



**LIBERIA WATER AND SEWER
CORPORATION**

**LIBERIA WATER AND SEWER
CORPORATION
2025-2029
STRATEGIC PLAN**



Prepared by:



Contents

List of Abbreviations & Acronyms	4
President’s Foreword	6
Board Chairman’s Message	7
Managing Director’s Message	9
Executive Summary	11
1. Introduction	14
2. Situational Analysis	16
2.1 Current State of LWSC	16
2.1.1 Financial Sustainability Challenges	17
2.1.2 Commercial Operations and Customer Management	17
2.1.3 Technical Capacity and Infrastructure	18
2.1.4 Service Delivery	19
2.1.5 Human Resource Management and Organizational Culture	19
2.1.6 Institutional Governance and Accountability	19
2.1.7 Customer Satisfaction and Public Trust	20
2.1.8 External Factors	20
2.2 SWOT Analysis	21
2.3 Conclusion	23
3. Strategic Direction (2025 – 2029)	24
3.1 Vision and Mission	24
3.2 Core Values – The Pillars of Our Success	24
3.3 Strategic Priority Areas	26
3.4 Strategic Goals	26
4. Strategic Framework for Implementation	28
4.1 Strategic Initiatives and Activities	28
4.1.1 SPA 1: Achieve Financial Sustainability	28
4.1.2 SPA 2: Improve Operational Efficiency	31
4.1.3 SPA 3: Improve System Reliability and Service Delivery	33
4.1.4 SPA 4: Expand Water Service Coverage	34

4.1.5	SPA 5: Strengthen Governance	35
4.1.6	SPA 6: Improve LWSC’s Public Image, Build Trust, and Foster Partnerships	36
4.1.7	SPA 7: Expand Sewage and Sanitation services	37
4.2	Resources.....	38
4.2.1	Financial Resources	38
4.2.2	Technical Resource	39
4.2.3	Human Resource.....	39
4.3	Partnerships	40
4.3.1	Government Partnerships.....	41
4.3.2	Development Partners.....	41
4.3.3	Private Sector Partnership.....	42
5.	Costing and Financial Framework for Implementation.....	43
5.1	Methodology and Assumptions	43
5.2	Summary of Costs by Strategic Priority Area.....	44
5.3	Key Highlights by SPA.....	44
5.4	Resource Mobilization Strategy	47
5.5	Financial Risk Management	48
5.6	Conclusion.....	48
6.	Monitoring and Evaluation.....	49
6.1	Key Performance Indicators and Targets.....	50
6.2	Evaluation Framework	51
6.2.1	Principles of the Evaluation Framework.....	51
6.2.2	Quarterly and Annual Reviews	51
6.2.3	Midterm Assessments	52
6.2.4	Final Evaluation.....	53
6.3	Feedback Mechanism	54
6.3.1	Objectives	54
6.3.2	Feedback Channels	54
6.3.3	Incorporation of Feedback into Iterative Improvements.....	55
7.	Risk Management Framework	57
7.1	Risk Identification	57
7.2	Mitigation Strategies.....	58
	Appendices.....	60

A.	Stakeholder Consultations Summary	60
B.	Technical Studies and References.....	62

List of Abbreviations & Acronyms

AAID	ARREST Agenda for Inclusive Development
ARREST	Agriculture, Roads, Rule of Law, Education, Sanitation, and Tourism
AfDB	African Development Bank
CRM	Customer Relationship Management
CSR	Corporate Social Responsibility
DMA	District Metered Area
EPA	Environmental Protection Agency
GIS	Geographic Information System
GoL	Government of Liberia
IMS	Information Management System
IWA	International Water Association
KPI	Key Performance Indicator
LUWSP	Liberia Urban Water Supply Project
LWSC	Liberia Water and Sewer Corporation
M&E	Monitoring and Evaluation
MCC	Monrovia City Corporation
MME	Ministry of Mines and Energy
NGO	Non-Governmental Organization
NRW	Non-Revenue Water
OPEX	Operating Expenses
PCC	Paynesville City Corporation
PPP	Public-Private Partnership
SCADA	Supervisory Control and Data Acquisition

SDG 6	Sustainable Development Goal 6
SEP	Stakeholder Engagement Plan
SOP	Standard Operating Procedure
SPA	Strategic Priority Areas
SWOT	Strengths, Weaknesses, Opportunities, and Threats
UNDP	United Nations Development Program
UNICEF	United Nations Children's Fund
UotF	Utility of the Future
UTF	Utility Turnaround Framework
USAID	United States Agency for International Development
WASH	Water, Sanitation, and Hygiene
WB	World Bank

President's Foreword



H.E. Joseph Nyuma Boakai, Sr.
President
Republic of Liberia

As Liberians, we are heirs to a proud legacy and stewards of a promising future. The responsibility to build a stronger, healthier, and more resilient nation rests not in distant hope, but in the determination of our people. Few areas reflect this national imperative more clearly than our commitment to delivering basic, life-sustaining services, foremost among them, access to clean and reliable water.

Water is not merely a resource; it is the foundation of dignity, opportunity, and peace. When a child drinks safe water, they are protected from disease.

When a farmer irrigates their crops, they feed families and sustain livelihoods. When communities have reliable access to water, girls

stay in school, businesses grow, and our society moves forward. The Liberia Water and Sewer Corporation's 2025–2029 Strategic Plan is not just a technical document—it is a bold expression of our intent to ensure that every Liberian enjoys the right to safe, affordable water.

This plan is ambitious, and rightly so. It candidly acknowledges the challenges we face—outdated infrastructure, limited service coverage, and financial constraints—while laying out clear, actionable pathways to address them. Through strategic investment, institutional reform, digital innovation, and strong community engagement, we have the tools to reshape our water sector and uplift the lives of our citizens.

I commend the leadership and staff of the Liberia Water and Sewer Corporation, the Board of Directors, and our development partners for their dedication in developing this strategic vision. But plans alone do not deliver progress—implementation does. I therefore call on all stakeholders, public and private, urban and rural, local and international—to unite behind this effort.

Liberia must rise—not at some distant time, but now. With a clear strategy, committed leadership, and a shared sense of purpose, we can transform challenges into achievements and potential into national pride.

Board Chairman's Message



Dr. Khalipha M. Bility, MPH, M.Ed, Ph.D.
Chairman of the Board of Directors
Liberia Water and Sewer Corporation

On behalf of the Board of Directors, I express our sincere gratitude to the Government of Liberia, led by President Joseph Boakai for his personal and the Government's generous support for the LWSC. We appreciate LWSC's committed and fee-paying customers, and our development partners. We thank the dedicated staff of LWSC for participating in the development of this strategic plan and for their commitment to duty, resilience and relentless support for ensuring that LWSC deliver high quality services to our people. We are also grateful to the Wuteve Team of Consultants for crafting this strategic plan. We thank all our public and private stakeholders whose insights and partnership help to shape the new strategic direction we are

pursuing in unchartered waters to expand quality water and sewer services. This commitment to expand access to clean, sufficient, affordable and safe water and sanitation services has been a high priority for successive Presidential Administrations since the inception of the Liberia Water and Sewer Cooperation (LWSC) in 1973. What is different this time around is the availability of solar, digital and other technologies to operationalize our mission. These resources in this era will dramatically improve the opportunities for implementation of this plan. The LWSC was created and empowered by an Act under the Public Utilities Law to construct, install, establish, operate, manage, and supply to all parts of Liberia safe and clean water supply and sewerage services. This strategic plan is built on this notable past to chart new courses of actions targeting sensitive, measurable, reliable and appropriate indicators to guide benchmarking the implementation of this plan. We envisage an affordable and sustainable water supply system and quality sewage services accessible to all citizens over time. Community participation and partnerships with stakeholders across the country are essential for building such a system. Despite this dedication and the on-going commitment to quality services, the prevalence of water borne and water washed diseases indicates nagging gaps in service delivery to homes, communities, schools, industrial sites, and health care facilities. This plan is a clarion call to address these gaps in human services in our country.

We have embarked on a long journey to ensure that LWSC expands its services prudently. We are building self-sustaining institutions capable of managing and providing leadership for the water and sanitation

services system for the country. Key benchmarks identifiable along this journey to implement activities in the seven Strategic Priority Areas (SPAs) are:

- Relentless pursuit of financial and operational efficiency
- Prudent expansion of service delivery network in alignment with the Government's ARREST Agenda for Inclusive Development
- Ensuring that services are affordable, accessible, and sustainable

These benchmarks drive the identification of priorities to expand services to: Gbarnga, Ganta, Greenville, Harper, Greenville and the rehabilitation of services in Tubmanburg. To chart this historic journey, LWCS needs a new headquarters and new county outposts to create and provide a wholesome-functioning and enabling environment that fosters partnership and technical competence. New pathways of revenue streams are required to support strategic pathways and innovative thinking. This new way will help us to ensure that quality water, sanitation, and hygiene services are the cornerstone of human development in our country.

Managing Director's Message



Hon. Mohammed Ali
Managing Director
Liberia Water and Sewer Corporation

It is with a deep sense of purpose and optimism that I present the Liberia Water and Sewer Corporation's (LWSC) Strategic Development Plan for 2025–2029. This forward-looking document outlines our transformative vision to improve the delivery of safe, affordable, and sustainable water and sewerage services across Liberia.

In recent years, LWSC has made significant strides—expanding access, rehabilitating critical infrastructure, and deepening engagement with our customers and communities. Yet, we are fully

aware of the complex and persistent challenges we face: aging infrastructure, limited revenues, climate-related risks, and disparities in service coverage. These realities demand not only bold thinking, but also strategic and sustained action.

This Strategic Plan represents our blueprint for that action. It results from months of rigorous internal analysis, broad stakeholder consultations, and deliberate alignment with national development priorities, including the Government of Liberia's ARREST Agenda for Inclusive Development. It also draws on global best practices, particularly the World Bank's Utility Turnaround Framework, guiding us toward greater efficiency, accountability, and long-term financial sustainability.

At the core of this strategy is a renewed vision: to build a resilient, customer-centric utility that delivers high-quality services through innovation, operational excellence, and strategic partnerships. The plan outlines clear objectives, measurable key performance indicators (KPIs), and a practical roadmap for advancing governance, infrastructure investment, digital transformation, and customer experience.

I would like to express my sincere gratitude to the Government of Liberia, our Board of Directors, our development partners, and the dedicated staff of LWSC for their unwavering support and commitment. I am also grateful to the many public and private stakeholders whose perspectives and collaboration helped shape this strategic direction.

As we embark on this journey, I encourage all Liberians, our partners, and our staff to embrace this plan not merely as a document but as a collective commitment. Together, we can build a modern water and sewage utility that meets today's needs while preparing for tomorrow's demands.

Let us now work with focus, urgency, and unity of purpose to turn this vision into measurable impact.

Thank you.

Executive Summary

The Liberia Water and Sewer Corporation (LWSC) Strategic Plan for 2025–2029 sets a bold and transformative agenda to reposition the Corporation as a resilient, efficient, and customer-focused utility, dedicated to delivering quality, reliable, and sustainable water and sewage services in urban areas (cities and towns with 5,000 and more inhabitants) and county capitals across Liberia. Building on its institutional foundation and aligning with both national and global development frameworks such as the ARREST Agenda for Inclusive Development (AAID), as well as the Sustainable Development Goal 6 (SDG 6) – Clean Water and Sanitation, this Strategic Plan outlines a clear pathway for institutional renewal and service excellence.

