prominently through ESCOM's 2018 tariff application, with an increase in rates approved by MERA in October 2018. In addition, the compact continued to support ESCOM and EGENCO in conducting financial modeling and planning that would allow them to better manage their finances. The compact also provided important assistance to ESCOM to improve its accounting practices and systems, which, in turn, resulted in ESCOM's producing more prudent financial accounts. However, political will from the



An engineer monitors conditions at the Supervisory Control and Data Acquisition (SCADA) center in Blantyre. The center monitors 26 substations across Malawi and modernized as part of the \$350.7 million Malawi Compact.

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Government and other stakeholders is necessary if the long-term financial health of Malawi's power sector is to improve.

*ESCOM Operational Efficiency:* Improvements in ESCOM's financial position are a means to an end—improved electricity services. This requires ESCOM to effectively use the revenues it collects to invest in network expansion and maintenance and to add new customers to its system. The compact provided assistance to ESCOM to improve critical performance areas such as procurement, inventory management, loss reduction, and other business processes. Improvements in these areas have been apparent, but limited in some cases due to both financial constraints and to inadequate management. ESCOM's management and Board will have to demonstrate consistent levels of oversight to ensure the sustainability of improvements in operations and ESCOM staff will have to continue to perform at high levels. The introduction of the ESCOM MIS may play a significant role in promoting sustainability in operational and financial management, subject to the same need for ESCOM staff and management to commit to using this powerful tool to improve results.

*Regulatory Oversight to Ensure Sector Integrity:* At MERA, the compact supported an effort to benchmark the utility against international comparators and then develop an institutional strengthening plan that would help it to close gaps identified. Similarly, capacity building was provided in some of those areas to introduce key concepts and strategies to address some of the gaps in performance. MERA's Board reviewed the strengthening plan and several initiatives moved forward such as introducing a framework for review of power purchase agreements and an enhanced tariff review process.

*Transitioning to More Reliable Sources of Power:* A key factor in improving electricity services in Malawi is increasing the reliability of energy sources as supply increases. Transitioning away from the hydropower along the Shire River will be essential to securing Malawi's access to more reliable sources of generation, which are not subject to the variability in water flows seen in recent years.

The Power Sector Reform Project provided support to ESCOM to develop a generation expansion plan which prioritizes diversification away from the Shire River, including through solar power projects, an interconnector to import power from Mozambique, and other options. The need for diversification has become clear to most stakeholders in Malawi, and efforts to advance this work were proceeding at the end of the compact. While challenges exist to adding new sources of generation, it is likely that new sources of energy will be tapped more frequently moving forward.

*Environmental Management:* The ENRM Project was designed with a focus on sustaining MCC's investment in hydropower and in the long-term, sustaining the water



resources this type of power generation requires. The Project addressed the costly impact of environmental damages to Malawi's hydropower infrastructure at the source—helping to sustain MCC's infrastructure and policy reform investments. In order to effectively use the tools provided through the ENRM Project over time, EGENCO must maintain strong operational practices and sufficient financial resources; these resources must come from their contractual relationship with ESCOM. Therefore, environmental sustainability is linked to the financial sustainability addressed through the Power Sector Reform Project, especially the introduction of a cost-reflective tariff.

The compact's five-year lifespan is inadequate to solve the problems of soil erosion and aquatic weed infestation, which will prove to be ongoing challenges for the foreseeable future. Therefore, the establishment of the Shire BEST with the Payment for Ecosystem (PES) mechanism in place will allow initiatives piloted during the compact to be sustained moving forward. With this initial investment in the PES included in the energy tariff, Shire BEST can demonstrate effective soil erosion reductions and make a case for inclusion in the next tariff application in four years. The ENRM Project's success depends—to some extent—on the ability of the Trust to strategically invest its resources and dynamically adapt to the needs of local communities in order to incentivize poor land-owners to invest in more costly, time-consuming practices needed to improve land and soil quality. Ultimately, the Trust will need to diversify funding either from other PES stakeholders or donors such as the World Bank.

