Reliable Water at a Fair Cost

Service Standards Household Protection and Utility Finance in Saint Lucia

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Abstract

Saint Lucia should implement a funded service and household-protection programme alongside its water tariff reform. The immediate decision is how to make existing regulatory commitments measurable while maintaining the cash needed for safe operations. This study audits public tariff and legal records, reproduces consumption charges, tests illustrative household and utility-finance scenarios, and develops implementation instruments. At 3,660 imperial gallons a month, the domestic water charge is EC$53.08 under the pre-June schedule, EC$63.78 under June 2026 rates, and EC$78.47 under scheduled January 2027 rates. The unchanged EC$24.42 water minimum therefore does not protect every domestic bill. Two households each using 1,800 gallons would together pay EC$48.84 on separate eligible accounts but EC$75.65 on one shared account in January, a conditional incidence result rather than a population estimate. Sewerage and coping costs widen the assessment. Current public evidence does not support a new audited solvency forecast, a national hardship count, or a causal estimate of reliability improvements. The recommended package combines legally settled standards, a funded targeted subsidy, a current cash bridge, and a measured pilot in up to three service areas. A proposed twelve-month planning envelope is EC$1.084 million, subject to quotations, appropriation and operational readiness. A public review before January should require corrective action and assess any case for a formal tariff proceeding; the current notice does not automatically cancel the next phase when service milestones are missed.

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Sections 1 to 10 present the research and policy recommendation. The annexes contain the implementation tools, calculations, and an evidence audit.

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1 The decision and the evidence

The policy objective is reliable access to safe water at a cost households can bear, delivered by a utility able to maintain the system. Neither a higher tariff nor a household tank is sufficient to achieve that objective. A tariff can create revenue that does not reach the binding operational constraint. A tank can reduce the consequences of an interruption while transferring capital costs, cleaning and refill uncertainty to a family. A service promise can clarify responsibility yet remain ineffective if there are no crews, spare parts, alternative-supply arrangements or resources to investigate complaints. The country needs these components to work together.

The recommended decision is to establish a Water Service and Household Protection Programme through the existing institutions. The Water and Sewerage Company (WASCO) should retain operational responsibility; the National Utilities Regulatory Commission (NURC) should set and verify regulatory obligations; Cabinet and the responsible ministries should decide and fund social protection. Health authorities should settle water-safety requirements. Community participation should help identify failures and assess access, without being assigned regulatory powers or unpaid responsibility for utility operations. A new agency is not a prerequisite for this programme.

The urgency comes from the scheduled January 2027 tariff phase and the time required for infrastructure projects to deliver verified service. There is a practical window for correcting billing information, establishing incident records, preparing household support and publishing a readiness assessment. There is no sound basis for promising that national continuous supply will be achieved within that window. Public accountability should distinguish actions that can be completed quickly from outcomes dependent on engineering, rainfall and construction.

Research method

This is a focused applied policy study, not a systematic review, a legal opinion on a disputed case, or an engineering feasibility study. Searches covered the regulator, utility, government and statistical offices, development-finance institutions, primary legislation and relevant research. Primary records determine tariff, authority and project facts. Peer-reviewed work informs mechanisms and measurement. Secondary reporting is identified where it supplies recent context. Publication dates, the period described, and retrieval dates are treated separately. The references retain source locations, pinpoints, limitations and access status. Annex F contains the numerical inputs, formulas, worked examples and verification checks.

The analysis has three evidence classes. First are verified documentary facts, including published rates and statutory provisions. Second are derived results, computed from those rates under stated billing assumptions. Third are policy scenarios, including household resources, coping expenditure and programme costs that are not local observations. Keeping these classes separate prevents an illustrative budget from becoming a claimed appropriation, or a model household from becoming a representative family.

The bill model uses the published rounded prices, progressive blocks and a final cent rounding convention. It contains the domestic, commercial, government, hotel and boat water schedules and the applicable sewer schedules. All values are Eastern Caribbean dollars unless explicitly stated otherwise. The analytical script uses decimal arithmetic and checks official worked examples and tariff boundaries. Annex F exposes the input values, calculation rules, outputs and a compact reproduction procedure within this paper. The model has no customer names, population weights or unpublished accounts.

The principal limits are material. No current audited cash bridge, account-level consumption distribution, nationally representative 2026 coping-cost dataset, complete public service agreement, or verified zone-level interruption series was obtained. Public non-location is not proof that a record does not exist or that a required return was not submitted. CSO’s public survey description identifies the 2025/2026 household survey and a planned April 2026 completion; the reviewed public material did not provide usable current microdata for this exercise. An elapsed planned date does not establish release or availability. Consequently, the study estimates mechanisms and conditional burdens, not national prevalence or aggregate tariff yield. [1]

The principal contribution is applied policy analysis: reproducible local tariff calculations, conditional household and account comparisons, and specified implementation choices. The study does not claim a new general theory, a nationally representative affordability estimate, an optimal subsidy or a demonstrated causal benefit from the proposed programme. Its strongest quantitative conclusions concern the specified tariff schedules. Its recommendations combine that evidence with legal and administrative reasoning and should be revised as local cost and household evidence becomes available.

2 What existing SLPA work already contributes

Saint Lucia Policy Analysis has already developed a substantial water-policy programme. Its national reliability dossier, published on 8 August and updated on 27 August 2026, links catchment protection, treatment, distribution, maintenance and utility finance. It recommends public service reporting by zone, an accountable tariff-and-service arrangement, household protection and measured loss reduction. It also distinguishes historical operating statistics from current service conditions and construction activity from demonstrated improvement at the tap. Those ideas form the starting point of this paper. They are not presented here as new discoveries. [2]

The subsequent action paper, *Reliable water and safer coasts*, dated 14 September 2026, goes further. Its water proposal includes three measured service areas, a four-week baseline, repair and storage assistance, a first-90-day budget of EC$1,030,400 and a conditional performance ambition. The budget is expressly illustrative. The public explainer, *From Rain to Tap*, separately explains how failures can propagate through the water system. Together, these publications already provide a diagnosis, public explanation and preliminary delivery proposal. [3, 4]

The present study therefore addresses a narrower implementation question: how should household obligations, service commitments and financing arrangements fit together under the actual tariff schedule? Its first contribution is executed distributional accounting. At 3,660 gallons, the modeled domestic water bill rises from EC$53.08 under the earlier schedule to EC$63.78 in June 2026 and EC$78.47 in January 2027. The January water bill is 47.8% above the earlier amount. For an account subject to the corresponding sewerage schedule, the combined amount rises from EC$88.04 to EC$111.80 and EC$144.41. An unchanged water minimum consequently cannot describe the whole distribution of household impacts.

A second contribution concerns the unit to which the tariff applies. Consider two households using 1,800 gallons each. Two qualifying separate accounts incur EC$48.84 in total under all three schedules. One account carrying their combined consumption incurs EC$51.58, EC$61.73 and EC$75.65 respectively. The January difference is EC$26.81, or 54.9% above the separate-account total. This is a permitted shared-property scenario, not an estimate of its prevalence. It identifies a concrete question for tariff administration: whether protected basic use should depend entirely on the number of accounts when several households legitimately share a connection.

The third contribution is to translate policy objectives into instruments that can be administered and reviewed. A service promise needs a defined event, an evidence record, a responsible institution, a response deadline and an appeal route. Household support needs eligibility rules that can reach tenants and shared-meter users, together with an identified payer. A performance payment needs a defensible baseline and protection against apparent gains obtained by reducing service. A pilot budget needs reconciliation with the existing proposal, including what is replaced, added or excluded and which costs recur after launch.

These contributions should be judged by whether they improve an actual decision. The paper does not claim that a compact is unprecedented, that the proposed package is uniquely optimal, or that modeled household examples establish national incidence. It supplies calculations and operational choices that others can reproduce, challenge and revise. That is a substantive applied contribution even while current household microdata, zone performance and final administrative arrangements remain incomplete.

3 What the tariffs actually do

The operative public schedule is NURC's final notice, effective in the June 2026 billing cycle with a second phase scheduled for January 2027. This analysis does not substitute the draft consultant scenarios or older WASCO examples for that schedule. The following table shows domestic consumption charges. The minimum covers the first 2,000 billed gallons; marginal charges apply progressively above the relevant boundary. [5]

Domestic charge, EC$	Before June 2026	June 2026	January 2027
Water minimum, 0–2,000 gallons	24.42	24.42	24.42
Water, next 1,000 gallons	12.21	16.77	23.03
Water, per 1,000 above 3,000	24.92	34.23	47.00
Sewer minimum, 0–2,000 gallons	16.44	22.58	31.01
Sewer, next 1,000 gallons	8.22	11.29	15.50
Sewer, per 1,000 above 3,000	15.61	21.44	29.44

The domestic water formula is $B(q) = F + a \times \min(\max(q - 2{,}000, 0), 1{,}000) / 1{,}000 + b \times \max(q - 3{,}000, 0) / 1{,}000$. Here q is billed monthly gallons; F is the minimum; a and b are the two marginal prices. An active zero-use account is different from a household without an account: the former is modelled at the minimum and the latter has no direct utility charge. WASCO's meter guidance identifies imperial gallons, so one gallon is 4.54609 litres. Published historical worked examples support fractional-thousand proration. [6, 7]

Sewer charges are shown separately and combined only for a customer subject to that service charge, assuming the same billed-volume basis. The model does not assert that every domestic account is sewer-connected or invent a wastewater-volume adjustment. Water and sewer services are zero-rated for VAT in the reviewed schedule; the government's levy guidance excludes VAT-zero-rated services from the Health and Citizen Security Levy. No tax uplift is added. Arrears, reconnection costs, deposits, disputed adjustments and any separately prescribed levy not verified in this research are outside this consumption-charge model. [8, 9, 10]

Executed bill results

Monthly billed gallons	Water: before June	Water: June	Water: January
1,500	24.42	24.42	24.42
2,000	24.42	24.42	24.42
3,000	36.63	41.19	47.45
3,660	53.08	63.78	78.47
4,000	61.55	75.42	94.45
5,500	98.93	126.77	164.95

Source: calculations from the final notice; EC$ per month. January is scheduled, not an observed bill. The 3,660-gallon volume is a worked-example volume in the determination report, not an independently established contemporary household average. [5, 11]

At 3,660 gallons the January water charge is 47.8% above the old charge and 23.0% above June. The relevant comparison depends on the policy question. Reporting only the first increase understates the change from the old schedule; applying the headline percentage to the entire domestic bill overstates the increase for households protected by the flat minimum. A customer-facing calculator should show both comparisons and specify the billing period.

For an eligible sewer customer at the same volume, the combined charge is EC$88.04 before June, EC$111.80 in June and EC$144.41 in January. At no more than 2,000 gallons, the combined minima are EC$40.86, EC$47.00 and EC$55.43. Thus the protection of the domestic water minimum should never be described as a freeze of the whole water-and-sewer bill. Whether sewerage is charged is an account-specific fact, not an assumption to apply across the country.

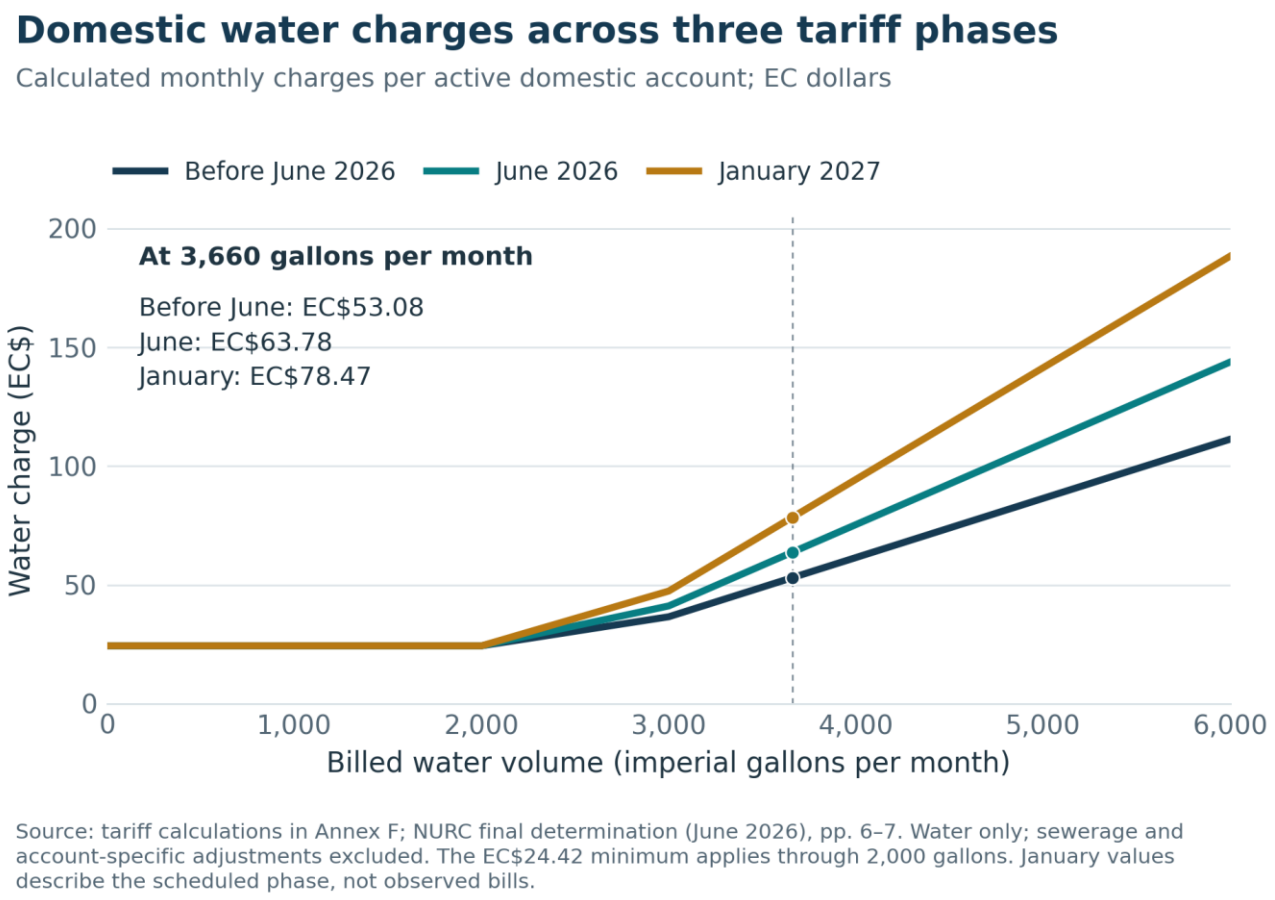

Figure 1. Domestic water consumption charges under three tariff phases. Source: tariff model and NURC final notice.