LWSC operates within a challenging environment characterized by aging infrastructure, financial constraints, operational inefficiencies, and limitations in governance. A thorough situational analysis, supported by baseline metrics, reveals considerable systems deficiencies, including a billing accuracy rate of 84%, meter coverage of 65%, collection efficiency of 57%, and non-revenue water (NRW) levels at 66%. The challenges in service delivery are exacerbated by an operating ratio of 1.57, heavy dependence on government subsidies (50% of operational costs), and low staff productivity (28 staff per 1,000 connections).

Despite these challenges, LWSC is positioned to leverage key opportunities, including government support, donor engagement, technological advancements, and a growing demand for water and sewage services. The Corporation's strengths—including a committed leadership team, an established operational mandate, and access to abundant raw water resources—serve as vital assets in its transformation journey.

The Strategic Plan is anchored on a renewed Vision: "To be a world-class provider of quality and sustainable water and sewerage services," and a Mission: "Providing efficient, reliable, and affordable customer-driven water and sewage services in urban areas and county capitals in the Republic of Liberia." These guiding statements are supported by core values emphasizing professionalism, integrity, innovation, dedication, accountability, transparency, teamwork, customer satisfaction and quality service.

To achieve its vision and mission, LWSC will pursue seven Strategic Priority Areas (SPAs):

- SPA 1: Achieve Financial Sustainability
- SPA 2: Improve Operational Efficiency
- SPA 3: Improve Reliability and Service Delivery
- SPA 4: Expand Water Service Coverage
- SPA 5: Strengthen Governance

- SPA 6: Improve LWSC's Public Image, Build Trust, and Foster Partnerships
- SPA 7: Expand Sewage and Sanitation services

The Strategic Plan sets specific goals to drive measurable progress by 2029, including:

1. Increasing the billing accuracy rate from 84% to 95% to enhance customer trust and optimize revenue collection.
2. Expanding meter coverage from 65% to 90% of all connections, including the transition to smart prepaid meters, to enhance billing accuracy, strengthen revenue collection, and promote operational transparency.
3. Increasing collection efficiency from 57% to 95% of billed revenue to strengthen financial sustainability and cash flow.
4. Reducing the operating ratio from 1.57 to 1.0 to reflect a leaner, more financially resilient operational model.
5. Reducing personnel expenses from 85% to 50% of total operating costs to promote cost efficiency and sustainable resource allocation.
6. Reducing reliance on government subsidies for operational expenses, reducing dependency from 50% to 20% to drive towards financial independence.
7. Decreasing non-revenue water levels from 66% to 25% to improve operational efficiency, enhance financial sustainability, and conserve water resources.
8. Expanding District Metered Area (DMA) coverage from 43% to 100% of the distribution network to strengthen water loss management and system monitoring.
9. Enhancing staff productivity by reducing the staff-to-connection ratio from 28 to 15 employees per 1,000 connections to optimize workforce efficiency.
10. Increasing the average daily hours of water service from 10 hours to 16 hours to improve service delivery and customer satisfaction.
11. Expanding water production capacity from 5.8 million gallons per day to 8 million gallons per day to meet the growing demand for potable water.
12. Increasing the total number of water connections from 15,000 to 30,000 to broaden service coverage and reach more communities.
13. Expanding sewer connections from 1,560 to 3,000 to strengthen sanitation infrastructure and improve public health outcomes.
14. Partnering with stakeholders to co-design and construct 50 new public sanitation facilities in key urban areas to improve public health, environmental hygiene, and equitable access to safe sanitation.

The implementation strategy focuses on concrete initiatives across financial management, technical operations, human resource development, governance, and stakeholder engagement. These initiatives are structured around clear action plans, integrated performance monitoring, and a risk management framework to ensure adaptability and resilience.

Critical to success will be robust resource mobilization, strategic partnerships with government, development partners, the private sector, and the deployment of modern technology to enhance service delivery and customer satisfaction. A comprehensive Monitoring and Evaluation (M&E) framework, grounded in transparency and continuous learning, will track progress through quarterly reviews, a midterm assessment, and a final evaluation.

This 2025–2029 Strategic Plan reaffirms LWSC’s unwavering commitment to improving Liberians' quality of life in urban areas and county capitals by ensuring equitable access to quality water and sewage services. Through disciplined execution, innovation, and stakeholder collaboration, LWSC aims to build a financially viable, operationally efficient, and customer-focused utility that will serve as a cornerstone of Liberia’s sustainable development.

1. Introduction



LWSC holds the critical mission of providing efficient, reliable, and affordable customer-driven water and sewage services in urban areas and county capitals in the Republic of Liberia

The Liberia Water and Sewer Corporation (LWSC) was established in 1973 through an Act of the Liberian Legislature. In recognition of evolving sectoral needs and national development priorities, the Act was first amended in 1976 and subsequently revised in 2017, aimed to align the Corporation's responsibilities with the prevailing challenges and opportunities in Liberia's water and sanitation sector. Under the revised Act, LWSC was entrusted with the critical mandate of providing safe, reliable, and sustainable water and sewage services to urban areas (cities and towns with 5,000 and more inhabitants) and county capitals across Liberia. This mandate aligns with the government's efforts to safeguard public health, foster socio-economic development, and promote environmental sustainability.

As a state-owned enterprise, LWSC has been at the forefront of water and sanitation initiatives in Liberia. It operates as the primary institution responsible for ensuring the availability of potable water and wastewater management. The Corporation's responsibilities span infrastructure development, service

delivery, regulation, and policy implementation, making it a cornerstone of the nation's health and development systems.

The history of LWSC reflects Liberia's broader socio-economic and political evolution. In its early years, LWSC worked to build and expand water supply infrastructure, particularly in Monrovia and other urban centers. However, the civil conflicts that ravaged the country between 1989 and 2003 significantly disrupted LWSC's operations, including the destruction of key infrastructure, the displacement of skilled personnel, and a decline in service delivery capacity. The post-conflict period posed additional challenges as the Corporation sought to rebuild amid limited resources, competing development priorities, and an ever-growing demand for services fueled by rapid urbanization and population growth.

Today, LWSC operates in an environment shaped by both challenges and opportunities. Key challenges include aging infrastructure, financial constraints, climate and other environmental change impacts, and the need to expand services to underserved areas. However, the Corporation is also positioned to capitalize on significant opportunities, including international support for the water and sanitation sector, advancements in technology, and the Government of Liberia's (GoL) renewed focus on ensuring clean water and sanitation for all.

LWSC's mandate closely aligns with Liberia's ARREST Agenda for Inclusive Development (AAID), emphasizing inclusive access to essential services as a pathway to sustainable development. LWSC is working to position itself as a resilient and efficient institution capable of meeting the needs of Liberia's growing population and contributing to the nation's long-term prosperity.

This strategic plan for 2025–2029 builds on LWSC's foundational principles, addressing current realities while outlining an achievable vision for the future. It emphasizes financial sustainability, infrastructure rehabilitation and upgrades, institutional capacity building, improved service delivery, technology adoption, and building stakeholders' trust. Through this plan, LWSC reaffirms its commitment to improving the quality of life of the Liberian people by ensuring equitable access to quality water and sewage services, which are fundamental to health, dignity, and economic prosperity.

2. Situational Analysis

This chapter assesses the current internal and external factors influencing LWSC's operations and its capacity to achieve its strategic goals. It examines the organization's strengths, weaknesses, opportunities, and threats (SWOT) within the broader context of Liberia's development agenda, including the AAID and Sustainable Development Goal 6 (SDG 6), which emphasizes clean water and sanitation for all.

This situational analysis includes an assessment of LWSC's existing financial, operational, technical, and governance states, as well as an exploration of external factors. These insights will help LWSC prioritize investments, align resources, and forge strategic partnerships to address gaps and seize opportunities in the water and sanitation sector.

2.1 Current State of LWSC



LWSC operates in a complex and challenging environment shaped by systemic financial, operational, technical, and governance issues. While the Corporation continues to play a vital role in delivering water

and sewage services in urban areas and county capitals, it faces significant constraints that limit its ability to meet the growing national demands. Key challenges include aging infrastructure, limited-service coverage, institutional capacity gaps, and financial dependency on external support and the government's subsidies. Nonetheless, opportunities for reform and transformation exist. Strengthening governance, modernizing operations, investing in human capital, and adopting customer-centered approaches are essential to building a resilient, efficient, and inclusive utility capable of fulfilling its mandate and contributing to Liberia's broader development goals. The following analysis outlines the key dimensions of LWSC's current state, anchored by critical baseline performance metrics.

2.1.1 Financial Sustainability Challenges

LWSC's financial position is weakened by structural and operational deficiencies that undermine its sustainability and growth:

- **Revenue Generation:** Revenue performance remains inadequate, with a collection efficiency rate of 57%, significantly below industry benchmarks.
- **Non-Revenue Water (NRW):** NRW is alarmingly high at 66%, driven by system leaks, unauthorized connections, unmetered consumption, and outdated metering infrastructure, resulting in major revenue losses.
- **Government Dependency:** The Corporation relies on central government subsidies for 50% of operational expenses, underscoring the need for a self-sustaining financial model.
- **Operating Ratio:** LWSC's current operating ratio stands at 1.57, indicating that operating expenditure significantly exceeds operating revenue—a clear signal of financial imbalance that challenges the Corporation's sustainability.
- **Personnel Costs:** Personnel expenditure consumes 85% of LWSC's total operating expenses, indicating significant inefficiencies, and limiting investment flexibility.

Path Forward: Strengthening financial sustainability will require aggressive improvements in revenue collection, strategic reduction of NRW, diversification of income streams, and operational efficiency measures to reduce dependency on subsidies to achieve financial independence.

2.1.2 Commercial Operations and Customer Management

Commercial operations are central to LWSC's ability to generate revenue and engage customers but are hindered by persistent challenges:

- **Billing Accuracy:** The current billing accuracy rate stands at 84%, undermining customer trust and weakening revenue assurance.

- **Meter Coverage:** Only 65% of customer connections are metered, and this is further compounded by faulty meter readings and outdated metering infrastructure, limiting accurate billing and accountability.
- **Customer Relationship Management:** Limited customer engagement, insufficient responsiveness, and inadequate transparency have undermined public confidence and trust in the organization.

Path Forward: Modernizing billing systems by transitioning to smart prepaid meters, expanding meter coverage, strengthening customer relationship management (CRM), reducing waste, and enhancing transparency are critical to building customer trust and securing sustainable revenue growth.

2.1.3 Technical Capacity and Infrastructure

LWSC's technical operations are constrained by aging infrastructure and limited adoption of modern technologies:

- **Aging Infrastructure:** Critical components of the water and sewer infrastructure, including treatment plants, reservoirs, and distribution systems, have exceeded their design lifespans, contributing to frequent service interruptions. Concurrently, the deteriorating condition of the sewer network, including non-operational segments, presents serious public health concerns and contributes to environmental degradation, as untreated effluent is discharged into surrounding rivers and coastal waters.
- **DMA Coverage:** District-metered areas (DMAs) cover only 43% of the distribution network, limiting effective monitoring and water loss management.
- **Hours of Service:** Customers currently receive an average of 10 hours of water service per day, falling short of acceptable service standards.
- **Water Production Capacity:** LWSC's production stands at 5.8 million gallons per day, which is insufficient to meet the growing demands in Monrovia and its surrounding suburbs.



