

BUSOGA MALARIA ERADICATION PROGRAM (BMEP)

NAWANHINGI SUBCOUNTY PILOT PHASE

Implementation Report



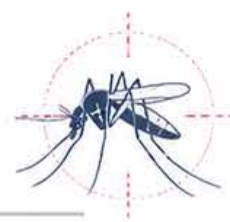
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FOREWORD

H.E. Dr. Speciosa Wandira-Kazibwe

Vice President Emeritus, Republic of Uganda

Senior Presidential Advisor on Population and Health

Senior Advisor, Busoga Health Forum

I have walked through many villages in Busoga. I have sat in the homes of mothers who told me, without drama, that malaria visits their families the way the rains do - regularly, inevitably, and without mercy. I have spoken with children who have missed weeks of school because of a disease that is entirely preventable. I have listened to fathers describe choosing between buying medicine and buying food. And I have, for too many years, watched the conventional responses to this crisis prove inadequate-not because of lack of goodwill, but because they were designed from the outside in, rather than from the inside out.

The Nawanyingi pilot of the Busoga Malaria Eradication Program is something different. It is something I watched grow from an idea-a passionate, stubborn idea- into a community movement that mapped 6,955 households in twelve hours, sprayed every homestead in three days, tested 25,533 people, and reduced malaria positivity at the local health centre from above 90% to below 10% within six months. These are not projections or modelled estimates. They are measured outcomes from a real community-from Nawanyingi's real families, real mothers, real young people-who decided that malaria was not an act of God but a problem they could solve together.

What struck me most in the field was not the numbers. It was the ownership. When a 321-member youth brigade of Malaria Elimination volunteers deploys not because they were hired but because they believe in what they are doing, something fundamental has changed. When a community assembles at a mosque on a Friday and the Friday address becomes a turning point that moves household acceptance from 68% to 99%, you understand that the most powerful public health tool is trust-trust between neighbours, between communities and their leaders, and between a programme and the people it serves.

The Nawanyingi Investment Forum mobilized over UGX 50 million in community resources. Iganga District Council passed Ordinance No. 10 of 2024, mandating malaria budget lines formation of Subcounty Investment Forums into law. These are not project outputs. They are the signs of a community that has taken ownership of its own health-and that ownership, I am convinced, is the only sustainable foundation for malaria eradication.

The idea that became BMEP was not born in a boardroom or imported from a donor proposal. It was conceived and crafted within my Office-the Office of the Senior Presidential Advisor on Population and Health-by a small, dedicated team who understood Busoga's malaria burden from the inside. Dr. Munyamu Ismail (my technical assistant) and Ms. Mercy (my secretary) worked alongside me to design the framework, structure the pillars, and develop the programme architecture that would become BMEP. What we built was not a government programme or an NGO project-it was an advisory idea, fulfilling exactly what this office was established to do: generate evidence-based solutions and champion them until they become reality. I am enormously proud of their contribution and their dedication.



When this idea was ready to be tested in the real world, it needed an institutional home and champions who would not simply nod in agreement but roll up their sleeves. Busoga Health Forum, under the leadership of its Chief Executive Officer Mr. Kyangwa Moses and guided with exceptional wisdom by its Board Chairperson Prof. Peter Waiswa, embraced BMEP without hesitation. Mr. Kyangwa Moses brought operational energy, strategic management, and the hands-on commitment that kept the programme moving through every operational challenge. Prof. Peter Waiswa brought the academic rigour, institutional credibility, and the governance discipline that gave BMEP the structure it needed to be taken seriously by government, by partners, and by the communities it serves. Without their embrace of this idea, it would have remained an advisory memorandum. Because of them, it became a movement.

I am proud to have been a part of this effort-not as a patron observing from a distance, but as someone who rolled up her sleeves alongside the teams in the field, in the communities, and in the corridors of government advocating for this model. I am proud of Busoga Health Forum for having the courage to attempt something new. And I am proud of the people of Nawanyingi for proving that it works.

This report documents what we found and what we did. I commend it-with deep conviction-to the Ministry of Health, to our development partners, to the National Planning Authority, and to every district local government in Uganda. The model is proven. The evidence is here. The question now is not whether we should scale up. It is how fast.

NOTE FROM THE CHIEF ADMINISTRATIVE OFFICER, IGANGA DISTRICT

Mr. Sseguya Moses Bukenya

Chief Administrative Officer, Iganga District Local Government

On behalf of Iganga District Local Government-its elected leaders, technical departments, and the communities we serve-I am pleased to present this note accompanying the Nawanyingi Subcounty Pilot Phase Implementation Report of the Busoga Malaria Eradication Program.

Let me say at the outset what I believe must be said clearly: the BMEP is not a programme that came to Iganga from the outside. It came from inside-from the communities of Nawanhingi, from the leadership of Busoga Health Forum, and from the commitment of our district health system to try something that matched the scale of the problem. We adopted it, we owned it, and today we are proud to present the results.

Iganga District has long carried a heavy malaria burden. Our health facilities have recorded malaria as the leading cause of outpatient visits year after year. Our schools have watched learners miss school to illness. Our households have spent money on treatment that they needed for food, school fees, and economic investment. We knew the problem. What we needed was a model that matched the ambition of the solution to the scale of the challenge-and the BMEP gave us that.

This report is the evidence of what Nawanyingi achieved. The numbers in these pages are not projections or estimates-they are measured outcomes from real households, real schools, and real communities in our district. Malaria positivity at Bunyiro Health Centre III fell from 90.3% before intervention to 9.7% six months after. Anopheles mosquito vector density was reduced by 88.7%. 25,533 individuals were tested across households and schools, with 8,342 positives identified and 8,294 treated-a 99% treatment uptake with zero refusals. Over UGX 1 billion was mobilized-more than 80% from non-donor community, district, and government sources.

Iganga District Local Government was not a passive partner in these achievements. Our District Council passed Ordinance No. 10 of 2024, mandating malaria budget lines in all subcounty budgets and requiring the formation of community investment forums-a deliberate act of institutionalization that went beyond goodwill and made malaria elimination a statutory obligation of local government. Our technical departments-health, community development, education, and planning-provided supervision, logistics coordination, and on-the-ground partnership throughout the pilot. Our schools opened their gates, our health facilities provided the data, and our communities drove the implementation. When the District Health Office tracked the dramatic decline in malaria positivity at Bunyiro Health Centre III, month by month, from above 90% to below 10%, it was not just a health statistic-it was the validation of a model that Iganga District chose to own.

What the report also documents-and what I wish to particularly commend to our partners and to the national government-is the school dimension of this pilot. 19 schools were placed under intensive observation, all participated fully, and 5,769 learners were tested.



The results confirmed what our teachers have been telling us for years: malaria is a primary driver of learner absenteeism and educational underperformance in our district. Treating and spraying our schools was not an add-on-it was a core obligation. The outdoor spray footprint of 5,299,947 m², a twenty-one times the indoor surface area sprayed-reflects the ecological reality of Nawanyingi: mosquitoes rest and breed in the rice paddies, hedges, and croppage surrounding our homesteads and school compounds. Conventional indoor-only spraying addresses less than 5% of this vector habitat. BMEP addressed all of it.

What I observed in Nawanyingi was something I hope every subcounty in this district will one day experience. I saw local government and community working not as two separate actors-one delivering, one receiving-but as one organism pursuing the same goal. The Subcounty Investment Forum, the Local Council leadership, the Malaria Elimination Brigades, the Village Publicity Secretaries, the health workers at Bunyiro Health Centre III-they were all part of a coordinated, coherent effort that achieved what many thought impossible: a subcounty-wide malaria reduction.

We are committed to extending this to every subcounty in Iganga District. The ordinance is in place. The model is proven. The community appetite is there. We look to the Ministry of Health, to development partners, and to Busoga Health Forum to work with us in scaling up without delay. Malaria can be eliminated from Iganga District. This report is the evidence that it has already begun.

I commend this report to all stakeholders and invite your engagement, your investment, and your partnership in taking this model further. Malaria can be eliminated from Iganga. This report is the evidence that it can be done.