Household size and shared accounts

A consumption block protects an account, whereas essential needs attach to people. As household size rises, the protected volume per person falls. This is a design issue even if the meter is perfectly accurate. A larger family should not automatically be classified as wasteful because its necessary use crosses a threshold. Conversely, household size alone cannot establish that every litre above a threshold is essential. A workable protection scheme must combine resources, necessary use and billing-unit information.

For example, assume 100 litres per person per day for thirty days solely as a sensitivity benchmark. Two, four and six people would require approximately 1,320, 2,640 and 3,959 imperial gallons, generating January water charges of

EC$24.42, EC$39.15 and EC$92.54 respectively. This does not establish a Saint Lucian legal or medical allowance. Annex F also tests 50 and 75 litres. The example shows how identical per-person use can produce different per-person charges as household size changes.

Shared accounts make the distinction especially clear. Consider two households legitimately served within one property, each using 1,800 gallons a month. Two separate eligible domestic accounts would together incur EC$48.84 in every phase. One account recording the combined 3,600 gallons incurs EC$51.58 before June, EC$61.73 in June and EC$75.65 in January. The January difference is EC$26.81, or 54.9% above the separate-account total. These numbers describe identical aggregate consumption under different permitted billing arrangements. They do not establish how many properties share accounts, how landlords allocate bills, or a right to additional connections.

Pooling is not always more expensive. At low volumes, one minimum may cost less than two. For equal-use pairs with each household below 2,000 gallons and combined use above 3,000, the crossover is about 1,745 gallons per household under the old schedule, 1,612 in June and 1,515 in January. Above that crossover, pooling costs more. The result follows from B(2q) = 2F using the applicable marginal rates. Cent rounding makes the practical boundary approximate. It is a reproducible incidence test rather than a general claim that shared meters are always harmful.

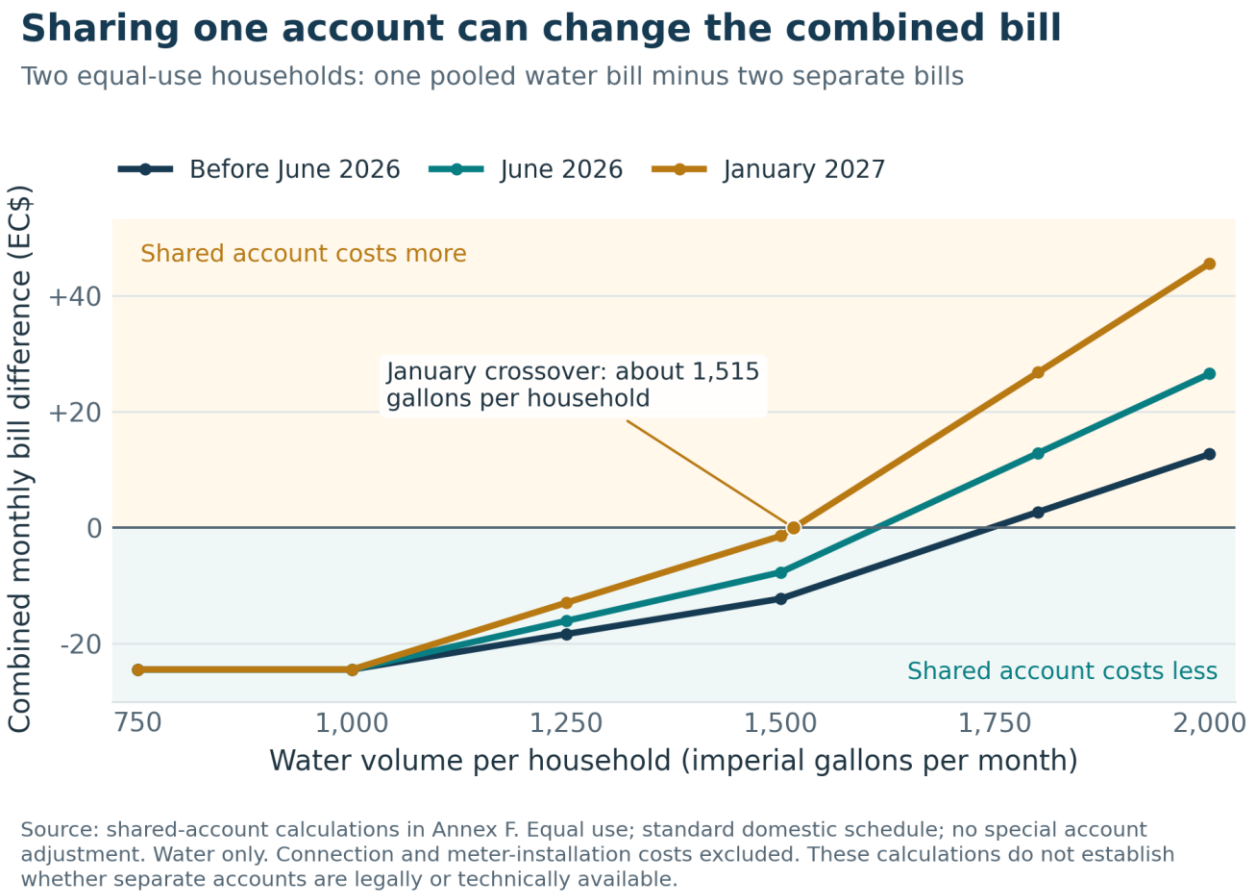

Figure 2. Shared-account charge minus two separate-account charges at equal per-household consumption. Source: tariff model; no prevalence estimate.

Policy should therefore test a household-based hardship allowance that can reach a qualifying tenant without requiring an immediate physical meter split. Where a proposed subsidy is credited to a landlord's account, the programme needs a documented pass-through, a tenant complaint route and checks against duplicate support. Where an independent legal account is technically feasible, the full connection cost and consent process should be disclosed. WASCO's connection guidance restricts supply to another property; this study does not recommend unauthorized cross-property resale. [7]

Billing information and audit priorities

The reviewed WASCO rates page still displayed older values, while its bill-explanation page returned no explanatory data. NURC's report also contains a worked-example inconsistency: the printed old upper-tier value differs from the value implied by the calculation. Using the final notice's EC$24.92 per 1,000 gallons reproduces the EC$53.08 example; the inconsistent printed alternative does not. These are reasons to reconcile public guidance and publish a versioned calculator, not proof that customer invoices were generated incorrectly. [11, 12, 13, 14]

Before production use, WASCO should validate rounding order, partial billing periods, estimated-read procedures, meter-unit conversions and sewer eligibility against anonymized actual invoices. Meter replacement should be tagged separately: a move from estimated or defective readings to actual measurement can alter a bill independently of the tariff. A before-and-after invoice comparison without meter status and consumption would mix these effects. [15]

4 Affordability includes the cost of coping

A bill-to-income ratio answers a narrow question: how large is the utility charge relative to a stated resource measure? It does not show whether the household receives enough water, can pay for a tank, or has money left after food, rent, transport and medicines. It can even fall when supply is suppressed. The correct policy response is to retain the ratio as one descriptor while adding essential-budget and service measures.

The scenario model separates the utility bill, recurring cash coping expenses, equipment cost and time. Cash coping can include additional purchased water, safe storage cleaning, transport or treatment attributable to interrupted service. It should exclude double counting of water already metered and ordinary preferences unrelated to interruptions. Equipment should be assessed either as the payment actually due in the period or as an annualized ownership cost, with the choice stated. Counting both financing repayments and the full annualized purchase cost would exaggerate the burden. Time should be recorded in hours, with any monetary valuation reported separately from cash expenditure. [16, 17, 18]

The following illustrative households are deliberate stress tests. Their resources, spending, household sizes and coping amounts are analyst assumptions. They carry no national population weights. All volumes are monthly imperial gallons and all money values are monthly EC dollars. Resources mean assumed spendable household resources, rather than measured gross earnings.

Scenario and use	Resources	Utility	Coping	Total / resources
A. Small; 1,500 gal	1,200	24.42	30	4.54%
B. Four persons; 3,660 gal	2,400	78.47	60	5.77%
C. Six persons; 5,500 gal	3,000	164.95	100	8.83%
D. Low use; 1,500 gal	1,200	24.42	120	12.04%
E. Two households; 3,600 gal	2,400	75.65	120	8.15%
F. Sewer eligible; 3,660 gal	2,400	144.41	60	8.52%
G. No direct account	1,200	0.00	200	16.67%

All monetary entries EC$ per month. E has six persons across two households in one permitted property. F includes the assumed applicable sewer bill. G has no direct account; it is not a zero-use active account. Full household and essential-budget inputs are in Annex F.

In the four-person scenario B, January water of EC$78.47 is 3.27% of assumed resources of EC$2,400. Adding EC$60 in coping costs gives EC$138.47, or 5.77%. If essential non-water needs absorb EC$2,100, water and coping consume 46.2% of the remaining EC$300. None of these figures alone establishes a legal or social affordability threshold. Together, they explain why the headline bill ratio can understate the pressure on a constrained household.

The low-use scenario D is more revealing. The unchanged EC$24.42 water charge is only 2.04% of EC$1,200 in assumed resources. With EC$120 in coping expense, the cash burden is 12.04%. After EC$1,100 in essential non-water needs, the household lacks EC$44.42 to cover the water-related requirement. A small bill is therefore compatible with severe hardship. In scenario G, no direct account exists and essential non-water needs already exhaust resources. The model reports a budget deficit; it does not divide by zero or present a negative residual-income percentage.

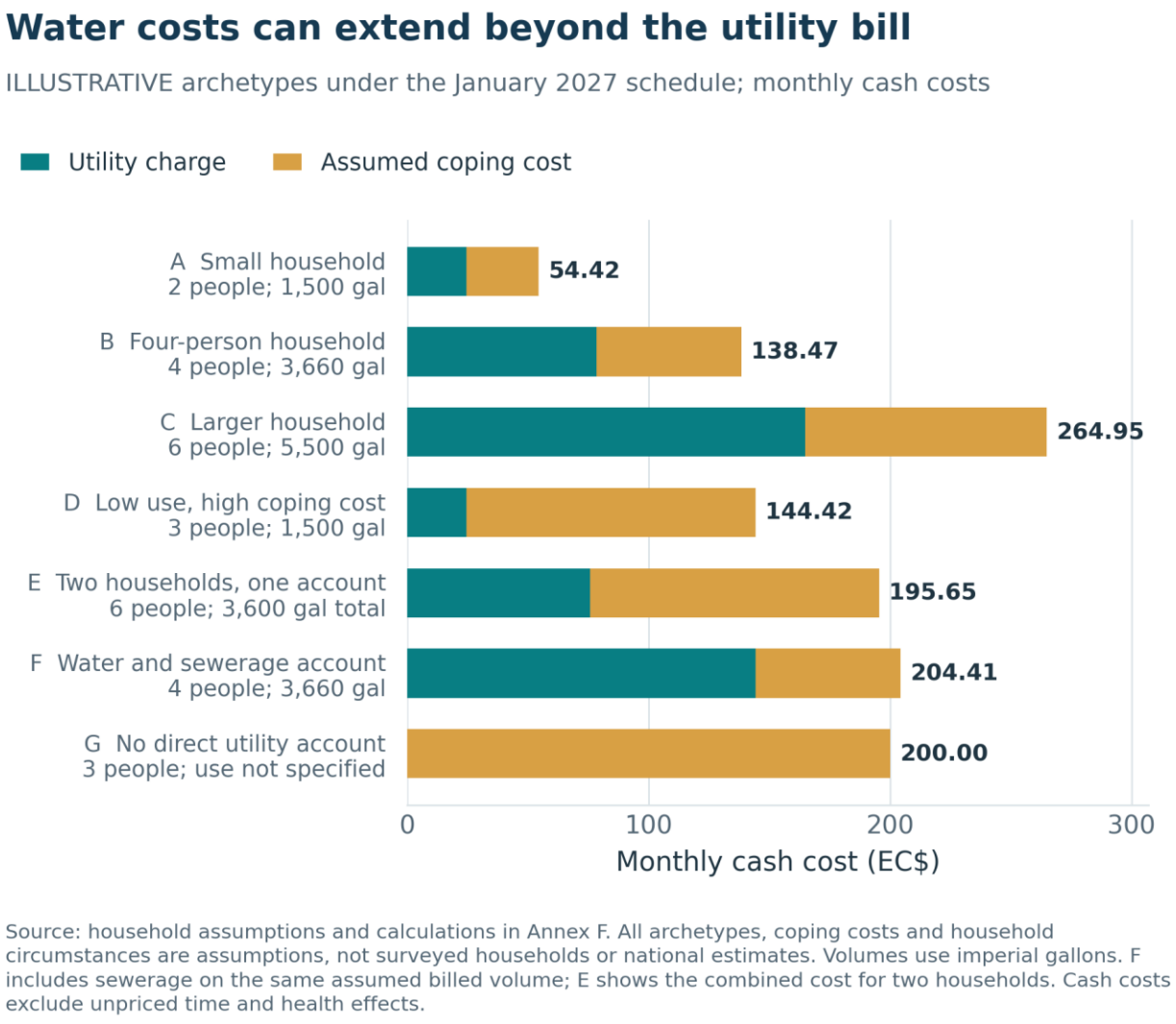

Figure 3. Illustrative January household cash costs. Source: declared archetype assumptions; not survey observations.

