

Vulnerability and Optimization of Family Planning Financing in Togo, 2026-2030: A National Budget Analysis

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ABSTRACT

Background: Togo is approaching the end of its 2023-2026 Costed Implementation Plan for Family Planning amid less predictable external financing. Decision-makers need to identify both the aggregate gap and the programme functions most exposed to disruption.

Objective: To quantify the 2026-2030 financing gap, assess external-financing vulnerability, examine alignment with evidence-informed high-impact practices, and model internal resource optimization.

Methods: We conducted a national documentary and budget analysis using the costed plan, FP2030 indicators, expenditure data, partner commitments, commodity forecasts, and OECD data. The six-pillar programmatic envelope was kept separate from contraceptive commodity requirements. A composite index combined normalized external-financing volume, dependence, and donor concentration; alternative weights tested rank sensitivity. Equity was assessed by residence, age, and region. Deterministic stress tests examined financing assumptions and partial realization of optimization opportunities.

Results: The programmatic requirement was FCFA 9.99 billion, with FCFA 3.23 billion (32.4%; USD 5.38 million at FCFA 600/USD) unfunded; this excluded the separate USD 31.58 million commodity requirement, of which 17.4% was financed. Service delivery and demand generation represented 70.7% of the programmatic gap. The same four pillars occupied the highest-risk positions under all weighting schemes. Rural mCPR was 9.7 percentage points below the urban level, and the regional range was 11.0 points. The full optimization ceiling was 59.9%, whereas 25-75% realization covered 15.0-44.9%. At 80% realization of partner commitments, the gap rose to 40.3% of need.

Conclusion: Togo faces both a resource deficit and an allocation problem. The 59.9% estimate is a modelling ceiling, not a bankable saving. Action requires protected commodity financing, explicit budgets for integrated services, equity-sensitive allocation, verification of efficiencies, and tracking from commitments to implementation.

Keywords: family planning; contraception; health financing; resource mobilisation; donor transition; high-impact practices; vulnerability index; sensitivity analysis; Togo.

INTRODUCTION

Family planning is both a reproductive-rights intervention and a core component of maternal and child health. Access to a suitable contraceptive method allows women and couples to choose whether and when to have children, while reducing unintended pregnancy and preventable pregnancy-related risk [1-4]. These benefits are well established, but they are not distributed evenly. Adolescents, rural populations, and people facing

financial, geographic, or sociocultural barriers continue to experience lower access and greater unmet need [1,5].

Togo illustrates this mixed picture of progress and unfinished work. Modern contraceptive prevalence increased from 16.1% in 2012 to 23.2% in 2022, yet the earlier national ambition of 35.5% was not achieved. The current PANB/FP 2023-2026 set a target of 29.5% by 2026 [6,7]. National averages also conceal important territorial differences. Rural women report lower modern-method use and higher unmet need than urban women, and coverage remains comparatively low in Savanes and Maritime. Financing decisions therefore have an equity dimension: allocating the same way everywhere may preserve, rather than reduce, existing gaps.

At the same time, the financing environment is changing. Several functions that sustain contraceptive use - commodities, outreach, demand creation, community activities, and services for adolescents and young people - still rely to varying degrees on external support. This creates a management risk that is easily hidden in an aggregate budget. A plan may appear partly financed while a specific service platform remains highly dependent on one partner or while a commodity line is funded for only the first year. In such circumstances, a delayed disbursement can translate quickly into fewer outreach sessions, interrupted method availability, or postponed supervision.

The policy response cannot be limited to mobilizing additional money. Evidence supports approaches such as immediate postpartum family planning, integration with immunization and HIV services, adolescent-responsive care, and task sharing [8-12]. Togo itself has longstanding operational evidence that a simple family planning referral linked to childhood immunization can increase family planning uptake without reducing vaccination use [13]. The more difficult question is whether current budgets protect these practices and whether existing resources can be used more efficiently. We therefore examined the 2026-2030 programmatic gap, contraceptive commodity requirements, exposure to external financing, alignment with high-impact practices, and realistic areas for resource optimization.

METHODS

Study design, setting and period

We used an applied national case-study design combining documentary review with descriptive budget analysis. The unit of analysis was the family planning programme in Togo, and the analytical horizon was 2026-2030. The purpose was decision support rather than causal inference: we sought to show where financing pressure is likely to occur and what managers could reasonably prioritize. Intermediate results were discussed during a national validation workshop in Lomé on 8-9 July 2026, which provided an opportunity to check the interpretation of programme categories and financing assumptions.

Data sources and analytical scope

The analysis drew on the PANB/FP 2023-2026, FP2030 indicators, national demographic and programme information, health-expenditure series, partner financing maps, contraceptive quantification and supply forecasts, and matrices linking budgeted activities to evidence-informed family planning practices.

OECD Creditor Reporting System data were used to describe development-partner flows and trends [21]. Source periods were retained explicitly: historical budget structure and mapped donor flows described the available 2023-2026 evidence, whereas the forward financing model covered 2026-2030.

We kept two envelopes separate because their costing boundaries differ: (1) the six-pillar programmatic budget and (2) public-sector contraceptive commodity requirements. They were neither summed nor presented as parts of the same denominator because some logistics and product-support activities may overlap.

Operational definitions

Programmatic requirement denotes the projected cost of the six service-delivery and system-support pillars after excluding the separate national forecast of contraceptive method quantities. Product security refers to forecasting, procurement support, inventory management, distribution, and supply-chain governance; products and consumables denotes the historical PANB/FP budget category; commodity requirement refers to the method-specific public-sector procurement forecast.

A confirmed commitment was a documented amount, financing period, and purpose attributable to a named partner. It was not assumed to be cash available. A disbursement was treated as available financing only when release or expenditure evidence was present. High-impact practices were defined according to the HIP Partnership categories of service delivery, enabling environment, social and behaviour change, and HIP enhancements [22].