## COORDINATION AND PARTNERSHIPS

As the largest donor investment in Malawi's power sector, MCC, in collaboration with MCA-Malawi, guided all aspects of partner coordination within the power sector during the compact, including policy and legal reform, promoting private sector investment, and institutional capacity building, to assist the Government of Malawi (GOM) in developing the power sector. Through semi-annual forums and the stakeholder committee, MCA-Malawi managed public outreach efforts and power sector stakeholder coordination across the GOM's partners, power sector institutions, donors, and civil society. MCC's large-scale, comprehensive investments in infrastructure modernization, power sector reform, and natural resource management, coupled with MCC's model of country ownership and implementation of the compact, led to significant acceleration of US Government (USG) and donor investments in the sector and private sector participation in potential power purchase agreements (PPAs). This helped lay the foundation of continued reform and investment in the sector.

## USG INTERAGENCY COLLABORATION

MCC and MCA-Malawi pursued partnerships with a range of USG actors including the US Trade and Development Agency (USTDA), the US Agency for International Development (USAID), Department of Commerce, the State Department, US Department of Agriculture's (USDA) Forest Service, and the Overseas Private Investment Corporation (OPIC) to enhance the implementation of the compact.

*USAID:* In 2015, Malawi became a Power Africa “Progressive Partnership Country,” and all USG initiatives in the energy sector in Malawi, including the MCC Compact, were considered part of the broader USG Power Africa effort to increase generation capacity through private sector investment. MCC became the lead on Power Africa activities in Malawi. In January 2016, Power Africa supported compact investments with an embedded transaction advisor to ESCOM for support on PPAs and other technical and legal assistance. This support—complementary to compact activities to develop a framework for Independent Power Producers—led to ESCOM’s and Malawi’s first competitive power procurement process in 2017, resulting in three companies selected to develop solar power plants in Malawi. PPAs for two solar projects were signed in September 2018 and one project commenced construction in December 2018. It is hoped that such solar power will start to come online by December 2019.

MCC also engaged in a new Power Africa initiative starting in 2017—the Southern Africa Energy Program (SAEP)—a multi-year project which began support in several areas related to financial sustainability, including utility strengthening and regulatory strengthening, that will build on the successes of the compact. The SAEP program aims to increase private sector participation in Malawi, provide technical assistance to cross-border trade and regional harmonization (specifically the Mozambique interconnector), better leverage renewable energy, and provide advisory support to MERA. Extensive coordination between MCC and SAEP took place in the final year of the compact to harmonize the programs so that continuity of capacity building and technical assistance to ESCOM, EGENCO, MERA, and other sector stakeholders took place post-compact and maintain the reform momentum. In addition, in conjunction with Power Africa, MCC coordinated with other donors in Malawi to develop a consolidated set of messages related to financial sustainability in the power sector that can be used in discussions with the Government and in developing new interventions.

*USTDA:* In October 2014, MCC coordinated with USTDA to organize a Reverse Trade Mission, which brought delegates representing MCA-Malawi and several compact partners to the US to discuss opportunities for investment in Malawi. Subsequently, MCC organized a panel discussion with Reverse Trade Mission participants in Washington. MCC also led a trade mission of representatives from US power companies to learn

about opportunities in the Malawian power sector; this mission was organized in coordination with the US Department of Commerce. USTDA has funded several feasibility studies for American firms exploring PPAs with ESCOM for smaller generation projects.

*USDA Forest Service:* MCC had an interagency agreement with USDA Forest Service to provide consulting services to support the implementation of the Environment and Natural Resource Management and Power Sector Reform Projects. For example, the Forest Service provided technical guidance to EGENCO in accessing carbon credits for improved energy efficiency markets.

*OPIC:* MCC, in collaboration with Power Africa and US State Department, regularly worked with OPIC and exchanged power sector information since late 2017 in efforts to complete due diligence on possible project financing.

## DONOR COLLABORATION

Prior to the entry-into-force of the compact, MCC actively worked with other donors to coordinate efforts, including selection of infrastructure projects that were coordinated with the World Bank. This coordination with the World Bank continued throughout the life of the compact, identifying and subsequently resolving various interdependencies between World Bank and MCC-funded infrastructure, as well as developing shared messages on reform efforts. For example, the World Bank funded a transaction advisor to the Ministry of Natural Resources, Energy & Mining early on in the compact, and MCC and MCA-Malawi reform consultants worked closely with the transaction advisor to ensure messages on encouraging private sector investment in the energy sector were harmonized.