NOTE FROM THE BOARD CHAIRPERSON, BUSOGA HEALTH FORUM

Prof. Peter Waiswa

Board Chairperson, Busoga Health Forum

Professor, Makerere University School of Public Health

When Busoga Health Forum (BHF) took on the task of coordinating the Busoga Malaria Eradication Program, we made ourselves a promise: that we would be a catalyst, not a controller; a facilitator, not a funder; a technical resource, not a programme owner. The communities of Nawanyingi were to be at the centre, and everything BHF did was to strengthen their capacity to lead. Reading this report, I am satisfied that we kept that promise.

Busoga Health Forum is a volunteer organization. Our members-public health professionals, medical specialists, engineers, researchers, communications practitioners, and development experts-contribute their time, their expertise, and their commitment without financial compensation. This is worth saying not as a matter of pride but as a statement of principle: the most critical resource in malaria eradication is not money. It is organized, committed human beings who know what needs to be done and choose to do it together.

Our role in the Nawanyingi pilot was to bring that organized expertise to bear in service of a community that had the will to act but needed the technical architecture to do so effectively. We designed the four-pillar model. We trained the teams. We coordinated the supply chain. We managed the data. We engaged government structures, the Ministry of Health, Ministry of Local Government, Makerere University, and development partners. And at every step, we made sure that the community, the Sub County leadership, and Iganga District Local Government were not beneficiaries of our work-they were its principals.

The Nawanyingi Investment Forum, which mobilized over UGX 50 million in community resources, was not BHF's idea alone-it grew from conversations between BHF and community leaders about how Nawanyingi could sustain what it had started. The 321 Malaria Elimination Brigade members who deployed in June 2025 were recruited, motivated, and led by their own communities-BHF trained them, but they belonged to Nawanyingi. The Iganga District Ordinance No. 10 of 2024 was passed by an elected council that chose to institutionalize what it saw working on the ground.

That is what a catalytic coordination role looks like when it is done well: you create conditions in which communities and governments develop the confidence, the systems, and the evidence to take ownership-and then you step back and let them lead.



We are deeply grateful to H.E. Dr. Speciosa Wandira-Kazibwe for her tireless championing of this program at the highest levels of government and her hands-on presence in the field. We thank the Kyabazinga of Busoga for his cultural leadership, and Iganga District Local Government for demonstrating what government ownership of a community health program truly means. We honour the people of Nawanyingi-every household that opened its door, every young person who put on a safety suit and sprayed through the heat of June, every mother who brought her children out to be tested, and every community member who contributed to the Investment Forum because they believed in what they were building together.

This report is not the end of the story. It is the evidence that justifies the next chapter. We invite our partners, our government, and the international community to read it with open eyes-and to act.

NOTE FROM THE CHIEF EXECUTIVE OFFICER BUSOGA HEALTH FORUM



Mr. Kyangwa Moses

Chief Executive Officer, Busoga Health Forum

Managing the Nawanyingi pilot was one of the most demanding-and most rewarding-assignments of my professional life. When Busoga Health Forum took on the operational coordination of BMEP, we were not inheriting a programme with established systems and a funded workforce. We were building one: from concept to community, from a planning meeting to 6,955 households mapped in twelve hours, and from a vision to a measurable 80-percentage-point reduction in malaria positivity. Every structure, every team, every protocol, and every relationship had to be assembled, aligned, and sustained through active, daily management.

What I came to understand deeply was the sheer diversity of the people this required. Over the course of the pilot I coordinated professors from Makerere University School of Public Health, who brought epidemiological rigour that gave our data credibility; Ministry of Health officials and district health teams, who navigated the technical and regulatory dimensions of deploying antimalarials, insecticides, and diagnostic tools at scale; CAO and technical officers of Iganga District Local Government, who grounded every aspect of the operation in government ownership; community mobilisers, VHTs, and volunteer health workers, who understood these villages far better than any external team; and 321 young men and women of the Malaria Elimination Brigade-many of them unemployed before BMEP-who became the operational engine of the entire field effort.

Each group brought something essential, and each required a different kind of engagement. The academics needed methodological clarity and alignment of scientific and operational timelines. The government teams needed institutional trust-when insecticide stocks ran short on day two of spraying, it was not a committee that solved it but a phone call, a motorcycle, and a fast decision by people who trusted one another across institutional lines. Community leaders needed a genuine partner who was present-not sending a representative but being there. The Nawanyingi Investment Forum, which mobilised over UGX 50 million, was built on months of sustained listening and the kind of trust that no amount of reporting can substitute for. The MEB youth volunteers needed to be treated as professionals: we invested in their training, gave them PPE, assigned them zones of responsibility, held them accountable, and celebrated their results. In return, they sprayed 6,952 households and all 19 schools in three days-work that our entomological data confirmed had achieved an 88.7% reduction in Anopheles mosquito density.

There were difficult days. Mornings when commodities had not arrived and field teams were already assembled. Evenings spent resolving data inconsistencies between village records and health facility returns. Moments when community acceptance wavered and the temptation was to push harder-but experience taught me the right response was to listen more carefully and find the trusted voice in the room. The Magogo Parish Imam, whose single Friday address moved household acceptance from 68% to 99% overnight, is the most powerful lesson in community health mobilisation I have witnessed in my career.

What gave me confidence throughout was the seriousness with which every volunteer, at every level, took their role-the VHTs who tested households through the heat of June, the teachers who mobilised parents for school testing days, the NIF leaders who demanded that every shilling be accounted for, the parish supervisors who submitted data forms at the end of eighteen-hour days. These are the people who made BMEP work. I was the one coordinating them-but the programme belongs to them.

For Busoga Health Forum, the Nawanyingi pilot has produced something more valuable than the results in this report, as significant as those results are: a tested organisational model, a trained community workforce, a government partnership with genuine institutional depth, and a body of operational learning that no desk-based planning could have generated. We know now, in a way we could not have known before, exactly what it takes to eliminate malaria in a Busoga subcounty-not in theory, but in practice, with real people, real constraints, and real accountability. That knowledge is what we will carry into Bulamagi, into Iganga District, and ultimately into every high-burden community in Uganda that is ready to do what Nawanyingi did: decide that malaria is preventable and refuse to accept the status quo.

STRATEGIC PARTNERSHIPS AND STAKEHOLDERS

The BMEP Nawanyingi pilot is supported by a multi-sectoral partnership bringing together government, academia, cultural leadership, local governments, communities, technical institutions and philanthropic partners. Strategic stakeholders and partners include:

Partnership Category	Strategic Stakeholders and Partners
National leadership and government	Office of the President; Ministry of Health; Ministry of Local Government; Ministry of Gender, Labour and Social Development; Ministry of Education and Sports.
Local government partners	Iganga, Amolatar, Wakiso, Mukono and Entebbe.
Academic and legislative partners	Makerere University School of Public Health; Busoga Parliamentary Caucus.
Cultural leadership	Obwa Kyabazinga bwa Busoga.
Philanthropic organisations and partners	Philanthropic organisations and partners, including Friends of Nawanyingi Subcounty and other programme supporters.
Technical, implementation and community partners	National Medical Stores; Uganda Bureau of Statistics; The Hunger Project Uganda; Kibuku District Vector Control Office; Nawanyingi Investment Forum; Bunyiro Health Centre III Health Unit Management Committee; community leadership structures, VHTs, volunteers, teachers, religious leaders, women and youth councils.

This partnership architecture reflects BMEP's emphasis on shared ownership, coordinated implementation, community participation and institutional sustainability.

Our Partners



ACKNOWLEDGMENTS

Busoga Health Forum extends its deepest gratitude to all individuals, institutions, and communities whose commitment, sacrifice, and partnership made the Nawanyingi BMEP pilot a resounding success.