Data reconciliation, commitment status and currency treatment

Before analysis, we reconciled donor names, financing periods, budget categories, activity assignments, and whether each amount represented a commitment, a documented release, or an expenditure. When a contribution appeared in more than one dataset, donor, purpose, period, and financing instrument were checked before one observation was retained. Where a narrative source conflicted with a validated summary table, the value internally consistent with the table totals was used. Complete disbursement data were not available for all partners; consequently, the base-case financing estimate uses confirmed commitments and may overstate resources actually available for implementation. FCFA-to-USD conversions used a fixed analytical rate of FCFA 600 per USD. Exchange-rate stress tests used FCFA 540 and 660 per USD (plus or minus 10%); these are transparency scenarios rather than forecasts.

Financing-gap and commodity analyses

For each programmatic pillar p , the financing gap was calculated as $G_p = N_p - P_p - D_p$, where N_p is projected need, P_p is confirmed partner financing, and D_p is identified domestic or other financing. The percentage gap was G_p/N_p . The FCFA 9.99 billion requirement, FCFA 3.23 billion gap, and its USD 5.38 million equivalent therefore describe one programmatic envelope; USD 5.38 million is simply the FCFA gap converted at 600 FCFA/USD. The USD 31.58 million commodity requirement is a distinct method-quantity forecast and was analysed by year because procurement timing matters. Regional financing could not be allocated reliably from the available budget data and was therefore interpreted alongside mCPR and unmet-need indicators rather than converted into a monetary regional ranking.

External-financing vulnerability index

For each pillar p , vulnerability combined three bounded components. $C1p$ measured relative external-financing volume: the mapped external amount was min-max normalized across the six pillars, $C1p = (E_p - E_{min}) / (E_{max} - E_{min})$. $C2p$ measured external dependence, $C2p = E_p / (E_p + D_p)$, using identified external (E_p) and domestic/other (D_p) financing. $C3p$ measured donor concentration. Donor shares sdp within a pillar were first summarized by the Herfindahl-Hirschman index, $HHIp = \sum_d (sdp^2)$, then adjusted for the number of mapped donors np : $C3p = (HHIp - 1/np) / (1 - 1/np)$ for np greater than 1; $C3p$ was set to 1 for a single donor and 0 when no external amount was mapped. The primary score was $V_p = (C1p + C2p + C3p) / 3$. Scores were classified as critical (0.75 or higher), high (0.50-0.749), moderate (0.25-0.499), or low (below 0.25). The index is a transparent prioritization device, not a validated predictor of service interruption.

Weighting rationale and sensitivity analysis

Equal weighting was selected a priori because there is no empirical evidence that financing volume, dependence, or concentration has a universally larger effect in Togo, and equal weights avoid embedding an untested preference in the primary result. Robustness was assessed under three alternatives: volume-led

weights (0.50, 0.25, 0.25), dependence-led weights (0.25, 0.50, 0.25), and concentration-led weights (0.25, 0.25, 0.50). We compared scores, categories, and rank order rather than treating small decimal differences as substantively meaningful.

Selection and prioritization of evidence-informed practices

Sixteen practices or system enablers were retained when they met three criteria: recognition in an official HIP or WHO source, relevance to Togo's programme strategy, and the possibility of linking the practice to one or more costed activities. The set comprised task sharing; community health workers; immediate postpartum and postabortion family planning; integration with immunization and HIV services; adolescent-responsive services; pharmacies/private-sector engagement; national social and behaviour change strategy; mass media; digital communication; community engagement; contraceptive procurement; policy and advocacy; sustainable financing; and monitoring and evaluation systems [8-13,22].

Each was classified as funded, underfunded, or without an identifiable allocation. The screening index was $I_j = 0.40G_j + 0.35U_j + 0.25R_j$. G_j was the uncovered share of the mapped requirement; U_j was relative underinvestment after normalizing the practice's budget share to the largest observed share, with $U_j = 1$ when no line was identifiable; and R_j was an ordinal redirectability score (0, 0.5, or 1) reflecting whether no, partial, or substantial internal reassignment appeared possible after reviewing activity purpose and restrictions.

The weights deliberately gave greatest importance to uncovered need, followed by budget misalignment and then flexibility. A score of 0.50 was used as a review signal, not a validated threshold or effectiveness ranking.

Optimization scenarios and feasibility constraints

Scenario S1 summed activity-level amounts flagged as lower priority, duplicative, or reschedulable in the analytical matrix. Commodities, essential clinical contacts, legally required functions, and lines without a plausible alternative use were excluded from the candidate pool. Scenario S2 estimated the maximum shared cost of jointly delivered family planning and reproductive-health training, supervision, communication, data review, and monitoring activities. It did not assume fewer essential services, lower contraceptive volumes, staff reductions, or reduced quality standards.

For each candidate line i , potential value was cost c_i multiplied by the eligible share f_i ; the maximum scenario used $f_i = 1$ only for the portion screened as fully reviewable. The combined estimate assumes that S1 and S2 candidates are non-overlapping, fully fungible, approved by budget holders and donors, and implementable without transaction costs. Because these conditions are demanding, realization levels of 25%, 50%, 75%, and 100% of the identified maximum were reported. The 100% result is an analytical ceiling, not expected cash savings.

Equity assessment

Equity was assessed descriptively across three dimensions available in the source material: residence (urban and rural mCPR and unmet need), age (reported method mix among adolescents and young people), and geography (regional mCPR). Regional shortfalls were expressed as percentage-point differences from the national value and from the highest observed regional value. Budget data were not sufficiently disaggregated by region, wealth, disability, or age to estimate an equity-weighted monetary gap. Equity therefore informed interpretation and proposed allocation criteria but did not alter the national financing totals.

Uncertainty and scenario analysis

Following good-practice principles for transparent budget-impact modelling [23], deterministic stress tests were used because probability distributions were unavailable. The programmatic model examined 80% realization of partner commitments, plus or minus 10% domestic resources, a 10% increase in programme costs, and a combined downside case. Commodity requirements were recalculated with prices 10% lower and higher.

Exchange-rate scenarios affected only the USD equivalent of FCFA-denominated amounts, while partial-realization scenarios affected the optimization estimate. These tests are not forecasts or confidence intervals; they show how conclusions change under explicit assumptions.

Data analysis and software

Budget and programme datasets were cleaned and summarized in Microsoft Excel 2021. Python 3.10 was used to harmonize donor names in OECD/CRS extracts, aggregate flows, calculate vulnerability and sensitivity scores, run deterministic scenarios, and prepare figures. Analyses were descriptive and arithmetic. No hypothesis testing, discounting, probabilistic simulation, or causal model was applied because the source data were planning and financing aggregates rather than individual observations.