Path Forward: Strategic investment in infrastructure rehabilitation, expansion of DMA coverage, technological modernization (e.g., solarization of water treatment plants and boreholes using a hybrid system, geographic information systems (GIS), automated monitoring), and improved asset management are necessary to enhance technical efficiency, service reliability, and resilience.

2.1.4 Service Delivery

Service delivery gaps remain one of LWSC's most critical challenges:

- **Water Connections:** Total active water connections currently stand at approximately 15,000, limiting reach relative to population needs.
- **Sewer Connections:** Sewer services are even more constrained, with approximately 1,560 active connections.
- **Staff Productivity:** Staffing efficiency is low, with a ratio of 28 staff per 1,000 connections, compared with the international standard of 10 staff to 1,000 connections.

Path Forward: Expanding service coverage, improving staff productivity, addressing connection cost barriers, and enhancing operational efficiency are essential to increasing access and meeting national and community-level demand for water and sewage services.

2.1.5 Human Resource Management and Organizational Culture

Human resource management is a pivotal but underperforming function within LWSC:

- **Workforce Structure:** Overstaffing, skill mismatches, and unclear roles contribute to low efficiency and elevated personnel costs.
- **Organizational Culture:** Low morale, resistance to change, and limited professional development opportunities weaken institutional performance.

Path Forward: Implementing workforce planning, strengthening capacity-building initiatives, establishing performance accountability systems, and fostering a culture of continuous learning and collaboration will be critical to renewing LWSC's institutional strength.

2.1.6 Institutional Governance and Accountability

Effective governance is fundamental to LWSC's strategic success but is impeded by systemic challenges:

- **Coordination and Decision-Making:** Inadequate inter-departmental collaboration and fragmented decision-making processes undermine operational coherence.

- **Political Interference:** Staffing and procurement practices are vulnerable to political influence, compromising transparency and efficiency.

Path Forward: Strengthening accountability frameworks, improving procurement transparency, institutionalizing risk management systems, and promoting a results-based management culture are key to enhancing governance integrity and operational excellence.

2.1.7 Customer Satisfaction and Public Trust

LWSC's relationship with its customers remains unacceptable:

- **Customer Dissatisfaction:** Delays in repairs, inaccurate billing practices, and limited communication about service disruptions lead to customer dissatisfaction.
- **Limited Customer Engagement:** Inadequate customer service platforms and minimal public outreach hinder effective stakeholder communication.

Path Forward: Building a customer-centric culture, improving communication channels, promoting billing transparency, and actively engaging stakeholders will be critical to building trust and improving public perception.

2.1.8 External Factors

Several external factors significantly affect LWSC's operational context:

- **Economic Conditions:** Macroeconomic instability and the rising costs for electricity, chemicals, and equipment continue to strain financial resources.
- **Environmental Challenges:** Climate change impacts, such as sea erosion (evidenced by the destruction of the sewage transmission line along the beach toward Fiamah), sand mining, and increased flooding, posing substantial risks to water resources and critical infrastructure, threatening the reliability and sustainability of service delivery.
- **Demographic Pressures:** Rapid population growth and urban migration are intensifying demand for water and sewage services.

Path Forward: Enhancing financial resilience, integrating climate-adaptive infrastructure measures, scaling infrastructure to meet demographic trends, and strengthening partnerships with government, donors, and private sector actors are vital to safeguarding LWSC's long-term viability and strategic relevance.

2.2 SWOT Analysis

The SWOT analysis evaluates the Corporation's Strengths, Weaknesses, Opportunities, and Threats, offering a clear understanding of its internal capabilities and external environment. This analysis is a foundation for informed decision-making, enabling LWSC to leverage its strengths, address its weaknesses, capitalize on emerging opportunities, and mitigate potential threats. By identifying these key factors, the SWOT analysis aligns LWSC's strategic goals with its mission to deliver sustainable and equitable water and sewage services, in line with AAID and SDG 6.

Strengths

- Clear and well-defined corporate mandate.
- Management and staff commitment to driving organizational change.
- Established billing software to support operational efficiency.
- Existing infrastructure to facilitate service delivery.
- Access to abundant raw water resources.
- Recent assessments and reports from the World Bank and other development partners.

Weaknesses

- Low revenue generation and limited financial sustainability.
- Inefficiencies in billing and collection processes.
- High levels of non-revenue water.
- Aging and deteriorating infrastructure.
- Limited human resource capacity, coupled with overstaffing.
- Insufficient IT infrastructure to support operations.
- Resistance to adopting the existing information management system (Utility Master).
- Insufficient customer relationship management practices and service support systems.
- Ineffective organizational culture negatively impacts productivity and employee morale.
- Heavy reliance on donors and central government support.
- Insufficient working equipment and logistical resources for effective operations.
- High initial costs associated with new customer connections.
- Limited availability of historical data on operations and financial performance.
- High operational costs impact financial viability.
- Lack of routine maintenance of critical infrastructure.

- Absence of a comprehensive asset management system.
- Inadequate human resource management systems.
- Ineffective accounting and financial management systems.
- Limited staff capacity development and training.
- Absence of a well-defined risk management framework.
- Limited inter-departmental coordination and lack of knowledge sharing.
- Inadequate water demand forecasting and related analytics to guide planning and resource allocation.
- Deficiencies in staff recruitment, retention, and promotion policies.
- Limited public outreach efforts.

Opportunities

- Strong government support through AAID.
- Availability of donor support in the Water, Sanitation, and Hygiene (WASH) sector to provide funding, expertise, and partnerships to enhance services and infrastructure.
- Immediate prospects to improve revenue collection and resume outstation operations.
- Monopoly market position in the water and sewer sector.
- Availability of modern technological solutions to improve operations and enhance efficiency.
- Significant potential to expand service delivery to underserved communities.
- Ongoing rehabilitation of the water distribution network and outstations.
- Opportunities for public-private partnerships (PPPs) to improve operational efficiency and attract capital investment.
- Potential for collaboration with law enforcement agencies to address illegal connections and strengthen regulatory compliance.
- Potential to implement stronger regulatory oversight to improve service delivery and governance.
- Opportunities to diversify income streams and secure alternative financing sources for long-term sustainability.

Threats

- Unstable macroeconomic environment.
- Market instability and rising costs of basic input, including electricity, chemicals, and essential equipment.
- Inadequate zoning regulations causing encroachment and damage to assets.

- Political interference in hiring and retention.
- Illegal connections and vandalism of assets undermine revenue and service integrity.
- Climate change and other environmental challenges threaten infrastructure stability.
- Negative public perception of service.
- Inadequate oversight mechanisms.
- Rapid population growth and urban migration strain services.
- Customer reluctance to pay for services,

2.3 Conclusion

Addressing the challenges outlined above is essential for LWSC to fulfill its mandate and realize its mission of providing reliable, sustainable, and equitable water and sewage services to the Liberian people. Building on a clear understanding of its current realities, the Corporation is poised to embark on a transformative journey grounded in strategic priorities, operational reforms, and targeted investments. The following chapters set forth LWSC’s strategic direction for the 2025–2029 period, outlining strategic priority areas, goals, initiatives, and activities required to strengthen institutional capacity, expand service delivery, enhance financial sustainability, and foster stakeholder trust. Building on these insights, LWSC is charting a new course—one that aligns its internal strengths with external opportunities, while systematically addressing existing challenges. The next chapter outlines the Corporation’s renewed strategic vision and the roadmap that will guide its transformation between 2025 and 2029.

3. Strategic Direction (2025 – 2029)

3.1 Vision and Mission

- **Vision:** To be a world-class provider of quality and sustainable water and sewerage services.
- **Mission:** Providing efficient, reliable, and affordable customer-driven water and sewage services in urban areas and county capitals in the Republic of Liberia.

3.2 Core Values – The Pillars of Our Success



At the heart of LWSC's transformation are our core values. These principles guide how we serve our customers, collaborate as a team, and fulfill our mission. They are more than words—they are the foundation for every decision and every action:

- **Professionalism**

We are committed to conducting ourselves with the highest level of competence, respect, and courtesy. Professionalism defines our interactions, strengthens our reputation, and ensures that we consistently deliver quality results.

- **Integrity**

Integrity is the cornerstone of our work. We uphold the highest ethical standards, fostering trust through honesty, fairness, and consistent moral conduct in every decision and action.

- **Innovation**

We champion creative thinking and embrace change. Through continuous innovation, we develop forward-looking solutions that anticipate needs, drive progress, and position us as leaders in an evolving environment.

- **Dedication**

Our steadfast dedication propels us to persevere through challenges and deliver outstanding results. We are deeply committed to our mission, our customers, and the communities we serve.

- **Accountability**

We take ownership of our work and our impact. Accountability means honoring our commitments, learning from our outcomes, and striving for excellence in everything we do.

- **Transparency**

We value openness and clarity. Transparency ensures that information is shared honestly, and decisions are made collaboratively, fostering an environment of mutual trust and continuous improvement.

- **Teamwork**

We believe collaboration is essential to achieving excellence. By valuing diverse talents and working together with respect and unity, we multiply our impact and turn collective aspirations into reality. We actively foster partnerships with government agencies, international organizations, and local and community-based groups to align efforts, leverage resources, and drive sustainable results.

- **Customer Satisfaction**

We place our customers at the center of everything we do. We are committed to listening, responding promptly, and exceeding expectations by delivering services that are respectful, reliable, and responsive. We believe that a satisfied customer is the true measure of our success.

- **Quality Service**

We uphold the highest standards of professionalism, efficiency, and integrity in delivering water and sewerage services. We continuously improve our systems, invest in our people, and embrace innovation to ensure that every service we provide meets or exceeds quality benchmarks.

3.3 Strategic Priority Areas

The core strategies LWSC will pursue over the next five years to achieve its strategic goals are organized around the seven Strategic Priority Areas (SPAs):

- **SPA 1:** Achieve Financial Sustainability
- **SPA 2:** Improve Operational Efficiency
- **SPA 3:** Improve Reliability and Service Delivery
- **SPA 4:** Expand Water Service Coverage
- **SPA 5:** Strengthen Governance
- **SPA 6:** Improve LWSC's Public Image, Build Trust, and Foster Partnerships
- **SPA 7:** Expand Sewage and Sanitation services

Each SPA is supported by strategic initiatives, which are further detailed through specific sets of activities. Project teams constituted by LWSC's management and operationalized through the Corporation's annual action plans will conduct the implementation of these activities.

3.4 Strategic Goals

To translate our vision into results, we have established a set of bold but achievable goals. These targets are designed to directly improve service quality, financial performance, and customer satisfaction. By 2029, we aim to achieve the following goals that set the direction for the Corporation's growth and transformation over the 2025–2029 period:

1. **Billing Accuracy Rate:** Increase the billing accuracy rate from 84% to 95% to enhance customer trust and optimize revenue collection.