We honour first and foremost the people of Nawanyingi Subcounty-the households, families, and community members who opened their doors, volunteered their labour, contributed their resources, and trusted in a locally led vision for malaria eradication. We acknowledge with deep respect:

- i. Her Excellency Dr. Speciosa Wandira-Kazibwe, Vice President Emeritus of the Republic of Uganda, Senior Presidential Advisor on Population & Health and Senior Advisor to BHF, for her visionary leadership, strategic guidance, resource mobilization and hands on participation.
- ii. President's Office—for resources to kickstart the program.
- iii. The Kyabazinga of Busoga, His Royal Highness William Kadhumbala Nadiope II, for cultural endorsement and regional mobilization
- iv. Prof Peter Waiswa and Busoga Health Forum Board for accepting to house the initiative, resource mobilization and strategic guidance.
- v. The Ministry of Health – National Malaria Eradication Division and Pharmacy Departments, for policy guidance, technical support, and essential commodities valued at approximately UGX 800 million.
- vi. The National Medical Stores for the logistical support.
- vii. The RDC Iganga District—for mobilization.
- viii. The Iganga District Council for passing of Ordinance No.10 of 2024.
- ix. The Iganga District Local Government for mobilization, governance, logistics management and oversight.
- x. The Makerere University School of Public Health, for academic partnership.
- xi. The Nawanyingi LCIII Chairperson (Mr. Ndaye Yakub) for his endorsement of BMEP to be piloted in their subcounty and community mobilization.
- xii. The Nawanyingi Local Council III leadership for their endorsement of BMEP, implementation of the district ordinance No. 10, and community mobilization.
- xiii. The Nawanyingi Subcounty Technical Team and Bunyiro HC III, Bunyiro HC II and Magogo HC II.
- xiv. The Nawanyingi Investment Forum (NIF), for pioneering community financing innovation and resource mobilization.
- xv. Friends of Nawanyingi Subcounty for supporting the operations as and when notified of the need.
- xvi. Busoga Malaria Eradication Program Management and Technical Team: Dr Wandira-Kazibwe Speciosa, Mr Kyangwa Moses, Dr. Kharim Mwebaza Muluya (PhD), Dr. Nabakooza Jane, Dr Rogers Naturinda, Dr. Fredrick George Kabbale (PhD), Mr Waiswa Abubakar, Ms Nantale Natalie Mariam, Dr. John Baptist Lwanga (PhD), Mr Mugudde Simon, Dr. Munyamu Ismail, Mr. Faziri Mbaizwe, Mr. Tatumwa D. Benjamin, Mr. Nsereko Joel for their voluntary management, technical and operations support.
- xvii. The 321 MEB youth volunteers, 20 Village Publicity Secretaries, 682 VHT & volunteer healthcare members, teachers, religious leaders, women and youth councils who were the engine of implementation.
- xviii. Uganda Bureau Of Statistics, The Hunger Project Uganda, and the Kibuku District Vector Control Office, for technical and logistical support.
- xix. Supporting Districts – Amolatar, Wakiso and Mukono – for solidarity in supplying ACT, testing kits and spraying commodities during the operation cycle.
- xx. The Health Unit Management Committee Bunyiro Health Centre III – for logistics oversight
- xxi. Full list of acknowledgments (Annex 1)

ACRONYMS AND ABBREVIATIONS

Abbreviation	Full Term
ACT	Artemisinin-based Combination Therapy
AL	Artemether-Lumefantrine (Coartem)
BHF	Busoga Health Forum
BMEP	Busoga Malaria Eradication Program
CAO	Chief Administrative Officer
CDO	Community Development Officer
DHA-PPQ	Dihydroartemisinin-Piperaquine (Duo-Cotecxin)
DHIS2	District Health Information System Version 2
DHO	District Health Officer
DLG	District Local Government
GIS	Geographic Information System
HCII/III	Health Centre Level II / III
IRS	Indoor Residual Spraying
LCI / LCIII	Local Council I (village) / Local Council III (subcounty)
LLIN	Long-Lasting Insecticidal Net
MakSPH	Makerere University School of Public Health
MEB	Malaria Elimination Brigade
MoH	Ministry of Health
mRDT	Malaria Rapid Diagnostic Test
MTaT	Mass Testing and Treatment
MVS	Mass Vector Spraying
NIF	Nawanyingi Investment Forum
NMS	National Medical Stores
NMED	National Malaria Elimination Division
ORS	Outdoor Residual Spraying
PDM	Parish Development Model
PPE	Personal Protective Equipment
RDC	Resident District Commissioner
SBMEP	School-Based Malaria Eradication Program
SOP	Standard Operating Procedure
UBOS	Uganda Bureau of Statistics
VHT	Village Health Team
VPS	Village Publicity Secretary
WHO	World Health Organization

EXECUTIVE SUMMARY

Key implementation results showing programme reach, case management, impact, community acceptance and investment.

REACH & COVERAGE	6,955 Households Mapped	35,600 People Enumerated	25,533 People Tested (76%)
CASE DETECTION & TREATMENT	8,342 Malaria-Positive Individuals	8,294 Positive Cases Treated	99% Treatment Coverage
IMPACT & PROGRAMME STRENGTH	90.3% → 9.7% Malaria Positivity Marked decline during intervention	88.7% ↓ Vector Reduction Reduction in mosquito/vector density	19 Schools Mapped & Under Observation
COMMUNITY ACCEPTANCE & INVESTMENT	ZERO Household Refusals Strong community acceptance	UGX 1B+ Programme Investment Investment mobilized for implementation	

The BMEP pilot in Nawanyingi Subcounty deployed four integrated pillars in a single operational cycle-across all 3 parishes, 20 villages, 107 zones, 6,955 households, and 19 schools. Malaria positivity at Bunyiuro Health Centre III fell from 90.3% to 9.7% within six months (Chi-Square $p=0.047$). Anopheles vector density declined by 88.7%. The outdoor spray footprint (5,299,947 m²) was 21 times the indoor footprint (250,500 m²)-demonstrating that conventional indoor-only IRS addresses only a fraction of the actual vector habitat. ACT deployment was parish-differentiated: DHA-PPQ in Nawanyingi and Bunyiuro parishes; AL in Magogo Parish. Schools served as both intervention platforms and surveillance sentinel sites throughout the pilot.

FINANCIAL DASHBOARD
BMEP SUBCOUNTY ACTIVITY-BASED IMPLEMENTATION BUDGET - NAWANHINGI PILOT, IGANGA DISTRICT

BMEP SUBCOUNTY ACTIVITY-BASED IMPLEMENTATION BUDGET- A CASE OF NAWANHINGI PILOT, IGANGA DISTRICT							
#	Level	Activity	Timeline	Status	Total Cost (UGX)	Per Capita (UGX)	% of Budget
1	Cross-cutting	Admin and Coordination	Throughout project implementation		109,740,000 UGX	3,270.35 UGX	18.1%
2	District	District Entry Meeting	Day 1		15,104,000 UGX	450.11 UGX	2.5%
3	Subcounty	01. Subcounty Entry Meeting	Day 1		16,782,000 UGX	500.12 UGX	2.8%
4	Subcounty	02. VPS Trainings-All Pillars	Day 4		2,760,000 UGX	82.25 UGX	0.5%
5	Subcounty	03. HH & Institution Mapping	Days 6-7		13,219,000 UGX	393.94 UGX	2.2%
6	Subcounty	04. Community Spraying - Actellic (indoor) & Colam (outdoor)	Days 10-12		210,983,900 UGX	6,287.52 UGX	34.7%
7	Subcounty	05. School Spraying	Days 10-12		1,926,500 UGX	57.41 UGX	0.3%
8	Subcounty	06. School MTaT	Days 14-16		3,309,000 UGX	98.61 UGX	0.5%
9	Subcounty	07. Community MTaT with both AL & DPH	Days 14-16		144,150,511 UGX	4,295.82 UGX	23.7%
10	Subcounty	08. Surveillance	Weekly		51,518,000 UGX	1,535.28 UGX	8.5%
11	Subcounty	09. Data Management	End of Exercise		23,864,000 UGX	711.17 UGX	3.9%
12	Subcounty	10. Community Transition	Ongoing		14,160,000 UGX	421.98 UGX	2.3%
GRAND TOTAL - WHILE USING ACTELIC (INDOOR) & COLAM (OUTDOOR) WITH BOTH AL & DPH					607,516,911 UGX	18,104.57 UGX	100.0%

Note: This dashboard presents the activity-based implementation budget supplied for the Nawanyingi pilot. It should be read alongside the report's existing resource mobilisation, in-kind contributions and programme investment figures.