Sensitivity matters more than a single selected example. At 3,660 gallons, January water plus EC$0–200 in coping cost ranges from EC$78.47 to EC$278.47. At EC$1,200 in resources that is 6.54–23.21%; at EC$6,000 it is 1.31–4.64%. These are conditional ranges, not confidence intervals. The expenditure denominator in the model is a separate reference spending assumption, not a fully balanced household budget. Resources and expenditure may differ, but the scenarios do not estimate borrowing, transfers or dissaving. A future survey analysis must reconcile these flows.

Using the gazetted EC$6.52 hourly minimum wage as a benchmark, the EC$78.47 bill corresponds to about 12.0 gross-wage hours; water plus EC$60 in coping corresponds to 21.2 hours. The 2024 Order establishes that benchmark. It is

not a claim that every household earns a minimum wage, has paid work, or can devote gross earnings to water after deductions and other needs. [19]

As an additional ownership sensitivity, a purely illustrative EC$2,500 storage-and-installation cost over ten years has a monthly straight-line equivalent of EC$20.83 at a zero discount rate. At 5%, the annualized monthly equivalent is about EC$26.98, before cleaning, repairs and refill charges. The upfront EC$2,500 liquidity need remains very different from either equivalent. If a family spends three to ten hours a month collecting or waiting for water, report those hours first. Valuing them at half or all of the wage benchmark is a sensitivity exercise, not measured lost earnings. Annex F records these calculations separately from the core cash scenarios.

An eligibility scheme should use a short application with assisted and offline access, link to existing social-assistance verification where lawful, and allow evidence of medical need or a recent income shock. It should include households without direct accounts, with a delivery route that does not require them to pay a utility bill they do not receive. Periodic recertification and an appeal are preferable to demanding a complex poverty assessment before emergency access. Consumption checks should identify leaks and errors, while avoiding disconnection based solely on an unresolved contested bill.

Protection should be reviewed against three errors: supporting households that do not need help; excluding those that do; and promising assistance that government reimburses too late. The second and third can be especially damaging during a supply emergency. A capped, time-limited pilot with clear settlement rules can reveal administrative costs and access barriers before a permanent benefit is adopted. The study cannot set an evidence-based national benefit amount or beneficiary count without the missing household and account distributions.

5 What must improve before major projects deliver

Reliable water is the outcome of a connected operating system. Rainfall and catchment condition influence raw-water availability. Intakes, transmission pipes and pumps move that water. Treatment determines what can safely enter distribution. Storage and pressure management determine when it reaches different elevations and the ends of the network. Repairs, electricity, chemicals, staff and finance keep each link working. An improvement at one point may therefore be necessary without being sufficient. More treatment capacity will not restore supply where the source is depleted; a repaired main will not prevent interruptions caused by an unavailable pump.

This distinction changes what government should ask each project to demonstrate. A financing agreement establishes resources and obligations. Procurement identifies who will undertake the work. Physical completion establishes that specified assets were installed. Commissioning tests whether they operate safely and as designed. Sustained service verification then asks whether customers receive the intended improvement. These stages need separate dates, evidence and accountable owners. Combining them into one announcement obscures both genuine progress and the work still required.

The baseline is incomplete but action need not wait

JICA’s June 2024 survey describes high water-supply coverage alongside uneven continuity: 98% coverage, with 24-hour service reported for 75% of customers in the rainy season and 60% in the dry season. These are historical observations consolidated in that report, not a measurement of October 2026 performance. They establish why connection alone is an inadequate outcome measure. [20]

More recent primary records confirm continuing service difficulties. WASCO’s 14 September advisory describes southern shortages, valving and water trucking where feasible, particularly for high-elevation and end-of-network customers. Its Soufriere schedule, effective 1 September, describes approximate valve operations subject to network and weather conditions. A schedule is an allocation instruction; it is not evidence that every household received water for the scheduled period. [21, 22]

The Delcer record illustrates another distinction. WASCO reported correcting a flow restriction in August while warning that source yields remained low. Restoring a plant to its former capacity did not establish continuous service

throughout its network. [23] The research therefore does not estimate a national interruption rate from announcements, count every notice as a separate outage, or assign the same experience to all customers in a named community.

The proposed first step is a small, consistent service ledger assembled from records WASCO already needs to operate. Each incident should have a unique identifier, affected supply zone, detection time, likely cause, planned or unplanned status, restoration estimate and verified closure. Where the affected account count is uncertain, the record should say so. Revisions should preserve their history. Customers should be able to report that water has not returned without reopening the entire incident from the beginning.

Closure requires more than restarting a pump or opening a valve. Selected monitoring points should include higher elevations and network ends, supported by customer checks. Continuity, pressure and water quality should be assessed together. A brief return of low-pressure water should not be counted as full restoration merely because it interrupts a period without flow. Health-approved procedures must govern safety warnings and return to normal use.

The public output can remain simple: what happened, which areas were affected, what was done, what remains uncertain, and when the next update is due. NURC should receive the underlying records needed for verification. Its June decision already requires quarterly information and provides for a Service Standards Agreement. Public summaries would extend the usefulness of those arrangements; the decision's submission requirements should not be misrepresented as a duty to publish every underlying return. [5]

Capital works need an interim service plan

Investment	Position established by reviewed records	Evidence required before claiming reliable service
Ninth Water Project, Millet–Vanard raw-water main	CDB announced the 18 September launch of a five-kilometre replacement, with US$22.83m external financing and US$7.16m counterpart funding. [24]	Current works programme, tested commissioning, operating handover and customer outcomes
Bonne Terre–Gros Islet main	WASCO reported construction beginning on 23 August, replacing a 14-inch cast-iron main with a 20-inch ductile-iron main. [25]	Completion, pressure and water-quality tests, coordinated road reinstatement and continuity
Theobalds rehabilitation	WASCO identifies a US$4.233750m loan and US$0.670m technical-assistance grant; full benefits also depend on the pipeline improvements. [26]	Verified procurement and implementation status, operating tests and measured production/service gains
Patience redevelopment	Official pages describe construction and procurement but contain inconsistent costs and completion dates. [27, 28]	One reconciled approved budget and programme, acceptance records and measured outcomes

The combined Ninth Water financing is approximately US$29.99m, calculated from the two rounded totals. This is distinct from expenditure already incurred. The release's expected beneficiary figures should also remain in their original categories rather than be combined into an inferred customer denominator. [24]

A report published on 8 October quotes WASCO's project-management head as placing Theobalds at contractor evaluation, with a November start and December 2027 completion target. These are reported targets, not fulfilled milestones or a substitute for the approved programme. [29] The undated WASCO description of the plant operating at 40% efficiency does not define a denominator sufficient to calculate actual daily production. [26]

Families and public facilities need arrangements for the intervening period. The service plan should identify the areas likely to remain constrained, feasible temporary repairs, alternative-supply capacity and priorities during shortfalls. A

school or clinic backup plan needs demand estimates, safe storage, a named caretaker, inspection and cleaning responsibilities, and a refill route. Purchasing a tank without these arrangements creates an asset whose usefulness can fail when it is most needed.

Each construction contract should also protect the service delivered during works. Shutdown coordination, temporary connections, emergency access, reinstatement and public notice should be planned before excavation. Equipment acceptance should include spare-parts lists, manuals, usable data exports and training. A contractor's handover should leave WASCO able to maintain the asset without indefinite dependence on that contractor.

Utility finance and delivery capacity

Historical accounts do not establish current cash availability

The NURC tariff report uses a 2023 cost base and explicitly describes the 2023 financial statements as unaudited. Its audited asset reference is December 2020. The following entries establish the historical scale of operating needs; they are not 2026 outturns. [11]

Cost recorded for 2023	EC$ million
Direct operating expenses	38.978
Of which: power	13.362
Of which: direct wages	15.430
Of which: direct maintenance	6.991
Administrative expenses	17.967
Of which: administrative wages	9.308

Source: NURC report, Table 4, printed pp28–29. Components shown are not an exhaustive breakdown and must not be added to their totals. [11]

JICA separately reports EC$62.9m billed and EC$69.3m collected in 2023. Collections can include older bills, so a ratio above 100% does not establish universal payment or secure liquidity. Its comparative financial ratios for Saint Lucia use FY2020. [20]

The policy needs a current cash bridge before assigning new unfunded obligations. WASCO Finance should reconcile receipts, restricted money, overdue accounts, supplier commitments, debt service, government support and opening and closing cash. Ministry of Finance should confirm the timing and conditions of public support. NURC should distinguish the regulatory cost of service, which includes depreciation and allowed return, from money available to pay this month's operating bills.

This matters for household protection. A subsidy reimbursed late becomes a financing burden on the utility. An interruption credit without a funded design can compete with the repairs intended to prevent the next interruption. Neither risk justifies abandoning protection; both require the programme to identify who pays, when reimbursement occurs, and how critical expenditure is maintained. Restricted project funds should not be assumed available for unrelated purposes.

Direct capacity toward the causes of failure

An initial operating programme should protect three kinds of work. First, maintain critical assets: scheduled pump servicing, essential chemical stocks, usable isolation valves and readily available repair materials. Second, improve diagnosis: calibrated production and district meters, pressure records and a consistent incident log. Third, complete repairs and verify their consequences. A detected leak creates no benefit until it is repaired; a repaired leak must be assessed alongside pressure and service changes elsewhere.

Non-revenue water needs the same discipline. Physical leakage, meter under-recording and billing problems require different interventions and produce different financial effects. Recovered physical water may improve supply rather than reduce abstraction. Correcting an inaccurate meter may increase revenue without saving water. Average historical power expenditure per gallon is therefore unsuitable as an automatic valuation of every gallon classified as lost. The financial analysis should identify the actual production, pumping, billing and collection changes assumed.

Meter replacement also affects customer trust. WASCO's August notice explains that bills can increase when failed or estimated meters are replaced with actual readings. [30] A household review must distinguish tariff changes from meter changes and consumption. Recording the old and new meter identifiers and readings, explaining the transition, and providing a practical dispute route can prevent a technically useful programme from creating avoidable hardship or confusion.

Energy and watershed work should follow operational evidence. Pump audits should identify where efficiency improvements are feasible without reducing necessary pressure. Backup and solar proposals need maintenance and replacement plans as well as capital funding. Catchment measures should be linked to monitored intake conditions, erosion and treatment interruptions, with WRMA and the relevant land authorities involved. Tree planting or installed generating capacity alone is not proof of more reliable water.

Implementation should begin at a scale the institutions can sustain. CDB's historical Fifth Water evaluation documents installation and measurement gaps; its more recent country evaluation identifies procurement and staff-availability constraints. [31, 32] The practical response is a limited initial programme with named staff, realistic procurement, common reporting and scheduled review. The revised planning envelope of EC$1,083,650 includes twelve months of coordination, two field technicians, and data and customer support, starting with mobilization. Before adoption, reconcile these allowances with existing assignments and funded contracts so that the same staff time or work is not charged twice. An existing employee's time also has an opportunity cost when reassignment displaces another necessary task.

The month-twelve checkpoint should be a first-year implementation review. For every zone, publish the actual baseline, intervention and follow-up dates, measured coverage, rainfall and source conditions, and major concurrent works. At least four weeks of initial observations can establish a working service baseline; it cannot represent the full range of seasonal conditions. Mobilization and staggered repair dates mean the first review may contain less than twelve months of post-intervention service. Where a decision depends on dry-season performance, continue monitoring through the relevant season or a complete twelve-month post-intervention period and fund that extension explicitly. Even a complete seasonal record does not by itself establish causation. Expansion should follow verified service, safety and delivery capability, without claiming immediate nationwide reliability or attributing all improvement to the programme.