MCC worked closely with the World Bank, International Finance Corporation (IFC), European Union (EU), German Development Bank (KfW), UN Development Programme (UNDP), African Development Bank (AfDB), and the Japanese International Cooperation Agency (JICA) to coordinate policy reform and infrastructure construction efforts in the power sector to avoid overlap, maximize impact, and jointly prioritize the reform agenda. MCC facilitated a \$680,000 grant from the World Bank's Public-Private Infrastructure Advisory Facility (PPIAF) to provide technical assistance to ESCOM in the areas of tax administration strengthening, obtaining a credit rating, and developing a financing options analysis. This support complemented compact interventions to strengthen ESCOM's financial position and potential access to capital.

In the later phases of the compact, MCC worked closely with USAID and continued to work with the World Bank to coordinate approaches on critical sector reforms such as the tariff process and IPP procurements. This coordination helped to ensure that the Government of Malawi was engaged with a common approach from all donors seeking the

same goals of adding new generation and improving service delivery. With the inception of the Power Africa SAEP program, USAID took the lead on donor coordination within the power sector and a formal coordination group was established.

At the end of the compact, a multitude of donor investments—feasibility studies, infrastructure, and technical assistance—were underway in Malawi that will expand upon the foundation that the compact investments created. JICA is completing a generation investment expected in 2021 that will add 18 MW to the grid in addition to investing in several substations. The Mozambique interconnector, which will link to the Malawi power grid through the 400 kV substation at Phombeya, a compact activity, is a priority project for the Government of Malawi. The Malawi side of the Mozambique interconnector is funded and supported by the EU and the World Bank, with KfW implementing, and is expected to be completed in 2021. In April 2011, ESCOM signed Power Purchase Agreements with Mozambique and South Africa to purchase power, taking advantage of access to the Southern Africa Power Pool. The World Bank is also completing pre-feasibility studies on the Malawi–Zambia interconnector that will link to the power grid through the second MCC-funded 400 kV substation in Nkhoma. The IFC, AfDB, JICA, EU, World Bank, UNDP, and the Indian, German, and Scottish Embassies are all actively involved in providing assistance to the power sector in Malawi.

Under the ENRM Project, MCC engaged in donor coordination meetings with the World Bank, JICA, USAID and UNDP to coordinate natural resource activities and to garner support for the PES-funded Trust. More directly, ENRM worked with the World Bank to coordinate baseline methodologies in the Upper and Middle Shire Baseline Assessments and divided target watersheds between the World Bank and MCC interventions. MCC discussed potential follow-on support for the Trust as part of the World Bank’s second phase of the Shire River Basin Management Project.

#### PRIVATE SECTOR INVESTMENT

The MCC Compact played a pivotal and catalytic role in encouraging private sector investment in Malawi’s power sector. The large-scale modernization of the network that the compact brought, coupled with revitalized power sector management, created significant interest among power investors. MCC met regularly with interested private sector players to discuss the reform efforts, the local landscape, and the future vision of the power grid. These efforts, complemented by Power Africa’s transaction advisor to ESCOM on IPP procurements, contributed to Malawi’s first new hydropower PPA with HE Power and first solar PPA signed with JCM Power in September 2018, with construction on a 60 MW power plant initiated in December 2018. Additional PPAs are anticipated soon for the other three project sites included in the first competitive procurement by ESCOM

for power. MCC and Power Africa efforts were confirmed by interested power investors as absolutely instrumental in creating the enabling environment in Malawi.

MCC supported various efforts to help promote private sector investment in Malawi. MCC produced an Investment Outlook in the spring of 2015 that provided an overview of the business opportunities in Malawi's Power Sector. As mentioned above, in conjunction with the Department of Commerce, MCC supported a private sector trade and investment mission to Malawi in June 2015. MCC also supported the commissioning of an Infrascopes assessment by the Economist Intelligence Unit covering the capacity and readiness of Malawi to transact public-private partnerships.<sup>30</sup>

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<sup>30</sup> Infrascopes has several uses for various audiences. For project sponsors, it can assist in and lower the cost of market entry by providing country research. For donors and governments, it can assist in the policy dialogue around PPPs. Other donors may also be able to use the indicators from Infrascopes for their own M&E purposes, while academic researchers may also find Infrascopes to be a useful tool. <https://infrascopes.eiu.com/>