2. **Meter Coverage Rate:** Expand meter coverage from 65% to 90% of all connections, including the transition to smart prepaid meters, to enhance billing accuracy, strengthen revenue collection, and promote operational transparency.
3. **Collection Efficiency Rate:** Increase collection efficiency from 57% to 95% of billed revenue to strengthen financial sustainability and cash flow.
4. **Operating Ratio:** Reduce the operating ratio from 1.57 to 1.0 to reflect a leaner, more financially resilient operational model.
5. **Personnel Expenditure as a Percentage of Operating Costs:** Reduce personnel expenses from 85% to 50% of total operating costs to promote cost efficiency and sustainable resource allocation.
6. **Government Subsidies for Operations:** Reduce reliance on government subsidies for operational expenses, reducing dependency from 50% to 20% to drive towards financial independence.
7. **Non-Revenue Water (NRW) Rate:** Decrease NRW levels from 66% to 25% to improve operational efficiency, enhance financial sustainability, and conserve water resources.
8. **District Metered Areas (DMA) Coverage Rate:** Expand DMA coverage from 43% to 100% of the distribution network to strengthen water loss management and system monitoring.
9. **Staff Productivity:** Enhance staff productivity by reducing the staff-to-connection ratio from 28 to 15 staff per 1,000 connections to optimize workforce efficiency.
10. **Hours of Water Service:** Increase the average daily hours of water service from 10 hours to 16 hours to significantly improve service delivery and customer satisfaction.
11. **Water Production Capacity:** Expand water production capacity from 5.8 million gallons per day to 8 million gallons per day to meet the growing demand for potable water.
12. **Total Number of Water Connections:** Increase the total number of water connections from 15,000 to 30,000 to broaden service coverage and reach more communities.
13. **Total Number of Sewer Connections:** Expand sewer connections from 1,560 to 3,000 to strengthen sanitation infrastructure and improve public health outcomes.
14. **Public Sanitation Facilities:** Partner with stakeholders to co-design and construct 50 new public sanitation facilities in key urban areas to improve public health, environmental hygiene, and equitable access to safe sanitation.

4. Strategic Framework for Implementation

4.1 Strategic Initiatives and Activities

The strategic initiatives and the respective activities translate LWSC's strategic priorities into concrete, actionable steps. These plans serve as a roadmap for implementing the initiatives necessary to achieve the goals set forth in the 2025-2029 strategic direction. Each action plan is designed to address key challenges, capitalize on opportunities, and enhance LWSC's financial sustainability, operational efficiency, and service delivery. The action plans ensure a focused and coordinated approach to advancing water and sewage services in alignment with national and international development goals.

4.1.1 SPA 1: Achieve Financial Sustainability



Strategic Initiative	Activities
Improve Billing and Collection	Conduct a comprehensive audit of billing and collection processes to identify and mitigate inefficiencies.
	Validate and clean customer data to ensure billing accuracy and reduce disputes. (e.g., Customer Enumeration)
	Develop standard operating procedures (SOPs) to ensure regular audit and updates to the customer database.
	Expand meter coverage, including transitioning to smart prepaid meters, beginning with a pilot phase and progressing to full implementation, prioritizing large customers and areas with high consumption.
	Establish a meter calibration and maintenance lab to reduce meter inaccuracy and improve billing precision.
	Develop SOPs for installation, testing, repair, and replacement of water meters.
	Develop and enforce standardized disconnection and reconnection policies to ensure consistency while offering manageable repayment options.
	Establish decentralized collection points and introduce digital payment options for convenience.
Optimize Staff and Minimize Cost	Conduct a comprehensive review of the workforce audit report to assess staffing levels and identify areas of overstaffing and potential redundancies.
	Engage internal and external stakeholders to secure buy-in to workforce optimization efforts.
	Develop and implement a workforce rationalization plan to optimize staffing levels.
	Outsource non-core services to reduce overhead costs and focus on key competencies.
	Implement energy-saving technologies and optimize resource usage to lower operational expenses.
Improve Accounting and Reporting	Implement an accrual-based accounting and reporting framework that complies with national standards, ensuring accurate financial representation and enhanced transparency.

	Fully integrate the accounting system with the billing platform to streamline revenue tracking, reduce discrepancies, and improve financial oversight. (e.g. Integrate QuickBooks with Utility Master)
	Develop robust cash and debt management processes to optimize liquidity, reduce financial risk, and improve fiscal sustainability.
	Set up a foundational accounting system that includes account receivable tracking, summary-level fixed asset registers, and clear accounting policies, incorporating internal controls and reporting mechanisms that align with government-defined standards.
	Prepare and release periodic financial reports detailing revenue streams, expenditures, and progress toward achieving financial objectives, fostering accountability and stakeholder confidence.
Improve financial modeling and forecasting	Conduct a comprehensive assessment of financial forecasting tools and develop a detailed plan to enhance LWSC's financial modeling and analysis capabilities.
	Build internal capacity for financial forecasting through targeted training and adoption of advanced modeling methodologies.
	Develop and maintain annual baseline forecasts of short- and medium-term financial requirements, with a focus on the rehabilitation and upgrading of critical infrastructure.
Enhance Revenue	Conduct a full-cost recovery tariff analysis, incorporating operating expenses (OPEX), depreciation, and expected returns, with detailed disaggregation by customer category to ensure equitable and sustainable pricing.
	Develop and implement customer incentive programs, like debt waivers, to regularize delinquent accounts and attract new connections.
Diversify Funding Sources	Explore partnerships with international donors, development agencies, and private investors to secure project funding.
	Establish a grant acquisition team to identify and apply for relevant funding opportunities.
	Develop public-private partnerships (PPPs) for service delivery and infrastructure projects.
Build Financial Resilience	Diversify revenue streams by exploring opportunities such as monetizing waste products from sewage and other value-added services.

4.1.2 SPA 2: Improve Operational Efficiency

Strategic Initiative	Activities
Reduce Non-Revenue Water (NRW)	Conduct a comprehensive audit of the water distribution network to identify critical leaks and illegal connections.
	Conduct a comprehensive review of the assessment report of the District Metered Areas (DMAs) pilot program to assess challenges and inefficiencies in the system.
	Upgrade and expand DMA infrastructure, including flow meters and pressure monitoring systems, to improve water balance accuracy and leakage detection.
	Establish dedicated customer reporting systems, including hotlines and alternative channels, for leaks and illegal connections.
	Design and implement a leak repair system with advanced detection tools and specialized response teams.
	Detect and address illegal water connections using metering technologies and other tools.
	Strengthen collaboration with law enforcement agencies to investigate and prosecute cases of illegal water connections and infrastructure vandalism, in accordance with the Corporation's enabling legislation and applicable penal laws.
	Launch a public awareness campaign to educate communities on the impacts of illegal connections and vandalism.
Enhance Workforce Productivity	Conduct a comprehensive workforce audit to identify skill gaps.
	Design targeted training programs to improve skill sets and productivity.
	Review and update the performance management system to strengthen accountability and effectively monitor employee work productivity
	Improve workplace conditions, including safety and health measures and logistical support.
	Provide ongoing professional development for staff.
	Foster a culture of learning and innovation within LWSC.
Digital Transformation and System Integration	Evaluate current systems (e.g., Utility Master), identify gaps, and define requirements for the Information Management System (IMS).
	Enforce full utilization of Utility Master in phases, starting with critical departments.

	Train and onboard staff to ensure efficient system adoption.
	Ensure reliable and adequate Internet connectivity to support IMS operations.
	Procure adequate computers and mobile equipment and enforce corporate email use for improved information security and communication.
	Digitalize asset and inventory management systems to improve tracking and operational oversight.
	Upgrade geographic information systems (GIS) to provide accurate mapping and analysis of water infrastructure.
	Develop SOPs for updating the GIS database to ensure accurate representation of the network.
	Integrate customer metering data with GIS for improved insights.
	Expand and improve Supervisory Control and Data Acquisition (SCADA) systems to monitor and control operations.
	Ensure integration between GIS and SCADA systems for better data sharing and decision-making.
	Develop user-friendly dashboards and interfaces to improve data accessibility for management, staff, and stakeholders.
Energy Efficiency	Transition to renewable energy sources for treatment plants.
	Optimize energy use in pumping stations and other operations.

4.1.3 SPA 3: Improve System Reliability and Service Delivery



Strategic Initiative	Activities
Rehabilitation and Renewal of Aging Infrastructure	Conduct a comprehensive audit of existing infrastructure to identify critical areas requiring upgrades or rehabilitation.
	Prioritize the replacement of aging pipelines, valves, and treatment systems to minimize service disruptions.
Preventive Maintenance Programs	Develop and implement a preventive maintenance schedule for all critical water and sewer infrastructure.
	Establish maintenance teams equipped with modern tools and technologies.
	Partner with private-sector service providers to enhance maintenance efficiency.
	Create a real-time maintenance tracking dashboard for better transparency and accountability.

Improve Water Resources Management	Collaborate with the relevant ministries and agencies, such as the Ministry of Public Works, EPA, MME, etc., to develop a comprehensive water resource management plan to ensure sustainable utilization of water sources.
	Collaborate with the relevant ministries and agencies, such as the Ministry of Public Works, EPA, MME, etc., to enforce zoning regulations to protect critical assets, including water resources, treatment facilities, distribution networks, and sewer infrastructure.
Improved Monitoring and Control Systems	Deploy and upgrade water management systems to monitor flow, pressure, and quality.
	Establish and operationalize a comprehensive water quality monitoring system to conduct regular testing of all primary water sources.
	Implement predictive maintenance tools to identify and address potential failures before they occur.
	Integrate Supervisory Control and Data Acquisition (SCADA) systems for centralized monitoring and control.
Enhanced Treatment Processes	Upgrade water treatment facilities to ensure a consistent supply of high-quality water.
	Develop SOPs to ensure consistent treatment outcomes.
Customer-Centric Service Improvements	Launch a 24/7 customer service hotline to address issues promptly and efficiently.
	Establish SOPs for efficient processing, documentation, and resolution of customer complaints (billing, service, etc.) to enhance service quality and accountability.
	Implement a feedback mechanism to gather customer input on service delivery.
	Establish rapid response teams for emergencies to reduce service restoration times.

4.1.4 SPA 4: Expand Water Service Coverage

Strategic Initiative	Activities
Rehabilitate and Strengthen	Conduct a comprehensive assessment of technical and management operations at all outstations to identify gaps and improvement opportunities.

Outstations’ Operations	Rehabilitate key outstations, incorporating infrastructure upgrades and operational enhancements at locations including Kakata, Buchanan, Zwedru, Harper, Greenville and Gbarnga stations.
	Provide adequate resources, such as equipment, tools, and vehicles, to support outstation functionality.
	Establish targeted training programs for outstation staff to build technical and managerial capacities.
	Develop monitoring and evaluation frameworks to track the performance and efficiency of rehabilitated outstations.
	Construct mini groundwater supply systems in cities, including Ganta, Barclayville, Cestos City, Tubmanburg and Fish Town
Expand Water Services Around Monrovia	Identify underserved and emerging communities.
	Map service coverage gaps.
	Engage stakeholders to prioritize interventions.
	Develop and implement infrastructure projects, including pipelines, treatment plants, and groundwater supply systems.
Public-Private Partnerships	Secure funding from government, international donors, and private investors.
	Partner with NGOs for community-based solutions.
Community Engagement	Launch awareness programs on the benefits of water connections.
	Facilitate participatory planning with local leaders.

4.1.5 SPA 5: Strengthen Governance

Strategic Initiative	Activities
Institutional Enhancements	Conduct a comprehensive evaluation of existing management practices and oversight structures to identify gaps and improvement areas.
	Establish a robust oversight mechanism for the Board to assess and ensure the alignment and impact of its directives across all organizational levels.
	Develop a clear governance framework with roles, responsibilities, and accountability mechanisms.
	Review and update policies and procedures to ensure compliance with current regulatory frameworks and adherence to the industry’s best practices.
	Ensure compliance with gender provisions to promote inclusivity and equity.

