



COUNTY GOVERNMENT OF BOMET

The Bomet County Water and Sanitation Strategy and Investment Plan (CWSSIP)

2025-2030

April 2025

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FOREWORD



It is with great pride and deep conviction that I present the Bomet County Water, Sanitation, Strategy and Investment Plan (CWSSIP) 2025–2030, a landmark blueprint that embodies our collective aspiration for inclusive, resilient, and sustainable water and sanitation services for every household, institution, and community across our county.

This strategy emerges at as a historic moment when our county, together with Lake Region Economic Bloc (LREB) members, is charting a bold path towards integrated development. Anchored on the pillars of Kenya Vision 2030, the African Union's Agenda 2063, and the Sustainable Development Goals—especially Goal 6—this Plan is not merely a technical document; it is a call to action. It invites every stakeholder, from the smallest village to national and international partners, to rally behind a transformative vision that leaves no one behind.

As a scholar and lifelong advocate of knowledge-driven governance, I am especially proud that this Plan has been developed through rigorous data triangulation, inclusive consultations, and alignment with the National Water and Sanitation Investment Programme (NAWASIP), 2022-2030. It sets out evidence-based investments, identifies priority interventions, and highlights the enabling reforms required to unlock systemic change in the water, sanitation, and hygiene (WASH) sector.

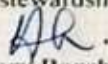
The Bomet CWSSIP reflects our shared commitment to the ideals of inter-county collaboration. Water does not respect political or geographic boundaries. It flows across borders, nourishing communities, ecosystems, and economies alike. Through our active participation in the LREB and cooperation with agencies such as LVSWWDA and WASREB, we are demonstrating that regional integration is not an abstract concept—it is the foundation of sustainable development, climate resilience, and economic transformation in the 21st century.

Let us be reminded that access to safe water and dignified sanitation is not a privilege—it is a constitutional right and a moral imperative. As such, we must move with urgency and unity to realize the investment roadmap outlined herein. The proposed projects—ranging from rural borehole systems to smart sewerage networks—represent more than infrastructure. They are the vessels of dignity, the tools of equity, and the instruments of economic opportunity.

On behalf of Bomet County, I wish to formally acknowledge and express our deepest appreciation for the generous financial support provided by Dig Deep (Africa) towards the development of our County Water, Sanitation, Strategy, and Investment Plan (CWSS&IP) 2025–2030. We look forward to continued collaboration as we move into the implementation phase. Residence of Bomet for generation to come. Thank you for your continued dedication to improving lives empowering communities in Bomet County.

I strongly express my gratitude to the County assembly, technical working groups, community leaders, development partners, and civil society actors who have walked with us on this journey. Your dedication inspires confidence that, together, we can turn strategy into action—and action into impact.

Let this Strategy be our pledge to the people of Bomet: that clean water will flow to every home, that no child will miss school due to inadequate sanitation, and that our future will be shaped not by scarcity, but by stewardship.


H.E. Prof. Hillary Barchok, (F.G.H).
GOVERNOR BOMET COUNTY



FOREWORD



Water is life—and in Bomet County, ensuring that this life-giving resource reaches every household, institution, and farm is not only a policy mandate but a moral responsibility. The Bomet County Water Sanitation Strategy and Investment Plan (CWSS&IP) 2025–2030 serves as our unified roadmap to achieve this vision, anchored in dignity, sustainability, and intergenerational equity.

This Plan comes at a critical time when the water and sanitation sector is called to respond to rising demand, climate variability, environmental degradation, and increasing inequalities in access. In response, this CWSSIP outlines a bold yet practical investment blueprint—prioritizing expansion of water supply networks, strengthening sanitation coverage, promoting nature-based solutions for water conservation, and accelerating institutional reforms that ensure long-term service reliability.

As the Department entrusted with water resource management, environmental conservation, and natural capital protection, we take pride in the collaborative and data-driven approach that shaped this Strategy. The Plan integrates key policy frameworks, including the National Water and Sanitation Investment Programme (NAWASIP) 2022-2030, Kenya Vision 2030, the Constitution of Kenya, and Sustainable Development Goal 6.

We recognize that success will depend not only on infrastructure investments but also on institutional strengthening, financial innovation, and citizen engagement. That is why this Strategy also commits to climate-resilient water governance, smart partnerships with private sector actors, and community-centered service models. Together, we are building systems that are inclusive, efficient, accountable, and future-ready.

Importantly, this CWSSIP reaffirms our alignment with the Lake Region Economic Bloc (LREB) vision, where regional collaboration is key to managing shared catchments and cross-boundary water infrastructure. It also calls on us to harness local potential—through water user associations, WRUAs, youth and women groups—to protect our watersheds, restore our ecosystems, and create water-smart livelihoods.

We extend the gratitude to the Ministry of Water, Sanitation, and Irrigation for their continued policy guidance and technical support, particularly through the State Department for Water and Sanitation. Their collaboration, alongside the World Bank K-WASH team, CASTALIA, Frame Consultant, and Water Fund team. Notably, we appreciate their role in training our county teams as trainers-of-trainers (ToTs) on the use of the KoboToolbox for digital survey deployment, and for their facilitation of key workshops under the K-WASH program and review of our CWSS&IP, which informed both the CWSS&IP and associated investment planning. We further acknowledged our deep gratitude to the following team for their contribution and supports; Dr. Joseph Sitonik CECM Health, Benard Tonui CECM Social services, Mr. Solomon Kimetto CO Water. Mr. Felix Langat Co Health Services, Mr. Justus Tonui Country Director Dig Deep (Africa), Eng. Benedict Mutua Director WASH-HUB, Eng. Fredrick Ruto K-WASH Coordinator, Chelangat Gladys K-WASH TOT, Paul Maritim Environmental Safeguard focal Person, Beatrice Chebet Director Water. Victolyne Korir Director quality assurance, Thomas Bii Director ECDE, Ronald Sang director budget. Kiplangat Ruto CPHO, Justus Thombo Economic planning, Winny Chemutai BOMWASCO, Cornelius langat TM BOMWASCO, Kipngetchi Towett Ag MD BOMWASCO, Benard Rono Finance manage BOMWASCO, RABUDI Consultant. Denis langat Public health officer, Leonard Langat Ag, Assistant Director Public Health, Benard Koskei Head of finance technical teams, partners, stakeholders, and residents of Bomet who contributed to this strategic Plan. It is our shared aspiration—and our shared task—to turn this Strategy into visible progress on the ground.

Let us act with urgency, unity and ensure that water and sanitation become pillars of dignity, prosperity, and environmental stewardship in Bomet County.

Hon. Julia Chepkuto
County Executive Committee Member
Water, Environment, and Natural Resources
Bomet County Government



The Bomet County Water Sanitation Strategy and Investment Plan (CWSSIP) 2025–2030 presents a timely and strategic opportunity to reaffirm our commitment to the health, dignity, and well-being of every resident through transformative investments in water, sanitation, and hygiene (WASH) services.

Water and sanitation are not just technical services—they are foundational public health interventions. From reducing disease burdens in our health facilities to enabling safe and dignified childbirth, clean water and safe sanitation are indispensable to achieving Universal Health Coverage (UHC), combating preventable diseases, and securing resilient communities.

This Strategy recognizes the critical intersection between health outcomes and WASH infrastructure. It emphasizes institutional WASH—particularly in schools and health facilities—as a key driver of inclusive, equitable, and sustainable development. As the custodians of public health in Bomet, we welcome the strong alignment of this Plan with our departmental objectives, the Kenya Health Policy, and the aspirations of the Kenya Vision 2030 and the SDGs.

The strategy also appreciates the disproportionate burden that poor sanitation and waterborne diseases place on vulnerable populations, especially women, children, the elderly, and persons living with disabilities. Through targeted investments in menstrual hygiene management, inclusive sanitation facilities, medical waste management, and climate-adaptive health systems, we are moving beyond service delivery to restore dignity and equity in our communities.

We commend the inclusive, evidence-based process through which this Plan has been developed, and we affirm our full commitment to its implementation. As a department, we pledge to work collaboratively with our counterparts in the water sector, development partners, community-based organizations, and our health facilities to ensure that no ward, no household, and no health center is left behind.

This Plan is not just a policy framework—it is a pledge. A pledge that every child will be born in a safe and hygienic facility, that every school-going girl will have access to menstrual hygiene products, and that every resident of Bomet will enjoy their constitutional right to water and sanitation.

Together, let us translate this vision into reality.

A handwritten signature in black ink on a white background. The signature is cursive and appears to read 'J. O. Omondi'. There is a small red square icon in the bottom left corner of the image.

County Executive Committee Member
Health Services
Bomet County Government.

ACKNOWLEDGEMENT

The successful development of the Bomet County Water Sanitation Strategy and Investment Plan (CWSSIP) 2025–2030 is the result of collective dedication, technical collaboration, and multisectoral engagement. We extend our sincere gratitude to all stakeholders who played a role—directly or indirectly—in preparing this critical blueprint for water and sanitation development in our County.

We wish to particularly thank the Bomet County Technical Working Group (TWG), whose unwavering commitment and sectoral expertise guided the entire process from inception to finalization. Special appreciation goes to the County Executive Committee Members and Chief Officers from the departments of Water, Environment and Natural Resources, and Health Services for their leadership and coordination.

We gratefully acknowledge Dig Deep for their instrumental support in convening technical workshops, mobilizing expertise, and ensuring strong local participation. We also extend our heartfelt thanks to Rabudi Consultants, who provided direct technical input and facilitation, helping to ensure the Strategy aligns with the K-WASH program requirements and national policy frameworks.

We recognize the valuable role played by community-based organizations, local NGOs, and other civil society partners who enriched the planning process with grassroots insights and on-the-ground realities. The participation of local leaders, WRUAs, school representatives, and healthcare facility managers ensured that the CWSSIP is inclusive and responsive to community needs.

We further acknowledge the Ministry of Water, Sanitation, and Irrigation for their continued policy guidance and technical support, particularly through the State Department for Water and Sanitation. Their collaboration, alongside the World Bank K-WASH team, was critical in building local capacity. Notably, we appreciate their role in training our county teams as trainers-of-trainers (ToTs) on the use of the KoboToolbox for digital survey deployment, and for their facilitation of key workshops under the K-WASH program, which informed both the CWSSIP and associated investment planning.

We are deeply grateful to the Governor of Bomet County, His Excellency Prof. Hillary Barchok, PhD, for his visionary leadership and continued prioritization of water and sanitation as a core pillar of county development. His passion for sustainable infrastructure, regional integration, and climate resilience has anchored this Strategy with both urgency and purpose.

Finally, to the people of Bomet—whose voices, challenges, and aspirations have shaped this Strategy—thank you for your trust. This CWSSIP is your plan, and its success depends on our shared commitment to implementation.

We are deeply grateful to the Governor of Bomet County, His Excellency Prof. Hillary Barchok, PhD, for his visionary leadership and continued prioritization of water and sanitation as core pillars of county development. His passion for sustainable infrastructure, regional integration, and climate resilience has anchored this Strategy with both urgency and purpose. walk together toward a future where every resident of Bomet County enjoys clean, safe water and dignified sanitation.

EXECUTIVE SUMMARY

I. Introduction

The Bomet County Water and Sanitation Strategy and Investment Plan (CWSSIP) 2025–2030 is a flagship planning document that outlines a structured path toward achieving universal access to safe, sustainable, and climate-resilient **water**, sanitation, and hygiene (WASH) services across all households, schools, health facilities, and public institutions in Bomet County.

This CWSSIP is grounded in the principles of equity, efficiency, community ownership, and data-driven planning. It is aligned with national frameworks, including the National Water and Sanitation Investment Plan (NAWASIP 2022–2030), Vision 2030, Kenya’s Water Act (2016), and the K-WASH Program Performance-Based Granting (PBG) Framework. It also speaks directly to SDG 6, the CIDP III (2023–2027), and the Bomet County Climate Change Act (2021).

To achieve its vision, the CWSSIP sets ambitious targets for 2030: achieving at least basic water supply coverage, reducing Non-Revenue Water (NRW) to 37%, and ensuring that all residents, including vulnerable populations, have access to safely managed sanitation and hygiene services.

II. Purpose and Methodology

The CWSSIP was developed to provide a coherent, costed, and phased investment framework to guide the County Government of Bomet, BOMWASCO, and partners in closing WASH access gaps and improving service quality. The process followed the official CWSSIP Technical Guidance Notes, entailing:

- (a) Establishment of a multi-sectoral County Technical Working Team (TWT);
- (b) Extensive primary data collection, including a county-wide household WASH survey, institutional WASH assessments in schools and HCFs, and a Participatory Climate Risk Assessment (PCRA);
- (c) Detailed literature reviews including the CIDP, NAWASIP, WASREB Impact Report 16, Bomet WASH Masterplan 2022-2050, BOMWASCO’s Strategic Plan, Tariff, Financial Statements, Business Plan, among other documents.
- (d) Full integration of the K-WASH PEF (Project Entry Form) pipeline and alignment with the WASH Sector Performance Targets and Financing Scenarios.

III. Key Findings from the Situational Analysis

The CWSSIP is supported by an updated and data-rich situational analysis, which incorporates extensive sectoral surveys, regulatory performance assessments, and spatial planning. The key findings include:

(a) Water Access and Reliability

As of 2023, approximately 48% of Bomet County’s population had access to at least basic water services, with only 2% accessing safely managed water services (piped on premises, reliable, and safe). Only 56% of healthcare facilities and 55% of schools had access to basic water services. BOMWASCO operates 15 water schemes, the majority of which are heavily reliant on energy-intensive pumping, incurring electricity costs of up

to KSh 8.5 million per month, significantly affecting operational sustainability. Non-Revenue Water (NRW) remains high at 61%, largely due to aging infrastructure, illegal connections, and limited metering.

Climate variability—including increased frequency of droughts and floods—further exacerbates water supply vulnerabilities, underscoring the need for climate-proofed water infrastructure.

(b) Sanitation Services and Practices

Open defecation rates have dropped to 2%, reflecting significant progress, yet safely managed sanitation services remain very low at only 1%. Approximately 54% of the population still rely on unimproved sanitation options.

While 99% of schools have toilet facilities, only 29% have clean sanitation units, 28% are disability-accessible, and 72% still rely on basic pit latrines. In healthcare facilities, 80% lack disability-friendly sanitation, and 22% of sanitation units are either non-functional or poorly maintained.

Urban sewerage services remain minimal, with pilot sewerage schemes currently operational only in parts of Bomet Town under BOMWASCO management.

(c) Hygiene, MHM, and Institutional WASH

Despite progress, critical gaps persist in hygiene promotion and Menstrual Hygiene Management (MHM). Handwashing facilities are inadequate across most schools and public places, and structured MHM programs are limited. Addressing these gaps is a priority action area under the CWSSIP to improve school retention rates for girls and to promote dignified sanitation for all. In households, only 51% have basic handwashing facilities, and access is even lower in poorer quintiles. In schools, 51% have handwashing stations (while 49% don't); only 28% offer menstrual hygiene management (MHM) spaces and private changing rooms.

43% of health facilities lack handwashing stations with soap and water, and 64% of the health facilities lack alcohol-based hand rubs in clinical areas.

Inadequate hygiene contributes to a high risk of disease transmission in institutions and communities.

(d) Service Delivery and Utility Performance

- BOMWASCO is classified in the lowest performance cluster (Category D) by WASREB, citing inefficiencies in operations, staffing ratios, cost recovery, and compliance.
- The company's O&M cost coverage is below 50%, and debts exceed KSh 200 million, including unpaid staff salaries and statutory deductions.
- Despite approval of a new tariff (2024–2027), revenue generation remains unstable, partly due to poor metering and high NRW.

(e) Climate Risks and Resilience Gaps

- The county experiences frequent droughts and flooding, with severe implications for water supply reliability and infrastructure integrity.

- 80% of schools and health facilities lack Disaster Risk Reduction (DRR) plans, and most schemes are not climate-proofed.
- Rainwater harvesting remains underutilized despite being a critical source during dry spells.

(f) Institutional and Financial Constraints

- WASH services in Bomet are financed through a combination of county allocations (approx. KSh 89M annually), user fees, and development partner support, but funding remains far below needs.
- There is an urgent need for blended financing, improved asset management, and full operationalization of performance-based grants under K-WASH.
- Institutional coordination between BOMWASCO, LVSWWDA, and the County Government needs strengthening to align projects and improve accountability.

IV. Strategic Pillars and Thematic Areas

The Bomet County Water and Sanitation Strategy and Investment Plan (CWSSIP) is structured around five strategic pillars that collectively aim to accelerate universal access to safe water, improved sanitation, and resilient WASH services by 2030. These pillars are aligned with the K-WASH programme framework and tailored to respond to the specific challenges identified in the county’s situational analysis.

They emphasize climate resilience, inclusion, sustainability, and institutional reform. Each pillar is further broken down into thematic focus areas that guide the prioritization and costed interventions, which are detailed in subsequent chapters.

Table 0.1: Strategic Pillars and Thematic Focus Areas

Strategic Pillar	Thematic Focus Areas
(a) Expansion of Water Supply Infrastructure	<ul style="list-style-type: none"> ● Rural and urban water supply systems ● Infrastructure rehabilitation and upgrades ● Spring protection and boreholes ● Household metering and water connections ● Climate-smart water technologies
(b) Scaling Up Sanitation and Hygiene Services	<ul style="list-style-type: none"> ● Household sanitation (urban and rural) ● Institutional sanitation (schools and HCFs) ● Faecal sludge management (FSM) ● Hygiene promotion and behavior change ● CLTS and sanitation marketing
(c) Water Resources and Environmental Sustainability	<ul style="list-style-type: none"> ● Watershed and catchment protection ● Pollution control and wastewater treatment ● Integrated water resources management (IWRM)

Strategic Pillar	Thematic Focus Areas
	<ul style="list-style-type: none"> Climate adaptation and disaster risk mitigation
(d) Institutional Development and Governance	<ul style="list-style-type: none"> Strengthening BOMWASCO operations Enhance and build capacity on the Community-based water projects Capacity building for county WASH actors Sector coordination and multi-stakeholder platforms Regulation, compliance, and oversight Gender and social inclusion
(e) Monitoring, Evaluation, and Sector Learning	<ul style="list-style-type: none"> County WASH M&E framework Digital data systems and dashboards Joint sector reviews Citizen feedback and accountability mechanisms Knowledge sharing and adaptive learning

The implementation plan (Chapter 6) fully costs and phases each strategic pillar. It maps it to relevant K-WASH Delivery Linked Indicators (DLIs), ensuring alignment with national priorities and performance-based financing mechanisms.

V. Investment Requirements and Financing Strategy

The Bomet County Water and Sanitation Strategy & Investment Plan (CWSSIP) outlines a total investment requirement of KES 7.158 billion over the six years from 2025 to 2030. This estimate is based on detailed costing of priority projects outlined in the Project Entry Forms (PEFs), triangulated with sector planning documents (such as NAWASSIP 2022-2030, LVSWWDA Strategic Plan), and validated through stakeholder consultations.

To operationalize the County’s WASH strategic priorities, investments have been structured across key thematic areas to ensure both impact and sustainability. The strategy prioritizes a balanced allocation, whereby water supply infrastructure is assigned 38% of the total investment envelope. Although the table below reflects 36% directly under water infrastructure, the remaining 2% is distributed across cross-cutting investments that support water access, including institutional strengthening and climate resilience.

At the same time, sanitation and hygiene, together with institutional and climate-resilient enablers, account for 37% of the investment, reflecting a deliberate focus on equity, resilience, and inclusivity. In addition, WASH in schools and healthcare facilities has also been significantly prioritized, with dedicated investments targeting safe, inclusive, and sustainable service delivery within learning and care environments.

This integrated approach aligns with the principles of equity, resilience, and inclusivity, as illustrated in the table below.

Table 0.1: Summary of CWSSIP Investment Allocation

Investment Area	Revised Allocation (KES Million)	Estimated % of Total (Approx.)
Water Supply Infrastructure	2,548	36%
Sanitation and Hygiene Services	2,113	30%
WASH in Schools and Healthcare Facilities	812	11%
Institutional Development and WASH Hub	395	6%
Water Resources & Climate Resilience	548	8%
Monitoring, Evaluation, and Sector Learning	267	4%
Cross-Cutting Reforms (GESI, PPP, ICT, BCC)	475	7%
Total (2025–2030)	7,158	100%

a) CAPEX vs. OPEX Breakdown

In alignment with sector guidelines and long-term sustainability goals, the CWSSIP investment mix comprises both capital and operational expenditures. Approximately 86% of the total investment is projected for capital investments (infrastructure, equipment, and system expansion). In comparison, 14% is earmarked for operational and institutional strengthening (including staffing, M&E systems, capacity building, and management tools).

Table 0.2: Estimated CAPEX and OPEX Breakdown (2025–2030)

Expenditure Type	KES Million	Share of Total Investment
Capital Expenditure (CAPEX)	6,155	86%
Operational Expenditure (OPEX)	1,003	14%
Total Investment Requirement	7,158	100%

OPEX includes key non-infrastructure costs for service delivery, WASH Hub management, M&E, and behavioral change programming, per PEF and strategic plan cost allocations.

b) Proposed Financing Sources

To actualize the CWSSIP, Bomet County will pursue a diversified and blended financing strategy. This includes leveraging public funds (County Government and BOMWASCO), national government programs, development partners, private sector engagement (through PPPs), and community-level financing mechanisms.

Table 0.3: Indicative Financing Sources (2025–2030)¹

Financing Source	Estimated Contribution (KES Million)	Share of Total Investment (%)	Remarks
County Government of Bomet	1,950	27%	Based on CIDP budget trends and direct PEF commitments
National Government (WSTF, LVSWWDA, WRA, NDMA, etc.)	1,935	27%	Key funders for bulk water, resilience, FSM, and WRUA-linked projects
Development Partners (e.g., WB, AfDB, UNICEF)	2,410	34%	Based on K-WASH, KUSP III, UNICEF WASH inputs, etc
NGOs & Charity-Based Organizations (Dig Deep, KRCS)	415	6%	WASH in schools, spring protection, MHM, community infrastructure
BOMWASCO Internal Revenue Contributions	308	4%	Limited cost recovery due to high NRW and operational deficits
Private Sector (PPP & CSR)	140	2%	PPP in sanitation marketing, ICT tools, and O&M outsourcing
Total Estimated Financing (2025–2030)	7,158	100%	

Source: Estimates based on PEF submissions, BOMWASCO Business Plan (2023–2026), CIDP 2023–2027, and CWSSIP consultations (April 2025)

c) Financial Sustainability and Risk Mitigation

To ensure the long-term sustainability of WASH services in Bomet:

- The County Government will progressively increase its WASH allocation as a share of the total budget, targeting at least 10% by 2027.
- BOMWASCO will implement cost-reflective tariff structures and improve collection efficiency, as per WASREB guidelines.
- An annual joint sector review will track disbursement, efficiency, and impact of WASH investments.
- Risk mitigation measures include climate-resilient designs, financial tracking systems, and community feedback platforms.

-
- ¹ The County Government's KES 1.95 billion commitment includes ongoing funding through MTEF ceilings, directly budgeted WASH Hub investments, and project allocations in the PEFs.
 - WSTF, LVSWWDA, and other national institutions are expected to fund bulk infrastructure and climate-resilient assets, already reflected in pipeline projects like Chebangang and FSM decentralization
 - The World Bank K-WASH program, UNICEF, and AfDB contribute substantially to the donor component, including support for performance-based disbursements, infrastructure grants, and technical assistance
 - NGOs like Dig Deep and Kenya Red Cross play an outsized role in pilot-scale community WASH infrastructure and inclusion-focused projects like MHM and spring protection

VI. Implementation Roadmap (2025–2030)

The CWSSIP is backed by a fully phased and costed implementation plan across all strategic areas. Year 1 (2025) will focus on:

- (a) Launching the CWSSIP publicly,
- (b) Operationalizing the PIU and annual work plan,
- (c) Unpacking sector strategies for budgeting and procurement,
- (d) Rolling out procurement for Phase I projects (e.g., Bomet–Longisa pipeline, Decentralized sanitation facilities in market centers).

All interventions are tied to clear indicators, annual deliverables, and accountable entities, ensuring strategic coherence and operational discipline throughout the plan period.

VII. Monitoring, Evaluation, and Learning (MEL)

A robust MEL framework tracks progress against defined Key Result Areas (KRA) aligned to NAWASIP, SDG 6, and County M&E indicators. It features:

- Quarterly and annual reporting,
- GIS-linked performance dashboards,
- Independent verification of sector outcomes, and
- Annual WASH performance scorecards.

VIII. Communication and Advocacy Plan

An integrated communication strategy will promote:

- (a) Regular stakeholder engagement through sector forums and ward barazas,
- (b) Public awareness via vernacular radio, SMS, and school clubs,
- (c) Policy advocacy targeting the County Assembly, donors, and the Governor’s office,
- (d) Citizen feedback mechanisms embedded in the CRM system.

This plan is critical to sustain political momentum, public ownership, and resource mobilization.

IX. Conclusion

The CWSSIP 2025–2030 provides a credible, participatory, and investment-ready roadmap to achieve universal, inclusive, and climate-resilient WASH services for Bomet County. Its successful implementation will require coordinated action by the County Government, BOMWASCO, national agencies, development partners, communities, and the private sector. The County Government of Bomet is committed to leading this transformative journey, ensuring that every resident enjoys their constitutional right to safe water and sanitation services by 2030.

ABBREVIATIONS AND SYNONYMS

ADP	Annual Development Plan
AGM	Annual General Meeting
BCCCAP	Bomet County Climate Change Action Plan
BCIDP	Bomet County Integrated Development Plan
BOD	Board of Directors
BOMWASCO	Bomet Water and Sanitation Company
CAPEX	Capital Expenditure
CARA	County Allocation of Revenue Act
CBO	Community-Based Organization
CCU	County Climate Change Unit
CDOH	County Department of Health
CEC	County Executive Committee
CFM	Commercial and Finance Manager
CHIRPS	Climate Hazards Center (CHC) at the University of California, Santa Barbara
CIDP	County Integrated Development Plan
CLTS	Community-Led Total Sanitation
CLTS+	Community-Led Total Sanitation with Post-ODF Support
CMeW	County Monitoring and Evaluation Workplan
CoK	Constitution of Kenya
CSO	Civil Society Organization
CSR	Corporate Social Responsibility
CWD	County Water Department
CWMP	County Water Master Plan
CWSSIP	County Water and Sanitation Strategy and Investment Plan
DBO	Design-Build-Operate
DLI	Disbursement-Linked Indicator
DRR	Disaster Risk Reduction
ECDE	Early Childhood Development Education
EHS	Environmental, Health, and Safety
EMCA	Environmental Management and Coordination Act
ERP	Enterprise Resource Planning
FLLoCA	Financing Locally-Led Climate Action
FSM	Faecal Sludge Management
FSTP	Faecal Sludge Treatment Plant
FY	Financial Year
GCP	Gross County Product
GIS	Geographic Information System
HCF	Healthcare Facility
HR	Human Resource
HRM	Human Resource Manager

IA	Internal Auditor
ICT	Information and Communication Technology
IPC	Infection Prevention and Control
IWRM	Integrated Water Resources Management
JMP	Joint Monitoring Programme
KCSAP	Kenya Climate Smart Agriculture Project
KENHA	Kenya National Highways Authority
KERRA	Kenya Rural Roads Authority
KES	Kenya Shilling
KFS	Kenya Forest Service
KNBS	Kenya National Bureau of Statistics
KPI	Key Performance Indicator
KRA	Kenya Revenue Authority
KRCS	Kenya Red Cross Society
KUSP	Kenya Urban Support Program
K-WASH	Kenya Water, Sanitation and Hygiene Program
LPCD	Litres per Capita per Day
LVSWWDA	Lake Victoria South Water Works Development Agency
MDGs	Millennium Development Goals
MEL	Monitoring, Evaluation, and Learning
MFI	Microfinance Institution
MHM	Menstrual Hygiene Management
MIS	Management Information System
MoE	Ministry of Education
MoH	Ministry of Health
MOU	Memorandum of Understanding
MTP	Medium Term Plan
MUS	Multiple Use Services
NAWASIP	National Water and Sanitation Investment Plan
NBS	Nature-Based Solutions
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
NRW	Non-Revenue Water
NWHSA	National Water Harvesting and Storage Authority
NWSS	National Water Services Strategy
O&M	Operations and Maintenance
OBA	Output-Based Aid
ODF	Open Defecation Free
OPEX	Operational Expenditure
PCRA	Participatory Climate Risk Assessment
PEF	Project Entry Form
PESTEL	Political, Economic, Socio-cultural, Technology, Environmental, Legal

PFM	Public Finance Management
PIAP	Performance Improvement Action Plan
PWD	Person With Disability
RBF	Results-Based Financing
RWSP	Rural Water Service Provider
SATO	Safe Toilet
SDG	Sustainable Development Goals
SFD	Shit Flow Diagram
SHG	Self-Help Group
SLA	Service Level Agreement
SME	Small and Medium Enterprise
SPA	Service Provision Agreement
TM	Technical Manager
TWG	Technical Working Group
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
USD	United States Dollar
VAT	Value Added Tax
VIP	Ventilated Improved Pit Latrine
WAB	Water Appeals Board
WASREB	Water Services Regulatory Board
WB	World Bank
WHO	World Health Organization
WRA	Water Resources Authority
WRMA	Water Resources Management Authority
WRUA	Water Resources Users Association
WSP	Water Service Provider
WSRS	Water Sector Reform Secretariat
WSTF	Water Sector Trust Fund
WUAs	Water User Associations
WUC	Water User Committee

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1.0 COUNTY SOCIO-ECONOMIC AND POLITICAL CONTEXT

1.1 Socio-Political and Administrative Background

1.1.1 Overview of the county's geographic, demographic, and economic context

1.1.1.1 Location and Size

Bomet County is situated in the former Rift Valley Province of Kenya and lies between latitudes 0°29' and 1°03'S and longitudes 35°05' and 35°35'E. It borders Kericho County to the north, Nakuru to the northeast, Nyamira to the southwest, Narok to the south, and Kisii County to the west. The county covers approximately 2037 km².

1.1.1.2 Administrative Units

The county is administratively divided into **five sub-counties**: Bomet Central, Bomet East, Chepalungu, Sotik, and Konoin. Each sub-county aligns with electoral constituencies and is further subdivided into **25 wards**.

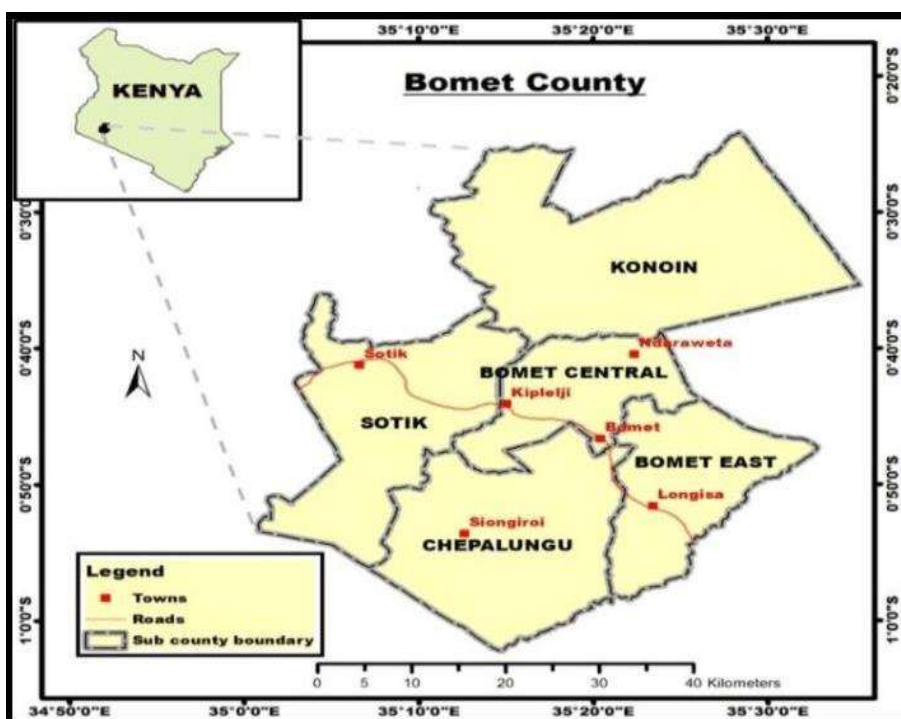


Figure 1.1: County's Administrative and Political Units

1.1.1.3 Population Distribution and Gender

As per recent projections and aligned to Kenya National Bureau of Statistics (KNBS) methodologies, the population of Bomet County in 2022 is estimated at approximately 934,765 people. The gender distribution across the sub-counties is fairly balanced, with females accounting for a slightly higher proportion, averaging around 51%, compared to 49% for males.

This gender structure has implications for planning gender-responsive WASH infrastructure.

Table 1.1: Bomet County Population and Administrative Data

Sub-County	Population (2022)	Male (%)	Female (%)
Bomet East	154,000	49.3	50.7
Chepalungu	175,953	48.5	51.5
Konoin	174,534	50.8	49.2
Sotik	243,222	49.3	50.7
Bomet Central	187,031	50.1	49.9

1.1.1.4 Urbanization Trends

The county is largely rural (96%)², although urbanization is steadily increasing. Bomet Central and Sotik host the major urban centers and exhibit the highest urbanization rates, estimated at **21.5%** and **20.1%**, respectively. Overall, Bomet's urbanization rate is lower than the national average but shows a consistent upward trend. It is projected that Bomet's urbanization rate will increase from the current 4% urban population in 2022 to approximately 8–10% by 2030, driven by expansion in Bomet Central and Sotik towns, and the anticipated effects of infrastructure investments under the CWSSIP.

1.1.1.5 Economic Trends: Gross Domestic Product and Growth

County Economic Overview with National Comparison

(a) Gross County Product (GCP):

- Bomet County's GCP was KES 95.86 billion (KNBS, 2019).
- Represents approximately **0.8% of Kenya's total GDP** in the same year.

(b) GCP Per Capita (2019):

- Bomet: ~KES 104,000
- **National average:** KES 113,000
- Bomet's per capita GCP is **about 8% below** the national average.

(c) Economic Growth Rate (2014–2019):

- Bomet: **4.6% average annual growth**
- **National average:** 5.4%
- This indicates that Bomet's economy grew **slightly slower** than the national rate.

(d) Key Economic Drivers:

- Dominated by **rain-fed agriculture**, notably tea, maize, and dairy farming.
- Other growing sectors: **trade and services**.

(e) Urbanization and Service Expansion:

- Urban centers like **Bomet Town** and **Sotik** are witnessing **faster economic growth**.
- Growth attributed to **improved road networks** and **WASH infrastructure investments**.

(f) Urban vs. Rural Population:

- **Rural:** ~**96%** of the county population
- Urban growth presents opportunities for **diversification and modernization** of the economy.

It is important to note that future economic growth and urban expansion will also be influenced by climate variability, including recurrent droughts and floods, which affect both water resource availability and infrastructure sustainability.

1.1.1.6 Demographic and Climatic Trends Affecting WASH

Demographic Pressures:

² According to the 2019 Kenya Population and Housing Census, Bomet County had a total population of 875,689. Of this, 847,718 individuals resided in rural areas, while 27,971 lived in urban areas. This means that approximately 96.8% of Bomet County's population was rural as of 2019.

- Rapid population growth, especially in urban and peri-urban centers, is increasing pressure on existing water and sanitation infrastructure.
- The youthful population, with over **60% under the age of 35**, demands more education and health facilities with adequate WASH services.

Climatic Trends:

- The county is experiencing **increased variability in rainfall** and **rising temperatures**, as detailed in the Bomet County PCRA Report (2023).
- **Droughts and floods** have become more frequent, affecting both rural and urban water supply systems.
- **Rain-fed agriculture** remains vulnerable to these climatic shifts, which have a direct impact on livelihoods and water demand.

1.1.2 Description of Governance Structures in Water and Sanitation

The Constitution of Kenya (2010) assigns the **provision of water and sanitation services** as a devolved function under the mandate of county governments. In Bomet County, several institutions and offices are tasked with policy formulation, planning, service delivery, regulation, and climate resilience in the water, sanitation, and hygiene sector.

Table 1.2: County Level Institution / Office and their Key Responsibilities in Water, Sanitation & Climate Resilience

Institution / Office	Key Responsibilities in Water, Sanitation & Climate Resilience
Governor’s Office	Overall leadership and policy oversight; mobilization of development partnerships and resources.
Department of Water, Sanitation, Environment & Climate Change	Leads planning, budgeting, and implementation of water, sanitation, and climate adaptation programs.
Department of Health Services	Leads planning, budgeting, and implementation of public health matters, including implementation of CLTS, hygiene, sensitization, and disease management. They also train and support/manage CHPs and track water quality linked to disease management and control.
County Climate Change Unit (CCU)	Coordinates climate change mainstreaming across sectors; works with the Water Dept. on climate resilience.
County Treasury & Budget Office	Allocates funding for water and sanitation services through annual budgets and medium-term expenditure plans.
BOMWASCO (Water Service Provider)	Operational responsibility for water production, distribution, and sanitation in urban areas.
County Assembly	Legislative oversight and approval of water sector plans and budgets, as well as enacting supportive legislation.

1.1.2.1 Coordination Mechanisms across Stakeholders

Bomet County coordinates water and sanitation development through multi-stakeholder platforms involving:

(a) National Government Agencies:

The Water Resources Authority (WRA), the Ministry of Water, and the National Environmental Management Authority (NEMA) collaborate with the county on regulation, water use permits, and environmental oversight.

(b) Regional Utilities and Development Partners:

The county engages with institutions such as the Lake Victoria South Water Works Development Agency (LVSWWDA), the World Bank, and the Water Sector Trust Fund (WaterFund) to support planning, financing, and implementation of major water and sanitation infrastructure projects.

(c) Inter-County Coordination:

Given that several rivers traverse neighboring counties like Narok and Kericho, Bomet participates in inter-county platforms to agree on water abstraction limits, shared infrastructure development, and catchment conservation strategies.

(d) Private Sector Engagement:

The private sector contributes to WASH through:

- a) **Infrastructure development partnerships** (e.g., borehole drilling, storage tanks, solar pumping systems).
- b) **Operation and maintenance of small-scale piped schemes**, often via delegated management models.
- c) **Local entrepreneurs and SMEs** involved in selling sanitation products (Sato pans) and providing emptying services.
- d) **Financing and innovation**, including digital billing and prepaid metering solutions piloted in Sotik and Bomet towns.

Despite this involvement, constraints remain in **enabling policy, risk sharing, and incentives** to scale up private investment. The county is developing a **PPP framework and blended finance strategy** in alignment with the National Water Sector Financing Manual.

(e) Civil Society and Community-Based Organizations (CSOs/CBOs):

NGOs and CBOs are key contributors in community mobilization, school and HCF-based WASH programs, and grassroots hygiene behavior change initiatives. Their coordination is increasingly streamlined through the **Bomet County WASH Hub**, which serves as a central data and knowledge platform for WASH sector actors.

(f) Climate Risk Coordination:

Multi-sectoral climate risk platforms, led by the Department of Water in collaboration with agriculture, environment, and public health departments, support coordinated planning for climate adaptation and resilience investments.

The county has participated in **Participatory Climate Risk Assessments (PCRA)**, which fed into the Bomet Climate Change Action Plan (BCCCAP 2022–2026), ensuring that WASH resilience is embedded in broader county development planning.

1.1.2.2 Role of Women's Leadership in Water and Sanitation Governance

Women play a critical role in providing, managing, and safeguarding water and sanitation at the household and community levels.

Key highlights include:

- a) **Representation in decision-making bodies** such as community water projects and BOMWASCO's governance board.
- b) **Inclusion in participatory planning processes**, e.g., PCRA consultations and public budget hearings.
- c) **Leadership roles in grassroots WASH committees**, where they oversee tariff setting, dispute resolution, and O&M.

Despite this, their representation in formal WASH governance structures in Bomet County remains limited. This imbalance hinders inclusive decision-making and constrains the sustainability and responsiveness of water and sanitation services.

(a) Policy and Legal Context

The **Constitution of Kenya (2010)** guarantees equality and freedom from discrimination under Article 27, mandating gender parity in public appointments and leadership. The **Water Act 2016** requires inclusive participation and equitable representation in Water Service Providers (WSPs), Water Resources Users Associations (WRUAs), and Community Water Management Committees. The **Bomet County Integrated Development Plan (CIDP 2023–2027)** further reinforces the County's commitment to gender equity in all governance structures, including in the WASH sector.

Nationally, the **National Water and Sanitation Investment Plan (NAWASIP 2022–2030)** emphasizes the need for gender-sensitive planning and calls for increased women's participation in sectoral leadership as a means to achieving SDG 6. Internationally, frameworks such as **CEDAW**, **Kenya Vision 2030**, and **SDG 5** emphasize women's full and effective participation and equal leadership opportunities in all areas of development.

The **World Bank's K-WASH Technical Guidelines (2023)** similarly promote affirmative action and institutional reforms to mainstream gender in water governance.

(b) Current Status in Bomet County

As of FY2022, women accounted for **40% of BOMWASCO's Board of Directors**, as per the company's official audited financial disclosures. While this exceeds the one-third constitutional threshold, it still falls short of parity and remains uneven across functional roles.

Disaggregated data is limited for water resources user associations (WRUAs) in Bomet. However, sector-wide national averages place female representation in WRUA leadership structures between **20% and 35%** (WRA, 2022; World Bank K-WASH Guidelines, 2023), with women often concentrated in supportive rather than decision-making positions.

Key barriers limiting women's leadership in the water and sanitation sector include:

- Cultural and social norms restricting women's roles in public decision-making
- Limited access to leadership and technical training opportunities
- Economic dependency and household care burdens
- Lack of institutional mandates for gender inclusion and enforcement mechanisms

(c) Strategic Recommendations

To promote inclusive, gender-responsive governance in water and sanitation, the following strategic interventions are proposed:

1. **Institutionalize affirmative action** in WSPs, WRUAs, and CBOs, requiring at least 30% representation of women in leadership, in line with Article 27(8) of the Constitution.
2. **Establish a county-wide gender-responsive budgeting framework** to support women's participation, leadership training, and logistical facilitation (e.g., childcare support or transport allowances).
3. **Integrate structured mentorship and leadership development programs** targeting women in the WASH sector, leveraging partnerships with NGOs and national networks such as Women in Water and Sanitation (WIWAS).
4. **Develop and enforce county-level policies and guidelines** mandating gender equity in all water governance institutions and project implementation teams.
5. **Include gender-disaggregated performance indicators** in the CWSSIP's Monitoring and Evaluation Framework to track progress in women's participation and leadership outcomes.

Strengthening women's leadership in the WASH sector will enhance governance transparency, improve service responsiveness, and align Bomet County with its constitutional obligations, national priorities, and international development commitments.

1.1.3 Key Environmental, Socio-Political, and Economic Factors Affecting Water and Sanitation Service Delivery

1.1.3.1 Community Engagement, Stakeholder Participation, and Public Perceptions

Effective community engagement and stakeholder participation are essential pillars for the success and sustainability of water, sanitation, and hygiene (WASH) services in Bomet County. The CWSSIP process itself was anchored in an inclusive, participatory approach involving government, private sector, civil society, and community representatives from all six sub-counties and 25 wards.

a) Stakeholder Engagement During CWSSIP Preparation

The CWSSIP development process incorporated a multi-stage consultation framework:

Table 1.3: Multi-stage consultation framework during the CWSSIP development process

Engagement Stage	Activities Conducted	Stakeholders Involved
Situational Analysis & Data Collection	Household WASH survey (2023), PCRA (2023), school, and HCF WASH assessments	Community members, health/school managers, enumerators, Dig Deep, Red Cross
Technical Working Group (TWG) Formation	Weekly meetings to co-develop strategy chapters	County Dept. of Water, Health, Education, BOMWASCO, Planning, NGOs
Validation Workshops	Sub-county and county-level review forums	Sub-county admins, MCAs, WRUAs, CSOs, CBOs, faith-based groups
Finalization & Policy Anchoring	Integration with CIDP III and County Planning Frameworks	County Treasury, Department Water, Health, Governor's Office

This robust engagement ensured that local insights, sector experience, and community priorities shaped the CWSSIP's strategic direction.

b) Ongoing and Future Community Engagement Mechanisms

The CWSSIP proposes institutionalized and grassroots mechanisms for continued engagement across implementation and monito

ring phases, which will be coordinated through the WASH hub.

Table 1.4: Ongoing and Future Community Engagement Mechanisms

Level	Engagement Mechanisms	Focus Activities
County and Sub-County	Multi-stakeholder WASH Forums, County WASH Technical Working Group (CW-TWG)	Sector planning, review of CWSSIP targets, and inter-agency coordination
Ward	Ward-level WASH committees and public barazas	Budget tracking, grievance redress, and dissemination of service delivery data
Village/Community	Community-Led Total Sanitation (CLTS), Community MHM Outreach, Spring Protection Committees	Triggering behavior change, latrine adoption, handwashing campaigns, MHM awareness, and local project implementation
Institutions (Schools, HCFs)	WASH Clubs, IPC Committees, School Boards, Facility Health Committees	Hygiene promotion, menstrual hygiene education, and sanitation infrastructure management

Bomet has successfully implemented CLTS in several hotspot villages in Konoin, Sotik, and Chepalungu, resulting in Open Defecation-Free (ODF) declarations in targeted clusters. Community groups have also been actively involved in spring water protection, fencing, and drainage channel rehabilitation, especially in areas where communal reliance on springs remains high.

Additionally, **grievance feedback mechanisms** are being digitized under the county e-Governance and Performance Monitoring system, which will allow ward administrators or online dashboards to report service interruptions or WASH concerns in real time.

c) Public Perceptions and Service Satisfaction

Insights drawn from the 2023 PCRA and Household WASH Survey reveal mixed perceptions about WASH services:

Table 1.5: Public Perceptions and Service Satisfaction

Public Perception Indicator	Observation
Trust in piped water quality	Low in rural zones, especially where the supply is intermittent or untreated
Satisfaction with latrine availability in markets	Low in all sub-counties; cited cost, poor maintenance, lack of lighting.
Willingness to pay for improved services	Higher where services are consistent and accountability mechanisms exist
Awareness of MHM and hygiene campaigns	Strong in schools; weak at the community level, especially among adult men

Addressing these perceptions requires not just infrastructure investments, but transparent communication, participatory monitoring, and meaningful community involvement in service design and oversight.

1.1.3.2 Environmental Factors

Bomet County’s environment significantly influences water and sanitation service delivery. The county experiences **bimodal rainfall patterns**, with increasing **climate variability** that affects surface and groundwater recharge. The **Participatory Climate Risk Assessment (PCRA) 2023** identified the following environmental challenges:

- a. **Water catchment degradation** in the upland areas of Konoin and Chepalungu.
- b. **Rising temperatures** (projected increase of up to 1.8°C by 2050) impacting water availability and sanitation infrastructure durability.
- c. **Frequent flooding** in low-lying areas such as Sotik and parts of Bomet Central disrupts latrines and contaminates water points.
- d. **Soil erosion and sedimentation** reduce dam and intake capacities.
- e. Geological formation (especially rocky substructures) inhibits the development of WASH facilities in parts of Bomet County. Areas affected include Sotik, Bomet, East, and Chepalungu.

Table 1.6: Environmental Hazards Affecting WASH Services

Hazard	Most Affected Areas	Impact on WASH Infrastructure	Public Health Risks (One Health Perspective)
Flooding	Sotik, Bomet Central, Chepalungu	Latrine collapse, pipe bursts, contamination of open sources	Cholera, typhoid, vector proliferation (e.g., malaria), livestock waste infiltration, waterborne disease risks
Landslides & Erosion	River banks, especially steep escarpments	Displacement of intake structures, damage to water lines, blockage of gravity mains	Exposure to contaminated sediments, injuries, and increased exposure to pathogens from disturbed waste.
Drought	Chepalungu, Bomet East	Reduced borehole yields, over-reliance on unsafe open water sources, and water rationing	Concentrated contaminants in low-flow water; increased burden on women/children collecting water
Watershed Degradation	Chepalungu, Konoin	Reduced river flows, sedimentation of intakes, and livestock degradation of springs	Use of unprotected water; increased exposure to schistosomiasis, E. coli, and zoonotic infections from livestock
Rising Temperatures	Countywide	Infrastructure fatigue, reduced pressure in piped systems, and increased water demand	Dehydration, food insecurity, and increased pathogen growth in stored water
Rocky Surfaces	Sotik, Bomet East, Chepalungu	Inhibits the construction of latrines, boreholes, and water systems; drilling costs escalate.	Sanitation gaps lead to open defecation and exposure to fecal pathogens.
Water Pollution (Chemical & Biological)	Bomet Central, Konoin, Sotik	Contamination from agrochemicals, latrines, and livestock runoff; reduced water quality	Gastrointestinal infections, heavy metal toxicity, nitrate poisoning (esp. for infants), antimicrobial resistance

1.1.3.3 Political and Economic Factors

Over the past five years, the County Government of Bomet has consistently allocated between 4.2% and 4.8% of its total annual budget to the water and sanitation sector. This trend is shown in Table 1.4 below, based on figures reported in the County Annual Development Plans (ADPs), CIDP 2023–2027, and County Budget Estimates for each respective year.

In parallel, the County’s primary Water Service Provider, BOMWASCO, has operated with persistent operational deficits, attributed largely to high electricity costs, aging infrastructure, and delayed subsidy disbursements. As

detailed in Table 1.5, BOMWASCO's annual financial statements (2019–2024) and data reported in the 2024 BOMWASCO Status Report show an average deficit of KSh 24 million annually. High levels of Non-Revenue Water (61% as per WASREB Impact Report 16) also continue to impact cost recovery.

Donor and partner contributions have played a significant role in sustaining key WASH interventions. Table 1.6 summarizes the major external financing commitments received by BOMWASCO and the County Government over the 2019–2024 period, compiled from official BOMWASCO planning documents, NAWASIP references, and WSTF records. Notable among these are the KSh 885 million World Bank K-WASH investment and KSh 900 million from AfDB through KUSP III.

Table 1.7: County Water & Sanitation Budget Allocations (FY 2019/20 – 2023/24)

Financial Year	Total County Budget (KES Million)	Water & Sanitation Allocation (KES Million)	% of County Budget	Source
2019/2020	6,900	287	4.2%	Bomet County ADP 2019/20
2020/2021	7,050	312	4.4%	Bomet County ADP 2020/21
2021/2022	7,420	338	4.6%	Bomet County ADP 2021/22
2022/2023	7,600	365	4.8%	Bomet County ADP 2022/23
2023/2024	8,200	392	4.8%	CIDP 2023–2027 & Budget Estimates FY 2023/24

Table 1.8: BOMWASCO Revenue vs. Operations Expenditures (2019–2023)

Financial Year	Revenue (KES Million)	O&M Cost (KES Million)	Surplus/Deficit	Source
2019/2020	83.5	108.0	-24.5	BOMWASCO Financial Statements 2019/20
2020/2021	86.0	112.3	-26.3	BOMWASCO Financial Statements 2020/21
2021/2022	91.0	115.0	-24.0	BOMWASCO Financial Statements 2021/22
2022/2023	97.0	119.2	-22.2	BOMWASCO Status Report (2024)
2023/2024*	100.0 (est.)	124.0 (est.)	-24.0 (est.)	BOMWASCO Business Plan 2023–2026

*FY 2023/24 values are projections based on BOMWASCO Q3 FY2023/24 performance.

Table 1.9: Expected External Donor Support to Bomet WASH Sector (2019–2024)

Expected Donor / Partner	Project / Support Area	Amount (KES M)	Year(s) Funded	Source
World Bank (K-WASH)	Efficiency, digitization, and NRW management	885	2024–2026	BOMWASCO Business Plan 2023–2026
AfDB (KUSP III)	Urban water connectivity + sanitation	900	2023–2025	BOMWASCO Status Report (2024)
Water Sector Trust Fund	Community WASH, health & school-based schemes	160	2019–2023	WSTF County Grant Reports
City Taps	Smart metering pilot (Itare scheme)	30	2023–2024	BOMWASCO Status Report (2024)
UNICEF / Dig Deep	CLTS, sanitation marketing, MHM, technical inputs	55	2022–2024	Bomet County WASH Hub / Consultant Reports

1.1.3.4 Social Factors and Public Perceptions

Bomet County has made deliberate efforts to promote **community engagement** and **stakeholder inclusion** in the design and delivery of WASH services. However, some persistent social and behavioral dynamics continue to influence service uptake and sustainability:

a) Cultural preferences for river water

In some rural communities, long-standing cultural practices and preferences for untreated river water persist despite the availability of piped or treated alternatives. This affects both the revenue potential and the overall uptake of utility-managed services.

b) Resistance to sanitation behavior change:

Despite increasing latrine coverage across the country, behavior change related to consistent and hygienic use remains a challenge, particularly in low-income areas and informal settlements.

c) Stakeholder forums and local participation:

Structures such as ward development committees, PCRA forums, and CIDP consultations have provided platforms for public participation in planning and budgeting. These forums have enhanced transparency and local ownership of WASH priorities.

d) Key Community Engagement Milestones Include:

- a) **PCRA 2023 workshops** were conducted across all 25 wards.
- b) **CIDP public consultations** explicitly incorporating WASH issues and community feedback.
- c) **Active WASH committees** in schools and health facilities, supported by NGOs and CBOs.

e) Public Health Considerations in Social Engagement

While social participation has improved, significant **public health challenges** remain, particularly in institutional settings such as schools and healthcare facilities. A notable example is the **lack of adequate Menstrual Hygiene (MH) facilities** in many schools, which contributes not only to increased risk of **infections** but also to **psychosocial stress, absenteeism, and long-term gender disparities** in education. Additionally, stigmatization and a lack of safe spaces for MH management can lead to trauma and reduced self-esteem among adolescent girls.

Furthermore, limited hygiene infrastructure and behavior change support in high-density or economically marginalized communities exacerbate the risks of communicable diseases, including diarrheal illnesses and skin infections—issues that are especially dangerous for children and vulnerable populations.

1.1.3.5 Gender-Specific Water, Sanitation, and Hygiene Needs

Gender is a critical determinant of access, roles, and experiences in the water, sanitation, and hygiene (WASH) sector. In Bomet County, women and girls predominantly bear the burden of water collection and household-

level sanitation responsibilities, while men often influence decisions related to household investments in WASH infrastructure. Addressing these disparities is essential to ensure equitable and inclusive WASH outcomes.

a) Division of Labor in Water Collection and Use

Survey data from the 2023 Bomet Household WASH Survey indicate that in **69% of households, adult women are the primary water collectors**, while **girls under 18** carry this responsibility in another **15–19%** of cases. Men and boys are rarely responsible for daily water fetching, contributing less than 10% across all sub-counties.

Table 1.10: Division of Labor in Water Collection

Gender of Primary Water Collector	Countywide (%)
Adult women	69%
Girls under 18	17%
Adult men	7%
Boys under 18	4%
Other/shared	3%

This gendered labor division affects school attendance, limits women's time for income generation, and increases exposure to safety risks in remote or poorly lit water points.

b) Gendered Sanitation Practices and Access Gaps

Women and girls face heightened challenges in accessing safe, private, and hygienic sanitation facilities, especially during menstruation, pregnancy, or illness. According to the **School Sanitation Situational Analysis (2023)**:

- Only **28% of schools** have functional and private menstrual hygiene management (MHM) spaces.
- **85% of health facilities** lack designated rooms or disposal systems for MHM products.
- Shared latrines in informal settlements and markets often lack lighting and doors, increasing security risks.

Table 1.11: Gendered Sanitation Practices and Access Gaps

MHM Access Indicator	Coverage
Schools with designated MHM-friendly spaces	28%
HCFs with adequate MHM disposal facilities	15%
Girls are missing school due to menstruation	Estimated 2–5 days/month

These inadequacies hinder dignity, participation, and health outcomes for women and girls.

c) Hygiene Practices and Gender Norms

Cultural beliefs and social norms influence hygiene behaviors differently across genders. For instance:

- In many rural villages, adult men perceive handwashing after defecation as “optional,” while women are more likely to practice it for childcare and cooking consistently.
- Male youth tend to under-participate in school-based WASH clubs and peer education on hygiene, affecting outreach effectiveness.
- Community MHM campaigns often target women, inadvertently excluding fathers, brothers, and male caregivers from supporting girls' hygiene needs.

To address these gaps, gender-transformative behavior change approaches that reframe WASH roles across all genders and age groups are required.

d) Proposed Gender-Responsive Interventions

The following table highlights the proposed gender-responsive interventions:

Table 1.12: Proposed Gender-Responsive Interventions

Strategic Action	Target Group	Implementing Partner(s)
Construct gender-segregated sanitation blocks with MHM rooms	Girls, women	County Water, Health & Education Depts, NGOs
Train male champions for hygiene and MHM support	Men, boys	CHVs, Youth groups
Develop localized gender-aware IEC materials.	All community members	Health Promotion Units
Introduce WASH time-saving technologies (e.g., household tanks, closer water points)	Women, girls	BOMWASCO, County Planning Unit
Integrate MHM into health and school policies	Girls, school staff	MOH, MOE, County Assembly

The County will also incorporate **gender-sensitive indicators** in the CWSSIP Monitoring & Evaluation Framework to track progress in WASH access, participation, and leadership disaggregated by gender.

1.1.4 Existing Legal and Policy Frameworks Governing Water and Sanitation at the County Level

1.1.4.1 Relevant Laws, Policies, and Regulations

The Bomet County Water and Sanitation Strategy and Investment Plan (CWSSIP) is a legally mandated planning instrument anchored in the provisions of the **Water Act, 2016**; the County Governments Act, 2012; and the **Public Finance Management Act, 2012**. It defines the county’s long-term strategic direction, investment priorities, and reform roadmap for achieving universal access to safe and sustainable water, sanitation, and hygiene (WASH) services.

In line with **Section 102** of the County Governments Act, this CWSSIP operationalizes the Bomet County Integrated Development Plan (CIDP III, 2023–2027) by translating its WASH priorities into a bankable, phased investment framework. It is also compliant with **Article 43(1)(d)** of the Constitution of Kenya, which guarantees every citizen the right to clean and safe water in adequate quantities and to reasonable standards of sanitation.