Ethical considerations

Only aggregate, non-identifiable programme and financing data were analysed. The study did not involve human participants, biological material, or individual clinical records; individual informed consent and human-subject ethics review were therefore not applicable. Because several underlying programme and workshop documents are institutionally owned, public dissemination of derived results remains subject to the relevant institutional authorization.

RESULTS

Coverage, unmet need and territorial equity

National progress in contraceptive use was accompanied by persistent inequality. From 2012 to 2022, mCPR increased by 7.1 percentage points, but the 2022 level remained below the trajectory implied by the 2026 target. Rural mCPR was 19.7% compared with 29.4% in urban areas, a 9.7-point difference; unmet need was 35.7% and 31.7%, respectively, a 4.0-point disadvantage for rural residents. Regional mCPR ranged from 21.3% in Savanes to 32.3% in Kara, an 11.0-point range. Savanes was 2.5 points below the national estimate of 23.8%, whereas Kara was 8.5 points above it.

The adolescent and young-person profile showed reliance on emergency contraception, implants, pills, and injectables, but the available data did not permit socioeconomic or district-level comparisons (Figure 1). Because the budget was not geographically disaggregated, these equity indicators were not used to create a regional financing estimate; they identify where equal per-capita allocation could reproduce unequal access.

Financing structure and programmatic gap

The historical 2023-2026 PANB/FP allocated its largest envelope to products and consumables (FCFA 7.96 billion), followed by service delivery and access (FCFA 2.35 billion). In the separate forward programmatic model for 2026-2030, six service and system pillars required FCFA 9.986 billion. Confirmed partner commitments accounted for FCFA 3.956 billion (39.6%) and identified domestic or other resources for FCFA 2.798 billion (28.0%), leaving FCFA 3.231 billion (32.4%) without identified financing. At the analytical rate of 600 FCFA/USD, this same gap equals USD 5.38 million; it is not an additional amount.

Commitments were counted when documentary evidence specified amount, period, and purpose, but they should not be interpreted as completed disbursements. Service delivery had the largest absolute shortfall (FCFA 1.491 billion), demand generation the highest proportional gap (45.8%), and together they represented 70.7% of the programmatic gap (Table 1; Figure 2).

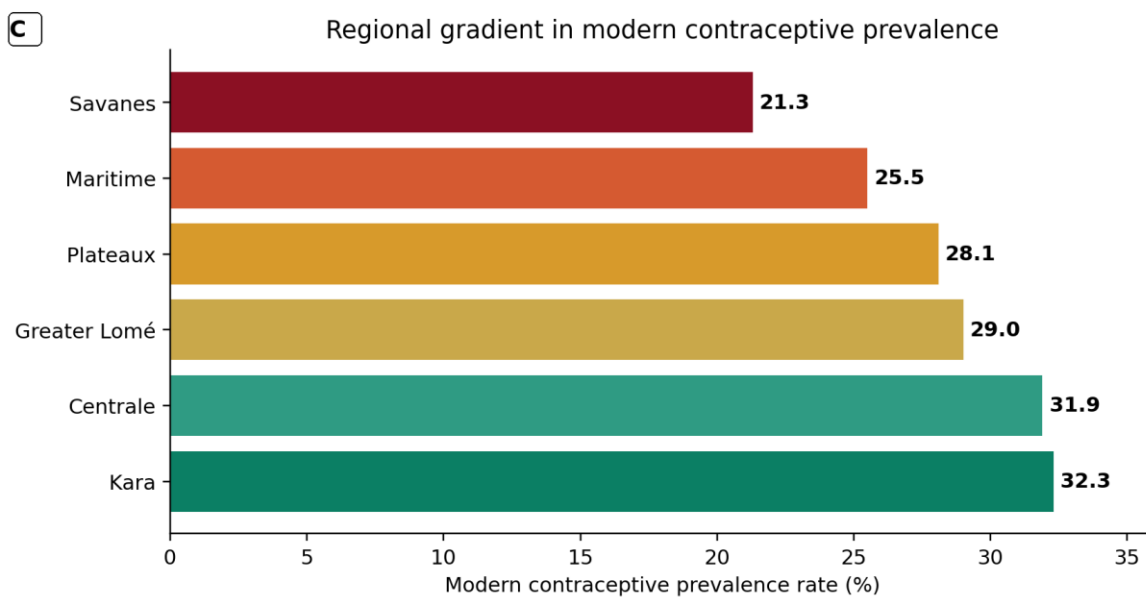
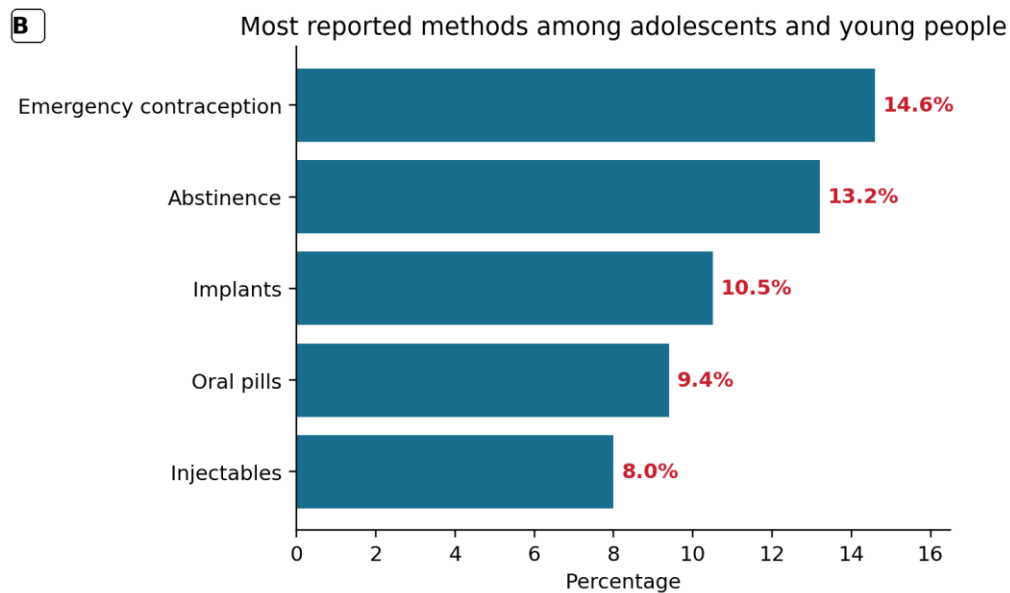
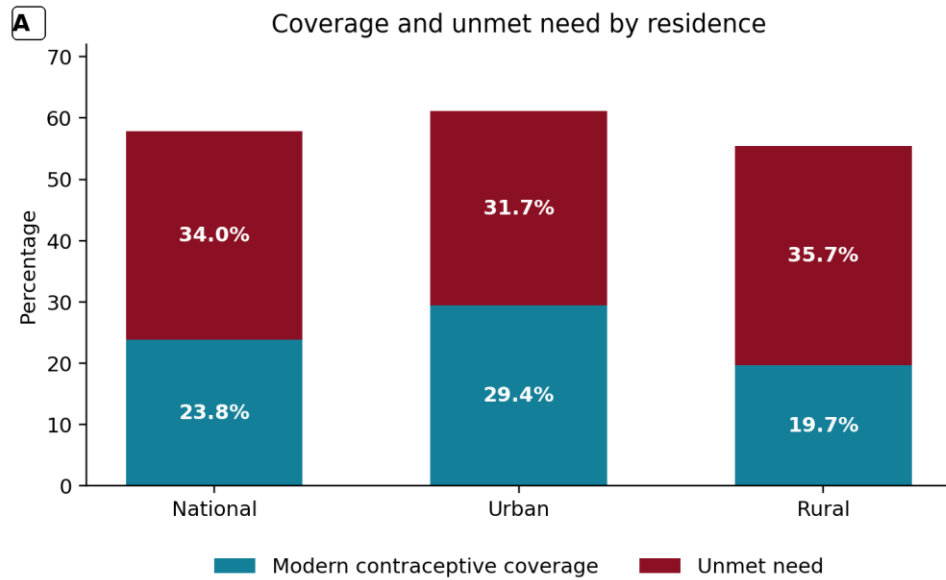