6 Turning existing powers into usable protection

The statutory framework already supplies several routes for action. The policy design problem is selecting the right instrument and funding its operation. The 2020 consolidated Water and Sewerage Act incorporates material 2016 amendments and should be read with the enacted NURC Act. Older institutional provisions should not be used to invent a second regulator. Annex A separates existing powers from decisions still needed. [33, 34]

A service agreement should identify whether each promise is a licence condition, a code obligation, a contractual term or a voluntary operational target. NURC Act section 40 provides for gazetted codes with a licence-enforcement link. A

public ceremony or community memorandum is not a substitute for legal effect. The draft schedule in Annex B therefore proposes measurable duties and review procedures, but does not represent its response clocks or benefit amounts as already enacted. [35]

The existing compensation route also matters. Following investigation and a substantiated relevant breach, the law permits a direction addressing foreseeable customer damage. The investigation procedure and surviving legacy cross-references in section 87 should be reconciled with the NURC Act before enforcement templates are issued. A flat automatic credit is a different instrument. Before adopting one, the regulator should settle the trigger, eligible accounts, exclusions, evidence, appeals and interaction with other remedies. A utility-funded credit creates a revenue consequence; a government-funded hardship payment creates a fiscal consequence. Calling both customer protection does not remove the need to identify who pays. [36]

Cabinet's subsidy powers provide a basis for a transparent household support scheme, with NURC advice and periodic review. A direct budget-funded benefit is preferable initially to an uncosted instruction for WASCO to absorb concessions. Cross subsidies remain an option, but require explicit incidence and revenue analysis rather than an assumption that another class can always pay. A tariff customer category is not identical to a household welfare category. [33]

Public reporting should be built as a lawful extract from verifiable underlying records. Individual addresses, medical information, account debt and commercially protected details should not appear in an open dashboard. Nor does aggregation by itself necessarily satisfy all statutory confidentiality provisions. A legally settled publication protocol should specify consent, permitted fields and redaction, while allowing the regulator access to evidence needed for its duties. [37, 38]

The readiness review proposed for December 2026 should answer four questions: which regulatory commitments are operational; what customers experience; whether targeted protection is funded; and whether the utility has a credible current cash plan. Failure should trigger reasoned corrective action, deadlines and consideration of the appropriate formal proceeding. The review must not present the January tariff as automatically conditional on a milestone veto that the published decision does not contain. [5]

7 What comparative evidence can and cannot tell Saint Lucia

Start with the service people receive

Comparative evidence supports treating water access as an experienced service. Majuru, Suhrcke and Hunter's review of 28 empirical studies documents households storing, collecting, purchasing and treating water when supply is unreliable. Coping options differed with resources and circumstances; all included studies used cross-sectional data. The relevant implication is to investigate unequal coping burdens, not to import an average foreign cost into a Saint Lucian household budget. [16]

The proposed household assessment should therefore record the bill alongside interruption-related spending, equipment ownership and time lost. A lower bill can coexist with unmet need when interruptions prevent consumption. Conversely, an installed tank can reduce disruption while creating purchase, cleaning and replacement obligations. Cash needed this month and an annualized equipment cost answer different questions. The appraisal should show both, without adding the same investment twice or assuming that every bottled-water purchase results from an outage.

Water-quality evidence adds another constraint. Kumpel and Nelson's review describes mechanisms through which intermittent operation can compromise microbial quality. It supports monitoring pressure and safety alongside continuity; it does not establish contamination in a particular Saint Lucian zone. A performance target must never encourage keeping nominal supply available at pressure or quality that fails the applicable standard. Local sampling and engineering assessment remain necessary. [39]

Assess affordability against needs and resources

Teodoro's affordability method relates basic-service costs to household resources after essential non-water expenses, with minimum-wage hours as a complementary measure. Vanhille and colleagues show why needs-based expenditure can reveal risks missed by observed spending. Both support moving beyond one average bill divided by one average income. Their foreign empirical settings do not determine Saint Lucia's necessary consumption, household budgets or acceptable policy threshold. [17, 18]

The practical option is a small set of clearly labelled measures. Report the scheduled bill, a transparent consumption requirement, the share of stated income and the burden after other essentials. Where essential expenditure already exhausts income, identify the budget deficit; a negative residual-income ratio would mislead. Compare households of different sizes and lawful shared-account arrangements. These comparisons can inform eligibility and billing rules without declaring that every household above an arbitrary percentage requires the same intervention. Subsidy cost and the utility's lost revenue must then be assessed together.

Use performance contracts with safeguards

The IDB's New Providence case study documents substantial operational improvement during a long performance contract and contrasts it with earlier gains that were not sustained. Its financial appraisal includes a modeled alternative, so it is stronger evidence about mechanisms and observed implementation than about a transferable causal effect. Expensive desalinated supply also changes the value of reducing losses. Saint Lucia should not copy its expected financial return or procurement price. [40]

The useful option is to test a locally costed contract against an adequately resourced in-house programme. Both require credible meters, repair capacity and continuing maintenance. Payment should distinguish physical savings from improved billing and protect pressure, water quality and continuity. Collections of previously unpaid bills are a financial improvement, not recovered physical water. Verification must also address changes in source availability, customer demand and the boundary of the measured zone. A contractor's result should survive an auditable reconciliation, rather than depend on a single headline NRW percentage.

Separate customer guarantees from demonstrated outcomes

Malta's official scheme states restoration commitments of 48 hours for maintenance interruptions and 72 hours for extraordinary events. If those commitments are missed, customers may request alternative supply; failure to honour that request can lead to conditional account credit through the scheme. This establishes a sequence of obligations and remedies. It does not establish a compliance rate, an automatic entitlement in every event or a suitable Saint Lucian deadline. [41]

A local adaptation should begin with feasible event classes and emergency arrangements, followed by a funded remedy and an accessible appeal. Telephone and in-person routes matter where online applications exclude affected customers. The utility must know who records an interruption, when the clock begins and who authorizes alternative supply. Without these details, a nominal guarantee can increase disputes while leaving the underlying service unchanged.

Malta's 2025 utility report separately records NRW of 22.18%, down from 25.43% in 2024, and an Infrastructure Leakage Index of 1.6. These utility-reported operating figures demonstrate differentiated reporting; they do not prove that customer guarantees caused the improvements. Saint Lucia can adopt the discipline of separating total NRW and physical leakage without adopting Malta's supply technology or treating its outcome as a forecast. [42]

Finance delivery and verification together

Barbados's May 2026 World Bank programme links disbursement to independently verified results, including loss reduction, customer service and regulatory reform. This is an approved design, not a completed demonstration of

success. It illustrates how finance can be tied to outcomes, while leaving an important local design question: what funds the enabling work before the first result is verified? [43]

CDB's independent sector evaluation emphasizes operational sustainability and institutional capacity. It also records historical staffing and institutional-support difficulties affecting the NURC capacity-building project. That is not a current staffing audit. It nevertheless reinforces the need to cost the work of regulation rather than assume that new reporting, inspections and disputes can be absorbed without resources. [44]

The resulting policy implication is staged implementation. Establish the baseline and administrative capability; fund essential repairs and protection; introduce obligations that can be verified; then expand on demonstrated performance. None of these comparators justifies an unfunded guarantee, a universal tariff freeze or a national rollout based on a small pilot's early results. Their value lies in identifying workable mechanisms and predictable failure modes that a Saint Lucian design can test explicitly.

8 Compare feasible policy packages

The relevant baseline is implementation of the current tariff decision and already financed projects, including existing reporting duties. It is not a fictional situation in which nothing happens. Additional proposals should be assessed against the improvements that baseline could deliver, and against the possibility that it remains incomplete. This prevents crediting the new programme with all benefits from investments already under way.

Option	Main advantage	Main constraint	Decision
A. Current-policy delivery	Uses approved tariffs, works and existing duties	Household incidence and public verification can remain incomplete	Minimum baseline; complete existing duties regardless of pilot
B. Broad freeze or general bill discount	Fast visible relief for eligible billed customers	Lost cash, untargeted benefit, legal process and replacement funding needed	Do not promise without current revenue and financing evidence
C. Funded service standards plus targeted support	Connects delivery, remedy, equity and maintenance	Requires staff, accurate records and timely subsidy settlement	Recommended staged programme
D. Prioritize capital and loss-control contracts	Can address diagnosed physical bottlenecks	Long lead times; commercial recovery is not physical water recovery	Complement C where appraisal and verification support it
E. Broad household storage support	Can buffer interruptions and protect facilities	Refill, safety, tenant access, maintenance and unequal liquidity	Targeted complement where network recovery is insufficient

These options are not scored with invented precision. The criteria are legal readiness, time to useful service, distributional reach, recurrent affordability, engineering dependence and reversibility. The strongest case for option B would be demonstrated widespread acute hardship and a funded replacement for forgone utility receipts. The strongest case against C would be an administrative scheme whose delivery cost or exclusion rate overwhelms its benefit. Such evidence should change the recommendation.

Option D should distinguish a bounded repair and pressure programme from a major new supply project. Where source shortfall dominates after feasible demand and loss measures, additional storage, source development or carefully appraised desalination may be needed. The decision should compare delivered cost, energy, environmental requirements, drought performance and the workforce needed to operate the asset. This paper does not select a

desalination site, size or contract. That would require hydrological, environmental and engineering analysis unavailable here.

Option E should retain an emergency-access rationale rather than treat ownership of a tank as an endpoint. Assistance needs the base, plumbing, safe separation of non-potable water, cleaning, refill and repair arrangements. A renter or person with a disability may need a shared facility or delivered supply rather than equipment at home. Critical facilities require clear ownership of upkeep. An asset without a working service chain can deepen dependence without reducing risk.

The recommended package is deliberately reversible. Pilot instruments can be amended after evidence, benefits can have review dates, and metering systems can retain portable data formats. Emergency continuity should survive a failed contractor or a delayed grant. No performance payment should reward pressure reduction, under-recorded interruptions or higher collections while safety and usable supply deteriorate.

What this programme adds to current commitments

The relevant comparison is completion of existing duties and financed investments. Establishing a new programme does not itself create an additional service benefit. Before approving funds, assign each proposed activity to an existing obligation, an additional commitment or a funded project dependency. Record its incremental resource requirement and the evidence needed to judge its contribution. The following distinctions should guide that reconciliation. [5]

Function	Current-policy commitment or available authority	Proposed addition and decision required
Tariffs and service agreement	Approved phased tariffs; the final notice provides for a Service Standards Agreement and publication of the completed agreement	Adopt the specified service measures, evidence rules and response targets through a lawful instrument; fund their delivery. This programme does not establish the agreement for the first time or make January rates automatically conditional.
Performance reporting	Required quarterly submissions to NURC	Adopt a lawful, accessible public extract with common zone definitions, interruption records, missing-data reporting and independent checks. Publication is an additional design decision, subject to confidentiality rules.
Household protection	Statutory routes for subsidies and investigated compensation exist	Decide eligibility, benefit amounts, tenant and shared-account access, appeals, appropriation and reimbursement timing. Existing powers do not establish that this proposed benefit is funded or operational. [36, 33]
Repairs and major works	WASCO has operating duties; reviewed investment projects have their own scope and financing	Cost only additional repair, instrumentation and emergency-access work after checking existing budgets and contracts. Attribute commissioned project benefits to those investments rather than automatically to the pilot.
Implementation and review	Existing institutions retain their responsibilities	Assign and fund the proposed twelve-month staff capacity, verification work and first-year review; identify displacement of other work and recurring costs.

The case for the programme is therefore a reasoned delivery proposal supported by documented tariff effects and institutional powers. The study has not estimated the extra service improvement or net economic benefit attributable to this package. Those questions remain for the measured implementation and subsequent evaluation.

9 Finance the promise before announcing it

The study does not estimate how much additional cash the tariff will actually yield. That needs consumption by customer class and block, billed versus collected revenue, changes in demand, arrears recovery, meter replacement and subsidy settlement. The protected domestic minimum also means a headline percentage cannot be multiplied by total domestic revenue. Higher nominal bills may create more receivables without equivalent immediate cash.

A normalized cash scenario illustrates the financing constraint without pretending to be a WASCO forecast. Suppose gross bills equal 100 units, receipts are 90, operating costs 70, debt service 10 and a separately defined maintenance reserve 5. The reference margin is 5. An unfunded 10% general bill reduction, holding the collection rate fixed, lowers receipts to 81 and the margin to -4. That is a financing stress, not a fair test of targeting.

For an equal-budget comparison, give general and targeted payment support the same public allocation of 3 units. In both cases, household receipts are assumed to fall from 90 to 87 and timely public reimbursement supplies 3, keeping total utility receipts at 90 and the margin at 5. Gross billed charges remain 100; the support changes who pays, not the tariff. Targeting changes the distribution of assistance under these assumptions, not utility cash. The comparison excludes administration, errors and behavioural effects. If a fixed public budget must also pay administration, fewer than 3 units remain for direct support. Household and delivery-cost data are needed to compare poverty reach, exclusion and net benefit. The accounting exercise supports explicit financing; it does not establish that targeted support is inherently more efficient.

If collections fall from 90% to 80%, the margin becomes −5. If operating costs rise 15%, it becomes −5.5. Together they produce −15.5. These stress tests show accounting exposure, not likelihood or a calibrated financial risk. They demonstrate why a tariff review needs a cash bridge and why relief financing cannot be left implicit. Under the reference assumptions, collections must be at least 85% to cover the defined outflows. No national policy threshold is inferred from that assumed number.