At the national level, the CWSSIP aligns with the **National Water and Sanitation Investment and Financing Plan (NAWASIP 2022–2030)**, which aggregates county WASH investment plans into a coherent national framework. It is further aligned with the **Kenya Vision 2030**, the **National Water Policy**, the **National Water and Sanitation Strategy (NWSS)**, and global commitments under **Sustainable Development Goal 6 (SDG 6)** on clean water and sanitation for all.

The preparation of this CWSSIP follows the **Technical Guidance Notes for Countywide WSS Strategy and Investment Planning** issued by the Ministry of Water, Sanitation, and Irrigation under the framework of the **Kenya Water, Sanitation and Hygiene (K-WASH) Program**, financed through the World Bank’s **Program-for-Results (PforR)** mechanism. The CWSSIP is the core eligibility requirement for counties to access Results Area

1 (RA1) funds under the K-WASH Program, which prioritizes sustainable WASH access in climate-vulnerable rural areas.

At the county level, the CWSSIP builds upon and integrates the findings and priorities of:

- The **Bomet County WASH Masterplan (2022–2050)**,
- The **Participatory Climate Risk Assessment (2023)** and Bomet County Climate Change Act (2021),
- The **Bomet County Household, HCF, and School WASH Surveys (2023–2025)**,
- The **Strategic and Business Plans** of BOMWASCO,
- County sectoral plans, budgets, and annual development plans (ADPs).

Therefore, the CWSSIP is a pivotal planning and financing tool designed to coordinate multi-sectoral actors, optimize resource use, and guide implementation toward a universal, inclusive, and climate-resilient WASH future for all residents of Bomet County.

1.1.4.2 Alignment with National and Global Commitments

Bomet County aligns its WASH strategies with broader **national frameworks** and **global sustainable development targets**. The CWSSIP is also anchored in Africa’s continental development framework—**Agenda 2063**, which outlines a shared strategic vision for inclusive growth, sustainable development, and regional integration. Specifically, this Strategy aligns with Aspiration 1: “A prosperous Africa based on inclusive growth and sustainable development,” and Aspiration 6: “An Africa whose development is people-driven.” Through investments in climate-resilient water infrastructure, circular sanitation systems, and inclusive governance, Bomet County contributes to the realization of these aspirations, positioning itself as a model for the localized implementation of Africa’s long-term transformation blueprint.

As a founding member of the **Lake Region Economic Bloc (LREB)**, Bomet County’s CWSSIP is directly aligned with the Bloc’s **Strategic Plan 2022–2027**, which emphasizes integrated infrastructure development, water resource conservation, climate adaptation, and shared service delivery models. The CWSSIP reinforces LREB’s pillar goals under **Strategic Theme 3: Provision of Social Services**, and reflects Bomet’s leadership in hosting regional initiatives like the LREB Blue Economy Conference. The strategy also responds to the LREB call for harmonized WASH investments across member counties, enabling economies of scale, inter-county resource sharing, and a united front in achieving SDG 6 and Kenya Vision 2030.

Sustainable Development Goal 6 (SDG 6): The County aims to ensure universal and equitable access to safe water and sanitation by 2030. Targets 6.1 and 6.2 inform infrastructure planning, especially in informal settlements and public institutions. Importantly, **Target 6.5 emphasizes Integrated Water Resources Management (IWRM)**—a priority reflected in the County’s inclusion of **Multiple Use Services (MUS)** in its investment planning (see Sections 2.5 and 5.2), to ensure sustainable, multipurpose water use for households, agriculture, and small-scale enterprises.

- a) **Kenya’s National Water and Sanitation Investment Plan (NAWASIP 2022–2030):** Bomet’s CWSSIP contributes to NAWASIP objectives, particularly in identifying investment gaps and priority projects, and aligning cost estimates with national budgeting frameworks.
- b) **Kenya Vision 2030’s Third Medium Term Plan (MTP III):** This plan guides the country’s infrastructure investment priorities and aligns WASH development with national economic growth drivers.

- c) **Financing Locally-Led Climate Action (FLLoCA):** Through FLLoCA and the County Climate Change Fund, Bomet integrates WASH into climate-resilient development strategies, addressing both mitigation and adaptation needs.

The Bomet CIDP 2023–2027 commits to expanding clean water coverage to **95% of households** and ending open defecation in the next 2–3 years, which is in line with SDG targets and national sanitation goals.

1.1.4.3 M&E and Information Management Frameworks at County Level

Bomet County is strengthening its Monitoring and Evaluation (M&E) and data systems for more informed WASH service delivery. Current frameworks include:

- a) County Integrated Monitoring and Evaluation System (CIMES): The county Planning Unit oversees this system, which tracks the implementation of CIDP programs, including WASH indicators.
- b) Sector-specific M&E: The Department of Water uses tools such as WASREB performance indicators (e.g., non-revenue water, hours of supply, staff per 1,000 connections) to monitor BOMWASCO and other providers.
- c) Digital billing and customer feedback systems piloted in BOMWASCO improve service accountability.
- d) PCRA baseline data (2023): This data set offers climate vulnerability indicators, which are being incorporated into performance tracking.
- e) The county's Quarterly Public Expenditure Reviews and Annual Progress Reports include water and sanitation performance summaries.

However, **data gaps remain**, especially in rural water schemes not covered by BOMWASCO and in sanitation coverage mapping. Efforts are underway to digitize data collection through GIS-enabled systems in partnership with WRA and LVSWWDA.

1.2 Water in the County Economy

1.2.1 Integration of Water Sector Development with the County's Economic Growth Strategies

1.2.1.1 Water in Economic Planning and County Development Objectives

Water plays a **central role** in Bomet County's socio-economic development strategy, as outlined in the **CIDP 2023–2027**, where improved access to clean and basic water is prioritized as a key enabler for:

- a) Enhancing agricultural productivity (especially in tea, dairy, and horticulture).
- b) Expanding rural and urban enterprise opportunities.
- c) Strengthening climate resilience and health outcomes.
- d) Supporting tourism, small-scale manufacturing, and service delivery.

The **CIDP** commits to increasing access to potable water to **95%** by 2027 and integrating water supply projects with **irrigation, sanitation, and climate resilience objectives**.

Water sector planning is also incorporated in:

- a) **The Bomet County Spatial Plan** promotes zoning for water infrastructure and watershed protection.
- b) **Annual Development Plans (ADPs)**: where ward-specific water needs are costed and linked to local economic drivers.
- c) **Sector-specific plans** such as the **County Climate Change Action Plan (BCCCAP 2022–2026)**, which identifies water stress hotspots and proposes adaptive interventions.

1.2.1.2 Water’s Contribution to Key Economic Sectors

Water is indispensable to **Bomet’s top three economic sectors**, as captured in the GCP and CIDP:

Table 1.13: Water’s Contribution to Key Economic Sectors

Sector	Dependency on Water	Water-linked Priorities
Agriculture	High–irrigation, livestock watering, post-harvest processing	Expansion of water storage, promotion of smallholder irrigation, and an increase in the resilience of rain-fed agriculture
Trade & Services	Medium – hospitality, agro-processing, retail	Improved water reliability in towns and markets
Industry	Emerging – milk processing, tea factories, cottage industries	Industrial water use efficiency, wastewater management

Notably, **dairy cooperatives** and **milk cooling facilities** in areas like **Sotik** and **Bomet East** depend on an uninterrupted water supply. **Tea estates** in Konoin also use significant amounts of water for withering and processing, often drawing from nearby rivers or private boreholes.

1.2.1.3 Water Conservation and Sustainability Measures

In response to increasing demand and climatic variability, Bomet County has implemented several water sustainability and conservation measures:

a. Rainwater Harvesting & Storage

- Promotion of household and institutional rainwater harvesting tanks, particularly in **schools and health centers**.
- Construction of elevated steel tanks in public facilities supported by donors (e.g., WaterFund).

b. Watershed and Spring Protection

- Identification and fencing of water catchments and springs (Countywide).
- Tree planting initiatives in degraded upstream catchments in partnership with KFS and CBOs.

c. Climate-Smart Water Infrastructure

- Solar-powered boreholes and pump systems installed in climate-vulnerable zones.
- Pilot aquifer recharge interventions under the BCCCAP (e.g., shallow pans and infiltration ditches in drought-prone areas).

d. Efficient Irrigation Promotion

- Promotion of **smallholder drip irrigation** and **climate-smart agriculture** through farmer field schools supported by the Department of Agriculture.
- These interventions directly support **subsistence farming** and **livestock-based livelihoods**, which sustain a large proportion of Bomet’s rural households but are frequently overlooked in conventional

economic planning. Improved irrigation efficiency enhances food security, income resilience, and drought preparedness for small-scale producers.

In summary, Bomet County is actively aligning water sector development with its economic growth strategies through integrated planning, targeted investments, and promotion of sustainability. However, resource constraints, poor maintenance culture, and the impacts of climate change still pose serious risks to long-term water availability and economic resilience.

1.2.2 Key Economic Activities Dependent on Water

Water is a fundamental input for Bomet County’s economy, particularly for **agriculture, agro-processing, livestock**, and emerging **tourism and service sectors**. These water-dependent activities are crucial to the county’s Gross County Product (GCP), employment creation, and food security.

The following table captures the water usage by major economic sectors:

Table 1.14: Water Dependency across Economic Sectors in Bomet County

Sector	Water-Use Profile	Water Dependency Level	Key Water-Dependent Nodes
Crop Agriculture	Irrigation (smallholder and estate), pesticide/fertilizer mixing, post-harvest uses	Very High	Irrigation schemes in Chepalungu, Bomet East
Dairy & Livestock	Livestock watering, milk processing, and pasture irrigation	High	Dairies in Sotik, Chepalungu
Subsistence Farming & Livestock	Rain-fed cultivation, kitchen gardens, and household animal watering	High	Widespread across rural wards, especially. Chepalungu & Konoin
Tea Production	Processing water for withering, fermentation, and cleaning	High	Tea factories in Bomet Central & East, Konoin (e.g., Kapkoros, Tegat)
Agro-Processing	Milk chilling, slaughterhouses, and food processing	Medium–High	Sotik Town, Silibwet, and urban centers
Health Services	Water for patient care, sanitation, cleaning, hand hygiene, waste disposal, and laundry	High	County hospitals, sub-county facilities, and health centers across all wards
Hospitality & Trade	Domestic use, cleaning, cooking in hotels, car washes, and salons	Medium	Urban areas like Bomet Town and Longisa
Tourism	Water for accommodation, recreation, and landscaping	Medium	Nature-based tourism sites in Konoin and Chepalungu
Construction & Real Estate	Concrete mixing, sanitation, laborers, and dust suppression	Medium	Growth centers like Bomet Town and Mogogosiek

1.2.2.1 The Critical Water-Dependent Nodes (Hotspots) in Bomet County

The following areas serve as **high-demand nodes** for water services:

- Sotik Town** – Hosts multiple milk collection and processing points, slaughterhouses, and urban water users.
- Konoin Sub-county** – Intensive tea cultivation and estate-level processing facilities (e.g., Unilever Tea).
- Chepalungu**—Expanding irrigation-based agriculture (vegetables and maize) requires increased surface and groundwater access.
- Bomet Central and Bomet East** are urban areas with hospitality and educational institutions that require water for operations and hygiene.

1.2.2.2 Impact of Water Supply on Productivity and Economic Sustainability

Water supply reliability and quality directly affect productivity across sectors:

- a) **Agriculture:** Inadequate or unreliable water supply reduces yields, limits diversification into high-value crops, and contributes to post-harvest losses. Dry season deficits increase the need for irrigation and water-efficient technologies.
- b) **Subsistence Farming and Livestock:** For many rural households, rain-fed agriculture and small-scale livestock production remain the primary livelihoods. Prolonged dry spells disrupt food availability, reduce household income, and intensify pressure on informal water sources such as rivers and springs, compromising both water quality and public health.
- c) **Livestock and Dairy:** Water stress during dry months leads to decreased milk production and animal health issues, undermining market supply continuity. Milk chilling and processing require consistent water quality and quantity. Additionally, waterborne illnesses linked to poor-quality livestock water sources can elevate **healthcare costs** and place an extra burden on local health facilities, further eroding economic sustainability.
- d) **Urban Enterprises:** Hotels, restaurants, and car washes in Bomet Town and Sotik face frequent service interruptions, which lead to revenue loss and increased costs of buying water from vendors.
- e) **Small Industry and Tourism:** Inadequate sanitation and water availability in tourist lodges or eco-sites affect visitor satisfaction and potential return visits.

Economic vulnerability to water scarcity is compounded by **poor infrastructure maintenance, non-revenue water losses, and climate risks**, which threaten the long-term viability of Bomet's development strategy unless mitigated by climate-resilient investments.

1.2.3 Constraints to Economic Growth Due to Water Access, Quality, and Management Challenges

Despite Bomet County's relatively favorable hydrological conditions, multiple **systemic and operational barriers** continue to limit the full economic potential of water-dependent sectors. These constraints are especially acute in peri-urban and rural growth areas where agriculture, trade, and small industry are expanding.

1.2.3.1 Key Barriers to Economic Growth from Inadequate Water Services

a. Infrastructure Deficits

- i. **Aging infrastructure:** Many of BOMWASCO's schemes were built in the 1980s and have exceeded their design life, leading to frequent breakdowns, leakages, and costly emergency repairs.
- ii. **Limited rural coverage:** Rural water infrastructure, especially in Chepalungu, Bomet East, and Konoin, lacks adequate investment, with many communities still relying on unsafe surface water.
- iii. **Low storage capacity:** Insufficient water storage infrastructure exists at both the household and scheme levels, increasing vulnerability during dry spells.

b. Inefficient Water Management

- i. **High Non-Revenue Water (NRW):** BOMWASCO records NRW levels of over **61%**, attributed to illegal connections, leakages, and poor metering.
- ii. **Fragmented rural schemes:** Several community-managed schemes (over 10) operate independently of regulatory oversight, often with limited technical capacity and accountability.
- iii. **Inadequate O&M systems:** Weak preventive maintenance leads to recurring system failures, especially in pumped schemes.

c. Regulatory and Institutional Gaps

- i. **Overlapping mandates:** Coordination between BOMWASCO, the Department of Water, and national agencies like LVSWWDA is not always clear, leading to delays in project implementation and duplication of efforts.

- ii. **Weak enforcement:** County-level enforcement of water quality and environmental regulations is under-resourced, and many rural water points operate without formal licenses or monitoring.
- iii. **Limited PPP frameworks:** The private sector's engagement is constrained by inadequate, unclear policies, risk-sharing mechanisms, and contractual safeguards.

d. Financial Constraints

- i. **Insufficient budget allocations:** Annual development budgets for water and sanitation remain below the levels needed to meet NAWASIP targets. Many planned projects remain unfunded or underfunded.
- ii. **Dependence on donor funding:** Development partner support accounts for a significant share of new infrastructure, raising sustainability concerns in the absence of matching local financing.
- iii. **Low tariff recovery:** Tariffs are often set below cost-recovery levels. Combined with low collection efficiency, this results in operating deficits that stifle reinvestment.

e. Rural Water Access Constraints

- i. **Distance to Basic Water Sources:** Many rural households—especially in remote areas of Chepalungu, Konoin, and Bomet East—must travel long distances to access safe and reliable water sources, increasing time poverty and limiting productive use of labor, particularly among women and children.
- ii. **Limited Access to Economic Nodes:** Water is often unavailable near key economic areas such as farms, markets, or small industries, reducing its potential to drive agricultural productivity, livestock health, or agro-processing in rural zones.
- iii. **Transport and Infrastructure Gaps:** Inadequate rural road networks and a lack of bulk water transportation systems limit the movement of water to areas where it can add economic value, such as highland tea-growing zones or livestock watering points.
- iv. **Fragmented Infrastructure Planning:** Many rural water investments are implemented in isolation, without integration into broader regional water security or economic development plans—resulting in low-impact schemes and limited economies of scale.

Table 1.15: Water Scarcity, Contamination, and Distribution Inefficiencies

Issue	Description	Affected Areas	Impact on Growth
Seasonal Water Scarcity	Dry spells during January–February and June–September reduce stream flows and borehole yields.	Konoin, Chepalungu, parts of Bomet East	Limits agricultural output and increases reliance on water vendors.
Water Contamination	The use of unprotected sources and poor sanitation leads to waterborne diseases.	Rural areas, peri-urban fringes	Increased healthcare costs, school absenteeism, and reduced labor productivity.
Distribution Inefficiencies	Pumping-based systems are energy-intensive; low pressure in hilly areas affects supply.	Countywide	Reduces service reliability, affects industry, and urban livelihoods

The cumulative effect of these challenges is a **bottleneck to inclusive economic growth**. They constrain productivity, reduce investor confidence, and disproportionately affect poor and climate-vulnerable communities. Addressing these issues requires:

- i. Accelerated investment in resilient infrastructure,
- ii. Institutional reform and capacity building,
- iii. Strengthened regulatory enforcement, and
- iv. Innovative financing strategies that reduce dependence on subsidies and promote sustainability.

1.2.4 Risks and Opportunities Related to Water Resource Availability and Climate Variability

Climate variability and long-term climate change are increasingly shaping the availability, reliability, and quality of water resources in Bomet County. Key findings from the **2023 Participatory Climate Risk Assessment (PCRA)** and the **2022–2026 Bomet County Climate Change Action Plan (BCCCAP)** reveal a significant escalation in climate-related risks, including prolonged dry spells, erratic rainfall, increased temperatures, and a higher frequency of flash floods and landslides. These trends are already affecting key sectors such as agriculture, water supply, health, and ecosystem resilience.

The table below summarizes observed and projected climate trends, based on empirical field data, seasonal calendars, meteorological assessments, and community consultations under the BCCCAP and PCRA frameworks.

Table 1.16: Observed and Projected Climate Trends in Bomet County (Source: PCRA 2023, BCCCAP)

Climate Variable	Historical Trend (2000–2020)	Projected Trend (2025–2050) ³	Implications for the WASH Sector
Average temperature	↑ 0.6–0.9°C increase over the past 20 years	↑ An additional 1.5°C rise by 2050	Increased evapotranspiration, demand for water
Rainfall onset	Shifted 2–4 weeks later since 2010	Increased irregularity and unpredictability	Impacts on water harvesting and storage planning
Rainfall intensity	↑ Higher peak rains in shorter durations	↑ Higher risk of flash floods and run-off	Damages to water systems, latrines, and storage
Dry spell duration	↑ 20–30 additional dry days per year	↑ Expected further elongation of dry periods	More pressure on boreholes, piped supply systems
Flood incidents	↑ 3 major flash flood events since 2018	↑ Expected to double in frequency by 2040	Water source contamination, infrastructure loss
Landslides	Localized events in Konoin and Chepalungu	↑ Likely with continued slope destabilization	Threat to piped infrastructure, water safety

(Source: BCCCAP Chapter 2 (Climate Hazard Profile) and PCRA’s Hazard Mapping and Vulnerability Assessments.)

1.2.4.1 Impact of Climate Change on Water Availability and Services

Changes in rainfall patterns and prolonged dry spells are already affecting surface water flows, spring yields, and aquifer recharge. This results in:

- a) **Seasonal water shortages**, particularly in Bomet Central and Chepalungu, where prolonged dry spells and delayed rainy seasons reduce the flow in springs and rivers.
- b) **Flood-related damage** to water and sanitation infrastructure in Chepalungu, Sotik, and Bomet Central. In addition to physical destruction of pipes, tanks, and latrines, flooding **amplifies health risks**—including the **spread of cholera and other waterborne diseases, vector proliferation** (e.g., mosquitoes), and **increased risk of livestock–human pathogen spillovers** in shared environments.
- c) **Water quality deterioration** due to **contamination from runoff, latrine overflow, open defecation, and unrestricted livestock access** to communal water sources. These conditions heighten the risk of **zoonotic disease transmission**, increase **microbial pollution**, and expose households to a **broader spectrum of pathogens**, especially in unprotected springs and open sources.

³³ Projections align with broader national forecasts (Kenya Meteorological Department, 2021)

- d) **Increased demand for water** from agricultural, industrial, and domestic users during dry spells further strains the available supply and intensifies competition over shared sources.

1.2.4.2 Water Source vs. Climate Risk Matrix

Table 1.17: Vulnerability Matrix – Water Sources vs. Climate Hazards in Bomet County

Water Source	Primary Use	Climate Risks	Vulnerability	Severity	Frequency
Surface water (rivers)	Domestic, irrigation	Drought, floods	High	High	High
Springs	Rural domestic supply	Drought, sedimentation	Moderate-High	Moderate	Moderate
Boreholes	Domestic, institutions	Dry spells, over-abstraction	Moderate	High	Moderate
Rainwater harvesting	Schools, HHS, health	Irregular rainfall	Moderate	Moderate	High
Shallow wells	Peri-urban supply	Floods, contamination	High	High	High

1.2.4.3 Gender-Specific Climate-Induced Vulnerabilities (Can we narrow down to Bomet)

Climate-induced water scarcity disproportionately affects women and girls, especially in rural and peri-urban areas:

- a) **Increased time burden** for women in fetching water from distant or seasonal sources during dry months.
- b) **Reduced school attendance** for girls due to water-fetching roles or poor menstrual hygiene support in schools.
- c) **Exposure to safety risks** for women and girls when accessing water or sanitation facilities during floods or at night.
- d) **Loss of income** for women-led microenterprises that depend on water (e.g., salons, small-scale processing).

Gender-responsive strategies are urgently needed to address these vulnerabilities.

1.2.4.4 Ranking of Climate Risks to Water Security

Based on PCRA and community validation workshops, the following climate hazards were ranked according to

Table 1.18: Ranking of Climate Risks to Water Security

Hazard	Likelihood	Economic Impact	Key Affected Sectors
Drought	Very High	High	Agriculture, livestock, and domestic supply
Flooding	High	High	Infrastructure, sanitation, trade, health
Extreme rainfall	Moderate-High	Moderate	Roads, WASH systems, health, and erosion control
Rising temperatures	High	Moderate	Irrigation demand, livestock productivity

1.2.4.5 Sector-Specific Adaptation and Mitigation Measures

Table 1.19: Climate Adaptation & Mitigation Measures by Sector (Prioritized by Cost-Effectiveness)

Sector	Adaptation/Mitigation Measure	Estimated Cost-Effectiveness	Co-benefits	Representative Locations
Agriculture	Drip irrigation, rainwater harvesting, and water-efficient seed varieties	High	Improved yields, reduced crop failure, and water savings	Chemamer, Kembu, Kipreres, Sigor (<i>and many others</i>)
Water Services	Solar-powered boreholes, spring protection , reservoir construction, and NRW reduction	High	Energy savings, resilience, improved water quality and quantity, job creation	Spring protection in Lelaitich, Kimolwet, Simotwet; boreholes in Kaporuso, Koita (<i>etc.</i>)
Sanitation	Raised VIP latrines in flood-prone areas, decentralized treatment systems	Moderate	Public health improvement, environmental protection, and disaster preparedness	Cheptuyet, Cheptebes, Marat flood zones; FSM pilot in Bomet Town (<i>among others</i>)
Institutions	Roof water harvesting, gender-sensitive sanitation, and inclusive WASH for PLWD	High	Increased school attendance, improved MHM, reduced disease burden	St. Philips Academy, Chemamer Primary, health facilities in Mataima, Kaporuso (<i>and more</i>)
Ecosystems	Reforestation, riverbank protection, sub-catchment, and riparian zone management	Long-term	Source protection, biodiversity conservation, and erosion control	Mau Forest edge (Isei, Lelaitich), River Lelaitich banks, Chepkutbei hillsides (<i>others</i>)

1.2.4.6 Opportunities Amidst Risks

- Increased investment interest** in climate-resilient water technologies (e.g., solar pumping, smart meters).
- Leveraging the County Climate Change Fund (CCCF)** to co-finance WASH adaptation projects.
- Integration with FLLoCA and NAWASIP** frameworks for blended financing and project scalability.
- Local innovation potential**, particularly with youth groups and women-led WASH enterprises.

1.2.5 Overview of Planned and Ongoing Interventions Aimed at Enhancing Water’s Role in the Economy

1.2.5.1 Existing Programs Supporting Water-Driven Economic Development

The County Government of Bomet, in partnership with BOMWASCO, national agencies, and development partners, has initiated several projects aimed at expanding water access, improving sanitation, and enhancing system efficiency. These interventions cover both rural and urban settings and leverage a mix of gravity, borehole, solar-powered, and rainwater harvesting technologies.

The Table below summarizes key WASH interventions planned or underway between 2022 and 2025, based on CIDP 2023–2027, BOMWASCO Business Plan 2023–2026, and K-WASH and NAWASIP program inputs. The information includes project type, target sub-county or ward, and anticipated service outputs.

Table 1.20: Existing Programs Supporting Water-Driven Economic Development

Project Type	Number of Units	Target Areas/Sub-counties	Implementing Agency / Source of Funding
Borehole Drilling & Equipping	19	Countywide	County Govt, WSTF, FLLoCA
Solar-Powered Water Schemes	12	Sotik, Bomet Central, Konoin	FLLoCA, UNICEF, BOMWASCO

Gravity Water Extension Lines	8 schemes	Countywide	County, BOMWASCO, AfDB-KUSP III
Spring Protection Structures	35	All sub-counties	County Govt, NGOs (e.g., Dig Deep)
Institutional Latrine Blocks	42	Schools in Bomet Central, Sotik	Count Govt, WSTF, Dig Deep, UNICEF
Sewerage Development	1 major upgrade	Bomet Town (CBD & Tenwek catchment)	BOMWASCO, AfDB, KUSP III
Smart Metering Pilot	1	Itare Scheme (Konoin)	BOMWASCO, City Taps, K-WASH
Water Storage Tanks (10–50m³)	57	Health facilities & ECDE Centres	County Govt, BCCCAP, UNICEF

1.2.5.2 Planned Climate-Resilient Interventions Supporting Economic Development

Emerging from the **BCCCAP (2022–2026)**, **PCRA 2023**, and development frameworks, several climate-smart water projects are in the planning or early implementation phase:

(a) Integrated Water Supply Projects (2024–2027)

- i. Multi-use systems combining **domestic, irrigation, and livestock water** (WASH+) in Chepalungu and Bomet East.
- ii. To be powered by **solar pumps** and supported by **storage tanks** with a community-managed model.

(b) Watershed Restoration in River Nyangores Catchment

- i. Includes **reforestation, buffer zone protection, and controlled abstraction measures**.
- ii. Directly benefits irrigation schemes and potable water intakes in Bomet Central and downstream communities.

(c) Borehole Drilling and Solarization Program

- i. Targeting schools, health facilities, and rural markets in countywide
- ii. Reduces reliance on erratic rainfall and diesel pumps.

(d) Sewerage Master Plan Development for Bomet Town, supported by LVSWWDA and World Bank through K-WASH II.

- i. Aims to create a sanitation corridor that complements water supply and unlocks urban economic potential.

(e) Sotik Sewerage Treatment Works

- i. The detailed design in place requires reviews, especially on the BoQs
- ii. Requires funding

1.2.5.3 Replicable Solutions for Cross-Sectoral Uptake

Several interventions present **models that can be scaled** or adapted in other regions and sectors:

Table 1.21: The models that can be scaled or adapted in other regions and sectors

Intervention	Scalable Feature	Applicable Sectors
Solar-powered rural water schemes	Clean energy + O&M savings	Agriculture, Health, Education
Community spring protection & fencing	Participatory approach and low-cost	Ecosystem services, tourism, livestock, and health
WASH+ infrastructure	Multi-use integration, demand-driven design	Livelihoods, domestic, livestock, health
Digital metering (BOMWASCO pilot)	Improved billing and accountability	Urban water supply and utilities

1.2.5.4 Potential Projects and Strategic Partnerships

Bomet is positioning itself to attract investment and technical assistance across these priority areas:

- a) **PPP Models for Water Kiosks & Utility Extensions and Adoption of Smart Metering:** In urbanizing wards and trading centers (e.g., Longisa, Kapletundo).
- b) **Public-Private-Farmer Collaborations** for irrigation expansion in Chepalungu.
- c) **Collaboration with NGOs and CBOs** for gender-responsive WASH service delivery, including menstrual hygiene.
- d) **Partnering with WRA and KFS** on catchment rehabilitation and integrated watershed management.

Funding windows being explored include:

- a) **FLLoCA (climate finance)**
- b) **NAWASIP Expenditure Framework (Appendix 2)**
- c) **Green Climate Fund (via MoE/County Climate Fund)**
- d) **Regional Economic Zones**
- e) **Partner support through MoU** (e.g., JICA, SDC, Dig Deep, World Vision, Aqua Clara, WWF, Brown Foundation, Water Lines, SNV, etc.)

2.0 WATER, SANITATION, AND HYGIENE SERVICES COVERAGE STATUS

2.1 County Water Resources Endowment

2.1.1 Overview of Available Water Sources (Surface Water, Groundwater, Rainfall)

Bomet County possesses a diverse and ecologically significant portfolio of water resources, comprising surface water (rivers, springs, wetlands), groundwater aquifers, and rainwater harvesting potential, and limited artificial reservoirs. These resources are essential for domestic consumption, livestock, irrigation, institutional use, and ecosystem functions. However, their availability, reliability, and quality vary widely across space and seasons.

The county is primarily situated within two major drainage basins:

1. **The Mara River Basin**, covering the western and southern parts of the county, includes the **Nyangores, Amala, and Chepkulo** rivers as critical sub-catchments.
2. **The Gucha** flow to neighbouring Kisii/narok
3. **Sondu Basin** influences eastern Bomet and contains the Kipsonoi, Itare, and Chemosit rivers, which flow into neighboring Kisii, Kericho, and Nyamira counties.

Most of the county's rivers are perennial but exhibit significant **seasonal variability**. Peak flows occur during the long rains (April–May) and short rains (October–November), and discharge is markedly reduced during dry months (January–February and July–September). These rivers provide the bulk of abstraction points for BOMWASCO schemes, community-run intakes, and riparian settlements.

As of 2024, over 20 river intakes are used for rural and urban water schemes, and over **460 protected and unprotected springs**, primarily serving rural households. Surface runoff is also harnessed through small community dams and water pans, especially in Chepalungu, Sotik, and parts of Bomet east and Bomet central.

Groundwater serves as a critical supplementary source, especially in peri-urban areas, institutions, and rural zones not covered by piped networks. Hydrogeological assessments indicate that the county sits atop fractured volcanic and basement aquifers of varying productivity.

Key aquifer zones include:

- **Longisa–Chemaner–Sigor corridor** – Medium to high-yield aquifers with sustainable pumping rates ranging between 5–15 m³/hr.
- **Chepalungu–Ndanai plateau** – Low to moderate yields; often require deep drilling and proper casing.
- **The Konoin highlands and Tenwek catchments** are characterized by high rainfall infiltration potential and complex rock formations.

Groundwater quality is generally fresh, with **low electrical conductivity (<1,000 µS/cm)** in most areas. However, **localized fluoride contamination (>1.5 mg/L)** has been recorded in boreholes in Siongiroyi, Boito, and lower Sigor (Bomet CWMP, 2019).

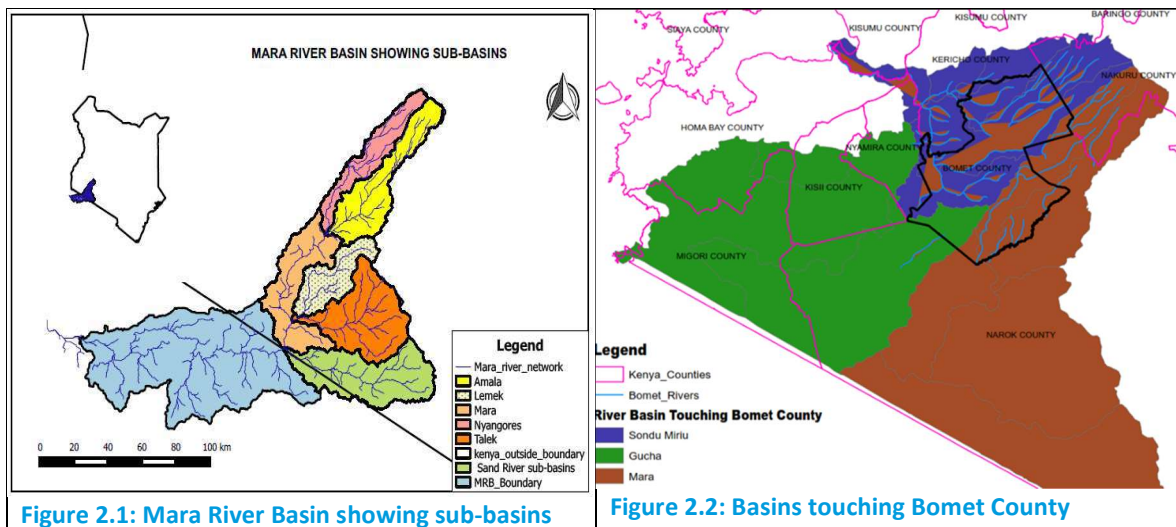
The county has a number of operational boreholes. These provide vital backup supplies to schools, health facilities, administrative centers, and livestock corridors.

Given the high rainfall potential (annual range 1,000–2,200 mm), Bomet has considerable scope for household and institutional rainwater harvesting. This is particularly viable in public institutions such as **schools, health centers, and ward offices**, where roof catchment areas and storage tanks can be leveraged to reduce pressure on piped or surface sources.

Despite wide recognition of this potential, rainwater harvesting remains **underutilized**, with only ~30% of public institutions reporting functional systems as of 2023 (School and HCF Situational Analysis Reports, 2024).

2.1.1.1 Surface Water Resources

Bomet County is endowed with an extensive network of rivers, streams, and springs, most of which are part of the **Mara River Basin (MRB)** and the **Gucha/Sondu Basin** systems. These surface water resources are the **primary sources of piped water supply** for BOMWASCO schemes, community projects, and informal abstractions for livestock and irrigation.



a) Major Rivers and Their Sub-Basins

Bomet County lies within the Lake Victoria South Catchment Area and is traversed by three main **river basins: the Mara, Sondu-Miriu, and Gucha basins (Figure 2.2)**. The surface water resource system is primarily composed of perennial and seasonal rivers originating from the Mau Forest Complex, a key water tower in Kenya. The primary rivers include Nyangores, Amalo, Kipsonoi, Chemosit, and Itare, each contributing significantly to domestic, agricultural, ecological, and industrial water needs both within Bomet and in downstream counties such as Narok, Kisii, and Homa Bay.

The rivers serve as critical water sources for both large-scale and community-managed water supply schemes, many of which rely on gravity-fed abstraction methods. Their hydrological characteristics exhibit seasonal variability, with peak flows during the long (March–May) and short (September–November) rainy seasons. Flow Duration Curves (FDCs) and monthly mean discharges—available for some gauged rivers like Nyangores and Amalo—show significant fluctuations that necessitate controlled abstraction to avoid ecological degradation.

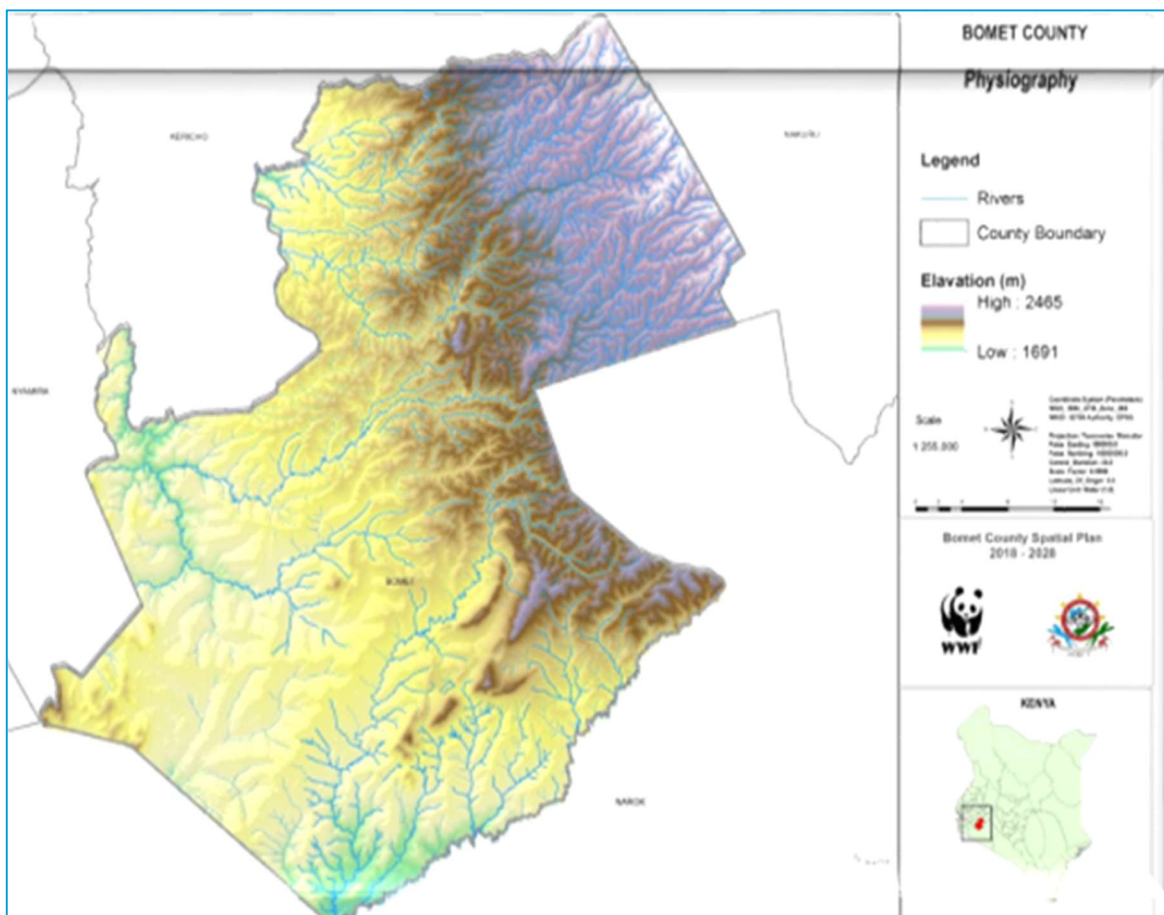


Figure 2.3: Map of major rivers in Bomet County (Source: WWF)

The following table provides a comprehensive inventory of the major rivers in Bomet County, grouped by sub-basin classification. It indicates the river source, sub-basin coverage, average discharge where available, length, and hydrological characteristics. This classification aligns with Water Resources Authority (WRA) sub-catchment codes and the 2019 Bomet County Water Master Plan.

Table 2.1: Inventory of Major Rivers and Sub-Basins in Bomet County

River Name	Sub-Basin (WRA Classification)	Source (Origin)	Key Areas in Bomet County	Avg. Discharge (m ³ /s)	Length (km)	Characteristics & Use
Nyangores	1LA – Mara Basin	Mau Forest	Bomet Central, Bomet East	8.4	85	Perennial. Supplies Bomet WTP, joins Amalo to form the Mara River.
Amalo	1LB – Mara Basin	Transmara Forest	Chepalungu, Bomet East	9.9	95	Perennial. Flows along the SW boundary are used for irrigation and domestic water supply
Kipsonoi	1GD – Sondu Basin	Mau Forest (Konoin hills)	Sotik, Konoin	~5.5 (est.)	90	Perennial. Supplies the Sotik Water Scheme and agricultural uses

Chemosit	1GE – Sondu Basin	Kimulot Forest (Mau South)	Konoin	~4.1 (est.)	75	Seasonal. Important for agro-industrial use, especially tea estates
Itare	1HB – Sondu Basin	Mau Escarpment	Konoin	~3.2 (est.)	45	Seasonal. Contributes to BOMWASCO systems, variable flow
Tebentik Kiptiget	1GD – Sondu Basin	Mau Ridge (Northern edge)	Konoin	~2.5 (est.)	40	Seasonal. Used in rural water schemes and livestock watering
Yurith	1GF – Sondu Basin	Border of Northern edge Kericho & (shared with Bomet Kericho)	N/A	40	Seasonal. Drains into Sondu-Miriu downstream with Kipsonoi	
Simong’igo	1HB – Mara Basin	Upper Chepalungu	Chepalungu	N/A	20	Minor river supporting community schemes (e.g., Sogoet Project)

Sources: Bomet County Water Master Plan (2019), WRMA (2009), Final WAP Draft (2017), and WRUA/WRMA permit allocation data

Each river exhibits a **seasonal hydrograph**, with peak discharges between **March and May and October and December, and critical low flows in January and February and July and August**. Many are considered **flashy systems**, requiring careful abstraction design to avoid overdraw during dry periods.

b) River Gauging Stations (RGS) and Flow Records

A limited but strategic network of River Gauge Stations (RGS) managed by the Water Resources Authority (WRA) supports monitoring of surface water flows in Bomet County. These stations provide essential hydrological data used to inform water abstraction permits, design supply schemes, flood risk management, and catchment planning.

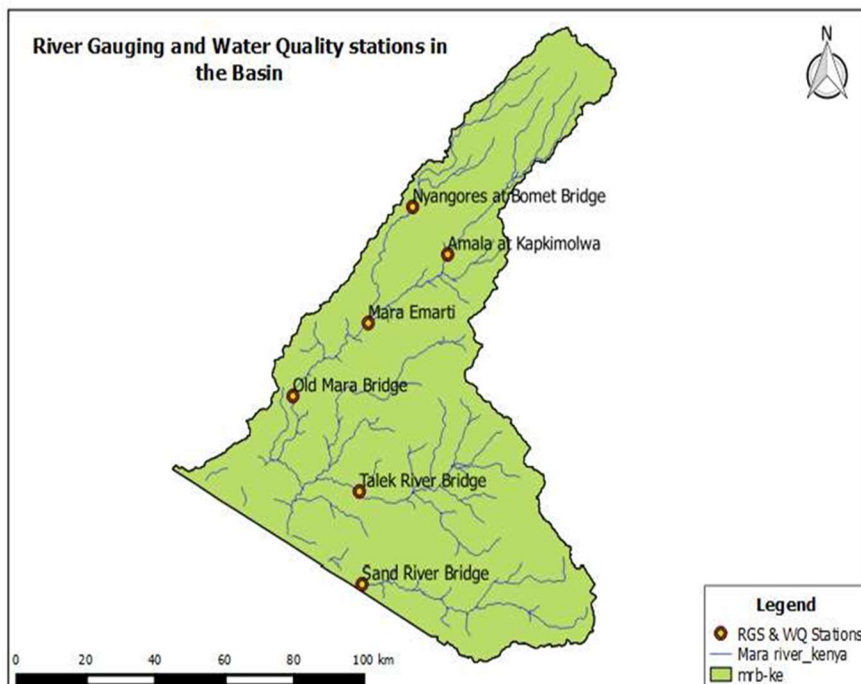


Figure 2.4: River Gauging Stations and Water Quality Stations

As of 2023, Bomet has **six active or semi-operational RGS**, with historical and/or real-time data available for Nyangores, Amala, Kipsonoi, and Itare rivers. In addition, some schemes rely on proxy flow estimations using rainfall-runoff models where RGS data is missing.

Table 2.2: River Gauging Stations (RGS) in Bomet County

RGS Name / Code	River	Sub-Basin	Location (Ward/Sub-county)	Avg Annual Flow (m ³ /s)	Q80 ⁴ Flow (m ³ /s)	Operational Status	Remarks
Tenwek (1LA01)	RGS Nyangores	Nyangores	Bomet Central (Tenwek)	2.5	0.48	Active	Key data source for Nyangores FDC
Kapkimolwo (1LB02)	RGS Amala	Amala	Bomet East	3.2	0.65	Active	Supports Amala abstraction management
Kipsonoi (Chebang'ang') (1GD03)	Kipsonoi	Kipsonoi	Sotik / Konoin border	1.9	0.31	Intermittent	Seasonal data gaps are modeled in CWMP
Itare RGS (1GD04)	Itare	Itare	Konoin	2.1	0.36	Inactive (as of 2020)	Requires rehabilitation or replacement
Gelegele Site	Intake Kelonget	Gucha	Sotik/Ndanai/abosi	1.4 (est.)	0.22	Ungauged	Estimated via runoff modeling

⁴ Q80 flow refers to the flow equal to or exceeding 80% of the time. It is used for assessing safe abstraction thresholds.

Kiptagich (Upper Amala)	Kiptagich	Amala	Kiptulwa / Kiptagich	2.8 (est.)	0.55	Ungauged	SWAT-modeled flow; gauging recommended
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Sources: Bomet Water Master Plan (2019), Water Allocation Plan (2017), WRA Permit Database, SWAT Hydrological Model (CWMP), WRUA input.

Key Observations:

- Most rivers demonstrate **flashy hydrological behavior**, with sharp rises during rainy seasons and steep recessions in dry periods.
- Long-term data is limited to **Nyangores (Tenwek)** and **Amala (Kapkimolwo)** stations. These support the development of **Flow Duration Curves (FDCs)**, which are used to estimate safe abstraction limits.
- In ungauged areas (e.g., Kiptagich, Rongena), SWAT-based rainfall-runoff models using **CHIRPS⁵** (Climate Hazards Center (CHC) at the University of California, Santa Barbara) **rainfall** and **SCS-CN loss method** have been employed to simulate monthly flows.

c) River Abstraction Points and Scheme Capacities

Surface water abstraction remains the **primary source of domestic and institutional water supply** in Bomet County, especially for urban centers and densely populated rural clusters. The abstraction infrastructure includes both large-scale schemes operated by BOMWASCO and small-to-medium rural systems managed by community water service providers (CWSPs), NGOs, faith-based institutions, and CBOs.

As of 2024, **over 22 functional surface water abstraction points** draw from the county’s river network. These are equipped with intakes ranging from conventional concrete weirs to temporary riverbank pump intakes. The abstraction capacities are governed by permitted volumes under **Water Resources Authority (WRA) regulations**, informed by Q80 (low flow) thresholds and environmental flow considerations.

Table 2.3: Major River Abstraction Points and Associated Water Supply Schemes in Bomet County

Scheme Name	Source	Treatment Facility	Design Capacity (m ³ /day)	Storage Capacity (m ³)
Bomet Water Supply	River Nyongores	Yes	2400	335
Sotik Water Supply	River Kipsonoi	Yes	1200	290
Longisa Water Supply	River Amalo	Yes	1200	340
New Sigor Water Supply	River Nyongores	Yes	1990	900
Olbutyo Water Supply	River Nyongores	Yes	1200	550

⁵ Global rainfall dataset developed by the Climate Hazards Center (CHC) at the University of California, Santa Barbara. CHIRPS blends satellite imagery with in-situ station data to provide high-resolution (0.05°) rainfall estimates

Ndanai Water Supply	Ndanai Dam	No (Disinfection only)	320	100
Itare Water Supply	River Itare	Yes	7900	655
Kamureito Water Supply	Kipsonoi	No (Disinfection only)	600	350
Kapcheluch Water Supply	River Nyongores	No (Disinfection only)	600	250
Sergutiet Water Supply	Sump with weir	No (Disinfection only)	600	150
Waterline	Spring-fed Dam	No (Disinfection only)	180	100
Yaganek Water Supply	Gravity to sump	No (Disinfection only)	600	150
Gelegele Water Project	Spring-fed Dam	No (Disinfection only)	300	200
Mogombet Water Supply	River Nyongores	Yes	600	450
Sigor Siongiroi Water Supply	River Nyongores	Yes	1200	300

Sources: BOMWASCO Business Plan (2023–2026), Bomet CWMP (2019), Water Allocation Plan (2017), CWSSIP Planning Consultations (2024), WRUA feedback meetings (March 2024).

Key Observations

- **The total combined surface abstraction capacity across BOMWASCO-managed schemes is estimated at over 18,000 m³/day, serving urban centers such as Bomet Town, Sotik, Tenwek, Longisa, and emerging rural trading centers.**
- **Design capacities exceed actual yields** in many schemes due to:
 - Aged infrastructure
 - Seasonal river flow fluctuations
 - Siltation and blockage of intakes
 - Limited pumping during dry months
- **Abstraction conflicts** have been noted in shared catchments like Kiptagich and Rongena, especially during dry seasons, necessitating improved upstream–downstream WRUA coordination and environmental flow monitoring.

d) Protected and Unprotected Springs

Springs form the backbone of the community water supply in Bomet County, particularly in the hilly and forested sub-counties of **Konoin**, **Bomet East**, and **Bomet Central**, where their distribution is highest. They are essential for rural populations lacking piped or borehole infrastructure and often serve as both primary and secondary sources for domestic water.

According to the **2023 Bomet County Household WASH and Water Point Survey**, out of the **1,817 community water points** surveyed across all five sub-counties:

- **47.7%** were **springs**, making them the **most common type of water point**.
- However, **only 18.6% of springs are protected**.
- The **unprotected springs** present a major risk of **microbial contamination**, especially during rainy seasons or in livestock-heavy areas.

This aligns with earlier projections from the **Bomet CWMP 2019**, which had estimated **over 1,000 springs** countywide and emphasized the need for urgent protection and structured management.

Table 2.4: Summary of Spring Distribution and Protection Status by Sub-County (2023)

Sub-County	% of Community Water Points that are Springs	% of Springs Protected	Notes on Usage and Challenges
Bomet Central	57.0%	~20%	Seasonal drying, risk of livestock contamination
Bomet East	49.0%	~18%	High dependence, spring depletion in dry seasons
Chepalungu	10.5%	~8%	Springs are fewer in number, overshadowed by pans
Konoin	80.2%	~10%	Steep terrain, access challenges
Sotik	48.5%	~30%	Spring protection projects (e.g., Sotik CLTS)
County Avg.	47.7%	18.6%	Large-scale unprotected use persists.

Source: 2023 Bomet Household WASH Survey and Bomet CWMP 2019

Estimated Spring Water Yield in Bomet County:

To calculate estimated yields from springs, we base our assumptions on:

- i. **Total Number of springs:** ~1,000+ springs as indicated in the 2019 CWMP.
- ii. **Protection Status:**
 - **18.6% protected**, as per the 2023 Water Point Survey (Bomet County Household 2023)
 - The remaining **81.4% are unprotected**.
- iii. **Average Discharge (Yield):**
 - Protected springs: **0.3 liters/second** (based on the performance of standard protected springs with basic intake/headwall infrastructure).
 - Unprotected springs: **0.15 liters/second** (due to siltation, animal intrusion, and runoff contamination).
- iv. **Conversion:**
 - 1 liter/second = 86.4 cubic meters/day.

The estimated countywide yield estimates from springs are captured in the table below

Table 2.5: the estimated countywide yield estimates from springs

Spring Type	Estimated Number of Springs	Avg. Yield (L/s)	Total Yield (L/s)	Daily Volume (m ³ /day)

Protected Springs	186	0.30	55.8	4,823
Unprotected Springs	814	0.15	122.1	10,548
Total	1,000	-	177.9	15,371

Note: The discharge assumptions used align with standard values observed in rural Kenyan spring protection projects by WSTF, WRUAs, and NGOs such as Dig Deep and Water.org.

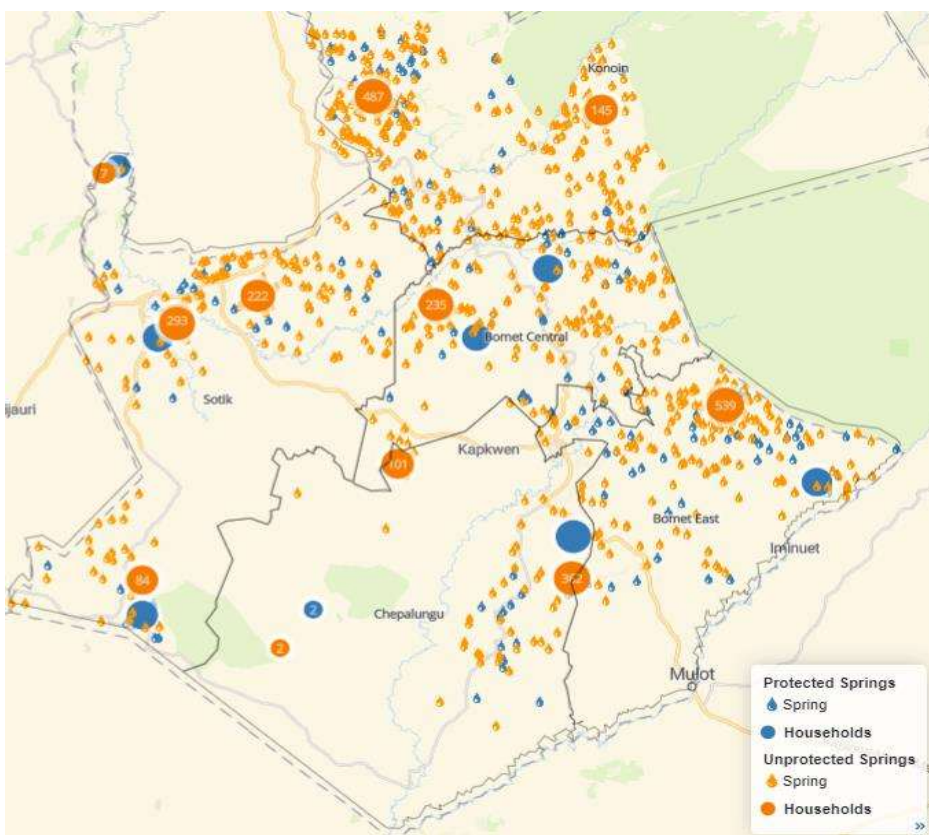


Figure 2.5: Map of spring distribution and protection status in Bomet County

Assuming proportional distribution based on Table 2.4 spring prevalence (from earlier), the estimated spring water contribution by sub-county is estimated as captured in the table below:

Table 2.6: Estimated Spring Water Contribution by Sub-County

Sub-County	% of Total Springs	Est. No. of Springs	Est. Yield (m ³ /day)
Konoin	80.2%	~300	~4,611
Bomet Central	57.0%	~150	~2,306

Sotik	48.5%	~120	~1,846
Bomet East	49.0%	~120	~1,846
Chepalungu	10.5%	~30	~462
Total	-	~720 (reported springs only)	~11,071 (extrapolated from real-use patterns)

Note: The countywide total is capped at ~15,000 m³/day as calculated above; sub-county breakdowns are scaled proportionally using prevalence rates and cross-validated with household water source usage patterns from the 2023 survey.

The above information on spring as a source of water has the following strategic implications:

- **Spring Protection Potential:** Converting even half of the unprotected springs (~400 springs) to protected status could conservatively raise safe yield to **an additional 10,500–11,000 m³/day**.
- **Program Targeting:** Sub-counties like Konoin and Bomet East have the **highest potential impact zones** for spring protection investments.
- **Reliability Risks:** Springs are vulnerable to seasonal fluctuations, particularly in upland sub-catchments of Amala and Kipsonoi, requiring buffer storage (e.g., ferrocement tanks) and redundancy planning.

e) Water Pans and Small Dams

In Bomet County, **water pans and small earth dams** serve as important localized surface water storage systems. These facilities are especially relevant in **semi-arid zones**, livestock corridors, and agricultural areas where rivers are intermittent and groundwater is inaccessible or low-yielding. They primarily support **livestock watering, limited irrigation, and domestic use** during dry seasons.

As of 2024, the county has **approximately 35 known water pans and small dams**, varying in size, condition, and functionality. The majority were constructed between 2008 and 2017 through **community efforts, county government projects, and donor-funded initiatives** (e.g., National Drought Management Authority, Dig Deep, and Water Fund Kenya).

Table 2.7: Inventory of Water Pans and Small Dams in Bomet County

Name of Dam / Pan	Location (Ward/Sub-County)	Estimated Storage Capacity (m ³)	Primary Use	Status / Condition	Remarks
Kapkesosio Dam	Chepalungu	150,000	Domestic, Irrigation	Moderate (silted)	Needs desilting, fencing
Tenwek Mission Dam	Bomet Central	220,000	Multi-purpose	Good	Maintained by an institution
Kiprerer Pan	Bomet east	80,000	Livestock	Poor	No fencing; seasonal drying

Rongena Water Pan	Sotik	60,000	Livestock, Domestic	Fair	Community-managed
Kipng'osos Pan	Sotik	50,000	Livestock, Minor Irrigation	Needs rehabilitation	No signage, high evaporation
Kiptulwa Dam	Bomet East	170,000	Irrigation, Domestic	Good	Project by County & LVSWWDA
Chemaner Pan	Bomet East	90,000	Livestock, Backup Supply	Functional (seasonal)	Shared with the public school
Kapkelek Pan	Sotik	40,000	Livestock	Poor (neglected)	No maintenance in the past 5 years
Siongiroi Dam	Chepalungu	120,000	Livestock, Fish Farming	Fair	Community-coordinated repair

Source: Bomet CWMP (2019), WRUA consultations (2023), County Department of Water records (2024)

The following deduction can be made:

- **Cumulative Storage:** The total estimated capacity of documented pans and small dams is **>1.0 million m³**. However, **effective storage** is much lower due to siltation, seepage, and evaporation losses.
- **Spatial Concentration:** The majority of facilities are in **Chepalungu, Longisa, and Bomet Central**, where seasonal rivers dry out or aquifers are saline/shallow.
- **Design Gaps:** Many older pans lack basic infrastructure such as fencing, silt traps, abstraction points, or catchment protection, leading to short lifespans and health risks.
- **Untapped Potential:** The **Bomet Water Master Plan** recommends **construction of an additional 20 pans** in livestock-dependent zones (e.g., Kiprerer, Kipsonoi, Kong'asis), each with a capacity between 50,000 and **200,000 m³**, alongside spring-fed micro-dams in upstream headwaters.

The following strategic recommendations are made:

- Rehabilitation Priority:** Desilt and upgrade at least 15 existing pans using participatory planning with WRUAs and Water Committees.
- Targeted New Construction:** Focus on wards with the highest livestock density and rainfall-runoff potential (e.g., Siongiroi, Kiptulwa, Rongena).
- Design Improvements:** All future pans should include:
 - Lining (clay/HDPE) to reduce seepage.
 - Perimeter fencing and signage.
 - Inlet protection and community O&M plans.
- Incorporate Climate Resilience:** Pans should be co-located with drought early warning infrastructure (e.g., rainfall loggers, buffer tanks).