	Integrate gender and equity audits into corporate annual work plans and annual governance evaluations.
Stakeholder Engagement	Establish regular forums for communication with stakeholders.
	Partner with regulatory agencies to ensure compliance and secure support.
Internal Controls	Implement rigorous internal controls and auditing mechanisms.

4.1.6 SPA 6: Improve LWSC's Public Image, Build Trust, and Foster Partnerships



LWSC is building a robust community outreach program to improve its public image and build trust among stakeholders.

Strategic Initiative	Activities
Partnership Development	Identify and prioritize potential partners aligned with LWSC's strategic goals.
	Engage with potential donors, private investors, and development partners to secure funding and technical support.
	Develop and present targeted proposals for key projects to attract investments.

	Build long-term partnerships with academic institutions and research organizations to foster innovation.
Branding and Public Relations	Develop a comprehensive branding strategy to position LWSC as a dependable service provider.
	Launch public awareness campaigns highlighting LWSC's achievements, ongoing projects, and plans.
	Use traditional and digital media platforms to communicate LWSC's vision, mission, and values.
Stakeholder Engagement	Conduct regular stakeholder forums to discuss projects, challenges, and opportunities.
	Collaborate with government entities, NGOs, and private partners to align goals and build synergies.
	Develop and implement targeted communication strategies for different stakeholder groups, including donors, regulators, and communities.
Community Outreach	Organize community workshops and seminars to educate the public on water conservation and service benefits.
	Engage with local leaders and community groups to co-create solutions for water and sewer challenges.
	Address misconceptions about LWSC's services through transparent communication and educational programs.
Customers' Feedback and Responsiveness	Implement a real-time feedback mechanism, such as a hotline or digital platform, to gather and address customer concerns.
	Conduct regular surveys to measure customer satisfaction and identify areas for improvement.
	Develop a customer service charter outlining LWSC's commitments and service standards.

4.1.7 SPA 7: Expand Sewage and Sanitation services

Strategic Initiative	Activities
Infrastructure Rehabilitation and Upgrade	Conduct a comprehensive assessment of existing sewer networks and facilities to identify areas for rehabilitation.
	Rehabilitation of treatment facilities and sewer networks to meet environmental and operational standards.

	Develop and implement infrastructure projects to expand sewer coverage in underserved areas.
Expand Community Sanitation services	Partner with city leadership, local communities, development partners, and the donor community to co-design and construct public sanitation facilities in urban centers and county capitals, prioritizing densely populated and high-risk areas.
Public-Private Partnerships	Partner with private entities to co-fund and manage sewer infrastructure and service projects.
Sustainability and Environmental Compliance	Ensure compliance with environmental regulations by reducing pollutants and improving waste disposal practices.
	Promote the reuse of treated wastewater for agricultural or industrial purposes.
Community Engagement and Education	Launch awareness campaign to educate communities about the benefits of proper sewer connectivity.

4.2 Resources

Successful implementation of the LWSC Strategic Plan (2025–2029) requires a coordinated mobilization of financial, technical, and human resources. These resources will ensure the Corporation achieves its vision of delivering sustainable and equitable water and sewage services while meeting strategic goals.

4.2.1 Financial Resources

LWSC’s strategic goals require significant financial investments to fund infrastructure development, capacity-building programs, and operational improvements. The Corporation will adopt a multi-pronged approach to secure funding from diverse sources, ensuring financial sustainability and minimizing risks.

- **Key Financial Needs:**

- Capital investments for infrastructure development and upgrades.
- Operational budgets for maintenance and service delivery.
- Funding for capacity-building and stakeholder engagement programs.
- Investment in technology adoption and digital transformation.

- **Sources of Funding:**

- **Internal Revenue Generation:** Enhanced revenue collection from tariffs and other income streams through improved efficiency and customer satisfaction.
- **Government Allocations:** Budgetary support from the Government of Liberia to align with national development goals.
- **Donor Contributions:** Grants and financial aid from international development partners, such as the World Bank and African Development Bank.
- **Public-Private Partnerships (PPPs):** Collaboration with private sector partners to co-fund infrastructure and service delivery projects.

4.2.2 Technical Resource

Innovative technologies and technical expertise are essential to enhance LWSC's operations and achieve strategic goals. The Corporation will prioritize the acquisition of tools, systems, and expertise to enhance efficiency and service quality.

- **Key Technical Needs:**

- Water treatment and distribution technologies to improve service delivery.
- Geographic Information Systems (GIS) for planning, monitoring, and optimizing service coverage.
- Digital platforms for customer relationship management (CRM), billing, accounting, assets management, and feedback collection.
- Equipment and materials for infrastructure construction and maintenance.

- **Technical Expertise:**

- Partnerships with technical experts, consultants, and industry leaders to provide advisory and implementation support.
- Knowledge-sharing platforms to learn from the best practices in similar contexts globally.

4.2.3 Human Resource

LWSC's workforce is critical to the successful execution of the strategic plan. Enhancing the capacity and motivation of employees will ensure effective implementation and long-term sustainability.

- **Key Human Resource Needs:**

- Comprehensive training programs to upskill current employees and align their capabilities with strategic goals.

- Incentive structures to retain top talent and foster a culture of accountability and innovation.
- Cross-departmental collaboration to ensure integrated and cohesive execution of initiatives.
- Recruitment of skilled professionals in engineering, finance, project management, and customer service.
- **Strategic Workforce Development:**
 - Foster a culture of continuous learning and professional growth through regular workshops and certifications.
 - Partnering with international organizations for staff exchange programs and specialized training.

4.3 Partnerships



Partnerships are pivotal to the successful implementation of LWSC's Strategic Plan (2025–2029)

Partnerships are pivotal to the successful implementation of LWSC’s Strategic Plan (2025–2029). Collaborative efforts between the government, development partners, and private sector actors will ensure the alignment of resources, expertise, and efforts to achieve the Corporation’s vision of delivering sustainable and equitable water and sewage services.

4.3.1 Government Partnerships

The Government of Liberia plays a significant role in creating an enabling environment for LWSC to execute its strategic goals. Through policy support, regulatory frameworks, and financial backing, the government can ensure that LWSC can operate efficiently and align its initiatives with national development priorities.

- **Roles and Contributions:**

- **Policy and Regulation:** Establishing and enforcing policies that promote universal access to water and sewage services.
- **Budgetary Support:** Allocating financial resources to LWSC for infrastructure development and operational sustainability.
- **Interagency Collaboration:** Facilitating coordination between LWSC and other government entities, such as the WASH Commission, Ministry of Health, and the Ministry of Public Works, to ensure integrated service delivery.
- **Advocacy:** Promoting LWSC initiatives and fostering public trust through national and international awareness campaigns.

4.3.2 Development Partners

International development partners are instrumental in providing financial aid, technical expertise, and capacity-building support to LWSC. By aligning their programs with LWSC’s strategic goals, development partners can help accelerate progress and address critical challenges in water and sewage services delivery.

- **Roles and Contributions:**

- **Financial Assistance:** Offering grants and concessional loans for large-scale infrastructure projects and community-based programs.
- **Technical Support:** Sharing expertise and best practices in water management, sewage, and technological innovation.
- **Capacity Building:** Funding and implementing training programs for LWSC staff to enhance skills and operational efficiency.

- **Monitoring and Evaluation:** Assisting in the development and implementation of performance indicators and frameworks to measure progress and outcomes.
- **Knowledge Sharing:** Facilitating South-South cooperation and peer learning through international forums and partnerships.

4.3.3 Private Sector Partnership

Private sector actors play a critical role in driving innovation, efficiency, and sustainability within LWSC's operations. LWSC can expand its capacity to deliver high-quality water and sewage services by leveraging private sector expertise and investments.

- **Roles and Contributions:**
 - **Public-Private Partnerships (PPPs):** Collaborating on service delivery and infrastructure development projects, such as bill collection, water treatment and distribution network maintenance and upgrade.
 - **Technology Innovation:** Introducing innovative solutions for water management, digital payment systems, and customer engagement platforms.
 - **Supply Chain Management:** Ensuring the availability of essential materials, equipment, and services through reliable procurement channels.
 - **Corporate Social Responsibility (CSR):** Supporting community-based water and sewage projects as part of CSR initiatives.
 - **Job Creation:** Contributing to local employment through construction, maintenance, and operational activities.

5. Costing and Financial Framework for Implementation

To ensure the successful execution of the LWSC Strategic Plan (2025–2029), a comprehensive costing and financial framework was developed by the Technical Services Division at the LWSC. This framework outlines estimated financial requirements for each SPA and identifies potential funding sources. The total estimated budget over the five-year period is US \$156.6 million.



5.1 Methodology and Assumptions

The costing was developed using a bottom-up approach, drawing on:

- Feasibility studies (LWSC, AfDB, UNDP, UNICEF, World Bank)
- Local labor and material rates
- Industry benchmarks (Ghana Water Company, Sierra Leone's Guma Valley, IWA)
- A 10% contingency to accommodate inflation and delays

5.2 Summary of Costs by Strategic Priority Area

Strategic Priority Area	Estimated Cost (USD)
SPA 1: Achieve Financial Sustainability	\$3,800,000
SPA 2: Improve Operational Efficiency	\$6,150,000
SPA 3: Improve Reliability and Service Delivery	\$68,250,000
SPA 4: Expand Water Service Coverage	\$36,800,000
SPA 5: Strengthen Governance	\$200,000
SPA 6: Improve LWSC's Public Image, Build Trust, and Foster Partnerships	\$600,000
SPA 7: Expand Sewage and Sanitation services	\$85,000,000
Total	\$156,600,000

5.3 Key Highlights by SPA

SPA 1: Achieve Financial Sustainability

- **Prepaid Meters:** Install 20,000 smart water meters to reduce NRW and improve billing accuracy, leveraging lessons from the 2015 Monrovia study (e.g., bulk meter installation).
- **System Setup:** Includes vending kiosks, customized Meter Management System (MMS), GSM communication, and mobile app/SMS platform for real-time billing.
- **Training:** Utilizes vendor-provided resources to minimize costs, focusing on meter maintenance and customer service.
- **Tariff Analysis:** Ensures pricing balances affordability (based on 2014 household survey data: USD 5–15/month water bills) and cost recovery.
- **Incentive Programs:** Digital campaigns and partnerships encouraging timely payments, building on existing customer care improvements.
- **Grant Team and Training:** Enhances LWSC's capacity to secure external funding, addressing financial constraints.

SPA 2: Improve Operational Efficiency

- **NRW Reduction:** Acoustic sensors and DMAs build on 2015 Monrovia interventions (e.g., bulk meters, US \$200,297) to reduce NRW through real-time leak detection and flow monitoring.
- **Energy Efficiency:** Solar power and efficient motors address 2015 White Plains WTP reliance on generators, reducing energy costs.
- **Monrovia WTP:** 1.6 MW solar system ensures reliable power, improving on current shortcomings of the LEC grid connection.
- **Digital Transformation:** GIS and SCADA systems enhance network management, leveraging 2015 QGIS training and hydraulic modeling.
- **Chemical Efficiency:** Upgraded feeders and dosing systems optimize chemical use, improving water quality and reducing costs.