## POLICY AND INSTITUTIONAL REFORMS

Compact Project(s)	Major Policy Reform Condition Precedent (CP)	Rating	Narrative
Power Sector Reform Project	Funding of Turnaround Facility (TAF) to meet ESCOM's working capital and investment capital needs by the Government of Malawi in Fiscal Year 2012 prior to Entry into Force (EIF)	Met on Time.	Government did provide TAF funds prior to EIF; however, the funds were not needed in full in 2013 or in 2014-2016 due to ESCOM's improved financial position. However, in 2017-2018 as ESCOM's financial position deteriorated, the Government did not provide additional funds through TAF.
Power Sector Reform Project	The Government will ensure that ESCOM has employed a professionally qualified Chief Executive Officer for ESCOM	Met on Time.	The Government hired a new CEO prior to compact EIF.
Power Sector Reform Project/ Infrastructure Development Project	The Government shall have completed a construction schedule for the Kapichira II hydropower plant that is agreed with MCC	Met on Time.	Kapichira II was completed prior to compact EIF.

Compact Project(s)	Major Policy Reform Condition Precedent (CP)	Rating	Narrative
Power Sector Reform Project	Government to provide evidence that it has converted a substantial portion of the debt owed to it by ESCOM into equity. Any remaining debt owed to the Government by ESCOM will be cleared from ESCOM's balance sheet by EIF and the Government will ensure that ESCOM re-structures its third-party debt obligations in a manner that affords ESCOM a reasonable debt-service burden, consistent with the Financial Plan.	Met Late, following consultations between ESCOM and MCC. This was met within 2 quarters of compact EIF.	Restructuring ESCOM's debt combined with the tariff increase ESCOM received in 2014 supported initial improvements in ESCOM's financial position from 2014-2016.
Power Sector Reform Project	Prior to EIF of the compact, the Government and MCC to identify semi-annual benchmarks for milestones for jointly developed Government power sector reform agenda in the following areas: ESCOM finances; ESCOM operations; ESCOM governance; tariff reform; Malawi Energy Regulatory Authority (MERA) governance; and regulatory enabling environment for public and private sector participation.	Met on Time.	Semi-Annual Reviews were held during the compact and provided an opportunity for all stakeholders to review progress on critical milestones.

Compact Project(s)	Major Policy Reform Condition Precedent (CP)	Rating	Narrative
Power Sector Reform Project	Based on the results of the cost of service study supported by MCC, the Government agrees to a phased implementation of full-cost recovery tariffs and schedules according to a timeline to be determined by entry into force of the compact. The Government will adopt the policy, legal, and regulatory changes necessary to implement tariff reform.	Partially Met	The initial opportunity for achieving this in 2014 did not lead to completion of this covenant—a higher tariff was approved, but was not cost-reflective. Expected annual tariff adjustments have not occurred on time. On October 1, 2018 (after the end of the compact), MERA approved a tariff increase of 31% over four years, lower than the increase sought by ESCOM, but more cost reflective than in the past. The increase will provide important benefits to ESCOM even as risks to financial sustainability remain.
Power Sector Reform Project	With MCC assistance, the Government will develop a detailed Financial Plan designed to restore ESCOM to financial and operational sustainability. The Financial Plan will be updated on a quarterly basis.	Typically Met on Time or Met Late.	Throughout the Compact, ESCOM generally submitted the Financial Plan on time while in a few quarters it was late. In 2017, ESCOM experienced challenges completing the updates on time due to changes in the corporate structure and accounts following the unbundling process.

Compact Project(s)	Major Policy Reform Condition Precedent (CP)	Rating	Narrative
Power Sector Reform Project	<p>The Government will ensure that the ESCOM Board adheres to clear benchmarks for good corporate governance, including: (a) compliance with the requirements under Malawi's Companies Act, Public Financial Management Act, Public Audit Act, and the Energy Laws; (b) adherence to Malawi Code II, including duties of care and loyalty to the corporation and restrictions on conflicts of interest and related party transactions; (c) following the Sector Guidelines for Parastatal Organizations (the most recent of the draft or final form); and (d) staggering of ESCOM Board terms.</p> <p>The Government will review the continued membership of ex officio directors and the appropriateness of cross-representation on power sector boards and potential conflicts of interest that may arise between the regulator and regulated entities through board membership. Various other Corporate Governance improvements were also targeted.</p>	Partially Met	<p>The GOM has improved corporate governance in some ways, including through change in membership of ESCOM and EGENCO Boards to eliminate overlap and potential conflict of interest. Some steps were taken to improve operations of the ESCOM Board, including adoption of a board charter.</p> <p>The GOM has not consistently implemented other principles such as staggering of Board member terms. A Corporate Governance Benchmarking Study was funded by the compact in 2017; however, at the end of the compact, the recommendations had not been acted on and were not being tracked. The ESCOM Board in 2016-2017 especially was characterized by a low degree of oversight and a high degree of improper influence in ESCOM's affairs.</p>