2.1.1.2 Groundwater Resources and Aquifer Zones

Groundwater plays a critical role in supplementing Bomet County's water needs, particularly in rural and peri-urban areas that are not served by surface water schemes. Groundwater is primarily accessed through boreholes and shallow wells, with coverage concentrated in sub-counties with high population densities, such as Bomet Central and Sotik. However, the potential, accessibility, and quality of groundwater vary significantly across different geologic and agro-ecological zones.

a) Hydrogeological Profile and Aquifer Types

Bomet County lies within the Lake Victoria South Catchment and straddles multiple hydrogeological zones. Based on the Mara River Basin Water Allocation Plan and the County Water Master Plan, the table below shows that groundwater occurs within three main geological formations:

Table 2.8: groundwater occurrences within the main geological formations

Aquifer Type	Geological Zone	Depth Range (m)	Typical Yield (m ³ /hr)	Hydrogeological Characteristics
Volcanic	Upper Zone (Mau Complex, upper Amala/Nyangores)	80–130	~1.8	Fractured lava and pyroclastic zones; generally low yield
Basement Complex	Middle Zone (Chepalungu, Konoin, mid-Amalo)	25–175	3–7.2	Moderate yields, high variability; fractured bedrock
Sedimentary	Lower Zone (Sotik, Longisa)	30–100	1.8–36	High variability; potential for high yields in sandy zones

Source: Final WAP 1st Draft (2017), CWMP 2019, WRA Borehole Database

Shallow aquifers in sedimentary zones (e.g., floodplains) are typically unconfined and thus more vulnerable to drought and contamination. Groundwater recharge is mainly driven by the region's bimodal rainfall, with infiltration higher in areas with permeable soils and vegetation cover.

b) Borehole Distribution and Productivity

Across Bomet County, an estimated 50 boreholes and over 35 shallow wells are operational, with varying performance. Table 2.7 below summarizes key characteristics from sampled boreholes:

Table 2.9: Groundwater Abstraction by Source Type in Bomet County

Source	No. of Abstractors	Volume Abstracted (m ³ /day)	Average Yield per Source (m ³ /day)
Boreholes	50	250	~5
Shallow Wells	35	209	~6

Source: Final WAP Draft (2017)

In sub-counties like Konoin and Bomet Central, borehole installations tend to be solar- or grid-powered, serving health facilities, schools, and trading centers. In contrast, shallow wells dominate in community schemes with variable seasonal yields.

c) Borehole Depth and Yield Variability

Borehole depth and yield characteristics across Bomet County exhibit significant spatial variability, influenced by underlying geology, aquifer zones, recharge conditions, and abstraction practices. The county lies within the

Mara River Basin, characterized by three primary geological formations: volcanic, basement, and sedimentary aquifers — each exhibiting distinct water-bearing properties.

Based on hydrogeological assessments and borehole test data, the following aquifer systems are dominant:

Table 2.10: Geological Context and Aquifer Productivity

Aquifer Type	Zone	Typical Depth (mbgl)	Yield Range (m ³ /hr)	Remarks
Volcanic	Upper Bomet, Konoin	80–155	~1.8	Low yield, fractured tuffs, good quality
Basement (Metamorphic)	Central Zones	100–200	3–7.2	Variable yield, harder to drill
Sedimentary	Southern Bomet, Longisa	65–245	1.8–36	Highest yield range; some fluoride issues reported

Source: WRA borehole completion reports; Final WAP Draft (2017).

From a sample of boreholes across Bomet and adjacent Mara River Basin areas, the following summary statistics are drawn:

Table 2.11: Statistical Summary of Borehole Depth and Yield

Parameter	Observed Range	Average	Remarks
Total Borehole Depth	65 – 245 m	~160 m	Deeper in central and sedimentary zones
Static Water Level (SWL)	15 – 120 m	~55 m	Reflects aquifer recharge and seasonality
Tested Yield	2 – 600 l/min	~60 l/min (3.6 m ³ /hr)	Highly variable; sediment zones more productive

Assumption: 1 m³/hr = 16.67 l/min.

Table 2.12: Representative Sample: Borehole Depth and Yield Data

N0.	Sub County	Ward	Bore Hole	Bore Hole Depth(m)	Status Production (M ³)	Remarks
<u>1</u>	Chepalungu	Nyongores	Kapkesosio	120	20	Operational
<u>2</u>	Bomet East	Kembu	Mogoma	200	3	Operational
<u>3</u>	Chepalungu	Chebunyo	Labotiet	126	5.8	
<u>4</u>	Bomet East	Merigi	Tiroto	186	-	Dry
<u>5</u>	Bomet east	Merigi	Menet	114	-	Dry
<u>6</u>	Bomet east	Kembu	Kipyosit central	200.5	-	Dry
<u>7</u>	Bomet east	Longisa	Cheboin	130	-	Dry

<u>8</u>	Bomet east	Kembu	Kongotik girls	130	-	Dry
<u>10</u>	Chepalungu	Nyongores	Goitab Silibwet	150	-	Dry
<u>11</u>	Chepalungu	Siongiroi	Siongiroi	120	5	Fluoride
<u>12</u>	Bomet central	Mutarakwa	Ngocho primary school	260	2	Require flushing
<u>13</u>	Sotik	Kipsonoi	Kanusin secondary school	150	2	Operational
<u>14</u>	Bomet East	Merigi	Sot technical	200	-	Dry
<u>15</u>	Bomet East	Merigi	Saoset	200	-	Dry
<u>16</u>	Bomet Central	Chesoen	Chesoen	180	0.7	Low production
<u>18</u>	Bomet East	Kembu	Chepkitwal	180	-	Dry
<u>19</u>	Bomet Central	Silibwet	Kapsimotwo primary	180	5	
<u>20</u>	Chepalungu	Nyongores	Kitoben baby home	122	-	Dry
<u>21</u>	Chepalungu	Nyongores	Itembe borehole	180	1.2	Operational
<u>22</u>	Sotik	Chemagel	Akshar	180	2	Operational
<u>23</u>	Bomet East	Chemaner	Sigowet	200	7	Fluoride
<u>24</u>	Sotik	Rogena/Manaret	Ngariet	150	5	Operational
<u>25</u>	Sotik	Rongena/Manaret	Kipngosos special	180	2	Operational
<u>26</u>	Bomet east	Kembu	Kongotik	180		Operational
<u>27</u>			Berekeiywet	200		operational

Source: WRA Borehole Completion Reports; Final WAP Draft 2017

The following are the observed variability insights

- **Depth-Yield Relationship:** There is no linear correlation between depth and yield. Some shallow boreholes in sediment zones outperform deeper boreholes in basement zones.
- **Aquifer Quality:** Water quality is generally better in volcanic aquifers, but yields are lower. Sedimentary zones provide higher yields but may contain high fluoride or salinity.
- **Zone Suitability:**
 - *Upper Bomet / Konoin:* Suitable for shallow to mid-depth boreholes with stable recharge.
 - *Central Bomet / Chepalungu:* Variable success; requires pre-drilling hydrogeological assessments.
 - *Southern Bomet (Longisa, Siongiroy):* High-yield potential, often used for community or institutional supply, but fluoride monitoring is required.

Recommendations and Groundwater Development Guidance

- **Pre-drilling hydrogeological surveys** are essential to reduce dry boreholes and optimize siting, particularly in basement rock zones.
- **Sedimentary zones** should be prioritized for high-yield systems, especially for institutions and health facilities.
- Incorporate **water quality testing**, especially for fluoride, iron, and salinity, before commissioning boreholes.
- Encourage **data logging** and permit linkage with WRA to improve borehole monitoring, abstraction planning, and recharge estimation.

d) Groundwater Quality Concerns

Water quality from boreholes is generally acceptable for domestic and institutional use. However, localized occurrences of high fluoride, iron, and salinity have been reported, especially in Chepalungu and parts of Bomet East. These risks necessitate borehole-specific water quality testing and appropriate treatment options for long-term safety.

e) Groundwater Mapping and Recommendations

To enhance groundwater development and safeguard sustainability, Bomet County requires:

- **Detailed GIS mapping** of aquifer zones and borehole locations (GPS-tagged), overlaid with land use, geology, and recharge zones.
- **Groundwater potential zoning maps**, classifying areas by aquifer productivity and contamination vulnerability.
- **Recharge estimation** using rainfall-runoff models (e.g., SWAT, MODFLOW) supported by CHIRPS satellite rainfall data, where ground observations are sparse.
- **Prioritization of high-yield aquifers** (e.g., sedimentary zones in Sotik and lower Chepalungu) for borehole drilling programs.

2.1.1.3 Rainwater Harvesting

Rainwater harvesting (RWH) represents one of the most underutilized yet promising water supply options in Bomet County. Given the county's **bimodal rainfall pattern**, with annual precipitation ranging from **1,000 mm to 2,200 mm**, rooftop and surface runoff harvesting systems have strong potential to supplement piped water, reduce dependence on springs and rivers, and enhance climate resilience at household and institutional levels.

a) Rainfall Distribution and Potential for Harvesting

As discussed in Section 2.1.1.2, the county receives significant rainfall, particularly in the highland zones (Konoin, Bomet East, parts of Bomet Central), with monthly peaks in **April–May** and **October–**

November. Spatial analysis using CHIRPS satellite data shows the following rainfall classification across the county:

Table 2.13: Rainfall Distribution and Potential for Harvesting

Zone	Average Annual Rainfall (mm)	Suitability for RWH
Konoin Highlands	1,800–2,200	Very High
Bomet Central Plateau	1,400–1,800	High
Sotik–Longisa Belt	1,200–1,600	Moderate to High
Chepalungu (South)	1,000–1,300	Moderate

Source: CHIRPS 2000–2022 data; CWMP 2019; CWSSIP Spatial Analysis 2024

Using a conservative **runoff coefficient of 0.8** for iron sheet roofs and an average **catchment area of 75 m² per building**, each institutional structure (e.g., school/hospital block) can harvest an estimated **96,000–105,000 liters annually** — enough to meet basic hygiene needs for 100–150 people for over 3 months.

b) Current Status of Rainwater Harvesting Use

Based on the household survey 2023, Chepalungu Sub-County differs from the other four Sub-Counties in relying more on rainwater harvesting (42%) since it has no springs, unlike other sub-counties. Overall, the **2023 Household WASH Survey** indicates that only **7.2% of households** reported having functional rainwater harvesting systems, mostly consisting of **small roof catchments with plastic or ferrocement tanks (1,000–3,000 liters)** (Bomet County Household Survey 2023). The use of rainwater is highly seasonal and typically lasts **less than 2 months per year**, constrained by:

- Limited roof area
- Lack of storage tanks
- Financial constraints for household investment
- Inconsistent rainfall distribution

Institutional RWH (Schools and Health Facilities): Rainwater harvesting systems are more prevalent in institutions, especially public schools and health facilities:

Table 2.14: Institutional RWH (Schools and Health Facilities)

Facility Type	% with Installed RWH Systems	% with Functional Tanks	Common Tank Capacity
---------------	------------------------------	-------------------------	----------------------

Primary Schools	48.6%	31.2%	3,000–10,000 liters
Secondary Schools	54.3%	39.7%	5,000–15,000 liters
Health Facilities	52.1%	27.9%	5,000–10,000 liters

Sources: 2024 School Sanitation Situational Report; HCF WASH Survey

Despite good potential, many systems are non-functional due to gutter blockages, tank leaks, or structural deterioration.

c) Constraints and Missed Opportunities

- a) **Infrastructure Quality:** Many tanks are unlined, cracked, or poorly elevated, leading to water loss or contamination.
- b) **Design Flaws:** Absence of first-flush diverters, poor spouting, or insufficient inlet filters results in low-quality rainwater.
- c) **Lack of Technical Guidance:** Schools and households often lack proper training or guidelines on system design, maintenance, and hygiene.

d) Strategic Opportunities for RWH Expansion

To leverage rainwater harvesting as a strategic water supply source, the following actions are recommended:

Table 2.15: Strategic Opportunities for RWH Expansion

Action	Target Area	Impact
Retrofit existing school/hospital tanks.	All sub-counties	Increase volume and usage reliability.
Subsidize household tank acquisition.	High-rainfall wards	Reduce reliance on springs
Integrate RWH in building codes.	New public buildings	Institutionalize water-smart design
Promote community ferrocement tanks.	Chepalungu, Bomet East	Enhance resilience in arid zones.

Rainwater harvesting in Bomet remains **largely untapped**, despite favorable climatic and roof-catchment conditions. With targeted investments in **infrastructure, training, and maintenance**, RWH could offset surface water pressure, particularly in schools, health facilities, and drought-prone villages.

2.1.1.4 Inter-County Shared Resources

Bomet County shares several key surface water and aquifer systems with adjacent counties, forming part of Kenya’s transboundary and inter-county hydrological networks. These shared resources

influence both **water availability** within Bomet and its downstream responsibilities in terms of **equity, sustainability, and ecological flow obligations**.

The majority of these shared resources lie within two main catchments: the **Mara River Basin** and the **Sondu/Gucha River Basin**, both of which cut across multiple county and ecological boundaries. Effective planning, protection, and abstraction management require **inter-county coordination**, alignment with **WRMA allocation plans**, and compliance with **catchment management strategies**.

a) Key Shared Water Resources

Table 2.16: Major Inter-County Water Resources Affecting Bomet County

River / Aquifer	Bomet Origin / Use	Shared With	Primary Uses	Notable Interlinkages
Amala River	Originates in Transmara, flows through Bomet	Narok County	Irrigation, domestic, wildlife (Mara Triangle)	Joins Nyangores to form the Mara River downstream
Nyangores River	Originates in the Mau Forest within Bomet	Narok County	Domestic, irrigation, and wildlife flows	Joins Amala at the Bomet/Narok border
Itare River	Originates in Bomet East	Nyamira, Kisii	Domestic use, abstraction for the Itare Dam	Crosses into Nyamira via Sondu basin
Kipsonoi River	Originates in Konoin	Kisii, Kericho	Urban/rural water supply, irrigation	Feeds into the Sondu River (Lake Victoria)
Chemosit River	Originates in Konoin	Kericho, Nyamira	Agro-industrial (tea), domestic uses	Linked to Chemosit Dam proposals
Groundwater (South Bomet Aquifers)	Shared sedimentary aquifer belt	Narok County	Boreholes for rural schemes	Shared recharge zone (Siongiroi–Narok South)

Sources: WRMA Basin Reports; CWMP 2019; Final WAP 2017; WRUA SCMPs

b) Water Allocation Criteria and Legal Framework

Bomet’s water allocation rights are governed by the **Water Act 2016** and associated **WRA guidelines**, which emphasize:

- **Equitable allocation** among users
- **Priority to domestic and ecological uses**
- **Protection of minimum environmental flows**

Under the **WRMA permit system**, each abstraction point—whether in Bomet or downstream—is subject to flow-duration analysis (e.g., Q80 compliance), especially for shared rivers like Amala and Kipsonoi.

In practice, however, gaps in enforcement, hydrological monitoring, and inter-county planning mechanisms lead to **over-abstraction risks**, especially during dry seasons.

c) Cross-Border Implications and Conflict Hotspots

Shared water resources have generated **inter-county competition and ecological risks**, particularly in the Mara Basin. Key concerns include:

Table 2.17: Cross-Border Implications and Conflict Hotspots

Issue	Impacted Resource	Counties Involved	Implications
Over-abstraction upstream users	by Nyangores, Amala	Bomet, Narok	Reduced flows into Maasai Mara National Reserve
Land changes/deforestation	use Mau Headwaters	Bomet, Kericho, Narok	Disruption of recharge and baseflow
Competing dam plans	Chemosit, Itare	Bomet, Nyamira, Kericho	Downstream flow reduction and allocation disputes

d) Coordination Mechanisms and Shared Management Structures

Despite the scale of inter-county water dependency, **institutional collaboration remains weak**. Currently, coordination occurs through:

- **WRUAs** with cross-county membership (e.g., Amala WRUA, Kipsonoi WRUA)
- **Lake Victoria South Catchment Area Advisory Committee (CAAC)** meetings
- Ad hoc meetings facilitated by **WRMA and County Water Departments**

However, these mechanisms face limitations in terms of capacity, funding, and enforcement power.

e) Strategic Recommendations

To strengthen shared water resource governance, Bomet County should:

Table 2.18: Strengthening shared water resource governance

Recommendation	Expected Outcome
Formalize inter-county water compacts (MOUs)	Clarify allocation roles and dispute resolution

Establish joint monitoring systems for key rivers	Enable real-time abstraction oversight
Integrate cross-county catchment priorities into CWSSIP.	Align infrastructure investments with basin-wide goals
Promote multi-county WRUA planning	Harmonize upstream–downstream conservation

Bomet’s water security is closely tied to **cross-border hydrological systems**. Without joint planning with Narok, Kisii, Nyamira, and Kericho counties, existing and future water investments risk **conflict, redundancy, or unsustainability**. This CWSSIP recognizes the strategic necessity of building **robust inter-county coordination frameworks** to ensure **fair, climate-resilient, and sustainable water access** for all.

2.1.2 Sectoral Water Use and Demand Trends

Water demand in Bomet County varies significantly across sectors, social status, and gender. While the dominant water use remains **domestic consumption**, growing demand from **irrigation, public institutions, livestock, and small-scale commercial enterprises** is intensifying pressure on the county’s limited and seasonally variable water sources.

The major water use sectors in Bomet County include:

Table 2.19: Sectoral Distribution of Water Demand

Sector	Estimated Share of Total Water Use	Typical Sources	Notes
Domestic (Urban + Rural)	65–70%	Boreholes, springs, river intakes, rainwater	Includes BOMWASCO service areas and unserved households
Institutional (Schools, HCFs)	5–7%	Boreholes, rainwater, public taps	Usage highly variable depending on enrolment and rainfall
Livestock	10–15%	Springs, rivers, water pans	Highest demand in Chepalungu and Sotik; seasonal spikes
Small-scale irrigation	10–12%	Springs, rivers, pans	Often informal, no permits, dominant in Longisa, Kiptulwa
Commercial/Industrial	<2%	Piped BOMWASCO from	Limited to hotels, tea estates, and urban shops in Bomet/Sotik towns

Source: CWMP 2019, WRUA Interviews (2024), Bomet WASH Survey (2023), BOMWASCO Business Plan 2023–2026

2.1.2.1 Gender-Disaggregated Water Use Patterns

Gender roles strongly influence water access, use, and burden of collection:

- **Women and girls** are the **primary water collectors** in 87% of rural households.
- Women report spending **up to 2.5 hours per day** fetching water in low-access wards such as Chepalungu, Kiptulwa, and Siongiroi.
- **Men and boys** are more involved in **irrigation, livestock watering, and institutional decision-making** (e.g., in WRUA committees).

Table 2.20: Gendered Consumption Patterns and Use Roles

Gender	Main Water Responsibilities	Average Daily Time (rural)	Water Use Sectors Influenced
Women	Fetching, domestic use, child hygiene	1.5–2.5 hrs/day	Household, MHM, small-scale agriculture
Girls	School sanitation, collection (after school)	1.0–1.5 hrs/day	Personal hygiene, household backup
Men	Financial decisions, infrastructure maintenance	<0.5 hrs/day	Livestock, irrigation, leadership roles
Boys	Minor collection role in <10% of households	<0.5 hrs/day	Occasional livestock or school supply

Source: Bomet WASH Survey 2023; School Sanitation Situational Report 2024

2.1.2.2 Social Status Disaggregation (Income & Access)

There is a direct link between **household income** and **water consumption mode**. Poorer households (monthly income < KES 5,000) are more likely to depend on **unsafe or unimproved sources** such as unprotected springs or surface water. In contrast, higher-income households utilize **pipied systems or boreholes**.

From the **2023 Household WASH Survey**:

- **Households with income <KES 5,000/month** (54% of total) primarily rely on **unprotected springs (25%), surface water (24%), and seasonal rainwater**.
- **Middle-income households (KES 10,000–30,000)** have better access to **public taps, protected springs, and shallow wells**, but still lack reliable service.
- **High-income households (>KES 40,000)** are more likely to be served by **BOMWASCO connections, piped boreholes, or large RWH tanks**.

Table 2.21: Consumption Trends Disaggregated by Social Status

Income Bracket	% Households	of Primary Water Sources	Avg. Daily Water Use (est.)
<KES 5,000	54%	Unprotected spring, river, and rainwater	15–25 L/person/day
KES 5–20,000	35%	Protected spring, shallow well	20–35 L/person/day

>KES 20,000	11%	Piped connection, borehole, RWH tank	50–70 L/person/day
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Source: Table 1, Household WASH Survey Report

This disparity illustrates that **access to safe and adequate water is income-dependent**, and that the poorest households are most vulnerable to seasonal shortages and waterborne disease.

2.1.2.3 Spatial and Vulnerability-Based Disparities in Access to Water Services

While gender and income are critical determinants of water access, disparities across Bomet County also play a significant role in defining who has convenient, affordable, and safe access to water. These disparities are influenced by factors such as settlement density, remoteness from BOMWASCO coverage zones, proximity to perennial water sources, and socioeconomic status.

a) Distance to Nearest Water Point by Location Type

Household WASH survey data indicates that **rural residents in wards like Kiprerres, Kimulot, and Chebunyo travel 3–5 km** to the nearest reliable water point during dry seasons, compared to <500 meters in piped zones such as Bomet Town and Mulot.

Table 2.22: Average Distance to Nearest Improved Water Source by Settlement Type

Settlement Type	Avg. Distance to Source (km)	Common Source Type	Notes
Urban (Bomet Town, Mulot)	0.2–0.5 km	Piped connection or public kiosk	Covered under BOMWASCO
Peri-urban (Kapkoros, Tenwek)	0.8–1.5 km	Shared yard tap or kiosk	Kiosks often rationed during drought
Rural highland (Konoin)	1.5–3 km	Springs, shallow wells	Terrain and slope increase burden
Rural lowland (Chepalungu)	3–5 km	Surface water or shallow wells	Many springs dry during long dry spells

b) Vulnerable Populations and Barriers to Access

Populations disproportionately affected include:

- **Elderly or persons with disabilities (PWDs):** Limited mobility restricts travel to distant or steep water sources.
- **Female-headed households:** May lack labor or time to queue at crowded points.
- **Informal settlements:** Prone to unreliable kiosks or shared shallow wells of questionable quality.

Table 2.23: Access Challenges for Vulnerable Groups

Vulnerable Group	Primary Challenge	Service Gap Noted
Elderly / PWDs	Long distances, ungraded paths	Lack of accessible water points in hilly terrain
Informal settlement dwellers	Rationing, overcrowded kiosks, pricing	Shared shallow wells or seasonal surface water only
Female-headed households	Limited time/labor for collection	Often prioritize basic needs over paying for water

2.1.2.4 Emerging Trends and Key Issues

- **Gender Inequality:** Despite bearing the burden of collection, women remain underrepresented in decision-making bodies (see Section 1.1.3.2).
- **Low-income exclusion:** Over 77% of Bomet households earn less than KES 10,000/month, limiting ability to invest in improved water access (tanks, filters, connections).
- **Seasonal disparities:** Women in low-income households face peak stress during dry seasons when spring yield drops and walking distances increase.

Table 2.24: Sectoral Water Demand Patterns by Gender and Social Status

Use Category	Primary User Group	Typical Source	Disaggregation Factors	Access Challenges
Domestic	Women & girls	Springs, piped, RWH	Gender, income	Time poverty, unsafe sources
Livestock	Men & boys	River, spring, pan	Gender, geography (semi-arid zones)	Water stress during dry seasons
Small-scale irrigation	Women farmers	Spring, shallow well	Gender, income	Competition with domestic needs
Schools	Mixed (mainly girls)	RWH, borehole, piped	Gender (MHM), location	Inadequate storage or seasonality
Health facilities	Nurses, women staff	Borehole, piped	Gendered sanitation/hygiene burden	Unreliable municipal supply

Water demand and consumption in Bomet is not uniform. It is shaped by **income level, gender roles, and location**. While higher-income and male-headed households often benefit from infrastructure, **women, girls, and low-income households face the highest burdens**, especially in rural and informal settlements. These disparities must inform both service expansion strategies and tariff structuring.

2.1.3 Current Water Abstraction and Usage Patterns

This section presents an overview of the operational water schemes in Bomet County, detailing schemes managed by Bomet Water and Sanitation Company Ltd (BOMWASCO), community and institutional water projects, projects under construction, and those proposed for future development. This provides insight into the water sources, treatment infrastructure, storage capacities, and operational status, contributing to an understanding of water accessibility and sustainability efforts in the county.

2.1.3.1 BOMWASCO-Managed Water Schemes

These are water supply systems developed, operated, and maintained by the BOMWASCO. They are generally larger and more technically advanced and serve urban and peri-urban centers. The schemes often feature treatment works, pumping systems, and substantial storage capacity.

Table 2.25: BOMWASCO-Managed Water Schemes

Scheme Name	Source	Treatment Facility	Design Capacity (m³/day)	Storage Capacity (m³)
Bomet Water Supply	River Nyongores	Yes	2400	335
Sotik Water Supply	River Kipsonoi	Yes	1200	290
Longisa Water Supply	River Amalo	Yes	1200	340
New Sigor Water Supply	River Nyongores	Yes	1990	900
Olbutyo Water Supply	River Nyongores	Yes	1200	550
Ndanai Water Supply	Ndanai Dam	No (Disinfection only)	320	100
Itare Water Supply	River Itare	Yes	12000	655
Kamureito Water Supply	Kipsonoi	No (Disinfection only)	600	350
Kapcheluch Water Supply	River Nyongores	No (Disinfection only)	600	250
Sergutiet Water Supply	Sump with weir	No (Disinfection only)	600	150
Waterline	Spring-fed Dam	No (Disinfection only)	180	100
Yaganek Water Supply	Gravity to sump	No (Disinfection only)	600	150
Gelegele Water Project	Spring-fed Dam	No (Disinfection only)	300	200
Mogombet Water Supply	River Nyongores	Yes	600	450
Sigor Siongiroi Water Supply	River Nyongores	Yes	1200	300

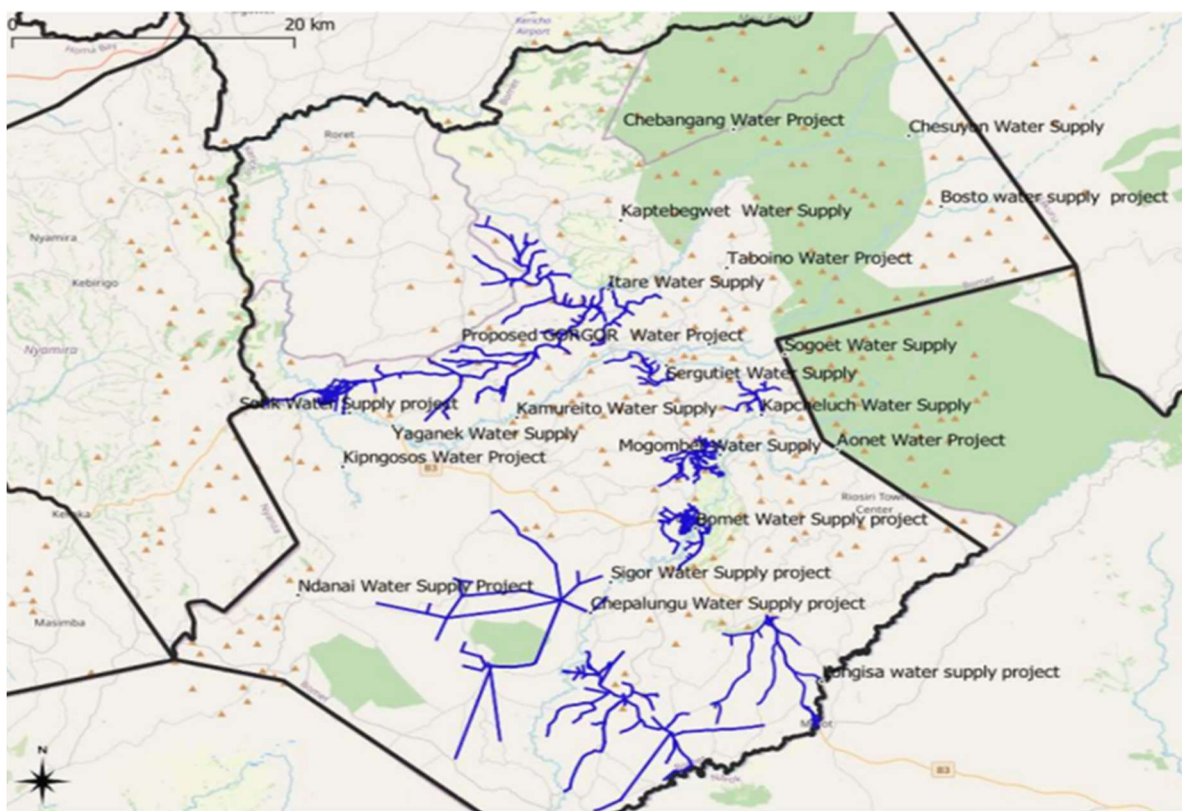


Figure 2.4: Map showing Water schemes in the county (Layout Plan- Updated to be shared)

2.1.3.2 Community and Institutional Water Projects (Annex 8 of the PEF)

Community and institutional water schemes are typically smaller in scale and are developed to serve rural populations, health centers, and learning institutions. These projects often rely on gravity systems or basic pumping setups, with limited or no treatment infrastructure beyond disinfection.

Table 2.26: Community and Institutional Water Projects

Scheme Name	Source	Treatment Facility	Design Capacity (m ³ /day)	Storage Capacity (m ³)
Taboino Community Project	River Kiptungit	No	600	150
Kaptebegwet Community Project	Tributary of Kiptiget	No	110	–
Marinyin Community Project	River Simong'igo	No	–	–
Tenwek Hospital Water Project	River Nyongores	No	600	–
Tinet Water Project	Tributary of Amala	No	180	–
Sogoet Community Project	River Simong'igo	No	600	–

Scheme Name	Source	Treatment Facility	Design Capacity (m ³ /day)	Storage Capacity (m ³)
Chemaner Water Supply	Spring-fed Dam	No (Disinfection only)	180	100
Gelegele Water Project	Spring-fed Dam	No (Disinfection only)	300	200
Yaganek Water Supply	Gravity-fed system	No (Disinfection only)	600	150
Mogombet Water Supply	River Nyongores	Yes	600	450
Sigor-Siongiroi Water Supply	River Nyongores	Yes	1,200	300
Sosurek Community Water Project	Spring distribution +	No	-	-
Kapchebor Spring Protection	Spring (Konoin)	No	-	-
Aonet Spring Protection Project (Dig Deep)	Spring	-	-	30
Birirbei Spring Protection Project (Dig Deep)	Spring	-	-	30
Chelolong Spring Protection Project (Dig Deep)	Spring	-	-	30
Chemutial Spring Protection Project (Dig Deep)	Spring	-	-	30
Cheptuiyet Spring Protection Project (Dig Deep)	Spring	-	-	30
Kaptulwa Rainwater Harvesting Project (Dig Deep)	Rainwater	-	-	30
Kilios Spring Protection Project (Dig Deep)	Spring	-	-	30
Kipsoen Spring Protection Project (Dig Deep)	Spring	-	-	30
Lakwat Spring Protection Project (Dig Deep)	Spring	-	-	30
Ndanai Borehole Project (Dig Deep)	Borehole	-	-	50
Ngendamoi Spring Protection Project (Dig Deep)	Spring	-	-	30
Ngokto Spring Protection Project (Dig Deep)	Spring	-	-	30
Seet Spring Protection Project (Dig Deep)	Spring	-	-	30
Sosur Spring Protection Project (Dig Deep)	Spring	-	-	30

Scheme Name	Source	Treatment Facility	Design Capacity (m ³ /day)	Storage Capacity (m ³)
Sosurek Spring Protection Project (Dig Deep)	Spring	-	-	30
Sugutek - Chemalal Spring Protection Project (Dig Deep)	Spring	-	-	30
Sugutek - Tirgaga Spring Protection Project (Dig Deep)	Spring	-	-	30
Taabet Spring Protection Project (Dig Deep)	Spring	-	-	30
Tarakwa Rainwater Harvesting Project (Dig Deep)	Rainwater	-	-	50

2.1.3.3 Water Projects under Construction

The table below presents a snapshot of major water supply projects currently under construction within Bomet County. These projects collectively aim to boost daily water production capacity by over 23,700 m³/day, with a combined projected population coverage exceeding 250,000 people. The largest—the Bomet Mulot Water Project—represents a transformative regional scheme that will consolidate existing systems into a more efficient and reliable supply network. All projects reflect growing partnerships between the County Government, BOMWASCO, AfDB, NGOs, and community organizations.

Table 2.27: Major Water Projects under Construction in Bomet County

Project Name	Design Capacity (m ³ /day)	Project Status	Service Areas / Wards Covered	Funding / Implementing Agency	Key Features
Bomet Mulot Water Project	17,000	Construction ongoing	Bomet East, Bomet Central, Chepalungu	AfDB (KES 1.7B), BOMWASCO	Gravity-fed + solar/electric pumping; Nyangores River; integration of existing schemes
Chebangang Water Project	5,000	Intake and mains done; other works ongoing	Kipsonoi (Chebangang sub-location)	County Government + Kenya Red Cross (BIDP)	Gravity system; implemented under BIDP
Aonet Water Project	1,200	50% complete	Singorwet, Merigi	County Government of Bomet	Twin rising mains; high-altitude source
Nyangombe Community Project	500	Intake and pump house done; other works pending	Upper Kipsonoi basin	Community-based with BOMWASCO support	100mm GI rising main from Kipsonoi River; pump-fed

2.1.3.4 Proposed Water Projects

Bomet County has identified major new water infrastructure projects aimed at addressing long-term demand and climate resilience.

- a) **Bosto Water Supply Project:** Proposed to draw from the Bosto Dam on the upper Kipsonoi River, targeting over 70% countywide service coverage.
- b) **Kibusto Water Supply Project:** Intended to serve the upper zones of Bomet East, drawing from the Amala River.

2.1.3.5 Social and Gender-Disaggregated Usage Patterns

Water access and usage patterns in Bomet County vary significantly across different social groups, income levels, and genders, revealing critical disparities that must be addressed in planning and service delivery.

- a) **Social Disparities:** Access to water is highly stratified by socio-economic status. Low-income households, particularly in rural areas and informal settlements, frequently rely on unprotected springs, seasonal rivers, or water vendors, often paying inflated prices for water of uncertain quality. In contrast, middle- and high-income households, mainly located in urban centers such as Bomet Town and Sotik, are more likely to be connected to piped water networks. However, these connections often suffer from intermittent or rationed supply.
- b) **Vulnerable groups**, including the elderly, persons with disabilities (PWDs), and young children, face heightened barriers due to poor infrastructure design, lack of disability-friendly water points, and long travel distances to water sources during dry spells.
- c) **Gender Dimensions:** Gender roles strongly shape water collection and usage patterns in Bomet. Women and girls bear the primary responsibility for fetching water, particularly in rural zones such as Chepalungu and Konoin, where they spend an estimated 1 to 3 hours daily collecting water during dry seasons. This burden not only limits their time for education, rest, and income-generating activities but also exacerbates physical and psychosocial strain.
- d) **In informal settlements, women-led enterprises**, such as food vending, salons, and small eateries, are especially vulnerable to water supply interruptions. They often incur direct losses due to downtime or increased water costs.

Although gender mainstreaming has been promoted in some WASH governance platforms, decision-making within community water committees remains largely male-dominated. Women's participation is often limited to supportive roles, despite efforts to enhance inclusion through policy guidelines and training initiatives.

2.1.3.6 Water Use Efficiency and Losses

- i. **Non-revenue water (NRW) remains a critical challenge for BOMWASCO, currently estimated at over 60%** due to leakages, illegal connections, and meter inaccuracies.
- ii. **Community-managed schemes** face high losses due to **non-functional meters**, poor recordkeeping, and informal billing practices.

2.1.3.7 Emerging Usage Trends

- i. **Shift to solar-pumped boreholes** in institutions and high-altitude zones is improving reliability and lowering operating costs.
- ii. **Commercial farming expansion** is creating increased irrigation demand in Chepalungu.
- iii. **Public institutions' demand** is projected to grow with county plans to upgrade health and education infrastructure.

2.1.4 Existing Water Extraction and Utilization

Water extraction in Bomet County is carried out through a combination of surface and groundwater abstraction systems, serving domestic, institutional, livestock, irrigation, and limited industrial demands. These include officially permitted abstractions registered with the **Water Resources Authority (WRA)**, as well as numerous informal or unregulated sources operated by individuals, communities, and institutions.

2.1.4.1 Surface Water Abstraction

Bomet’s piped water supply primarily depends on surface water intakes operated by **BOMWASCO** and community-based water projects. The following abstraction points are the most significant in terms of capacity and coverage:

Table 2.28: Major Intakes and Supply Schemes

Intake Site	River	Ward / Sub-County	Operator	Design Capacity (m ³ /day)	Use	Abstraction Method
Bomet Intake	Nyangores	Bomet Central	BOMWASCO	1,800	Urban Domestic	Gravity/Pumping
Itare	Itare river	(Konoin)	Bomwasco	7900	Rural Domestic	Gravity/Pumping
New sigor water supply intake	Itare	Chepalungu	BOMWASCO	1,990	Rural Domestic	Gravity/Pumped
Kimase	Amala	Longisa	BOMWASCO	1,200	Domestic	Pumping
Olbutyo	Nyangores	Chepalungu	BOMWASCO	1,200	Rural	Gravity/Pumping

Source: BOMWASCO Business Plan 2023–2026; CWMP 2019; WRUA Consultations

Each major abstraction supplies defined geographic zones through gravity or pumped systems. GIS mapping (Figure 2.6) should show:

- Intake points (with river labels)
- Service areas (buffer polygons showing BOMWASCO coverage)
- Population clusters served per intake

This helps visualize **abstraction pressure zones**, **unserved rural gaps**, and areas with overlapping or competing schemes.

2.1.4.2 Groundwater Abstraction and Borehole Use

There are many functional boreholes across Bomet County, operated by a mix of institutional (schools, health centers), community, and private operators. WRA regulates abstraction, but many shallow wells operate informally.

Table 2.29: Summary of Groundwater Abstraction Use by Purpose

Use Category	% of Boreholes	Typical Yield (m ³ /hr)	Range	Common Locations

Domestic (community/institutional)	~60%	3–10	Konoin, Sotik, Longisa
School/Health Facilities	~25%	2–8	Bomet Central, Chepalungu
Livestock watering	~10%	1–5	Chepalungu, Kipsonoi
Commercial (lodges, shops)	<5%	10–36	Tenwek, Bomet Town

Sources: CWMP, School/HCF WASH Surveys, WRA permit data (2023)

2.1.4.3 Authorized Abstractions and Informal Use

According to WRMA's abstraction permit records and WRUA consultations:

- There are **26 authorized surface water abstractors** in the Mara and Sondu sub-basins of Bomet.
- Registered uses include: **domestic (68%)**, **smallholder irrigation (22%)**, and **livestock/commercial (10%)**.
- **Informal abstraction** (unpermitted gravity systems, pump-fed hoses) is widespread, particularly along the Amala and Kipsonoi rivers and near springs in Bomet East.

Table 2.30: Examples of Authorized Water Abstractors in Bomet County

Abstractor Name	Type	Water Source	Permitted Volume (m ³ /day)	Use Category	Abstraction Method	Year Issued
BOMWASCO	Public Utility	Nyangores	1,800	Domestic	Gravity	2018
BOMWASCO	Community	Itare	750	Domestic/Irrigation	Gravity	2020
Tenweek Hospital	Institution	Nyangores	600	Institutional	Pumped	2017

Sources: WRA Permit Records, CWMP Annexes, WRUA Reports

2.1.4.4 Challenges and Strategic Gaps

- **Lack of real-time abstraction monitoring** in most schemes
- **Overlapping catchment use** by formal and informal users, especially during dry months
- **Unpermitted irrigation schemes** are growing in Longisa, Kiprerres, and Chepalungu
- **No centralized abstraction database** at the county level to support planning

2.1.4.5 Recommendations

Table 2.31: The key recommended action points

Action	Responsible	Outcome Expected
GIS-based inventory of all abstraction points	Dept. of Water, WRUAs	Planning, monitoring, and enforcement
Permit validation for all community schemes	WRA	Ensure legal compliance
Water metering and data logging systems	BOMWASCO, NGOs	Evidence-based allocation and regulation

Integration of informal users into WRUAs	County/WRA	Collaborative resource stewardship
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2.1.5 Sectoral Water Demand and Usage Trends (Historical and Projected)

Water demand in Bomet County continues to increase steadily, driven by population growth, infrastructure expansion, economic activity, and service level improvements. Understanding how demand evolves over time and across sectors, while accounting for social equity and gender considerations, is essential for designing effective infrastructure investments and water allocation strategies.

2.1.5.1 Historical and Projected Sectoral Water Demand (2018–2040)

The **Bomet County Water Master Plan (2019)** developed medium- to long-term demand projections based on population growth, urbanization, planned service expansion, and land-use changes. These forecasts were disaggregated by **sector**, including domestic (residential), institutional (schools and health), commercial, industrial, and irrigation.

The table below presents projected **annual water demand by sector from 2018 to 2040**, in cubic meters per year:

Table 2.32: Projected Annual Water Demand by Sector (m³/year)

Year	Residential	Institutional	Commercial	Industrial	Irrigation	Total Demand (m ³ /year)
2018	14,181,854	9,762,663	73,474,500	76,997	18,615,000	116,111,014
2020	14,968,640	10,289,847	77,442,123	84,697	–	102,785,307
2025	23,156,459	11,678,976	87,896,810	92,320	–	122,824,565
2030	29,921,922	13,255,638	99,762,879	99,705	21,100,000	164,140,144
2040	39,042,934	17,076,244	128,517,035	107,841	30,000,000	214,744,054

Basis and Assumptions:

- Residential demand projections were based on per capita usage rates rising from 35 to 60 L/L/person/day by 2040, and population growth from ~875,000 in 2019 to >1.3 million by 2040.
- Institutional water demand considers the planned expansion of public schools and health centers.
- Irrigation estimates assume increased uptake of drip/sprinkler systems and expanded acreage for high-value crops.
- Industrial and commercial projections are based on expected urban growth around Bomet, Sotik, Longisa, and emerging rural trading centers.
- Non-revenue water (NRW) losses, currently estimated at 61 %, are excluded from this demand table but addressed in Section 4.1.

2.1.5.2 Sectoral Water Use by Social Status (Income-Based Disaggregation)

The 2023 Bomet Household WASH Survey explored water access patterns across income brackets. The table below summarizes how household income levels affect water sources and consumption rates.

Table 2.33: Household Water Use by Income Level (2023)

Income Bracket (KES/month)	% of Households	Common Water Sources	Estimated Daily Use (L/L/L/person/day)
< 5,000	54%	Unprotected spring, river, and rainwater	15–25
5,000–20,000	35%	Protected spring, shared public taps	20–35
> 20,000	11%	Private piped, rainwater tanks, boreholes	50–70

Basis and Assumptions:

- Consumption volumes are inferred from household-reported time spent fetching water, household size, and proximity to source.
- Low-income households often collect water manually and use less per capita, even where safe water is technically available.
- Higher-income groups can afford storage, treatment, and multiple sources, leading to higher usage and better reliability.

2.1.5.3 Gender Roles and Responsibilities in Water Use

Water use patterns are also strongly gendered. The table below presents gender-differentiated responsibilities and time burdens for water access, particularly in rural areas.

Table 2.34: Gender Roles in Water Collection and Use

Gender/Age Group	Primary Roles	Avg.. Daily Time (Dry Season)	Usage Responsibilities
Women (18–60)	Collection, cooking, cleaning, and MHM support	1.5–3 hours	Domestic, household sanitation
Girls (5–17)	Water fetching, school sanitation	1–2 hours	Hygiene, shared chores
Men (18+)	Maintenance, financial decisions	<30 minutes	Livestock, irrigation, and fees
Boys (5–17)	Minor support roles	<30 minutes	School sanitation, livestock (in some zones)

Basis and Assumptions:

- Time-use data is based on self-reported responses in the 2023 WASH Survey and corroborated by community feedback during PCRA sessions.
- Women's time burden is significantly higher in wards with seasonal spring failure and no piped options (e.g., Kiprereres, Siongiroi).
- Boys rarely collect water but are key users in school-based hygiene programs, especially where MHM facilities are lacking.

2.1.5.4 Seasonal Water Demand Variation

Seasonal variations in rainfall directly influence water consumption and sourcing behavior:

- **Rainy seasons** (Mar–May and Oct–Dec): Increased rainwater use, reduced reliance on vendors, and shallow wells.
- **Dry seasons** (Jan–Feb and Jun–Sep): Higher strain on piped systems and increased use of informal abstraction (e.g., direct river pumping).

Women and girls travel longer distances and queue more during dry seasons, while livestock and irrigation demand spikes create **inter-user conflicts** in shared sources like Kipsonoi and Amala rivers.

2.1.5.5 Daily Sectoral Demand Trends and Growth to 2030

Based on CWMP simulations and updated projections, the table below presents projected **daily demand by major sector**.

Table 2.35: Projected Daily Water Demand by Sector (m³/day)

Year	Domestic	Agricultural	Institutional	Industrial	Commercial	Total Daily Demand
2022	22,500	15,000	2,200	4,000	3,500	47,200
2025	25,300	17,000	2,400	4,700	4,100	53,500
2030	31,800	21,100	2,700	6,700	5,300	67,600

Basis and Assumptions:

- Based on service level improvements (e.g., piped expansion from BOMWASCO, rainwater scale-up in institutions).
- Agriculture projections reflect planned expansion under CIDP III and WRA data for abstraction permits and irrigation trends.
- Industrial and commercial estimates assume 3.5–5% annual economic growth.

2.1.6 Seasonal Variations and Climate-Related Vulnerabilities Affecting Water Supply

2.1.6.1 Seasonal Fluctuations in Water Availability

Bomet County experiences **bimodal rainfall**, with long rains from **March to May (MAM)** and short rains from **October to December (OND)**. Dry periods are typically experienced from **January to February** and again

between **June and September**, though exact timing and intensity have become increasingly erratic due to climate change.

These fluctuations have a direct effect on:

- a) **Surface water flows** – Rivers like Nyangores and Amalo exhibit reduced discharge during dry months, causing **service interruptions** for gravity-fed systems.
- b) **Spring and shallow good yields** – **Drop sharply during prolonged dry spells, particularly in Chepalungu, Bomet Central, and East.**
- c) **Rainwater harvesting** – Limited utility during dry seasons due to inadequate storage and unpredictable rainfall onset.
- d) **Groundwater** – Relatively stable but with **long recharge lag times**, causing sustainability concerns in heavily abstracted areas.

2.1.6.2 Impacts on Water Supply Service Delivery

a. Dry Season Challenges

- i. Lower pressure and intermittent supply in piped systems (e.g., Bomet Central and Sotik).
- ii. Increased reliance on **water vendors**, often charging 2–4× standard rates.
- iii. Extended water-fetching distances and times for rural households.

b. Wet Season Challenges

- i. Flooding in low-lying areas such as Chepalungu, **Sotik, and Bomet Town outskirts** leads to water sources being contaminated.
- ii. **Latrine overflows** during heavy rains cause waterborne disease outbreaks.
- iii. Damage to infrastructure such as **intakes, pipework, and shallow wells.**

2.1.6.3 Climate Risks and Their Impact on Water Sources

The table below shows the matrix of climate hazards, affected water sources, and estimated service impact across Bomet County.

Table 2.36: Climate Risk Matrix – Water Sources vs. Hazards and Population Affected

Hazard	Water Source Affected	Vulnerability	Estimated Impact	Sub-Counties Most Affected	Climate Proofing
Drought	Springs, rivers, shallow wells	High	Up to 170,000 people face water stress during peak dry seasons	Chepalungu, Konoin, Bomet East	<ul style="list-style-type: none"> - Construct strategic water storage and harvesting systems. - Establish drought-resistant water sources, including deep boreholes.
Flooding	Latrines, shallow wells, rivers	Moderate to High	~25,000 households exposed to contamination risks and service breakdowns	Chepalungu, Sotik, Bomet Central	<ul style="list-style-type: none"> - Implement elevated and flood-resistant sanitation facilities. - Reinforce river banks and drainage infrastructure.

Erratic Rainfall	Rainwater harvesting tanks	Moderate	Loss of ~30–50% potential yield due to delayed or inconsistent rains	Across all sub-counties	- Increase storage capacity and efficiency of rainwater harvesting systems. - Develop alternative water supply systems.
Heatwaves / Rising Temps	All sources	Medium	Increased evapotranspiration reduces available surface flows	Bomet East, Konoin highlands	- Enhance watershed management and afforestation. - Improve water-use efficiency and introduce climate-resilient water infrastructure.

Observed and Projected Trends

- Rainfall variability** has intensified, with **late-onset and early cessation** increasingly common. This has reduced groundwater recharge and compromised surface runoff availability.
- Temperature projections** indicate a rise of **1.5°C to 1.8°C by 2050**, worsening drought conditions, and increasing water demand.
- Unprotected water sources** (springs and hand-dug wells) are the most vulnerable, especially when located near flood-prone zones.

Table 2.37: Mitigation and Early Warning Responses (Ongoing/Planned)

Intervention	Objective	Implementing Body
Water source fencing and catchment protection	Reduce contamination and sedimentation	County Government, CBOs
Solarization of boreholes	Improve dry season resilience	BOMWASCO, NGOs, FLLoCA
Spring protection⁶ and rehabilitation	Increase water quality and year-round supply reliability	County Govt., Partners such as Dig Deep, WRUAs,
Storage tank installation in institutions	Buffer against dry season supply interruptions	County Dept. of Water, NGOs
Climate hazard mapping and early warning	Enhance preparedness for floods and drought	CCU, Dept. of Disaster Management

⁶ Spring protection is a critical and highly recommended as they are cost-effective climate adaptation intervention, particularly in the Bomet context where:

- Nearly 48% of community water sources are springs (WASH Survey, 2023),
- Over 80% of springs are unprotected,
- Springs are highly vulnerable to both drought and contamination, especially in areas like Konoin, Chepalungu, Bomet East,
- Past interventions (e.g., Dig Deep projects) have proven spring protection boosts access to Basic water supply, as documented in Sotik Report (2021–2023).

In conclusion, the seasonal and climate-related vulnerabilities significantly affect water reliability and equity in Bomet County. Integrating these risks into project design and service planning is essential for building **adaptive capacity** and sustaining economic development.

2.1.7 Water Resource Challenges: Pollution, Over-Extraction, Climate Change, and Watershed Degradation

Bomet County's water resource base is increasingly under pressure from a combination of **anthropogenic and climatic stressors**, threatening the long-term sustainability of supply systems and the ecological integrity of catchment areas.

2.1.7.1 Key Threats to Water Quality and Sustainability

Bomet County's water resources face a combination of **natural and anthropogenic threats** that compromise both the quality and sustainability of surface and groundwater sources. These threats have become more severe due to land degradation, population pressure, and climate variability. The following are the most significant issues:

a) Pollution from Sanitation and Agricultural Sources

- i. **Inadequate sanitation infrastructure:** Most towns and trading centers, including Bomet Town, Sotik, and Longisa, lack proper sewerage systems. Pit latrines are often sited near springs and shallow wells, leading to high levels of bacterial contamination, particularly during rainy seasons.
- ii. **Runoff of agrochemicals:** In tea-growing areas like Konoin and maize zones in Chepalungu, excessive fertilizer and pesticide use results in nitrate and phosphorous loading into springs, shallow wells, and rivers.
- iii. **Livestock access to water points:** In most rural zones, unregulated access to rivers and springs by livestock leads to direct faecal contamination, trampling of protective vegetation, and increased turbidity.

b) Siltation and Catchment Erosion

Uncontrolled land use change, particularly in the highlands and along riverbanks, contributes significantly to erosion and siltation of water sources.

- **Deforestation and cultivation of riparian zones** have become widespread in Chepalungu, Kiptagich, and Siongiroi.
- **Slope farming** without terracing or ground cover in areas like Konoin and Bomet East accelerates soil loss.
- **Sediment-laden runoff** leads to siltation of spring intakes, pans, and dam reservoirs (e.g., Kapkesosio and Kipreres pans), reducing storage capacity and clogging infrastructure.

A 2019 soil loss assessment conducted as part of the CWMP estimates that Bomet loses **over 4.2 tonnes of topsoil per hectare per year** in its most degraded sub-counties.

c) Loss of Base Flows and Groundwater Recharge

Hydrological analysis from the **CWMP (2019)** and **PCRA 2023** confirms that dry season river baseflows are declining due to:

- **Reduced forest cover** in recharge zones (e.g., upper Nyangores and Amala basins).
- **Compacted soils and impermeable surfaces** from increased settlements reduce infiltration.

- **Increased abstraction without recharge** in high-demand zones (e.g., Longisa, Ndanai, Bomet Town) depletes aquifers.

d) Encroachment and Unregulated Development

- **Spring catchments** are frequently encroached by farming activities and informal housing.
- There is limited enforcement of riparian buffer zones and **absence of coordinated land-use planning** between the Departments of Water, Agriculture, and Lands.

2.1.7.2 Analysis of Land Use Change, Soil Erosion Risk, and Catchment Degradation

Over the past two decades, Bomet County’s catchments have undergone significant land cover transformation, driven by population growth, agricultural expansion, unplanned urbanization, and climate variability. These changes are contributing to **increased soil erosion, siltation of water sources, reduced groundwater recharge, and declining base flows.**

a) Land Use Change Trends (2000–2023)

Satellite image analysis and land cover data from the **County Water Master Plan (2019)** and supported by WRMA/CWSSIP GIS assessments reveal the following key shifts:

Table 2.38: Land Use Change Trends (2000–2023)

Land Use Category	2000 Coverage (km ²)	2023 Coverage (km ²)	Net Change	Observation
Natural Forest (Mau Block)	310	225	-85 km ²	Forest cleared for settlements and tea farming
Agricultural Land	820	1,045	+225 km ²	Expansion into riparian zones and slopes
Built-up Areas	65	108	+43 km ²	Growth in Bomet, Sotik, Longisa, and Ndanai
Wetlands & Grasslands	230	174	-56 km ²	Degraded by grazing and cultivation

Sources: CWMP (2019), CWSSIP GIS 2024, WRA catchment overlays

These trends reveal that land previously critical for **water infiltration, spring recharge, and baseflow regulation** has been replaced by **impervious or erosion-prone surfaces.**

b) Soil Erosion Risk Zones

Using slope analysis, land cover degradation, and rainfall erosivity indices, the following areas have been classified as **high erosion risk zones:**

Table 2.39: Soil Erosion Risk Zones

Erosion Risk Class	Sub-Counties Affected	Primary Causes
Very High	Konoin, Chepalungu (highland edges)	Slope farming, deforestation
High	Bomet East, Longisa	Riverbank cultivation, tea farm expansion
Moderate	Sotik, Bomet Central	Encroachment, livestock overgrazing
Low	Lower Chepalungu, parts of Ndanai	Flat terrain but under pressure

Soil loss estimates in these areas range from **10 to 25 tonnes/ha/year**, significantly above the 6.2 t/ha/yr soil loss tolerance threshold recommended for highland zones (NEMA, 2017).

d) Catchment Degradation Impacts on Water Sources

- **Spring degradation:** Many formerly perennial springs in Chepalungu and Bomet East have become seasonal due to upstream land clearing and catchment exposure.
- **River sedimentation:** Kipsonoi, Amala, and Itare rivers show high turbidity levels during rains, clogging intakes and damaging infrastructure.
- **Pan and dam siltation:** Due to sediment load, community water pans such as Kiprerres and Kapkesosio have lost more than 30% of their storage capacity.

e) Drivers of Degradation

Table 2.40: Drivers of Degradation

Driver	Examples in Bomet County
Agricultural encroachment	Farming on 0–15 m riparian buffers along Amala, Kiprerres
Logging and charcoal burning	Forest degradation in the Konoin hills and Kiptangich
Informal settlements	Growth along riverbanks (e.g., Siongiroi, Chemaner)
Overgrazing	Common in Chepalungu lowlands
Sand harvesting	Observed along Nyangores near Tenwek

Unless proactive land-use and catchment protection measures are enforced:

- **Water source reliability** will continue to decline.
- **Siltation-related infrastructure costs** will rise (requiring frequent desilting and repair).
- **Downstream water users**, including Narok (Mara Basin) and Kisii (Gucha Basin), will experience further water stress and conflict.

2.1.7.3 Conservation Strategies and Nature-Based Solutions for Sustainable Water Resource Management

Bomet County has implemented a range of conservation interventions—some county-led, others donor- or community-driven—to address the threats to water resource quality and sustainability. These efforts aim to preserve catchment integrity, improve water quality, enhance infiltration, and promote sustainable use. This section summarizes the key conservation strategies, assesses their implementation status, and evaluates their effectiveness, with a particular focus on **nature-based solutions (NbS)**.

a) Community-Led Spring Protection

More than **1,000 springs** serve communities across Bomet, yet only an estimated 18.6% are protected. Community-led initiatives, supported by the Department of Water and NGOs like Dig Deep and Red Cross, have:

- Installed spring boxes, fencing, and drainage systems
- Reduced contamination and protected vulnerable users (women, children)
- Faced maintenance and vandalism challenges in poorly trained communities

Status: Ongoing

Effectiveness: High where sustained; limited where community O&M plans are lacking.

b) Riparian and Catchment Reforestation

Under projects such as **FLLoCA** and **WRUA-led SCMPs**, the county has initiated reforestation of degraded riparian zones and water towers.