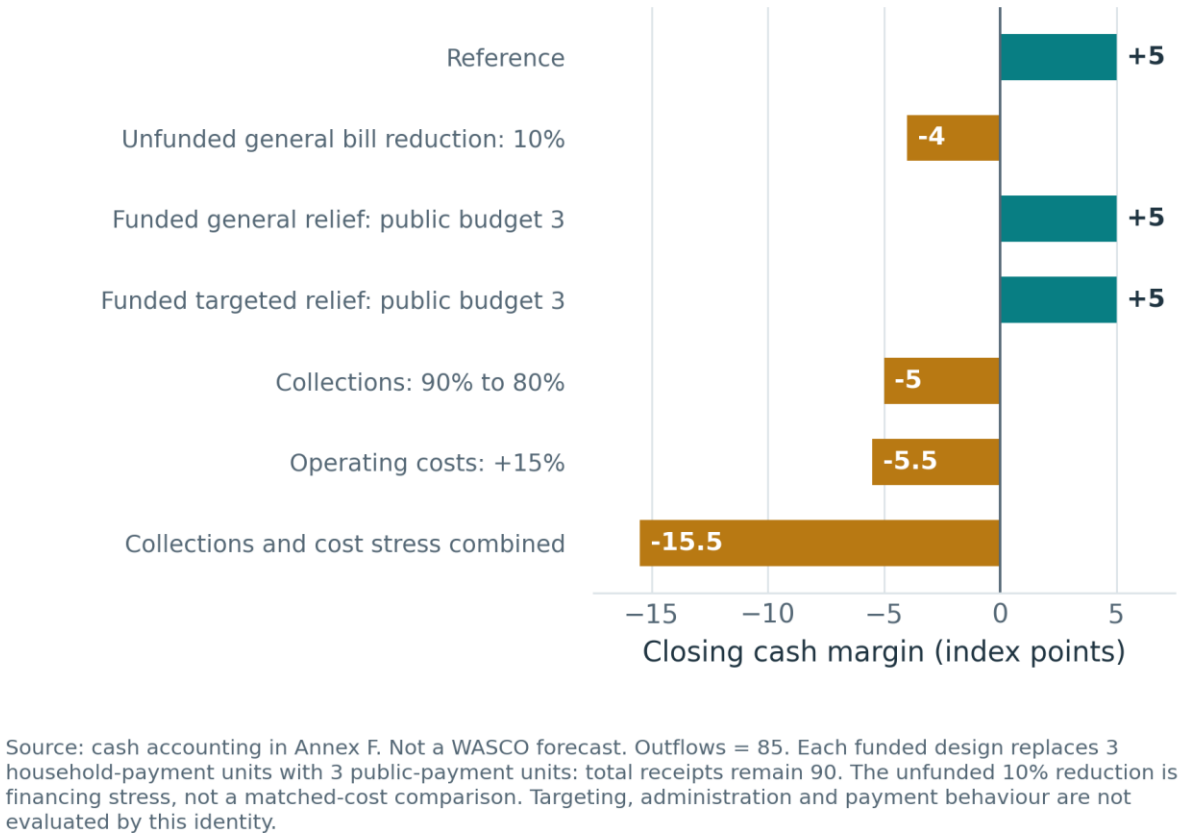

Figure 4. Normalized cash margins under assumed stresses. Source: scenario model; not a WASCO forecast.

A bounded planning envelope

For an up-to-three-zone programme, the revised twelve-month planning envelope is EC$1,083,650. It includes twelve months of dedicated coordination and field/data capacity from the start of mobilization, four verification rounds, bounded instrumentation and repairs, six critical-site backup allowances, emergency access and six months of temporary relief. These are analyst allowances in 2026 prices, not supplier quotations, signed contracts or identified available balances. Extending the earlier nine-month staffing provision to twelve months adds EC$61,500 before contingency, or EC$70,725 including contingency. Staff capacity must be assigned through an explicit combination of hiring, backfill or documented existing time; existing staff time is not costless. Repair and instrument allowances cover incremental materials, equipment or contracted work and must exclude labour already counted in the staff lines. Procurement must reconcile this split before commitment.

Allowance	Quantity × unit EC$	Total EC$
Coordination including mobilization	12 × 6,000	72,000
Two field technicians including mobilization	24 × 5,000	120,000

Allowance	Quantity × unit EC$	Total EC$
Data and customer support including mobilization	12 × 4,500	54,000
Independent quarterly verification	4 × 12,500	50,000
Three-zone instrumentation allowance	3 × 45,000	135,000
Bounded repair allowance	3 × 75,000	225,000
Critical-site backup and upkeep allowance	6 × 15,000	90,000
Community access and grievance channels	1 × 20,000	20,000
Temporary household relief	3000 × 35	105,000
Emergency supply reserve	1 × 60,000	60,000
Technical training and protocols	1 × 25,000	25,000
Contingency excluding transfer envelope	15% × 851,000	127,650
TOTAL		1,083,650

Potential payers and cost assumptions are set out in Annex F. Non-transfer subtotal EC$851,000; transfer EC$105,000; contingency EC$127,650.

The fixed illustrative relief envelope is 500 household equivalents × EC$35 × six months = EC$105,000. Neither 500 nor EC$35 is an estimated eligible population or calibrated adequate benefit. A household allowance should be capped at eligible charges when paid to an account, with a separately authorized access route for a household without one. The programme must publish whether support is fixed, needs-based or tied to a qualifying charge, and count benefits consistently across shared accounts.

Applying a 30% reduction or 40% increase to non-transfer allowances, retaining the relief envelope and the 15% non-transfer contingency, produces EC$790,055 to EC$1,475,110. The range is a procurement sensitivity rather than a statistical interval. Major transmission works, land acquisition and new treatment capacity are excluded. Continued operations after the first year require a fresh recurrent allocation. An equipment grant does not pay future salaries, chemicals or repairs.

Potential funding responsibilities are set out in Annex F and described here; they are not claimed commitments. Utility maintenance and eligible capital allocations should pay operational works; responsible ministries should fund critical facilities and social support; NURC should resource independent verification. Development-partner assistance may support eligible components only after confirmation of programme rules. Restricted pipeline funds must retain their approved purpose unless the required authorization for another use is obtained. No anticipated leakage saving, unapproved grant or carbon revenue is booked as cash available for launch. [5]

Reconcile the earlier SLPA budget

SLPA's September action page already contains an illustrative EC$1,030,400 first-90-day water package, including a larger household-storage component. The present envelope is an alternative implementation design over a different period, not an additional EC$1.084 million request and not evidence that the earlier programme can be delivered more cheaply. The earlier design emphasized repair crew-days, area metering, 100 storage vouchers and eight facilities. This

design reallocates emphasis toward dedicated operating capacity, verification, temporary household relief and six critical sites. [3]

Before adopting either, Finance and WASCO should reconcile each item against existing staff time, funded projects, procurement schedules and actual community needs. The two budgets must not be added together or compared as equal bundles. If individual storage is the priority, this envelope must be explicitly revised; the six facility allowances cannot silently stand in for 100 household installations. Publish one adopted cost table with a change log, payer, appropriation, procurement status and recurring liability for each component.

10 Delivery evidence and decisions after launch

Implementation should begin with records and safe operational actions already within existing responsibilities. Within thirty days of adoption, name accountable officers, establish a current tariff calculator, publish the status of the service agreement, compile the cash bridge and select candidate zones with transparent need and feasibility criteria. Immediate quality incidents and critical-site access should not wait for a baseline exercise. The first thirty days should produce a costed readiness decision, not an announcement of purchases unsupported by appropriation.

By sixty days, consult on and legally settle the service instrument, validate meters and complaint channels, complete at least four weeks of baseline observations, and obtain quotations for the bounded first repair cycle. By ninety days, publish delivery and finance records, identify unresolved dependencies and decide whether the pilot can continue on its funded terms. The period is measured from adoption. A late adoption must not push the January readiness question beyond January: issue an interim assessment with missing items and immediate corrective actions if the full process cannot finish beforehand.

At month twelve, conduct a first-year implementation review. Report the actual number of baseline and post-activation observation months, weather conditions and concurrent investment. A four-week baseline is a starting record, not a representative seasonal baseline, and mobilization means the first-year review may contain fewer than twelve months of intervention data. A full seasonal follow-up would require twelve observed months after activation and a separately approved continuation budget; it is not funded by relabelling the first-year envelope. Report the distribution of interruption burden, continuity and pressure at difficult locations, quality, repair recurrence, complaint outcomes, benefit reach and total recurrent cost. Three purposively selected zones do not support a national causal claim. Where a comparison zone is feasible, use it to improve interpretation, while acknowledging selection and spillovers. Publish missing-data coverage and any changes in measurement, rather than treating absent observations as successful service.

Pre-specify customer interruption-hours as the sum, across non-overlapping affected customer groups, of affected accounts multiplied by hours without qualifying service. Report this alongside the share experiencing prolonged interruptions, because a mean can conceal repeated local failure. Record pressure availability as valid monitored time meeting the locally approved threshold divided by valid monitored time, and report missing time separately. Set the threshold through engineering and health review before evaluating performance. Quality results need the applicable standard, sample count, coverage and incident response; a passing percentage without the sampling denominator is insufficient.

Stress the delivery plan against three separate adversities. Under a prolonged source shortfall, repairs may recover water yet fail to restore continuous service, so prioritize safe access and revise the restoration claim. Under a construction delay, retain temporary supply and maintenance funding beyond the planned handover rather than close it at an announcement date. Under delayed subsidy reimbursement or higher energy costs, protect essential outflows and scale new commitments to available funds. These are explicit decision scenarios, not estimated event probabilities or simulated hydrological forecasts.

Expansion should require credible service improvement without degraded quality or pressure, an affordable recurrent plan, accessible customer protection and independently checked records. Redesign if source scarcity dominates the repair opportunity, if assistance systematically excludes tenants, or if administration absorbs disproportionate

resources. Suspend a specific unsafe method or unsupported payment mechanism while preserving essential access. Abandoning an ineffective intervention need not mean abandoning the service objective.

This research supports a specific next policy for SLPA: a Water Service and Household Protection Programme, with the draft instruments that follow. Further policies can develop safe household and facility storage, source and watershed protection, metering and billing transparency, utility financial disclosure, and performance-based loss control. Each should inherit the same discipline: an identified problem, responsible institution, funded delivery mechanism, measurable customer outcome and a decision rule for revision.

Implementation annexes

These annexes specify a proposed delivery framework. They do not establish new customer entitlements, replace the approved tariff decision, or report results from a completed pilot. Proposed response times must be costed, tested against duty coverage and formally adopted through the appropriate instrument. Existing statutory duties continue to apply throughout preparation and implementation.

Annex A Authority and decisions

The first implementation document should identify the legal effect of every commitment. WASCO operates the service; NURC sets and enforces requirements within its powers. Ministers, Cabinet and Parliament retain their respective policy, regulatory and funding roles. An operational working group can coordinate these responsibilities without transferring statutory decisions to itself. [33, 34]

Decision or action	Existing authority	Proposed implementation and necessary decision
Tariff levels and review	NURC Act s6(1)(g); Water and Sewerage Act ss78–82	Preserve the approved schedule unless lawfully varied. A readiness review informs corrective action; it does not automatically cancel January 2027 rates.
Service standards	NURC Act s6; s40 permits codes issued through Gazette notice, with breach deemed licence breach	Legally settle the Service Standards Agreement and identify requirements to embed in a code, licence or regulation. Publish their effective dates and scope.
Regulations and publication duties	Minister after consultation with NURC: NURC Act s45; Water and Sewerage Act s97	Adopt any additional instrument needed for enforceable standards or public reporting. Obtain legal advice on consistency with primary legislation.
Operations and regulatory returns	WASCO: Water and Sewerage Act s67; subcontracting under s69 retains licensee responsibility	Assign operational owners, crews, records and reporting deadlines. Outsourcing does not transfer WASCO's regulatory responsibility.
Quality-failure notification	Water and Sewerage Act s86 requires immediate notification once the licensee becomes aware of qualifying failure	Integrate health-approved advice into incident procedures. A proposed communications clock must never delay this existing duty.
Direct household assistance	Cabinet Gazette Order under s83; NURC advice and at least annual review	Specify eligible households, benefit, duration, funding, payment schedule and review. Include a practical route for tenants and shared-meter households.
Cross subsidy	Cabinet Gazette Order under s84; NURC advice and review	Model incidence and collection risk before adoption. Do not create an informal tariff concession outside the lawful scheme.
Complaints and corrective action	NURC Act ss38–39; Water and Sewerage Act ss76–77,87	WASCO handles complaints first; unresolved matters can proceed to NURC. Preserve evidence and record decisions and reasons.
Compensation and appeals	Section87 permits compensation directions after substantiated breach; NURC Act s43 supplies the appeal route	Explain the existing case-specific process. A standard automatic credit requires separate legal and financial design. Verify current appeal filing arrangements before issuing customer guidance.

Decision or action	Existing authority	Proposed implementation and necessary decision
Publication and confidentiality	NURC Act ss17,36; Water and Sewerage Act s74	Publish approved service summaries while handling protected records lawfully. Regulatory submission alone does not authorise unrestricted publication.

The current licence, any variations and the status of the Service Standards Agreement should be obtained before the implementation instrument is signed. Missing online documents should be recorded as unavailable to this review, not classified as institutional non-compliance. The June notice requires publication of the completed agreement, but directs quarterly operational returns to NURC. [5, 35, 45, 36, 33, 37, 38, 46, 47, 48]

Section 87(2) of the consolidated Water and Sewerage Act retains investigation references to its repealed sections 37–38. Before issuing enforcement templates, reconcile that procedure with the NURC Act's current investigation, direction and dispute-resolution powers. This drafting issue does not establish that the substantive compensation power is invalid. Exact disconnection notice requirements and applicable licence conditions also remain to be verified before customer guidance is issued. [33, 34, 36, 47]

Annex B Proposed pilot service schedule

The following thresholds are planning proposals for the selected zones. Before adoption, WASCO should demonstrate staffing, dispatch and communication capacity; NURC should confirm definitions, legal effect and monitoring. Routine targets cannot narrow an existing statutory obligation. Days designated as business days exclude published office closures; incident clocks run continuously. A customer should be told which clock applies.