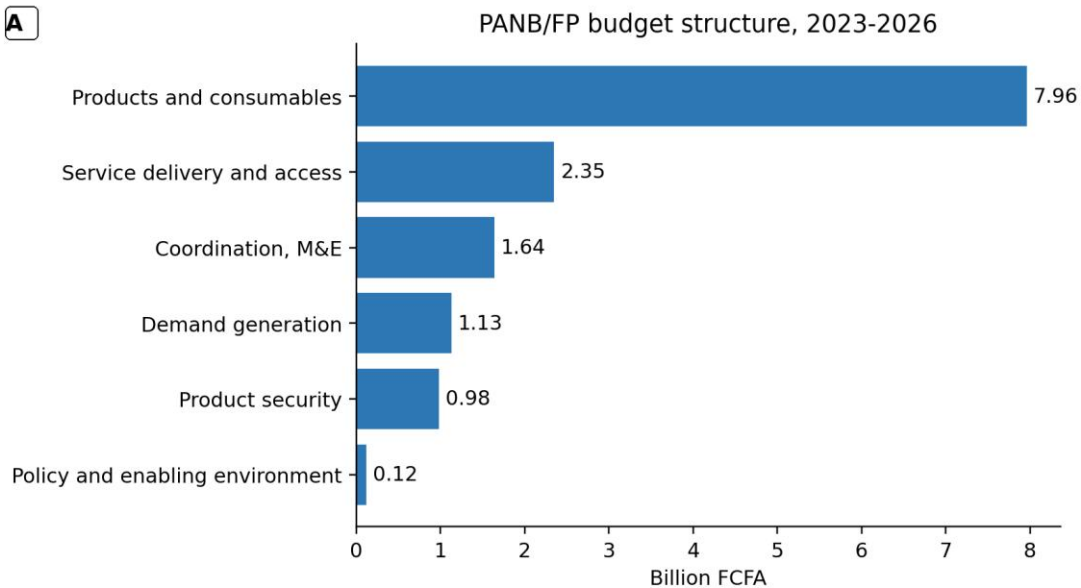
Figure 1: Contraceptive coverage, unmet need, and territorial equity in Togo. (A) Modern contraceptive coverage and unmet need by residence. (B) Most reported methods among adolescents and young people. (C) Regional gradient in modern contraceptive prevalence.

Table 1: Projected programmatic need, confirmed financing and gap by pillar, Togo, 2026-2030.

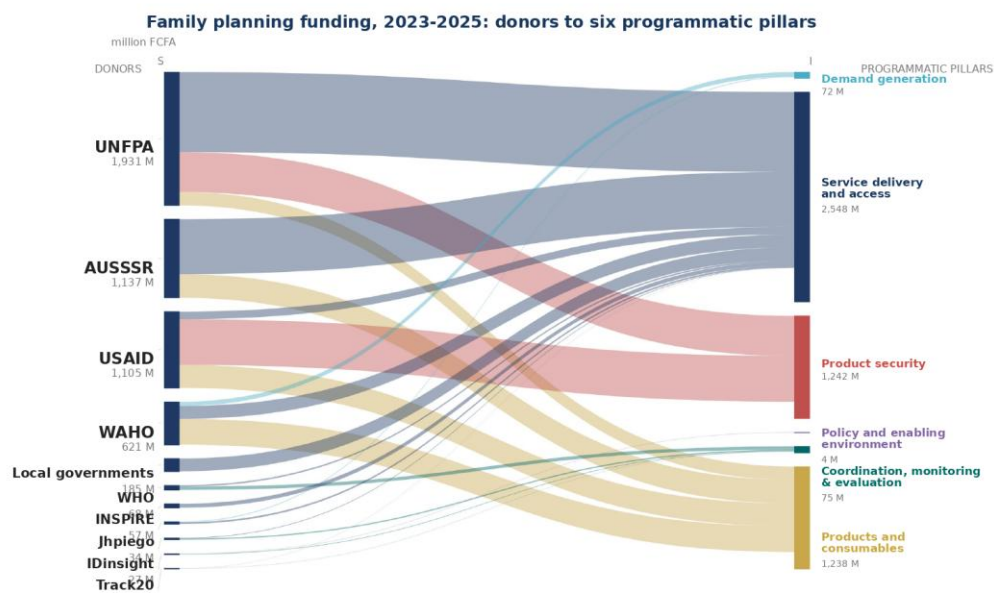
Programmatic pillar	Total need	Partner commitments	Domestic/other resources	Unfunded gap	Gap (%)
Service delivery	3,773.2	1,603.2	679.2	1,490.8	39.5
Demand generation	1,732.9	835.9	104.0	792.9	45.8
Product security	1,325.0	923.8	39.7	361.4	27.3
Policy/enabling environment	269.3	202.1	13.5	53.7	20.0
Resource mobilisation	159.1	31.4	108.2	19.5	12.2
Coordination, M&E	2,726.1	359.8	1,853.7	512.5	18.8
Total	9,985.5	3,956.4	2,798.3	3,230.9	32.4