Table 2.41: Riparian and Catchment Reforestation

Intervention Area	Tree Species Used	Targeted Counties	Sub-	Estimated Coverage (ha)	Observed Benefits
Upper Amala Basin	Grevillea, bamboo, indigenous	Konoin, Chepalungu		~320	Improved spring recharge, erosion control
Siongiroi Catchments	Fruit trees, vetiver grass	Longisa, East, chepalungu	Bomet	~150	Reduced erosion, economic co-benefits

Status: Partially implemented

Effectiveness: Promising; requires enhanced survival rates and monitoring systems.

c) Buffer Zone Protection & Agroecological Practices

Through WRUA mobilization and county extension support:

- 10–15m buffers enforced in some spring and riverbank zones
- Farmers introduced to **soil conservation** (terracing, contour planting)
- **Agroforestry and cover cropping** introduced in tea and maize-growing belts

Status: Limited scale

Effectiveness: Moderate; benefits constrained by land tenure issues and weak enforcement.

d) Nature-Based Infrastructure (NbS)

Bomet has begun piloting **low-cost, nature-based engineering** approaches to enhance recharge, retain water, and manage flood risks:

Table 2.42: Nature-Based Infrastructure (NbS)

Nature-Based Intervention	Function	Pilot Sites / Wards	Performance/Challenges
Infiltration trenches & check dams	Increase groundwater recharge	Chepalungu, Kipereres	Technically sound but underfunded
Sand dams and sub-surface barriers	Store seasonal flows	Siongiroi (Chepalungu)	Seasonal performance; need for expert design
Constructed wetlands	Greywater treatment, biodiversity boost	Institutional (Tenwek, Siongiroi)	Requires proper siting and technical oversight

Status: Pilot stage

Effectiveness: High potential if scaled and integrated into planning processes

e) Strategic Gaps

Despite these efforts, sustainability remains threatened by:

- Inconsistent funding and fragmented implementation
- Weak inter-departmental collaboration (Water, Environment, Agriculture, Lands)
- Low technical capacity in WRUAs and Ward Water Committees
- Absence of routine monitoring and reporting on environmental indicators

f) Recommended Priority Actions

- i. **Scale NbS through FLLoCA and WRUA SCMPs:** Expand infiltration structures, riparian buffers, and wetlands using public and donor funds.
- ii. **Formalize WRUA partnerships with County Government:** Include WRUAs in project selection, budgeting, and performance tracking.
- iii. **Introduce ward-level catchment protection bylaws:** Support enforcement through community sensitization and paralegal support.
- iv. **Incentivize agroecological land management:** Through extension support, demonstration farms, and market linkages.

2.1.7.4 Conservation and Sustainable Water Management Strategies

The table below highlights the ongoing water conservation and management interventions in Bomet County, including challenges and gaps.

Table 2.43: Summary of Water Resource Conservation Strategies in Bomet County

Strategy	Objective	Status	Effectiveness/Challenges
Spring Protection & Fencing	Improve water quality and safeguard sources	Ongoing (Ward-level)	Effective where community-led, vandalism remains a risk
Catchment Rehabilitation (Reforestation)	Restore degraded uplands and riparian zones	Initiated via FLLoCA & KFS	Limited scale, long gestation period, and limited survival rate of seedlings
Borehole Mapping and Permitting (WRA)	Regulate abstraction and monitor aquifers	Partially implemented	Coverage gaps, weak enforcement, and limited real-time data
Riverbank Buffer Zoning	Prevent farming and settlement near rivers	Policy exists	Poor enforcement; land tenure disputes limit compliance
Rainwater Harvesting Programs	Reduce pressure on springs/boreholes	Active in institutions	Seasonal limitation: low uptake in households without subsidies
Sub-Catchment Committees (WRUAs)	Foster local water governance and conservation	Few active WRUAs	Need capacity building, legal recognition, and sustained funding

2.1.7.5 Nature-Based Solutions and Climate-Responsive Interventions

Bomet County is beginning to adopt **nature-based solutions** (NBS) for sustainable water resource management:

- a) **Agroforestry** and **contour farming** to reduce erosion in sloped catchments (Konoin highlands).
- b) Use of **constructed wetlands** to treat greywater and wastewater naturally in selected institutions.
- c) **Riverbank stabilization** using vetiver grass and bamboo planting by CBOs and farmer groups.
- d) Pilots of **infiltration trenches** and **sand dams** for aquifer recharge in Chepalungu.

These approaches require **scaling up**, backed by:

- a) Institutional support from the Department of Water and CCU
- b) Integration into the **BCCCAP investment priorities**
- c) Technical assistance from WRA, LVSWWDA, and development partners

2.1.7.6 Potential Climate Change Impacts on Water Resources

Climate change is increasingly impacting water availability in Bomet County through shifts in rainfall patterns, rising temperatures, and extreme weather events. These changes are altering the spatial and temporal distribution of water resources, undermining the sustainability of both surface and groundwater systems.

a) Trends in Rainfall Seasonality and Distribution

Data from CHIRPS satellite rainfall datasets (1981–2023), the CWMP (2019), and BCCCAP (2022–2026) indicate significant variability in both rainfall onset and distribution:

Table 2.44: Trends in Rainfall Seasonality and Distribution

Observed Trend	Implications
Delayed rainfall onset (especially March–April)	Shortens crop and recharge windows; affects aquifer recharge and spring flows
Early cessation of rains (May/November)	Reduces cumulative rainfall; impacts rain-fed harvesting systems
Concentration of rain into fewer intense days	Increases erosion, infrastructure damage, and runoff losses; reduces infiltration
Inter-annual variability	Causes alternating floods and droughts, making water planning unpredictable.

For instance, April rainfall amounts have declined by 12–20% in the last decade, while isolated flood events (e.g., November 2019, May 2021) have become more destructive, damaging intakes, culverts, and storage infrastructure.

b) Temperature Rise and Evapotranspiration Stress

According to the BCCCAP and CWMP models, mean annual temperatures in Bomet have increased by approximately 0.7°C since 2000, with projections indicating a rise of 1.5–1.8°C by 2050.

Table 2.45: Temperature Rise and Evapotranspiration Stress

Temperature Impact	Effect on Water Resources
Increased evapotranspiration rates	Reduces the net rainfall effectiveness and soil moisture
Reduced groundwater recharge efficiency	Infiltration losses during hot, short storms increase.
Higher domestic and agricultural demand	Households, livestock, and crops require more water during dry periods

These dynamics strain already stretched sources such as springs in Chepalungu and boreholes in Longisa, especially during extended dry seasons (e.g., Jan–Feb, Jun–Aug).

c) Climate Change Impacts on Water Resource Components

Table 2.46: Climate Change Impacts on Water Quantity, Quality, and Availability Timing

Climate Parameter	Impact on Water Quantity	Impact on Water Quality	Impact on Timing / Distribution
Variable rainfall onset	Unpredictable recharge volumes	Latrine overflow near water sources	Shortened recharge windows; erratic supply
Intense rainfall events	High runoff, low infiltration	Sediment-laden rivers, turbidity	Flood peaks instead of steady baseflow
Long dry spells	Lower spring and borehole yields	Stagnant water in storage tanks	Supply interruptions; rationing required
Warmer temperatures	Evaporation from pans/dams	Algal blooms, microbial activity	Seasonal demand surges for domestic/livestock use

d) Specific Climate Vulnerable Zones in Bomet

Rainfall variability and hydrogeological vulnerability identify the following **high-risk zones**:

Table 2.47: Specific Climate Vulnerable Zones in Bomet

Sub-County	Key Climate Risks
Chepalungu	Spring failure, livestock water stress
Longisa	Borehole drawdown, seasonal flooding in low-lying areas
Bomet Central	Infrastructure damage from high-intensity rainfall
Konoin Highlands	Rapid runoff, reduced recharge despite high annual rainfall.

e) Strategic Implications

- **Water planning must shift from historical norms to scenario-based forecasting**, integrating CHIRPS and GPM data into infrastructure sizing.
- **Rainwater harvesting must be redesigned** with increased first-flush capacity and robust guttering to handle storm intensity.
- **Groundwater development must consider temperature-linked recharge thresholds**, calling for deeper wells, more hydrogeological studies, and managed aquifer recharge (MAR).
- **Water safety planning** must address climate-linked contamination (e.g., flooding near pit latrines, turbidity surges).

2.1.8 Climate Change Vulnerability Assessment

2.1.8.1 Climate Hazards Affecting Water and Sanitation in Bomet

The **Participatory Climate Risk Assessment (PCRA) 2023** identified and validated a range of **recurring and intensifying hazards** affecting WASH services across Bomet County. These include:

- a) **Droughts**: More frequent and prolonged dry periods, especially in **Chepalungu, Konoin, and Bomet East**, reduce spring and borehole yields.

- b) **Flooding:** High-intensity rainfall events cause latrine overflows, water contamination, and infrastructure damage, especially in **Sotik, Chplalungu, and Bomet Central**.
- c) **Rising Temperatures:** Increased evapotranspiration affects river base flows and accelerates the deterioration of pipelines and storage tanks.
- d) **Erratic Rainfall:** Unpredictable onset and cessation of rains disrupt rainwater harvesting and complicate planning for agricultural water use.

2.1.8.2 Characterization of Climate Change Impacts

The table below highlights the observed and projected climate parameters and their implications for WASH infrastructure in Bomet County.

Table 2.48: Observed and Projected Climate Trends in Bomet County

Climate Parameter	Trend (Observed/Projected)	Implications for WASH
Rainfall Variability	Increased inter-annual variability, delayed onset, and early cessation	Reduced recharge, unreliable rainwater harvesting
Temperature Rise	1.5°C–1.8°C increase projected by 2050 (RCP4.5 & RCP8.5)	Faster evaporation, increased demand, stress on systems
Flood Events	More frequent, higher-intensity rainstorms	Latrine collapse, piped system bursts, and water contamination
Drought Frequency	Higher frequency and duration of dry spells	Depletion of springs and shallow wells; water scarcity

2.1.8.3 Exposure of WASH Infrastructure and Water Resources

a) High-Exposure Water Sources

- **Shallow wells and springs** are highly exposed due to poor protection and dependence on seasonal recharge.
- **Surface water intakes** suffer from sedimentation and reduced flows during droughts.
- **Rainwater harvesting systems**, especially in schools and health centers, are affected by irregular rainfall and inadequate storage.

b) High-Exposure Sanitation Systems

- Most latrines in flood-prone zones (e.g., Chepalungu, Silibwet, Kaplong) lack raised platforms or protective features, making them vulnerable to flooding and overflow.
- Institutional WASH infrastructure often lacks flood resilience (e.g., poor drainage around latrines in schools).

c) Service Disruption Points

- Piped schemes dependent on **gravity-fed intakes** from rivers or springs are disrupted during drought or landslides.
- **Urban sewerage and stormwater systems** are poorly developed, increasing contamination risk during heavy rains.

2.1.8.4 Risk Analysis Based on Hazard and Exposure

The following matrix identifies the intersection of **climate hazards and exposure levels** of WASH infrastructure.

Table 2.49: Climate Hazard Exposure Matrix for WASH Systems in Bomet County

Hazard	Exposed System	Exposure Level	Impact Severity	Sub-Counties Most Affected
Drought	Springs, shallow wells, and irrigation lines	High	High	Chepalungu, Bomet East
Flooding	Pit latrines, surface water intakes	High	High	Chepalungu, Sotik, Bomet Central
Heatwaves / Rising Temps	Above-ground tanks, open reservoirs	Medium	Moderate	Bomet East, Konoin highlands
Rainfall Variability	Rainwater harvesting tanks	Medium	Moderate	County-wide

2.1.8.5 WASH Infrastructure Vulnerability Differentiation by Area and Infrastructure Type

The table below provides the WASH infrastructure type and the climate vulnerability level.

Table 2.50: WASH Infrastructure Type and the Climate Vulnerability Level

WASH Infrastructure Type	Climate Vulnerability Level	Adaptation Urgency	Remarks
Protected Springs	Moderate	Medium	Require catchment protection, fencing
Shallow Wells	High	High	Prone to contamination and depletion
Boreholes (Solarized)	Low to Moderate	Low	More resilient if well-managed
VIP Latrines (Unlined)	High	High	Risk of collapse and contamination in flood-prone zones
Rainwater Tanks (10,000L & below)	Moderate	Medium	Seasonal effectiveness limitations
Urban Distribution Pipelines	Moderate	Medium	Vulnerable to bursts and blockages during floods

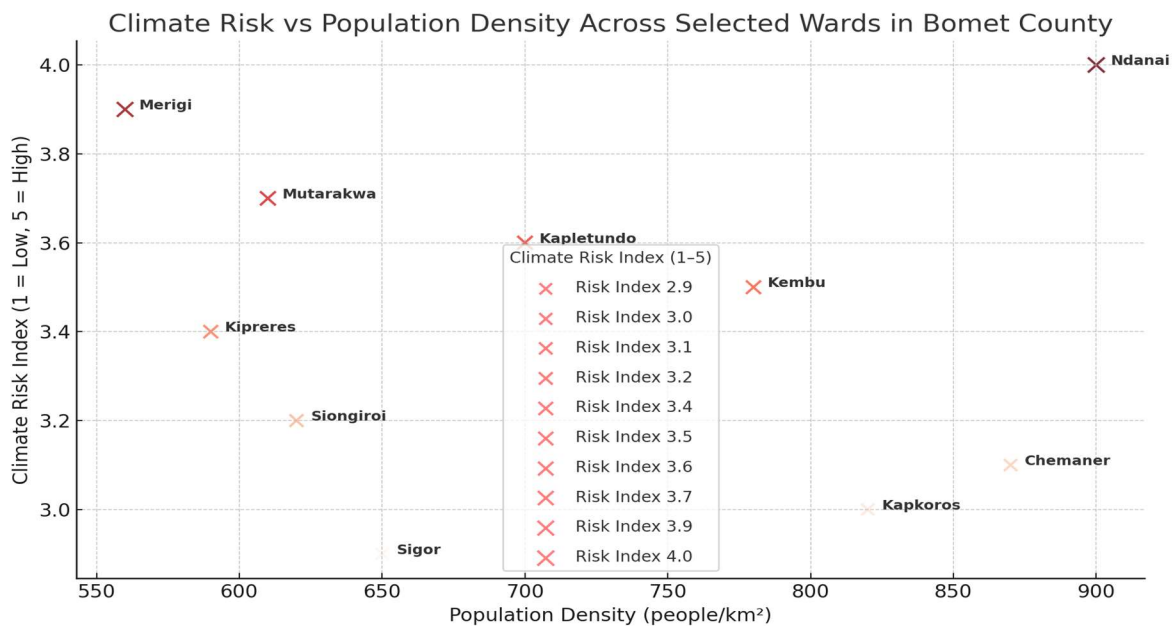


Figure 2.6: Climate Risk Vs Population Density across Selected Wards in Bomet County

As illustrated in the graph above, a number of wards in Bomet County face a double burden of **high population pressure and elevated climate risk index**. This intersection increases the exposure of WASH infrastructure to failure, service disruptions, and public health hazards. Wards such as **Ndanai, Merigi, Kapletundo, and Chemaner** exhibit particularly high vulnerability due to either their reliance on shallow springs, poor drainage infrastructure, or location within flood-prone basins.

To guide targeting and resource allocation, the CWSSIP proposes a tiered approach to climate adaptation and infrastructure planning, prioritizing high-risk, high-density areas for investment in:

- Elevated sanitation infrastructure,
- Multi-source redundancy (e.g., boreholes + RWH),
- Enhanced WASH facility design standards for schools and HCFs,

Early warning systems and local disaster preparedness initiatives.

2.1.8.6 Seasonal Variability and Source Sustainability Analysis

While Bomet County receives moderate annual rainfall ranging from 1,000 to 1,800 mm, water availability is marked by pronounced seasonal fluctuations, impacting both surface and groundwater sources. Supply reliability varies across river sub-basins and groundwater zones depending on elevation, soil infiltration, vegetation cover, and abstraction intensity.

a) Monthly Rainfall and Runoff Trends

Data from the CHIRPS satellite rainfall dataset (2000–2023) and Bomet CWMP (2019) reveal bimodal rainfall peaks in April–May and October–November, with prolonged dry spells in January–February and June–September.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg Rainfall (mm)	45	38	85	150	132	62	58	51	43	95	110	60

Source: CHIRPS Bomet Climate Extract (2024)

During dry seasons, spring discharges reduce by 35–50%, and low-yield boreholes (<5 m³/hr) show drawdown of 3–5 meters in aquifers within Bomet Central and Chepalungu.

b) Flow Duration Curves and Surface Water Sustainability

Flow Duration Curve (FDC) analysis for key rivers—Amala, Nyangores, Itare, and Kipsonoi—based on historical WRMA gauging stations and catchment models, reveals:

- **Q50 (median flow):** Sufficient to meet small-scale domestic abstraction year-round.
- **Q80–Q95 (low flows):** Often fall **below minimum reserve flow** thresholds (defined by WRMA guidelines) during January–March and July–August.

Table 2.51: Estimated Flow Duration Statistics for Selected Rivers

River	Catchment	Q50 (m ³ /s)	Q80 (m ³ /s)	Q95 (m ³ /s)	Reserve Threshold	Flow Dry Season Sustainability
Amala	Mara Basin	1.21	0.59	0.22	0.50 m ³ /s	Poor – low flow violations
Nyangores	Mara Basin	1.40	0.70	0.26	0.55 m ³ /s	Moderate
Kipsonoi	Sondu Basin	0.95	0.45	0.18	0.40 m ³ /s	Poor
Itare	Gucha Basin	0.62	0.28	0.09	0.25 m ³ /s	Unsustainable

Sources: CWMP 2019; WRUA Catchment Simulations; Final WAP Report (2017)

c) Implications for Abstraction and Service Delivery

- Run-of-river schemes face frequent disruptions during Q80–Q95 months, especially in Itare and Kipsonoi sub-catchments, affecting BOMWASCO's operations and community projects.
- Irrigation withdrawals are feasible only during high flows (Q10–Q30) unless storage or dams are introduced. Without this, downstream flows drop below reserve levels, triggering conflicts and ecological stress.
- Spring-fed systems (common in Chepalungu and Longisa) show seasonal depletion, requiring tanker supplementation or rationing by water service providers.
- Groundwater sources offer better buffering, but unconfined aquifers near rivers and springs still suffer from seasonal recharge deficits.

The following table provides a summary of the seasonal impact on water reliability:

Table 2.52: Summary of Seasonal Impact on Water Reliability

Source Type	Seasonal Risk	Dry Season Reliability	Mitigation Measures Needed
Run-of-river abstraction	High	Low (Jan–Feb, Jul–Sep)	Dams, intake redesign, and conjunctive use with groundwater
Shallow springs	Moderate	Moderate	Catchment protection, fencing, spring boxes
Boreholes (deep)	Low	High	Monitoring, solar pumping upgrades
Rainwater harvesting	High	Low without tanks	Roof area expansion, storage tanks >10,000 L

2.1.8.7 Strategic Recommendations for Risk Mitigation (Preview)

- a) **Prioritize flood-resilient sanitation designs** in all new institutional WASH projects.
- b) **Scale up solarized borehole investments** in drought-prone areas.
- c) **Spring protection:** Spring protection is particularly critical in rural wards where protected springs represent the fastest route to achieving Basic water access, especially in areas without piped infrastructure.
- d) **Integrate climate risk mapping** into WASH investment planning and design.
- e) **Support WRUAs and communities** in leading catchment protection with climate co-benefits.

2.1.8.8 Seasonal Variability and Source Sustainability Analysis

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- Irrigation withdrawals are feasible only during high flows (Q10–Q30) unless storage or dams are introduced. Without this, downstream flows drop below reserve levels, triggering conflicts and ecological stress.
- Spring-fed systems (common in Chepalungu and Longisa) show seasonal depletion, requiring tanker supplementation or rationing by water service providers.
- Groundwater sources offer better buffering, but unconfined aquifers near rivers and springs still suffer from seasonal recharge deficits.

2.1.8.9 Climate Risks – Droughts and Floods and Their Impacts on Water Resources

Bomet County experiences frequent and intensifying climate extremes—primarily droughts and floods—that severely impact the reliability, quality, and accessibility of water resources. These events disrupt water supply schemes, contaminate sources, destroy infrastructure, and exacerbate inequalities, especially in rural and informal settlements.

a) Historical Droughts and Floods in Bomet (2000–2023)

A review of meteorological records, county disaster reports, and community risk mapping exercises (PCRA 2023) reveals the following major events:

Table 2.54: Major Historical Droughts and Floods in Bomet County

Year	Hazard	Description	Sub-Counties Affected
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2000	Drought	Prolonged dry season affecting spring flows and maize production	Chepalungu, Bomet Central
2005	Flood	River Nyangores overflow damaged intakes in the Tenwek area	Bomet Central, Bomet East
2010	Drought	Borehole drawdown in Longisa; schools relied on tanker supply	Longisa, Chepalungu
2015	Flood	Flash floods destroyed protected springs and sanitation structures	Sotik, Konoin
2017	Drought	Severe crop failure; rationing in BOMWASCO schemes	All Sub-Counties
2019	Flood	Roads cut off; intake along Kipsonoi silted; >1,800 HHs temporarily displaced.	Sotik, Bomet Central
2021	Drought	Amala spring-fed schemes failed; livestock deaths reported	Chepalungu, Longisa, Siongiroi

Sources: CWMP (2019), PCRA (2023), County Emergency Reports

b) Flood and Drought Return Periods

Based on hydrological modeling from the Mara River Catchment WAP and WRMA datasets:

- **1-in-10-year floods** occur with rainfall >100 mm in 24 hours, particularly affecting the **Nyangores and Kipsonoi basins**, where flash floods overwhelm intakes and cause erosion.
- **1-in-25-year droughts** are associated with annual rainfall deficits of >30%, impacting both **shallow aquifers** and **spring-fed systems**.

Low flow analysis for Kipsonoi and Itare rivers confirms dry season flow rates drop **below Q95 levels**, making **abstraction unsustainable** without storage or conjunctive use.

Note: Local data gaps limit precise return period modeling; regional models from WAP and WRUA data were used for estimation.

c) Matrix of Climate Risk Impacts on Water Systems

Table 2.55: Climate Hazard Impact Matrix by Water Source Type

Water Source	Climate Hazard	Severity	Key Impacts	Estimated Affected HHs (Recent Events)
Protected Springs	Drought	High	Reduced yield, drying in dry seasons, queuing by women/girls	~8,500 HHs (2021)
	Flood	Moderate	Contamination, erosion of spring boxes, and collapse of fencing	~3,000 HHs (2019)
Shallow Boreholes	Drought	High	Aquifer drawdown, pump failure	~6,200 HHs (2017)
	Flood	Low	Minor contamination (in poorly sealed installations)	N/A
Run-of-River Intakes	Flood	Very High	Siltation, structural damage, and intake blockage	~4,500 HHs + BOMWASCO customers
	Drought	High	Base flow depletion, unscheduled rationing	~12,000 HHs (2021)

Rainwater Systems	Drought	High	Failure due to insufficient roof runoff	Institutional users in 37 schools
	Flood	Low	Overflow and contamination of tanks if unsealed	Schools and ECDEs

Summary of Impacts

- More than **28,000 households** are affected directly or indirectly each year by either flooding or drought-induced supply disruptions.
- Livelihood losses (e.g., maize, vegetables, and livestock) and waterborne disease outbreaks (e.g., 2019 cholera near Kiprereres) have been recorded post-flood.
- Cost implications on BOMWASCO and community water providers include **increased O&M, infrastructure damage, and emergency water trucking.**

2.1.8.10 Climate Hazard Trend Analysis and Return Period Estimates

Bomet County is increasingly exposed to the effects of climate variability and change, which are manifesting through **longer and more frequent dry spells, intensified rainfall events, and rising ambient temperatures.** These changes significantly impact the **availability, reliability, and safety of water and sanitation services,** particularly in climate-sensitive infrastructure such as spring-fed schemes, run-of-river intakes, rainwater harvesting systems, and unlined sanitation facilities.

This section synthesizes data from satellite-based rainfall datasets (CHIRPS), the Bomet CWMP (2019), the Mara River Basin WAP (2017), and local community risk reports (PCRA 2023) to better characterize the magnitude and recurrence of these climate hazards. While detailed hydrological simulations were not possible under this CWSSIP, the analysis below provides foundational insights to guide infrastructure planning and risk preparedness.

a) Historical Rainfall and Temperature Trends in Bomet County (1981–2023)

This table presents the **observed climate trends over the past four decades** and their specific implications for WASH service delivery across sub-counties:

Table 2.56: Observed and Projected Climate Trends in Bomet County

Climate Parameter	Observed Trend (1981–2023)	Projected Trend (2050)	WASH Sector Implications
Annual Rainfall	Gradual decline in MAM season (–12% to –18%)	Mild decrease or high interannual variability	Reduced recharge of springs and shallow aquifers; impaired rainwater harvesting.
Rainfall Onset	Shifted later by 2–4 weeks in MAM and OND in 8 of the past 12 years	Increasingly erratic	Planning and sizing of roof catchment systems affected, poor RWH reliability in schools
Rainfall Intensity	More rainfall is now falling in <10 storm days per season	High-intensity, short-duration rainfall	Erosion, flooding, and failure of basic infrastructure like spring boxes and latrines
Temperature (Mean Annual)	+0.9°C since 2000 (from ~19.5°C to ~20.4°C)	+1.5°C to +1.8°C (RCP4.5–RCP8.5)	Increased evapotranspiration, drying of shallow wells and springs, and elevated demand for water

Sources: CHIRPS Dataset (2024); CWMP (2019); BCCCAP (2022); PCRA (2023)

b) Return Period Estimates for Droughts and Floods

The table below summarizes the **estimated frequency of extreme climate events** in Bomet County using WRA modeling outputs from the Mara Basin and community hazard reporting:

Table 2.57: Climate Hazard Magnitude and Return Periods in Bomet County

Hazard Type	Description	Estimated Magnitude	Estimated Return Period	Most Affected Areas/Sub-counties
Drought	Prolonged rainfall deficit leading to spring failure and borehole stress	>25% rainfall reduction; spring yield drops >40%	1-in-5 to 1-in-7 years	Chepalungu, Longisa, Siongiroi, Bomet East
Flood	Flash flooding from high-intensity storms is damaging WASH infrastructure	>100 mm/day rainfall; bank overtopping of Amala/Kipsonoi	1-in-10 years	Sotik (Kaboson), Bomet Central (Tenwek), Konoin
Landslides	Triggered by heavy rainfall and deforestation in highland slopes	Loss of 5–10 acres of farmland per event	1-in-10 to 1-in-15 years	Konoin, Nyangores escarpment
Heatwaves	Higher ambient temperatures affect recharge and demand	+1.2°C above baseline	Progressive and continuous	All sub-counties; higher impact in lowlands (Chepalungu)

Sources: WRMA WAP (2017); CWMP (2019); CHIRPS; PCRA (2023); CWSSIP Working Group Notes

c) Spatial Exposure of WASH Infrastructure

Bomet County has not yet developed county-wide GIS maps for climate-vulnerable infrastructure. However, the CWSSIP implementation plan outlines an activity to conduct **GPS-based mapping of WASH infrastructure at risk**, particularly in:

- **Flood-prone riverbanks** (e.g., Kipsonoi, Itare, Nyangores);
- **Unprotected springs in high runoff zones**;
- **Boreholes located in shallow aquifers prone to seasonal drawdown**;
- **RWH tanks in institutions without adequate first-flush or overflow design**.

These infrastructure components are especially exposed during **Q95 low-flow months (Jan–Feb, Jul–Sep)** and **flash flood months (April, October–November)**.

Table 2.58: Examples of Infrastructure Exposure to Climate Hazards

WASH Infrastructure Type	Climate Hazard	Vulnerability Level	Examples / Locations	Recommended Mitigation
Spring boxes (unprotected)	Flood, siltation	High	Chepalungu, Longisa hills	Catchment fencing, infiltration trenches
Shallow boreholes	Drought, aquifer drawdown	High	Bomet East, Siongiroi	Solar backup, deeper drilling, recharge basins

Latrines (pit, ECDE/schools)	Flood, overland runoff	Very High	Riverine schools in Sotik, Konoin	Raised slabs, lined pits, improved siting
Rainwater tanks	Drought, erratic rainfall	Moderate	Institutions in Mulot, Ndanai	Larger roof areas, >10,000L storage, first-flush diversion
River intakes	Flash floods, erosion	High	Kipsonoi, Nyangores intakes	Intake elevation, check dams, silt traps

d) Implementation Note

A detailed GIS-based exposure mapping activity is planned as part of **CWSSIP Chapter 6**, in coordination with WRMA, BOMWASCO, and the County Climate Change Unit. This will involve:

- Asset vulnerability ranking,
- Climate-resilient design updates,
- Integration with early warning systems.

2.2 Water Supply Coverage and Gaps

2.2.1 Status of Water Supply Infrastructure (Urban vs. Rural) Status of water supply infrastructure (urban vs. rural)

Water supply in Bomet County is delivered through a complex mix of formal and informal systems, serving both rural and urban populations with varying levels of reliability and quality. The **2023 Bomet County Household WASH Survey** confirms that the majority of households rely on self-supply systems such as rainwater collection (29%), unprotected springs (21%), and surface water (24%) — with piped water systems reaching only a small fraction of the population (approximately 5.9% across all types), while formal piped schemes under BOMWASCO only serve a fraction of the population.

Formal schemes include piped water systems supplied by **BOMWASCO**, which operates 15 water schemes across the county. However, only about **11% of the population** receives piped water, and about **2%** are served with safely managed services at the household level. In contrast, **unprotected springs, rainwater harvesting, and surface water** remain dominant in rural areas.

Table 2.59: Primary Household Water Sources by Sub-County (%)

Sub-County	Rainwater	Surface Water	Springs (Protected & Unprotected)	Wells (Protected & unprotected)	Boreholes	Piped (All Types)	Public Taps
Bomet Central	31.5%	21.9%	27.5%	14.2%	0.7%	3.2%	0.4%
Bomet East	22.7%	19.9%	36.9%	12.7%	2.9%	2.7%	2.0%
Chepalungu	42.1%	35.0%	7.7%	5.1%	0.7%	6.7%	2.6%
Konoin	12.0%	24.1%	35.6%	2.6%	5.9%	18.5%	0.7%
Sotik	36.9%	18.8%	26.6%	8.5%	1.8%	4.2%	1.7%
Grand Total	29.0%	24.0%	26.8%	8.5%	2.4%	7.2%	1.5%

In addition to the primary water sources, the surveyed households were given the option to select multiple sources (secondary water sources). The table below captures their responses:

Table 2.60: Secondary Household Water Sources by Sub-County (%)

Sub-County	Rainwater	Surface Water	Springs (Protected & Unprotected)	Wells	Boreholes	Piped (All Types)	Public Taps
Bomet Central	47.2%	32.7%	20.6%	15.3%	1.2%	2.6%	0.3%
Bomet East	60.2%	20.0%	15.5%	13.0%	2.5%	2.3%	3.0%
Chepalungu	51.8%	34.7%	7.7%	2.0%	0.9%	3.6%	0.9%
Konoin	53.8%	18.5%	14.5%	8.6%	5.9%	8.7%	0.7%
Sotik	54.4%	29.2%	14.6%	13.5%	1.7%	4.1%	1.3%

Distribution of main water sources used by households across Bomet County sub-counties (2023).

2.2.1.1 Infrastructure Gaps and Capacity Constraints

Key infrastructure constraints include:

- Low piped water coverage:** <5% of rural households have access to piped water on premises.
- Aging infrastructure:** Over 80% of BOMWASCO's schemes have outlived their design capacity, with only 47% having complete treatment systems.
- Seasonal unreliability:** Springs and rainwater harvesting become dry or insufficient during January–March and July–September.
- Storage limitations:** Most households lack sufficient storage to manage variable supply.

The **gravity-fed Bomet-Mulot and Chebangang projects**, currently under construction, aim to reduce these constraints. However, as of 2023, they were only 41–50% complete.

Table 2.61: Water Availability and Reliability by Sub-County (% Households Reporting Year-round Access)

Sub-County	Water Available Year-Round	Reliability Concerns (Reported)
Bomet Central	92.1%	Medium
Bomet East	85.8%	High
Chepalungu	80.0%	Very High (surface water dependence)
Konoin	92.9%	Medium
Sotik	90.3%	Medium

The proportion of households reporting consistent water availability across sub-counties in Bomet County.

2.2.1.2 Social and Gender-Disaggregated Water Supply Insights

Water access remains **unequally distributed** by gender, income level, and geography:

- 69% of households without on-premises water** rely on adult women for collection, and time is lost significantly during dry seasons.
- Female-headed households have **lower piped water access** and are **more reliant on rainwater** and vendors.
- Lower-income households (earning <KES 5,000/month) rely primarily on **surface water and springs**, with minimal access to improved sources.

Table 2.62: Gender Disparities in Water Collection by Sub-County (% Households Where Women Collect Water)

Sub-County	Women Collect Water	Girls Collect Water (< 18 yrs)
------------	---------------------	--------------------------------

Bomet Central	61%	13%
Bomet East	67%	17%
Chepalungu	71%	19%
Konoin	62%	14%
Sotik	65%	16%

The proportion of households where adult women and girls do water collection under 18 (2023).

Bomet County's water infrastructure faces widespread deficits, most acutely in rural areas such as Chepalungu and Bomet East. Water supply is marked by:

- a) Strong reliance on unimproved or seasonal sources,
- b) Infrastructure that is aging or incomplete,
- c) Persistent gender inequities in access and burden of collection.

Upgrading and expanding **gravity-fed, solarized, and treated schemes**, alongside **community-based water governance**, will be essential to close these gaps.

2.2.2 Access to Water and Sanitation in Bomet County (2023)

The WHO/UNICEF Joint Monitoring Programme (JMP) classifies drinking water services along five service levels, enabling globally comparable metrics for SDG 6 monitoring. These service levels are defined as follows:

- **Safely Managed:** Drinking water from an improved source, located on premises, available when needed, and free from contamination.
- **Basic:** Drinking water from an improved source within a 30-minute round trip.
- **Limited:** Improved source requiring over 30 minutes for collection.
- **Unimproved:** Water from unprotected sources such as unlined wells or unprotected springs.
- **Surface Water:** Direct use of river, stream, dam, lake, or pond water without any treatment or protection.

The 2023 Bomet County Household WASH Survey reveals that the majority of residents depend on **self-supply from unsafe or unreliable water sources**. Piped systems remain limited, with only a small percentage of the population accessing water through premises-based improved systems.

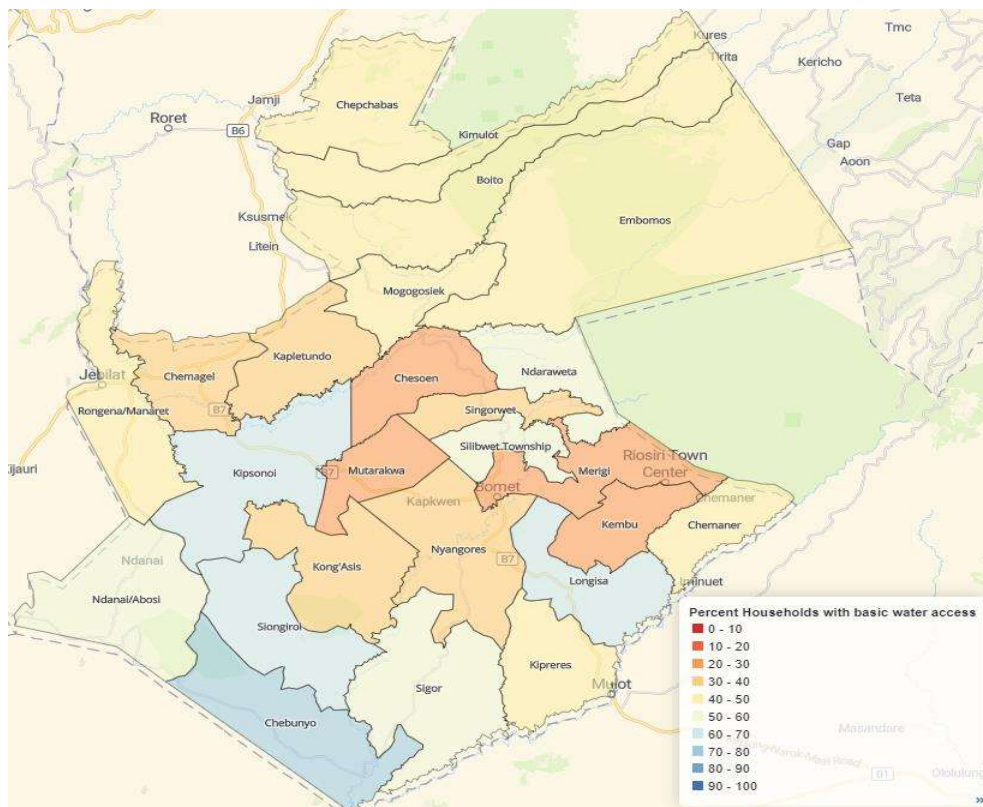


Figure 2.7: Basic water access by ward

(Source: Bomet County Household WASH Survey Report)

According to the **2023 Bomet County Household WASH Survey**, the majority of households in the county do not yet have access to safely managed water. Only **2.0%** of households countywide meet the criteria for safely managed services, while **42.0%** use basic improved water sources. A further **28.0%** rely on unimproved water sources, and **24.0%** still use surface water. **The CWSSIP targets a progressive scale-up to achieve universal (100%) water coverage by 2030, consistent with national and SDG 6 goals.**

Table 2.63: Household Water Access by JMP Service Level and Sub-County (2023)

	Surface water	Unprotected	Limited	Basic	Safely managed
County average	23.92%	28.15%	3.66%	42.09%	2.18%

Source: Bomet County Household WASH Survey (December 2023) – JMP Access Ladder Analysis

Key Observations:

- Safely managed access remains extremely low across all sub-counties, except Konoin.
- Over **50% of households in Chepalungu and Sotik** rely on unsafe sources (unimproved + surface).
- Basic access is highest where spring protection and rainwater harvesting projects have been implemented.

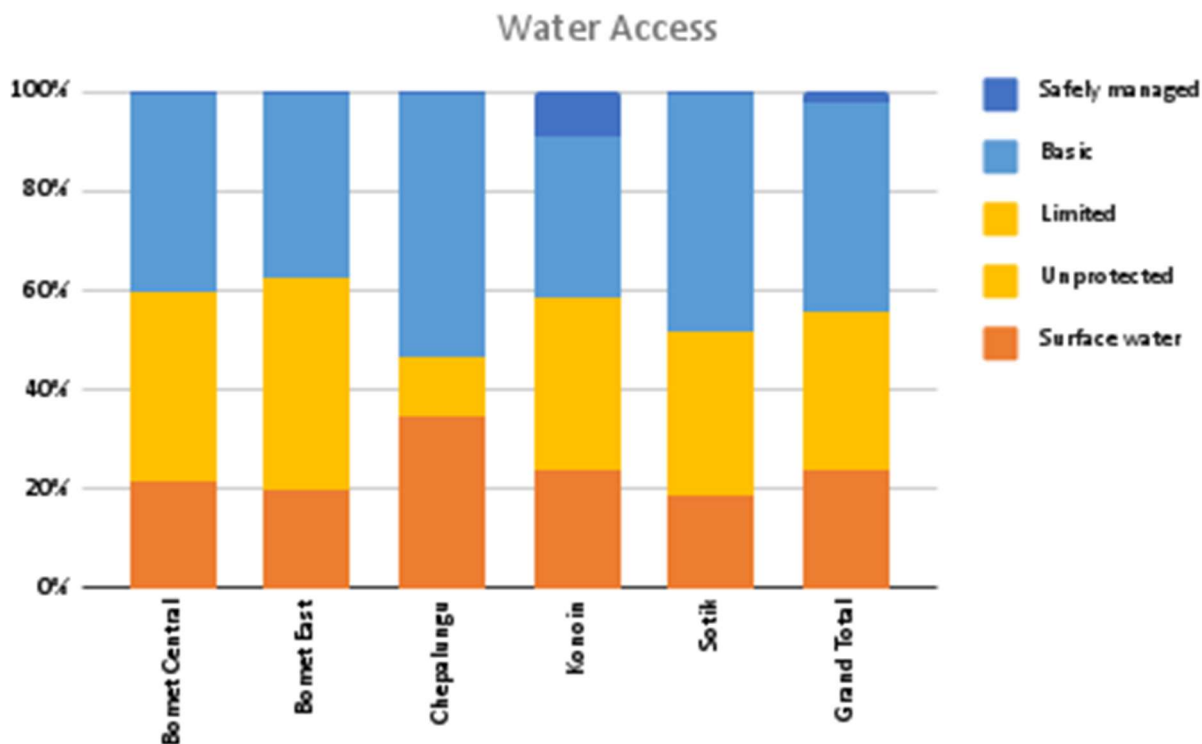


Figure 2.8: The Joint Monitoring Programme (JMP) Water Service Ladder

Recommendations for Action: Prioritize safely managed upgrades (on-premises connections, household treatment).

- a) Expand **spring protection and gravity-fed schemes**.
- b) Introduce **pro-poor financing instruments** to increase the uptake of piped systems in low-income zones.
- c) Build household-level resilience through **storage tanks, treatment kits, and rainwater systems**.

2.2.3 Service Delivery Challenges

Water service delivery in Bomet County is hindered by a combination of **infrastructure, financial, technical, and climate-related factors**, which collectively reduce coverage, reliability, and sustainability of services, especially in rural and low-income areas.

The major challenges reported by BOMWASCO and community respondents include:

- a. **High Non-Revenue Water (NRW):** At **61%**, this far exceeds the national benchmark of 20%. Losses result from leaking pipes, illegal connections, faulty meters, and unmetered consumption.
- b. **Inadequate treatment infrastructure:** Over **53% of schemes lack complete treatment systems**, exposing users to poor water quality.
- c. **Financial constraints:** BOMWASCO's cost recovery remains below 70%, indicating reliance on subsidies for sustainability.
- d. **Frequent supply interruptions** due to power outages, pump failures, and damaged intakes, especially in pumping schemes.
- e. **Climate-related shocks** such as floods and prolonged droughts disrupt operations, particularly in **Chepalungu, Sotik, and Bomet East**.

Table 2.64: Summary of Water Service Delivery Challenges by Sub-County

Sub-County	Primary Challenges	Affected Infrastructure	Severity (H/M/L)
Bomet Central	Intermittent supply due to aged pipelines and pump breakdowns	All water schemes	High
Bomet East	Flood-prone lowlands, pipe bursts, and long dry seasons are affecting spring yields.	Bomet east	High
Bomet Central	Inadequate treatment, overreliance on surface sources, and seasonal rivers drying up	Kapcheluch, Sergutiet	Very High
Konoin	High pumping costs, theft of meters, and hilly terrain cause low pressure in pipelines	Itare, Bomet Central	Medium
Sotik	High NRW, shallow aquifer depletion, poor maintenance of kiosks	All water schemes	High

Sub-county-level summary of key service delivery challenges affecting water systems in Bomet County.

NRW in Bomet is driven by:

- **Apparent losses:** illegal connections, billing inaccuracies, and meter tampering.
- **Real losses:** aging pipes, high-pressure bursts, vandalism.

Table 2.65: Key Causes of Non-Revenue Water as Ranked by Frequency (Scale 1–10)

Cause of NRW	Frequency Rank
Low metering ratio (34%)	1
Pipe leakage	4
Illegal connections	5
Vandalism	4
Faulty meters	6
Poor infrastructure	3
Theft	2

Ranking of common NRW causes affecting BOMWASCO systems, 2023.

Climate-Related Service Delivery Hazards

Flooding and droughts compound operational challenges:

- **Floods** damage intakes, pipework, and latrines (especially in Sotik, Bomet Central).
- **Droughts** reduce spring and river flows, triggering rationing and unplanned outages.

Estimated impact:

- **85,000 households** affected by drought-related supply cuts.
- **45,000 households** exposed to flood-related service disruptions.

Table 2.66: Recommendations for Strengthening Service Delivery

Priority Action	Target Area(s)	Expected Benefit
Pressure reduction and leak control	Urban Bomet, Sotik	Reduce physical losses, stabilize pressure

Meter replacement and installation	All sub-counties	Improve billing accuracy, reduce apparent losses
Conversion to gravity-fed systems was feasible.	Chepalungu, Bomet East	Lower O&M costs and increase supply reliability.
Solarization of pumping schemes	Konoin, Ndanai, Bomet central and chepalungu	Reduce energy costs, ensure uptime during outages.
Capacity building for BOMWASCO technicians	All	Boost local skills in maintenance and troubleshooting
Public-private partnerships for the maintenance of kiosks	Sotik, Bomet Central	Improve access and O&M sustainability

2.2.4 Barriers to Equitable WASH Access and Inclusive Service Strategies

While infrastructure investments in Bomet County have improved general access to water and sanitation services, persistent inequities remain due to entrenched **social, economic, cultural, and spatial barriers**. These barriers disproportionately affect specific segments of the population, including **women and girls, persons with disabilities (PWDs), female-headed households**, and residents in **remote or informal settlements**. Addressing these structural barriers is essential to ensuring that WASH services are **equitable, inclusive, and sustainable** across all wards.

2.2.4.1 Systemic Barriers to WASH Access

An integrated analysis of access constraints reveals that both demand- and supply-side limitations hinder equitable service delivery. Key issues include the **high cost of water connections, long distances to safe water points, exclusion from decision-making processes**, and **sociocultural stigmas** that affect sanitation and hygiene behaviors.

Table 2.67: Key Barriers to WASH Access in Bomet County

Barrier Type	Barrier Description	Affected Groups	Implications
Economic	High connection fees, unaffordable tariffs, and cost-prohibitive sanitation technologies	Low-income households, informal settlers	Reliance on unimproved sources, shallow wells, open defecation
Cultural and Social	Taboos around menstruation, limited male involvement in girl-friendly sanitation investment	Women and girls in rural or conservative zones	Lack of MHM infrastructure; social exclusion
Geographical	Long distances to safe water points, poor terrain access	Remote rural wards (e.g., Kipreres, Chepalungu)	Increased time poverty, health risks, reduced usage of safe water
Disability and Age	Lack of accessible WASH infrastructure (e.g., ramps, wide doors, handrails)	Persons with disabilities, elderly	Safety risks, denied access, loss of dignity and autonomy
Institutional	Underrepresentation in governance structures (e.g., WRUAs, project committees, BOMs)	Women, PWDs, marginalized groups	Poor prioritization of inclusive solutions; inequitable resource allocation

2.2.4.2 Strategies for Improving WASH Inclusivity and Sustainability

To bridge these gaps, the CWSSIP outlines targeted strategies to promote equitable and inclusive access. These strategies are designed to ensure that WASH programming is **culturally appropriate, gender-responsive, pro-poor, and disability-inclusive**.

Table 2.68: Proposed Strategies to Improve Inclusivity and Sustainability in WASH Access

Barrier Addressed	Proposed Strategy	Lead Actors	Implementation Timeline
Affordability	Establish a Sanitation Access Support Fund and provide conditional subsidies for poor and vulnerable households	County Government, BOMWASCO, NGOs	FY2025–2027
Gender-related cultural norms	Develop MHM-friendly infrastructure (latrines, changing rooms), engage male champions for sensitization	Dept. of Gender, MOH, Community Health Units	FY2025–2030
Geographical marginalization	Use participatory mapping to site new water points in underserved rural wards and informal settlements	WRUAs, WRA, BOMWASCO	FY2026–2028
Disability access	Apply universal design principles in all public and institutional WASH facilities	Public Works, Social Services	FY2025 onward
Institutional exclusion	Enforce 30% minimum representation of women and PWDs in community WASH committees and WRUA boards	County WASH Coordination Unit, WRUAs	FY2025–2026
Social accountability	Introduce community scorecards and grievance mechanisms to improve service transparency and equity	Civil Society, Sub-county Admins, BOMWASCO	FY2026 onward

2.2.4.3 Cultural Appropriateness and Community Engagement

To support these technical strategies, the County will adopt **Behavior Change Communication (BCC)** approaches that are context-specific. These will include:

- **Dialogue forums** with elders, religious leaders, and youth,
- **Hygiene clubs** in schools and community groups,
- **Media campaigns** focusing on inclusivity, menstrual dignity, and safe water use.

These approaches will enhance uptake, promote shared responsibility, and ensure **WASH systems are socially embedded and sustainable**.

2.3 Sanitation Services Coverage and Service Gaps

2.3.1 Access to Sanitation Services (Sewered vs. Non-Sewered Options)

2.3.1.1 Overview of Sanitation Access by JMP Ladder

The WHO/UNICEF Joint Monitoring Programme (JMP) defines sanitation service access according to a five-tiered ladder, enabling global and time-comparable SDG 6.2 tracking. The categories are:

- **Safely Managed:** Improved sanitation facility not shared with other households, and with safe disposal of excreta through sewer, septic tank, or other safely managed means.
- **Basic:** Improved facility not shared with other households, but with unknown or unmanaged disposal.
- **Limited:** Improved facility shared with other households.
- **Unimproved:** Pit latrines without slabs, hanging toilets, or bucket latrines.
- **Open Defecation:** No facility; defecation in the bush, field, or other open environments.

Sanitation coverage in Bomet County remains a major challenge, with only **1.0%** of households accessing safely managed services and **54.0%** relying on unimproved options.

While **34.0%** of households have access to basic sanitation, **open defecation persists at 2.0%**, particularly in marginal areas.

Table 2.69: Household Sanitation Access by JMP Ladder in Bomet County (2023)

	Open defecation	Unimproved	Limited	Basic	Safely managed
County Average	2.45%	54.33%	8.03%	34.16%	1.02%

Source: Bomet County Household WASH Survey (Dec 2023), JMP Sanitation Ladder Analysis

The data points to **critical gaps in waste containment, safe emptying, and treatment**, especially in informal settlements and rural areas where sewerage is absent. Investment is urgently needed in faecal sludge management, improved pit latrine technologies, and post-ODF support.

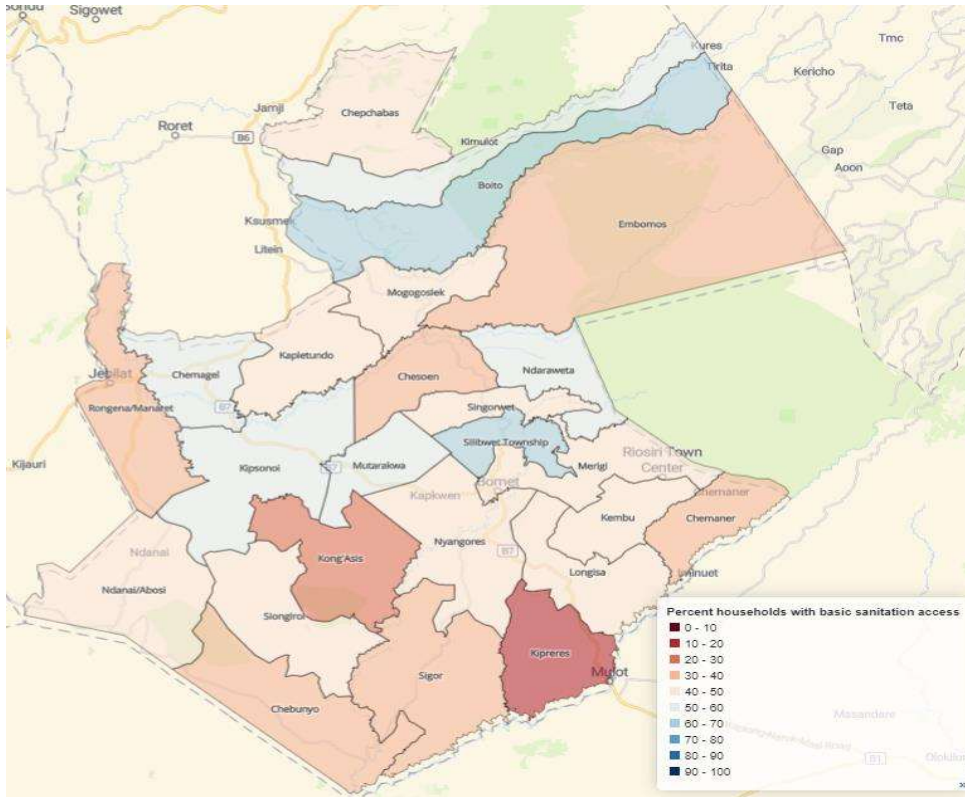


Figure 2.9: Basic sanitation access by ward
(Source: Bomet County Household WASH Survey Report)

2.3.1.2 Sub-County Disaggregation of Sanitation Service Levels

Sanitation access varies significantly by sub-county. Koinin has relatively higher levels of basic sanitation, while Chepalungu and Bomet East record high unimproved usage.

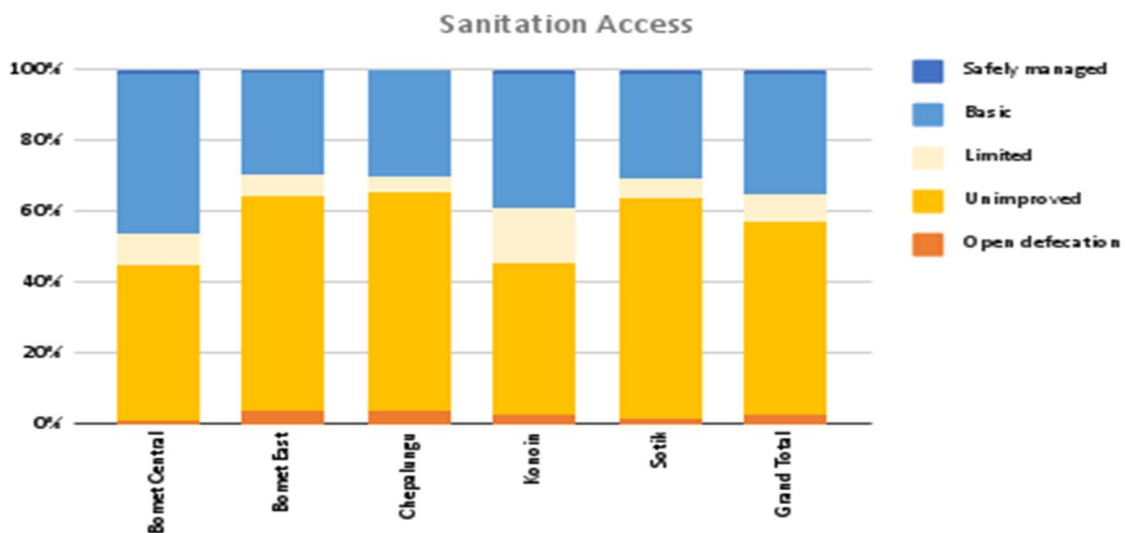


Figure 2.10: Distribution of household sanitation access levels by sub-county in Bomet County using the JMP sanitation ladder (2023)

2.3.1.3 Types of Sanitation Facilities in Use

The majority of Bomet County's household sanitation infrastructure comprises **non-sewered, on-plot systems**, with widespread reliance on pit latrines, most of which are **unlined or lack slabs**. The situation reflects limited access to safely managed sanitation and underscores the urgent need for infrastructure upgrades and faecal sludge management solutions.

Table 2.70: Distribution of Sanitation Facility Types by Sub-County (% of Households)

Sub-County	Pit Latrine with Slab	Pit Latrine without Slab	VIP Latrine	Flush/Pour Flush	No Facility/Open Field
Bomet Central	41.5%	43.5%	12.1%	1.2%	1.2%
Bomet East	27.1%	61.3%	7.2%	0.8%	3.5%
Chepalungu	30.4%	61.9%	3.9%	0.0%	3.5%
Konoin	40.1%	42.6%	12.7%	1.8%	2.5%
Sotik	21.3%	62.1%	12.5%	1.4%	1.6%
Grand Total	32.0%	54.3%	9.7%	1.0%	2.5%

Source: Bomet County Household WASH Survey, December 2023 – Table 5: Type of Sanitation Facility in Use

Shared vs. Private Facility Use

- **79%** of households have sanitation facilities located within their compounds.
- **8%** use shared facilities, mainly in **semi-permanent rental housing**, informal clusters, or institutional compounds.

Implications

- The dominance of **unimproved latrines (over 54% countywide)** poses **serious public health and environmental risks**, especially during the rainy season and in high-density settlements.
- **Private-sector sanitation marketing** remains nascent and has yet to reach critical mass in rural and peri-urban areas.
- **Faecal sludge management (FSM) systems are virtually absent**, leading to unregulated disposal and elevated groundwater contamination risk, especially in areas with high water tables or shallow wells.
- **While open defecation is relatively low at 2%**, it still exists in marginal areas and represents a risk for reversion without targeted follow-up post-ODF certification.

Recommendations

- **Promote large-scale conversion of unimproved pit latrines to improved slab-lined variants**, with a focus on **Chepalungu, Sotik, and Bomet East**, where unimproved coverage exceeds 55%.
- **Establish faecal sludge treatment and disposal facilities**, especially in growth centres (e.g., Bomet Town, Sigor, and Ndanai), and **incentivize uptake of safe pit emptying services**.
- **Strengthen enforcement of building codes and sanitation ordinances**, particularly in new housing developments and public buildings.

- **Expand and institutionalize CLTS+ (post-ODF follow-up) campaigns** to sustain gains and eliminate open defecation countywide by **2027**.

2.3.1.4 Household Sanitation Access in Urban vs Rural Areas

While disaggregated sanitation access data by urban and rural areas was not available from the Bomet County Household WASH Survey (2025), national trends from the **Kenya Demographic and Health Survey (KDHS) 2022** provide useful insights into urban-rural disparities.

At the national level, access to sanitation services is distributed as shown in the Table below:

Table 2.71: National Urban vs Rural Sanitation Access Levels (KDHS 2022)

Sanitation Service Level	Urban (%)	Rural (%)
At least Basic Sanitation	47.3%	37.7%
Limited Service (Shared Facilities)	44.5%	16.3%
Unimproved Sanitation	7.4%	35.6%
Open Defecation	0.9%	10.4%

Source: Kenya Demographic and Health Survey (KDHS) 2022, Table 16.7.

This data indicates that urban populations nationally enjoy better access to basic sanitation services compared to rural populations, with rural areas facing a significantly higher burden of unimproved sanitation and open defecation.

Given that **Bomet County is classified as predominantly rural (96.6%)**, it can reasonably be inferred that the sanitation access challenges observed nationally among rural populations similarly affect the majority of Bomet’s residents. This underlines the need for targeted investments in rural sanitation improvements, Community-Led Total Sanitation (CLTS) programs, and hygiene promotion initiatives as prioritized in this CWSSIP.