Service event	Proposed threshold	Evidence and qualification
Planned interruption	Publish notice at least 24 hours before the expected start	Record affected boundary, start, expected duration, reason and advice. Emergency work requiring shorter notice is logged with reasons.
Confirmed material unplanned interruption	First public update within 60 minutes of confirmation	Use an incident identifier and affected zone; state uncertainty honestly. Earlier customer reports remain time-stamped, preventing delayed confirmation from hiding response time.
Continuing interruption	Update at least every four hours, and promptly when the restoration estimate materially changes	Record time, operational status, next update and alternative-water arrangements. Maintain a telephone or community route alongside digital channels.
Priority facility or vulnerable-user report	Triage within two hours of receipt	A trained officer assesses actual water stock, safe access and consequences. Medical urgency and water-quality incidents require immediate escalation through the appropriate emergency route.
Prolonged loss of supply	Complete an alternative-water assessment by 12 hours after confirmed loss; activate approved arrangements before safe essential stocks are exhausted	Review delivery needs again at 24 hours. This is a needs-and-dispatch rule, not an uncosted promise of a tanker for every household at a fixed hour.
Failed alternative-water delivery	Contact the recipient and reset the task within two hours of the missed delivery window becoming known	Record the reason, revised window and escalation where essential stocks are inadequate. Count the failure in performance reporting.

Service event	Proposed threshold	Evidence and qualification
Routine WASCO complaint	Acknowledge within one business day; initial assessment within three business days; reasoned outcome within ten business days where practicable	If unresolved, explain why, identify the next action and update at least every five business days. Preserve access to NURC's complaints process.
Apparent restoration	Verify representative high-elevation and end-of-line points before closing the incident	Record pressure and availability against locally approved thresholds. Log remaining pockets as open incidents; a repaired main alone is insufficient.

Alternative supply must meet the requirements for its intended use. Record source, handling, destination, quantity and delivery time. Health authorities should approve advice on drinking-water storage and any temporary non-potable supply. Assistance cannot depend solely on an account holder owning space for a tank. Shared facilities, tenants, people with limited mobility and users outside normal digital channels need workable access arrangements.

An exception record should identify the event, evidence, affected obligation, decision maker and review time. Severe drought, unsafe access or a major infrastructure failure may prevent a particular restoration or delivery commitment. They do not justify silence, inaccurate estimates or abandonment of prioritisation. Public reporting should show performance both before and after exclusions so that exceptions cannot conceal household experience.

The proposed complaint targets concern WASCO. Regulation 16(1) of the General Provisions Regulations treats a Commission response to a customer's written communication as prompt if provided within 48 hours. The writing requirement describes the customer's communication; the provision does not expressly require the reply itself to be written. This Commission response rule is not a WASCO repair or restoration guarantee. Likewise, the Act's existing compensation route concerns investigated and substantiated breaches and foreseeable damages. Pilot monitoring should document potential claims without promising a universal credit or treating every interruption as unlawful. [33, 49, 36, 50]

Annex C Delivery schedule and the January decision window

Day 0 is the date the responsible institutions formally approve the implementation mandate, identify funds and name accountable officers. It is not the research publication date. WASCO should maintain one action register distinguishing operational work, regulatory decisions, funding approvals and dependencies.

The revised first-year planning envelope is EC$1,083,650, including twelve months of dedicated staffing from mobilisation onward. It is an analyst allowance requiring quotations, identified funding and approval. Mobilisation uses staff time and must not depend on an uncosted first quarter. Confirm when funded personnel and equipment will actually be available, and revise the delivery timetable if procurement or recruitment changes those dates. The detailed cost assumptions and calculations appear in the numerical appendix within this report.

Deadline	Required deliverable	Accountable lead
Days 0–30	Confirm licence and agreement status; adopt common definitions; map candidate zones; establish incident logging; verify priority facilities; approve data-sharing and publication procedures	WASCO for operations; NURC for regulatory requirements; relevant ministries for assistance and health protocols
Days 0–30	Identify recurrent funding, alternative-water capacity, essential spares and staff coverage; publish selection reasons and unresolved dependencies	WASCO and responsible funding authorities

Deadline	Required deliverable	Accountable lead
Days 31–60	Complete at least four weeks of usable baseline observation where feasible; validate meters and monitoring points; approve feasible service thresholds; begin authorised repairs and tested assistance	WASCO; NURC confirms the regulatory instrument and verification arrangements
Days 61–90	Report early service outcomes, spending, complaints and exclusions; independently check a sample; correct failures before extending the intervention	WASCO prepares evidence; NURC independently assesses compliance within its remit
By month 12	Publish a first-year implementation review covering service observations, delivery, costs, inclusion, maintenance and subsidy operation; state seasonal gaps and the decision on continuation or extended observation	Responsible institutions within their legal and funding roles

A separate calendar checkpoint is needed before the January 2027 tariff phase. The proposed public readiness review should occur by *15 December 2026*, or earlier if needed to give customers adequate notice before the first affected billing cycle. It should report agreement status, household-assistance readiness, billing-system preparation, incident records, available funds and unresolved service risks. The approved tariff notice schedules the January phase without an automatic performance condition. Any change therefore needs the lawful decision and publication process. [5]

If adoption occurs too late to finish 60 or 90 days of work before this checkpoint, publish an interim review with that limitation. Four weeks can establish an initial operating baseline, but cannot represent a full seasonal cycle. A review twelve months after adoption may include fewer than twelve months of dependable measurement and post-intervention service. Report the actual observation periods and extend monitoring where needed; do not describe the first-year review as a completed seasonal or causal evaluation. Immediate quality notices, complaint handling and essential-service continuity continue while longer measurement work proceeds.

The review should end with named corrective actions and dates. Where assistance cannot yet operate, identify the decision, funds or administrative capacity missing and a lawful interim arrangement. Where work slips because a transmission project is incomplete, distinguish that dependency from a repair crew’s performance. No institution should certify its own delivery merely because it participated in the coordination group.

Annex D Quarterly public reporting template

The public report should be a concise, downloadable record with a stable version number. Publish a proposed first release within 30 calendar days of quarter-end, subject to adoption of this deadline. The regulator’s required return and its due date remain separately specified. Corrections should preserve the original release and explain the change.

Reporting field	Minimum public content
Coverage and methods	Quarter; mapped zones; accounts and monitored points covered; missing observations; definitions and changes
Continuity and pressure	Planned and unplanned interruption-hours; customers affected; repeated interruptions; measured availability at high-elevation and end-of-line points

Reporting field	Minimum public content
Water safety	Approved testing programme, samples completed, applicable compliance findings, incidents and protective notices; health interpretation where necessary
Response and restoration	Notice/update compliance; time to first assessment and restoration; unresolved pockets; results with and without justified exceptions
Alternative water	Requests, priority assessments, deliveries, quantities, missed windows and unresolved essential needs
Complaints and remedies	Received, acknowledged, resolved and outstanding cases; age bands; referrals; corrections and compensation reported only in lawful aggregate form
Works and resources	Repairs completed and recurring failures; expenditure against authorised work; staffing or spare-part constraints; capital dependencies
Assistance and next actions	Applications, approvals, exclusions, appeals and payments where lawful; next-quarter actions, owners and deadlines

Each figure needs a defined denominator. Distinguish a household from an account, an interrupted customer from an incident, and physical water loss from the wider non-revenue-water category. Report both the number and proportion of missed targets. Suppress or combine small cells where locations, medical need or complaint facts could identify a person.

NURC's confidentiality provisions also protect certain licensee information; aggregation by itself does not automatically make publication lawful. Agree a public extract, release permissions and legal basis with the appropriate institutions. WASCO can prepare the customer-facing operational record while submitting the detailed evidence required for independent regulatory scrutiny. A public register should say whether a required return was received and reviewed where disclosure is lawful, without exposing protected contents. [37, 38]

Annex E Pilot selection evaluation and safeguards

Select up to three bounded service zones through documented need and readiness. Consider interruption burden, high-elevation and end-of-line exposure, vulnerable residents, renters and shared meters, essential facilities, available measurements and repair feasibility. Publish the reason for choosing each zone and the reasons other candidates must wait. Geographic breadth is useful, but political boundaries should not substitute for hydraulic service boundaries.

Establish at least four weeks of baseline observations for an initial descriptive comparison of routine pilot work. This short baseline does not establish seasonal representativeness or permit causal attribution. Urgent repairs and protection must not be delayed to preserve an experimental baseline; record their timing and treat the resulting comparison accordingly. Use inlet measurements, representative pressure points, incident logs, repair records and a small, consented household experience sample. Confirm sensor calibration and missing-data rules before reporting changes.

Where practical, follow a comparable zone receiving normal service to help interpret rainfall, source-flow or wider system changes. Selection will not be random, and spillovers or simultaneous capital works may remain. Report before-and-after differences as descriptive evidence unless a stronger causal design is justified. A wetter month, a newly commissioned main or changes in reporting can improve the measured outcome without proving that the pilot caused it.

Set improvement targets after baseline and engineering review, and record them before judging intervention outcomes. Publish and explain any subsequent revision. Expansion should require credible service improvement, safe water, affordable continuing operation and evidence that the gains reach disadvantaged locations. Pause an unsafe method immediately; revise delivery where repeated failures, exclusion or unmanageable operating costs appear. Preserve funding for essential continuity while reviewing the intervention. Household storage, outsourced delivery and short repair campaigns should leave behind a maintained operating service, not a new unfunded obligation. [33, 3, 2]

The numerical appendix that follows supplies the tariff formulas, worked calculations and declared scenario assumptions needed to interpret the findings. The annotated references within this report identify the underlying documentary evidence and its limits. These annexes form part of the same report; no separate replication package is required to understand the proposed programme or reproduce its central calculations.

Annex F Complete inputs and calculations

This appendix makes the numerical argument reproducible from the paper itself. It contains the full tariff inputs, equations, household assumptions, sensitivity ranges, cash scenarios and revised programme budget. A reader can reproduce the results with a calculator or ordinary spreadsheet. No separate ZIP, proprietary dataset or unpublished customer record is required to understand or check the calculations. The executed Python calculations provide an additional check; their numerical content is specified below.

F1 Units scope and rounding

All money is Eastern Caribbean dollars unless explicitly labelled US dollars. Consumption is monthly billed imperial gallons. One imperial gallon is 4.54609 litres. The three tariff phases are the existing schedule before June 2026, the June 2026 schedule and the scheduled January 2027 schedule. The final notice supplies the published rounded rates, which are used directly. Headline percentage increases are not reapplied to generate replacement rates. [5, 6]

For each service, calculate the complete progressive charge at full precision, then round the resulting charge to two decimal places using decimal half-up rounding. Calculate water and applicable sewerage separately, then add their rounded charges. Round displayed percentages only after dividing the stated monetary amounts. Percentage changes in published bills use those rounded bills. This is an explicit analytical convention; WASCO must validate actual invoice rounding order, meter conversions, estimated reads and partial periods before using the model as a production bill calculator.

The model excludes arrears, deposits, reconnection costs, disputed adjustments and any unverified separately prescribed levy. No VAT or Health and Citizen Security Levy increment is applied, consistent with the reviewed zero-rating and levy guidance. A household without a direct account has no direct utility bill in its scenario; it is different from an active account recording no consumption. Sewer calculations apply only to a sewer-eligible account and assume the same chargeable volume as water. [7, 8, 9, 10]

F2 Complete consumption charge schedules

In the following tables, F is the minimum charge covering the first 2,000 gallons, a is the marginal charge per 1,000 gallons between 2,000 and 3,000, and b is the marginal charge per 1,000 gallons above 3,000. For non-domestic minimum-charge classes, c applies per 1,000 gallons above 2,000. Boats have a per-1,000-gallon water rate c across all use, with no minimum shown in the notice. There is no boat sewer schedule in the table. [5]

Water input, EC$	Before June	June 2026	January 2027
Domestic F	24.42	24.42	24.42
Domestic a	12.21	16.77	23.03
Domestic b	24.92	34.23	47.00
Commercial F	66.46	91.28	125.36
Commercial c	33.23	45.64	62.68
Government F	46.52	63.89	87.75
Government c	23.26	31.95	43.87
Hotel F	73.10	128.78	226.87

Water input, EC$	Before June	June 2026	January 2027
Hotel c	36.55	64.39	113.44
Boat c, all use	66.46	117.08	206.26

Sewer input, EC$	Before June	June 2026	January 2027
Domestic F	16.44	22.58	31.01
Domestic a	8.22	11.29	15.50
Domestic b	15.61	21.44	29.44
Commercial F	41.32	56.75	77.94
Commercial c	20.66	28.37	38.97
Government F	25.64	35.21	48.36
Government c	12.82	17.61	24.18
Hotel F	44.04	77.59	136.68
Hotel c	22.02	38.79	68.34

For non-negative billed volume q, the domestic water or sewer formula is:

$B(q) = F + a \times \min(\max(q - 2{,}000, 0), 1{,}000) / 1{,}000 + b \times \max(q - 3{,}000, 0) / 1{,}000$.

For commercial, government and hotel accounts, $B(q) = F + c \times \max(q - 2{,}000, 0) / 1{,}000$. For boat water, $B(q) = c \times q / 1{,}000$. Negative consumption is rejected. Fractional-thousand use is prorated; an old official example at 5,400 gallons yields EC$96.44 using the domestic formula. [14]

At 3,660 gallons, domestic water produces EC$53.08, EC$63.78 and EC$78.47 across the phases. Applicable sewer produces EC$34.96, EC$48.02 and EC$65.94; combined totals are EC$88.04, EC$111.80 and EC$144.41. The January water change from the old schedule is $100 \times (78.47 / 53.08 - 1) = 47.8335\%$; the change from June is 23.0323%. These are schedule comparisons, not observed invoice or household changes.