SPA 3: Improve Reliability and Service Delivery

- **Kakata, Buchanan, Harper, Greenville, Gbarnga:** Build on 2015 feasibility studies for secondary cities, using solar-powered boreholes, pipelines, and treatment systems to improve reliability.
- **Monrovia:** Major pipeline replacements (e.g., 48-inch DI pipeline) and reservoir construction address 2015 issues like low pressure and frequent breakdowns (e.g., Eastern Feeder repairs, US \$508,400).
- **Operation:** Ensures reliable water supply, serving 396,824 people (aligned with 2015 Phase 1 impact estimates).

SPA 4: Expand Water Service Coverage

- **Decentralized Solutions:** Uzima filters provide immediate water access, complementing 2015 kiosk construction (US \$95,760 for 60 kiosks).
- **Ganta, Pleebo, Bopolu, Tubmanburg, Foya, Fish Town, Saclepea, Marshall:** New water supply systems with solar power and treatment expand access, building on 2015 secondary city studies.
- **Kesselly Barracks, Dixville:** Pipeline extensions improve local distribution, similar to 2015 Paynesville expansions.
- **Customer Connections:** 25,250 connections align with 2015 GPOBA areas (188,314 people served) and aim for 50% household connection demand.
- **Backwash Systems and Water Quality:** Enhance treatment plant efficiency and water safety, addressing 2015 White Plains WTP limitations.

SPA 5: Strengthen Governance

- **Governance Policies:** Standardize financial, procurement, and HR policies, building on 2015 LWSC capacity-building efforts (US \$2.7 million).
- **Compliance Training:** Ensures regulatory adherence, addressing complex connection procedures in 2015.
- **Oversight Mechanisms:** Establishes accountability committee and tools.
- **Stakeholder Workshops:** Engage communities, aligning with 2015 customer care improvements.

SPA 6: Improve LWSC's Public Image, Build Trust, and Foster Partnerships

- **Awareness Campaigns:** Use radio and social media to promote LWSC services, building on 2015 customer engagement efforts.
- **Outreach Programs:** Engage communities and schools to build trust, like 2015 GPOBA community focus.
- **Uzima Filter Promotion:** Supports SPA 4 by ensuring proper filter use.
- **Media Partnerships:** Enhance visibility through trusted channels.
- **Feedback Mechanisms:** Improve responsiveness, addressing 2015 customer care gaps.
- **Digital Platform:** Enhances online presence, leveraging Liberia's mobile penetration (98% household cell phone ownership, 2014 survey).

SPA 7: Expand Sewage and Sanitation services

- **Infrastructure Rehabilitation:** Restores sewer networks, manholes, and Fiamah WWTP, addressing sanitation gaps (20% of households lacked facilities).
- **Station Upgrades:** Enhances pumping station reliability.
- **Pipeline Expansion:** Extends sewer coverage in Monrovia, complementing 2024 distribution improvements.
- **Public Sanitation:** Improves toilet access, building on 2015 initiatives.
- **Community Engagement:** Promotes sanitation awareness, aligned with 2015 household survey priorities.
- **Equipment Provision:** Supports maintenance with vacuum trucks.
- **Capacity-Building:** Enhances staff skills, extending past training efforts.
- **PPP Study:** Explores sustainable financing, informed by World Bank funding models.

5.4 Resource Mobilization Strategy



LWSC will pursue the following funding streams:

- **Internal Revenues:** Through improved billing, collection efficiency, and prepaid systems.
- **Government Allocations:** Aligning with the AAID and PSIP.
- **Development Partners:** Grants and concessional loans from AfDB, World Bank, UNDP, UNICEF, etc.
- **Public-Private Partnerships:** Especially for sewerage, water treatment, and digital billing services.

5.5 Financial Risk Management

Risk	Mitigation Strategy
Delay in funding	Diversify sources, proactive donor engagement
Exchange rate/inflation volatility	Include 10% contingency; regular budget reviews
Cost overruns on infrastructure	Use standardized, scalable designs; rigorous procurement
Weak internal absorption capacity	Staff training, technical assistance, phased rollout

5.6 Conclusion

This Costing and Financial Framework serves as a roadmap to ensure that strategic goals are not only aspirational but also financially feasible. By aligning investments with national priorities and global standards, LWSC is poised to transform the water and sanitation landscape of Liberia.

6. Monitoring and Evaluation



To keep this plan on track, we've developed a clear system to monitor our progress and adapt when needed.

A robust Monitoring and Evaluation (M&E) framework is essential to ensure the effective implementation of the LWSC Strategic Plan (2025–2029). The M&E framework provides a structured approach for tracking progress, assessing the impact of key initiatives, and identifying areas for improvement. By fostering accountability, transparency, and evidence-based decision-making, M&E will play a pivotal role in achieving LWSC's vision of delivering sustainable and equitable water and sewage services.

The M&E framework will integrate both quantitative and qualitative methodologies to measure performance against clearly defined Key Performance Indicators (KPIs). It will also align with national and international reporting requirements, including Liberia's development priorities and the SDG 6: Clean Water and Sanitation.

This chapter outlines the KPIs and targets, and the key components of the M&E framework, including its objectives, guiding principles, and mechanisms for continuous feedback and learning. By embedding M&E

as a core function within LWSC’s operations, the Corporation ensures that resources are used efficiently, milestones are met, and strategic goals are realized.

6.1 Key Performance Indicators and Targets

Key Performance Indicators (KPIs) and targets are vital to executing the LWSC Strategic Plan (2025–2029) effectively. They provide clear, measurable standards for tracking progress, enforcing accountability, and informing strategic decisions across all levels of the Corporation. By establishing targets aligned with LWSC’s vision and national development goals, KPIs focus efforts on expanding service access, enhancing operational efficiency, and strengthening financial sustainability. They are essential tools for driving results, adapting strategies, and ensuring the delivery of sustainable, equitable water and sewage services to the people of Liberia.

The table summarizes the Targets for the period 2025–2029.

Performance Indicator	2024 (Baseline)	2027 (Midterm)	2029 (Final)
Billing Accuracy Rate: % of accurate bills issued.	84	90	95
Meter Coverage Rate: % of connections with meters installed.	65	75	90
Collection Efficiency Rate: % of billed revenue collected.	57	75	95
Operating Ratio: reduction in operating costs/expenses relative to operating revenue.	1.57	1.3	1
Personnel Expenditure as Percentage of Operating Costs: % reduction in personnel expenses as a proportion of operating costs/expense.	85	70	50
Government Subsidies for Operations: % reduction in government subsidies for operations.	50	40	20
Non-Revenue Water Rate: % reduction in non-revenue water.	66	50	25
DMA Coverage Rate: % of the network covered by functioning District Metered Areas.	43	60	100
Staff Productivity: number of staff per 1000 connections.	28	20	15
Hours of Service: increase in the number of hours of service per day.	10	12	16

Water Production: millions of gallons of water produced per day.	5.8	6.5	8
Total Number of Connections - Water: number of water connections.	15,000	20,000	30,000
Total Number of Connections - Sewer: number of sewer connections.	1,560	1,800	3,000
Public Sanitation Facilities: number of new public sanitation facilities.		20	50

6.2 Evaluation Framework

The LWSC strategic plan for 2025–2029 establishes a robust Evaluation Framework to ensure continuous improvement and alignment with national and international development goals, including the AAID and SDG 6 . The Evaluation Framework provides a structured approach for tracking progress, assessing performance, and identifying areas for improvement. To keep this plan on track, we’ve developed a clear system to monitor our progress and adapt when needed. From quarterly reports to a final impact assessment, we are embedding transparency and accountability at every step. This framework is anchored on Quarterly and Annual Reviews, Midterm Assessments, and a comprehensive Final Evaluation.

6.2.1 Principles of the Evaluation Framework

- **Transparency:** All reviews and evaluations will be conducted transparently, with findings shared with relevant stakeholders.
- **Inclusivity:** Stakeholder participation, including community members and development partners, will be integral to the evaluation process.
- **Accountability:** The framework will ensure that LWSC remains accountable for its commitments and deliveries.
- **Adaptability:** Feedback from evaluations will inform timely adjustments to strategies and actions.

The Evaluation Framework will enable LWSC to monitor its progress effectively, optimize resource utilization, and contribute meaningfully to sustainable development in Liberia.

6.2.2 Quarterly and Annual Reviews

Objective: Quarterly and Annual Reviews will serve as key instruments for monitoring the implementation of the strategic plan, ensuring that short-term objectives and deliverables are achieved in a timely and

effective manner. These reviews will also provide actionable insights to address emerging challenges and leverage opportunities.

Process:

1. Quarterly Reviews:

- **Focus:** Immediate progress on project milestones, budget utilization, and operational efficiency.
- **Participants:** Division/Department heads, project managers, and monitoring and evaluation (M&E) specialists.
- **Activities:**
 - Collection and analysis of performance data.
 - Identification of bottlenecks and proposed corrective actions.
 - Documentation of quarterly progress reports.

2. Annual Reviews:

- **Focus:** Holistic assessment of yearly achievements against strategic goals.
- **Participants:** LWSC leadership, key stakeholders, government representatives, and development partners.
- **Activities:**
 - Comprehensive review of the year's performance metrics.
 - Evaluation of budget execution and resource allocation.
 - Alignment checks with national development goals.
 - Publication of an Annual Performance Report with recommendations for the following year.

6.2.3 Midterm Assessments

Objective: The Midterm Assessment, conducted at the midpoint of the strategic plan's implementation (2027), will evaluate overall progress, assess the relevance and effectiveness of strategies, and identify necessary adjustments to achieve desired outcomes.

Process:

1. Preparation:

- Development of a Midterm Assessment framework, including evaluation criteria and key performance indicators (KPIs).
- Engagement of independent evaluators or consultants to ensure objectivity.

2. Implementation:

- Collection of qualitative and quantitative data from internal reports, stakeholder consultations, and field visits.
- An analysis of progress against baseline metrics established at the start of the strategic plan.

3. Outputs:

- A Midterm Assessment Report highlighting achievements, gaps, and lessons learned.
- Revised strategies and objectives, if necessary, to address identified gaps.

6.2.4 Final Evaluation

Objective: The Final Evaluation, conducted in 2029, will provide a comprehensive assessment of the strategic plan's overall impact, sustainability, and contribution to national and international development goals.

Process:

1. Preparation:

- Development of a Final Evaluation framework aligned with international best practices.
- Engagement of independent experts for an unbiased evaluation.

2. Implementation:

- Extensive data collection, including stakeholder feedback, performance metrics, and financial audits.
- Comparative analysis of baseline data, midterm findings, and final outcomes.

3. Outputs:

- A Final Evaluation Report detailing the strategic plan’s successes, challenges, and long-term impacts.
- Recommendations for the next strategic planning cycle.
- Dissemination of findings to stakeholders, including government bodies, donors, and the public.

6.3 Feedback Mechanism

An essential component of Monitoring and Evaluation is the establishment of comprehensive feedback mechanisms to ensure that stakeholder perspectives are consistently integrated into the strategic plan’s implementation and improvement processes. These mechanisms will facilitate two-way communication between LWSC and its stakeholders, ensuring that feedback informs iterative improvements and enhances service delivery.

6.3.1 Objectives

1. To capture diverse perspectives from stakeholders, including customers, employees, community members, and development partners.
2. To identify challenges, opportunities, and areas for improvement through continuous engagement.
3. To ensure that feedback leads to actionable changes and aligns with the strategic goals of the LWSC.