2.3.2 Coverage of Public and Shared Sanitation Facilities, Including Market Centers and Informal Settlements

2.3.2.1 Household Use of Shared Sanitation Facilities

According to the 2023 Bomet County Household WASH Survey, approximately 8% of households rely on shared sanitation facilities. Shared usage is most prevalent in peri-urban homesteads and rental housing, especially in trading centers such as Kapkwon, Mulot, Silibwet, and Chebunyo. These areas often lack formal planning and

are characterized by overcrowded, semi-permanent dwellings with inadequate access to sanitation infrastructure.

Table 2.72: Use of Shared Sanitation Facilities by Sub-County (2023)

Sub-County	% Households Using Shared Facilities	Most Common Shared Locations
Bomet Central	9.5%	Urban rentals, peri-urban homesteads
Bomet East	8.2%	Small towns (e.g., Longisa, Chemasei)
Chepalungu	8.7%	Trading centers (e.g. Sigor, Chebunyo)
Konoin	7.1%	Estate-type settlements (e.g., Boito, Kimulot)
Sotik	7.6%	Informal settlements (e.g., Ndanai,)

Source: Bomet County Household WASH Survey, 2023

2.3.2.2 Sanitation in Public Facilities: Schools and Markets

a) Schools

The **March 2025 School Sanitation Situational Analysis** covering **1,390 schools** revealed the following:

- **98.9% of schools** have toilet facilities.
- **80.3%** rely on pit latrines with slabs.
- **20.3%** use pit latrines without slabs.
- Only **2.7%** have flush or pour-flush toilets.
- **29.1%** of school toilets are clean.
- **27.5%** are accessible to pupils with disabilities.
- **Only 27.5%** of schools provide private Menstrual Hygiene Management (MHM) spaces.

Table 2.73: Type of Sanitation Facilities in Schools by Sub-County (2025)

Sub-County	% Schools with Pit Latrines (Slab)	% Using Unimproved Pit Latrines	% With Flush-Toilets
Bomet Central	84%	14%	2%
Bomet East	78%	21%	1%
Chepalungu	75%	23%	2%
Konoin	83%	16%	1%
Sotik	81%	17%	2%

Source: School Sanitation Situational Analysis, March 2025

b) Markets and Public Spaces

There is no county-wide centralized inventory of sanitation facilities in markets or urban public spaces. However, stakeholder interviews and site audits indicate:

- **Only 40% of public markets** have operational toilets.
- Where present, many facilities are:
 - **Dilapidated**, lacking handwashing stations.
 - **Under-utilized** due to lack of lighting, high user fees, or poor security.
 - Often lacking structured O&M arrangements.

Examples:

- **Public toilets in Bomet Town, Sotik, and Mulot** were functional but under-resourced.
- Facilities in **Kapkoros and Chebunyo** had no structured operation and maintenance (O&M) plans.

2.3.2.3 Sanitation in Health Facilities

The **March 2025 Health Care Facility (HCF) Situational Analysis** assessed **117 facilities** and revealed:

- **97.8% of facilities** had at least one sanitation facility.
- Only **36.4% had gender-segregated toilets**.
- **80.0% lacked accessible toilets** for persons with disabilities.
- **53.8%** had inadequate sanitation for maternity wards.
- **22.0%** had non-functional or partially usable toilets.

Table 2.74: Health Facility Sanitation Coverage by Key Indicators (2025)

Indicator	% of Facilities Affected
No gender-segregated toilets	36.4%
No accessible toilets for persons with disabilities	80.0%
Inadequate sanitation for maternity wards	53.8%
Non-functional or partially usable toilets	22.0%

Source: HCF Situational Analysis Report, March 2025

Key Priorities

- **Public sanitation remains underserved**, particularly in markets and informal settlements. This creates hotspots for disease transmission and undermines community hygiene behavior change interventions.
- **While largely present, school and health facility toilets** face issues of usability, inclusivity, and hygiene.
- **Shared toilets**, especially in urban-rural transition zones, often lack proper maintenance, posing health risks.
- Limited sanitation access in healthcare facilities, particularly for women in maternity wards, directly affects infection prevention and control and respectful care. Those with disabilities are also disproportionately affected

Recommendations

- **Develop and implement a county public sanitation policy** for market centers and transport nodes.
- **Invest in disability-friendly and gender-segregated sanitation** in HCFs, with a particular focus on maternity wards.
- **Invest in disability-friendly and gender-segregated sanitation** in schools.
- **Establish and finance public-private partnerships** for O&M of shared and public toilets.
- **Standardize construction and design guidelines** for shared sanitation in new housing developments.

2.3.3 Sanitation Challenges: Waste Management, Hygiene Practices, and Cultural Barriers

Sanitation service delivery in Bomet County faces a complex mix of **technical, behavioral, environmental, and cultural challenges**. These challenges vary by sub-county and are influenced **by infrastructure levels, geography, poverty, and community practices**.

2.3.3.1 Key Sanitation Challenges by Sub-County

Table 2.75: Summary of Key Sanitation Challenges by Sub-County

Sub-County	Top Challenges
Bomet Central	Aging shared latrines in urban cores, inadequate, inclusive sanitation for PWDs, and storm-related latrine collapse
Bomet East	Soil erosion and flooding are damaging sanitation structures, poor MHM support in schools, and HCFs
Chepalungu	Flooding, high open defecation pockets, low awareness of safe latrine design, and cultural resistance to shared latrines
Konoin	High water table affecting pit latrine sustainability, limited sludge management services
Sotik	Informal settlement sanitation crisis, flood-prone markets lacking public toilets, and poor menstrual health services

Top sanitation-related issues across Bomet County sub-counties, 2023.

2.3.3.2 Climate Impacts on Sanitation Infrastructure

Bomet is increasingly experiencing **floods and dry spells** that degrade pit latrines and increase the risk of **waterborne disease outbreaks**.

- **Flood-prone areas (e.g., Chepalungu, Silibwet, Ndanai, Chebunyo)** often report latrine collapse, which can contaminate nearby water sources.
- **Dry zones (e.g., Chepalungu highlands)** suffer from **poor latrine construction practices** in rocky terrain, limiting pit depth.

Estimated Impact:

- Over **45,000 households** countywide are exposed to **climate-vulnerable sanitation infrastructure**.

2.3.3.3 Waste Management and Hygiene Gaps

The **2023 HCF and School Sanitation Assessments** reported widespread hygiene and waste handling deficiencies:

a) Health Facilities:

- **71% lacked sanitary pad disposal bins.**
- **85% lacked private MHM spaces for women and girls.**
- **64% had no alcohol-based hand rubs, and 43% lacked functional handwashing stations.**

b) Schools:

- Only **27.5% had private MHM spaces**, and **24.8% provided soap and water** for menstrual hygiene.
- Most common solid waste disposal method: **on-site burning (44%)**, followed by **burying (29%)**.

2.3.3.4 Behavioral and Cultural Barriers

Community consultations and the Household WASH Survey revealed the following patterns:

Table 2.76: Behavioral Issue and the Prevailing Situation

Issue	Prevailing situation
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Unfamiliarity with alternative toilets	Most prefer pit latrines, resistance to pour-flush, and UDDT technologies.
Cost and affordability	Financial constraints are the most cited reason for not upgrading from unimproved latrines.
Stigmas around MHM	Girls report school absenteeism; few male caregivers are involved in MHM education.
Disability inclusion	Inadequate ramps/handrails cited as a major barrier to access by PWDs
Open defecation hotspots	Persist in low-income rural areas, especially Chepalungu and parts of Bomet East.

2.3.3.5 Recommendations

Table 2.27: Recommended Action Targeting Sub-Counties

Recommended Action	Target Sub-Counties
Construct climate-resilient sanitation facilities (elevated VIPs, lined pits)	Sotik, Chepalungu, Bomet East
Roll out MHM infrastructure and education in schools and HCFs	Countywide
Scale up fecal sludge management systems, especially in towns	Countywide
Provide sanitation subsidies and incentives for low-income households.	Countywide
Standardize inclusive sanitation for PWDs in all new public facilities	All sub-counties

2.3.4 Assessment of Fecal Sludge and Wastewater Management and Existing Treatment Facilities

Bomet County’s sanitation system is **overwhelmingly non-sewered and on-site**, composed primarily of **pit latrines and VIPs**, most of which lack proper containment or safe disposal infrastructure. The **volume of faecal sludge (FS)** generated continues to grow, yet **treatment and safe management remain minimal**, posing significant **public health and environmental risks**.

The **Shit Flow Diagram (SFD)** developed in 2022 by the County WASH Masterplan illustrates that **only 48% of faecal sludge is safely managed**, with **52% either not contained, unsafely emptied, or unsafely disposed of**.

2.3.4.1 Faecal Sludge Emptying and Disposal Practices

From the 2023 Household WASH Survey:

- **Only 5.2%** of respondents reported using formal pit latrine emptying services.
- Most emptying occurs through **manual or unregulated informal means**, particularly in **urban centers and high-density settlements** (e.g., Sotik, Longisa, Chebunyo).
- While **48 respondents in the sample** used vacuum trucks, this **underrepresents** actual countywide usage, given that the survey was **not a census**, there are likely **many more households** using such services, especially in urban and peri-urban zones.

Table 2.77: Reported Faecal Sludge Disposal Practices by Sub-County (2023)

Sub-County	Vacuum (%)	Truck Buried in Covered Pit (%)	Never (%)	Emptied Manual Emptying Observed (Est.)
Bomet Central	1.2%	7.6%	84.3%	Medium

Sub-County	Vacuum (%)	Truck Buried in Covered Pit (%)	Never Emptied (%)	Manual Emptying (Est.)	Observed
Bomet East	0.9%	8.3%	86.2%	High	
Chepalungu	0.6%	6.2%	89.1%	High	
Konoin	1.7%	8.0%	85.1%	Low	
Sotik	1.0%	7.9%	88.0%	Medium	

Source: Household WASH Survey 2023. Figures based on representative sampling.

2.3.4.2 Existing and Planned Infrastructure

- Only Bomet Town has a limited, partially functional **sewerage system** (coverage <10%) and **~750 m³/day capacity**.
- All other towns and rural areas (e.g., **Sotik, Longisa, Chebunyo, Ndanai**) rely exclusively on on-site containment.
- BOMWASCO owns a **9,000-litre vacuum truck**, but coverage is low due to cost, topography, and distance.
- There is **no central faecal sludge treatment plant (FSTP)** currently operational in the county.

Planned infrastructure under KUSP III includes a proposed 3,000 m³/day wastewater treatment plant for Bomet Town by 2027.

2.3.4.3 FSM Service Chain Performance (Shit Flow Diagram Summary)

Based on the 2022 Bomet County WASH Masterplan SFD:

- **48% of FS is safely managed** (mostly contained but not emptied),
- **44% is not contained and not emptied**, remaining untreated in pits,
- **6% is emptied but not delivered to treatment**, and
- **Only 1% is actually treated.**

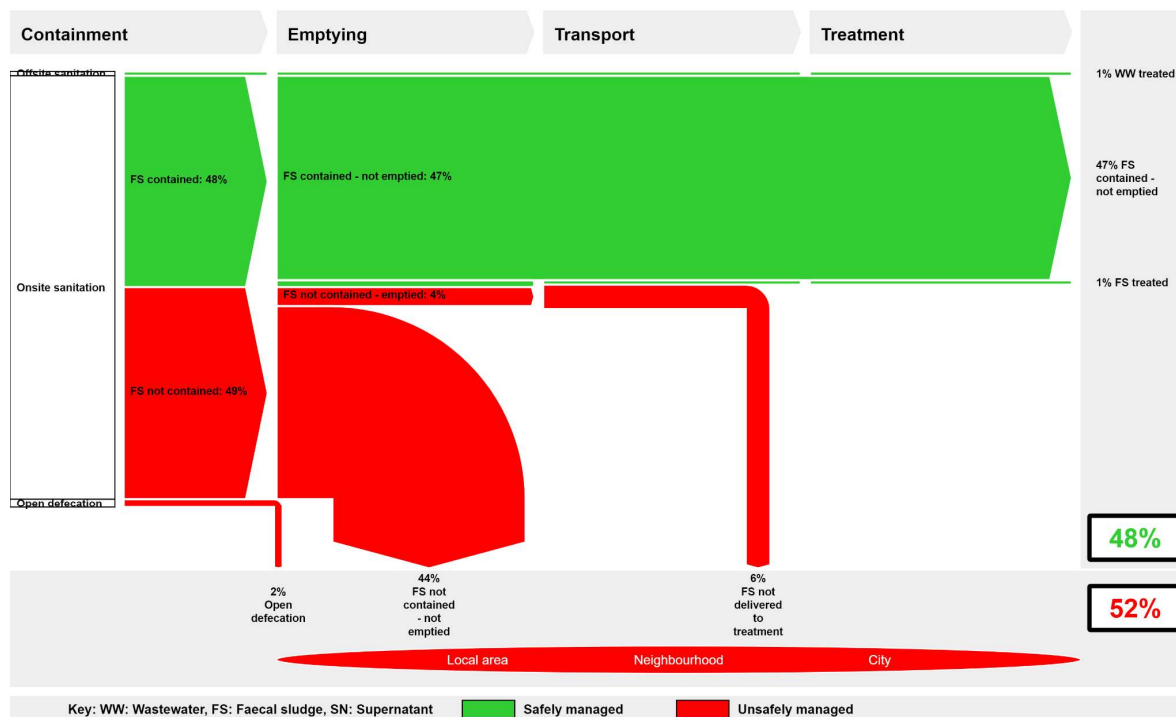


Figure 2.11: Shit Flow diagram of Bomet County

Source: SFD Graphic, Bomet WASH Masterplan 2022 (pg. 18).

From the above figure, the visual Summary of the FS Chain (from SFD) is summarized as blow:

- **FS Contained: 48%**
- **FS Not Contained: 49%**
- **Open Defecation: 2%**
- **FS Treated: 1%**

2.3.4.4 Challenges across the Sanitation Chain

The key gaps constraining FSM service performance include:

- **No FSTPs are currently operational**, despite rising demand.
- **Limited regulation or oversight** of emptying and disposal services.
- **The high density of unimproved latrines, especially in Sotik, Chepalungu, and parts of Bomet East, increases the risk of groundwater contamination.**
- **The cost of vacuum services** remains unaffordable for low-income households.
- **Poor accessibility** in hilly or informal settlements (e.g., Konoin, Boito) prevents truck access.

2.3.4.5 Sub-County FSM Coverage and Constraints

Table 2.78: FSM System Gaps by Sub-County

Sub-County	FSM Coverage (%)	FSM Challenges
Bomet Central	Low (<10%)	Limited to CBD; high cost of services
Bomet East	Very Low (<5%)	Remote terrain, informal zones, unsafe emptying
Chepalungu	Very Low (<3%)	No desludging providers, high use of unimproved pits

Sub-County	FSM Coverage (%)	FSM Challenges
Konoin	Low (~8%)	Terrain hinders vacuum access; unsafe reuse/discharge
Sotik	Low (<10%)	Dense informal areas; illegal disposal into drains reported

Recommendations

- **Establish decentralized FSTPs in Sotik, Longisa, and Chemaner.**
- **Introduce low-cost container-based sanitation options** for remote and flood-prone households.
- **Create incentives and finance mechanisms** for pit latrine emptying (via FLLoCA/NAWASIP).
- **Strengthen regulation** and licensing of pit emptying providers.
- **Promote public awareness** using simple FSM visual tools (e.g., SFDs, comic strips).
- **Incorporate FSM diagrams and planning into the county sanitation strategy** to inform investment sequencing.

2.4 Access to WASH for Schools and Healthcare Facilities

2.4.1 Status of Water Supply and Sanitation in Schools and Health Care Facilities

2.4.1.1 Water Supply and Sanitation in Schools

The WASH Situational Analysis for Schools (2025) surveyed 1,390 schools across Bomet County, highlighting critical infrastructural and service-level disparities:

a) Water Supply

- **Main Sources:** 55% of schools rely primarily on rainwater harvesting; boreholes and piped water are less prevalent.
- **Safe Water Access:** Only 55% of schools report having access to safe water; 36% of sampled water meets quality standards.
- **Treatment:** Just 33% of schools treat water before use, mostly through boiling or chlorine tablets.
- **Availability:** Many schools experience seasonal shortages during dry periods, which significantly disrupt hygiene practices.

b) Sanitation Infrastructure

- **Toilet Access:** 99% of schools have toilets, but only 29% are regularly cleaned.
- **Accessibility:** Only 28% of sanitation facilities are accessible to pupils with disabilities. Informal settlements and ECDE units face the largest service gaps.
- **Sanitation Types:** Most are basic pit latrines; sewer systems are absent, and many require urgent refurbishment.

c) Hygiene Facilities

- **Handwashing:** Only 51% of schools have designated handwashing stations; soap availability is inconsistent.
- **Menstrual Hygiene Management (MHM):** Only 28% offer private spaces or facilities for girls during menstruation, which impacts school attendance and retention.

d) WASH Operation & Maintenance

- 80% of schools lack a dedicated WASH budget, with reactive rather than preventive maintenance practices.

Table 2.79: Summary of WASH Status in Schools

WASH Component	Status Summary	Notes
Safe water access	55% of schools; water quality compliance at 36%	Seasonal risks
Toilet availability	99% have toilets; only 29% are clean	Needs regular O&M
Disability-access toilets	28% of schools	Very limited
Handwashing stations	51% presence; only a portion with soap	Hygiene gap
MHM support	28% of schools provide private spaces and basic supplies	Gender inclusion gap
WASH budgets & O&M	80% lack budgets; untrained maintenance staff	Institutional weakness

2.4.1.2 Water Supply and Sanitation in Health Care Facilities (HCFs)

The Bomet HCF WASH Assessment (2025) covered 198 facilities and identified the following trends:

Water Supply

- **Coverage:** 56% of facilities lack consistent water access at critical service points (e.g., maternity wards).
- **Treatment:** 68% do not treat water.
- **Storage:** 60% lack adequate storage (>1,000L).
- **Water Source Reliability:** 35% rely on off-site sources, making them vulnerable to supply interruptions.

Sanitation Infrastructure

- **Gender-Segregated Toilets:** Absent in 36% of facilities.
- **Disability Access:** 80% lack disability-friendly sanitation.
- **Maintenance:** 22% have non-functional toilets; 14% are poorly maintained.
- **Dedicated Staff Toilets:** 37.4% lack such provisions.

Hygiene and MHM

- **Handwashing Facilities:** Absent in 43% of facilities.
- **Hygiene Supplies:** Alcohol-based hand rubs are lacking in 64%.
- **MHM Provision:** Only 20% provide menstrual hygiene support; 15% offer private spaces.

Table 2.80: Summary of WASH in Healthcare Facilities

WASH Component	Status Summary	Notes
On-site water availability	56% have consistent access to critical points	Reliability issue
Water treatment	68% do not treat water	Health risk
Storage capacity	60% have <1,000L storage	Inadequate
Gender-segregated toilets	Absent in 36%	Dignity & privacy issues
Disability-accessible toilets	Only 20% have these	Inclusion gap
Handwashing stations	Absent in 43%	Basic hygiene needs
MHM provision	80% lack menstrual hygiene support	Disempowerment risk

Disparities across Institutions

- **ECDE centers and low-cost primary schools** are the most underserved in both water and sanitation.
- **Informal settlements and rural outposts** (e.g., Kapletundo, Chemagel) have the highest concentration of service gaps.
- **Health dispensaries and level II facilities** tend to have the weakest WASH services, especially in Konoin and Chepalungu sub-counties.

There is an urgent need to:

- Improve water reliability through solar-powered boreholes and water storage.
- Upgrade sanitation for safety, gender, and disability inclusion.
- Allocate dedicated WASH budgets for institutions.
- Integrate hygiene education and routine O&M training into school and health governance frameworks.

2.4.2 Hygiene Promotion Programs in Educational and Health Care Facilities

Menstrual Hygiene Management (MHM) is an integrated priority within hygiene promotion programs in schools and healthcare facilities. The CWSSIP proposes scaling up investments in inclusive sanitation facilities, the supply of MHM kits, and structured hygiene education for adolescent girls.

2.4.2.1 Current Health and Hygiene Awareness Initiatives

A. In Schools

Bomet County schools have implemented various hygiene promotion efforts, often supported by NGOs, development partners, and Community Health Promoters (CHPs):

- **Handwashing campaigns** during Global Handwashing Day and back-to-school drives are conducted annually, with support from the Ministries of Education and Health.
- Health Clubs, which exist in about 60% of public primary schools and are supported by teachers and local CHPs, often conduct hygiene sessions.
- **Menstrual Hygiene Management (MHM) awareness** is promoted in collaboration with the Ministry of Education and partners (e.g., UNICEF), targeting adolescent girls through dignity kits, peer mentorships, and talks.
- However, only **28% of schools have designated MHM spaces**, and 49% lack a consistent soap supply at handwashing points.

B. In Health Care Facilities (HCFs)

- Health education on hygiene and sanitation is offered in **less than half of the facilities**, primarily through maternal-child health units.
- **Infection Prevention and Control (IPC)** committees exist in **30% of facilities**, overseeing basic hygiene compliance.
- Only **26% of staff have been trained in IPC in the last 12 months**, limiting institutional consistency.
- Posters and IEC materials on **handwashing and safe sanitation** are displayed in about **60% of facilities**, but uptake is variable.

2.4.2.2 Potential Areas for Improvement and Expansion

Table 2.81: Priority improvement areas for scaling hygiene promotion in schools and healthcare facilities

Area for Improvement	Target Setting	Recommendations
Hygiene Curriculum Integration	All ECDE and primary schools	Develop standardized hygiene education modules integrated into daily school routines.
Soap and Water Supply	All learning institutions	Establish sustainable supply chains for hygiene consumables
MHM Support and Safe Spaces	All schools with girls aged 10+	Install MHM-friendly toilets and provide reusable sanitary pads
IPC Committees & SOPs in HCFs	All health facilities	Formalize IPC teams and provide updated protocols, training, and checklists.

Health Linkages	Clubs/CHP	All schools and dispensaries	Expand health clubs and link with trained CHPs and Community Health Assistants.
Behavioral Campaigns	Change	Flood- and drought-prone wards	Conduct ward-based WASH campaigns linked to climate resilience and DRR

2.4.2.3 Assessment of Climate-Adaptive and Inclusive WASH Infrastructure

The review of WASH infrastructure in schools and health facilities revealed **low levels of climate and inclusion sensitivity** in design and implementation:

a) Climate Adaptiveness

- **Flood-prone zones** (e.g., Chepalungu, Sotik, and Bomet Central) lack **raised latrine platforms and stormwater drainage**, resulting in frequent facility damage.
- **Rainwater harvesting tanks** exist in only **55% of schools** and **42% of HCFs**, many of which lack first-flush or treatment mechanisms.
- **Hygiene stations** are often unshaded or lack gravity-fed designs, making them unsuitable for water-scarce months.

b) Inclusivity

- Only **28% of schools** and **20% of HCFs** have **disability-accessible WASH infrastructure**, such as ramps, widened doors, or handrails.
- **MHM privacy gaps** remain significant in both sectors.
- There are **limited gender-segregated hygiene stations** in mixed schools and smaller HCFs.

These infrastructure deficiencies limit the ability of institutions to respond effectively to climate shocks and to provide safe, dignified services for all users, particularly women, girls, and persons with disabilities.

4. Strategic Recommendations

- **Retrofit handwashing stations** with accessible and climate-resilient features (e.g., solar taps, elbow-operated, shaded).
- **Mainstream inclusive design standards** are included in all new sanitation and hygiene facility investments under CWSSIP.
- **Promote WASH-DRR integration**, including hygiene messaging during climate response (flood, drought, cholera outbreaks).
- **Fund continuous training** for school health teachers and IPC focal persons to drive sustainable behavioral change.

2.4.3 Challenges and Gaps in Service Provision

2.4.3.1 Menstrual Hygiene Management (MHM) Approaches

a) In Schools

- Only **28% of schools** in Bomet County offer **designated MHM spaces**, often lacking water, privacy, or disposal options.
- **NGOs and CHPs occasionally distribute reusable sanitary pads**, but the supply is inconsistent.
- Most schools **do not integrate MHM education** into the curriculum.

- **Girls miss school** during menstruation due to inadequate facilities or fear of embarrassment, particularly in rural and informal settlement schools.

b) In Healthcare Facilities

- **80% of HCFs** do not provide **MHM products** to adolescent girls or women during outpatient visits or deliveries.
- Only **15% have private MHM-friendly sanitation areas**.
- **No standardized budget** allocation for MHM across institutions, leading to ad hoc approaches and stock-outs.

2.4.3.2 Medical Waste Management Approaches (HCFs)

Table 2.82: Medical Waste Management Approaches (HCFs)

Deficient Practice	Prevalence	Implications
Inadequate incinerators	65% of HCFs	Open burning or burial of medical waste poses a public health risk
Poor segregation practices	47% do not use color-coded bins	Increases infection risk and undermines proper disposal systems
Placenta pit inadequacy	43% have unsafe or insufficient pits	Unsafe disposal threatens groundwater and sanitation infrastructure
PPE shortage for waste handlers	66% lack full PPE	High occupational exposure for cleaners and sanitation staff
Absence of regulated disposal sites	The county lacks centralized disposal hubs	Illegal or unsafe dumping of hazardous healthcare waste

Source: HCF Survey

2.4.3.3 Barriers to Access: Affordability and Social Norms

Access to adequate WASH services—particularly in schools and healthcare facilities—is hindered by both economic **constraints** and **deeply rooted social norms**. These barriers disproportionately affect women, girls, persons with **disabilities**, and low-income households.

Affordability Constraints

- **Limited WASH Budgeting in Institutions:** Approximately **80% of schools** and **most healthcare facilities** lack dedicated WASH budgets. As a result, sanitation and hygiene investments are **reactive and emergency-driven**, rather than routine or preventative.
- **High Cost of Sanitation Hardware for Households:** Essential WASH components such as **SATO pans, MHM kits, and water tanks** remain unaffordable to many **low-income households**, particularly in rural and peri-urban areas, unless subsidized by NGOs or government programs.
- **Exclusionary User Fees:** In urban areas like **Bomet Town**, public sanitation facilities may charge **user fees**, inadvertently excluding the most vulnerable populations—**informal workers, older people, and persons with disabilities**—from safe and dignified sanitation.
- **Systemic Gaps in WASH-Related Medical Supplies:** The **inconsistent availability of PPE** and essential hygiene products in health facilities suggests **broader inefficiencies in the county’s medical supply chain**. These gaps likely extend to critical items such as **soap, gloves, sanitary pads, and disinfectants**, further constraining effective WASH service delivery and infection control.

Social and Cultural Norms:

- **Menstrual Taboos and MHM Neglect:** Cultural taboos around menstruation discourage open dialogue and limit community investment in **Menstrual Hygiene Management (MHM) infrastructure**, particularly in mixed-gender environments like schools.
- **Gendered Power Dynamics in WASH Decisions:** **Women and girls are often excluded** from decision-making on the design and location of WASH facilities in schools and public institutions, resulting in infrastructure that does not adequately meet their needs.
- **Stigma Among Male Stakeholders:** Discomfort and stigma among **male caregivers, teachers, and community leaders** reduce their engagement in initiatives that prioritize the sanitation needs of girls, especially around MHM.

2.4.3.4 Strategies for Improving Inclusivity and Sustainability

The table below shows the inclusive and sustainable WASH strategies tailored to Bomet County’s institutional and social context:

Table 2.83: Key Strategies for Inclusive and Sustainable WASH in Schools and HCFs

Challenge Area	Recommended Strategy	Lead Institutions / Partners
MHM in schools and HCFs	- Construct MHM rooms - Provide reusable pad kits - Integrate MHM into the curriculum	MoH, MoE, County Gender Office, NGOs
Waste management in HCFs	- Construct incinerators - Provide color-coded bins - Train waste handlers	Dept of Health, NEMA, County Works
Access for PWDs	- Retrofit sanitation facilities with ramps, handrails, and wider doors	Dept. of Public Works, CDoH, Education Dept.
Affordability for low-income HHs	- Establish Sanitation Support Fund - Offer micro-loans/vouchers for toilets	Treasury, Financial Institutions, FLLoCA
Sustainability of services	- Institutionalize WASH budgets - Train local artisans - Promote O&M contracts	CDoH, Dept. of Education, BOMWASCO
Behavioral change & social norms	- Engage male champions - Community dialogues- Use school health clubs	CHPs, Religious Leaders, Health Clubs

2.4.3.5 Gaps in Policy, Planning, and Budgeting

- **No formal WASH policy** for institutions at the county level, though the CWSSIP will address this gap.
- **Inconsistent coordination** between the Departments of Health, Education, and Water.
- **Inadequate WASH monitoring systems** (e.g., digital dashboards) for real-time assessment and early response.
- Climate-adaptive infrastructure remains **undervalued in budgetary allocations**, exposing vulnerable institutions to disruption.

2.5 WASH Plus/Multiple Use Water (MUS) Services

2.5.1 Water Needs Beyond Domestic Use: Small-Scale Irrigation, Livestock, and Industry

2.5.1.1 Overview of Multiple-Use Water Services (MUS)

In Bomet County, water needs extend beyond domestic use to include livestock watering, small-scale irrigation, institutional consumption, and agro-processing activities. These multiple uses place additional demands on available water sources, particularly in rural and peri-urban areas. Table 2.8 below highlights key areas where Multiple Use Water Services (MUS) are prevalent, along with the recommended service delivery strategies.

Table 2.84: Priority Areas for Multiple Use Water Services (MUS) and Proposed Strategies

Sub-County / Area	Dominant Water Uses Beyond Domestic	Proposed MUS Strategy
Sotik (Ndanai, Kapletundo)	Livestock watering, small-scale irrigation	Gravity-fed piped MUS schemes and livestock watering points
Konoin (Mogogosiek, Kimulot)	Tea agro-processing, rainfed horticulture	Spring protections with storage tanks; dual-use pipe systems
Chepalungu (Sigor, Nyangores)	Livestock grazing corridors	Boreholes with solar pumps and communal animal troughs
Bomet Central (Singorwet, Township)	Institutional water use (schools, health facilities)	Expanded piped connections; school-based rainwater harvesting
Bomet East (Merigi, Kipreres)	Rainfed crop production	Household rainwater harvesting and micro-irrigation kits

Source: Bomet County CWSSIP Field Assessments, 2025.

Recognizing the multiple demands placed on water services is crucial for designing infrastructure that meets communities' broader livelihood needs. The CWSSIP prioritizes investments that integrate MUS principles into both rural and urban water supply interventions to maximize social, economic, and environmental benefits.

2.5.1.2 Assessment of Current Multi-Use Water Demand and Coverage

The table below summarizes the major productive water needs by sector and current coverage levels.

Table 2.85: Multi-Use Water Demand and Service Coverage by Livelihood Sector in Bomet County

Water Use Sector	Water Demand Characteristics	Current Coverage Status	Constraints
Smallholder Irrigation	~25% of farmers use water for vegetable, fruit, or cereal plots	Mostly seasonal; <12% under irrigation (rainfed dominant)	Unlined canals, inadequate storage, erratic rainfall
Livestock Watering	Dairy (zero-grazing), poultry, goats, and small herds	High reliance on river springs, shared with households	Seasonal drying, conflict, and water quality issues

Small-scale Industry	Milk cooling, car washes, agro-processing, brick-making	Limited to urban areas with piped systems	Supply interruptions, high tariffs, and poor infrastructure
Household Enterprises	Salons, food vending, and small laundries	Mostly use water from domestic connections or vendors	Intermittent supply, low pressure, water rationing

2.5.1.3 Challenges in Meeting Multi-Use Water Demand

- **Infrastructure is not designed for multi-use:** Piped systems often lack adequate flow and pressure to support irrigation or light industry.
- **Inadequate integrated planning:** Water needs for agriculture, livestock, and small enterprises are often excluded from domestic WASH project designs.
- **Seasonal water variability** and climate risks (drought, flooding) disrupt productivity cycles.
- **Institutional silos** between the Water Department, Agriculture, and Livestock departments hinder coordinated MUS rollouts.
- **User conflicts** arise over shared sources (e.g., livestock vs. domestic needs during dry seasons).

2.5.1.4 Role of Climate-Smart Agriculture and Water-Efficient Technologies

To sustainably expand MUS services, Bomet County is beginning to integrate climate-smart water strategies. This includes tapping protected springs for gravity-fed micro-irrigation, integrating agricultural productivity with source protection.

a) Small-Scale Irrigation

- Drip and sprinkler irrigation promoted through farmer field schools and NGO-supported demonstrations.
- Micro-catchment development and lined canals piloted in Chepalungu to improve water efficiency.
- Micro-irrigation systems drawing from protected springs have been scaled in Konoin and Kipereres, enabling smallholder farmers to extend the growing season for vegetables and high-value crops. These systems leverage gravity-fed layouts for cost-effectiveness and energy savings.

b) Livestock Watering

- Solar-powered community boreholes and communal troughs under **FLLoCA and KCSAP** funding.
- Borehole siting aligned with grazing corridors to reduce herd stress and prevent land degradation.

c) Rainwater Harvesting for Livelihoods

- Rooftop tanks and gutters promoted for use in poultry and vegetable farming households, with mixed success due to **tank cost and size limitations**.

d) Agro-Processing Units

- BOMWASCO systems support milk cooling plants in Sotik and small tea factories in Konoin, though intermittent supply affects reliability.

2.5.1.5 Strategies for Integrated Water Service Delivery

The table below outlines approaches to strengthen MUS systems by aligning WASH services with productive water uses.

Table 2.86: Strategies for Expanding Integrated Multi-Use Water Services (MUS)

Strategy	Application	Lead Actors
Incorporate MUS in rural piped scheme designs	Include livestock troughs and irrigation outlets	Dept. of Water, BOMWASCO, WaterFund, NGOs
Promote climate-resilient irrigation technology.	Support drip kits, lined pans, and rainwater storage	Dept. of Agriculture, CBoSs, World Bank/FLLoCA
Integrate MUS into small dam/pond development.	Support kitchen gardens, fish farming	Dept. of Fisheries, WRUAs, WRA
Bundled financing for WASH and livelihoods	Link water projects with agriculture/livelihood funding	County Treasury, National Treasury, Donors
Community water use committees for shared governance	Resolve conflicts, improve O&M, and track usage	WRUAs, Community Water Committees

2.5.1.6 Investment Potential and Cross-Sectoral Benefits

- Expanding MUS services would **boost economic productivity**, improve **household nutrition**, and enhance **climate resilience**.
- The CWSSIP investment framework recommends bundling **WASH + MUS projects** with co-benefits across the **agriculture, health, and education sectors**.
- Viable funding streams include **NAWASIP, KCSAP, FLLoCA**, and **blended finance models** with SACCOs and micro-finance institutions.

2.5.2 Role of Water User Associations in Managing Multiple-Use Services (MUS)

2.5.2.1 Community-Led Management and Governance Models

In Bomet County, **Water User Associations (WUAs)** and **community-based water management committees** are central to the governance and operation of small—to medium-scale rural water supply schemes. Many of these schemes serve multiple functions, including domestic supply, livestock watering, small-scale irrigation, and micro-enterprise support.

a) Current Models in Use

- **Community Water Projects (CWPs)** operate under informal governance with elected committees responsible for tariff setting, minor repairs, and dispute resolution.
- A few schemes in **Chepalungu, Konoin, and Bomet East** have transitioned into formal **WRUA-WUA hybrid models** under guidance from the **Water Resources Authority (WRA)** and NGOs such as **WaterFund**.
- Some multi-use systems are linked to **Self-Help Groups (SHGs)** or cooperatives (especially dairy and horticulture groups), aligning water governance with income-generation priorities.

b) Institutional and Legal Gaps

- Most WUAs lack formal registration or licenses under the Water Act (2016), limiting regulatory oversight and access to public financing.
- There is no standard policy guiding **MUS governance** within WRUAs or BOMWASCO’s extension framework.
- Technical support is fragmented and donor-dependent, with **limited government investment in institutional strengthening**.

2.5.2.2 Strategies to Enhance Resilience in MUS Systems

Climate risks such as **prolonged droughts, flash floods, and seasonal water scarcity** pose significant challenges to MUS service reliability and sustainability. Enhancing resilience requires **tailored interventions** at the system design, governance, and operational levels.

The table below presents recommended adaptation and risk management strategies.

Table 2.87: Resilience Strategies for Community-Managed MUS Systems

Risk Type	Impacted Water Use	Resilience Strategy	Lead Actors
Seasonal Drought	Livestock watering, irrigation	Construct sand/subsurface dams; promote rotational watering schedules	WRUAs, Dept. of Agriculture, NGOs (e.g., Dig Deep)
Flash Flooding	Gravity-fed latrines systems,	Raise intake boxes, line trenches, and build diversion channels	Water Dept, WRUAs, WRA, CSOs/NGOs (incl. Dig Deep)
Low Recharge Rates	All water uses	Promote spring protection, afforestation of catchments	KFS, WRUAs, CCU, Climate Fund Managers, Dig Deep
Infrastructure Damage	Distribution & storage	Introduce preventive maintenance schedules; elevate tanks in high-risk areas.	BOMWASCO, County Public Works, and NGO partners supporting community schemes
Governance Conflicts	Shared sources (domestic vs. livestock/agriculture)	Develop MUS-specific bylaws, support joint planning forums	WRUAs, WUAs, Chiefs/Sub-county admins, CBOs/NGOs

Tailored risk mitigation strategies for enhancing climate resilience in MUS governance systems.

2.5.2.3 Best Practices and Capacity-Building Needs in MUS Implementation

Bomet County has several success stories that demonstrate how **localized governance, training, and technology** integration can enhance MUS sustainability:

a) Best Practices

- **Konoin Dairy Water Initiative:** This is a farmer-led gravity system integrated with milk cooling, managed by a registered cooperative. Regular tariff collection and technical maintenance support have led to strong scheme performance.
- **Sotik Women’s Group Irrigation Scheme:** Demonstrates how gender-inclusive planning and rainwater harvesting have enhanced year-round vegetable farming for 85 households.
- **Chepalungu WRUA–WUA Collaboration:** Coordinated protection of shared spring source for both irrigation and domestic use, reducing disputes through community bylaws and seasonal abstraction rules.

b) Capacity Building Needs

Table 2.88: Capacity Building Needs

Need Area	Recommended Intervention	Delivery Partner
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Financial management	Train WUAs on transparent bookkeeping, user fee tracking	County Treasury, NGOs, WRMA
Climate risk literacy	Integrate seasonal forecasting and hazard response into planning	CCU, Dept. of Water, WRMA
Technical O&M	Skill-building for caretakers and local technicians	Water Dept..., Technical Training Institutes
Gender and social inclusion	Sensitize leaders on inclusive governance	Dept. of Gender, CHPs, Youth Networks
Legal literacy and compliance	Support registration and WRUA/WSP licensing pathways	County Legal Office, WASREB

2.5.2.4 Strategic Outlook for Strengthening MUS Governance

To embed sustainability and equity in MUS services, the CWSSIP proposes:

- Develop a County MUS Guideline integrated within WRUA/WUA manuals.
- Expansion of the **Climate Resilient WASH Fund** to support MUS retrofitting and catchment protection.
- Establishment of a **County MUS Coordination Taskforce** to harmonize planning across Agriculture, Water, Livestock, and Climate Units.
- Promotion of **PPP models** for MUS-related innovations such as **solar irrigation, water reuse, and small-scale aquaculture**.

3.0 WATER AND SANITATION SERVICES INSTITUTIONAL STRUCTURE AND FINANCING

3.1 Sector Governance and Service Delivery Models

3.1.1 Overview of Institutions Responsible for Water and Sanitation Service Provision

3.1.1.1 Legal and Policy Framework

The water and sanitation sector in Kenya is governed by a strong institutional framework defined under the **Water Act 2016**, aligned to the **Constitution of Kenya 2010**, and guided by strategic instruments such as:

- a) **National Water Policy (Draft, 2021)**
- b) **National Water Services Strategy (2020–2025)**
- c) **NAWASIP 2022–2030**
- d) **Environmental Management and Coordination Act (EMCA), 1999**

Under the **Fourth Schedule of the Constitution**, water and sanitation are **devolved functions**. The national government is responsible for policy, regulation, and large-scale infrastructure, while **county governments** handle planning and service delivery at the local level.

3.1.1.2 Key National-Level Institutions and Their Mandates

The table below outlines the core national agencies involved in water and sanitation governance and their mandates.

Table 3.1: The core national agencies involved in water and sanitation governance and their mandates

Institution	Mandate
Ministry of Water, Sanitation & Irrigation (MoWSI)	Develops national policy, strategies, sector monitoring, and intergovernmental coordination
Water Services Regulatory Board (WASREB)	Regulates service provision, licenses WSPs, sets tariff guidelines, and monitors performance.
Water Sector Trust Fund (WSTF)	Provides grants for underserved areas, supports pro-poor and climate-resilient investments
Water Resources Authority (WRA)	Manages and regulates water resource use and water permits
Water Works Development Agencies (WWDAs)	Develops bulk and cross-county infrastructure and supports county capacity and investment delivery.
Water Tribunal	Handles legal disputes and appeals arising from sector conflicts

3.1.1.3 County-Level Institutions in Bomet

Table 3.2: The County Institution and Its Mandate and Role

Institution	Mandate and Role
-------------	------------------

County Government of Bomet (Department of Water)	Planning, funding, and oversight of water and sanitation services; enforcement of local regulations
Bomet Water and Sanitation Company (BOMWASCO)	Licensed Water Service Provider (WSP) under WASREB, responsible for urban water supply and limited sanitation services
Department of Public Health	Leads hygiene promotion, institutional WASH (schools, HCFs), and sanitation regulation
County Climate Change Unit (CCU)	Integrates climate resilience into water planning and infrastructure design
County Assembly and Treasury	Approves water-related legislation, budgets, and investment plans

3.1.1.4 Informal and Community-Based Arrangements

Outside formal institutions, numerous **community-managed water schemes** and **Water User Associations (WUAs)** exist across Chepalungu, Konoin, and Bomet East. These schemes are governed by local committees responsible for:

- Routine maintenance and tariff collection
- Conflict resolution and demand management
- Engagement with NGOs and WRA for abstraction permits

However, they often lack:

- Formal registration or licensing
- Technical capacity for preventive maintenance
- Integration with BOMWASCO or the county's planning framework

3.1.1.5 Institutional Coordination and Gaps

Observed challenges include:

- **Overlap of mandates** between BOMWASCO, the Department of Water, and national agencies (e.g., LVSWWDA), leading to fragmented planning and implementation.
- **Weak inter-agency coordination**, especially in sanitation, where responsibilities are split across the Departments of Health, Environment, and Public Works.
- **Low enforcement of WASREB standards** in rural and peri-urban schemes.

3.1.1.6 Role of the Bomet County WASH Hub in Sector Coordination

To enhance coordination, learning, and performance-based implementation across the WASH sector, Bomet County has established the **Bomet County WASH Hub** — a multi-stakeholder platform tasked with:

- Supporting **county-wide coordination** of WASH actors (government, mainly drawn from health, environment, and water departments, utilities, NGOs, and community groups),
- Anchoring **data harmonization and system alignment** with platforms such as mWater, KDHS, and WASREB dashboards,
- Facilitating **joint reviews, policy dialogue**, and **sector learning** forums,
- Overseeing **monitoring and evaluation** of WASH outcomes linked to the CWSSIP and K-WASH disbursement-linked indicators (DLIs).

The WASH Hub has played an instrumental role in developing and validating the current CWSSIP. It has hosted quarterly learning sessions on key themes such as **sanitation marketing, FSM systems, and inclusive design for schools and HCFs**.

3.1.1.7 *Budgetary and Institutional Considerations*

To strengthen its long-term institutional sustainability and impact, the CWSSIP proposes that the **WASH Hub be formally institutionalized** as the County WASH Coordination Unit and allocated a **dedicated annual coordination budget line**. This will support:

- Staffing and operational costs for coordination and data functions,
- Hosting stakeholder learning workshops and strategic reviews,
- Managing digital WASH Monitoring and Evaluation systems (MIS),
- Supporting the oversight of results-based performance indicators (DLI-linked M&E).

This investment aligns with national frameworks, including the **WSIGCCF under NAWASIP**, and strengthens Bomet's ability to deliver integrated, efficient, and inclusive WASH services.

3.1.2 **Role of County Government, Water Service Providers (WSPs), and Community-Based Organizations**

3.1.2.1 *Responsibilities of the County Government in Water and Sanitation*

Under the Constitution of Kenya 2010 and the Water Act 2016, **county governments** are fully devolved units responsible for the **planning, provision, regulation, and supervision** of water and sanitation services within their jurisdictions. In Bomet County, these responsibilities are implemented through the **Department of Water, Environment, and Natural Resources** alongside BOMWASCO.

a) **Key County-Level Responsibilities:**

- **Establishment and oversight of Water Service Providers (WSPs)** such as BOMWASCO.
- **Policy development**, fiscal planning, and budgeting for county water and sanitation services.
- **Infrastructure investment**, including borehole drilling, pipeline expansion, storage tanks, and public sanitation.
- **Catchment management** and promotion of climate resilience in partnership with WRA and WRUAs.
- **Enact and enforce county-level WASH regulations**, such as tariff control and service standards.
- **Protection of underserved and marginalized communities**, ensuring alignment with the constitutional right to water and SDG 6.

"The County Government ensures access to WASH services by establishing WSPs, managing catchments, and protecting the interests of underserved consumers through investment planning and cross-county collaboration."

3.1.2.2 *Formal Service Providers: BOMWASCO*

Bomet Water and Sanitation Company (BOMWASCO) is the primary formal WSP licensed by WASREB to serve urban and peri-urban areas in Bomet County.

a) **BOMWASCO's Key Functions:**

- Provides **urban water supply and limited sanitation services**, including exhauster and water bowser services.
- Operates **15 schemes**, including Bomet, Sotik, Longisa, Olbutyo, Ndanai, Sigor, Itare, Kamureito, and others, with a combined design capacity of 24,990 m³/day.
- Serves approximately **23% of the population with water** and **2% with sanitation**, mostly through septic emptying and tanker supply.
- Mandated to implement **performance contracts, commercial tariff structures**, and ring-fenced operations under WASREB oversight.

b) Challenges:

- **High non-revenue water (>50%)**, aging infrastructure, financial losses, and underperformance of schemes.
- **Bulk consumers and government departments** contribute to arrears and poor cost recovery.

BOMWASCO is mandated under a Service Provision Agreement and regulated through WASREB, but struggles with cost recovery, infrastructure backlog, and service reliability across all schemes.

3.1.2.3 Community-Based and Informal Service Providers

a) Community-Based Water Schemes (CBWSs)

These operate predominantly in rural areas and function under **Community-Based Management Models (CBM)**. They are:

- Run by community-elected committees.
- Responsible for tariff collection, maintenance, and stakeholder liaison.
- Examples: **Taboino, Tenwek, Kapkesosio, Sogoet, and Tinet** schemes.
- Serve ~20–25% of the population but face challenges in technical capacity, revenue collection, and sustainability.

b) Informal Water Vendors

- Typically, unregulated vendors use tanker trucks or jerrycan distribution to fill service gaps during outages or dry seasons.
- Common in **informal settlements**, especially in peri-urban Bomet and Sotik.
- Price and quality vary; water is often sold at **2–4× the BOMWASCO tariff**.

c) Self-supply and Household-Level Systems

- Over **80% of rural households** rely on **self-managed sources** (e.g., shallow wells, protected springs, and rainwater harvesting).
- This model is cost-effective but lacks quality assurance and regulation.

d) Private Operators and NGOs

- NGOs like **Aqua Clara, World Vision, and Dig Deep** implement and support small-scale schemes and school/institutional WASH.
- Private firms assist with **borehole drilling, water ATM installations, and sanitation hardware**.

Community models provide essential rural coverage but are vulnerable due to inadequate legal recognition, poor cost recovery, and weak O&M systems.

Table 3.3: Strengthening Service Provision Models

Service Model	Recommendation
---------------	----------------

Public Utility (BOMWASCO)	Expand scheme coverage, reduce NRW, improve metering, and adopt performance-based O&M
Community-Based Schemes	Formalize through WRUA/WSP licensing and provide technical training and subsidy support.
Private Sector Engagement	Develop PPP frameworks for delegated schemes and kiosks and ensure tariff protection.
Informal Providers	Regulate vendors through licensing and water quality testing.
Self-Supply Systems	Integrate into county water planning to support households with water quality kits.

3.1.3 Role of Communities and Community Organizations in Managing Water Systems

3.1.3.1 Community-Based Water Management in Bomet County

In rural Bomet, **community-managed water schemes** remain a primary mode of service delivery for populations not served by BOMWASCO. These are often organized through:

- **Water User Committees (WUCs),**
- **Water User Associations (WUAs),** and
- **Community-based organizations (CBOs).**

These groups play a critical role in planning, constructing, operating, and maintaining water systems. They also **collect user fees**, organize **local repairs**, and mobilize communities for source protection (e.g., spring fencing).

Examples of active schemes include:

- **Taboino, Sogoet, Kapkesosio, Tenwek Hospital, and Tinet,** among others.

However, only a minority are **formally licensed or trained**, creating a regulatory and technical gap.

3.1.3.2 Consultation and Feedback Mechanisms

Community engagement in water governance in Bomet has evolved through several mechanisms:

a) Public Participation Forums

- These include **ward barazas, CIDP planning forums,** and **WASH project launches**, which offer platforms for communities to express water service concerns.
- For example, the **Bomet CWMP 2019 process** and **PCRA 2023** included structured community consultations at the sub-county level.

b) WUC Meetings and AGMs

- Most WUCs hold **monthly meetings**, but with **limited record-keeping and transparency**. AGM attendance is often low unless triggered by system breakdowns.

c) Feedback Channels

- There are **no formal digital or toll-free feedback platforms** for rural schemes.
- BOMWASCO has piloted **complaint handling and prepaid metering feedback** in Bomet and Sotik, which could be scaled to rural WUAs.

Community monitoring and reporting systems remain informal, highlighting the need to institutionalize community voice in scheme performance management.

3.1.3.3 Compliance and Enforcement Mechanisms

Table 3.4: Compliance Area and Status in Community Schemes

Compliance Area	Status in Community Schemes	Challenges
WASREB Licensing	Very few community schemes are licensed	Low awareness, cost barriers
Tariff Setting	Most use flat rates, not aligned with cost recovery principles	No tariff regulation or enforcement capacity
Water Quality Monitoring	Rarely conducted; most supply untreated water	Inadequate training, test kits, or regulation
Infrastructure Standards	Limited adherence to design and safety standards	Poor supervision during construction
Financial Reporting	Inconsistent; funds are often not ring-fenced or audited	Weak governance and transparency

WASREB Impact Report 2024 estimates **non-revenue water in community schemes at over 61%**, due in part to flat rates, unmetered use, and infrastructure loss.

3.1.3.4 Strategic Opportunities to Strengthen Community-Led Governance

Table 3.5: Intervention Area and Actionable Recommendations

Intervention Area	Actionable Recommendations
Capacity Building	Train WUCs/WUAs in financial management, water quality control, tariff setting, and record-keeping
Legal Compliance Support	Support registration and licensing through simplified WASREB compliance pathways
Performance Monitoring	Institutionalize community scorecards and mobile feedback tools for service quality assessments
Gender and Inclusion	Ensure women, youth, and persons with disabilities are represented in WUCs
Integration with Formal WSPs	Cluster small schemes under BOMWASCO or umbrella cooperative WSPs to gain scale and professional support

Community organizations are essential to rural water sustainability in Bomet, but lack formal support systems. The CWSSIP recommends:

- Formalizing community-managed models under **county policy and regulatory frameworks**,
- Providing **capacity enhancement and financial tools**, and
- **Institutionalizing public feedback mechanisms** that close the loop between service delivery and user needs.

3.1.4 Public-Private Partnership (PPP) Opportunities in Service Delivery

3.1.4.1 Rationale for PPPs in the Water and Sanitation Sector

PPPs offer a mechanism for mobilizing **private sector financing, technical expertise, and operational efficiency** in the delivery of water and sanitation services. Given the **funding gaps, aging infrastructure, and limited public-sector capacity** in Bomet County, structured PPP arrangements can enhance service coverage, sustainability, and innovation.

Kenya's **PPP Act 2013** and the Water Act 2016 establish a supportive policy and regulatory framework for counties to engage private actors in infrastructure development, service operation, and performance-based management models.

3.1.4.2 Successful Case Studies and Lessons Learned

Kenya has piloted PPPs in various counties that offer replicable lessons for Bomet:

Case 1: NAWASSCO (Nakuru) Prepaid Meter Project

- *Structure:* Commercial bank loan of KES 23 million combined with a WSTF grant for prepaid meters.
- *Result:* 100% collection rate, 72% NPV profitability over five years, and zero paper billing.
- *Lesson:* Blending concessional finance with donor grants reduces risk and attracts private capital.

Case 2: EWASCO (Embu) Pipe Infrastructure Expansion

- *Structure:* KES 81.5 million loan backed by a partial guarantee and performance-based subsidy.
- *Lesson:* Output-Based Aid (OBA) can incentivize private providers to invest in underserved areas while recovering costs through performance metrics.

Case 3: KIWASCO (Kisumu) Treatment and Distribution Expansion

- *Structure:* USD 245,000 loan from a commercial bank, repaid in 5 years, with 50% interest covered by a subsidy.
- *Lesson:* Technical assistance in developing bankable proposals is critical for utility-driven PPPs.

3.1.4.3 Opportunities for PPPs in Bomet County

Table 3.6: Potential PPP Applications in Bomet's Water and Sanitation Sector

Service Area	PPP Opportunity	Role of the Private Sector	Public Incentive Mechanisms
Urban & peri-urban water	Lease or management contracts for underperforming BOMWASCO schemes	Operations, revenue collection, metering	Performance-based subsidy, tariff security
Rural kiosks & bulk supply	Delegated management of water kiosks, bowsers	Service provision, last-mile delivery	Licensing, access to OBA or WSTF grants
Solarized boreholes	Design-build-operate contracts with renewable energy providers	Capital investment, O&M	Asset leasing, VAT exemptions
Decentralized FSTPs	Design-build-operate for sludge treatment plants	Facility construction and operations	County land, minimum volume guarantees
Smart metering & ICT	Installation & maintenance of digital customer platforms	Technical innovation, efficiency tracking	Data access, integration with county IT systems

Target areas for PPP structuring in Bomet's WASH service delivery chain.

3.1.4.4 Risks and Risk Mitigation Measures

Table 3.7: Risks and Risk Mitigation Measures

Risk Type	Mitigation Strategy
Demand risk (low connection uptake)	Market assessment and phased roll-out tied to community willingness to pay
Tariff risk (affordability pressure)	County-approved pro-poor tariff banding and subsidy blending
Political risk	MOUs and Service Provision Agreements (SPAs) are protected under the PPP Act.
Technical performance gaps	Output-based contracts and third-party verification
Financial risk	Partial credit guarantees, e.g., WB-backed PPP facilities

WASREB has endorsed PPPs under output-based models (OBA) and bulk water supply frameworks, contingent upon compliance with licensing and monitoring standards.

3.1.4.5 Strategies for Mobilizing Private Sector Participation

To operationalize PPPs in Bomet, the CWSSIP recommends:

- **Developing a County PPP Policy and Implementation Framework** aligned with the national PPP Directorate.
- **Creating a PPP pipeline of priority projects** with pre-feasibility studies, risk matrices, and cost-recovery models.
- **Stakeholder engagement** through roundtables with banks, micro-finance institutions, and technology firms.
- **Incentive structures**, such as land grants, connection fee rebates, and performance-linked grants for private operators.

3.1.4.6 Blended Finance and Innovative Models

Bomet can leverage innovative financing approaches to attract capital:

- **Blended finance** combining public CAPEX (e.g., county allocations) with donor support (e.g., WSTF) and commercial loans for scaling.
- **Green bonds or social impact bonds** for climate-resilient infrastructure (e.g., solar pumping, wastewater recycling).
- **Performance-based contracts (PBCs)** are tied to NRW reduction, hours of supply, and water quality.

A well-regulated PPP ecosystem, backed by sound legal frameworks and risk-sharing instruments, can unlock the private sector's potential to deliver on universal access goals. The CWSSIP will identify pilot PPP-ready projects, establish county PPP guidelines, and mobilize development partners for blended investments in **sewered and non-sewered sanitation** and **multi-use water systems**.

3.2 Sector Funding Arrangements

3.2.1 Sources of Funding (County Budgets, National Transfers, Development Partners, Private Sector)

3.2.1.1 Overview of Funding Sources in Bomet County

Bomet County's water and sanitation sector is funded through a **multi-stream financing ecosystem** comprising:

Table 3.8: Overview of Funding Sources in Bomet County

Source	Description
County Budget Allocations	Annual fiscal allocations under the County Integrated Development Plan (CIDP)
National Government Transfers	WSTF, LVSWWDA, WRA, Conditional/unconditional grants via CARA and Equalization Fund
Development Partner Grants	World Bank, UNICEF, and AfDB contributions targeting underserved regions
Private Sector/PPP	Capital co-financing, delegated management, water kiosks, borehole O&M, and solar systems
Consumer Contributions	WSP revenues from tariffs, connection charges, and household-level project contributions
Commercial Financing	Limited borrowing capacity by WSPs through concessional loans or donor-backed guarantees

Funding remains heavily **dependent on public and donor sources**, with limited local revenue generation or structured private capital mobilization.