1. INTRODUCTION

Uganda reported 12.6 million malaria cases and ~15,900 deaths in 2023, representing 5.1% of global burden (WHO, 2024). Malaria accounts for 33% of all OPD visits nationally (MoH, 2024). The Busoga sub-region-11 districts, 4.3 million people-records approximately 42 cases per 1,000 children aged 12–59 months (UBOS & ICF, 2022). In Nawanyingi Subcounty, Iganga District, health facility positivity consistently exceeded 80–90% before BMEP. Malaria had been normalized as an unavoidable feature of daily life-driving delayed care-seeking, self-medication, and school absenteeism. 97.8% of households reported treating at least one member for malaria in the three weeks before programme mapping.

Conventional approaches-LLINs, selective indoor IRS, passive case management-had produced only

incremental gains. Three structural gaps persisted: no programme targeted outdoor mosquito habitats simultaneously with indoor; the large asymptomatic parasite reservoir in both households and schools went untreated; and interventions were not implemented sequentially, allowing parasite and vector recovery between campaigns. Schools were particularly underserved concentrating the most vulnerable age group in an environment that received no dedicated malaria intervention.

Busoga Health Forum (BHF), operating with the guidance of H.E. Dr. Speciosa Wandira-Kazibwe and the Obwakyabazinga bwa Busoga, and in close partnership with Iganga District Local Government, the Ministry of Health, and MakSPH, developed BMEP to address all three gaps simultaneously-and embedded schools as a formal intervention platform from the outset.

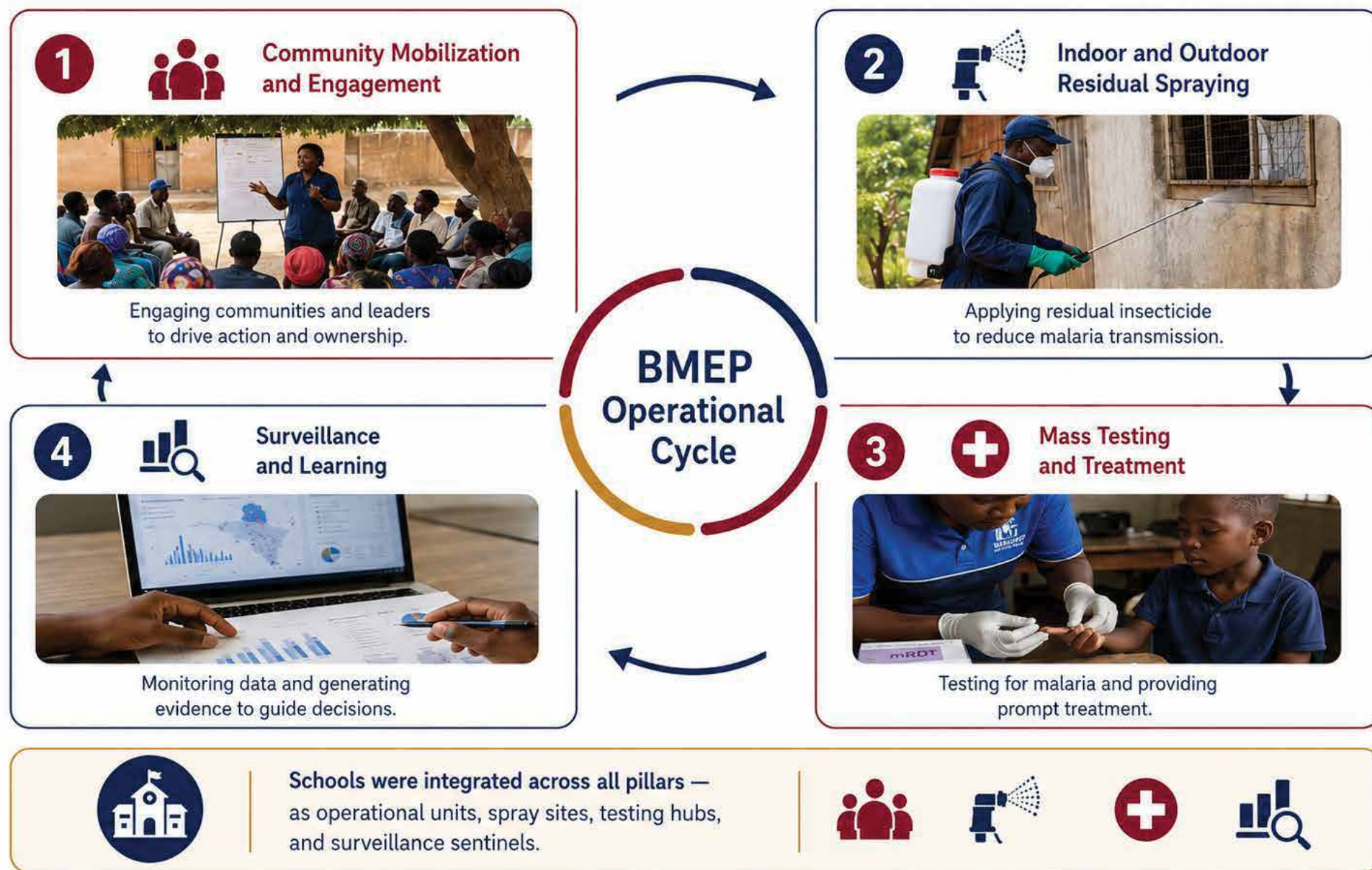
2. THE BMEP MODEL: FOUR PILLARS, ONE OPERATIONAL CYCLE

BMEP's defining innovation is the simultaneity principle: all four pillars deployed sequentially in one coordinated operational cycle across households and schools. Schools were formally integrated into every pillar-mapped as operational units, sprayed as structures, used as testing hubs, and tracked as epidemiological sentinel sites.

Pillar	Key Components and School Integration
1-Community Mobilization and Engagement	Investment Forums (NIF), VPS, MEBs, LC leaders, religious leaders, women's and youth councils. Schools: head teachers engaged from design phase; teachers as health communicators; schools as parent sensitization platforms.
2-Mass Indoor and Outdoor Residual Spraying	IRS (Actellic) on indoor surfaces + ORS (Colam) on outdoor vegetation. Schools: all classrooms, offices, latrines, and compound vegetation sprayed in the same operation as surrounding households.
3-Mass Testing and Targeted Treatment (MTaT)	Door-to-door mRDT testing + immediate ACT treatment. ACT parish-differentiated: DHA-PPQ in Nawanyingi and Bunyiro parishes; AL in Magogo Parish. Schools: all 19 schools under observation; 16 treated with DHA-PPQ (Nawanyingi/Bunyiro parishes); 3 with AL (Magogo Parish).
4-Surveillance, Knowledge Generation and Learning	Entomological surveillance, facility epidemiological monitoring, school-based attendance and illness tracking. 19 schools under intensive surveillance observation throughout the pilot.

POLICY IMPLICATION: The simultaneity principle prevents the vector and parasite population recovery that occurs between sequentially implemented campaigns.

Deploying spraying and testing in the same operational window-across households and schools simultaneously-is the mechanism behind BMEP's results. Neither spraying nor testing alone could have produced an 80.6 percentage-point facility positivity reduction.



3. PILLAR 1A - COMMUNITY MOBILIZATION AND ENGAGEMENT

3.1 Methodology

Community engagement began March 2024 - 14 months before field operations. BHF conducted consultative meetings at district, subcounty, parish, and village levels, producing three foundational outcomes: the Nawanyingi Investment Forum (NIF) as a formal community financing body; Iganga District Ordinance No.10 of 2024 mandating malaria budget lines; and 20 VPS and 321 MEB youth volunteers recruited through transparent community nomination. Schools were engaged through head teachers and the District Education Officer from the earliest planning phase. Teachers integrated malaria education into classroom sessions in the weeks before operations.