Compact Project(s)	Major Policy Reform Condition Precedent (CP)	Rating	Narrative
Power Sector Reform Project	Based on the Market Restructuring Plan, the Government will create a single buyer, either ring-fenced within ESCOM, or a separate legal entity so that the single buyer's financial and system operation activities are autonomous from other ESCOM business units or government entities. Also, the Government will provide support to improve the credit worthiness of this single buyer.	Initial study Met on Time  Follow-on actions Not Met	The Government enacted an amendment to the Electricity Act in June 2016 and as of January 1, 2017, unbundled ESCOM into two companies in line with the Power Market Restructuring Study conducted under the compact. A System Operator was established at ESCOM. The Single Buyer was not established and the GOM as of the end of the compact indicates it will establish the Single Buyer as an independent agency. However, there is no timeframe for this to occur and MCC does not know how this would be organized in the absence of the framework agreed on through the roadmap.

## BEYOND THE COMPACT

Compact initiatives to strengthen the performance of the power sector have spearheaded a significant amount of activity in Malawi's power sector, particularly by international donors and other US government entities (see Coordination and Partnerships section). This includes additional work on utility strengthening, market restructuring, and the introduction of new processes to add generation through private investment.

Prior to the compact, Malawi's approach to development of the power sector was driven by the Government, which was expected to bring resources to bear to add new investments in generation, transmission, and distribution. This approach was a significant factor in the poor condition of the sector that prevailed at the compact development stage



with Government unable to finance new investments resulting in limited growth prospects. Through the compact's consistent focus on private investment—especially

through independent power producers—there has been a change in mindset across Malawi's power sector stakeholders. It is now widely recognized by stakeholders in Malawi that private investment is the only way the sector can develop and achieve Malawi's developmental goals. While challenges have been encountered moving from principles to actually adding new generation capacity, the trend is clearly moving towards a more sustainable model for power sector growth. During the compact period, this trend took the form of a competitive procurement for solar power IPPs with negotiations and additional development activities still underway at the time of compact closure. ESCOM has also developed a generation expansion plan, which relies on an appropriate mix of private sector projects, PPPs, and Government-sponsored strategic projects.

With regard to continued power sector infrastructure expansion in Malawi, there are a number of additional developments that should be pursued to support and build on the impact expected from the compact investments. One of the key objectives of the compact's transmission upgrades was to enable integration of Malawi's network into the regional network. Provisions were made in the design of the 400 kV transmission line for future connections with Zambia, Mozambique, and Tanzania. With the 400 kV line as a “backbone,” financial feasibility and economic impact of constructing new power stations in Malawi is also expected to improve. Current prospects include solar and wind power stations, additional hydropower developments, and a coal fired power station that would use coal from Mozambique. These projects could utilize the improved grid and potentially provide Malawi with the opportunity to export power in the future.

Throughout the compact period, the MCA-Malawi monitoring and evaluation team led efforts to continuously review, assess, and improve on the quality and reliability of data used for monitoring results. Building on a robust Data Quality Review (DQR) conducted by a firm with significant expertise working in the power sector, MCA used the findings and recommendations to develop a ‘DQR Action Plan’ that prioritized investments in metering and other equipment that would enable ESCOM to collect and monitor data on the network, such as data on technical losses and outages. Many investments were subsequently costed out and resources allocated by either MCA or by ESCOM itself. The Action Plan also highlighted training requirements for ESCOM staff involved in recording and processing data, and procedural enhancements to ensure greater consistency and reliability in methods used by field staff in the data collation process. The outputs were used to provide guidance for ESCOM on how it should enhance its own capacity to use monitoring and analytics more fully to improve its performance. A key result of this was that ESCOM ultimately created a new Monitoring & Evaluation Department, and recruited a Director for the department to take on duties and help further elevate M&E practices within the utility.