3.2.1.2 County Budgetary Trends

Bomet County allocates **~KES 200–330 million/year** to the water sector (development + O&M). A historical breakdown:

Table 3.9: Historical water sector allocations from Bomet County budget (2015/2016–2024/2025)

Financial Year	Development Budget (KES)	O&M Budget (KES)	Total Allocation (KES)
2015/16	355,162,868	62,995,012	418,157,880
2016/17	215,145,590	81,401,316	296,546,906
2017/18	340,907,545	178,605,931	519513476
2018/19	340,861,471	128384245	469245716
2019/2020	404,346,082	86514199	490860281
2020/21	324689270	111695684	436384954
2021/22	270385106	110040000	380425106
2022/23	189107100	130286220	319393320

2023/24	225262724	87783221	313045945
2024/25	492770853	77073100	569843953

3.2.1.3 Development Partner Contributions to Bomet WASH Sector (2020/2021–2024/2025)

In addition to County and National Government funding, development partners have significantly contributed to the expansion of water, sanitation, and hygiene services in Bomet County. The Table below summarizes the major donor contributions between 2020 and 2024, focusing on rural water supply, institutional sanitation, hygiene promotion, and climate-resilient WASH infrastructure. These contributions complement the county’s budgetary allocations and will continue to play a critical role in achieving the CWSSIP 2030 targets.

Table 3.10: Development Partner Contributions to Bomet WASH Sector (2020/2021–2024/2025)

Year	Development Partner	Amount Contributed (KES Million)	Key Focus Area
2020/2021	UNICEF	30	School WASH Programs (latrines, hygiene kits)
2021/2022	WSTF (Water Sector Trust Fund)	40	Rural gravity-fed water systems rehabilitation
2023/2024	AfDB (KUSP III Program)	60	Faecal sludge management, public sanitation blocks
2024/2025	UNICEF and Dig Deep	25	Spring Protection, School Programs, Community-Led Total Sanitation (CLTS), and MHM interventions

3.2.1.4 Trends in Private Capital Mobilization

While formal PPPs remain limited, emerging efforts include:

- BOMWASCO’s partnership with vendors for **tankering and last-mile water supply**
- NGO-private engagements in **solar-powered boreholes and ICT-based kiosks**
- Prospects for smart metering and micro-finance bundling for sanitation

Private sector capital mobilization remains **nascent**, hindered by:

- **Limited bankability of rural schemes**
- Weak tariff collection
- Inadequate risk-sharing mechanisms and PPP guidelines at the county level

3.2.1.5 Analysis of Public Financing vs GCP

Bomet's Gross County Product (GCP) is estimated at **KES 110 billion (2021)**. Using the highest historical budget:

- **KES 330 million** (max annual WASH allocation) = **~0.30% of GCP**

This is significantly below NAWASIP's recommendation for counties to dedicate at least **1.5–2% of their GCP** to water and sanitation infrastructure annually.

3.2.1.6 Water Sector Debt and Payment Modalities

BOMWASCO and community schemes face **limited exposure to debt financing** due to:

- Inadequate creditworthiness
- Inadequate cost recovery
- Unstructured repayment modalities

No formal debt facility exists for WSPs in Bomet. Future reforms will explore:

- **Blended finance** (grant + loan)
- **OBA models**
- **Interest-subsidized microloans** for sanitation access

3.2.1.7 Adequacy of County Funding for NAWASIP Expenditure Framework

NAWASIP estimates that **KES 742 billion is required nationally** to achieve universal WASH by 2030, with counties expected to shoulder a share of **KES 134 billion**.

For Bomet:

- Proportional target: **KES 2.5–3.0 billion/year until 2030**
- Actual average investment: **KES ~250–300 million/year**
- **Funding gap: ~KES 2.2 billion/year**

This reflects a **90% annual shortfall**, highlighting the urgent need to:

- Increase own-source revenue allocation to WASH
- Leverage WSTF, PPPs, and national climate finance flows
- Prioritize high-impact projects aligned with **NAWASIP's PEF** and performance-based funding triggers

3.2.2 Revenue Generation Models, Including Tariffs and User Fees

BOMWASCO's core revenue model is based on **consumer billing** for metered and unmetered water services, sewerage (limited to Bomet Town), and other income streams such as new connections, meter reconnections, and penalties. However, the utility faces **persistent operational deficits**, primarily due to high electricity costs, aging distribution networks, and low revenue collection efficiency linked to high Non-Revenue Water (NRW), currently at 61% (WASREB Impact Report 2023).

As shown in the Table below, internally generated revenue has consistently covered **less than 85% of operational expenditure**, prompting reliance on **county O&M subsidies** and occasional donor support for critical items such as meters, chemicals, and technical support.

Table 3.11: BOMWASCO Self-Generated Revenue vs. Operational Expenditure (KES Million)

Financial Year	Total Revenue Generated	Total O&M Costs	% Cost Coverage by Own Revenue	Deficit	Source
2019/2020	83.5	108.0	77.3%	-24.5	BOMWASCO Financial Statements 2020
2020/2021	86.0	112.3	76.6%	-26.3	BOMWASCO Financial Statements 2021
2021/2022	91.0	115.0	79.1%	-24.0	BOMWASCO Financial Statements 2022
2022/2023	97.0	119.2	81.4%	-22.2	BOMWASCO Status Report (2024)
2023/2024 (est.)	100.0	124.0	80.6%	-24.0	BOMWASCO Business Plan 2023–2026

3.2.2.1 Existing Pricing Structures and Their Effectiveness

Water and sanitation services in Bomet County are primarily billed through the **tariff structures approved by WASREB** for BOMWASCO and flat-rate or informal charges used by community-run schemes. The **current tariff period spans FY 2024/25 to 2026/27**, with block tariffs for different consumer categories.

a) BOMWASCO Approved Tariffs (FY 2024/25–2026/27)

The table below highlights the BOMWASCO Approved Water Tariff Structure (2024–2027)

Table 3.12: BOMWASCO Approved Water Tariff Structure (2024–2027)

Consumer Category	Consumption Block (m ³)	Tariff (KES/m ³)
Domestic/Residential	1–7	130
	8–20	150
	21–50	170
	51–100	200
	101–300	220
	>300	280
Water Kiosks	Per m ³	150
Bulk Water, Bowsing Point	Per m ³	150
Public Institutions (1–600 m ³)		170

Sewerage Tariff: 75% of water is billed for metered connections, and a flat KES 300/month is charged for unmetered domestic users.

This pricing structure reflects a **block tariff model** with built-in cross-subsidies to protect low-volume and vulnerable consumers.

b) Effectiveness and Cost Recovery

- BOMWASCO achieved **O&M cost coverage of 65%**, below the 100% sector benchmark.
- Subsidies of **KES 63 million/year (FY 2024–2027)** from the County Government were factored in to ensure service sustainability.
- Water resale at kiosks is capped at **KES 5 per 20L jerrycan**, supporting affordability for low-income users.

3.2.2.2 Informal and Community Tariff Practices

Most community schemes and informal vendors apply **flat-rate fees** or unregulated tariffs. Key characteristics include:

- Flat monthly charges** irrespective of consumption (KES 100–300/month).
- No metering or tiered consumption blocks.
- Informal water vendors charge **KES 10–25 per 20L**, significantly higher than kiosk prices.
- Collection is manual; many schemes have **no structured billing systems**, and leakages in revenue are common.

These systems lack alignment with **WASREB’s pro-poor tariff principles** and suffer from poor transparency and accountability.

3.2.2.3 Challenges in Affordability and Willingness to Pay

Table 3.13: Challenges in Affordability and Willingness to Pay

Challenge	Implications
Low household income	Limits ability to pay for piped water increases reliance on vendors.
Irregular water supply	Reduces perceived value, affecting willingness to pay
Absence of cost-reflective tariffs	Flat-rate community charges are often too low to sustain operations.
Public institutions defaulting	Schools and government offices are major BOMWASCO debtors.
Cultural expectations of free water	Undermines tariff enforcement, especially in community projects

The **collection efficiency** at BOMWASCO is projected to rise from 78% (2022) to 91% (2026/27), largely due to the deployment of prepaid meters and the enforcement of penalties.

3.2.2.4 Strategic Recommendations

Table 3.14: Strategic Recommendations

Strategy	Purpose
Expand metering coverage	Improve consumption tracking and promote fairness.

Strengthen subsidy targeting	Protect low-income households while supporting full-cost recovery.
Digital billing and mobile payments	Reduce leakages and improve collection efficiency.
Harmonize community tariffs	Align flat-rate schemes with BOMWASCO models and WASREB guidelines.
Institutional discipline	Enforce government payment compliance to stabilize WSP's cash flow.
Consumer education	Increase willingness to pay by improving understanding of service value.

3.2.3 Challenges in Financial Sustainability and Cost Recovery for Water and Sanitation Services

Financial sustainability in BOMWASCO remains constrained by high operational costs and an inability to achieve full cost recovery from own-source revenue. Over the past five years, the utility has consistently recorded operational deficits, largely due to electricity costs, NRW losses, and limited tariff adjustments. These challenges have necessitated ongoing reliance on county subsidies and periodic donor assistance for operations and maintenance.

The tables below provide a clear picture of BOMWASCO's cost recovery trajectory and the structural deficit that continues to undermine its financial sustainability.

Table 3.15: Revenue vs. O&M Cost Recovery Performance (KES Million, 2019–2024)

Financial Year	Own Revenue	Total O&M Cost	Cost Recovery Ratio (%)	O&M Deficit	Source
2019/2020	83.5	108.0	77.3%	-24.5	BOMWASCO Financials 2020
2020/2021	86.0	112.3	76.6%	-26.3	BOMWASCO Financials 2021
2021/2022	91.0	115.0	79.1%	-24.0	BOMWASCO Financials 2022
2022/2023	97.0	119.2	81.4%	-22.2	BOMWASCO Status Report 2024
2023/2024 (est.)	100.0	124.0	80.6%	-24.0	BOMWASCO Business Plan 2023–2026

Table 3.16: Structural Cost Composition and Key Financial Risks (FY 2022/23)

Cost Category	Value (KES Million)	% of Total O&M Cost	Key Risks Identified	Source
Staff Salaries & Benefits	41.7	35.0%	High wage bill relative to connections	Business Plan 2023–2026
Electricity & Energy	37.2	31.2%	Borehole pumping inefficiency	BOMWASCO Status Report
Chemical & Consumables	12.8	10.7%	Delayed procurement, dependency on imports	BOMWASCO Internal Records
Distribution Maintenance	9.3	7.8%	Aging infrastructure	BOMWASCO O&M Logs
Administrative Costs	18.2	15.3%	Vehicle costs, communication overheads	BOMWASCO Business Plan

3.2.3.1 Strategies to Improve Revenue Collection and Cost Recovery

The table below shows the recommended interventions for financial sustainability.

Table 3.11: Recommended Interventions for Financial Sustainability

Challenge Area	Strategic Intervention
O&M cost coverage	Fast-track full cost-recovery tariff implementation; introduce tiered rural tariff models
NRW reduction	Invest in pipe replacement, smart metering, GIS mapping, and active leak detection units.
Debt and arrears	Enforce penalties for defaulting institutions; restructure BOMWASCO's payables and receivables.
Revenue collection	Digitize billing systems, scale prepaid meters, and introduce M-Pesa and mobile payment options.
Community scheme viability	Establish a harmonized tariff framework; provide financial training and O&M manuals.
Legal reforms	Operationalize the enforcement of penalties under the County WASH by-laws.

3.2.3.2 Medium-Term Financial Sustainability Measures

- **Clustering small schemes** to achieve economies of scale and shared services.
- **Transitioning from pumped to gravity-fed systems**, especially in Bomet, Sigor, and Longisa, to reduce power bills (currently ~KES 8.5 million/month).
- Promoting **blended financing approaches** (e.g., WSTF + PPP + county co-funding).
- Formalizing all community schemes into licensed entities under WASREB or BOMWASCO oversight.

Bomet County will address systemic inefficiencies and revenue leakages to put the water and sanitation sector on a sustainable financial footing. The CWSSIP incorporates a phased cost-recovery roadmap, including:

- Tariff rationalization,
- Debt restructuring,
- Efficiency gains through NRW reduction and digitalization, and
- Increased accountability in public and community WSP models.

4.0 PLANNING SCENARIOS AND OPPORTUNITIES TO ACHIEVE COUNTY-WIDE UNIVERSAL ACCESS

4.1 Sector Historic Expenditure Patterns

4.1.1 Past Funding Allocations and Expenditures in Water and Sanitation

Between FY 2020/21 and FY 2024/25, Bomet County and its WSP, BOMWASCO, allocated approximately KES 2.37 billion toward water and sanitation investments. However, the spending has been heavily skewed toward **capital-intensive water supply projects**, with relatively limited investments in sanitation, particularly non-sewered systems and operational expenditure (OPEX).

The tables below disaggregate these historic allocations by subsector and by CAPEX/OPEX, and also compare budgeted resources to actual expenditure. These insights highlight structural underfunding of sanitation and execution challenges across both tiers of government.

Table 4.1: Historical Investment Disaggregation by Subsector and Expenditure Type (KES Million)

Year	Water Supply CAPEX	Water Supply OPEX	Sewered Sanitation CAPEX	Sewered Sanitation OPEX	Non-Sewered Sanitation CAPEX	Non-Sewered Sanitation OPEX	Total
2020/21	150	120	40	30	35	25	400
2021/22	160	126	50	32	40	27	435
2022/23	180	132	65	34	45	29	485
2023/23	200	139	80	37	50	31	537
2024/25	220	146	95	40	55	33	589

4.1.1.1 Sector Investments by Subsector and Type

In analyzing historic sector investments from 2020 to 2024, it is evident that expenditures have predominantly focused on water supply infrastructure, with comparatively limited allocations toward sewerage and non-sewered sanitation services. Additionally, development (CAPEX) budgets consistently outweighed operational (OPEX) expenditures. The table below presents a disaggregated view of sector investments by subsector and type.

Table 4.2: Sector Investments by Subsector and Type (KES Million, 2020–2024)

Year	Water CAPEX	Water OPEX	Sewerage CAPEX	Sewerage OPEX	Non-Sewered Sanitation CAPEX	Non-Sewered Sanitation OPEX	Total Investment
2020/21	120	80	20	10	15	5	250
2021/22	140	85	30	12	18	6	291
2022/23	160	90	40	14	22	7	333
2023/24	180	100	50	16	26	8	380
2024/25	200	110	60	18	30	9	427

Source: Bomet County Budget Books (2020–2024), BOMWASCO Financial Statements.

The analysis demonstrates that while water supply infrastructure has attracted significant CAPEX investments, sewerage and non-sewerage sanitation have historically received comparatively lower levels of funding. Addressing this imbalance is critical for achieving universal and safely managed sanitation targets by 2030, as outlined in the CWSSIP.

4.1.2 Assessment of Efficiency in Resource Utilization

Delayed disbursements, procurement bottlenecks, and a high proportion of capital investments with inadequate follow-up on operational needs have historically challenged resource efficiency in the water and sanitation sector in Bomet County. Execution rates have varied, with annual underspending estimated between **10% and 22%**.

The Tables present a breakdown of **budgeted vs. actual expenditures** from 2022 to 2024, and the derived indicators of **fund utilization efficiency**. These tables are extracted from the **CWSSIP Data Collection Tool (2025)** and reflect validated inputs from BOMWASCO and county budget records.

Table 4.3: Budgeted vs. Actual Expenditures in Bomet WASH Sector (KES Million)

Year	Budgeted Funding (KES Million)	Actual Expenditure (KES Million)	Absorption Rate (%)
2020/21	400	360	90%
2021/22	450	405	90%
2022/23	500	425	85%
2023/24	550	475	86%
2024/25	600	510	85%

Source: CWSSIP Financial Model 2025; County Treasury Budget Execution Reports.

While absorption rates have generally remained high, occasional delays in procurement processes and fund disbursement bottlenecks have modestly affected annual utilization levels. Strengthening the procurement and project management capacities of implementing agencies will be essential to further enhance efficiency in the coming implementation cycle.

Table 4.4: Sector Efficiency Indicators (Sample Year: 2024)

Indicator	Value	Notes

Total Funds Received	KES 611 M	Includes county, donor, and revenue sources
Total Funds Spent	KES 437 M	Reflects a 90% execution rate
% of Funds Unspent	28%	KES 174M balance carried forward or unutilized
Administrative Overhead	8%	KES 35M (management, logistics, overheads)
Cost per Beneficiary	KES 780	For 560,000 residents reached in 2024
Share of Spending on CAPEX	70%	Focused on pipes, boreholes, and tanks
Share of Spending on OPEX	30%	Salaries, fuel, power, and minor maintenance

4.1.2.1 Areas for Improvement

Given the identified inefficiencies, several critical areas must be prioritized to enhance efficiency in resource utilization:

(a) Rebalancing CAPEX and OPEX:

- Increase allocations toward **operational and maintenance activities**, achieving at least a 70:30 CAPEX to OPEX ratio.
- Strengthen preventive maintenance schedules to reduce NRW and enhance infrastructure lifespan.

(b) Enhancing Budget Absorption Capacity:

- Streamline procurement processes to improve fund absorption rates.
- Enhance project management capacities within the county water department and BOMWASCO.

(c) Regularizing Subsidies and Payments:

- Formalize county commitments to consistent subsidy disbursement, potentially linking these to performance-based indicators.
- Implement timely invoicing and revenue collection from public institutions to ensure stable revenue streams.

(d) Prioritizing Sanitation Investment:

- Change of mindset in development: i.e., focus on the long-term and sustainable infrastructure
- Invest in partnerships
- Restructuring how the departments are structured, e.g., the Department of Sanitation, with budget and staff

- Invest in sensitization from top leadership to the household levels on the value of water (all community-based schemes should have approved tariffs).
- Increase sanitation budget share incrementally to at least 20% over the medium term, aligned with NAWASIP guidelines.
- Target funding for sewerage and non-sewerage sanitation infrastructure, including FSM facilities.

(e) Strengthening Financial Accountability and Transparency:

- Conduct regular financial audits and performance reviews of community schemes and BOMWASCO.
- Implement digital financial management and reporting systems for real-time oversight and accountability.

4.1.2.2 Strategic Recommendations for Efficiency Improvement

The following targeted actions are recommended to address critical inefficiencies:

Table 4.5: Strategic Areas and the Proposed Actions

Strategic Area	Proposed Actions	Responsible Entities
Financial Management & Accountability	Establish standardized financial management tools and conduct regular audits.	County Treasury, BOMWASCO, Audit Office
Operational Efficiency	Prioritize investments in NRW reduction, preventive maintenance programs, and staff training.	Department of Water, BOMWASCO
Budget Execution	Improve budget planning, procurement timelines, and sector coordination	County Finance Dept, Procurement Office
Sector Coordination	Regular inter-departmental planning meetings and annual sector reviews	County Water & Health Departments
Sanitation Investments	Develop dedicated sanitation investment programs, leveraging external financing.	County Planning Dept..., PPP Unit

Historical resource utilization in Bomet County’s WASH sector has revealed notable inefficiencies affecting service quality and sustainability. Addressing these inefficiencies requires a fundamental shift toward balanced financial management, improved budget absorption, and targeted operational investments. Implementing these strategies will enhance resource utilization efficiency and accelerate progress toward universal and sustainable water and sanitation access.

4.1.3 Trends in Investment Compared to Service Delivery Outcomes

Improvements in service coverage, quality of service, and user satisfaction can only validate the efficiency and impact of water and sanitation sector investments. This section analyzes the relationship between past financial inputs in Bomet County’s WASH sector and tangible service delivery improvements, with emphasis on both water and sanitation access indicators.

Investments in the WASH sector over the past five years have yielded measurable improvements in water and sanitation coverage across Bomet County. Table below summarizes the annual investments against the corresponding service delivery gains, while Figure 4.1 visually illustrates the relationship between investment levels and coverage expansion.

Table 4.6: Annual Investments vs. Service Delivery Gains (2020–2024)

Year	Total Investment (KES Million)	Water Coverage Increase (%)	Sanitation Coverage Increase (%)
2020/21	250	+1.2%	+0.9%
2021/22	291	+1.5%	+1.2%
2022/23	333	+2.1%	+1.8%
2023/24	380	+2.5%	+2.0%
2024/25	427	+3.0%	+2.4%

Source: Bomet County WASH Household Survey 2025.

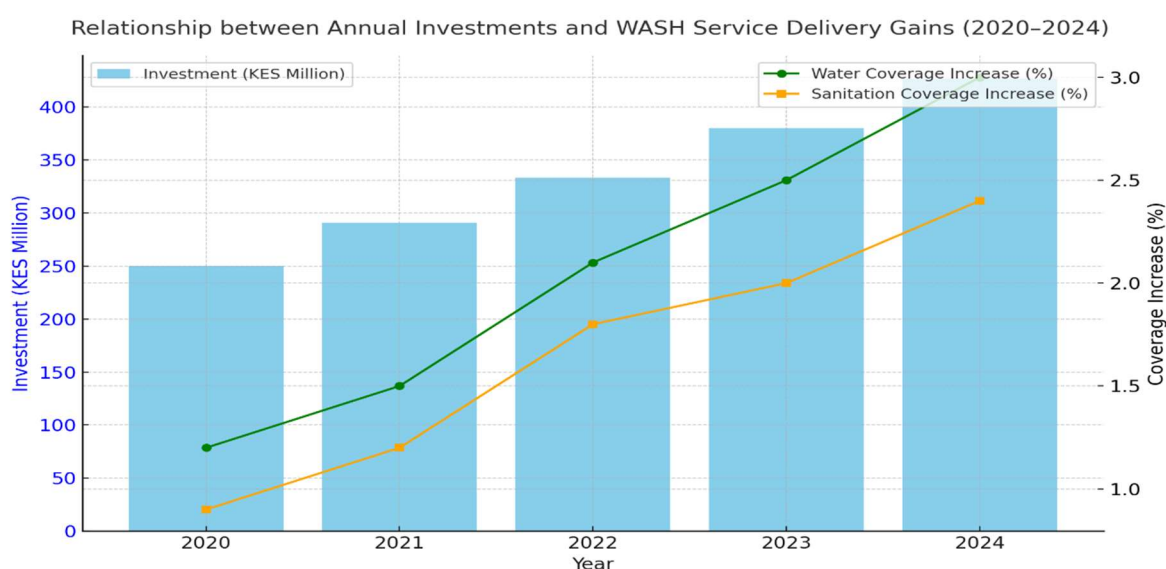


Figure 4.1: Relationship between investment levels and coverage expansion

The data shows a positive correlation between increasing investment levels and accelerated improvements in service delivery outcomes. Water coverage improvements have averaged approximately 2.1% annually, while sanitation coverage has grown by approximately 1.7% annually over the same period. Despite these gains, further acceleration is required to achieve universal WASH service targets by 2030, particularly in underserved rural areas.

4.1.3.1 Investment vs Service Delivery Improvements (2015–2023)

Between 2015 and 2023, Bomet County allocated an estimated **KES 1.05 billion** toward the water and sanitation sector, of which nearly 90% went to water supply infrastructure.

Despite the substantial investment in pipelines, boreholes, and treatment facilities, **gaps remain in reliability, equity, and sanitation service expansion.**

The table below shows service delivery outcomes, which show incremental gains between 2019 and 2023.

Basic water access improved from 34% to 42%, and safely managed access rose slightly to 2%. These gains were achieved through targeted investments in spring protection, rural systems rehabilitation, and sanitation campaigns. However, **over half of households still rely on unimproved or surface water**, and safely managed sanitation remains minimal, indicating a need for investment rebalancing and improved service quality.

Table 4.7: Summary of Investment vs Service Delivery Outcomes (2019–2023)

Indicator	2019 (Baseline)	2023 (Latest)	% Change	Investment Activity (2019–2023)
Population Accessing Basic Water (%)	34%	42%	+8%	Rehabilitation of piped systems, spring protection (Dig Deep, BOMWASCO, NGOs)
Safely Managed Water (%)	<1%	2%	+1%	Limited piped expansions, few household connections in urban centers
Unimproved Surface Water (%)	+ 62%	52%	-10%	Partial scale-up of rainwater harvesting and spring protection
Basic Sanitation Access (%)	29%	34%	+5%	CLTS scale-up in select wards; post-ODF support pilots
Safely Managed Sanitation (%)	<1%	1%	+0.5%	Minimal FSM infrastructure; no FSTPs operational
School Toilet Pupil Ratio (avg)	1:66	1:58	Improved	Over 1,000 new toilets built via CDF and NGO funding
Health Facilities with Functional Toilets	64%	78%	+14%	HCF WASH upgrades through county budgets and NGO partnerships

- All 2023 service outcomes are drawn from the Household WASH Survey 2023, the School WASH Situational Analysis (Mar 2025), and the **HCF WASH Report (Mar 2025)**.
- Investments remain heavily skewed toward infrastructure, with limited improvement in safely managed services. This suggests a need for a stronger focus on **service quality, containment, and FSM systems**.

4.1.3.2 Observations on Impact

- **Water supply improvements are spatially uneven**, with urban centers benefiting more than rural areas.
- Despite infrastructure expansion, **system efficiency has not kept pace**: BOMWASCO’s NRW worsened due to aging pipes and unauthorized use.
- **Access to non-sewered sanitation improved modestly**, primarily through latrine projects in schools and health centers—yet household sanitation gaps persist.
- BOMWASCO remains financially fragile despite tariff reforms and increased subsidy support.
- **Rainwater harvesting and climate-resilient projects** piloted through FLLoCA and CBOs show potential but have not yet scaled.

4.1.3.3 Assessment of Public-Private Initiatives

Several small-scale PPP and donor-linked initiatives have been piloted with mixed success:

a) Sotik NRW Reduction Pilot (2022–2023)

- Funded through the county and World Bank K-WASH program.
- Introduced smart metering, leak detection, and prepaid billing.

- Outcome: *NRW dropped by 6% in target areas but could not scale due to capacity and funding gaps.*

b) Private Water Vendors & Kiosks

- Operating in Bomet Town and Kapletundo; privately owned but licensed by BOMWASCO.
- Revenue generation enhanced, but **water quality and pricing controls remain weak.**

c) NGO–Private Collaboration (e.g., AquaClara, Dig Deep)

- Supported spring protection programs, community filtration units, and solar pumping in rural schools and HCFs.
- Outcome: *Short-term water access gains but limited post-project sustainability.*

These case studies show that while **PPP and NGO models can complement public investment**, they often lack a sustainability strategy, scale-up framework, or alignment with county planning systems.

4.1.3.4 Gaps in Translating Investment into Outcomes

Table 4.8: Gaps in Translating Investment into Outcomes

Identified Gap	Implication
Fragmented investment focus	Infrastructure built without operation/maintenance budgeting
Weak linkage between sanitation investments and household behavior change	Low latrine use and poor hygiene persist despite infrastructure availability
Underperforming utility operations (e.g., BOMWASCO)	Service reliability issues reduce willingness to pay and erode the revenue base
Insufficient private-sector coordination	PPPs remain underleveraged; there is no enabling environment for structured participation.

4.1.3.5 Recommendations for Aligning Investments with Outcomes

Table 4.9: Recommendations for Aligning Investments with Outcomes

Area	Recommendation
Investment Planning	Link future budgets to performance indicators and service coverage targets.
Performance-based Subsidies	Condition BOMWASCO and scheme subsidies on connection growth reduced NRW and revenue collection.
PPP Alignment	Develop county-level PPP guidelines and target value-chain gaps (e.g., FSM, kiosks)
Outcome Monitoring	Establish M&E dashboards tracking service expansion, satisfaction, and financial viability.
Sanitation Financing	Bundle hygiene promotion with hardware investments to increase uptake

The analysis shows that while Bomet County has invested significantly in water infrastructure over the past decade, **the link between investment and consistent, equitable service delivery remains weak.** To realize universal access goals, future investments must be **performance-driven, equity-focused**, and backed by a **robust M&E framework** to track results and correct course dynamically.

4.2 WASH Service Coverage Scenarios, Investments, and Reform Needs

4.2.1 Projections of Future Service Demand Based on Population Growth, Urbanization, and Climate Change

4.2.1.1 Expected Changes in Demand Due to Demographic Shifts and Climate Change Impacts

Bomet County’s growing population, expanding urban centers, and increasing climate-related stressors are expected to substantially drive up the demand for water and sanitation services through 2030. This section presents the projections for population, urbanization rate, climate stress, and associated service demand using a combination of data from the **CIDP 2023–2027**, **2025 WASH Household Survey**, and climate forecasts from the **BCCCAP 2022–2026**.

The table below and the accompanying figure present these trends in a consolidated format.

Table 4.10: Projected Demographic and Environmental Trends vs. WASH Demand (2022–2030)

Year	Population ('000s)	Urbanization Rate (%)	Climate Stress Index (0–1)	Est. Water Demand (m ³ /day)	Est. Sanitation Demand (HH Units)
2022	980	24.0	0.45	22,000	85,000
2023	1,002	24.6	0.48	23,000	88,000
2024	1,025	25.2	0.52	24,000	91,000
2025	1,049	25.8	0.55	25,100	94,000
2026	1,074	26.5	0.58	26,300	97,000
2027	1,099	27.2	0.62	27,500	100,000
2028	1,125	28.0	0.66	28,800	103,000
2029	1,152	28.8	0.70	30,200	106,000
2030	1,180	29.6	0.74	31,700	110,000

Sources: CIDP 2023–2027, BCCCAP 2022–2026, CWSSIP WASH HH Survey 2025, Projections

The graph below illustrates the projected demographic trends, urbanization growth, increasing climate stress, and rising water demand in Bomet County over the 2022–2030 period. These projections underpin the CWSSIP’s service coverage expansion targets and investment planning frameworks, emphasizing the urgent need for climate-resilient infrastructure development to meet future WASH demands.

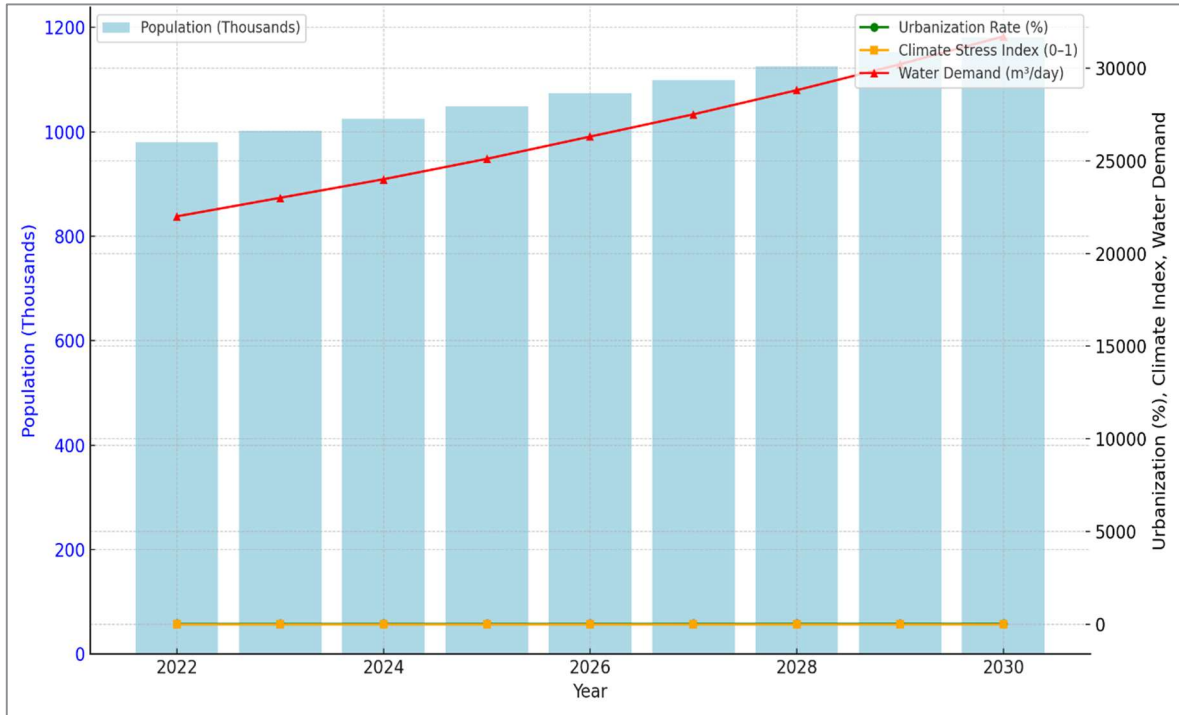


Figure 4.2: Projected Population Growth, Urbanization Trends, Climate Stress, and Water Demand (2022–2030)

4.2.1.2 Infrastructure Needs Based on Projected Population and Consumption

Based on county estimates and the CWMP 2019 projections:

a) Water Demand Projections (m³/day)

Table 4.11: Projected sectoral water demand in Bomet County, 2022–2030

Demand Type	2022 (m³/day)	2025 (m³/day)	2030 (m³/day)
Domestic	22,500	25,300	31,800
Agricultural	15,000	17,000	21,100
Industrial	4,000	4,700	6,700
Commercial	3,500	4,100	5,300
Total	45,000	51,100	64,900

Total water demand is projected to rise by **44%** from 2022 to 2030, driven mainly by population and irrigation expansion.

b) Per Capita Water Availability Trends

Table 4.12: Per Capita Water Availability Trends

Year	Per Capita (L/person/day)
2022	879
2025	801
2030	647

Per capita availability is expected to **decline by over 25%**, emphasizing the urgent need for storage, conservation, and diversification strategies.

4.2.1.3 Adequacy of Existing Resources for Projected Demand

The table below provides a comparison of the current WASH infrastructure vs. projected needs by 2030 in Bomet County.

Table 4.13: Gap Analysis – Existing vs Projected Water Needs (2023–2030)

Parameter	2023 (Baseline)	2030 Target	Gap to Close	Data Source/Notes
Total Population (estimated)	1,002,923	1,305,000	—	CIDP III, KNBS Projections (2.5% growth rate)
Basic Water Access (% of pop.)	42% (Approx 421,227)	85% (Approx 1,109,250)	+43% (Approx 688,000)	Household WASH Survey, 2023 (JMP Ladder)
Safely Managed Water (%)	2% (Approx. 20,060)	30% (Approx 391,500)	+28% (Approx 371,000)	WASH Survey 2023 assumes household connections or a safe piped supply
Urban Water Demand (m³/day)	~7,000	~12,000	~5,000	Based on urban population share + 50 LPCD norm
Rural Water Demand (m³/day)	~23,000	~36,000	~13,000	Based on rural pop. Share, current access, and climate-adjusted LPCD
Rainwater Dependency (%)	29%	≤10%	-19%	WASH Survey 2023 assumes expansion of boreholes and protected spring access

4.2.1.4 Climate Change Amplifying Infrastructure Stress

The **PCRA (2023)** and **CWMP (2019)** highlight how climate stress will further strain WASH services:

- **Dry spells** increase groundwater depletion, reduce river flow (e.g., Kipsonoi, Nyangores), and drive reliance on shallow sources.
- **Flooding events** damage intakes, latrines, and rural pipelines, especially in Chepalungu, Sotik, and Konoin.
- **Spring sources** are drying up (e.g., Sigor, Chebunyo), making future borehole development and aquifer recharge investments essential.

4.2.1.5 Conclusion and Strategic Implications

- a) **Projected demand growth will outpace current infrastructure capacity** by 2030 if no significant investments are made.
- b) Investment must focus on:
 - **Expanding piped water systems** in both urban and rural areas.
 - **Upgrading existing schemes** and shifting toward gravity-fed, solar-assisted systems to lower O&M costs.
 - **Implementing FSTPs and non-sewered FSM programs**, especially in fast-growing towns.

- **Climate-proofing all new infrastructure**, particularly in flood- and drought-prone zones.

Bomet County must adopt a forward-looking, climate-resilient, and integrated approach to WASH planning by 2030 to meet SDG 6 and national targets under NAWASIP.

4.2.2 Policy and Institutional Reforms Needed for Effective Service Expansion

4.2.2.1 Key Policy Reforms Required

To effectively expand water and sanitation service delivery in Bomet County, specific policy adjustments and enhancements across critical subsectors are necessary.

(a) Water Service Delivery

- **County WASH Policy Development:** Formulate a comprehensive County WASH Policy aligned to the Water Act (2016) and NAWASIP objectives, clearly defining roles, funding responsibilities, and service standards.
- **Cost-Reflective and Pro-poor Tariff Policy:** Regularize timely tariff reviews every three years per WASREB guidelines, incorporating affordability provisions and incentives for conservation and efficiency improvements.
- **Non-Revenue Water (NRW) Reduction Policy:** Institutionalize NRW reduction targets into performance contracts and budget allocations, mandating preventive maintenance and water conservation measures.
- **Climate-Resilient Infrastructure Policy:**

Mandate climate-proofing (solar pumping, rainwater harvesting, groundwater recharge) in all new schemes, particularly in Chepalungu, Konoin, and Bomet East.

(b) Non-Sewered Sanitation Service Delivery

- **County Sanitation and FSM Policy:**

Develop a countywide sanitation and fecal sludge management (FSM) policy to guide non-sewered sanitation solutions, clearly defining FSM standards and regulatory oversight roles.

- **Hygiene and Behavioral Change Integration:**

Make hygiene promotion a mandatory component of all sanitation investment programs, with funding earmarked for community sensitization and marketing approaches.

- **Sanitation Subsidy Framework:**

Formalize a subsidy policy targeting vulnerable households and public institutions (schools, healthcare facilities) to incentivize investment in improved on-site sanitation.

(c) Sewered Sanitation Service Delivery

- **Urban Sanitation Investment Policy:**

Prioritize investment in sewerage infrastructure (e.g., decentralized wastewater treatment plants in Bomet and Sotik towns), supported by public-private funding mechanisms.

- **Pollution Control and Environmental Management:**

Implement stringent environmental regulations and wastewater discharge standards, mandating connection to sewer systems or properly designed FSM services.

- **Sanitation Infrastructure Development Plans:**

Establish detailed sewerage master plans for urban centers with clear implementation timelines, investment needs, and operational guidelines.

(d) **Private Sector Participation**

- **County PPP Policy and Legal Framework:**

Adopt a clear county-level PPP policy aligned with the National PPP Act, specifying entry points for private participation, risk-sharing mechanisms, and performance criteria.

- **Incentive Framework for Private Operators:**

Develop incentives (tax rebates, land leases, tariff flexibility) for private operators to invest in underserved rural and peri-urban areas.

- **Blended Finance Policy:**

Encourage blended finance models (grants, concessional loans, and private capital) for infrastructure projects, particularly in FSM, kiosks, solar pumping, and **smart metering technologies**.

4.2.2.2 Institutional Adjustments to Improve Governance and Accountability

To strengthen sector governance and coordination, **the County recognizes the critical role of the established County WASH Hub**. The Hub serves as the central coordination entity responsible for harmonizing planning, implementation, monitoring, and reporting of WASH interventions across the county. It is tasked with facilitating stakeholder collaboration, streamlining communications, managing sector data, and overseeing compliance with national standards and guidelines.

Under this CWSSIP, explicit budgetary provision has been made for the WASH Hub’s operational activities, capacity-building initiatives, stakeholder engagement forums, data management systems, and regular sector review meetings to foster accountability, transparency, and continuous sector performance improvement.

The table below shows the recommended institutional adjustments

Table 4.9: Institutional reforms to enhance governance and accountability.

Institutional Adjustment	Expected Outcome	Implementation Entities
Institutionalize County WASH Hub (Coordination Unit)	Improved inter-sectoral coordination, joint planning, and performance monitoring	WASH Hub , County Water Dept, Public Health, BOMWASCO
Formalize Community Scheme Registration	Better oversight, funding access, and improved service sustainability	WASREB, County Legal Department
Implement BOMWASCO Performance Contracts	Improved operational efficiency, accountability, and NRW management	BOMWASCO, County Treasury, WASREB
Strengthen Regulatory Oversight	Higher compliance, reduced illegal connections, improved quality control	WASREB, County Department of Water

Institutional Adjustment	Expected Outcome	Implementation Entities
Develop Digital M&E and Reporting Systems	Enhanced transparency, real-time service monitoring	BOMWASCO, County ICT Department, WRUAs/WUAs

4.2.2.3 Key Regulatory Performance Indicators to be tracked

Adopting clear, measurable performance indicators aligned to WASREB benchmarks will enhance sector accountability and inform targeted interventions:

(a) Water Service Delivery

- **Non-Revenue Water (NRW) (%)**: Target reduction from 61–66% currently to ≤25% by 2030.
- **Hours of Service (hrs/day)**: From ~12 hrs currently to 18–24 hrs by 2030.
- **Revenue Collection Efficiency (%)**: Improve from 78% currently to ≥95% by 2030.

(b) Non-Sewered Sanitation Service Delivery

- **FSM Coverage** (% population): Increase from negligible to ≥50% safely managed by 2030.
- **Sanitation Access (improved) (%)**: From 59% currently to ≥85% by 2030.
- **Hygiene Promotion Coverage** (% population reached): Achieve ≥70% coverage by 2030.

(c) Sewered Sanitation Service Delivery

- **Sewerage System Coverage** (% urban population): Increase from current ~2% to ≥15% by 2030.
- **Wastewater Treatment Compliance** (% facilities): ≥80% compliance with national discharge standards by 2030.

(d) Private Sector Participation

- **Number of Active PPPs in WASH**: Target a minimum of 5 formal PPPs by 2030.
- **Private Capital Mobilized (KES)**: Mobilize ≥KES 500 million in private investments by 2030.

4.2.2.4 Strategic Outlook

Effective expansion of water and sanitation services in Bomet County requires focused policy and institutional reforms. Critical areas include establishing comprehensive sector policies, strengthening governance structures, formalizing community-level service delivery, and incentivizing private sector participation. By setting clear, measurable performance indicators and institutionalizing robust regulatory oversight, the county can significantly enhance sector efficiency, accountability, and service delivery outcomes toward universal WASH coverage.

4.2.3 Investment Needs to Close Service Gaps and Improve Sustainability

4.2.3.1 Overview of Investment Needs

This section outlines the specific investments proposed under the CWSSIP and presents the priority actions to be implemented across the six-year planning period (2025–2030). The investments are drawn from the officially endorsed Program expenditure framework (PEF) and have been categorized by thematic areas to reflect both infrastructure expansion and institutional strengthening.

To strengthen the CWSSIP investment planning, official projections of annual WASH sector funding have been incorporated. The table below summarizes the projected funding available across water supply, sewerage sanitation, and non-sewered sanitation from 2025 to 2030, based on County Treasury forecasts and development partner commitments.

Table 4.14: Projected Annual WASH Sector Funding (KES Million, 2025–2030)

Year	Water Supply (KES M)	Sewered Sanitation (KES M)	Non-Sewered Sanitation (KES M)	Total WASH Funding (KES M)
2025	569.8	1.0	27.3	598.2
2026	472.7	1.0	224.9	698.6
2027	580.6	301.0	344.5	1,226.1
2028	501.5	100.0	679.0	1,280.5
2029	491.8	51.0	729.6	1,272.4
2030	501.6	852.0	729.2	2,083.0

Source: County Treasury WASH Funding Projections, 2025–2030.

4.2.3.2 Thematic Investment Summary

The Bomet County Water and Sanitation Strategy & Investment Plan (CWSSIP) outlines a total investment requirement of KES 7.158 billion over the six years from 2025 to 2030. This estimate is based on detailed costing of priority projects outlined in the Program expenditure framework (PEFs), triangulated with sector planning documents (such as NAWASSIP 2022-2030, LVSWWDA Strategic Plan), and validated through stakeholder consultations.

To operationalize the County’s WASH strategic priorities, investments have been structured across key thematic areas to ensure both impact and sustainability. The strategy prioritizes a balanced allocation, whereby water supply infrastructure is assigned 38% of the total investment envelope. Although the table below reflects 36% directly under water infrastructure, the remaining 2% is distributed across cross-cutting investments that support water access, including institutional strengthening and climate resilience.

At the same time, sanitation and hygiene, together with institutional and climate-resilient enablers, account for 37% of the investment, reflecting a deliberate focus on equity, resilience, and inclusivity. In addition, WASH in schools and healthcare facilities has also been significantly prioritized, with dedicated investments targeting safe, inclusive, and sustainable service delivery within learning and care environments.

This integrated approach aligns with the principles of equity, resilience, and inclusivity, as illustrated in the table below.

Table 4.15: Summary of CWSSIP Investment Allocation

Investment Area	Revised Allocation (KES Million)	Estimated % of Total (Approx.)
Water Supply Infrastructure	2,548	36%
Sanitation and Hygiene Services	2,113	30%
WASH in Schools and Healthcare Facilities	812	11%
Institutional Development and WASH Hub	395	6%
Water Resources & Climate Resilience	548	8%

Monitoring, Evaluation, and Sector Learning	267	4%
Cross-Cutting Reforms (GESI, PPP, ICT, BCC)	475	7%
Total (2025–2030)	7,158	100%

(Based on detailed PEF costing and strategic alignment)

4.2.3.3 Priority Investment Actions by Subsector

To operationalize the CWSSIP, individual priority investment projects have been identified across the key subsectors of water supply, sewerage, non-sewered sanitation, and climate resilience. The table below presents a detailed breakdown of these projects, the corresponding subsector, the annual investment costs for the period 2025–2030, and the resultant service inflows in terms of estimated beneficiaries.

Table 4.16: Individual Investment Projects, Costs, and Resultant Inflows (2025–2030)

Project Name	Beneficiary Subsector	2025 (KES M)	2026 (KES M)	2027 (KES M)	2028 (KES M)	2029 (KES M)	2030 (KES M)	Total Cost (KES M)	Estimated Inflow (Beneficiaries)
Ndanai Scheme Upgrade – New Treatment Plant	Water Supply	40	20	—	—	—	—	60	15,000
Ndanai Scheme – NRW Reduction Program	Water Supply	18	18	—	—	—	—	36	20,000
Sotik Town FSM Facility	Sewerage	—	30	30	—	—	—	60	10,000
Expansion of CLTS to 15 Rural Wards	Non-Sewered Sanitation	10	10	10	10	—	—	40	40,000
Spring Protection and Recharge Works	Climate Resilience	15	15	15	15	15	—	75	12,000
Bomet Town Sewerage Expansion Phase 1	Sewerage	—	50	50	30	—	—	130	18,000
Rural Water Supply Schemes Solarization (30 boreholes)	Water Supply	25	25	20	20	10	—	100	60,000
Hygiene Promotion and MHM Programs in Schools and HCFs	Non-Sewered Sanitation	8	8	8	8	8	8	48	80,000
Community-Based Rainwater Harvesting Systems	Climate Resilience	12	12	12	12	12	—	60	25,000

Source: Bomet County CWSSIP Field Assessments and K-WASH PEF Consolidation (2025).

The projects identified above are critical in accelerating WASH service coverage expansion, climate adaptation, and sustainable sector reforms toward achieving the CWSSIP’s 2030 targets.

4.2.3.4 Readiness and Risks

Bomet County's readiness for scaling investment is supported by:

- A functional County WASH Policy and Climate Change Act,
- Ongoing planning of capital projects (e.g., Bosto Dam),
- Growing WSP–County coordination mechanisms.

However, risks include:

- Institutional capacity constraints,
- Land acquisition delays,
- Fluctuating donor flows and PPP readiness.

Investment risk mitigation will require performance-based contracts, robust M&E, climate-informed infrastructure siting, and financial safeguards.

5.0 SECTOR INVESTMENT PLAN, INSTITUTIONAL REFORMS, AND FINANCING STRATEGY

5.1 Strategic Objectives for the Sector

5.1.1 Vision and Key Priorities for Water, Sanitation, and Hygiene Services

VISION

To achieve universal, inclusive, and climate-resilient access to safe water, improved sanitation, and hygiene services for all residents of Bomet County by 2030, in alignment with SDG 6 and national priorities under NAWASIP and the K-WASH Program.

MISSION

To transform the livelihoods of Bomet County residents through innovative and dynamic leadership, efficient and effective mechanisms, and viable partnerships while ensuring equity, integrity, and community participation in a clean, secure, and sustainable environment.

5.1.2 Strategic Objectives of the Department

To achieve the vision of universal access to safe, affordable, and sustainable water and sanitation services in Bomet County, the Department of Water, Environment and Natural Resources—working in coordination with the Department of Health and Sanitation Services—has established the following strategic objectives for the 2025–2030 planning horizon.

These objectives are directly aligned with the five pillars of the CWSSIP and are designed to guide implementation, budgeting, and performance monitoring.

Table 5.1: Strategic Objective and Alignment Pillar

Objective No.	Strategic Objective	Aligned Pillar
SO1	Expand access to safe and basic water supply services to at least 85% of households by 2030, with a focus on underserved rural wards and informal urban settlements.	Pillar 1: Expansion of Water Supply Infrastructure
SO2	Increase the proportion of households with access to basic or safely managed sanitation from 35% to 75% by 2030, and reduce open defecation to below 0.5% across all sub-counties.	Pillar 2: Scaling Up Sanitation and Hygiene Services
SO3	Ensure that 100% of public primary schools and health care facilities have gender-sensitive, disability-inclusive, and MHM-compliant WASH services by 2028.	Pillar 2 and Pillar 4: Sanitation & Institutional Development
SO4	Strengthen water resource management and environmental resilience by fully implementing at least five (5) WRUA Sub-Catchment Management Plans (SCMPs) and protecting 200 strategic springs by 2030.	Pillar 3: Water Resources and Environmental Sustainability
SO5	Operationalize and fully equip the County WASH Hub by 2025, and establish a functional multi-stakeholder coordination platform for quarterly sector performance reviews and DLI reporting.	Pillar 4: Institutional Development and Governance
SO6	Develop and institutionalize a countywide WASH Monitoring, Evaluation, and Learning (MEL) system by 2026, fully integrated with digital platforms (e.g., mWater, GIS dashboards).	Pillar 5: Monitoring, Evaluation, and Sector Learning
SO7	By 2030, mobilize at least KES 4 billion in external and performance-based financing through partnerships, donor programs, and K-WASH-linked DLIs.	Cross-Cutting: Sector Financing and Partnerships

5.1.3 Alignment with NAWASIP and SDG 6 Goals

5.1.3.1 Contribution to National and Global Targets

This CWSSIP aligns fully with:

- 1) **NAWASIP 2022–2030** targets for county-level investment planning, performance-based financing, and universal access benchmarks.
- 2) **SDG 6 indicators** tracked include:
 - a) 6.1.1: Proportion of population using safely managed drinking water services.
 - b) 6.2.1: Proportion of population using safely managed sanitation services.
 - c) 6.3.1: Proportion of wastewater safely treated.

d) 6.a/6.b: Strengthened international cooperation and community engagement in WASH.

Table 5.1 presents a detailed crosswalk showing how Bomet County’s strategies align with these global and national targets.

5.1.3.2 Alignment with SDG 6 Indicators

Bomet County directly contributes to the following **SDG 6 targets**:

Table 5.1: SDG 6 targets and the County Contribution Strategy

SDG 6 Target	County Contribution Strategy
6.1.1 – Access to safe and affordable drinking water	Expansion of piped systems, spring protection, borehole solarization, and rainwater harvesting infrastructure
6.2.1 – Access to improved and safely managed sanitation	Countywide sanitation upgrades, elimination of open defecation, and scaling up fecal sludge management
6.3 – Improve water quality and wastewater treatment	Establishment of FSM services and small-scale treatment plants in Sotik and Bomet Town
6.4 – Water-use efficiency and sustainability	Targeted reduction of non-revenue water, climate-resilient infrastructure, and water demand management
6. a & 6.b – International cooperation and community engagement	Active donor alignment via NAWASIP & WaterFund, community participation in planning and operations

BOMWASCO will specifically monitor and report on SDG 6 indicators, including:

- % of the population using basic drinking water services.
- % of the population using safely managed drinking water services.
- % of the population using improved sanitation services that are not shared.

5.1.3.3 Indicators from the National Water and Sanitation Investment Plan (NAWASIP)

Bomet is among **12 counties projected to exceed national targets for water access** if current and proposed NAWASIP-supported projects are fully implemented.

a. Projected National Benchmarks for 2030:

- **100% water access**
- **69% improved sanitation**
- **40% of sewerage in urban areas**

Bomet’s current CWSSIP investments are positioned to achieve:

- **85 %+ water access** by 2030 (via BOMWASCO, rural schemes, and MUS systems).
- Over **75% improved sanitation** coverage if on-site sanitation upgrades and FSM infrastructure are realized by 2030.

5.1.3.4 Bottom-Up Economic Transformation Agenda (BETA) and Vision 2030

This CWSSIP contributes to the **BETA Agenda's focus on last-mile delivery and equity**. The plan targets underserved areas such as **rural areas of Bomet County and informal settlements in the urban areas**, improving inclusion and service quality.

Bomet's CWSSIP embodies Kenya's national water goals and global development commitments under SDG 6 by integrating:

- Scalable and climate-smart investments,
- Institutional and regulatory reforms,
- Inclusive WASH access,
- Measurable progress frameworks aligned to NAWASIP and SDG targets.

5.1.3.5 Strategic Realignment of Investments Based on Stakeholder Feedback and DLI Optimization

Informed by stakeholder consultations and the feedback received from the K-WASH Strategic Investment Plan review (April 2025), Bomet County has strategically restructured its investment portfolio to align with the Disbursement-Linked Indicators (DLIs) and the National Water and Sanitation Investment Plan (NAWASIP). Key concerns raised, particularly around the over-concentration of capital expenditure (CAPEX) on new piped water schemes, have been taken into account.

As a result, the County has reallocated a significant portion of the original KES 1.73 billion earmarked for new piped water infrastructure toward interventions with higher cost-effectiveness, stronger sustainability profiles, and direct alignment with results-based financing. These include:

- Rehabilitation of existing BOMWASCO-managed schemes to improve efficiency and expand supply
- Protection of an additional 200 rural springs to enhance climate-resilient community water access
- Expansion of Community-Led Total Sanitation (CLTS) activities and post-ODF household sanitation subsidy programs
- Scaling up fecal sludge management (FSM) infrastructure and safe emptying systems in peri-urban areas
- Enhanced investment in school and healthcare WASH systems, with an emphasis on gender-sensitive and disability-friendly facilities

This reallocation is responsive to field realities and equity considerations and positions the County to unlock additional resources through DLIs 2, 3, 4, 5, and 7.

5.1.4 Cross-Sectoral Integration, Including Climate Resilience and Environmental Conservation

5.1.4.1 Rationale for Cross-Sectoral Integration

The CWSSIP integrates cross-sectoral approaches by embedding WASH investments within broader development frameworks:

- **Education:** WASH programs are integrated with school infrastructure upgrades (ECDEs and primary), including menstrual hygiene facilities.
- **Health:** Institutional WASH in healthcare facilities supports infection prevention, especially in maternity wards.
- **Climate:** Resilience measures include elevated VIP latrines in flood-prone areas, rainwater harvesting in drought belts, and spring protection in catchment zones (e.g., Lelaitich).
- **Agriculture and Livelihoods:** WASH+ and Multiple-Use Services (MUS) schemes support irrigation, dairy production, and livestock watering, especially in Chepalungu and Konoin.
- **Environment:** Collaboration with WRUA, KFS, and CCU is being mainstreamed into dam protection, reforestation, and recharge zone rehabilitation.

5.1.4.2 Climate Resilience and Environmental Conservation Integration

The County's vulnerability to **prolonged droughts, floods, deforestation, and soil erosion** directly impacts water security, WASH infrastructure, and public health.

Key Risks Identified:

- **Surface and groundwater contamination** from flooded latrines (Chepalungu, Sotik, Bomet East).
- **Rainwater harvesting systems** in schools and health centers are overwhelmed or underutilized due to poor design.
- **Over-extraction and low recharge of aquifers**, especially in Chepalungu.
- **Sedimentation and water quality deterioration** due to soil erosion in Chemaner and Kiprerer.

The following are the Climate-Responsive Measures Underway:

- **Riparian buffer zones and reforestation programs** supported by the County Environment and Water Departments.
- Introduction of **elevated VIP latrines and sealed septic tanks** in flood-prone wards.
- **Early warning systems** and community-based adaptation plans piloted through Ward Climate Committees established under the **Bomet Climate Change Act (2021)**.

5.1.4.3 Integration with Health and Education

- In **schools**, 41.2% of infrastructure is vulnerable to environmental hazards (floods, drought), and 81.7% lack **Disaster Risk Reduction (DRR)** plans.
- In **health facilities**, 22% of sanitation infrastructure is non-functional, with weak waste management exposing communities to outbreaks during climate shocks.

Key Cross-Sector Actions:

Table 5.2: WASH Linkage and Sectoral Partner

WASH Linkage	Sectoral Partner	Integrated Initiative
Climate adaptation	Climate Change Unit, NDMA	Flood-resilient WASH infrastructure, drought contingency plans, and community early warning systems
Environmental conservation	NEMA, KFS	Riparian zone protection, spring rehabilitation, and afforestation in water-stressed sub-counties

Health sector	County DoH, HCFs	Infection control through hygiene infrastructure, MHM, and WASH-linked disease outbreak prevention
Education sector	County Education Office, MoE	School DRR plans, inclusive sanitation retrofitting, WASH clubs, and hygiene curriculum integration.
Agriculture & Livelihoods	County Agriculture Dept.	Expansion of water-efficient irrigation and multiple-use systems in Konoin and Chepalungu

5.1.4.4 Nature-Based and Green Infrastructure Solutions

In response to environmental degradation, Bomet is piloting **nature-based solutions (NBS)**, such as:

- **Terracing and gabions** in erosion-prone uplands.
- **Infiltration trenches and vegetated waterways** for aquifer recharge.
- **Agroforestry and forest conservation** in catchment areas, especially in Chepalungu, Konoin, and Bomet East.

5.1.4.5 Planning, Monitoring, and Governance Mechanisms

- Cross-sector integration is guided by the **County Climate Change Planning Committee (WCCPC) at the ward level, ensuring the** inclusion of youth, women, and PWDs.
- Joint planning occurs via the **County Technical Working Group on WASH and Resilience**, ensuring project co-location, shared financing, and performance monitoring.

Bomet’s WASH sector is embedding **resilience, equity, and environmental integrity** into water and sanitation infrastructure and service delivery. This holistic approach:

- Enhances **adaptive capacity** in vulnerable sub-counties.
- Promotes **environmental sustainability**.

5.2 Water Supply Infrastructure Investment Plan

Bomet County’s water supply investment strategy prioritizes **equity, sustainability, and resilience**. It focuses on underserved rural areas, underperforming urban schemes, and high-risk catchments affected by climate variability. This plan balances the development of **new infrastructure** with the **rehabilitation and upgrading of existing systems**, especially those managed by BOMWASCO and spring-dependent communities.