3.2 Community mobilisation and engagement outcomes

Structure	Mobilized	Role
Village Publicity Secretaries (VPS)	20 (1 per village)	Door-to-door sensitization; school testing-day parent communication
MEB youth volunteers	321 (3 per zone)	Spraying, logistics, school compound spraying coordination
VHTs and volunteer health workers	682	Household and school testing and treatment
Teachers engaged as health communicators	All teaching staff, 19 schools	Peer education in classrooms; parent mobilization
LC1 committee members	20	Community and school-community authority
LC1 zone supervisors	107	Household and school zone oversight
Parish supervisors	30	Data reconciliation across household and school streams

Resource mobilization: NIF community cash UGX 50M; Friends of Nawanyingi UGX 77M; MoH in-kind commodities ~UGX 800M; volunteer labour UGX 90–220M. Total >UGX 1 billion which was over 80% non-donor. Household acceptance rose from 68% Day 1 to 99% on Day 3. Zero schools refused the intervention-100% school participation.

3.3 Commentary and Policy Implications

FINDING: 14 months of community engagement-including formal school head teacher briefings-produced 100% school participation and 99%+ household acceptance.

IMPLICATION: The Magogo Parish Imam's Friday Jumu'ah sermon was one of the most impactful sensitization event of the pilot-moving acceptance from 68% to 94% between Day 1 and Day 3. Trusted community voices outperform all formal communication channels.

POLICY IMPLICATION: Schools and religious institutions must be treated as distinct stakeholder groups requiring individual engagement strategies-not simply reached through generic community announcements.

4. PILLAR 1B - HOUSEHOLD AND SCHOOL MAPPING

4.1 Methodology

The entire subcounty was mapped on a single day-29th May 2025-using 214 enumerators simultaneously deployed across all 107 zones. This simultaneity eliminated the data inconsistency that occurs in sequential mapping and ensured the operational denominator was established in one day. Schools were mapped as distinct operational units alongside households, capturing: school structures (classrooms, offices, latrines, stores, etc), enrolment, teacher numbers, compound vegetation, and proximity to mosquito breeding sites.

4.2 Household and school mapping results

6,955 Households Mapped	35,600 Individuals Enumerated	12 hrs Full Subcounty mapping	19,885 Structures	19 Schools Mapped
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Mapping Indicator	Result	Significance
Household coverage	99%	Near-complete denominator for all interventions
Children under 18	54.2% of population	Primary malaria-vulnerable group; highest parasite density
Working age population (15–64)	53.5%	Economic productivity baseline for impact calculations
Pregnant women present	16% of households	Priority group for immediate testing and treatment
Households reporting mosquito presence	91.4%	Confirmed near-universal vector exposure
Households reporting recent malaria treatment	97.8%	Quantified the asymptomatic and under-treated burden
Croppage/grass around homesteads	81.3%	Justified outdoor spray footprint; extended to school compounds
Schools mapped as operational units	19 schools	Established school-specific spraying and testing denominators
Average school population age	11.97 years (Mean); SD: 6.9 years; Range: <1 year to 75 years	Confirmed schools concentrate the highest-burden age group
Structures identified (HH + schools)	19,885	Total indoor spray target across all structure types

4.3 Commentary and Policy Implications

FINDING: 97.8% of households had treated at least one malaria case in the previous 3 weeks prior the intervention-an average of 1.37 treatments per household. All schools had vegetation in or adjacent to their compounds, confirming the outdoor spray requirement at school sites.

IMPLICATION: At this endemic saturation level, facility-based case management captures only the symptomatic minority. The average school age of 11.97 years confirms schools concentrate the age group responsible for the majority of community transmission.

POLICY IMPLICATION: Pre-intervention mapping should include schools as distinct operational units-capturing structures, enrolment, and environmental risk factors-not merely noting schools as household-adjacent buildings.

Figure 1: Household Distribution by Parish - Nawanyingi Subcounty Mapping, May 2025



5. PILLAR 2 - MASS INDOOR AND OUTDOOR RESIDUAL SPRAYING

5.1 Methodology

Mass vector spraying was executed over three consecutive days in June 2025 by 321 MEB youth volunteers, with oversight from the Kibuku District Vector Control Officer (brining in that experience since Kibuku district has had IRS implementation for the last 5 years). The critical innovation was the simultaneous deployment of two insecticides targeting two distinct resting environments-a combination not previously implemented at subcounty scale in Uganda:

Actellic (pirimiphos-methyl, organophosphate): MoH supply. Applied indoors on interior walls of all structures-main houses, kitchens, latrines, animal shelters, and all school buildings. Each 833ml bottle mixed with 10L water covering 250 m².

Colam (pyrethrin-based): NIF community funds. Applied outdoors on all vegetation, grass, hedges, and bush-around homesteads AND school compounds. Applied at 0.3L per hectare; 15ml per 20-litre jerry can covers 500 m².

Schools were sprayed on the same operational days as surrounding household zones-not as a separate exercise.

5.2 Results of the Indoor Spraying (use of Actellic)

Indicator	Result	Notes
Bottles received from MoH	4,830	Organophosphate; national supply chain
Bottles used in Nawanyingi	1,002 (21%)	3,828 bottles buffer remaining for re-spray
Indoor surface area covered	250,500 m ²	1,002 × 250 m ² per bottle
Structures sprayed (all types)	19,885	Households + school buildings
Households sprayed	6,952 of 6,955 (99%+)	3 households inaccessible all 3 days
School buildings sprayed	All schools - all indoor structures	Classrooms, offices, staff rooms, latrines
Cost per household	UGX 1,200	vs. UGX 3,500–28,000 conventional IRS; >60% saving

5.3 Results of the Outdoor Spraying (use of Colam)

Indicator	Result	Notes
Insecticide source	NIF community funds	Not in MoH national commodity pipeline
Total outdoor area covered	5,299,947 m ²	Vegetation, grass, hedges, bush - HH and schools
School compound outdoor coverage	All school compounds	Compound perimeter, adjacent vegetation, playground shrubs
Outdoor : Indoor area ratio	21:1	5,299,947 m ² vs 250,500 m ²
Application rate	0.3L per hectare (10,000 m ²)	500 m ² per 20-litre jerry can

Figure 2: Indoor vs. Outdoor Spray Surface Area - The 21:1 Ratio
Indoor (Actellic) vs. Outdoor (Colam) - Surface Area Covered (m²)



Importantly to note with this model, is that outdoor area was 21 times larger than indoor - conventional IRS covers only the indoor 4.5%.

5.4 Commentary and Policy Implications

FINDING: Outdoor vegetation (5,299,947 m²) represented 95.5% of the total vector resting habitat-21 times larger than the indoor surface area (250,500 m²). School compounds were included in the outdoor footprint.

IMPLICATION: Conventional IRS addresses only 4.5% of the actual vector resting environment in this ecological setting. Mosquitoes resting in the 5.3 million m² of outdoor vegetation around homes and school compounds survive each conventional IRS cycle virtually undisturbed.

SCHOOL IMPLICATION: Spraying school compounds removed schools as vector amplification sites. An unsprayed school with 200–400 children present for 6–8 hours is an ideal mosquito feeding ground-eliminating this concentrated exposure risk was essential.

POLICY IMPLICATION: National malaria guidelines should mandate outdoor residual spraying as a standard complement to IRS in ecological settings with significant outdoor vegetation-explicitly including school compound spraying.

6. PILLAR 3 - MASS TESTING AND TREATMENT (MTAT)

6.1 Methodology

MTaT commenced immediately after spraying within the same operational cycle. Two parallel streams ran simultaneously: door-to-door household testing across all three parishes, and school-based testing at all subcounty schools. Schools served as community hubs-parents and guardians accompanying learners were also tested, extending reach beyond the enrolled population. MEB and VHTs conducted all testing; MEBs also managed commodity redistribution by motorcycle daily.