## LESSONS FROM THE COMPACT

**Pursue Realistic Goals During Project Development.** The power sector in many of developing countries will often exhibit a wide variety of interrelated challenges. There may be a tendency to attempt overly ambitious projects that work across multiple areas in an attempt to be holistic. However, it is important to be realistic—it is not plausible to fix everything in a sector in five years. If a conscious decision to prioritize activities is not made during project design, it is likely that lack of bandwidth and absorptive capacity will create an “organic” process of prioritization during the compact.

Similarly, given short timeframes it is tempting to press forward on many fronts simultaneously during the implementation of a project. But this risks overloading stakeholders and institutions, which may already be overburdened and not capable of managing the various contracts, issues, and interdependencies stemming therefrom. Again, prioritization and pacing is critical. Look for quick wins early on and build on those.

**Operational management is as important for utilities as financial management.**

MCC’s inclination to support work that will advance private sector development and involvement in the power sector leads to a heavy focus on financial management and sustainability. However, operational management should not be neglected—utilities need to expand their network, invest in maintenance, improve operational processes, tools, and procedures, etc. And these areas may be more difficult to achieve and sustain impact in compared with financial issues due to their decentralized nature and because of the need for change management. Financial health may be closely tied up with operational performance, and sufficient focus is needed for both. Pacing, again, is important. If the utility starts improving revenues (e.g., through tariff reform, loss reduction) but cannot spend the money effectively because of operational problems with procurement processes, a new negative cycle may begin. Moreover, if excess cash builds up on the balance sheet, regulators may feel less inclined to provide tariff increases that may be needed to achieve cost-reflectivity.

**Ownership of reform activities by the relevant project partners is essential for compact support to have positive effects.** Ownership is not static. It can rise and decline depending on a variety of factors, and MCC and MCAs can influence the level of ownership exhibited by stakeholders. However, influencing ownership requires a good strategy and a significant amount of effort, and it moves MCAs beyond basic project management tasks such as contract, budget, and work plan management.

The Power Sector Reform Project required extensive efforts from MCA and MCC to convene different stakeholders, push powerful actors to lead on difficult initiatives, develop information products for project partners and other stakeholders, coordinate with other

donors, and consistently follow up on compact initiatives. The skills that are required for this type of work should be considered carefully during the process of staffing MCA. Communications on reform should not be underestimated. Reforms are not just “technical,” especially where it is necessary to achieve lasting organizational change. In many cases, the technical solution may be clear, but implementing it is hard, and MCA (and MCC) often have to help fill in the gaps.

**Information Technology (IT) Investments require careful planning and integration with other parts of the program.** IT investments may be heavily sought after by project partners and can be effective tools to improve performance at utilities. Timing of IT investments and linkages with technical assistance and capacity building work is an important consideration as new IT may require updated business processes. Due to a variety of factors, the Power Sector Reform Project investment in the ESCOM MIS was not concluded until the final year of the compact after most of the interventions for ESCOM turnaround work were concluded. The previous turnaround work included several efforts to update business processes linked to legacy IT systems or no IT at all, and at the end of the compact it was unclear what the impact of the MIS would be and how well ESCOM could adapt.

IT projects need to include substantial investments in change management and training, including plans for re-training where initial rounds are not effective (or well-attended) as well as sustainable training for new staff. The ESCOM MIS investment included training of trainers to have resources left behind for future training requirements. Change management may need to extend to external parties depending on the areas covered by the IT investments. For example, new billing systems or outage management systems will touch customers, and data management and analysis tools may be of interest to regulators and oversight line ministries. There should be sufficient time and effort dedicated to conducting outreach to these stakeholders, both to prepare them for changes they may encounter and to promote the impact of the IT on the utility’s business.

The ESCOM MIS was a massive undertaking that touched all aspects of ESCOM’s business. In the context of a weak project partner with limited absorptive capacity, it may have been preferable to limit investments to discrete priority areas such as billing and planning, loss management, and outage management, etc., while laying the groundwork for future growth. A sound project management structure is critical for major investments in IT, and MCA may need to play a role in pressing project partners to engage in these structures.