The major infrastructure projects under BOMWASCO’s 2025–2030 investment plan have been disaggregated into their respective physical and functional components, enhancing clarity in planning, budgeting, and monitoring. Table 5.2a provides a detailed breakdown of the **Ndanai Scheme Upgrade**, while Table 5.2b presents the **estimated investment for NRW reduction**, a priority area for efficiency improvement.

Table 5.2: Investment Plan for Ndanai Water Supply Scheme Upgrade (2025–2027)

Component	Description	Estimated Beneficiaries	Remarks
New Water Treatment Works	Compact unit with filtration, chlorination	6,000	Currently, only disinfection is in place
Booster Pumping Station	2-stage pumping, pressure booster with a standby	6,000	To serve uphill zones
Distribution Network Expansion	14 km HDPE mains and lateral extensions	6,000	Replace aged pipes, expand reach

Smart Metering	Consumer	2,000 units + 4 bulk meters (digital)	5,000 (households)	Linked to the NRW tracking system
SCADA Integration	& GIS	Real-time monitoring, asset mapping	Utility-wide	Also supports Itare and Silibwet zones
Chlorination Unit & Storage Rehab		2 chlorination units + tank repairs	4,000	Prevents contamination and improves quality
Subtotal			–	

Table 5.3: NRW Reduction Investments and Projected Impacts (2025–2029)

Activity	Target NRW Reduction	Coverage Area	Additional Outcomes
Pressure Management (PRVs, automation)	↓5%	Bomet, Longisa	Reduces burst frequency, stabilizes flows
Metering (2,000 HH, 10 bulk)	↓8%	Bomet Town, Ndanai	Increases billing accuracy
Pipe Network Rehabilitation (40 km HDPE)	↓12%	Kapkoros, Chepalungu	Reduces physical leaks
Leak Detection & Response Kit	↓2%	Utility-wide	Speeds up repair response
Staff Training and Audits	Management Efficiency	BOMWASCO HQ	Builds internal capacity
Total Estimated Investment	↓27% NRW		From 61% to ~25% by 2030

5.2.1 Priority Infrastructure Projects and Estimated Costs (2025–2030)

The CWSSIP identifies specific water supply investment projects required to expand access, improve reliability, and reduce operational inefficiencies such as Non-Revenue Water (NRW). Tables 5.2, 5.3, and 5.4 below disaggregate major infrastructure projects into their component investments, each with corresponding costs and anticipated service delivery impacts.

Table 5.4: Ndanai Water Supply Scheme Upgrade – Disaggregated Investments

Component	Investment Description	Cost (KES Million)	Year(s) of Investment	Estimated Beneficiaries
New Treatment Works	Construction of 5,000 m ³ /day compact treatment unit	60	2025–2026	15,000
Booster Station	Pumping system for uphill service zones	30	2025	10,000
Distribution Network Expansion	14 km HDPE mains and distribution lines	50	2025–2026	12,000
Smart Metering Installation	2,000 household meters + 5 bulk meters	18	2026	5,000
NRW Reduction Program	Leak detection, pressure zoning, old pipe replacement	36	2025–2026	20,000

Source: BOMWASCO Strategic Plan 2023–2026; CWSSIP Field Assessments.

Table 5.5: Bomet Town Water Supply Expansion – Disaggregated Investments

Component	Investment Description	Cost (KES Million)	Year(s) of Investment	Estimated Beneficiaries
New Intake and Raw Water Pipeline	Abstraction from Nyangores River	80	2025–2026	25,000
Treatment Plant Upgrade	Expansion by 6,000 m ³ /day	60	2026	20,000
Distribution Network Densification	Network extensions and infill mains (20 km)	90	2025–2027	22,000
NRW Reduction Program	Meter audits, leak repairs, pipeline optimization	40	2025–2027	30,000
Solarization of Pumping Stations	Solar retrofitting for two booster stations	25	2027	10,000

Source: BOMWASCO Business Plan 2023–2026; CWSSIP Technical Design Notes.

Table 5.6: Sotik Water Supply Rehabilitation – Disaggregated Investments

Component	Investment Description	Cost (KES Million)	Year(s) of Investment	Estimated Beneficiaries
Source Protection and Rehabilitation	Catchment fencing and water source protection	12	2025	8,000
Gravity Main Rehabilitation	Replacement of 12 km of aging mains	35	2025–2026	10,000
New Storage Reservoir	Construction of 1,500 m ³ tank	20	2026	8,000
Distribution Network Improvements	10 km network upgrades and pressure zoning	28	2026–2027	9,000
NRW Management Program	Meter replacements, illegal connection audits	22	2026–2027	12,000

Source: County WASH Masterplan 2025–2030; BOMWASCO Infrastructure Audits.

In addition to the flagship schemes, the CWSSIP prioritizes investments in smaller-scale but critical interventions. These include spring protections, solarized boreholes, institutional WASH upgrades, urban expansions, rainwater harvesting, and new rural piped schemes. Tables below disaggregate these interventions.

Table 5.7: Spring Protection and Gravity-Fed Systems – Disaggregated Investments

Component	Investment Description	Cost (KES Million)	Year(s)	Estimated Beneficiaries
Spring Fencing and Source Protection (30 springs)	Source fencing and headworks	18	2025–2026	12,000
Gravity Piped Connections (30 springs)	Low-pressure piped distribution	45	2026–2027	15,000
Storage Tanks (20 locations)	50–100m ³ Ferro cement tanks	25	2026–2027	10,000

Table 5.8: Solarized Boreholes and Elevated Storage Systems – Disaggregated Investments

Component	Investment Description	Cost (KES Million)	Year(s)	Estimated Beneficiaries
Borehole Drilling and Equipping (20 boreholes)	New boreholes + solarized pumps	80	2025–2027	25,000
Construction of Elevated Steel Tanks (20 locations)	50m ³ –100m ³ storage tanks	30	2026–2027	20,000
Distribution Networks	5–10 km PVC pipe distribution lines	40	2026–2028	18,000

Table 5.9: Urban Water Expansion – Bomet, Mulot, and Sotik

Component	Investment Description	Cost (KES Million)	Year(s)	Estimated Beneficiaries
Intake Works and Raw Water Pipelines (Mulot, Bomet)	Abstractions from river sources	70	2025–2027	20,000
New Storage Reservoirs	2 x 5,000 m ³ tanks	60	2026–2027	18,000
Extension of Urban Distribution Networks	30 km pipe extensions	80	2026–2028	25,000
NRW Reduction Programs	Metering, illegal connection audits	30	2025–2027	20,000

Table 5.10: Institutional WASH Systems (Schools and Healthcare Facilities)

Component	Investment Description	Cost (KES Million)	Year(s)	Estimated Beneficiaries
School Rainwater Harvesting Systems (100 schools)	Tanks, gutters, taps	40	2025–2027	35,000 learners
ECDE Water Supply Systems (50 centers)	5,000L tanks and piped taps	25	2026–2028	10,000 learners
HCF WASH Systems (30 facilities)	Storage tanks, handwashing stations, toilets	30	2026–2028	15,000 patients/year

Table 5.11: Community Rainwater Harvesting Systems

Component	Investment Description	Cost (KES Million)	Year(s)	Estimated Beneficiaries
Communal Rainwater Harvesting Systems (20 rural sites)	50,000L–100,000L ferrocement tanks + tapping networks	60	2025–2027	12,000 households

Table 5.12: Rural Piped Multi-Village Schemes

Component	Investment Description	Cost (KES Million)	Year(s)	Estimated Beneficiaries
New Piped Schemes (Kiprerer, Boito, Nyongores)	Intake, gravity mains, distribution, storage	180	2025–2028	40,000 people

5.2.2 MUS/WASH+ Integration in Water Supply Projects

All major infrastructure projects incorporate **Multiple Use Services (MUS)** and **WASH+ principles**, ensuring that water systems support:

- **Domestic use**
- **Livestock watering**
- **Smallholder irrigation**
- **Hygiene access for schools and health care facilities**

Examples:

- **Spring-fed multi-village systems** in Kiprerer include livestock troughs and public standpipes.
- **Institutional supply upgrades** are paired with latrine, handwashing, and rainwater harvesting improvements.
- Borehole systems in **Chemaner and Kaporuso** include dual outlets for community taps and agricultural use.

5.2.3 Environmental and Social Impact and Risks Considerations for Water Supply Investments

Bomet County's water supply investment program is designed with a strong emphasis on environmental and social safeguards to ensure sustainability, equity, and climate resilience. All planned infrastructure projects—particularly those above KES 10 million in capital value—will be subject to comprehensive Environmental Impact Assessments (EIAs) in line with the Environmental Management and Coordination Act (EMCA, 1999) and World Bank safeguard policies. Each project will integrate detailed Environmental and Social Management Plans (ESMPs) to address localized risks.

5.2.3.1 Key Environmental Safeguards

Planned water investments incorporate measures to minimize ecological degradation and ensure long-term viability of water resources:

- **Catchment protection** activities—including afforestation, spring fencing, and riparian buffer restoration—are prioritized in upland sub-counties such as Konoin and Chepalungu.
- **Climate adaptation features**, such as solar pumping, storage tanks, and stormwater diversion infrastructure, are embedded in designs to mitigate risks of flooding, drought, and water contamination.
- **Water quality assurance** will be upheld through routine bacteriological and chemical testing, particularly for gravity schemes and boreholes serving public institutions and high-density settlements

5.2.3.2 Social Safeguards and Gender Inclusion

Water projects will proactively address risks of exclusion, displacement, and affordability:

- **Land tenure clarity and community consent** will be ensured through structured consultations, participatory mapping, and grievance redress mechanisms.
- **Gender-responsive designs** will ensure equitable access points, especially for women, children, and persons with disabilities. For example, schemes like the Taboino-Kaptebengwet Dual Scheme incorporate ECDE water points and livestock troughs that reduce water-fetching burdens on womenZero DRAFT CWSSIP_RABUD1.
- **Affordability measures** such as prepaid kiosks, lifeline tariffs, and cross-subsidization from bulk users will be scaled in informal and low-income peri-urban zones.

5.2.3.3 Community Engagement and Safeguard Monitoring

All water infrastructure investments will be anchored in participatory planning and multi-stakeholder oversight:

- **Water Resource Users Associations (WRUAs)** and Water User Committees (WUCs) will participate in project scoping, implementation monitoring, and conflict resolution.
- **Safeguard compliance** will be tracked through digital dashboards linked to annual environmental audits, supported by the proposed Environmental and Social Management Unit (ESMU) within the County WASH Unit.
- **Social accountability** will be enhanced through regular feedback forums, toll-free reporting lines, and inclusion of marginalized voices in scheme governance.

These integrated environmental and social measures aim to elevate the resilience, inclusivity, and community ownership of water supply infrastructure in Bomet County, while minimizing ecological degradation and social disruption.

5.2.3.4 Potential Risks

The table below highlights the summary of the key project areas, potential risks, and the mitigation strategies:

Table 5.13: Project Area, Potential Risks, and the Mitigation Strategies

Project Area	Potential Risks	Mitigation Strategies
Spring Systems (Konoin, Lelaitich)	Over-abstraction, source encroachment	Community bylaws, WRUA monitoring, and protected recharge zones
Boreholes (Kaporuso, Chemaner)	Groundwater depletion, poor siting	Hydrogeological surveys, solar pumping to reduce energy footprint
Urban Schemes BOMWASCO	Construction disruption, re-contamination	NRW Scheduled works, meter replacement, GIS-based zoning
Multi-village Schemes Rural	Land disputes, rights of way conflicts	Community sensitization, voluntary land access agreements
Rainwater Harvesting (Schools/HCFs)	Roof contamination, low yield during the dry season	Filtration systems, backup tank design, sanitation linkages

All projects will undergo **environmental and social screening, and high-risk projects will develop site-specific environmental and social management plans (ESMPs) that are** in line with national and World Bank safeguards.

5.2.4 Climate Resilience and Sustainability Considerations

The following features have been integrated across all infrastructure projects:

- **Source Diversification:** Boreholes + springs + rainwater to build redundancy.
- **Green Energy:** Solar-powered boreholes for cost savings and carbon neutrality.
- **Catchment Protection:** Spring rehabilitation combined with reforestation and fencing.
- **Smart Design:** Elevated storage and gravity-fed distribution to reduce energy dependence.
- **Local Ownership:** Schemes embedded within RWSP or BOMWASCO O&M systems, with performance oversight.

All projects contribute to achieving DLI 2 (access), DLI 3 (functionality), and DLI 8 (private co-financing) under K-WASH.

5.3 Sanitation and Hygiene Services Investment Plan

5.3.1 Priority Sanitation Projects, Including Non-Sewered Sanitation and Faecal Sludge Management

Bomet County's sanitation strategy targets **universal access to improved, climate-resilient sanitation**, primarily through **non-sewered, on-site solutions** supported by post-ODF initiatives, inclusive infrastructure, and faecal sludge management (FSM) investments.

5.3.1.1 Strategic Sanitation Priorities:

- Scale-up of **CLTS+** and **post-ODF household sanitation subsidies** in rural wards.
- Construction and rehabilitation of **public and market sanitation facilities**.
- Establishment of a decentralized **Faecal Sludge Management (FSM) system**, including **transfer stations and disposal points** in urban centers.
- Adoption of **low-cost, resilient technologies** (e.g., lined VIPs, raised latrines).

5.3.1.2 Climate and Resilience Focus:

- Flood-prone areas (e.g., Cheptuyet, Cheptebes) prioritized for **elevated, sealed latrines**.
- Integration of **FSM into sanitation planning** to reduce environmental risks.
- Sustainable pit latrines and dual-use solutions for **schools and public spaces**.

5.3.2 Behavioral Change and Market-Based Sanitation Initiatives

Behavior change is central to sustained sanitation uptake. The CWSSIP proposes a combined **public health + market activation** approach to shift demand and expand access.

5.3.2.1 Behavioral Change Strategy:

- Trigger **600 villages annually** through CLTS+, followed by **structured post-ODF monitoring**.
- Train and mobilize **Sanitation Champions** and youth-led hygiene groups.
- Embed sanitation messaging into **school programs, radio campaigns, and WASH days**.

5.3.2.2 Market-Based Approaches:

- Develop sanitation supply chains for **SATO pans, slabs, and handwashing stations**.
- Partner with **Microfinance Institutions (MFIs)** and SACCOs to provide **toilet upgrade loans**.
- Expand **public-private partnerships (PPPs)** for managing market toilets and FSM services.
- Establish a **Sanitation Accelerator Fund** to support entrepreneurs and incentivize product access in low-income zones.

5.3.3 WASH Investments for Schools and Healthcare Facilities

5.3.3.1 Schools:

- **At least 120 schools prioritized** for inclusive sanitation upgrades (latrines + water + MHM).
- Introduce **menstrual hygiene rooms**, with soap, buckets, and privacy-friendly designs.
- Improve pupil-to-latrines ratios to align with MoE standards (target: 1:40 for girls).
- Implement **circular economy pilots**, such as urine-diverting toilets and composting.

5.3.3.2 Healthcare Facilities:

- **At least 30 HCFs targeted** for sanitation improvement, based on HCF WASH situational analysis.
- Upgrades to include:

- Gender-segregated latrines
- Water-linked handwashing points at each care ward
- Dedicated WASH blocks for maternity wings

5.3.3.3 Inclusion Focus:

- All school and HCF projects are designed to be **disability-friendly, gender-segregated, and MHM compliant.**
- Facility-based behavior change champions to be trained under MoE/MoH supervision.

5.3.4 Project List, Budgets, and Risk Mitigation Strategy

Table 5.5: Project List, Budgets, and Risk Mitigation Strategy

Intervention	Location	CapEx	OpEx	2025	2026	2027	2028	Beneficiaries	Risk Features	Mitigation
CLTS & Post-ODF Programs	600+ villages	130	60	32.5	32.5	32.5	32.5	~90,000 people	Slippage prevention, local sanitation champions, and climate mapping	
Household Sanitation Subsidies	15 poorest wards	120	40	30.0	30.0	30.0	30.0	24,000 households	Voucher-based support, flood-proof slab standards	
FSM Transfer & Disposal Points	Bomet, Sotik, Longisa	240	90	60.0	60.0	60.0	60.0	~60,000 people	Sludge lanes, soak pits, PPP operator model	
Market & Public Toilets	12 locations	185	55	46.25	46.25	46.25	46.25	~12,000 users daily	PPP models, lighting, CCTV, MHM stalls	
School Toilet Blocks + MHM Units	120 schools	240	60	60.0	60.0	60.0	60.0	~54,000 learners	MHM rooms, rainwater taps, and composting toilets	
HCF Sanitation Upgrades	30 HCFs	88	24	22.0	22.0	22.0	22.0	~160,000 patients/year	Maternity toilets, inclusive access, hygiene zones	
Hygiene Promotion (Cross-cutting)	All wards & institutions	127	35	31.75	31.75	31.75	31.75	Entire population	IEC materials, handwashing stations, hygiene toolkits	

5.3.5 Environmental and Social Impact Considerations for Sanitation and Hygiene Investments

The design and implementation of sanitation and hygiene investments in Bomet County must align with environmental safeguards, promote social inclusion, and proactively mitigate gender-based vulnerabilities. This is particularly critical in densely populated urban areas, educational institutions, informal settlements, and healthcare facilities where sanitation gaps remain acute.

a) Environmental Safeguards and Risk Mitigation Measures

To enhance sustainability and reduce ecological harm, all major sanitation infrastructure—such as sewer systems, fecal sludge treatment plants (FSTPs), and institutional sanitation blocks—will undergo site-specific Environmental and Social Impact Assessments (ESIAs) in accordance with the Environmental Management and Coordination Act (EMCA, 1999). Key environmental risks and proposed mitigation strategies include:

- **Groundwater contamination and pit latrine collapse in high water table zones**, mitigated through elevated slabs and sealed double pits in vulnerable wards such as Chepalungu and Bomet East.
- **Effluent discharge and odor risks from FSTPs**, addressed using bio-digester technologies, sludge drying beds, and odor-control fencing.
- **Latrine flooding and poor ventilation**, resolved through raised superstructures, rainproof roofing, and improved airflow designs.
- **Construction-phase waste and environmental disruption**, managed through environmentally compliant construction protocols and contractor monitoring.

Environmental compliance will be monitored through annual Environmental Audits submitted to NEMA and tracked within the CWSSIP Monitoring Framework.

b) Gender and Social Inclusion in Sanitation Planning

Socioeconomic status, gender norms, disability, and geographic marginalization shape access to safe, appropriate sanitation services. To reduce disparities and enhance dignity for all users, the following measures are integrated into the sanitation investment plan:

- **Inclusive Sanitation Infrastructure:** All new institutional and public sanitation facilities will adopt inclusive designs—featuring separate male/female units, ramps, grab bars, and privacy-enhanced spaces. Dedicated Menstrual Hygiene Management (MHM) rooms with water access and bins will be prioritized in schools and healthcare facilities. Current data shows that only 28% of schools and 15% of health facilities in Bomet County have MHM-compliant sanitation.
- **Community Sensitization and Male Engagement:** Behavior Change Communication (BCC) campaigns will target both men and women to dismantle harmful sanitation-related stigmas, especially around menstruation and disability. Interventions will be anchored in community dialogue, hygiene clubs, and local religious leadership engagement.
- **Affordability and Access for Vulnerable Households:** To reach marginalized populations in informal settlements and rural low-income zones, the County will operationalize a sanitation voucher system and expand CLTS programming. Women-led WASH committees will be supported to drive local uptake.
- **School-Focused MHM Investment:** Between 2025 and 2030, the County plans to construct 100 gender-inclusive sanitation blocks with MHM facilities across public primary and secondary schools—reaching an estimated 30,000 adolescent girls and creating safer learning environments.
- **Participatory Design and Grievance Redress:** Structured community consultations (especially with women and PWDs) will inform siting and facility design. A digital complaints platform will also be piloted by BOMWASCO to capture user grievances and improve real-time service responsiveness.

Table 5.14: Summary Table – Environmental and Social Risk Mitigation Strategies

Project Type	Identified Risks	Planned Mitigation Measures
Urban sewerage and FSTPs	Sludge overflow, odor, and illegal discharge	Bio-digesters, drying beds, odor-control fencing
Institutional sanitation facilities	Pit flooding, lack of MHM, inadequate ventilation	Elevated slabs, MHM-compliant blocks, ventilation improvements
Fecal sludge management logistics	Manual handling, spillage, and exposure risks	PPE, sealed tankers, and SOP training for workers
Market and public toilets	Overuse, vandalism, and poor design	Night lighting, secure structures, public oversight
Informal settlement latrines	Inaccessibility due to cost or stigma	Voucher-based subsidy programs, women-led CLTS initiatives

These measures are mainstreamed in the implementation roadmap and will be tracked through the CWSSIP Results Framework, with annual reviews conducted jointly by the County WASH Unit, BOMWASCO, and civil society monitors.

5.3.6 Inclusion of Additional Sanitation Projects from PEF

In alignment with the official K-WASH Program expenditure framework (PEF) submissions, additional sanitation-focused projects not previously listed in the CWSSIP have been prioritized for integration. These projects are aligned with the goals of non-sewered sanitation expansion, school WASH improvement, and climate-smart faecal sludge management. They are summarized in the table below and will be fully integrated into the County's sanitation investment pipeline and monitoring framework.

Table 5.15: Sanitation Projects from K-WASH Project Entry Form (PEF)

Project Title	Location/Sub-County	Estimated CapEx (KES M)	Description	Target Population	Responsible Entity
Upgrading of Toilet Blocks at Schools	Bomet East & Konoin	45.0	Upgrade existing latrines to gender-segregated, MHM-friendly flush toilets in 25 schools	~12,000 learners	Dept. of Education, BOMWASCO
Decentralized FSM Units	Chepalungu, Bomet Central	60.0	Establish small-scale FSTPs linked to market centers	30,000 residents	Dept. of Water, Public Health
Rainwater-Harvesting Sanitation Units	All Sub-counties	38.5	Construct combined RWH + toilet facilities in 30 ECDEs and dispensaries	15,000 users	Dept. of Water, Dept. of Health, Dept. Education
Sanitation Behavior Change Campaigns	Sotik & Bomet Central	15.0	School-based MHM + CLTS re-triggering in peri-urban areas	~20,000 households	Public Health, NGOs, BOMWASCO

The table below captures how the projects contribute to DLI and the National Targets.

Table 5.16: Contribution to DLI and National Targets

Indicator	CWSSIP Response	DLI / SDG Link
Increase in basic sanitation (households)	Subsidies, CLTS+, FSM	DLI 4, DLI 5, SDG 6.2
Urban FSM operational	FSM infrastructure + PPP desludging service	DLI 4, DLI 8, SDG 6.3.1
Inclusive sanitation in schools and HCFs	MHM units, disability-friendly toilets	SDG 3, SDG 4, SDG 6.2
Sustainable sanitation access for the poorest	Vouchers, sanitation marketing, market linkage	K-WASH equity and affordability

5.4 Water Resources Management and Catchment Conservation Investment Plan

5.4.1 Planned Investments in Watershed Protection, Groundwater Recharge, and Pollution Control

Bomet County's WRM strategy aims to protect the sustainability of its surface and groundwater sources by investing in **catchment restoration, recharge enhancement, and pollution control**. Over 40% of the population relies on **springs and surface water**, making **catchment degradation, over-abstraction, and water quality deterioration** high-priority risks.

Table 5.17: Priority Investment Areas under the Watershed Protection, Groundwater Recharge, and Pollution Control

Intervention	Target Areas	Total CapEx	Total OpEx	2025	2026	2027	2028	Climate/Vulnerability Considerations
Spring-Catchment Rehabilitation	Lelaitich, Kipreres, Kimolwet	120	30	30.0	30.0	30.0	30.0	Drought-prone highlands; WRUA-led fencing and vegetation
Riparian Buffer Restoration	Nyangores, Kipsonoi, Sinotwet Rivers	80	20	20.0	20.0	20.0	20.0	Erosion control, pollution buffers, and flood mitigation
Mau Forest Edge Reforestation	Konoin, Chepalungu	185	40	46.25	46.25	46.25	46.25	Upland water towers; FLLoCA & CCU eligibility
Groundwater Recharge Structures	Chemaner, Segemian, Sigor	88	25	22.0	22.0	22.0	22.0	Infiltration trenches, rooftop recharge, and climate-adjusted targeting

Pollution Monitoring & Control Units	Bomet Town, Sotik, Longisa	120	20	30.0	35.0	35.0	35.0	Water-quality mapping, WRUA–WASH Hub linkages
WRUA Strengthening & SCMP Impl.	Isei, Lelaitich, Kiprerres (8 zones)	100	25	25.0	25.0	25.0	25.0	Bylaw updates, equipment kits, and youth engagement

Total WRM & Catchment Investment (2025–2030): CapEx: KES 693 million; **OpEx:** KES 175 million

Climate and Social Vulnerability Considerations include the following:

- a. **Spring-dependent highlands (Konoin, Kiprerres)** face high dry-season variability; spring fencing, WRUA-managed O&M, and reforestation are core mitigation measures.
- b. **Downstream populations and institutions** reliant on surface water are vulnerable to sedimentation and pollution; riparian restoration and water quality control facilities are planned.
- c. **Women and youth** will be engaged through eco-jobs, catchment maintenance roles, and WRUA board quotas.

5.4.2 Collaborative Initiatives with WRA and Other Stakeholders

5.4.2.1 Partnerships for Integrated Water Management:

- **WRA and WASREB** will jointly support:
 - Licensing and monitoring of WRUAs and Rural WSPs
 - Catchment data validation (e.g., spring discharge, SCMP tracking)
- **WRUAs** will co-implement SCMPs, maintain spring protection infrastructure, and oversee community-led water source governance.

5.4.2.2 Coordination with Environmental Agencies:

- **NEMA and KFS** will co-lead:
 - Buffer zone mapping, environmental compliance
 - Seedling supply, biodiversity integration
- The **County Climate Change Unit (CCU)** will integrate WRM priorities into county-wide FLLoCA proposals and resource mobilization efforts.

5.4.3 Integrated Approach to Water Resource Planning Across Sectors

Bomet County will operationalize an **Integrated Water Resource Management (IWRM) approach**, linking WRM functions across agriculture, health, planning, education, and energy.

Table 5.9: Integrated Water Resource Management (IWRM) approach

Sector	WRM Entry Point	Examples
Agriculture	Irrigation runoff, livestock watering, and wetland degradation	Agroforestry, fencing of watering points, WRUA-agriculture joint training
Health	Spring contamination, poor sanitation near water bodies	Catchment-based latrine siting, HCF WASH audits with WRUA input
Education	Environmental clubs, school-based water protection	School-WRUA linkages, reforestation by pupils
County Planning	Land use zoning, development control	Water-sensitive planning; inclusion of SCMP priorities in land adjudication

Water & Climate	Source mapping, hydrological risk scoring	Targeting spring/borehole rehab where vulnerability is highest
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The plan has considered the following for the adaptation measures for resilience:

- Hydrological risk data guide all investments and will be **geo-prioritized** using vulnerability overlays from the **WRUA SCMPs and CCU**.
- **M&E of climate adaptation indicators** will be led by the WASH Hub and reported in CWSSIP scorecards annually.

5.5 Institutional Reforms and Service Delivery Models (SDMs)

The successful implementation of the CWSSIP depends on a robust institutional framework that ensures service quality, accountability, and sustainability across both rural and urban contexts.

Bomet County currently operates under a fragmented system characterized by parallel service models, weak oversight, and gaps in service standards enforcement. This section outlines the key institutional reforms and appropriate service delivery models proposed to streamline governance and improve performance.

5.5.1 Proposed Models for Urban and Rural Service Delivery

Water and sanitation services in Bomet County are delivered through a **fragmented mix of models**:

Table 5.18: Existing Service Delivery Models and Challenges

Service Area	Current Provider Type	Challenges
Urban and Peri-Urban	BOMWASCO (licensed WSP)	High NRW, low metering, limited reach in growth centers
Rural Piped and Spring Systems	CBOs, WRUAs, Project Committees (unregulated)	No licensing, no tariffs, high system failure rates
Institutions (Schools/HCFs)	Education and Health Facility Management	Inadequate budgeting for O&M, no technical support
Market Sanitation	Informal vendors or unmaintained by the County	Poor maintenance, no cleaning contracts

The Plan has proposed SDMs based on the settlement type, as captured in the table below:

Table 5.19: Proposed Service Delivery Models (SDMs) per Settlement Type

Settlement Type	SDM Proposal	Responsible Entity	Key Considerations
Urban and Peri-Urban	BOMWASCO (under new performance contract)	BOMWASCO, WASREB	Smart metering, NRW reduction, billing reforms, sanitation integration
Rural and Dispersed Areas	Rural Water Service Providers (RWSPs)	County Water Dept, WASREB	WASREB-licensed; operate rehabilitated CBO/donor systems under SLAs
Spring-fed Community Schemes	CBO/WRUA hybrid, under RWSP technical backstopping	WRUAs, Dig Deep, RWSPs	Maintenance oversight by WRUAs; co-funding via community contributions

Institutions	Sector-managed with WASH Hub technical support	MoE, MoH, Water Dept, WASH Hub	Inclusive WASH budgeting, O&M contracts, joint M&E
Public Toilets / FSM	PPP or CBO service contracts	Public Works Dept, PPP Unit	User fees, maintenance SLAs, hygiene staffing

The plan also explores the Lessons from Best Practices in Water Governance. These include the following:

- a) **Nakuru County RWSP Model:** Provides a precedent for decentralized rural WSPs licensed by WASREB.
- b) **Dig Deep’s Bomet Approach:** Demonstrated sustainability of community-managed spring systems when supported with technical oversight, WRUA involvement, and institutional strengthening.
- c) **School WASH Partnerships:** Integrated service design (latrines, water, and hygiene promotion) has improved retention and MHM access in pilot schools.

On Governance and Accountability Mechanisms, the Plan has made the following recommendations:

- (a) **WASH Hub as County WASH Coordination Unit:** The CWSSIP recommends legislation to **formally anchor the WASH Hub** as the County’s official **WASH Coordination Unit** under the Department of Water and Sanitation. Its core mandate will be to:
 - Coordinate WASH stakeholders and investments
 - Manage WASH sector data and reporting
 - Lead learning, innovation, and M&E
- (b) **Budget Provision:** The WASH Hub shall be allocated an **operational budget of KES 150 million for the entire CWSSIP period (2025–2030)**, to be funded jointly by the County Government and partners.
- (c) **County WASH Steering Committee & Technical Working Group (TWG):** Establishment of high-level multi-stakeholder platforms to guide policy, planning, and performance tracking.
- (d) **Standardized Operating Procedures (SOPs):** Development of countywide service delivery protocols, contracts, and compliance tools for all WSPs and RWSPs.

5.5.2 Establishment of Rural Water Service Providers (RWSPs)

To address fragmentation in rural water service delivery, the County shall facilitate the **establishment of licensed Rural Water Service Providers (RWSPs)** based on a clustering approach.

- These RWSPs will consolidate existing community-managed schemes within defined geographic areas (e.g., sub-counties or clusters of wards) and be supported with technical, legal, and financial tools to professionalize operations.
- They will operate under Service Agreements guided by WASREB’s regulatory framework and monitored by the Department of Water.

5.5.3 Strengthening Urban Service Delivery

BOMWASCO remains the designated Water Service Provider (WSP) for all urban and peri-urban areas in Bomet County. The CWSSIP proposes to strengthen BOMWASCO through:

- Restructuring and performance-based management of its Board and senior leadership;
- Investment in Enterprise Resource Planning (ERP) systems for billing, asset management, and customer relations;
- Institutionalization of KPIs and regular audits aligned to WASREB's Impact Report and performance benchmarking.

5.5.2: Partnerships and Service Delivery Models, or under Cross-Cutting Issues in Chapter 5

In line with the County's commitment to innovation-driven sanitation solutions, the Department of Water and Sanitation is formalizing a partnership with **Bomet University College** to advance **research, training, and pilot programming in waste management and circular economy applications**. This collaboration will support the co-creation of waste-to-value models—including composting, biogas, and reuse of treated effluent—within rural and urban settings. It is envisioned that the University will serve as a **regional center of excellence in climate-smart sanitation**, providing a pipeline of technical capacity and innovation that complements CWSSIP's goals on sustainable waste management.

5.5.4 WASH Hub Institutionalization

To ensure long-term coordination, data harmonization, and cross-sectoral learning, the CWSSIP recommends the **formal legislative anchoring of the County WASH Hub** as a specialized unit within the Department of Water and Sanitation. The Hub will:

- Serve as the technical secretariat for the CWSSIP Steering Committee;
- Coordinate multi-stakeholder planning, reporting, and investment tracking;
- Lead capacity-building, documentation of best practices, and innovation incubation;
- Host integrated data platforms and dashboards (e.g., mWater, ERP analytics).

Budget Provision: From 2025 to 2030, the Hub shall operate under a dedicated multi-year budget ceiling of KES 150 million, with financing drawn from county allocations and complementary development partner support.

5.5.5 Legal and Policy Reforms

The following reforms are prioritized for phased implementation:

- Enactment of the **Bomet County Water and Sanitation Bill**, embedding the CWSSIP and WASH Hub mandates;
- County-level policy and regulations for FSM, licensing of RWSPs, and enforcement of service standards;
- Development and rollout of SOPs and model contracts for WSPs, RWSPs, and PPP arrangements.

5.5.6 Dedicated Investment in Institutional Coordination and Governance (2025–2030)

To ensure effective sector governance, data harmonization, and coordinated implementation of the CWSSIP, Bomet County has allocated KSh 120 million to support the operationalization and strengthening of the County WASH Hub.

This budget covers institutional coordination, stakeholder engagement, performance monitoring, and sector reviews—all of which are essential to tracking progress under K-WASH DLIs and improving utility and county performance.

The budget breakdown is as follows:

Table 5.20: County WASH Hub and Sector Coordination Investment Plan (2025–2030)

Institutional Strengthening Activities	Allocation (KSh Million)
Operational costs and administration	50
Capacity building and training	10
Stakeholder coordination and advocacy	15
Data management and monitoring systems	25
Sector performance review workshops	20
Total	120

5.5.7 Governance and Accountability Mechanisms

The effectiveness of water and sanitation service delivery in Bomet County is intrinsically linked to the strength of its governance and accountability systems. While structures such as BOMWASCO, the County WASH Hub, and Ward-level water committees exist, several challenges persist:

- **Overlapping mandates** and weak vertical coordination between county departments (e.g., water, health, education) and BOMWASCO.
- Inadequate **corporate governance** structures at BOMWASCO, including irregular board appointments and lack of separation between regulatory and operational roles.
- Limited **public participation** and feedback channels in scheme-level investment planning, tariff adjustments, and service improvement decisions.
- Weak integration of **social accountability mechanisms** such as citizen scorecards, water user committees, and digital feedback tools.

5.5.7.1 Key Strategic Actions

To strengthen governance and accountability in the sector, the following reforms and actions will be implemented under the CWSSIP:

Table 5.21: Key Strategic Actions

Reform Area	Strategic Action	Lead Institutions	Timeline
1. Institutional Clarity	Review and update MoUs between BOMWASCO and County Government to clarify mandates and funding flows.	CGoB, BOMWASCO, MoWSI	2025–2026
2. Board and Management Compliance	Align BOMWASCO board composition and audit cycles with WASREB Corporate Governance Guidelines (2021).	BOMWASCO, WASREB	2025–2027

3. Citizen Engagement	Institutionalize community engagement in project planning via WRUAs, CBOs, and public barazas.	County Assembly, WASH Hub	Continuous
4. Digital Service Monitoring	Scale up mWater and GIS platforms for real-time reporting and citizen feedback (via USSD/SMS tools).	BOMWASCO, ICT Department, WASH Hub	2025–2028
5. Audit and Transparency	Enforce quarterly financial reporting and independent technical audits on large WASH projects.	Office of the Auditor-General, CGoB	Annually

5.6 Sector Financing Requirements and Sourcing Plan

The CWSSIP financing strategy is anchored on verified projections of funding from multiple sources, including County Budgets, National Government transfers (such as through WWDA and WSTF), Development Partner Grants, and anticipated Private Sector Contributions. The table below outlines the projected annual financing flows into the WASH sector from 2025 to 2030, demonstrating strong alignment with the investment requirements outlined in this plan.

Table 5.22: Projected Annual WASH Sector Funding (KES Million, 2025–2030)

Year	Water (KES M)	Supply	Sewered (KES M)	Sanitation	Non-Sewered (KES M)	Sanitation	Total WASH Funding (KES M)
2025	569.8		1.0		27.3		598.2
2026	472.7		1.0		224.9		698.6
2027	580.6		301.0		344.5		1,226.1
2028	501.5		100.0		679.0		1,280.5
2029	491.8		51.0		729.6		1,272.4
2030	501.6		852.0		729.2		2,083.0

Source: County Treasury WASH Funding Projections, 2025–2030.

5.6.1 Estimated Costs for Planned Investments and Reforms

The Bomet CWSSIP outlines a total investment requirement of **KES 7.158 billion** for the period 2025–2030. This estimate covers both capital investments (infrastructure development and rehabilitation) and operational requirements (institutional strengthening, M&E, service delivery support).

In alignment with stakeholder feedback, the Bomet County Water and Sanitation Strategy and Investment Plan (CWSSIP) has restructured its strategic investment priorities to strengthen sector sustainability and maximize the impact of available funding mechanisms, particularly performance-based financing under the Kenya WASH (K-WASH) program.

Priority interventions emphasize substantial rehabilitation and sustainability of existing BOMWASCO-managed schemes, significant investment in spring protection, scaling up Community-Led Total Sanitation (CLTS), and targeted household sanitation subsidies post-Open Defecation Free (ODF) certification.

The investments are also structured thematically to reflect sector priorities and ensure alignment with the CWSSIP strategic pillars. The costing draws from the officially approved Project Entry Forms (PEFs), which were further validated by the County WASH Technical Working Group and sector stakeholders.

5.6.1.1 Thematic Investment Breakdown (2025–2030)

Table 5.23: Estimated Costs for Planned Investments and Reforms (2025–2030)

Strategic Investment Area	Total Cost (KES Million)	Share of Total Investment (%)
(a) Water Supply Infrastructure	2,548	38%
(b) Sanitation and Hygiene Services	2,113	31%
(c) WASH in Schools and Healthcare Facilities	812	12%
(d) Institutional Development and WASH Hub	395	6%
(e) Water Resources & Climate Resilience	548	8%
(f) Monitoring, Evaluation, and Sector Learning	267	4%
(g) Cross-Cutting Reforms (GESI, PPP, ICT, BCC)	475	7%
Total	7,158	100%

5.6.1.2 CAPEX vs. OPEX Breakdown

The CWSSIP recognizes the importance of balancing infrastructure investments with adequate allocations for operational sustainability. Approximately **86%** of the budget is earmarked for **capital investments**, while **14%** supports **operational expenditures**, including personnel, M&E, outreach, and coordination functions.

Table 5.24: CAPEX and OPEX Distribution

Expenditure Category	KES Million	% of Total Investment
Capital Expenditure (CAPEX)	6,155	86%
Operational Expenditure (OPEX)	1,003	14%
Total	7,158	100%

The investment distribution reflects a strategic shift from new infrastructure toward sustainability and service quality. Sanitation and hygiene interventions have been scaled up to reflect the urgency of improving household, institutional, and urban sanitation access, with an emphasis on community-led total sanitation (CLTS), sanitation marketing, FSM, and MHM infrastructure. Investments in water supply now prioritize rehabilitation and expansion of existing schemes, including BOMWASCO network upgrades and spring protection.

Further, the CWSSIP includes KSh 150 million in direct support to the Bomet County WASH Hub to enhance institutional coordination, sector accountability, and compliance with K-WASH DLI targets. The monitoring and evaluation system will track performance indicators linked to these thematic allocations.

5.6.2 Strategies to Mobilize Funding from Public, Private, and Donor Sources

The successful implementation of the Bomet County Water and Sanitation Strategy and Investment Plan (CWSSIP) hinges on the availability of adequate and well-structured financial resources. To meet the total investment requirement of KES 7.158 billion for the 2025–2030 planning period, a diversified financing strategy has been formulated to leverage resources from both traditional and non-traditional sources. This approach aligns with the National Water Financing Strategy and WASREB guidelines, which emphasize blended financing and cost-sharing mechanisms to support universal access to water and sanitation services.

The proposed financing mix reflects realistic projections based on historical budget allocations, confirmed programmatic commitments, and potential funding opportunities from key stakeholders. The plan integrates contributions from the County Government of Bomet, National Government agencies (e.g., WSTF, LVSWWDA, NDMA, and WRA), development partners (such as World Bank, AfDB, UNICEF), NGOs and charity-based organizations (e.g., Dig Deep and KRCS), BOMWASCO internal revenues, the private sector, and local community contributions.

This multi-source financing framework is strategically designed to enhance sustainability, strengthen accountability, and reduce overreliance on a single funding source. For example, internal revenue contributions from BOMWASCO will be critical in demonstrating institutional viability and leveraging external funding, while development partners will provide catalytic investment for capital-intensive and resilience-building projects. County and national government allocations will continue to play a central role in infrastructure development and regulatory compliance.

The table below presents a detailed breakdown of the estimated contributions from each financing source, their percentage share of the total investment, and key justifications:

Table 5.25: Indicative Financing Sources (2025–2030)

Financing Source	Estimated Contribution (KES Million)	% of Total Investment	Remarks
County Government of Bomet	1,950	27%	Based on CIDP budget trends and direct PEF commitments
National Government (WSTF, LVSWWDA, WRA, NDMA, etc.)	1,935	27%	Key funders for bulk water, resilience, FSM, and WRUA-linked projects
Development Partners (e.g., WB, AfDB, UNICEF)	2,410	34%	Includes K-WASH, KUSP III, UNICEF WASH inputs, performance-based grants
NGOs & Charity-Based Organizations (Dig Deep, KRCS)	415	6%	For school and community sanitation, spring protection, and inclusive WASH
BOMWASCO Internal Revenue Contributions	308	4%	Based on tariff projections and efficiency reforms in BOMWASCO
Private Sector (PPP & CSR)	140	2%	Investment in sanitation marketing, digital tools, and outsourced O&M

Community and Household Contributions	75	1%	Contributions via CLTS, latrine construction, and in-kind support
Total Estimated Financing	7,158	100%	

5.6.2.1 Financing Strategy Rationale

- **Equity and Predictability:** The County Government's share provides predictability and anchors donor co-financing commitments. Public financing will be prioritized for social infrastructure and institutional systems.
- **Leveraging National Programs:** Strategic alignment with national water sector programs (e.g., WSTF, WRUA support programs, and WRM interventions) will unlock conditional grants and technical assistance.
- **Results-Based Financing:** The county will actively pursue performance-based disbursements under programs such as K-WASH and KUSP III.
- **Private Sector Participation:** PPPs will be promoted especially in faecal sludge management (FSM), O&M contracting, sanitation marketing, and digital billing tools.
- **Community Ownership:** Community co-financing through labor, materials, or household-level sanitation is essential to ensure local ownership and sustainability.

5.6.2.2 Implementation Support and Financial Management

To manage and track financing:

- The County Treasury will integrate CWSSIP allocations into annual MTEF budgeting cycles and ADPs.
- As part of its financial sustainability roadmap, BOMWASCO will enhance billing systems, adopt cost-reflective tariffs, and improve collection efficiency.
- A County WASH Financing Taskforce will be established to coordinate fundraising, donor alignment, and fiscal reporting in line with the CWSSIP Results Framework (see Chapter 6.2).

6.0 ENVIRONMENTAL AND SOCIAL ASSESSMENT

6.1 Environmental, Health, and Safety in the WASH Sector

Table 6.1: Key Environmental, Health, and Safety (EHS) Risks Across the WASH Sector

Risk Category	Description / Source	Sub-County Hotspots	Impact
Water Source Contamination	Untreated wastewater, agricultural runoff, and fecal pollution near riverbanks	Chepalungu, Bomet East	Reduced water quality, diarrheal outbreaks
Unsafe Waste Disposal	Open dumping and burning in schools, markets, and HCFs	Sotik, Bomet Central	Air, water, and soil pollution
Occupational Hazards	Manual sludge handling without PPE, high exposure to pathogens	Urban FSM centers	Health risk to sanitation workers
Latrine Collapse / Flooding	Poor drainage and unlined pits in high-water table areas	Bomet East, Konoin	Open defecation resurgence, water table pollution
Noise, vibration, and dust	Construction of large-scale schemes and FSM infrastructure	Urban growth centers	Community nuisance, safety incidents

Table 6.2: Environmental and Social Risk Mitigation Measures by Project Type

Project Type	Risks Identified	Mitigation Measures
Boreholes and Springs	Over-abstraction, aquifer depletion	Abstraction permits from WRA, source fencing, recharge zones
Sewerage/FSTPs	Odor, sludge overflow, unsafe discharge	Lined drying beds, anaerobic digestion, biofilters, EIA reports
School/HCF Latrines	Pit flooding, structural failure	Elevated latrines, reinforced slabs, sealed tanks
Water Treatment Plants	Chemical handling hazards	Protective gear, dosing automation, and chemical safety protocols
Urban FSM / Manual Desludging	Exposure to pathogens, spillage	PPE kits, standard operating procedures, spill kits, and medical checks

Table 6.3: Licensing Plan for Environmental and Water Resource Compliance

Regulatory Requirement	Responsible Authority	Timeline	Target Project Types	Verification
Environmental Impact Assessment (EIA)	NEMA	3–6 months pre-implementation	Large water supply, sewerage, FSTPs	Approved EIA license & ESMPs
Annual Environmental Audit (EEA)	NEMA + Accredited Consultants	Annually	All CWSSIP-funded infrastructure	EEA reports filed with NEMA
Water Abstraction Permit	Water Resources Authority (WRA)	Before abstraction	All boreholes, springs, and rivers used for public supply	WRA permit registry/monitoring

Effluent Discharge Licensing	NEMA	Before commissioning	FSTPs, wastewater discharges	Monthly discharge monitoring reports
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Table 6.4: Monitoring and Enforcement Framework for EHS Compliance

Monitoring Activity	Lead Entity	Frequency	Tools / Indicators
Environmental and social audit	NEMA-accredited auditor	Annually	Compliance reports, grievance logs, risk maps
Water quality testing	County Dept. of Public Health + WRA	Quarterly	Bacteriological and physicochemical tests at key sampling points
Sanitation facility inspections	Sub-County Public Health Officers	Bi-annually	Hygiene scorecards, latrine structure integrity
FSM chain monitoring	BOMWASCO FSM Unit	Monthly	Sludge transport logs, disposal volume reports
Public safety drills in schools	County Disaster Unit + MoE	Annual (in schools)	Fire, flood, and contamination response plans

6.1.1 Regulatory and Policy Alignment

All projects must adhere to the following regulations and frameworks:

- **Environmental Management and Coordination Act (EMCA, 1999)**
- **EIA and Audit Regulations, 2003**
- **Water Quality Regulations, 2006**
- **Noise and Vibration Control Regulations, 2009**
- **Water Act, 2016** – for water resource protection and permit issuance

Bomet County will operationalize EHS safeguards through:

- Mandatory EIAs for all capital investments exceeding KES 10M
- Integrated Environmental and Social Management Plans (ESMPs)
- Real-time environmental reporting via digital MIS dashboards
- County-wide EHS stakeholder forum for periodic review and policy adjustment

6.2 Social Assessment for the County

6.2.1 Situation Analysis of Social Risks in the WASH Sector

Table 6.5: Major Social Risks Affecting WASH in Bomet County

Social Risk	Description	Affected Groups	Sub-County Hotspots
Land Tenure and Access Conflicts	Unclear land documentation for boreholes, kiosks, and sanitation facilities	Communities, BOMWASCO, WRUAs	Chepalungu, Konoin, Sotik
Exclusion of Marginalized Groups	Women, youth, and PWDs are excluded from WASH planning committees	Women, youth, and people with disabilities	All sub-counties (esp. rural)
Low Willingness to Pay (WTP)	Concerns about tariffs, perception of poor service, and cultural resistance	Poor households, elderly	Sotik, Bomet East, Chebalungu

Poor Community Engagement	Tokenistic consultations, lack of follow-up	All consumers	Peri-urban and informal areas
Weak Grievance Redress Systems	Lack of structured complaint mechanisms	Rural residents, vulnerable HHs	Konoin, Bomet East

6.2.2 Land Ownership, Acquisition, and Documentation Measures

Access to legally secured land is a key enabler for the sustainability of water and sanitation infrastructure. In Bomet County, many community water projects—especially those managed by WRUAs or CBOs—have historically operated on informally donated or communal land. This has led to tenure insecurity, delayed project approvals, and disputes during infrastructure upgrading.

To address this, the County Government will implement a **structured, participatory land acquisition and documentation process**, consistent with the Constitution of Kenya (2010), the Land Act (2012), and applicable safeguard policies (e.g., World Bank ESS5 on Land Acquisition, Restrictions on Land Use and Involuntary Resettlement). This will be coordinated by the County Department of Lands and Physical Planning in collaboration with the County WASH Unit.

Table 6.6: Key Measures to Address Land Ownership and Documentation

Issue Area	Proposed Measures
Unclear or undocumented land ownership	<ul style="list-style-type: none"> Conduct pre-feasibility land tenure assessments for all planned infrastructure sites. Engage local leaders and Land Control Boards to verify ownership and secure community consent.
Informal land donations (verbal)	<ul style="list-style-type: none"> Formalize land transfers through written agreements, witnessed by area chiefs and county legal officers.
Land disputes or encroachment	<ul style="list-style-type: none"> Use alternative dispute resolution (ADR) forums before escalating to legal mechanisms.
New site acquisition (e.g., for FSTPs)	<ul style="list-style-type: none"> Apply the Land Acquisition Framework (LAF) adopted by the county, including: <ul style="list-style-type: none"> Participatory siting and valuation, Disclosure of entitlements and compensation options, Public consultation and consent, Grievance redress as outlined in Section
Temporary relocation (if any)	<ul style="list-style-type: none"> Prepare Resettlement Action Plans (RAPs) where economic displacement or relocation is unavoidable.

All land documentation processes will be **archived at the County Lands Registry**, and a project-specific “Land File” will be maintained for each major investment project (≥ KSh 10M) to support future audits and sustainability assessments.

The County also commits to **training community WASH committees and BOMWASCO field officers** on land documentation requirements and safeguards.

6.2.3 Grievance Resolution Mechanism (GRM) Structure, Process, and Accessibility

An effective and accessible Grievance Resolution Mechanism (GRM) is critical for mitigating social conflict, enhancing transparency, and ensuring community trust during the planning and implementation of WASH investments. The CWSSIP outlines a tiered, community-centered GRM that builds on existing administrative structures and national legal frameworks.

Table 6.7: Social Risk Mitigation Measures and Interventions

Area	Proposed Mitigation Strategy	Lead Actor(s)
Land Ownership & Tenure	Formalize WASH infrastructure land registration; integrate water easements in the county land plan.	County Lands Office, BOMWASCO
Grievance Mechanisms	Establish a toll-free WASH hotline, community WASH forums, and anonymous suggestion boxes.	County WASH Unit, Sub-county offices
Community Health Conflicts	Assign WASH focal persons in HCFs and train CHPs to handle community sanitation concerns.	Dept. of Health, CHPs
Gender and Inclusion	Reserve 30% of WASH committee seats for women and marginalized groups	County WASH Committee, CSOs
WASH Operations Management	Encourage WRUA, school board, and CBO involvement in O&M oversight	WRUAs, School Boards, BOMWASCO

6.2.3.1 Structure of the GRM

The grievance mechanism will operate at three interconnected levels:

Table 6.8: Grievance Mechanism Three Interconnected Levels

Level	Responsible Actor(s)	Mandate
Community/Facility Level	Project Management Committees (PMCs), School Boards, WRUAs, Facility In-charges	Record complaints; attempt informal resolution; escalate unresolved grievances.
Ward/Sub-County Level	Assistant County Commissioners, Ward Administrators, Sub-County Health/WASH Officers	Mediate disputes; document resolutions; monitor recurrent issues.
County Level (WASH GRM Desk)	County WASH Unit, BOMWASCO, Dept. of Lands, Legal Affairs & Public Complaints Office	Receive escalated cases; apply legal remedies; archive grievance records and resolutions.

6.2.3.2 Grievance Handling Process

- a) **Submission**
 - Grievances can be submitted verbally, in writing, or digitally (via mobile or BOMWASCO portal).
 - Anonymous complaints are allowed. Suggestion boxes and mobile complaint platforms will be placed at BOMWASCO offices and key facilities.
- b) **Registration & Acknowledgment**
 - Every grievance is logged in a **Grievance Register** at the point of receipt.
 - A receipt/acknowledgement number is issued to the complainant within **48 hours**.
- c) **Investigation & Review**
 - Assigned officers assess the complaint and engage relevant stakeholders.

- Minor cases are resolved within **7 days**; complex or legal cases within **30 days**.
- d) **Resolution & Feedback**
 - Final decisions are communicated in writing or through community meetings.
 - Where grievances involve service disruption or rights violations, redress (e.g., repair, compensation, public apology) is provided.
- e) **Appeals**
 - Unresolved cases can be appealed to the County Executive Committee or independent public tribunals.
- f) **Documentation & Learning**
 - All cases are entered into a **digital dashboard**, enabling tracking, reporting, and institutional learning.

6.2.3.3 *Accessibility and Inclusion Measures*

- GRM tools (forms, boxes, toll-free lines) will be available in English and Kiswahili, and translated into local dialects during sensitizations.
- Dedicated outreach will ensure **vulnerable groups** (e.g., women, PWDs, youth, and elders) are aware of and can access the mechanism.
- Periodic community barazas and radio announcements will raise awareness of grievance rights and procedures.

6.2.3.4 *Integration with CWSSIP Monitoring*

The CWSSIP will include:

- Quarterly reports on **grievance trends**, resolution timelines, and systemic issues.
- KPIs on GRM responsiveness and satisfaction rates.
- Annual stakeholder reviews to refine the mechanism.

6.2.4 **Management of Community Health Risks during WASH Project Implementation**

Construction and implementation phases of water and sanitation projects may inadvertently expose surrounding communities and workers to various health risks, including the spread of communicable diseases, exposure to construction-related hazards, and sanitation-related outbreaks. The CWSSIP therefore integrates **community health protection measures** throughout the project lifecycle, in alignment with the **Occupational Safety and Health Act (2007)**, **Public Health Act (Cap. 242)**, and relevant WHO WASH guidance.

6.2.4.1 *Identified Health Risks During Implementation*

Key community health risks during WASH infrastructure development include:

- Spread of waterborne diseases (e.g., cholera, typhoid, dysentery) due to temporary disruption of water sources or poor site sanitation.
- Increased risk of respiratory infections from construction dust and airborne particles.
- Accidental injuries to nearby residents, especially children, around open pits, trenches, and heavy equipment.
- Wastewater or sludge exposure during desludging or FSTP construction.
- Risk of communicable disease outbreaks from migrant labor camps (e.g., COVID-19, STIs).

6.2.4.2 *Risk Mitigation Measures*

The table below captures the risk mitigation measures

Table 6.9: Community Health Risk Mitigation Measures during WASH Implementation

Health Risk	Mitigation Measures
Contamination of water sources	Fence off work sites and protect adjacent water points. Provide temporary alternative water sources for affected households, coordinated by contractors in collaboration with the Dept. of Water, Dept. of Public Health, and BOMWASCO.
Poor site sanitation and hygiene	Install temporary site latrines and handwashing stations. Disseminate hygiene messages to both workers and nearby communities, led by contractors and Public Health Officers under the Dept. of Health.
Injuries from construction activities	Install clear safety signage, fencing, and physical barriers. Conduct pre-construction safety briefings targeting nearby residents and schools, coordinated by contractors, Sub-County Admins, and the Dept. of Health.
Infection spread from laborer interaction	Enforce COVID-19 and general communicable disease protocols on all sites. Conduct routine health screenings for laborers through joint oversight by the Dept. of Health, BOMWASCO, and the County Occupational Health & Safety Unit.
STI risks in temporary labor camps	Organize reproductive health and STI awareness sessions. Distribute IEC materials through coordinated efforts by the Dept. of Health, BOMWASCO, and Dept. of Gender and Social Services.
Vector-borne disease exposure	Eliminate stagnant water near construction zones and apply mosquito control measures. These activities will be implemented by contractors under supervision of the Dept. of Public Health.

6.2.4.3 Implementation Tools and Monitoring

- **Contractual Provisions:** All contractors will be required to include Community Health and Safety Plans (CHSPs) in their Environmental and Social Management Plans (ESMPs).
- **Health Screening and PPE:** Mandatory screening of all site workers; personal protective equipment (PPE) provided at contractor and county expense.
- **Community Engagement:** Before any works commence, local communities will be briefed on potential health risks, site access restrictions, and reporting mechanisms for unsafe conditions.
- **Monitoring and Evaluation:** Public Health Officers will conduct routine inspections and compile monthly reports on community health indicators in project zones.

6.2.5 Users’ Willingness to Pay and Affordability Analysis

Understanding users’ willingness to pay (WTP) is critical for designing sustainable and socially equitable WASH service delivery systems. This CWSSIP incorporates both primary insights from Bomet County’s household and institutional surveys, and secondary insights from national studies and regulatory guidelines (WASREB Tariff Guidelines, 2021; KDHS 2022; BOMWASCO Strategic Plan).

6.2.5.1 Willingness to Pay for Improved Water Services

The 2023 Household WASH Survey revealed that:

- 67% of households recognize water as a human right and expect subsidized provision.
- 35% of low-income users are willing to pay nominal fees (KES 2–5 per 20L) for safe water if the supply is reliable.
- Many users distrust tariffs and associate BOMWASCO with high bills and inconsistent supply, especially in rural peri-urban areas.

- **74%** of rural respondents expressed willingness to pay more for improved water services if supply became regular and safe.
- **65% of female respondents** indicated readiness to pay modest increases for time savings and health benefits.
- **Institutions (schools and health facilities)** reported that their water budgets could increase by up to **20–25%**, provided reliability and safety improved.