Values are million FCFA except percentages. Partner figures are documented commitments, not necessarily disbursements. The programmatic envelope excludes the separate contraceptive commodity forecast. Totals use unrounded values. M&E: monitoring and evaluation.

A



B



C

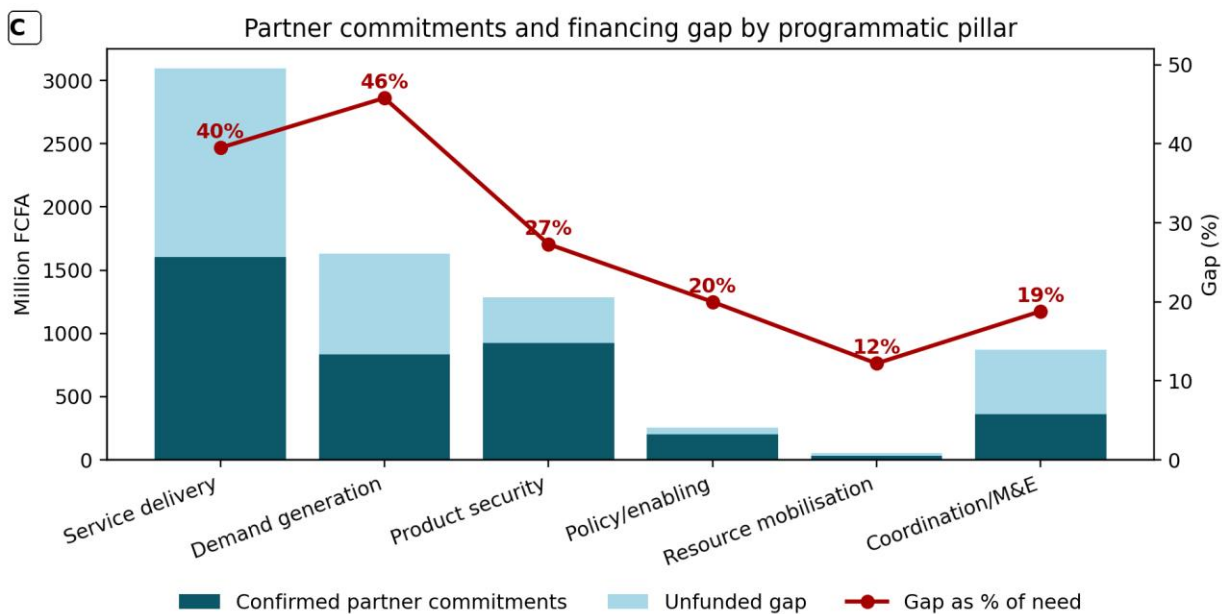


Figure 2: Structure, donor allocation, and programmatic financing gap. (A) PANB/FP budget structure, 2023-2026. (B) Mapped donor flows to six programmatic pillars, 2023-2025. (C) Confirmed partner commitments and financing gap by pillar, 2026-2030.

Contraceptive commodity requirements

The separate public-sector contraceptive forecast estimated a cumulative 2026-2030 requirement of USD 31.58 million. Confirmed financing was USD 5.49 million (17.4%), leaving USD 26.09 million to mobilize. This envelope represents method quantities and procurement costs and was not added to the FCFA 9.986 billion programmatic requirement. Coverage was 46.3% in 2026 but approximately 11% per year from 2027 through 2030, indicating a financing cliff after 2026. Implants were particularly exposed because of unit cost, import dependence, and reliance on external financing. With procurement prices 10% lower or higher and confirmed financing unchanged, total requirements would range from USD 28.42 million to USD 34.74 million and the unfunded balance from USD 22.93 million to USD 29.25 million. These are price stress tests; they do not include changes in method mix, demand, freight, or supplier conditions.

External vulnerability and alignment with high-impact practices

Under equal weights, service delivery had the highest vulnerability score (0.628), followed by product security (0.573), the policy/enabling environment (0.546), and demand generation (0.470). Coordination/M&E (0.165) and resource mobilisation (0.123) were low. The component values and rank ranges are reported in Table 2. Weighting altered the order but not the broad risk structure: the same four pillars occupied the first four positions under every specification, while coordination/M&E and resource mobilisation remained fifth and sixth. Service delivery ranked first under equal and volume-led weights; product security ranked first under dependence-led weights; and the policy/enabling environment ranked first when donor concentration received 50% weight. Demand generation moved from moderate to high only in the dependence-led specification. Thus, the exact ranking is assumption-sensitive, but the separation between the four more exposed pillars and the two lower-scoring pillars is robust (Figure 3A-B).

Mapping the 16 evidence-informed practices and system enablers produced a distinct allocation signal. Ten had identifiable funding, four were underfunded, and two had no dedicated line. Five crossed the screening threshold of 0.50: immediate postpartum family planning, family planning/immunization integration, family planning/HIV integration, private-sector or pharmacy engagement, and adolescent-responsive contraceptive services. The two integration practices had high review priority but no dedicated budget line (Figure 3C). This result reflects budget visibility and screening criteria; it is not a comparative estimate of clinical effectiveness.