Figure 1 evaluates domestic water at every 50-gallon increment from zero through 6,000. The tabulated domestic calculations also evaluate 0, 1,000, 1,500, 2,000, 2,500, 3,000, 3,600, 3,660, 4,000, 5,000, 5,500 and 6,000 gallons in each phase. Supplementary class comparisons use 1,000, 2,000, 3,660, 6,000 and 10,000 gallons. These selected volumes carry no probability or population weight.

F3 Shared account calculation

Let n households each use q gallons. The combined charge difference is $\Delta = \text{round}(B(nq)) - n \times \text{round}(B(q))$, applying the cent convention above. Positive Δ means the shared account costs more. These are alternative lawful billing arrangements for households within one permitted property, not permission to resell water to another property or an assertion that a meter split is available.

When each q is no greater than 2,000 and total nq is at least 3,000, the unrounded crossover follows from $B(nq) = nF$:

$q^* = [3{,}000 + 1{,}000 \times ((n - 1)F - a) / b] / n.$

Number of households	Before June, gallons each	June 2026, gallons each	January 2027, gallons each
2	1,744.983949	1,611.744084	1,514.787234
3	1,489.967897	1,312.299153	1,183.049645
4	1,362.459872	1,162.576687	1,017.180851

All nine crossovers satisfy the stated domain. Cent rounding makes the practical boundary approximate. The scenario grid uses n = 2, 3 or 4 and q = 750, 1,000, 1,250, 1,500, 1,800 or 2,000 in each phase; Figure 2 uses n = 2. For two households at 1,800 each, separate accounts total EC$48.84 in every phase. The shared account totals EC$51.58, EC$61.73 and EC$75.65, giving differences of EC$2.74, EC$12.89 and EC$26.81. The January premium is 100 × 26.81 / 48.84 = 54.8935%. Connection costs, billing allocation between residents and any special approved adjustment are excluded.

F4 Complete household assumptions and equations

Every entry in the next two tables is an analyst assumption. The archetypes are stress tests, not observations, estimates of typical families or a representative sample. Volumes, resources, essential needs and coping costs are held fixed across tariff phases. No behavioural response, service gain or avoided coping expense is inferred from a tariff change.

Archetype	Households / people	Monthly gallons	Direct account	Sewer eligible
A. Small household	1 / 2	1,500	Yes	No
B. Four-person household	1 / 4	3,660	Yes	No
C. Larger household	1 / 6	5,500	Yes	No
D. Low use, high coping expense	1 / 3	1,500	Yes	No
E. Shared permitted property	2 / 6	3,600 combined	Yes, shared	No
F. Water and sewer household	1 / 4	3,660	Yes	Yes
G. No direct account	1 / 3	Not specified	No	No

Archetype	Resources R	Reference expenditure X	Non-water essentials E	Cash coping C
A	1,200	1,100	1,000	30
B	2,400	2,250	2,100	60
C	3,000	2,800	2,600	100
D	1,200	1,300	1,100	120

Archetype	Resources R	Reference expenditure X	Non-water essentials E	Cash coping C
E	2,400	2,300	2,100	120
F	2,400	2,250	2,100	60
G	1,200	1,400	1,200	200

All second-table amounts are monthly EC$. R means assumed spendable resources. X is an independently assumed reference spending denominator, not a reconciled budget or forecast of borrowing. For E, every entry describes the two households together. The code's zero volume for G is a computational placeholder; no direct charge is calculated and actual water use is unspecified.

Let U be the rounded water charge plus applicable rounded sewer charge, or zero for G. Total cash water cost T = U + C. Utility share = 100U/R; total share = 100T/R; reference-expenditure share = 100T/X. The pre-water residual is H = R − E, and the post-water residual is H − T. The residual-budget burden is 100T/H only if H is positive. Otherwise report the deficit without division. These calculations exclude unpriced time, health effects and additional ownership charges.

January result	Utility U	Total cash T	Residual after water	T / resources
A	24.42	54.42	145.58	4.535%
B	78.47	138.47	161.53	5.770%
C	164.95	264.95	135.05	8.832%
D	24.42	144.42	−44.42	12.035%
E	75.65	195.65	104.35	8.152%
F	144.41	204.41	95.59	8.517%
G	0.00	200.00	−200.00	16.667%

Figure 3 plots U and C for these January scenarios. For B, T consumes 46.157% of the EC$300 residual before water. For D, that residual is only EC$100, so T produces the stated EC$44.42 deficit. For G, essential non-water needs already use all resources; a residual percentage is undefined.

F5 Sensitivity inputs and supplementary formulas

The affordability grid fixes January domestic water at 3,660 gallons and crosses resources of EC$1,200, 1,800, 2,400, 3,600 and 6,000 with coping expense of EC$0, 30, 60, 120 and 200. For every combination calculate 100 × (78.47 + C) / R. The extrema at R = 1,200 are 6.5392% and 23.2058%; at R = 6,000 they are 1.3078% and 4.6412%. These are conditional sensitivity ranges, not confidence intervals or hardship cut-offs.

The needs grid crosses 2, 4 and 6 persons with 50, 75 and 100 litres per person per day for 30 days. Required gallons q = persons × litres × 30 / 4.54609; calculate the bill using unrounded q, then round the charge. At 100 litres, the three q values are 1,319.8155, 2,639.6310 and 3,959.4465, producing January bills of EC$24.42, EC$39.15 and EC$92.54. No legal entitlement or clinical requirement is inferred from the chosen benchmarks.

The equipment grid crosses capital cost K = EC$1,500, 2,500 or 4,000; life n = 5, 10 or 15 years; and annual discount rate r = 0%, 5% or 10%. The monthly annualized equivalent is K/(12n) when r = 0, and K × r(1+r)^n / [12((1+r)^n − 1)] otherwise. This assumes end-of-year equivalent payments and no residual value. At K = 2,500 and n = 10, the monthly equivalents are EC$20.83 at 0% and EC$26.98 at 5%. These amounts exclude cleaning, repairs and refills. Do not add loan repayment for the same asset to its annualized ownership cost.

The wage benchmark is EC$6.52 per hour in the 2024 Minimum Wage Order. Divide a selected cost by 6.52 to obtain gross-wage hours: EC$78.47 corresponds to 12.0353 hours and EC$138.47 to 21.2377. This is neither disposable income nor a claim about employment. The separate time grid crosses 3, 5 and 10 hours per month with valuation fractions of one-half and one times that wage. Imputed value = hours × fraction × 6.52, spanning EC$9.78–65.20. Record hours first; the imputed value is noncash and is not observed foregone earnings. [19]

F6 Cash accounting and a matched public budget comparison

All quantities below are index points, with reference gross bills equal to 100. None is an observed WASCO ratio or forecast. Let G be gross bills, c the all-source receipt fraction, S public reimbursement, O cash operating outflows, D debt service and M a separately defined maintenance reserve. Household receipts P = Gc − S; total utility receipts C = P + S; closing margin J = C − O − D − M. The reserve is additional to, rather than a second count of, expenditure within O.

In both funded relief scenarios, S = 3 replaces household payments within unchanged total receipts. Gross bills remain 100, households pay 87, government pays 3 and the utility receives 90. General relief distributes support across billed accounts; targeted relief directs it to selected billed accounts. Both give the same utility margin because funding and total payment are deliberately held equal. The exercise does not establish how the benefit should be allocated, quantify recipients' welfare, or assume lower administrative cost for either approach. Support outside utility accounts requires a separate delivery calculation.

Scenario	Gross bills / c	Household / public receipts	O + D + M	Closing margin
Reference	100 / 90%	90 / 0	70 + 10 + 5	5
Unfunded 10% general bill reduction	90 / 90%	81 / 0	70 + 10 + 5	−4
Funded general relief	100 / 90%	87 / 3	70 + 10 + 5	5
Funded targeted relief	100 / 90%	87 / 3	70 + 10 + 5	5
Collection stress	100 / 80%	80 / 0	70 + 10 + 5	−5
Operating-cost stress	100 / 90%	90 / 0	80.5 + 10 + 5	−5.5
Combined stress	100 / 80%	80 / 0	80.5 + 10 + 5	−15.5

Figure 4 displays these seven margins. The unfunded reduction is a financing stress, not an equal-public-budget test of targeting. In the funded rows, public reimbursement is counted once. Their result requires timely settlement, no additional payment shortfall and no additional delivery cost. Differences in targeting errors, administration, arrears, demand response or reimbursement delays require evidence outside this accounting identity. With reference outflows of 85 and gross bills of 100, the illustrative break-even receipt fraction is 85%; this is not a regulatory threshold.

F7 Revised full year programme envelope

The revised budget funds twelve months of coordination, two field technicians and data/customer support from the beginning of mobilization. The monthly figures are all-in planning allowances for remuneration and associated employer costs, subject to actual employment or procurement terms. The revision removes the earlier unfunded first-quarter staffing assumption. It does not convert other allowances into quotations or establish that funds have been appropriated.

Planning line	Quantity × unit EC$	Total EC$
Coordination, including mobilization	12 months × 6,000	72,000
Two field technicians, including mobilization	24 staff-months × 5,000	120,000
Data and customer support, including mobilization	12 months × 4,500	54,000
Independent quarterly verification	4 rounds × 12,500	50,000
Instrumentation	3 zones × 45,000	135,000
Bounded repairs	3 zones × 75,000	225,000
Critical-site backup and upkeep	6 sites × 15,000	90,000
Community access and grievance channels	1 package × 20,000	20,000
Temporary relief	500 households × 6 months × 35	105,000
Emergency supply reserve	1 reserve × 60,000	60,000
Training and protocols	1 package × 25,000	25,000
Contingency on non-transfer allowances	15% × 851,000	127,650
TOTAL		1,083,650

The base subtotal is EC$956,000, comprising EC$851,000 of non-transfer allowances and EC$105,000 of relief. Adding the 15% non-transfer contingency gives EC$1,083,650. Full-year staffing adds EC$61,500 before contingency and EC$70,725 including contingency relative to the earlier EC$1,012,925 research-draft envelope. This correction is separate from the older September SLPA EC$1,030,400 proposal, which has a different scope and period.

The sensitivity formula is total(k) = 105,000 + 1.15 × k × 851,000, where k = 0.7 or 1.4. The resulting range is EC$790,055–1,475,110. It is a procurement sensitivity, not a probabilistic interval. Neither 500 recipients nor EC$35 is calibrated from observed need. Account credits must be capped at eligible charges; other access assistance requires its own lawful route. This relief envelope is a spending ceiling.

Funding responsibilities are proposals: WASCO or authorized operating support for staff and repairs; eligible capital allocations for instrumentation; NURC resources for verification; responsible ministries for facilities, emergency continuity and household assistance; and authorized technical assistance for training. Each must become a confirmed funding and procurement decision. Avoid double-counting any cost already financed in an existing project. Major transmission works, new treatment capacity and land acquisition are excluded; renewed operating costs after the first year require a recurrent allocation.

F8 Verification and remaining uncertainty

The executed analysis checks the following independently specified bill values: old 5,400-gallon domestic water EC$96.44; old/June/January 3,660-gallon water EC$53.08/63.78/78.47; January active-account zero-use and 2,000-gallon water both EC$24.42; January water at 3,000 and 4,000 gallons EC$47.45 and EC$94.45; January sewer at 2,000 and 3,000 gallons EC$31.01 and EC$46.51; January commercial water at 3,000 gallons EC$188.04; January boat water at 1,000 gallons EC$206.26; and January shared-account water at 3,600 gallons EC$75.65. These thirteen checks combine published historical examples with formula and boundary checks; they are not thirteen observed invoices.

Four additional revision checks verify the EC$1,083,650 full-year envelope, a margin of 5 for each funded design, and zero difference in their 3-unit public budgets. All seventeen checks pass. Recalculation leaves the original tariff, household and supplementary sensitivity results unchanged. Rates were independently compared with the final notice.

Further arithmetic checks cannot replace missing evidence. Actual invoices must settle operational billing conventions. Household and account records must establish prevalence and the reach of assistance. Engineering measurements must establish service effects. Current audited financial records and a cash bridge must establish financing capacity. The calculations here establish conditional results and transparent planning choices.

References

References correspond to numbered citations. Linked titles open the source URLs. Records were accessed during 8-9 October 2026; the complaint-response provision and section 87 were rechecked on 11 October for the corrections. The substantive evidence cutoff remains 8 October. Pinpoints and source-access limitations appear below. Multiple citations to the same URL are consolidated into one entry.

[1] Central Statistical Office of Saint Lucia. Undated, accessed 9 October 2026. SLC-HBS Survey and results portal. Survey description; results link leads to SLC 2016 portal. Limit: No usable 2026 microdata retrieved; planned completion is not release evidence

[2] Saint Lucia Policy Analysis. 2026-08-27. A national plan for reliable water, from watershed to tap. Executive summary; Comparable practice; tariff-and-service compact ; National Water Reliability Compact; delivery sequence; owner roles. Access: Full webpage. Limit: Self-prior-work/novelty reference; do not use as independent validation of its external empirical claims. Prior policy proposal; automatic correction language needs clarification on tariff authority.

[3] Kevin L. Michel. 2026-09-14. Reliable water and safer coasts. Water section; illustrative budget; evidence limits; implementation schedule. Access: Full webpage. Limit: Prior self-authored policy proposal; not adopted government policy or independently quoted cost. Prior policy proposal, not independent evidence of institutional action.