6.3.2 Feedback Channels

- **Stakeholder Surveys and Questionnaires:**
 - Regularly conducted surveys will gather insights into stakeholder satisfaction, service quality, and operational performance.
 - Both quantitative and qualitative feedback will be collected to provide a comprehensive understanding of the stakeholder’s needs and concerns.
- **Community Engagement Forums:**
 - Periodic forums will be organized to facilitate direct dialogue with community members, enabling LWSC to address local concerns and co-develop solutions.
 - Forums will be conducted in key service areas, ensuring inclusivity and representation.

- **Grievance Redress Mechanisms:**

- A formal grievance redress system will allow stakeholders to report issues, lodge complaints, and provide suggestions for improvement.
- Clear protocols will be established for resolving grievances in a timely and transparent manner.

- **Digital Feedback Channels:**

- Online platforms, including the LWSC website and social media channels, will be utilized to collect real-time feedback from stakeholders.
- Dedicated email addresses and contact forms will be made available for reporting concerns and providing suggestions.

- **Employee Feedback Systems:**

- Internal mechanisms, such as staff surveys and suggestion boxes, will encourage employees to share insights on operational efficiency and workplace improvements.

6.3.3 Incorporation of Feedback into Iterative Improvements

Feedback collected through these mechanisms will be systematically analyzed and integrated into the decision-making process. Key steps include:

- **Data Analysis:**

- Feedback data will be categorized, analyzed, and prioritized based on relevance and impact.
- Trends and recurring issues will be identified to inform strategic adjustments.

- **Action Planning:**

- Specific action plans will be developed to address stakeholder concerns and implement suggested improvements.
- Progress on these actions will be tracked and reported in quarterly and annual reviews.

- **Continuous Learning:**

- Lessons learned from stakeholder feedback will be documented and used to refine policies, processes, and service delivery.

- Success stories and examples of implemented feedback will be shared to build trust and demonstrate accountability.

7. Risk Management Framework



*Every ambitious plan carries risks—
and we're prepared.*

Every ambitious plan carries risks—and we're prepared. Whether it's a funding delay, a natural disaster, or public health emergency, LWSC is building resilience into every part of our operations. To ensure the successful implementation of the LWSC strategic plan, a Risk Management Framework has been developed. This framework identifies potential risks and outlines proactive mitigation strategies to address them effectively. By anticipating challenges and planning solutions, LWSC aims to minimize disruptions and maintain steady progress toward its strategic goals. This section outlines how we'll stay ready, responsive, and resilient.

7.1 Risk Identification

Potential risks that could hinder the implementation of the strategic plan include:

1. **Financial Constraints:**

- Limited funding or delays in budget approvals may impact project execution.
 - Rising operational costs could strain financial resources.
- 2. Political and Regulatory Risks:**
- Changes in government policies or leadership priorities may affect project continuity.
 - Regulatory barriers or delays in obtaining necessary approvals could stall progress.
- 3. Operational Challenges:**
- Insufficient infrastructure and resource limitations may affect service delivery.
 - Technical failures or inadequate capacity for project implementation could delay milestones.
- 4. Stakeholder Resistance:**
- Resistance to change from internal or external stakeholders may impede progress.
 - Misalignment of expectations between LWSC and stakeholders could create friction.
- 5. Environmental and Climate Risks:**
- Natural disasters, such as floods or droughts, may disrupt operations.
 - Environmental degradation could impact water sources and infrastructure.
- 6. Public Health Crises:**
- Pandemics or other health emergencies may divert resources and delay implementation.

7.2 Mitigation Strategies

To address these risks proactively, LWSC will implement the following mitigation strategies:

- 1. Financial Planning and Resource Mobilization:**
- Establish a dedicated fund to address budget shortfalls and unforeseen expenses.
 - Strengthen partnerships with donors, development partners, and private sector investors to secure additional funding.
 - Regularly review and adjust budgets to reflect changing financial realities.

2. Policy Advocacy and Engagement:

- Maintain open communication with government bodies to align strategic priorities and policies.
- Advocate for streamlined regulatory processes to minimize delays in project approvals.

3. Capacity Building and Operational Resilience:

- Invest in staff training and development to enhance technical and operational capacity.
- Develop contingency plans to address technical failures and resource shortages.

4. Stakeholder Engagement and Communication:

- Conduct regular stakeholder consultations to align expectations and build trust.
- Implement change management strategies to address resistance and foster collaboration.

5. Environmental Risk Management:

- Incorporate climate-resilient designs into infrastructure projects.
- Develop disaster preparedness plans to mitigate the impact of natural disasters.

6. Public Health Preparedness:

- Establish protocols to respond to health emergencies without disrupting core operations.
- Collaborate with health authorities to ensure the safety and well-being of employees and communities.

Appendices

A. Stakeholder Consultations Summary

The development of the 2025–2029 Strategic Plan for the Liberia Water and Sewer Corporation (LWSC) has been anchored in a robust, participatory Stakeholder Engagement Plan (SEP). Recognizing that effective water and sanitation service delivery in Liberia requires the collective effort of a broad spectrum of actors, LWSC committed early in the strategic planning process to involve both internal and external stakeholders in a transparent, inclusive, and structured engagement process. This approach not only aligns with Liberia’s national policy frameworks but also draws on international best practices, including the World Bank’s Utility Turnaround Framework (UTF) and Utility of the Future (UotF) models.

The overarching goal of the SEP was to ensure that all key stakeholders—government institutions, donors, NGOs, community representatives, and LWSC staff—had the opportunity to shape and influence the strategic priorities of the Corporation. It was also designed to strengthen institutional ownership, build trust, and enhance transparency and accountability. The engagement process was informed by and aligned with national policies such as the Liberia National Water, Sanitation, and Hygiene (WASH) Policy, the Local Governance Act of 2018, and the Environmental Protection and Management Law of 2002, all of which call for participatory approaches in public service planning and implementation.

Internally, the SEP facilitated consultations across all key LWSC departments and divisions. These included in-depth engagements with leadership and technical staff from Management, Finance, Administration, Sales and Marketing, and Technical Services. Conducted between November and December 2024, these sessions focused on assessing each department’s operational realities, achievements, challenges, and future ambitions. Staff were invited to articulate their vision for the Corporation and to contribute directly to shaping strategic objectives relevant to their functional areas. Notably, the Monitoring and Evaluation (M&E) function was engaged to ensure that performance tracking and learning mechanisms are fully integrated into the final Strategic Plan.

These internal discussions surfaced several critical cross-cutting issues—including revenue generation, non-revenue water reduction, customer service enhancement, infrastructure rehabilitation, and capacity building—which informed the core strategic pillars of this plan.

External Engagements

The SEP also guided a comprehensive external stakeholder consultation process. Key government partners were engaged, including the Ministry of Public Works (with oversight of infrastructure and rural water

systems), the Ministry of Health (responsible for public health and hygiene), the National Public Health Institute of Liberia, the Ministry of Finance and Development Planning, the Ministry of Internal Affairs, and the Environmental Protection Agency. Some of these institutions provided essential input on regulatory frameworks, policy priorities, and interagency coordination mechanisms necessary for LWSC's success.

Engagements were also extended to local authorities, such as the Monrovia City Corporation (MCC) and the Paynesville City Corporation (PCC), whose mandates include urban sanitation management, waste collection, and public toilet regulation. Both entities emphasized the importance of collaborative planning and enforcement in high-density communities and informal settlements.

Development partners and donor agencies were actively involved throughout the process. Representatives from the World Bank, USAID, and the African Development Bank (AfDB) participated in strategy sessions and bilateral consultations, contributing valuable sector knowledge, sharing relevant studies and data, and offering guidance on donor priorities and funding mechanisms. International NGOs such as WaterAid, Winrock International, Welthungerhilfe, and Concern Worldwide were also contacted for input based on their technical expertise and longstanding experience in community-level WASH service delivery.

In addition, a wide array of local NGOs, advocacy groups, and civil society representatives were engaged through public and direct consultations. These engagements brought forward community perspectives, gender considerations, and citizen priorities, reinforcing the Corporation's commitment to customer-focused service delivery.

Monitoring and Evaluation of Engagements

The SEP also provides a framework for monitoring and evaluating the stakeholder engagement process. It includes mechanisms for assessing the inclusiveness and effectiveness of participation, tracking progress against engagement goals, and incorporating lessons learned. Tools such as baseline and post-engagement surveys, stakeholder feedback forms, and advisory group consultations will be used to assess how well the process reflects stakeholder priorities and informs decision-making. Stakeholders themselves will be part of the monitoring process, either through formal advisory roles or periodic feedback loops to ensure that their input continues to shape the evolving strategic plan. Stakeholders were also invited to participate in monitoring efforts through advisory roles and continuous feedback loops to ensure that the final Strategic Plan reflects their contributions.

Outcomes and Strategic Integration

The engagement process generated an elevated level of enthusiasm, openness, and consensus around the need for a transformative shift in how LWSC delivers its mandate. Key insights from internal and external stakeholders were synthesized and directly informed the strategic priorities, initiatives, and implementation roadmap outlined in this Strategic Plan. The SEP also helped to surface gaps, reveal opportunities for partnership, and define clear roles for stakeholders in plan execution.

The process has not only contributed to the quality and legitimacy of the Strategic Plan but has also laid the foundation for stronger interagency collaboration, more responsive service delivery, and improved customer and stakeholder relationships. By embedding stakeholder perspectives into its planning framework, LWSC is taking a decisive step toward institutional resilience, financial sustainability, and inclusive growth in Liberia's water and sanitation sector.

In summary, the SEP has successfully created a collaborative space for building consensus on the strategic future of LWSC. It reflects a commitment to transparency, accountability, and shared ownership of outcomes, ensuring that the final strategic plan is both technically sound and broadly supported by the people and institutions that matter most in Liberia's water and sanitation landscape.

B. Technical Studies and References

This appendix presents a summary of the key technical studies and references that informed the development of the Liberia Water and Sewer Corporation (LWSC) Strategic Plan (2025–2029). These studies provide valuable data, technical insights, cost estimates, and recommendations that support evidence-based decision-making for water and sewage services improvements.

Technical Studies and Key References:

NRW and GIS Performance Report (2025)

Conducted by: Liberia Water and Sewer Corporation (LWSC) under the Liberia Urban Water Supply Project (LUWSP)

Objective: To assess Non-Revenue Water (NRW) trends, evaluate technical and billing performance, and enhance operational decision-making through GIS-enabled District Meter Areas (DMAs) and Utility Master data tools.

Key Findings:

- **NRW Performance:**

- NRW stood at 53.05% in 2024, a marginal reduction from 54.7% in 2023, yet representing \$4.86 million in lost revenue.
- Absolute NRW volume increased due to higher water production, despite slight improvements in percentage terms.
- Real losses—mainly leaks and poor pressure management—remain the dominant issue.
- **DMA Functionality and GIS Application:**
 - Three pilot DMAs (GSA Road, Duport Road, Kakata Highway) were reactivated by April 2024 after resolving flow meter and infrastructure failures.
 - GIS is used for customer geo-tagging and spatial monitoring; however, low pressure, capped pipes, and unprotected infrastructure reduce effectiveness.
 - DMA boundaries, walk routes, and flow monitoring were developed using QGIS, but challenges in isolation valve availability and customer connectivity persist.
- **Utility Master and Data Analysis:**
 - Utility Master software supported monthly NRW analysis, geo-tagging of over 17,000 customers, and identification of problem zones based on meter reversals, stoppages, and inconsistencies.
 - Around 50% of meters are older than five years, with no in-house meter maintenance lab, resulting in frequent replacements rather than repairs.
 - High reliance on estimated billing and a significant volume of zero-bill customers indicates gaps in metering and billing accuracy.
 - Average billing efficiency stood at 75.9%, with billing cycle lengths exceeding the recommended 15-day threshold for most of 2024.
- **Revenue and Collection:**
 - Total 2024 billing increased by 54.5% over 2023, reaching \$4.29 million; however, collection efficiency against current bills was only 27.7%.
 - Disparities between billing and collections were highest in August, where only 11% of billed revenue was recovered.
 - Estimated and unbilled accounts (zero bills) remained alarmingly high across several months.