Table 2: Components, primary scores and rank sensitivity of external-financing vulnerability, Togo, 2026-2030.

Programmatic pillar	C1 volume	C2 dependence	C3 concentration	Equal-weight score	Category	Rank range
Service delivery	1.000	0.702	0.182	0.628	High	1-3
Product security	0.405	0.959	0.355	0.573	High	1-2
Policy/enabling environment	0.066	0.938	0.634	0.546	High	1-4
Demand generation	0.521	0.889	0.000	0.470	Moderate	3-4
Coordination, M&E	0.274	0.163	0.058	0.165	Low	5
Resource mobilisation	0.000	0.225	0.144	0.123	Low	6

C1-C3 are normalized to 0-1. Rank range is the minimum to maximum position across equal, volume-led, dependence-led, and concentration-led weighting. Categories shown use equal weights.

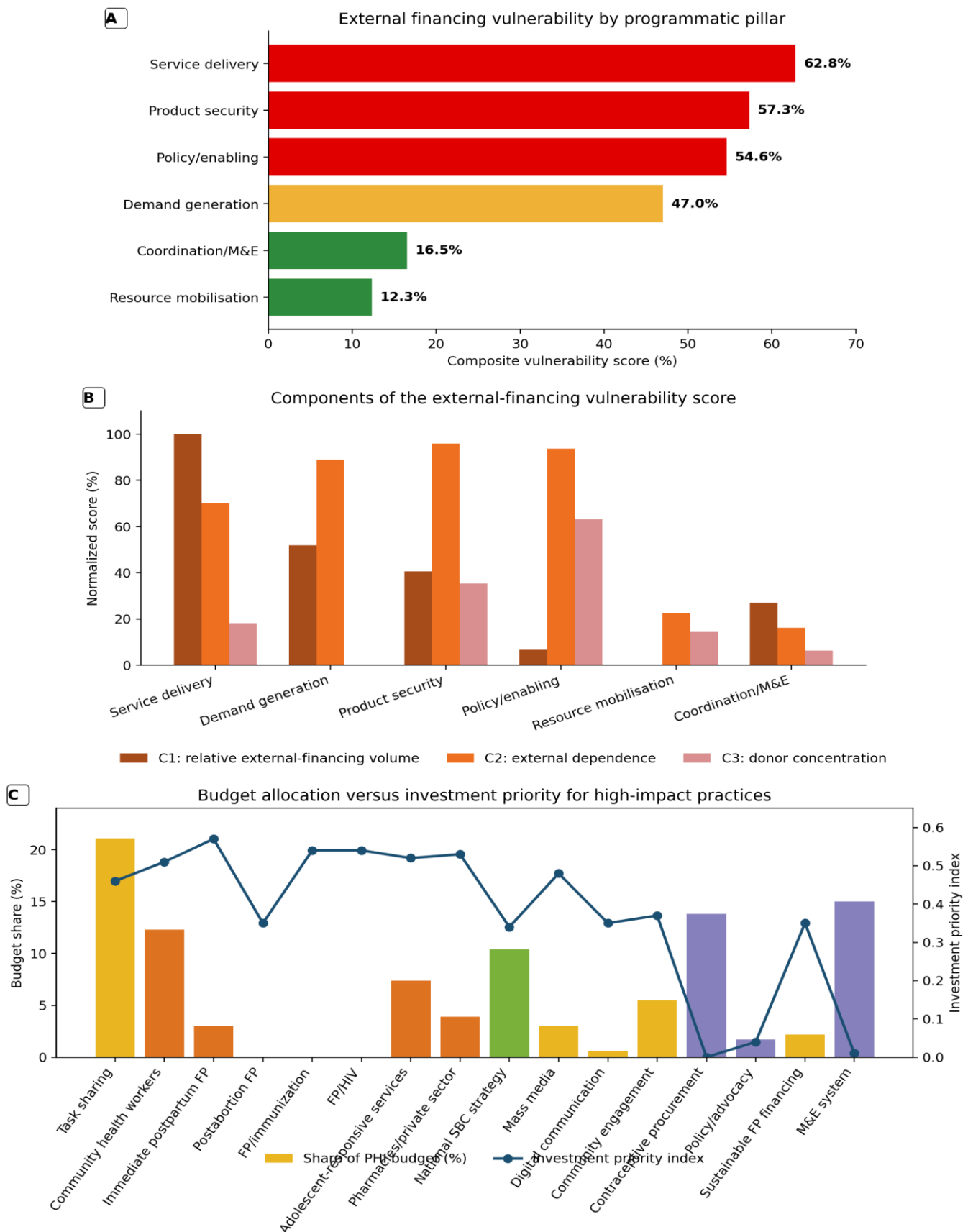


Figure 3: External-financing vulnerability and budget alignment with evidence-informed family planning practices. (A) Equal-weight vulnerability score. (B) Normalized components: relative external-financing volume (C1), external dependence (C2), and adjusted donor concentration (C3). (C) Budget share and investment-priority screening index for 16 practices and system enablers.

Potential effect of optimization

The S1 screening identified FCFA 1.418 billion in potentially reviewable or reallocable activity-level amounts, equivalent to 43.9% of the baseline programmatic gap. S2 identified a gross maximum of FCFA 516.8 million from joint delivery of compatible family planning and reproductive-health support activities, equivalent to 16.0% of the gap. Adding these pools yields FCFA 1.935 billion only if candidates do not overlap, restrictions are removed, and the full screened amount can be redirected without reducing service quality. Under that theoretical maximum, the residual gap is FCFA 1.296 billion (USD 2.16 million). More conservative realization of 25%, 50%, and 75% would cover 15.0%, 30.0%, and 44.9% of the baseline gap, respectively, leaving FCFA 2.747 billion, FCFA 2.263 billion, and FCFA 1.780 billion still unfunded (Table 3).

Table 3: Gross optimization pools and partial-realization scenarios for the programmatic financing gap, Togo, 2026-2030.