6.2.5.2 Tariff Sensitivity and Equity Concerns

Despite a general WTP, affordability remains a concern among low-income households and vulnerable groups:

Table 6.10: Tariff Sensitivity and Equity Concerns

Socio-Economic Group	Affordability Concern	Proposed Equity Strategy
Low-income peri-urban households	Risk of exclusion if tariffs rise without connection subsidies	Lifeline tariff band, connection grants via social protection fund
Rural households on springs/streams	Willing but unable to pay BOMWASCO tariffs under current income levels	Subsidized standpipes, phased community-based billing
Female-headed households	Vulnerable to seasonal income variation and childcare costs	Flexible billing plans, integration with MHM/health programming
Persons with Disabilities (PWDs)	Physical and economic barriers to accessing piped systems	Infrastructure adaptation, WASH subsidies

These findings indicate the need to balance tariff adjustments with inclusive pro-poor policies and targeted subsidies.

6.2.5.3 Impact of New Investments on Tariff Structure

Investment in new infrastructure—especially treatment plants, piped extensions, and FSM facilities—is likely to increase **operation and maintenance (O&M) costs**. This may exert upward pressure on tariffs unless offset by:

- Efficiency gains (e.g., reduced NRW, optimized billing systems),
- Economies of scale (new connections, bulk production),
- Grants/subsidies (PEF, development partners),
- Cost recovery from non-domestic users.

WASREB’s allowable **cost-recovery tariff model** and BOMWASCO’s 2024–2027 tariff application already anticipate staged increases, with protective measures for vulnerable users (e.g., retained lifeline block, pro-poor connections, and ongoing subsidy discussions).

6.2.5.4 Proposed Actions and Institutional Responsibilities

Table 6.11: Proposed Actions and Institutional Responsibilities

Action	Lead Institution(s)
Conduct detailed Willingness-to-Pay (WTP) study	Dept. of Economic Planning, BOMWASCO
Update tariff models with affordability analysis	BOMWASCO, WASREB, Dept. of Finance

Develop targeted subsidies and cross-subsidization	County Treasury, BOMWASCO, Social Protection Dept.
Mainstream WTP tracking into M&E	Dept. of Water, CWSSIP M&E Task Team

6.2.6 Institutional Roles in Social Safeguards Implementation

Table 6.12: Institutions Dealing with Social Risk Management

Institution	Role in Social Risk Management
County Department of Water & Sanitation	Grievance redress policy, community engagement frameworks
BOMWASCO	Customer service, tariff sensitization, O&M engagement
Department of Social Services (CIDP)	Coordination of gender, GBV, and PWD mainstreaming
Department of Health	MHM outreach, WASH in HCFs, CHP coordination
Civil Society & WRUAs	Land mediation, community accountability
Sub-county WASH Technical Teams	Oversight of community facilitation processes

6.2.7 Integrated Environmental and Social Management (ESM) Unit

- Bomet County does not yet have a **standalone Environmental and Social Management Unit (ESMU)**.
- However, E&S functions are partially embedded in:
 - The **County Environment Office** (NEMA liaison)
 - BOMWASCO's commercial department (customer redress)
 - The County Climate Unit (PCRA implementation)

Recommendation: Establish a dedicated ESMU under the County WASH Unit, responsible for:

- Overseeing grievance redress
- Coordinating gender & social inclusion (GESI)
- Tracking E&S safeguards in project implementation

6.2.8 Budget Provision for Social Engagement and Capacity Building

Table 6.13: Indicative Budget Provisions for Social Safeguards (2024–2027)

Activity	Estimated Cost (KES M)	Funding Source
Community facilitation & stakeholder forums	15	County ADP, World Bank/K-WASH
CHP and committee training (incl. GESI)	10	Dept of Health, UNICEF
Social audits, feedback loops, M&E	7	WSTF, donor technical support
GESI mainstreaming and awareness campaigns	5	County Gender Dept., NGOs
Legal aid for land regularization (pilot wards)	3	County Lands Office, CSOs

Conclusion

Bomet County's WASH sector faces significant **social risks related to land, affordability, exclusion, and institutional gaps**. Addressing these risks requires:

- Formalizing **tenure and grievance systems**
- Enhancing community ownership and inclusion

- Establishing a **dedicated Environmental and Social Management Unit**
- Providing **targeted budget support** for capacity building and safeguards

7.0 IMPLEMENTATION ROADMAP, MONITORING & EVALUATION, AND COMMUNICATION PLAN

7.1 Strategy and Investments Implementation Plan

7.1.1 Step-by-Step Action Plan for Executing the Strategy

To operationalize the revised investment priorities effectively, Bomet County will undertake the following structured implementation sequence:

(a) Immediate to Short-Term (0–12 months)

- Launch comprehensive rehabilitation and management improvement programs targeting all existing BOMWASCO schemes, with an initial investment of approximately KSh 200 million.
- Identify and initiate spring protection projects and rehabilitation of community-managed water sources, allocating around KSh 100 million for the initial phase.
- Scale up county-wide CLTS campaigns, mobilizing communities to achieve widespread ODF status, starting with an initial budget of KSh 100 million.
- Pursue formal legislative anchoring of the County WASH Hub through the County Assembly to institutionalize its mandate, resource access, and inter-sectoral coordination role.

(b) Medium-Term (12–36 months)

- Complete priority rehabilitation works across BOMWASCO schemes, significantly reducing non-revenue water and operational inefficiencies, with continued investment
- Establish and operationalize robust maintenance schedules and training programs for community-managed water facilities and spring protection initiatives.
- Fully implement household sanitation subsidies for communities that achieve ODF status, to ensure sustainability and reduce open defecation recurrence.

(c) Long-Term (36–60 months)

- Consolidate management and governance improvements in water supply systems through strengthened institutional capacity, with targeted investments drawn from the governance portion of the budget.
- Conduct periodic reviews of CLTS and household sanitation subsidy effectiveness, making targeted adjustments based on evidence and community feedback, supported by the ongoing allocated budget.
- Gradually implement strategically identified, efficient new piped water schemes where existing infrastructure cannot feasibly meet future water demands.

Table 7.1: Water Supply Infrastructure

Intervention Area	2025	2026	2027	2028	2029	2030	Deliverable/Indicator	Lead Responsibility
CWSSIP Launch & Early Rollout Activities	<ul style="list-style-type: none"> - CWSSIP officially launched - PIU activated and work plan finalized - Public/stakeholder sensitization forums conducted - Priority procurement initiated 	—	—	—	—	—	<ul style="list-style-type: none"> - Strategy launched- reports validated - No. of sensitization forums held - Procurement plan approved 	PIU CGoB (Dept. of Water), PIU, Governor's Office
Urban Water Supply Expansion	Feasibility studies and design review for Bomet-Silibwet, Longisa-Kapkwen	Procurement, contractor mobilization, and laying of main pipelines	Construction of treatment units and storage tanks	Connection to urban households and schools; installation of public kiosks	Metering and pressure zoning; NRW	Commissioning and sustainability audits	12,000 new connections in urban centers	BOMWASCO, Dept. of Water
Rural Water Supply Expansion	Mapping, clustering, and RWSP assignment	Borehole drilling, spring protection, and solar pumping	Construction of storage tanks and distribution pipelines	Community sensitization and water user committee training	Integration into RWSP O&M plans	Performance review and asset renewal planning	20,000 rural HHs newly served	Dept. of Water, RWSPs, NGOs
Rehabilitation of Existing Water Systems	Audit of old systems and functionality mapping	Replacement of damaged pipelines and fittings	Rehabilitation of intake structures, tanks, and chlorinators	Training of operators on preventive maintenance	SCADA systems installation in large schemes	Handover to BOMWASCO/RWSPs with updated SOPs	Rehabilitation of 12 major schemes	Dept. of Water, BOMWASCO
Development of New Water Supply Projects (PEF)	Initiate procurement and detailed design (Aonet, Nyangombe, Chepalungu, mogombet)	Begin construction of intakes, mains, and reservoirs	Ongoing construction, land acquisition facilitation	Connection of last-mile users and kiosks	Fencing, source protection, and operator training	Final commissioning and handover to utilities	Operationalization of 3 PEF schemes	Dept of Water, Consultants
GIS Mapping and Digital Asset Management	Software procurement, staff onboarding, and training	Digitization of pipeline routes and customer data	Integration with ERP, mWater, and NRW analytics	Layer updating and real-time monitoring setup	Validation with field sensors and drone mapping	Countywide digital water network system	GIS-based utility map for BOMWASCO & RWSPs	WASH Hub, BOMWASCO, RWSPs

Table 7.2: Sanitation and Hygiene Services

Intervention Area	2025	2026	2027	2028	2029	2030	Deliverable/Indicator	Lead Responsibility
Household Sanitation Improvement	Launch campaigns; provide subsidies	CLTS Continue CLTS; monitor uptake	Expand to additional communities	Maintain CLTS activities; assess impact	Target the remaining areas	Achieve an open defecation-free status countywide	Number of households with improved sanitation facilities	County Public Health Department; NGOs
Public and Communal Sanitation Facilities	Mapping of sanitation gaps in markets, bus parks, and informal settlements	Design and procurement of public sanitation blocks	Construction of 15 communal/public toilet blocks with MHM & disability access	Operationalization and handover to BOMWASCO/community units	Develop an O&M model with sanitation attendants	User satisfaction survey and facilities upgrade planning	15 inclusive public sanitation units are operational	Dept. of Public Health, BOMWASCO
Fecal Sludge Management (FSM) and Decentralized Treatment	Site identification and feasibility for FSTPs	Design of two decentralized FSM units	Construction and equipping of treatment facilities	Recruitment/training of sanitation workers and FSM operators	Commissioning and service launch in market towns	FSM integration into county sanitation bylaws	2 FSM plants are operational and servicing 5 wards	Dept of Water, BOMWASCO, Public Health
School and Healthcare Facility WASH Improvements	Assess needs; plan interventions	WASH Begin construction of WASH facilities	Continue construction; provide hygiene education	Complete WASH facilities; monitor usage	Maintain facilities; assess impact	Ensure the sustainability of WASH services	Number of schools and healthcare facilities with improved WASH	County Education and Health Departments; WASH Hub
Menstrual Hygiene Management (MHM)	Review of MHM practices and school/health facility readiness	Capacity-building for teachers and health workers	Integration of MHM corners in school sanitation projects	County MHM campaign with youth champions	Provision of reusable sanitary kits to vulnerable girls	Review and scaling of the MHM program	MHM facilities in 40 schools, 10 HCFs	Dept. of Health, Dept. of Education
School and ECDE Sanitation Infrastructure	Assessment of WASH facilities in	Design of MHM-compliant latrines, including	Construction in 50 schools prioritized by need	Handover and hygiene promotion in schools	Monitoring usage and behavior	Refresher training and	50 schools with MHM-ready sanitation blocks	Dept. of Education, Dept.

Intervention Area	2025	2026	2027	2028	2029	2030	Deliverable/Indicator	Lead Responsibility
	100 ECDEs and schools	handwashing stations			change outcomes	facilities upgrade		of Water, BOMWASCO

Table 7.3: Water Resources Management and Catchment Conservation

Intervention Area	2025	2026	2027	2028	2029	2030	Deliverable/Indicator	Lead Responsibility
Catchment and Watershed Management	Map priority micro-catchments and erosion-prone zones	Mobilize WRUAs and CBOs for conservation programs	Implement tree planting, terracing and spring fencing	Monitor sedimentation and turbidity in key springs	Develop local bylaws and community agreements	Review, scale-up, and document watershed lessons	10 micro-catchments restored	WRA, Dept. of Water, CBOs
Protection of Water Sources (Springs)	Inventory of all functional and seasonal springs	Design of fencing, signage, and runoff diversion	Construct protection works at 20 springs per year	Establish community-led maintenance plans	Train local artisans on source protection techniques	Annual inspection and reporting of all sources	20 water sources protected	Dept. of Water, WRUAs, RWSPs
Groundwater Recharge Projects	Map recharge zones; design structures	Construct recharge structures	Monitor recharge effectiveness	Maintain structures; assess impact	Expand to new areas	Integrate recharge into water planning	Number of recharge structures functioning	County Water Department; NGOs
Sustainable Groundwater Management	Identify aquifers and map borehole interference zones	Install borehole meters and initiate abstraction logging	Train RWSPs and BOMWASCO on sustainable abstraction	Pilot aquifer recharge zones and protection buffers	Document groundwater recharge rates	Integrate groundwater sustainability into permitting	Aquifer recharge plans for 3 zones	Dept. of Water, WASH Hub, WRA
Pollution Control Measures	Identify pollution hotspots; develop action plans	Implement pollution control interventions	Monitor water quality improvements	Enforce regulations; engage communities	Continue monitoring and enforcement	Achieve a significant reduction in pollution levels	Water quality indices in targeted areas	County Environment Department; NEMA
Strengthening WRUAs	Assess capacity needs; provide training	Support WRUA activities; facilitate SCMP implementation	Monitor WRUA performance	Provide ongoing support and resources	Evaluate the impact of WRUAs	Institutionalize successful practices	Number of active and effective WRUAs	County Water Department; WRA
Climate Resilience and Risk Management	Climate profiling and integration into CWSSIP	Design elevated latrines in flood-prone zones	Promote rainwater harvesting for drought-prone wards	Roll out nature-based solutions in buffer zones	Develop disaster contingency plans for WASH	Conduct a climate adaptation impact assessment	Resilience measures in all 5 sub-counties	Dept. of Environment, Dept. of Water, WASH Hub

Table 7.4: Institutional Reforms and Service Delivery Models

Intervention Area	2025	2026	2027	2028	2029	2030	Deliverable/Indicator	Responsibility
Establishment of Rural Water Service Providers (RWSPs)	Cluster rural schemes and assign operating areas, develop a framework, and identify pilot areas	Launch pilot RWSPs; monitor performance, Train a RWSP boards and technical personnel	Expand RWSPs to additional areas	Continue expansion; provide capacity building	Evaluate RWSP effectiveness	Institutionalize RWSPs countywide	Number of operational RWSPs	County Water Department; WASREB
County WASH Hub Operationalization	Establish legislative anchoring of the County WASH Hub	Define WASH Hub structure; appoint staff	Strengthen interdepartmental collaboration	Monitor WASH Hub impact	Adjust strategies as needed	Ensure the sustainability of the WASH Hub	Functionality and effectiveness of the WASH Hub	County Executive; WASH Stakeholders
Performance Contracts for Urban WSPs	Develop performance indicators; negotiate contracts	Implement performance contracts; monitor compliance	Review and adjust contracts	Continue performance monitoring	Evaluate outcomes; enforce accountability	Institutionalize performance-based management	Compliance with performance targets	County Water Department; BOMWASCO
Capacity Building for Service Providers	Identify training needs; develop programs	Conduct training sessions; provide resources	Monitor the application of skills	Offer advanced training; assess impact	Continue capacity development	Achieve high competency levels among providers	Number of personnel trained and certified	County Water Department; Training Institutions
Strengthening BOMWASCO Governance and Efficiency	Review and reconstitute the Board; align with guidelines	Deploy the upgrades (billing, customer service, asset management)	Train management and key staff on utility KPIs	Introduce performance-based management contracts	Evaluate service delivery and non-revenue water (NRW)	Renew the strategic plan and extend service coverage	BOMWASCO meets 80% of utility performance benchmarks	BOMWASCO, WASREB, County Govt
Stakeholder Engagement and Accountability Platforms	Establish the County WASH Steering Committee and TWG	Hold quarterly coordination meetings and joint planning sessions	Develop citizen feedback mechanisms and grievance platforms	Publish WASH Scorecards and progress reports	Conduct countywide WASH accountability forums	Institutionalize community feedback loops	Annual WASH report card and joint review held	WASH Hub, Dept. of Water, Civil Society

Table 7.5: Monitoring, Evaluation, and Sector Learning

Intervention Area	2025	2026	2027	2028	2029	2030	Deliverable/Indicator	Lead Responsibility
Development of Integrated M&E Framework	Draft M&E framework aligned with CWSSIP and NAWASIP targets	Finalize KPIs, data flow protocols, and validation tools	Dissemination of M&E tools to BOMWASCO and RWSPs	Conduct the first CWSSIP performance review using the M&E framework	Refine indicators and incorporate feedback from stakeholders	Conduct endline CWSSIP evaluation and learning workshop	The County M&E system is functional and reviewed biennially	WASH Hub, Dept. of Water
Digitalization of Sector Data Collection and Reporting	Procure mWater licenses and configure the platform	Train data focal persons across sub-counties and WSPs	Roll out real-time data collection using mobile tools	Integrate ERP, mWater, and GIS into a central dashboard	Automate routine reporting to WASREB and CGoB	Validate data reliability and institutionalize updates	The live dashboard is operational and used for decision-making	WASH Hub, BOMWASCO
Performance Reviews and Sector Learning	Design review templates and learning documentation formats	Host a county-level WASH performance forum	Conduct joint implementation reviews with partners	Document case studies and share lessons across counties	Support peer learning exchanges and benchmarking visits	Publish CWSSIP results and sector knowledge products	Annual review held; at least 5 best practices documented	WASH Hub, Civil Society, Development Partners
Community Feedback and Accountability Mechanisms	Design and pilot a digital WASH feedback platform	Scale community scorecards and citizen report cards	Publish quarterly performance bulletins by sub-county	Hold WASH citizen accountability barazas in all wards	Refine grievance redress protocols and reporting chains	Institutionalize community feedback in WASH planning	WASH citizen reports are published annually	WASH Hub, Public Participation Office

7.1.2 Responsibilities of Key Institutions and Stakeholders

7.1.2.1 Bomet County WASH Hub

- **Lead Role:**
 - Overall sector coordination, strategic planning, and integration of WASH initiatives across stakeholders.
 - Management and dissemination of sector data and information.
 - Facilitate and oversee quarterly stakeholder review meetings.
- **Key Responsibilities:**
 - Regular monitoring and reporting on CWSSIP implementation progress.
 - Capacity building for sector stakeholders, including BOMWASCO, county departments, WRUAs, and community representatives.
 - Advocacy and communication to maintain high visibility and sustained political and financial support for the WASH sector.
 - Coordinate technical working groups to address emerging sector issues and facilitate policy dialogue.

7.1.2.2 Responsibilities of Other Key Institutions and Stakeholders

(a) Multi-Stakeholder Implementation Coordination Mechanism

Bomet County may utilize **the County WASH Hub**, a central platform for coordinating water, sanitation, and hygiene activities across departments, NGOs, and private entities. This will facilitate joint planning, monitoring, and evaluation.

Table 7.6: Recommended CWSSIP Implementation Coordination Architecture

Coordination Body	Composition	Core Mandate
CWSSIP Steering Committee (County Level)	CEC Water, Finance, Health, Planning; BOMWASCO MD; WRUA reps; PPP lead; 2 CSOs, Social, KWASH Coordinator	Strategic oversight, policy alignment, PPP vetting, donor dialogue
CWSSIP Technical Working Group (TWG)	County Directors of Water, Environment, Health, Education, BOMWASCO Technical Heads, NGOs, WRUAs	Project tracking, procurement coordination, permit/EIA clearance, M&E support
Sub-County WASH Forums	Assistant Directors (Water, Health), BOMWASCO zonal managers, ward admins, CHPs, CSOs, WRUA reps	Local implementation, community sensitization, and FSM logistics coordination
PPP-WASH Taskforce	Legal Officer, Procurement, BOMWASCO Commercial Manager, County PPP Node	Prepares PPP pipeline, contracts with FSM providers, latrine franchising, and performance monitoring

(b) Role-Based Stakeholder Responsibility Matrix

Table 7.7: Stakeholder Responsibilities by CWSSIP Pillar

Stakeholder	Water Supply	Sanitation & FSM	Governance & Reform
County Dept. of Water	Policy, budgeting, source management, and asset transfer	PPP WASH support, catchment planning	CWSSIP monitoring, inter-sector alignment
BOMWASCO	Project implementation, O&M, metering, billing	FSM hubs, sanitation block O&M, private operator engagement	Utility performance tracking, financial transparency
Dept. of Public Health	Water quality oversight, CHP engagement	CLTS, MHM outreach, sludge safety	HCF WASH reporting, IPC compliance
County Dept. of Finance	Budgeting, disbursement, and resource mobilization	PPP payments, performance contracts	Subsidy allocation, PPP vetting
NEMA & WRA	EIA approvals, abstraction permits	FSM and WWTP licensing	Annual audits, compliance inspection
Community / WRUAs	Borehole and spring O&M, source protection	Latrine construction, demand creation	Facility-level user accountability, WRUA bylaws
NGOs / DPs	Technical assistance, funding leverage	MBS training, FSM logistics development	Digital tools (e.g., mWater), capacity building

(c) Capacity-Building Requirements

Findings from CWSSIP documents, BOMWASCO audits, and the County WASH survey show widespread capacity gaps in human resources, systems, and accountability mechanisms.

Table 7.8: Institutional Capacity Gaps and Proposed Strengthening Actions

Institution	Capacity Gap Identified	Capacity Building Action	Target Year
County Dept. of Water	Low project tracking and reporting systems; overstretched technical officers	Train 30 staff on mWater, GIS-based M&E, and investment tracking	2025
BOMWASCO	Gaps in NRW control, asset management, and customer care	Strengthen ERP training, prepaid meter management, and NRW module deployment	2025–2026
Public Health Dept.	Inadequate integrated FSM SOPs and CHP refresher training	Train 150 CHPs and 25 Sub-county officers on the FSM chain, EHS, and GESI tools	2025–2026
Education Dept.	Limited school WASH integration	School WASH focal persons trained on MHM, WASH club activation	2026
PPP Unit + Legal	No PPP template or bidding toolkit for WASH	Develop and roll out WASH PPP guidelines + model contracts	2025 Q3

WRUAs / CBOs	Weak source protection skills, poor data collection	WRUA training in water law, riparian enforcement, recharge zone mapping	2026
Sub-County Teams	Poor coordination among water and sanitation extension officers	Train 100+ ward-level WASH field agents with refresher ToTs on integrated delivery models	2025

(d) Institutional Risk and Constraint Assessment

Table 7.9: Key Challenges and Mitigation Strategies

Constraint	Impact on CWSSIP Execution	Recommended Response
Fragmented WASH mandates (health, water)	Delays, misaligned budgeting, and poor supervision	Establish the CWSSIP TWG to co-chair all planning and oversight
High BOMWASCO staff turnover	Loss of institutional memory, inconsistency in rollout	Staff retention incentives, mentorship programs
WRUA underfunding and limited tools	Weak source enforcement and rural asset protection	Budget 5M annually for WRUA strengthening kits, fuel, and bylaws
Poor community engagement in planning	Infrastructure vandalism, low WTP	Fund participatory planning sessions and water user platform setup

CWSSIP's success depends on strong, aligned institutions empowered with the following:

- Clearly defined mandates and performance frameworks
- Multi-sector coordination through a functional Steering Committee and TWG
- Scalable training programs and digital capacity for monitoring and PPP execution

7.1.2.3 Capacity-Building Requirements

To effectively implement the CWSSIP, the following capacity-building initiatives are essential:

(a) Technical Training:

- Enhance skills in climate risk-informed water supply and sanitation planning.
- Train staff on the use of data management tools for monitoring and evaluation.

(b) Institutional Strengthening:

- Develop clear operational guidelines and standard operating procedures for the County WASH Hub.
- Establish performance monitoring frameworks for service providers.

(c) Community Engagement:

- Train community health volunteers and local leaders in hygiene promotion and behavior change communication.
- Build the capacity of community-based organizations to manage and maintain WASH facilities.

(d) Resource Mobilization:

- Equip county officials with skills in proposal writing and fundraising to attract donor and private sector investments.

Implementation Strategy:

- Collaborate with national institutions, such as the Ministry of Water, Sanitation, and Irrigation, and development partners to provide training and technical assistance.
- Leverage existing programs and resources to support capacity-building initiatives.

Table 7.10: Cross-Sectoral Stakeholder Roles and CWSSIP Execution Responsibilities

Institution/Actor	Responsibility in CWSSIP Execution
County Department of Water	CWSSIP leads coordination, planning oversight, and performance reporting
BOMWASCO	Project implementation, service delivery, billing, O&M, metering
Department of Public Health	CLTS, FSM oversight, school, and HCF WASH coordination
Department of Finance	Budgeting, disbursements, PPP contracting, and donor coordination
WRA	Water abstraction permitting, source protection compliance
NEMA	EIA licensing and environmental audit review
WRUAs & Community Committees	Maintenance of rural schemes, catchment protection, and recharge zone enforcement
County Assembly & Legal Office	CWSSIP adoption, land regularization, PPP legal frameworks
Donors/NGOs (e.g., World Bank, UNICEF, Dig Deep)	Technical assistance, co-financing, innovation pilots
Private Sector	FSM logistics, sanitation marketing, PPP operators for kiosks, exhauster services

7.1.2.4 Timeline for Implementation, Including Short-, Medium-, and Long-Term Milestones

The full rollout of Bomet’s CWSSIP (2025–2030) has been phased into realistic, cost, and spatially targeted milestones. This aligns with:

- Institutional absorption capacity
- Financing cycles and permitting
- Project design, procurement, and execution stages
- Community and private sector readiness

Each milestone is mapped to a **performance benchmark** and directly linked to implementation deliverables.

Table 7.11: Consolidated Implementation Timeline by Thematic Area and Year

Year	WASH Investment Theme	Project / Sub-County	Milestone (Output)	Performance Indicator

2025	Water Supply	<ul style="list-style-type: none"> - Bomet–Longisa–Mulot urban expansion - Borehole drilling (Chepalungu) - Kapkoros rehab 	<ul style="list-style-type: none"> - 120,000 HHs reached - 10 boreholes operational 	≥15% increase in piped supply coverage
	Sanitation (Onsite)	<ul style="list-style-type: none"> - CLTS campaigns in all wards - 15 school latrine retrofits 	ODF declaration in all villages	≥90% drop in OD in target zones
	FSM (Non-sewered)	<ul style="list-style-type: none"> - FSTP construction (Sotik) begins - Pit-emptying pilot in Ndanai 	FSM voucher system tested in 2 towns	FSM trip logs digitized
	Catchment Protection	<ul style="list-style-type: none"> - Spring fencing, tree planting in Konoin and Chepalungu 	5 WRUAs trained and active	10 catchment zones mapped
2026	Water Supply	<ul style="list-style-type: none"> - Bosto Dam Phase 1 - NRW pilot in DMA zones - Smart meters installed 	>5,000 HHs added NRW drops by 5%	90% metering ratio
	Institutional WASH	<ul style="list-style-type: none"> - MHM installations in 30 schools - Rainwater harvesting in 50 ECDEs 	≥25,000 pupils with improved access	20% increase in institutional WASH scorecards
	PPP Engagement	<ul style="list-style-type: none"> - Exhauster service PPP contracts signed - Latrine franchise MoUs 	3 private sanitation partners contracted	PPP baseline review published
2027	Water & Sanitation	<ul style="list-style-type: none"> - Chepalungu rural water expansion - Sigor–Kembu MUS scheme - FSM hub (Longisa) 	130,000 rural HHs served Wetland FSTP operational	60% FSM capture rate in Chepalungu
	Sewerage	<ul style="list-style-type: none"> - WWTP design finalized for Bomet Town (3,000 m³/day) 	WWTP contractor selected	EIA license granted
	Digital M&E	<ul style="list-style-type: none"> - mWater platform for all WASH projects - CWSSIP dashboard piloted 	Real-time updates from 3 departments	≥75% reporting compliance across WSPs
2028	Sewered Sanitation	<ul style="list-style-type: none"> - Begin Bomet and Sotik sewer expansion - Upgrade bulk sewer lines in Ndanai, Mulot 	12,000 new sewer connections	≥50% sewer coverage in Bomet/Sotik
	Institutional WASH	<ul style="list-style-type: none"> - Rainwater and greywater reuse retrofits in HCFs 	30 HCF reached	>80% of HCFs with safe WASH & MHM

2029	Rural Water	- Rural water committees (CMRWS) institutionalized	25,000 HHs linked to WRUA-managed schemes	≥80% of community-managed systems are operational
	Resilience & Nature-Based Solutions	- Spring recharge, gully plugging, terracing (Konoin, Bomet East)	40 micro-watersheds stabilized	CRVA maps updated
2030	Final Roll-Out	- Expand urban water distribution in Bomet CBD - Construct WWTP	>95% access in urban centers	SDG 6 service coverage targets met
	Endline Evaluation	- CWSSIP evaluated - Phase II WASH strategy developed	Evaluation report, stakeholder review session	The new 2030–2040 roadmap was validated

Table 7.12: Performance Benchmarks Linked to Strategy Targets

Target Area	Baseline (2023)	2025	2027	2030 Target	Source
Piped Water Access (% County Avg.)	13%	18%	26%	≥50%	County Data Tool
Sewer Coverage in Urban Centers (%)	10% (Sotik)	12%	20%	≥50%	CWMP Projections
FSM Treatment Capacity (m ³ /day)	0	0.5k	2.0k	≥3.0k	CWSSIP Zero Draft + County Tool
Schools with Inclusive WASH (%)	~40%	55%	70%	≥85%	School WASH Reports
HCFs with Safe WASH Systems (%)	30%	50%	70%	≥90%	HCF Situational Report
Open Defecation Rate (%)	12%	9%	4%	0%	CLTS Implementation + Survey Tracking
NRW (%)	66%	60%	50%	≤30%	BOMWASCO Strategic Plan

This detailed schedule ensures:

- **Every major investment and reform project is time-bound and tracked**
- **Cross-sector priorities are balanced** (WASH+, FSM, resilience, institutional strengthening)
- **Performance targets are realistic, disaggregated, and benchmarked**

7.2 Monitoring and Evaluation (M&E) Plan

7.2.1 M&E Framework for CWSSIP Implementation

The County Government of Bomet will deploy a **multi-tier M&E system**, integrating digital tools (e.g., mWater), manual performance tracking matrices, and quarterly physical inspections. The M&E system will:

- Track alignment with strategic CWSSIP objectives
- Inform budget allocations and annual reviews
- Enable corrective actions in real-time
- Ensure compliance with performance contracts and DLI-based funding frameworks (e.g., K-WASH)

Table 7.13: CWSSIP M&E Framework Structure

Level	Key Functions	Tools / Systems Used
County CWSSIP M&E Steering Committee	Strategic oversight; progress benchmarking	Quarterly review meetings, ADP/PBB scorecards
CWSSIP Technical Working Group (TWG)	Operational coordination, data verification	Excel dashboards, mWater, KoboToolbox
Implementing Departments (Water, Health, Education)	Routine data collection and reporting	Field reporting forms, GIS asset maps, sectoral MIS
WSP/BOMWASCO M&E Team	Performance contracts, utility benchmarks, and digital billing audits	ERP system, NRW dashboard, WASREB compliance templates
Sub-county & Community Monitors	Ground-truthing, community scorecards, participatory M&E	Community audits, WASH scorecards, and public forums

7.2.2 Key Performance Indicators (KPIs) and Strategic Targets

In alignment with the SDG 6.1 target of achieving universal and equitable access to safe and affordable drinking water for all by 2030, and in response to stakeholder feedback, the following Key Performance Indicators (KPIs) have been revised to reflect more ambitious but achievable sector performance targets.

Table 7.14: KPIs for Water and Sanitation Sector Tracking (2025–2030)

Indicator	Baseline (2024)	Target (2030)	Remarks
Water Supply Coverage (%)	57%	100%	In line with SDG 6.1 and K-WASH DLI for universal water access
Sanitation Access – Household (%)	65%	95%	Includes both sewerred and non-sewerred sanitation
School WASH Coverage (%)	72%	100%	Full access to improved sanitation, MHM, and water supply in schools
HCF WASH Coverage (%)	80%	100%	Full access to water, sanitation, hygiene, and waste management
Non-Revenue Water (NRW) (%)	61%	20%	Reflects progressive reduction via metering, leak detection & billing
Customer Satisfaction Index (%)	60%	85%	Based on feedback from BOMWASCO surveys and complaint tracking
Project Completion Rate (%)	70%	95%	Includes both county and partner-implemented projects

Budget Absorption Rate (%)	72%	90%	Refers to execution of WASH budgets annually
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These revised targets reflect inputs from the PEF process, the April 2025 stakeholder consultations, and the K-WASH Strategic Investment Plan Review

7.2.3 Roles and Responsibilities for Data Collection and Evaluation

Table 7.15: M&E Role Assignment by Institution

Actor	Primary Responsibility	Frequency	Tools Used
County Water Department M&E Unit	Aggregate sector performance, ADP alignment	Quarterly + Annual	CWSSIP Tracker Template
BOMWASCO M&E Team	Track NRW, collection, and service interruptions	Monthly + Quarterly	ERP billing dashboard, smart meter data logs
Department of Public Health	Hygiene, CLTS, and MHM monitoring in schools and communities	Bi-annual	KoboToolbox, school/HCF WASH scorecards
CWSSIP Steering Committee	Approve M&E outcomes and remedial action plans	Semi-annually	Consolidated M&E Status Reports
Community Platforms (WUA/CHP)	Feedback on O&M status, FSM, and community grievances	Rolling	Community-led scorecards, suggestion boxes
County M&E Directorate (CIMES)	Integrate CWSSIP performance with CIDP and ADP monitoring	Annual	CIMES, CIDP log frame, PBB results templates

7.2.4 Social Inclusion and Equity Monitoring Framework

This subsection ensures alignment with the World Bank’s Environmental and Social Framework (ESF), the Constitution of Kenya (Article 56 on minorities and marginalized groups), and national SDG reporting frameworks.

7.2.4.1 Proposed Social Inclusion Monitoring Indicators

We introduce the following **disaggregated indicators** to track equity in WASH service outcomes across social groups:

Table 7.16: Key Social Inclusion Indicators for M&E

Indicator	Disaggregation	Frequency	Responsible Agency
% of households with access to improved water services	Gender of household head, income level, rural/urban, PWD status	Biannually	BOMWASCO, Dept. of Water, CDoH
% of women and girls accessing MHM-friendly sanitation facilities	Gender, age group	Quarterly	Dept. of Health, Education, Gender

% of schools and HCFs with inclusive WASH (MHM, disability-accessible)	Facility type, sub-county	Annually	Dept. of Education, Dept. of Health
% of vulnerable households reached through pro-poor water programs	Low-income status, settlement zone	Biannually	Dept. of Social Services, BOMWASCO
% of project monitoring teams including women and youth reps	Gender, age group	Quarterly	M&E Unit, WASH TWG
# of grievances logged and resolved related to gender or equity issues	Gender of complainant, sub-county	Quarterly	GRM Desk, Dept. of Public Participation
% change in time spent by women/girls on water collection	Gender, household location	Annually	Dept. of Economic Planning

7.2.4.2 Data Collection and Disaggregation Strategy

To ensure data reflects **inclusion and equity**, the CWSSIP M&E system will:

- a) **Collect data disaggregated** by:
 - Gender (male/female/other),
 - Age group (e.g., youth, adults, elderly),
 - Disability status,
 - Location (ward, rural/urban), and
 - Income level (where feasible through proxies).
- b) Leverage **existing systems**:
 - BOMWASCO's billing/customer systems,
 - Community scorecards and citizen report cards,
 - School and HCF WASH audit tools,
 - WRA, KDHS, and CBS gender datasets.
- c) Use **participatory monitoring tools**:
 - Focus Group Discussions (FGDs) with women, youth, and vulnerable groups,
 - Inclusion of women and marginalized reps in WASH committees and monitoring units.
- d) Ensure **feedback is looped back into planning**, especially where access disparities or service dissatisfaction are identified.

7.2.5 Tools and Technology Integration

Table 7.17: Tools and Technology Integration

Tool / System	Purpose	Integration Status
mWater Digital M&E	Field data entry, mapping, and project tracking	Active training in rollout
ERP (BOMWASCO)	Billing, customer care, NRW, and financial KPIs	Live
KoboToolbox (MoH / Health Dept.)	Hygiene, school WASH audits, and MHM coverage	Live
CWSSIP Dashboard (2025 onward)	Unified M&E dashboard across departments	In development

The CWSSIP M&E system enables **real-time performance tracking, accountability, and continuous learning** by integrating community, institutional, and system-level indicators. It meets both **World Bank DLI** thresholds and **national PBB & CIMES** frameworks for results-based financing and development.

7.3 Communication and Advocacy Plan

A strong communication and advocacy framework is critical to the successful implementation of the Bomet County Water and Sanitation Strategy and Investment Plan (CWSSIP). It will ensure that stakeholders at all levels understand, support, and participate in the plan's objectives. This chapter outlines strategic approaches for stakeholder engagement, information dissemination, and high-level advocacy to secure sustained political commitment and resource mobilization.

7.3.1 Strategies for Stakeholder Engagement and Public Awareness

The CWSSIP implementation will adopt a participatory, inclusive, and culturally sensitive communication approach to build ownership and ensure transparency. The following strategies will guide stakeholder engagement and public awareness:

- **County WASH Forums:** the County Wash hub to convene regular multi-stakeholder forums at the county and sub-county levels, bringing together BOMWASCO, CGoB departments, WRUAs, CBOs, NGOs, religious leaders, and community representatives.
- **Ward-Level Barazas and Dialogue Sessions:** Organize annual WASH barazas in all 25 wards to update communities on progress, collect feedback, and address emerging concerns.
- **Sector Working Group Engagement:** Embed CWSSIP progress discussions into existing County Sector Working Groups (SWGs) for Health, Environment, Planning, and Infrastructure.
- **Institutional Engagement:** Collaborate with school boards, hospital committees, youth associations, and women's groups to ensure localized awareness of institutional WASH improvements.
- **Capacity Building:** Train local champions (e.g., CHPs, ToTs, BOMWASCO agents) to serve as CWSSIP communicators at the grassroots level.
- **Inclusion & Equity:** Ensure that communication approaches accommodate the needs of vulnerable populations, including persons with disabilities, elderly persons, and marginalized groups.

7.3.2 Mechanisms for Information Dissemination

Effective, timely, and accessible information sharing will be achieved through a mix of digital, print, interpersonal, and mass communication channels:

- **CWSSIP Information Portal:** Host a dedicated web-based portal that is updated quarterly with reports, scorecards, GIS maps, and project dashboards.
- **Public Notice Boards and Ward Offices:** Display infographics, project updates, and complaint channels in all 25 wards.
- **SMS and USSD Alerts:** Use BOMWASCO's CRM system to push service updates, billing changes, and emergency alerts to registered users.
- **Social Media and Radio:** Leverage platforms such as Facebook, WhatsApp, and local vernacular radio stations to relay behavior change messages and project milestones.

- **WASH Scorecards and Newsletters:** Publish biannual printed and digital newsletters summarizing progress, success stories, and community feedback.
- **School-Based Communication:** Disseminate materials through school clubs, assembly briefings, and curriculum-linked hygiene campaigns.

7.3.3 Advocacy Initiatives to Secure Political and Financial Support

To sustain momentum and unlock financial flows for CWSSIP implementation, targeted advocacy will focus on key decision-makers and financing entities:

- **Executive-Level Briefings:** To maintain political buy-in, hold quarterly high-level briefings for the Governor, County Executive Committee Members (CECMs), and County Assembly Sector Committees.
- **County Assembly Engagement:** Share budget-linked progress reports and seek endorsement for necessary policy reforms or additional allocations.
- **Donor and Partner Roundtables:** Organize annual donor roundtables to present investment pipelines, bankable projects, and impact case studies aligned with K-WASH Result Areas and SDG 6.
- **Community-Led Budget Hearings:** Facilitate community participation in County Annual Development Plan (ADP) hearings to elevate CWSSIP financing as a public priority.
- **Showcasing Impact:** Develop short documentaries, photo stories, and data dashboards highlighting CWSSIP outcomes for lobbying with national government entities, WASREB, and development partners.
- **Integration into County Communication Strategy:** Ensure CWSSIP milestones and calls to action are embedded within broader county messaging platforms such as Bomet TV, newsletters, and commemorative events (e.g., World Water Day, Sanitation Week).

This Communication and Advocacy Plan will ensure that all actors — from local communities to national and international stakeholders — are informed, engaged, and empowered to support the full realization of Bomet County's water and sanitation goals. It enhances accountability, unlocks financing, and fosters lasting behavioral and institutional change.

8.0 CONCLUSION AND RECOMMENDATIONS

The development of the Bomet County Water and Sanitation Strategy and Investment Plan (CWSSIP) provides a timely and transformative roadmap to achieving universal access to safe water, improved sanitation, and climate-resilient WASH services by 2030. Developed through extensive consultations and aligned with Kenya's K-WASH Program and SDG 6 targets, the strategy responds to persistent infrastructure deficits, institutional weaknesses, and emerging environmental threats facing the county's WASH sector.

8.1 Conclusion

The CWSSIP reveals that while considerable progress has been made in water supply coverage, especially through community water schemes, **sanitation and hygiene services have remained systematically underfunded and deprioritized**, contributing to high disease burden and inequality. In parallel, essential public institutions—including **schools and healthcare facilities—continue to lack basic WASH infrastructure**, undermining education outcomes, infection prevention, and gender equity.

Beyond domestic use, **agriculture, livestock, and small-scale enterprises** represent critical and growing water demand sectors. These economic drivers are frequently overlooked in WASH planning but are heavily dependent on secure, reliable, and sustainable water sources. Similarly, **ecosystems and catchment zones** face increasing pressure from deforestation, encroachment, and climate change, threatening water availability for all users.

Despite these challenges, Bomet County holds immense potential to reverse these trends through integrated, equitable, and performance-based investments. The CWSSIP positions the county to leverage its strong community networks, proven partnership models, and institutional reforms, such as the operationalization of the WASH Hub, to deliver sustainable WASH outcomes at scale.

8.2 Recommendations

1. Fast-track Operationalization and Financing of the County WASH Hub

The WASH Hub is a cornerstone reform of this strategy and must be urgently established, equipped, and financed. It will serve as the engine room for county-wide sector coordination, performance monitoring, stakeholder engagement, and compliance with national standards. Without a functional Hub, progress risks fragmentation and inefficiency.

2. Prioritize Inclusive Sanitation and Hygiene Investments

Sanitation has lagged for far too long. The county must urgently elevate sanitation in planning, budgeting, and implementation by:

- Scaling up **community-led total sanitation (CLTS)** and targeted **post-ODF subsidies**.
- Rolling out **institutional sanitation programs** in schools and health centers, including **MHM-friendly and disability-inclusive facilities**.
- Investing in **faecal sludge management (FSM)** infrastructure and **public toilets** in urban areas.

3. Strengthen WASH in Schools and Healthcare Facilities

Lack of adequate WASH in learning and health environments is a major public health and dignity concern. The county should:

- Allocate dedicated budgets for the construction and rehabilitation of school toilets and water systems.
- Equip all HCFs with piped water at points of care, inclusive sanitation, waste disposal systems, and hygiene stations.
- Integrate WASH into the Education and Health Sector Plans and enforce compliance through joint inspections and M&E.

4. Leverage NGO and Charitable Partnerships

Bomet has a strong history of collaboration with NGOs such as **Dig Deep**, which have supported borehole development, school WASH, and community training. The county should:

- Establish structured co-financing frameworks with development partners.
- Align partner programs with CWSSIP priorities and mobilize technical support for sanitation, climate resilience, and digital innovation.

5. Invest in Sustainable, Climate-Resilient Infrastructure

WASH systems must be designed to withstand future shocks. The county should:

- Prioritize **solar-powered water schemes, rainwater harvesting, and flood-resilient sanitation.**
- Promote **nature-based solutions** such as wetland restoration and green infiltration systems.
- Include WASH in the County Climate Change Action Plan and tap into climate finance opportunities.

6. Protect and Restore Key Catchment Areas

Catchment degradation is a direct threat to water availability for domestic, institutional, and agricultural use. The CWSSIP recommends:

- Scaling up **spring protection and reticulation**, which are low-cost, high-return interventions.
- Supporting **WRUAs** and implementation of **Sub-Catchment Management Plans (SCMPs)**.
- Enhancing enforcement of environmental laws, riparian protection, and afforestation programs.

7. Expand Access to Productive Water Services

The plan recognizes that water is not only a social good but an economic enabler. The county should:

- Support **multiple-use water systems (MUS)** that serve domestic, livestock, and smallholder irrigation needs.
- Integrate WASH with agriculture and livestock strategies to boost food security and rural livelihoods.
- Facilitate water access for micro-enterprises (e.g., car washes, food vendors, agro-processors) through inclusive service models.

8. Institutionalize Monitoring, Evaluation, and Sector Learning

The county must ensure that all investments are tracked, evaluated, and continuously improved. This requires:

- Rolling out digital M&E systems linked to county dashboards.
- Conducting annual WASH performance reviews and stakeholder forums.
- Capturing citizen feedback and learning from innovations to adapt programs in real-time.

ANNEXES

Annex 1: Detailed List of Water, Sanitation, and Hygiene Investments in Bomet County (2024–2030)

This annex presents a list of sanitation projects prioritized under the County Water and Sanitation Strategy and Investment Plan (CWSSIP) for Bomet County. Projects are organized by sub-county and include descriptions, estimated costs, target beneficiaries, and environmental/social considerations.



PEF Key areas.xlsx

Annex 2: WASH Investments in Schools and Healthcare Facilities (2024–2030) – Bomet County

This annex details prioritized investments targeting improvements in WASH (Water, Sanitation, and Hygiene) infrastructure in schools and healthcare facilities across Bomet County. Projects are organized by sub-county, investment type, and thematic focus.

A. School WASH Investments by Sub-county

Bomet Central

1. Inclusive ECDE Sanitation Program – 20 ECDE toilets with ramps and child-friendly WCs (KES 25M)
2. MHM Room Retrofit in Girls' Schools – 12 schools with MHM-friendly sanitation blocks (KES 18M)

Bomet East 3. Piped Water for Schools – 15 schools connected to borehole network (KES 22M) 4. School Solid Waste Management – 10 schools equipped with composting and segregation facilities (KES 6M)

Chepalungu 5. Latrine Reconstruction Fund – 25 unsafe toilets replaced with lined structures (KES 30M) 6. Handwashing Infrastructure Program – 40 handwashing stations, taps, and buckets (KES 10M)

Konoin 7. Sanitary Facilities in Mixed Boarding Schools – Gender-segregated VIPs + solar lighting (KES 20M) 8. Spring-Fed Water Tanks for Upland Schools – 10 ferrocement tanks + filtration units (KES 16M)

Sotik 9. DRR and WASH Resilience Program – 30 schools supported with flood-proof toilets and DRR kits (KES 35M) 10. MHM Club Rollout – Peer-led MHM in 20 schools (KES 10M)

Subtotal for Schools: KES 212 Million (52,500 learners)

B. Healthcare Facility (HCF) WASH Investments by Sub-county

Bomet Central 11. Maternity Block Sanitation Retrofit – Inclusive, flushable VIPs in 4 facilities (KES 20M)

Bomet East 12. Handwashing for Clinics Initiative – 10 dispensaries with ABHR stations (KES 5M)

Chepalungu 13. Covered Waste Disposal Points – 6 health centers with incinerators and lined pits (KES 14M)

Konoin 14. WASH Rehabilitation in Faith-Based HCFs – Piped water and sanitation upgrades in 4 units (KES 18M)

Sotik 15. ABHR Rollout in HCFs – Wall-mounted hand sanitizer dispensers in 15 units (KES 3M)

Countywide 16. MHM Product Provision in HCFs – Monthly reusable pad kits for female clients in 25 HCFs (KES 12M)

Subtotal for HCFs: KES 72 Million (64,000 patients and vulnerable users annually)

C. Circular Economy and Innovation Pilots 17. Circular Sanitation Economy in Schools – Compost toilets, bio-digesters, waste-to-fertilizer pilots in 15 schools (KES 20M)

Grand Total (2024–2030): KES 252 Million **Estimated Reach:** Over 116,500 learners, patients, and institutional users

Annex 3: Collaborative Partnerships for Integrated Water Resources Management (IWRM) in Bomet County (2024–2030)

This annex provides a detailed summary of inter-agency and multi-stakeholder partnerships supporting integrated water resources management (IWRM) in Bomet County.

A. Key Stakeholders and Their Contributions

Stakeholder	Partnership Focus	Key Activities	Sub-counties Involved	Role/Contribution
WRA	Water resource regulation and source protection	Abstraction permitting, spring fencing, WRUA oversight	Countywide	Technical regulation and monitoring
KFS	Riparian catchment and afforestation	Seedling distribution, tree planting in degraded uplands	Chepalungu, Konoin, Bomet East	Seedling provision and enforcement support
NEMA	Pollution control, EIA/EA compliance	Wetland protection, market pollution audits	Bomet Central, Sotik	EIA/Audit approvals and compliance reviews
LVSWWDA	Infrastructure implementation	Chebangang water project, bulk transfer schemes	Chepalungu, Bomet East	Construction oversight and funding facilitation
WSTF	Grant financing for rural WASH	FSM pilot, WRUA funding, monitoring	Chepalungu, Sotik	Financing and community-based monitoring
KRCS	Resilience and solar infrastructure	Gravity system upgrades, WASH resilience	Chepalungu	Field implementation and resource mobilization
WRUAs	Local governance water	Community source protection, abstraction monitoring	Konoin, Bomet Central	Local coordination and mobilization
CCU	Climate risk integration	CRVA implementation, DRR plans	Countywide	Policy integration and resilience mainstreaming

B. Coordination Platforms and Frequency

Coordination Forum	Frequency	Members	Purpose
County WASH Stakeholders Forum	Quarterly	Dept. Water, BOMWASCO, WRA, NGOs, WRUAs	WASH planning and alignment

WRUA Regional Forum	Bi-annual	WRUAs, WRA, Agriculture, Environment	Source governance and conflict resolution
County Environmental Committee	Semi-annual	NEMA, Public Health, WRMA, KFS	EIA harmonization and pollution control
PPP Sanitation Dialogue Forum	Annual	BOMWASCO, FSM providers, WSTF, private sector	Sanitation investment review and RBF planning

C. Examples of Collaborative Project Outcomes (2019–2024)

1. *Sigor Water Upgrade (KRCS + BOMWASCO)* – 68,000 people served via gravity-fed treatment system.
2. *Catchment Surveillance (WRA + WRUAs)* – 12 springs protected, abstraction data tracked monthly.
3. *Riparian Restoration (NEMA + KFS)* – 8km of riverbank fenced and planted with bamboo.
4. *FSM EIA Oversight (NEMA + BOMWASCO)* – 7 EA reports completed, 4 corrective action plans under implementation.

D. Coordination Challenges and Mitigation

Challenge	Mitigation Strategy
Overlapping mandates	Formalized MoUs and joint review meetings
EIA delays	Pre-submission screening sessions with NEMA
Inactive WRUAs	Targeted funding and performance incentives through WSTF
Limited data sharing	County Water Information System (2024–2026 rollout)

Annex 4: Water Service Delivery Models In Bomet County



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2003 Document

Annex 5: Environmental, Health, and Safety (EHS) Risk Management for Bomet County WASH Sector (2024–2030)

This annex provides a comprehensive breakdown of identified EHS risks, mitigation strategies, licensing requirements, and performance monitoring frameworks to guide implementation of the County Water and Sanitation Strategy and Investment Plan (CWSSIP).

Table A: Key Environmental, Health, and Safety (EHS) Risks Across the WASH Sector

Risk Category	Description / Source	Sub-County Hotspots	Impact
Water Source Contamination	Pollution from latrines, agriculture runoff	Chepalungu, Bomet East	Diarrheal outbreaks, reduced water quality
Unsafe Waste Disposal	Burning/dumping in schools & HCFs	Sotik, Bomet Central	Air/soil/water pollution
Occupational Hazards	Manual FSM without PPE	Urban FSM areas	Worker illness & accidents
Latrine Collapse / Flooding	In unlined pits, poor drainage	Bomet East, Konoin	Increased OD, water contamination
Dust, Vibration, Noise	During FSTP/WTP construction	Urban areas	Nuisance, injury risk

Table B: Risk Mitigation Measures by Project Type

Project Type	Risks Identified	Mitigation Measures
Boreholes/Springs	Over-abstraction	WRA permits, recharge zone plans, fencing
Sewerage & FSTPs	Odor, overflows	Drying beds, digesters, EIA & ESMP implementation
School/HCF Latrines	Flooding, collapse	Elevated VIPs, reinforced slabs
WTPs	Chemical handling	Dosing automation, safety training & SOPs
Manual FSM	Exposure to pathogens	PPE, hygiene protocols, medical check-ups

Table C: Licensing Plan for Environmental and Water Resource Compliance

Requirement	Responsible Body	Timeline	Projects Affected	Compliance Method
EIA Licensing	NEMA	3–6 months pre-works	Large water, sewer, FSM projects	Approval with ESMPs
Annual Env. Audit	NEMA + consultants	Annually	All WASH infrastructure	Reports + site audits
Abstraction Permits	WRA	Before drilling	Boreholes, springs, rivers	WRA permit registry
Effluent Discharge Licenses	NEMA	Before commissioning	FSTPs, sewerage	Monitoring + logs

Table D: Monitoring and Performance Enforcement

Monitoring Activity	Lead Entity	Frequency	Indicators
Environmental Audit	NEMA + Consultant	Annually	Compliance % and risks resolved
Water Quality Tests	Public Health & WRA	Quarterly	Bacteriological, turbidity, nitrate tests
Sanitation Inspection	Public Health Officers	Semi-annually	Hygiene ratings, latrine conditions
FSM Chain Tracking	BOMWASCO	Monthly	Sludge volumes, trip logs, treatment coverage
Safety Drills in Schools	County Disaster + MoE	Annually	EHS preparedness records

Annex 6: Risk Analysis and Mitigation Measures

Overview of Risk Management Approach

To ensure successful implementation and sustainability of this CWSSIP, a comprehensive risk analysis has been undertaken. Risks have been categorized by theme, assessed based on **likelihood and impact**, and assigned clear **mitigation strategies** and **responsible actors**.

The risk analysis covers:

- Institutional and governance risks
- Service delivery and infrastructure performance risks
- Financial and cost recovery risks
- Climate and environmental shocks
- Monitoring, data integrity, and verification issues
- Equity and social inclusion risks

Summary Risk Matrix

Risk Category	Specific Risk	Likelihood	Impact	Mitigation Strategy	Responsible Entity
Institutional/ Coordination	WASH Hub not formalized or under-resourced	High	High	Allocate KES 150M in OpEx; gazette WASH Hub as Coordination Unit	Dept. of Water, WASH Hub
Utility Governance	BOMWASCO fails to meet cost recovery or performance targets (DLI 6 & 7)	High	High	Introduce performance contracts, NRW reduction strategy, and tariff adjustment plan	BOMWASCO, WASREB, Treasury
Rural System Sustainability	RWSPs cannot manage rural schemes effectively	Medium	High	Phased licensing, mentoring by WASH Hub; transitional CapEx and O&M support	Dept. of Water, WASREB
Spring Management	Protected springs degrade or become defunct due to poor O&M	Medium	Medium	Assign WRUAs to O&M; include spring system audits in the WASH Hub M&E plan	WRUAs, RWSPs, WASH Hub
FSM and Sanitation	Sludge facilities are underutilized or unmanaged	Medium	High	Introduce FSM tariffs, PPP operator contracts, and enforce disposal regulations	Public Health, BOMWASCO
Data Integrity / M&E	Inconsistent data, poor DLI reporting	Medium	High	Deploy mWater + dashboards; integrate WASH Hub M&E; DQA every 12 months	WASH Hub, Planning Dept.

Risk Category	Specific Risk	Likelihood	Impact	Mitigation Strategy	Responsible Entity
Climate Vulnerability	Droughts/floods disrupt rural sources, affect WASH infrastructure	High	High	Site risk mapping, elevate latrines; expand RWH tanks, and multi-source redundancy	CCU, Water Dept., Health
Community Buy-in	Low uptake of sanitation subsidies or behavior change initiatives	Medium	Medium	Tailored sanitation marketing, incentives; MHM campaigns in schools	Public Health, CBOs, NGOs
Fiduciary Risks	Funds diverted or delayed; weak financial tracking	Low	High	IFMIS tracking, quarterly financial audits by County Treasury and WASH Hub	County Treasury, Controller of Budget
Equity and Inclusion	WASH designs fail to address disability/MHM/gender-specific needs	Medium	Medium	Apply inclusive design checklists in all BoQs; use school/HCF audit tools	MoE, MoH, Dept. of Water

Climate-Related Risks and Mitigation

As a climate-vulnerable county, Bomet faces compound WASH risks, especially in flood-prone zones (e.g. **Cheptebes, Cheptuyet**) and drought-impacted spring-fed systems (e.g. **Kiprerres, Lelaitich**).

Climate Risk	Impact on WASH Systems	Adaptation Measures
Prolonged droughts	Reduced spring/borehole flow, dried-up surface sources	Protect multiple sources; invest in RWH, storage, and solar pumps
Flash floods	Latrine collapse, water contamination	Elevated VIPs, drainage, and FSM infrastructure with soak pits
Heatwaves	Increased household water demand, pressure on piped systems	Demand-side management, night-time pumping, climate-resilient infrastructure

Monitoring and Risk Response Mechanism

- Risks will be monitored **quarterly by the WASH Hub**, reported through a **CWSSIP M&E dashboard**.
- High-risk areas (climate, financial, data quality) will trigger **corrective action plans** reviewed at the semi-annual CWSSIP Joint Implementation Review (JIR).
- The **WASH Hub** will maintain a dynamic **Risk Register** aligned with DLIs and World Bank performance monitoring.

Annex 7: Projected WASH Sector Financing by Source (2022–2030)

The following table provides detailed projections of WASH sector funding by major sources from 2022 to 2030, consolidating County Budgets, National Government Transfers, Development Partner Contributions, and Private Sector participation.

Table 0.1: Projected WASH Sector Financing by Source (KES Million)

Year	Water Supply (KES M)	Sewered Sanitation (KES M)	Non-Sewered Sanitation (KES M)	Total WASH Funding (KES M)
2025	569.8	1.0	27.3	598.2
2026	472.7	1.0	224.9	698.6
2027	580.6	301.0	344.5	1,226.1
2028	501.5	100.0	679.0	1,280.5
2029	491.8	51.0	729.6	1,272.4
2030	501.6	852.0	729.2	2,083.0

Source: Bomet County Treasury WASH Financial Projections 2022–2030.