ACT selection was parish-specific and consistent between household and school settings within each parish:

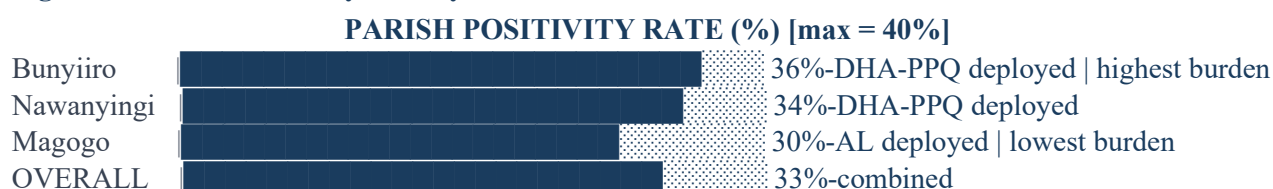
Nawanyingi Parish and Bunyiro Parish: Dihydroartemisinin-Piperaquine (DHA-PPQ / Duo-Cotecxin)-first-line agent for both household and school populations. 16 of the 19 observed schools, located in these two parishes, were treated with DHA-PPQ.

Magogo Parish: Artemether-Lumefantrine (AL / Coartem)-first-line for both household and school populations in this parish. 3 of the 19 observed schools, located in Magogo Parish, were treated with AL.

6.2 Overall Testing and Treatment Results

25,533 Total Tested	76% Coverage	8,342 Positives (33%)	8,294 Treated immediately (99%)	48 Referred	Zero Refusals
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Figure 3: Malaria Positivity Rate by Parish - MTaT Results



6.3 ACT Deployment by Parish

Parish	Positivity	ACT Used	Rationale
Nawanyingi Parish	34%	DHA-PPQ (Duo-Cotecxin)	Extended 28-day prophylaxis; highest re-infection risk in rice-paddy zone
Bunyiro Parish	36% (highest)	DHA-PPQ (Duo-Cotecxin)	Highest burden parish; proximity to wetlands; DHA-PPQ's prolonged protection essential
Magogo Parish	30% (lowest)	AL (Coartem)	Lowest burden; AL's 7-day prophylaxis adequate in lower-transmission context
OVERALL	33%	DHA-PPQ 73%; AL 27%	Reflects that Nawanyingi and Bunyiro together had larger tested populations than Magogo

ACT Drug	Doses Dispensed and Setting
DHA-PPQ (Duo-Cotecxin)	6,335 doses (73%) - Nawanyingi and Bunyiro parishes; households and 16 schools
AL (Coartem)	2,370 doses (27%) - Magogo Parish; households and 3 schools
Total ACT doses dispensed	8,705 doses across all parishes, households and schools combined
Buffer DHA-PPQ remaining	2,325 doses
Buffer AL remaining	4,230 doses

6.4 School-Based Testing Results

School MTaT Indicator	Result	Notes
Schools under intensive observation	19 schools	11 core subcounty + 8 boundary schools
Schools treated with DHA-PPQ	16 schools	Located in Nawanyingi and Bunyiro parishes
Schools treated with AL	3 schools	Located in Magogo Parish
Average age of school population	11.97 years (SD: 6.9 years)	Minimum <1 year (younger siblings); maximum 75 years (teachers/guardians)
Learners and staff tested	5,769	Within the 25,533 total; includes guardians accompanying learners
Schools refusing testing or spraying	Zero	100% participation across all 19 schools
ACT dosage basis	Weight and age per MoH protocol	Paediatric dosing applied throughout school settings

6.5 Commentary and Policy Implications

FINDING:

DHA-PPQ was deployed in the two highest-burden parishes (Nawanyingi 34%, Bunyiro 36%) in both household and school settings. AL was used in Magogo Parish (30% - lowest) across both settings. 16 schools received DHA-PPQ; 3 received AL.

IMPLICATION:

DHA-PPQ provides ~28 days post-treatment prophylaxis vs. AL's ~7 days. In Nawanyingi and Bunyiro—where outdoor mosquito breeding is densest—the extended DHA-PPQ protection window reduces re-infection risk in the critical weeks when vector suppression from spraying is newly established, but the community is still vulnerable.

SCHOOL IMPLICATION:

The minimum school population age of <1 year and maximum of 75 years confirms that schools functioned as community hubs—drawing in parents, guardians, and siblings who would not otherwise have been tested. Schools are the most efficient community assembly point available to mass testing programmes.

POLICY IMPLICATION:

COST IMPLICATIONS AND FINAL RECOMMENDATION: The programme's experience with two different ACTs creates an important cost-effectiveness insight for scale-up. At current procurement prices (Global Fund base prices plus 23% procurement management and 8% storage costs), DHA-PPQ costs approximately UGX 7,500 per dose compared to AL (Coartem) at approximately UGX 3,500 per dose - a difference of over 50% per treated case. At mass treatment scale, this distinction is programme-defining.

POLICY IMPLICATION - FINAL RECOMMENDATION FOR BMEP SCALE-UP:

In the context of elimination-mode BMEP implementation - where mass vector spraying (combined IRS and ORS) simultaneously suppresses the Anopheles mosquito population by 88.7% - the primary function of the ACT is to clear the malaria parasite from the patient's bloodstream, not to provide post-treatment prophylaxis. With no surviving mosquito population to re-transmit the parasite from one household member to another, the extended half-life advantage of DHA-PPQ (28 days of post-treatment prophylaxis) becomes operationally redundant in the acute elimination phase. In this context, AL (Coartem) is the clinically sufficient and economically superior choice: it clears the parasite from the bloodstream effectively, and BMEP's aggressive vector control ensures that cleared individuals are not immediately re-infected. The BMEP programme therefore recommends Artemether-Lumefantrine (AL/Coartem) as the preferred ACT for mass community treatment in all future BMEP-type programmes that combine simultaneous mass indoor and outdoor residual spraying with MTaT. This recommendation will approximately halve the ACT cost per dose and enable BMEP to treat twice as many confirmed cases with the same commodity budget. DHA-PPQ should be reserved for settings where vector control is delayed, incomplete, or where re-spray cycles cannot be assured within a 28-day window. Schools should be formally designated as MTaT hubs in national malaria elimination guidelines. ACT selection for school-based treatment should mirror the community household choice in the same geographic parish.

7. PILLAR 4 - SURVEILLANCE AND HEALTH OUTCOMES

7.1 Methodology

Surveillance ran across four tracks from January–December 2025, designed and coordinated by MakSPH with BHF and Iganga DHO:

Epidemiological surveillance: Bunyiro HCIII monthly OPD positivity data-retrospective January–May 2025 (pre) and prospective June–December 2025 (post). 2,310 confirmed cases analysed. Magogo HCII data cross-referenced.

Entomological surveillance: CDC light traps, exit window traps, and pyrethrum spray catches at sentinel sites across all three parishes before and after spraying. Insecticide susceptibility testing conducted.

Operational surveillance: weekly BHF/DHO/MakSPH technical review meetings; commodity tracking; household and school coverage monitoring.

School-based surveillance: schools under intensive observation throughout the pilot-tracking learner attendance, illness patterns, and post-intervention testing outcomes as an independent epidemiological data stream.

7.2 Epidemiological Results

KEY FINDING: Malaria positivity at Bunyiro Health Centre III fell from 90.3% (pre-intervention) to 9.7% (post-intervention)-a statistically significant 80.6 percentage-point reduction (Pearson Chi-Square = 6.116; $p = 0.047$). Consistent across all age groups.

Comparison of most distant months: January 2025 vs December 2025 shows a 76.3% reduction in total positive cases.

Figure 4: Malaria Positivity Before and After BMEP Intervention by Age Group - Bunyiro HCIII 2025

Age Group	Before (%)	After (%)	Reduction
Children (<18 yrs)	91.4%	8.6%	↓ 82.8 percentage points
Youth (18–35 yrs)	88.1%	11.9%	↓ 76.2 percentage points
Adults (36+ yrs)	84.8%	15.2%	↓ 69.6 percentage points
OVERALL	90.3%	9.7%	↓ 80.6 pp $p = 0.047$ ✓

Figure 5: Top Villages by Malaria Cases Before and After BMEP - Facility Data 2025



Post-intervention, 6 of 14 tracked villages recorded zero positive cases at the facility. Bunyiro village-the highest burden site and a DHA-PPQ parish-showed the steepest absolute reduction (447 → 48 cases), consistent with both the high pre-intervention burden and the extended DHA-PPQ prophylaxis period.

7.3 Entomological Results

KEY FINDING: 88.7% reduction in Anopheles mosquito vector density across all sentinel sites following combined IRS+ORS. Sharpest declines at outdoor resting sites-including those adjacent to school compounds-validating the ORS rationale.