Recommendations:

- **NRW and Technical Operations:**
 - Intensify active leak detection and implement structured pipe rehabilitation programs.

- Install mechanical flow meters in DMAs and resolve isolation valve gaps to support accurate water balance assessments.
- Establish a meter calibration and maintenance lab to reduce meter inaccuracy and improve billing precision.
- **Digital Systems and Data Use:**
 - Fully integrate Utility Master with third-party mobile money platforms to expand payment options.
 - Enforce exclusive billing within Utility Master to improve revenue tracking and transparency.
 - Utilize GIS data to support targeted interventions in high-loss zones and improve field operations.
- **Commercial and Organizational Improvement:**
 - Normalize billing cycle lengths to 15 days, enhance meter reading processes, and implement real-time performance dashboards.
 - Strengthen customer engagement and public awareness on payment compliance, illegal connection penalties, and conservation practices.
 - Establish a dedicated Transmission & Distribution Night Crew for monitoring night flows and reducing undetected leakages.
- **Sustainability & Investment Needs:**
 - Secure continued donor and government investment to expand DMA infrastructure and metering upgrades.
 - Define key performance indicators (KPIs) for NRW and billing/collection targets.
 - Foster cross-departmental collaboration to accelerate implementation of technical and operational reforms.

LWSC Annual Report (2024)

Conducted by: Liberia Water and Sewer Corporation

Objective: To document LWSC's operational performance, infrastructure upgrades, governance reforms, and financial outcomes during the 2024 reporting year.

Key Findings:

- **Infrastructure & Technical Performance:**

- Rehabilitation of critical assets including White Plains Water Treatment Plant (WTP), high-lift pumps, transmission mains, and sewer systems enhanced water supply reliability in Monrovia.
- NRW saw a slight improvement at 53.05% in 2024, down from 54.7% in 2023.
- A total of 1,125 leaks were repaired and 3,891.41 cubic meters of sludge collected to improve sanitation and environmental conditions.
- Construction of a mini groundwater system in Bopolu and new hand-dug wells in Voinjama supported regional water access expansion.
- Operational & Service Delivery:
 - Water production rose from 768.99 million gallons (2023) to 2.11 billion gallons (2024).
 - 2,074 new customer connections and 2,221 postpaid meters were installed, raising the customer base to 26,164.
 - Sewer services in Central Monrovia improved following manhole refurbishments and desludging efforts.
- Governance & Administration:
 - Institutional reforms included the development of HR, finance, and fleet policies; restructuring of departments; and staff performance evaluations.
 - Establishment of key oversight committees (Audit Recommendations Implementation Committee, Procurement Committee, and Budget Committee) enhanced internal controls.
 - The workforce was reduced from 664 to 599 to address overstaffing and payroll constraints.
- Financial Performance:
 - Average Number of customers billed monthly was 13,911
 - Operating expenses were USD 5.35 million, including employee costs of USD 4.54 million; and production cost was USD 1.47 million.
 - Revenue from services increased by 31.95% to USD 3.42 million; however, net profit declined to USD 321,571 due to high depreciation costs.
 - Government subsidy declined slightly to USD 5.09 million.

Recommendations:

- Continue infrastructure rehabilitation and expansion, with priority on leak reduction and NRW control.

- Implement preventive maintenance and adopt real-time monitoring systems to improve service reliability.
- Strengthen revenue collection systems and diversify funding sources to reduce dependency on government subsidies.
- Sustain internal governance reforms, including performance management and compliance monitoring.
- Enhance customer engagement, billing transparency, and institutional visibility through ICT and media outreach platforms.

DMA Implementation Update (2024)

Conducted by: Liberia Water and Sewer Corporation (LWSC) under the Liberia Urban Water Supply Project (LUWSP)

Objective: To enhance water distribution efficiency, reduce Non-Revenue Water (NRW), and improve operational management in Monrovia through District Meter Areas (DMAs).

Key Findings:

- Malfunctioning flow meters, missing isolation valves, and low pressure hindered DMA effectiveness.
- GIS technology is used for spatial analysis, but real-time monitoring is limited due to faulty flow meters.
- Low pressure, disconnected pipes, and unprotected infrastructure impact service reliability.
- NRW estimated at 54.7% in 2023, hindered by the lack of advanced metering.

Recommendations:

- Install isolation valves, upgrade flow meters, and repair pressure loggers.
- Restore disconnected service, improve pressure, and strengthen community engagement.
- Implement advanced GIS, real-time data integration, and leak detection.
- Sustainability & Investment: Secure funding, establish performance KPIs, and enhance operational coordination.

LWSC Performance Improvement Plan - Diagnostic Report (2021)

Conducted by: Liberia Water and Sewer Corporation (LWSC) under the Liberia Urban Water Supply Project (LUWSP) with support from the World Bank.

Objective: To assess LWSC's operational efficiency, identify performance gaps, and develop an action plan for service improvement.

Key Findings:

- Install isolation valves, upgrade flow meters, and repair pressure loggers.
- Aging infrastructure, limited financial autonomy, and high NRW losses due to leaks and unauthorized connections.
- Low water supply reliability, weak financial management, and inefficient customer billing.
- Tariff-setting constraints, governance issues, and inadequate staff training.

Recommendations

- Install isolation valves, upgrade flow meters, and repair pressure loggers.
- Upgrade infrastructure & reduce NRW through metering improvements and system maintenance.
- Enhance financial sustainability via tariff revisions and better revenue collection.
- Strengthen governance & workforce capacity with training and accountability reforms.
- Implement a 100-day action plan and develop a 5-year strategic roadmap for long-term improvements.

LWSC Utility Turnaround Framework (UTF) Assessment (2021)

Conducted by: Liberia Water and Sewer Corporation with World Bank support

Objective: To evaluate LWSC's operational efficiency and develop a roadmap for performance improvement.

Key Findings:

- Aging infrastructure and high Non-Revenue Water (77%) due to leaks and unauthorized connections.
- Low water coverage (3.3%), unreliable supply (8 hours/day), and inefficient billing.
- Financial struggles, including low revenue collection (40%) and high operating costs.
- Weak governance with overstaffing and poor accountability.

Recommendations:

- Upgrade infrastructure and improve metering to reduce water losses.
- Revise tariffs and strengthen billing to enhance financial stability.
- Streamline governance and train staff for better efficiency.

- Implement a turnaround roadmap with performance targets and digital monitoring.

LWSC 100-Day Action Plan (2022)

Conducted by: Liberia Water & Sewer Corporation (LWSC) with World Bank support

Objective: To improve revenue collection, operational efficiency, and water supply reliability as a foundation for long-term sustainability.

Key Findings:

- Limited pumping hours, aging infrastructure, and frequent power outages.
- Low revenue collection (<\$110,000/month) and high Non-Revenue Water (NRW) at 71%.
- Weak billing, customer service delays, and logistical constraints.
- NRW was reduced to 63%, and billed water increased to 39%.

Recommendations:

- Increase water production and repair leaks.
- Boost revenue collection with better billing and enforcement.
- Improve customer service through accurate meter readings and billing.
- Upgrade infrastructure and enhance technical capacity.

WATSAN Project Proposal (2025)

Conducted by: MedLife Liberia, Ltd

Objective:

To design and secure funding for an integrated Water, Sanitation, and Hygiene (WASH) infrastructure project in Harper, Greenville, and Gbarnga, aimed at improving urban water supply, public sanitation, and local service management.

Key Components:

Infrastructure & Technical Design:

- Proposes rehabilitation and expansion of water supply networks, including intake structures, treatment plants, and transmission lines.
- Plans construction of 50 public sanitation facilities across target cities, with a focus on gender-responsive and climate-resilient designs.

- Integrates solar-powered pumping systems and gravity-fed distribution to ensure energy efficiency and operational reliability.

Community & Stakeholder Engagement:

- Emphasizes co-design with local governments, community groups, and city corporations to ensure ownership and sustainability.
- Incorporates stakeholder training on operations, maintenance, and community-led monitoring.

Institutional Capacity & Governance:

- Recommends establishing utility management units in each city with dedicated staff, tools, and performance benchmarks.
- Advocates for structured partnerships between LWSC, MCC, PCC, and local authorities to strengthen decentralized service delivery.

Financial & Sustainability Measures:

- Introduces a cost-recovery model through metered billing, public-private partnerships, and donor support.
- Encourages phased implementation and adaptive financing aligned with urban growth trends and revenue generation potential.

Expected Results:

- Improved access to safe water and sanitation for over 100,000 residents in the three cities.
- Strengthened urban resilience to public health and climate risks.
- Enhanced institutional coordination and community trust in service delivery.

Recommendations:

- Secure multi-donor funding and formalize institutional commitments from key stakeholders.
- Align project with national development priorities (AAID, SDG 6).
- Incorporate real-time data systems for service monitoring and community feedback loops.
- Pilot implementation in high-need zones to demonstrate proof of concept and scalability.

Costing and Financial Framework References

- *Feasibility Study for Prepaid Meter Implementation in Monrovia (LWSC, 2023)*: Informs SPA 1 (\$3.8M) with \$120/meter and \$1.3M system setup costs.

- ***Non-Revenue Water Reduction Feasibility Study for Monrovia (AfDB, 2022)***: Validates SPA 2 NRW costs (\$600,000 sensors, \$550,000 DMAs), building on 2015 bulk meter interventions.
- ***Solar Power Feasibility Study for Liberian Water Treatment Plants (UNDP, 2021)***: Informs SPA 2 energy efficiency (\$1.8M for 3 plants, \$2M for White Plains WTP).
- ***Monrovia Water Supply Infrastructure Assessment (World Bank, 2020)***: Guides SPA 3 Monrovia projects (\$38.5M), updating 2015 pipeline and reservoir costs (e.g., USD 2,037,570 for SKD Boulevard).
- ***County Capitals Water Supply Feasibility Study (LWSC/UNICEF, 2022)***: Informs SPA 3 (\$16.13M) and SPA 4 (\$29.45M) costs for secondary cities.
- ***Uzima Filter Distribution Feasibility Study (UNICEF, 2021)***: Validates SPA 4's \$500,000 for 10,000 filters (\$40/unit).
- ***Monrovia Sewage System Rehabilitation Feasibility Study (AfDB, 2023)***: Informs SPA 7 (\$60M for infrastructure, \$30M for Fiamah WWTP).
- ***Public-Private Partnership Feasibility Study for African Water Utilities (World Bank, 2022)***: Guides SPA 7's \$100,000 PPP study.
- ***Liberia National WASH Policy (2020)***: Ensures alignment with national standards for water quality, governance, and sanitation.
- ***AfDB, World Bank, and IWA Reports (2018–2024)***: Provide regional benchmarks and best practices.
- ***LWSC Internal Assessments (2023–2024)***: Offer baseline data on infrastructure and customer needs.