Scenario	Potential gain (million FCFA)	Residual gap (million FCFA)	Gap covered (%)	Residual gap (USD)
S0 - status quo	0.0	3,230.9	0.0	5,384,784
S1 - gross reallocation pool	1,418.2	1,812.7	43.9	3,021,132
S2 - gross integration pool	516.8	2,714.1	16.0	4,523,475
Combined - 25% realized	483.8	2,747.1	15.0	4,578,583
Combined - 50% realized	967.5	2,263.4	30.0	3,772,333
Combined - 75% realized	1,451.3	1,779.6	44.9	2,966,083
Combined - 100% ceiling	1,935.0	1,295.9	59.9	2,159,823

S1 and S2 are gross screened pools. Separate S1 and S2 rows do not account for overlap. Combined rows assume non-overlap and apply the stated realization percentage to FCFA 1.935 billion. USD values use 600 FCFA/USD. These are planning scenarios, not available cash.

Uncertainty and downside scenarios

The base case assumes that documented partner commitments materialize in full. If only 80% were realized and domestic resources remained unchanged, the programmatic gap would increase from FCFA 3.231 billion (32.4%) to FCFA 4.022 billion (40.3%). A 10% reduction in domestic or other resources would increase the gap to FCFA 3.511 billion (35.2%), whereas a 10% increase would reduce it to FCFA 2.951 billion (29.6%). A 10% rise in programme costs with financing fixed would produce a FCFA 4.229 billion gap (38.5%). In the combined downside case - costs 10% higher, 80% realization of partner commitments, and domestic resources 10% lower - the gap would reach FCFA 5.300 billion, or 48.3% of need (Table 4). At exchange rates of 540 and 660 FCFA/USD, the baseline FCFA gap would be reported as USD 5.98 million and USD 4.90 million, respectively; the FCFA financing requirement itself would not change.

Table 4: Deterministic uncertainty scenarios for the 2026-2030 programmatic financing gap.

Scenario	Need (million FCFA)	Partner financing (million FCFA)	Domestic/other (million FCFA)	Gap (million FCFA; %)
Base case	9,985.5	3,956.4	2,798.3	3,230.9; 32.4%
Partner commitments 80% realized	9,985.5	3,165.1	2,798.3	4,022.1; 40.3%
Domestic/other resources -10%	9,985.5	3,956.4	2,518.5	3,510.7; 35.2%
Domestic/other resources +10%	9,985.5	3,956.4	3,078.1	2,951.1; 29.6%
Programme costs +10%	10,984.1	3,956.4	2,798.3	4,229.4; 38.5%
Combined downside	10,984.1	3,165.1	2,518.5	5,300.5; 48.3%

Scenarios vary one assumption at a time except the combined downside case. Values are deterministic stress tests, not forecasts or confidence intervals.

Integrated financing-risk and action matrix

Table 5 brings the financial requirement, identified financing, gap, vulnerability, and optimization review into one decision frame. Optimization potential is qualitative because activity-level fungibility depends on contractual, operational, and quality constraints.

Table 5: Integrated financing-risk and optimization review by programmatic pillar, Togo, 2026-2030.

Pillar	Need	Identified financing	Gap	Vulnerability	Optimization review
Service delivery	3,773.2	2,282.4	1,490.8	0.628; High	Targeted: protect frontline contacts; combine support training and supervision only after verification
Demand generation	1,732.9	939.9	792.9	0.470; Moderate	Moderate: coordinate social and behaviour change, media, digital, and community channels
Product security	1,325.0	963.5	361.4	0.573; High	Low: protect commodities; seek forecasting, procurement, and logistics efficiencies

Policy/ enabling environment	269.3	215.6	53.7	0.546; High	Moderate: align policy, advocacy, governance, and technical-assistance processes
Resource mobilisation	159.1	139.6	19.5	0.123; Low	Low: small envelope; preserve domestic resource-mobilisation capacity
Coordination, M&E	2,726.1	2,213.5	512.5	0.165; Low	High review potential: harmonize supervision, data reviews, reporting, and dashboards
Total	9,985.5	6,754.7	3,230.9	-	Activity-level verification required before recognizing any gain

Financial values are million FCFA. Identified financing equals partner commitments plus domestic/other resources. Optimization review is qualitative and does not represent guaranteed savings.

DISCUSSION

Reading coverage, budget, and donor data together changes the interpretation of Togo's family planning financing problem. The base-case programmatic gap is 32.4%, but the stress tests show that it could approach one-half of need if costs rise, commitments are only partly realized, and domestic resources weaken simultaneously. The separate commodity forecast reveals a sharper post-2026 procurement risk. These are not interchangeable deficits: one concerns six programme functions and the other concerns method quantities and procurement. The programme therefore faces a resource problem, an allocation problem, and an execution risk between commitment and disbursement.

The concentration of more than 70% of the programmatic gap in service delivery and demand generation deserves immediate management attention. Service-delivery budgets pay for the contacts through which policy becomes actual access - trained providers, outreach, supervision, referral, and continuity of care. Demand generation addresses a different bottleneck: people cannot exercise informed choice if they do not know that services exist, do not trust them, or cannot navigate social and geographic barriers. WHO guidance similarly frames contraceptive access as a combination of method availability, quality counselling, informed choice, and removal of access barriers [1,8]. Protecting commodities while allowing these two functions to erode would therefore produce an incomplete programme response.

The projected commodity cliff is the most immediate financial risk. Confirmed financing covers less than one-fifth of the five-year requirement, and a 10% price increase would widen the commodity shortfall to USD 29.25 million if financing remained fixed. Waiting for stock pressure to become visible would be too late because quantification, procurement, international shipping, and distribution require lead time. Experience with family planning cofinancing shows that a sustainable transition depends on explicit government obligations, realistic transition periods, involvement of health and finance authorities, and mechanisms that verify whether promised domestic funds are released [14]. Nigerian experience likewise indicates that subnational commitments become more credible when paired with structured incentives and implementation accountability [15]. A protected multi-year commodity line with annual release and procurement milestones would therefore be more useful than a one-off budget inscription.

The vulnerability analysis adds a distinct management signal. Equal weights were retained for transparency, but alternative weights showed that the precise rank order depends on whether decision-makers emphasize absolute external volume, dependence, or donor concentration. This does not invalidate the index; it defines its appropriate use. The four more exposed pillars remained above coordination/M&E and resource

mobilisation under every specification, while the leading pillar shifted across scenarios. Managers should therefore use the component profile, not only the composite rank. High dependence calls for domestic substitution, high concentration for donor diversification, and high external volume for careful transition sequencing. Evidence from Ghana and broader reviews shows that poorly prepared donor transitions can produce financing gaps, service interruption, commodity shortages, and loss of programme capacity [16,17].