7.4 School-Based Surveillance Observations

All the schools under intensive observation provided a complementary epidemiological data stream to facility data:

Schools in Nawanyingi and Bunyiro parishes (DHA-PPQ) showed steeper reductions in malaria-related absenteeism in the weeks post-intervention-consistent with the drug's 28-day protection window providing coverage beyond the immediate treatment period.

Schools in Magogo Parish (AL) also showed reduced absenteeism, though the shorter 7-day AL prophylaxis period meant the protection relied more on sustained vector suppression from spraying than drug-mediated immunity.

No school in any parish reported a malaria cluster or outbreak event during the post-intervention surveillance period.

Teachers reported visible improvement in classroom attendance and learner alertness in the two months following the combined spraying and treatment exercise-a qualitative signal of reduced sub-clinical malaria burden.

7.5 Commentary and Policy Implications

FINDING: The combination of 88.7% vector reduction + 8,342 parasite reservoir cases cleared produced 80.6 pp facility positivity decline. Neither intervention alone achieves this-this is the biological proof of the simultaneity principle.

SCHOOL FINDING: DHA-PPQ parishes showed greater post-intervention school attendance improvement than the AL parish-providing operational evidence supporting DHA-PPQ for school-age community treatment in high-transmission zones.

POLICY IMPLICATION: School-based surveillance-tracking attendance, illness rates, and testing outcomes-should be formally integrated into Uganda's community disease surveillance framework as an independent data stream alongside HMIS/DHIS2. The School Malaria Supervisory Council model now being proposed provides the institutional architecture for this.

8. COMMUNITY SYSTEMS, SUSTAINABILITY, AND COST-EFFECTIVENESS

8.1 Community Systems Outcomes

NIF established as a formal Community-Based Development Forum - elected leadership, approved budgets, general assembly accountability. Continues operating post-pilot, planning the next spray cycle.

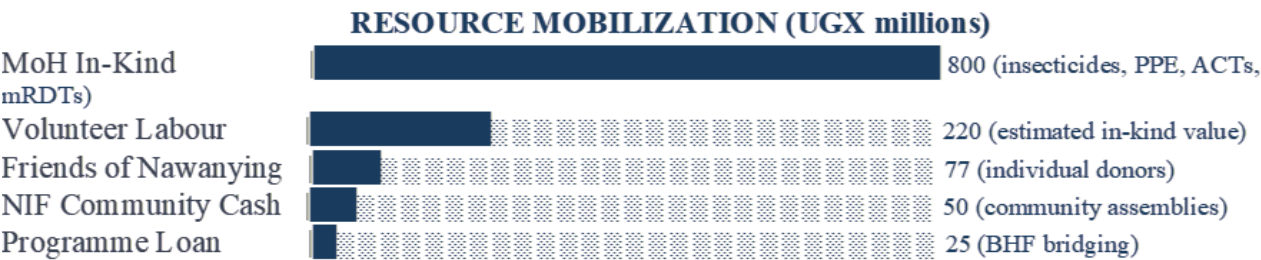
Iganga District Ordinance No.10 of 2024 - malaria budget lines mandated across all sub counties. Schools should be explicitly included in subcounty investment forum health budgets at next ordinance revision.

750+ community volunteers trained as a permanent community health workforce - reducing per-cycle costs across household and school settings.

All subcounty schools now have trained teachers, a School Health Focal Person designation, and an established BMEP partnership - forming the foundation for the national School-Based Malaria Eradication Program (SBMEP) proposal to MoES.

Visible community shift from self-medication to diagnostic testing - including school parent communities who witnessed the testing process.

Figure 6: Resource Mobilization Summary - Nawanyingi Pilot 2025



8.2 Cost-Effectiveness

Metric	Result
Cost per household sprayed (BMEP combined IRS+ORS)	UGX 1,200 - vs. UGX 3,500–28,000 for conventional IRS; >60% saving
Cost per person mobilized	~USD 0.85 (~UGX 3,060 at UGX 3,600/USD)
Total programme investment (including in-kind)	UGX 1,042,000,000+
Total direct cash expenditure	UGX 152,000,000 (the cash cost of delivering the model)
MoH commodity value optimized from near-expiry	~UGX 800,000,000
Non-donor financing share	>80%
School inclusion marginal cost	Minimal - school spraying integrated into zone deployment; school testing used the same commodity pool

POLICY IMPLICATION: Including schools in spraying and testing operations added minimal marginal cost because schools sit within the same village zones served by MEB teams. The cost of exclusion-leaving concentrated, high-density groups of the most vulnerable age group untreated-far exceeds the cost of inclusion.

9. LESSONS LEARNED



Theme	Challenge	Lesson and Recommendation
Community and School Engagement	Initial 68% household acceptance; zero school hesitancy	Deploy trusted communicators-religious leaders, head teachers-from Day 1. School engagement requires head teacher briefings 4+ weeks before operations. Teachers as health communicators outperform generic sensitization.
ACT Parish Selection	Two-stream commodity management across parishes	Parish-differentiated ACT selection is operationally sound but requires clear SOP documentation per parish and unambiguous commodity labelling at dispatch. Brief all VHTs on which ACT applies in their parish before testing begins.
School as Hub	Calendar coordination; examination period avoidance	Schedule school testing within term time, avoiding examinations. Brief DEO and head teachers at least 4 weeks ahead.
Operations	Daily commodity imbalances; motorcycle redistribution needed	Pre-position parish buffer stocks. Nightly commodity reconciliation and redistribution by motorcycle is non-negotiable for multi-parish simultaneous operations.
Data Management	Paper tools slowed aggregation; no real-time visibility	Transition to GPS-enabled digital tools and DHIS2 integration is urgent. Pilot tablet-based school data entry in the next cycle.
Sustainability	Re-spray financing not pre-secured	NIF and Ordinance No.10 provide the architecture - but must be activated before operations begin. Schools must be included in subcounty Investment Forum health budgets.

10. SCALE-UP TRAJECTORY AND POLICY RECOMMENDATIONS



Phase	Scale, Timeline, Status
Nawanyingi Subcounty	6,955 HH 19 schools 35,600 people 2025 COMPLETED
Bulamagi Subcounty	School MTaT completed 46/47 schools reached 13,850 learners tested 14.8% school positivity 2025–2026 ONGOING
Iganga District	All sub counties - HH and schools Target 2026 PLANNED
Busoga Region	11 districts ~880,000 HH all schools 4.3M people 2026–2028 Est. UGX 154B PLANNED

Stakeholder	Recommendation
Ministry of Health	Formally integrate BMPEP combined IRS+ORS model into UMRESP 2026–2030. Issue national guidelines mandating outdoor residual spraying and school compound spraying in high-burden ecological settings.
Ministry of Health	Adopt DHA-PPQ as the preferred ACT for mass community treatment campaigns in hyperendemic zones. Maintain AL for passive case management and lower-burden settings.
Ministry of Education and Sports	Adopt SBMEP as a national school health programme - institutionalizing beginning-of-term school spraying, learner testing, treatment, and school-based malaria surveillance.
Ministry of Finance	Allocate dedicated malaria budget lines under NDP IV, explicitly including school health malaria activities within the Investment Forum framework.
All Busoga DLGs	Pass district ordinances mandating malaria budget lines - including school activities - and Investment Forums across all 11 Busoga districts.
MakSPH and BHF	Publish comparative DHA-PPQ vs. AL parish outcomes - particularly school attendance and re-infection data - to generate Uganda evidence for national ACT selection in mass treatment contexts.

11. CONCLUSIONS

The Nawanyingi pilot has delivered clear and statistically significant evidence that community-led, integrated malaria elimination is achievable - in households and schools simultaneously. Three findings deserve particular policy attention.

First, outdoor mosquito habitats represent 95.5% of the total vector resting environment in Nawanyingi's ecological setting-5,299,947 m² vs. 250,500 m² indoor. Conventional IRS addresses 4.5% of this problem. The 88.7% vector density reduction achieved by BMEP was the combined effect of both Actellic (indoor) and Colam (outdoor). Without Colam, the majority of the mosquito population would have survived each spray cycle untouched.