[4] Saint Lucia Policy Analysis. Undated. From Rain to Tap: How Saint Lucia's Water System Works. Heading and evidence cutoff; water-chain explanation; historical and current evidence distinction. Access: Full webpage. Limit: Conceptual public explainer; not live hydraulic model or current zone audit.

[5] NURC. 2026-06. Water and Sewerage Triennial Tariff Review: Final Determination Notice. pp. 1,6–7; pp. 1,5–10. Limit: Filename records edited16 June 2026; precise release date not established. Commitment does not prove completion. No automatic service-contingent January cancellation stated.

[6] WASCO. Undated. Understanding Your Meter. Meter units and calculating bill sections

[7] WASCO. Undated. New Connection Requirements For Water

[8] Attorney General Chambers, Revised Laws 2023. 2023. Value Added Tax Act Schedule 1. paragraph 2(2)(e),(i)

[9] SLASPA / Government of Saint Lucia. 2023-10-11. Implementation of the Health and Citizen Security Levy. Exempt Services

[10] Attorney General Chambers, Revised Laws 2023. 2023. Water and Sewerage Act section 85. section 85(1)–(2)

[11] NURC/ECONTEC. 2026-04. Final Determination Report with annexes. Table 39 PDF p. 72, printed p. 68; affordability tables follow; printed pp. 20–21 (audited 2020/unaudited 2023 asset base), pp. 28–29 Table 4 (2023 expense base), p. 18 (historical NRW), p. 26 (bad-debt assumption). Limit: 2023 statements unaudited; report is not current outturn or current cash-flow statement. Cost-of-service gap includes noncash depreciation and allowed return. Published direct expense total differs by EC$1 from summing printed components.

[12] WASCO. Undated. Water and Sewerage Rates. Rate tables

[13] WASCO. Undated. Understanding Your Bill. Page displayed No Data Found during the review

[14] WASCO / Government of Saint Lucia. 2021-05-19. WASCO again addresses concern over high bill balances

[15] WASCO. 2026-08-06. WASCO continues islandwide meter replacement program

[16] Batsirai Majuru; Marc Suhrcke; Paul R. Hunter. 2016. How Do Households Respond to Unreliable Water Supplies? A Systematic Review. International Journal of Environmental Research and Public Health 13(12):1222. DOI: 10.3390/ijerph13121222. Abstract; sections 2.1, 3; Table 2. Access: Full text. Limit: Heterogeneous observational evidence, largely urban; no Saint Lucia effect or cost estimate.

[17] Manuel P. Teodoro. 2018. Measuring Household Affordability for Water and Sewer Utilities. Journal AWWA 110(1):13-24. DOI: 10.5942/jawwa.2018.110.0002. Sections The Conventional Approach and Why It Is Wrong; A Better Way and methods thereafter. Access: Full text. Limit: US empirical illustration; local norms required; the linked corrigendum corrects numerical illustration; no US thresholds imported. Related correction: Corrigendum, Journal AWWA 110(6):93-95 (2018), DOI: 10.1002/awwa.1107. Full correction text reviewed; its US numerical illustration is not imported here.

[18] Josefine Vanhille; Tim Goedemé; Tess Penne; Leen Van Thielen; Bérénice Storms. 2018. Measuring water affordability in developed economies. The added value of a needs-based approach. Journal of Environmental Management 217:611-620. DOI: 10.1016/j.jenvman.2018.03.106. Abstract. Access: Abstract. Limit: Belgian consumption needs and reference budgets not transferable as Saint Lucia values; no detailed numerical findings used.

[19] Government of Saint Lucia. 2024-09-30. Labour (Minimum Wage) Order, SI 134 of 2024. Order section 2, PDF p. 3

[20] Japan International Cooperation Agency; NJS Co; Ltd. 2024-06. Data Collection Survey for Water Security in the Eastern Caribbean Region: Final Report. p. 2-33 Table 2-20 (FY 2020 finances); p. 3-20 (staff); p. 3-29 (coverage/continuity); p. 3-37 (2023 billing and collections); p. 3-38 (customer management). Limit: Different metrics have different observation years. Baseline not current 2026 audit. Coverage/customer count differs from NURC; do not pool without definitions. Collections may recover old arrears.

[21] WASCO. 2026-09-14. Reduced Water Supply on Southern Networks. Limit: Notice confirms stress/response, not realised outage durations or all affected accounts.

[22] WASCO. 2026-09-13. Valving Schedule in Effect for Soufriere Network. Limit: Approximate schedule subject to network/weather changes. Planned valve operation not measured tap continuity. Preserve distinction between valving-off heading and supply receipt.

[23] WASCO. 2026-08-16. WASCO Statement on Delcer Network Supply Conditions. Limit: Repair/restoration to former plant capacity is distinct from source recovery or continuous household supply. Alleged valve tampering attributed to WASCO, not independently adjudicated.

[24] Caribbean Development Bank. 2026-09-18. CDB-Supported Water Project to Strengthen Climate Resilience in Saint Lucia. Limit: Launch, expected benefits and finance, not completed service. US$29.99m is arithmetic sum of rounded external/counterpart totals. Individual external components rounded to a slightly different sum. Customers/accounts denominators ambiguous.

[25] Government of Saint Lucia / WASCO. 2026-08-25. Northern Pipeline Upgrade: Works Commence On 20-inch Main Between Bonne Terre Gap To Gros Islet Town Gap. Limit: Construction commencement; no commissioning result.

[26] WASCO. Undated. WASCO Launches Critical Water Supply Upgrades. Limit: Undated page, based on finance-signing stage. The 40% efficiency denominator is undefined; do not convert mechanically into production. Plant and both pipelines form dependencies.

[27] WASCO. Undated. Patience Water Supply Redevelopment Project. Limit: Internally inconsistent dates: old March 2025, outcome Dec 2026 and TBC. Cost USD1,461,996 outdated relative supplemental finance/revised project. Claims 22.8 km raw mains and 150,000 gallons = 568 m^3 (US gallon conversion) need design/unit confirmation. Outcome targets not observations.

[28] WASCO. Undated. WASCO Advances Patience Water System Upgrades with Continued Community Engagement. Limit: Undated construction/procurement progress; not commissioning. Additional finance rounded to USD700,000 differs from government's precise supplemental loan announcement.

[29] Keryn Nelson. 2026-10-08. WASCO moves ahead with project to reduce water losses from Millet to Cap Estate. Limit: Corroborative current reporting, not primary signed schedule or independently measured plant performance. Do not treat dates as fulfilled.

[30] Government of Saint Lucia / WASCO. 2026-08-13. WASCO Continues Island Wide Meter Replacement Program. Limit: No programme totals or evaluated billing accuracy supplied.

[31] Caribbean Development Bank. Undated. Fifth Water Supply Project, Saint Lucia: Project Completion Validation, Executive Summary and Management Response. printed pp. 3–4 (PDF pp. 6–7): bulk meters not installed,7,121 customer meters/59% requirement, UFW result not achieved. Limit: Historical implementation evidence for 2001-approved project; not current WASCO solvency or staffing finding.

[32] Caribbean Development Bank, Office of Independent Evaluation. 2026. Evaluation of Saint Lucia Country Engagement Strategy 2020–23, Volume 1 Main Report and Management Response. printed pp. 33,39: implementation bandwidth, procurement, technical staff and contractor constraints; p. 41 disbursements through Dec 2024. Limit: Country portfolio evaluation, not a current engineering audit of WASCO. Staff availability rather than necessarily individual expertise was central.

[33] Government of Saint Lucia / Law Revision Commissioner; hosted by WASCO. 2020-12-31. Water and Sewerage Act, Chapter 9.03, Revised Edition showing law as at 31 December 2020. ss 2, 3–4, 67, 69–78, 83–89, 96–97; PDF pp. 20–30; General Provisions Regulations reg 16 PDF pp. 38–39; ss 83–84; PDF p. 26; s 77(2)–(3); reg 16(1),(4)–(7), PDF pp. 38–39; reg 10 PDF p. 37. Limit: Consolidation date 2020, bounded later-index check; precise current service licence not obtained. Current eligibility is not confined to the older express low-income definition; proposal needs appropriation/finance mechanism. Exact notice and licence conditions not obtained. No blanket

household hardship exemption established. Legacy Board wording survives consolidation; do not reclassify 48 hours as utility repair guarantee.

[34] Parliament of Saint Lucia. 2016. National Utilities Regulatory Commission Act, No. 3 of 2016. ss 6, 8, 17, 36, 38–40, 43, 45, 47–48 and Schedules 4–5; printed pp. 40–45 / PDF pp. 24–29 visually checked. Limit: Scanned PDF: key pp. 24–29 visually checked; AG section pages used for searchable parallel text.

[35] Attorney General Chambers, Saint Lucia. 2023 revised online edition. National Utilities Regulatory Commission Act: Section 40, Codes of practice. s 40(1)–(3). Limit: Cross-checked visually against enacted 2016 PDF p. 28 / printed p. 44.

[36] Attorney General Chambers, Saint Lucia. 2023 revised online edition. Water and Sewerage Act: Section 87, Breaches by service licensee. s 87(1)(a)–(f), (2)(a)(i)–(ii). Limit: Not a universal automatic credit; remaining legacy procedure cross-references need legal reconciliation.

[37] Attorney General Chambers, Saint Lucia. 2023 revised online edition. National Utilities Regulatory Commission Act: Section 36, Public access to records. s 36(1)–(6). Limit: Do not equate submitted regulatory records with unrestricted public data.

[38] Attorney General Chambers, Saint Lucia. 2023 revised online edition. National Utilities Regulatory Commission Act: Section 17, Oath of secrecy and confidentiality. s 17(2)–(3). Limit: Statistical exception requires inability to identify licensee or customer; do not assume aggregate WASCO statistics automatically qualify.

[39] Emily Kumpel; Kara L. Nelson. 2016. Intermittent Water Supply: Prevalence, Practice, and Microbial Water Quality. Environmental Science & Technology 50(2):542-553. DOI: 10.1021/acs.est.5b03973. Abstract and review scope, pp. 542-553. Access: Abstract and indexed journal record; full article not used for detailed claims. Limit: Mechanistic and comparative review; does not establish contamination at Saint Lucia sites.

[40] Alan Wyatt. 2018. Case Study: Performance-based Contract for NRW Reduction and Control - New Providence, Bahamas. Inter-American Development Bank Technical Note; cataloging page IDB-TN-1138 (cover also displays IDB-TN-813). Printed pp. 8-10,16-18,39-40,60-62,72-75,78-80; PDF indices 10-12,18-20,41-42,62-64,74-77,80-82. Access: Full text. Limit: Before/after case and modeled counterfactual, not random assignment; high avoided desalination costs. Do not extract achieved outcomes from target Table 6-2.

[41] Government of Malta / Servizz.gov. 2026-06-17. Guaranteed Service Standards Scheme. Overview, What you'll get, Eligibility, How to apply. Access: Full webpage. Limit: Rule description, not compliance rate or causal evaluation; detailed terms and conditions still govern.

[42] Water Services Corporation, Malta. 2026. Water Services Corporation Annual Report 2025. Printed pp. 61-62; PDF indices 60-61, Non-Revenue Water and ILI discussion. Access: Full text. Limit: Utility-reported operational metrics; not an evaluation attributing outcomes to customer guarantees; NRW, billing efficiency and physical leakage are distinct.

[43] World Bank. 2026-05-20. Barbados to Strengthen Water Security with World Bank Support. Programme-for-Results description. Access: Full webpage. Limit: Approval/design announcement, not completed project outcome or Saint Lucia financing commitment.

[44] Caribbean Development Bank, Office of Independent Evaluation. 2024-08-01. Evaluation Report: The Caribbean Development Bank's Work in the Water Sector with Management Response (Appendix 1). Printed pp. 22,29-35,45-49; PDF indices 33,40-46,56-60; cover date August 2024. Access: Full text. Limit: Historical portfolio evaluation, not a 2026 NURC staffing audit. Web catalogue indexing date differs from report date: cite 2024.

[45] Attorney General Chambers, Saint Lucia. 2023 revised online edition. National Utilities Regulatory Commission Act: Section 45, Regulations. s 45(1), (2)(b),(c),(g),(p). Limit: Proposed instruments still require lawful adoption.

[46] Attorney General Chambers, Saint Lucia. 2023 revised online edition. National Utilities Regulatory Commission Act: Section 43, Appeals. s 43(1)–(4). Limit: Operational filing arrangements/membership not confirmed. SI 121/2023 listed in AG portal.

[47] Attorney General Chambers, Saint Lucia. 2023 revised online edition. National Utilities Regulatory Commission Act: Section 39, Dispute resolution. s 39(1),(5)(a),(6). Limit: Does not establish every requested remedy or automatic moratorium.

[48] Attorney General Chambers, Saint Lucia. 2023 revised online edition. National Utilities Regulatory Commission Act: Section 6, Functions and powers. s 6(1)(e),(g)–(k), (3). Limit: Powers differ from proof of active enforcement capacity.

[49] Attorney General Chambers, Saint Lucia. 2023 revised online edition. Water and Sewerage Act: Section 76, Rights of customer. s 76(a)–(d). Limit: Statutory rights should not be represented as specific numeric clocks absent instrument.

[50] National Utilities Regulatory Commission. undated; checked 2026-10-08. NURC complaints procedure / homepage guidance. Complaints Procedure. Limit: No specific WASCO restoration deadline implied.