A second policy issue is the mismatch between stated priorities and visible allocations. The 16-item screen combined recognized HIPs with nationally relevant system enablers rather than treating every item as an independently proven clinical intervention. Immediate postpartum family planning, integration with immunization and HIV services, private-sector engagement, and adolescent-responsive care make use of existing service contacts and can extend reach [9-13,22]. The Togo study is especially relevant: linking family planning referral to immunization contacts increased awareness and new family planning clients without evidence of harm to immunization use [13]. Integration, however, is not free. It requires provider time, privacy, commodities, referral, supervision, and data. The next costed plan should identify integrated packages explicitly and distinguish the shared cost from the incremental resources required for quality delivery.

The equity findings argue against allocating resources only in proportion to an aggregate national or pillar-level gap. Rural women had lower mCPR and higher unmet need than urban women, and the regional mCPR range was 11.0 percentage points. These findings support equity-sensitive planning, but they do not demonstrate the monetary amount required by each region because budgets were not disaggregated geographically. A future allocation formula should combine population size, baseline mCPR, unmet need, adolescent need, distance to services, and the marginal cost of reaching underserved groups. District microplanning could then translate that formula into outreach, provider deployment, commodity positioning, and demand-generation choices. Until such data are available, equity-based recommendations should be understood as policy criteria rather than outputs of the financial model.

The optimization exercise requires the strongest qualification. FCFA 1.935 billion is the upper boundary of two screened pools, not a forecast of cash that can be released. The 100% scenario assumes non-overlap, full fungibility, approval from budget holders and donors, no transaction costs, and no loss of service quality. The 25-75% realization scenarios are more useful for planning because they show that the gap reduction could plausibly be much smaller than 59.9% even when the screening is directionally correct. Each candidate training, supervision, communication, data-review, and coordination line should therefore undergo joint programme-finance review. A gain should be recognized only after confirming financing source, restrictions, timing, geographic coverage, output implications, and absence of duplication across S1 and S2.

Four financing actions follow. First, commodity security requires a multi-year domestic pathway with annual budget, release, procurement, and delivery milestones. Second, the next PANB/FP should cost priority integrated services explicitly, separating shared platform costs from incremental family planning inputs. Third, the financing dashboard should follow each partner amount from pledge to commitment, disbursement, procurement or activity execution, and result. Fourth, equity variables should be incorporated when district-level budgets and needs are sufficiently complete. Diversifying sources - including local government, pooled purchasing, insurance arrangements, foundations, and responsible private-sector participation - may broaden fiscal space, but mechanisms that increase direct payment by women or adolescents would conflict with the programme's equity and UHC objectives [20]. Several features strengthen this analysis. It reconciled programme, commodity, partner, and international aid information; separated programmatic and commodity envelopes; linked budget gaps with service priorities and equity; made the vulnerability formula explicit; and tested the sensitivity of rankings and financial assumptions. Intermediate findings were reviewed nationally. Limitations remain substantial. Complete disbursement data were unavailable, so confirmed commitments may overstate executable financing. The vulnerability and practice-priority indices are transparent decision aids rather than validated predictive measures. Donor-concentration estimates depend on the completeness of the partner matrix. The stress-test ranges are policy scenarios, not probability-based confidence intervals. Regional budgets, wealth, disability, and district-level need were insufficiently disaggregated for an equity-weighted financing estimate. Commodity prices, freight, method mix, inflation, and exchange rates may evolve jointly rather than one at a time. Optimization pools may overlap and may be restricted contractually

or institutionally. Finally, aggregate data cannot establish a causal effect of financing on contraceptive uptake or health outcomes. The estimates should therefore be updated as commitments, releases, prices, and activity-level decisions change.

CONCLUSION

Togo can narrow its family planning financing gap, but the size of the opportunity depends on execution. The base case leaves FCFA 3.23 billion of the six-pillar programmatic requirement unfunded, while the separate commodity forecast reveals a much larger procurement challenge after 2026. The model identifies areas for review, not guaranteed savings: realizing 59.9% requires demanding assumptions, whereas partial implementation would close only 15.0-44.9% of the gap. The practical agenda is therefore to protect contraceptive commodities, secure explicit budgets for integrated high-impact services, diversify the most vulnerable financing streams, allocate resources using transparent equity criteria, and track commitments through disbursement and implementation. Activity-level verification and regularly updated scenarios should precede any decision to reduce or redirect an existing budget line.

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Author contributions

Wankpaouyare Gmakouba conceived the study, reviewed source documents, reconciled and interpreted the data, drafted the manuscript, and coordinated revisions. Salaraga Bantakpa contributed to programme contextualization, analysis, validation of results, and critical revision. Komi Ameko Azianu contributed to conceptualization, methodology, interpretation, and scientific revision. All authors read and approved the final manuscript and accept responsibility for its content.

Competing interest

The authors declare no competing interests.

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Ethical consideration

This study analysed aggregate, non-identifiable programme and financing data and did not involve human participants or individual medical records. Individual informed consent and human-subject ethics review were therefore not applicable. Dissemination of derived findings remains subject to authorization requirements attached to the institutionally owned source documents.

Data availability

Derived analytical tables and supporting documentation may be requested from the corresponding author, subject to authorization by the institutions that own the underlying programme and financing data. OECD Creditor Reporting System data are publicly accessible through the OECD data platform [21].

Abbreviations

C1, relative external-financing volume;

C2, external dependence; C3,

adjusted donor concentration;

CRS, Creditor Reporting System; FCFA, West African CFA franc;

FP, family planning;

HHI, Herfindahl-Hirschman index;

HIP, high-impact practice; mCPR, modern contraceptive prevalence rate;

M&E, monitoring and evaluation;

OECD, Organisation for Economic Co-operation and Development;

PANB/FP, Costed Implementation Plan for Family Planning;

PTF, technical and financial partner;

RH, reproductive health; SBC, social and behaviour change;

USD, United States dollar.

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