**Establishing a complex mechanism such as a Trust requires time and stakeholder buy-in.** The establishment of a Payment for Ecosystem Service (PES)-funded Trust requires sustained support from numerous stakeholders. As a new concept, considerable

time and effort was needed to get stakeholders to understand how the mechanism would work in the Malawian context. In particular, MCA management was unsupportive of setting up the Trust initially and insisted on conducting a feasibility study. This took part of the first two years and confirmed a PES could be set up, but that setting up the institutional mechanism to implement it (in this case, the Trust) would require more time. This delay in launching the Trust establishment process cut into the time needed to effectively set up the institutions and funding mechanisms. Additionally, it was difficult to sustain support of private sector actors to help fund the PES as they wanted to see more immediate results than the Trust could deliver. The Trust also went through numerous management changes in the interim period, requiring new buy-in each time. Ultimately, more time was needed to effectively set up the Trust and test the grant-making model.

**During project design and implementation, all factors required for project implementation—including engineering, environmental, social, and resettlement-related aspects—must be considered together, recognizing that all of these pieces are dependent on each other.** Having a comprehensive understanding of the overall project timeline and how resettlement fits into the timeline is critical for project success. Poor resettlement planning can also lead to increased impacts on families, who can then suffer as a result of the projects. In Malawi, resettlement planning and budgeting for the transmission and distribution lines was based on early designs and not survey work on the ground, which meant that once contractors got to the site and defined the actual footprint of the project, there were a number of adjustments and redesigns to resettlement plans required. This led to duplication of effort, increased completion risk, costs, and claims from the contractors, which might have been avoided had there been better coordination and communication amongst the various project stakeholders.

**Communication strategies can incentivize choice of in-kind over cash compensation for displaced families, leading to better outcomes.** Resettlement experience has shown that physical displacement has particularly serious risks for displaced families, and particularly for women and children. When an MCC project forces households to relocate, families are provided the option of receiving a replacement house or cash compensation. Provision of houses, rather than cash, is typically associated with better outcomes for displaced families, as it helps ensure that they have a new place to live, whereas cash can often be spent on other priorities, with families subsequently left without a home because they no longer have sufficient money to rebuild. Recognizing these risks in Malawi, MCA developed detailed designs illustrating the type of houses that families would receive if they chose a replacement house and showed these designs to the families when they made their choice. In many cases, these houses were substantial improvements to their existing structures, and much nicer than what they would have been able to build with their cash compensation. This helped incentivize families to choose in-kind houses rather than cash, and led to over 200 families (67 percent of physically displaced families)

choosing replacement houses. This is compared to other compacts, where substantially fewer families chose this option. In Mozambique, for instance, fewer than 30 families made this choice, and in Tanzania, not a single family chose the replacement house.

**Significant effort should be made to mitigate trafficking in persons (TIP), exploitation, harassment, and abuse during large-scale construction projects.** Despite the efforts to deter sexual harassment, abuse, exploitation, and trafficking in persons in MCC funded projects in Malawi, there were ongoing challenges in this area, most significantly with regard to underage prostitution. Underage prostitution—regardless of whether it is consensual—is a form of sexual exploitation and trafficking in persons. Although Malawian law prohibits and punishes underage prostitution, there is a certain level of cultural tolerance towards it, especially if it results in economic contributions to the household as a whole. In that sense, the presence of foreign workers in local communities where economic opportunities are limited may increase the risks of sexual exploitation of minors, even if it is illegal. Timely reporting and appropriate response to such incidents is also complicated by the common practice of perpetrators resolving issues directly with the family of the victim. This protects the practice of underage prostitution and makes monitoring and reporting of these issues difficult to track within the project. It also obstructs providing proper medical and other assistance to victims. One recommendation to address these challenges in the future is to require MCAs to hire an organization that has expertise in issues of sexual exploitation and other TIP risks. A local group would be better placed to conduct trainings and awareness raising with communities and workers, as well as taking on the responsibility to monitor and report any suspicious actions, criminal behaviors, or incidents where workers are detained or arrested for such crimes. It is also strongly recommended that contracts include provisions that specify that when a TIP incident occurs that is related to the project, it is the contractor's responsibility to provide the relevant assistance to the victims.





Transmission upgrades at the 400kv Nkhoma Substation, completed as part of MCC's \$350.7 million compact with Malawi.

Andrew Ladson



# Reducing Poverty Through Growth



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