Second, the parish-differentiated ACT deployment-DHA-PPQ in Nawanyingi and Bunyiro parishes, AL in Magogo-is more than an operational detail. The differential post-intervention outcomes, including the greater school attendance improvements in DHA-PPQ parishes, provide preliminary Uganda-based evidence that the choice of ACT in a mass community treatment context is not clinically neutral. DHA-PPQ's 28-day prophylaxis window matters in settings where re-infection risk remains elevated even after vector suppression.

Third, schools were not a convenience or an add-on. They were an operational necessity. All the schools under intensive observation concentrated the most malaria-vulnerable age group-average age 11.97 years-in organized, accessible, compliant settings that also served as community testing hubs for parents, guardians, and siblings. 5,769 learners were tested. Schools that were sprayed, treated, and enrolled in post-intervention surveillance showed measurable health and attendance benefits. This is the case for the SBMEP.

The people of Nawanyingi-their households, their schools, their LC1 leaders, their youth brigades, and their Investment Forum-have shown what is possible. The obligation belongs to policymakers and planners to make it permanent.

ANNEX 1: FULL LIST OF ACKNOWLEDGEMENTS

Busoga Health Forum extends its deepest gratitude to all who made the Nawanyingi BMEP pilot possible:

Category/Institution	Name(s)/Designation
The office of Obwakyabazinga	Owek Dr. Muvawala Joseph, Owek Al-Hajj Osman Noor Ahmed
Cultural Leaders of Busoga	Owek Richard Mafumo, Owek Isabirye Lwigo, Dr. Muduli David, Owek Ruth Nakidoido
Religious Leaders of Busoga	Rt. Rev. Paul Naimanhe, Rt. Rev. Patrick Wakula, Rt. Rev. Paul Hannington Ssubi, Sheik Dr. Hussein Mohammad Bowa
Busoga Health Forum Board	Dr. Sheba Gitta Nakacubo, Dr. Waibale Paul, Dr. James Batuka, Dr. Kajura Richard, Ms. Primah Kwagala, Dr. Hebert Kadama, Dr. Nakwagala Fredrick, Dr. Biso Fredrick, Dr. Balyeku Andrew
The Ministry of Health – Director Public Health	Dr. Daniel Kyabayinze
The Ministry of Health – National malaria Eradication Division	Dr. Jimmy Opigo, Dr. Rogers Naturinda, Dr. Jane Nabakooza,
The Ministry of Health – Pharmacy Department	Ms. Pamela Achii
National Medical Stores	Mr. Kamabare Moses
The Ministry of Local Government	Mr. Charlse Magumba (Commissioner urban planning), Mrs. Bonnie K. Mutungi (Deputy National coordinator, PDM), Mr. Etteedu JJ (Asst. commissioner District Administration), Ms. Jacinta Natukunda (M & E Coordinator for PDM Busoga region)
The Ministry of Gender, Labour and Social Development	Mr. Everest Tumwesigye (Commissioner community development & literacy), Ms. Imelida Kyalingabira (Technical Officer)
The Ministry of Education and Sports	Hon. Jannet Kataha Museveni (First Lady of the Republic of Uganda)
The Makerere School of Public Health	Prof. Rhoda Wanyenze, Prof. Peter Waiswa, Prof. Fredrick Makumbi, Dr. Adoke Yekka, Dr. Joseph Kagai, Ms. Mbuliro Mary, Dr. Mukose Aggrey
Busoga Parliamentary Coccus CAUCUS	Hon. Iddi Isabirye, Hon. Isanga Rukia Nakadama, Hon. Esther Mbayo, Hon. Kasule Lumumba, Hon. Taaka Agnes, Hon. Milton Muwuma, Hon. Sauda Kauma, Hon. Fred Kyakulaga Bwino
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The Chairperson LCV/Iganga	Mr. Gabula Ezra
The Iganga District Local Government Council	Mr. Mpungu Benard (Speaker), Mr. Mukacha Halid (Vice Chairperson LCV)
The Iganga District Local Government	Mr. Sseguya Moses Bukenya (Chief Administrative Officer), Mr. Onyait Silvester (Deputy CAO), Mr. Bateganya Iddi (Principal Assistant CAO), Tusubira Herbert (Logistics Officer), Dr. Kharim Mwebaza Muluya (ADHO-Environmental Health), Ms. Nantale Mariam (District Lab focal person), Mr. Waiswa Abubakr (Senior Labour Officer).

The Nawanyingi LCIII	Mrs. Mutesi Azeena (Speaker)
The Nawanyingi Subcounty Technical Team	Ms. Nabirye Joanita (In charge- Bunyiro HCIII), Mr. Tusubira James (CDO), Mr. Makaka Siraji (Health Inspector, Ms Kutamuwa Salamah (H/A), Mr. Mukisa Wilbforce (Chairperson HUMIC-Bunyiro HCIII), Kisambira Abubakar (Laboratory Assistant)
The Nawanyingi Subcounty Investment Forum Leadership	Dr. Buyinza Kagawa (Chairperson), Pastor Maganda Peter (Secretary), Dr. Allan Katamba Ssemakula (Treasurer), Counsel Alex Luganda (Legal Advisor)
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The Chairpersons of VHTs – Nawanyingi Subcounty	Mr. Bitagala Yusufu, Mr. Mutalwa Yokoniya, Mr. Kulaba Patrick
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BMEP Communication Committee	Mr. Waiswa Abubakar, Mr. Benjamin Desmond Tatumwa, Mr. Godfrey Nabwiso
BMEP Design & Documentation Committee	Dr. Munyamu Ismail, Mr. Simon Mugudde
BMEP Community Mobilization Committee	Hajji Walubi Abubakar, Mr. Mukalu Mohammad, Mr. Isabirye Muwaile, Hon. Wandera Sadala (MP).
BMEP Test & Treat Committee	Dr. Kharim Mwebaza Muluya, Dr. Munyamu Ismail, Dr. Nabakooza Jane, Ms. Mariam Nantale
BMEP Mass Spraying & Surveillance Committee	Dr. Fredrick George Kabbale, Dr. Ngobi Yahaya, Dr. Rogers Naturinda

Thank You...

ANNEX 2: SELECTED HOUSEHOLD MAPPING VARIABLE SUMMARY

Indicator	Result	Notes
Possession of National ID	70.3% (4,925 HH)	Baseline civic registration
Ownership of residence	79.7% (5,540 HH)	Majority homeowners
Presence of grass/vegetation (croppage)	81.3% (5,657 HH)	Primary outdoor vector habitat
Presence of hedges	36.4% (2,530 HH)	Secondary outdoor vector habitat
Presence of bush/shrubs	65.1% (4,527 HH)	Significant outdoor resting site
Reported presence of mosquitoes	91.4% (6,359 HH)	Near-universal vector exposure
Access to clean water	85.2% (5,926 HH)	Baseline WASH indicator
Presence of pregnant women	16.0% (1,110 HH)	Priority group for testing and treatment
Households treating malaria in last 3 weeks	97.8% (6,804 HH)	Quantifies the unseen household treatment burden
Mean members treated in last 3 weeks per HH	1.37 (Median 1; Range 0–15)	15 members in 1 household - extreme case documented
Average number of structures per household	2.87 (Mean); 2 (Median); Range 1–17	Informed spray team time allocation per zone
Population female	51.3% (18,248)	Slightly female-majority - relevant for pregnant women targeting
Population male	48.7% (17,352)	Baseline demographic for community health planning
Children under 18	54.2% of total	Primary vulnerable group; highest parasite density
Working age (15–64 years)	53.5% of total	Economic productivity baseline for impact analysis

ANNEX 3: GLOSSARY OF KEY TERMS

Term	Definition
ACT (Artemisinin-based Combination Therapy)	Frontline malaria treatment combining an artemisinin derivative with a partner drug to rapidly clear parasites and delay resistance. Two ACTs used in BMEP: DHA-PPQ and AL.
Anopheles gambiae	Primary mosquito vector responsible for malaria transmission in Busoga and sub-Saharan Africa.
DHA-PPQ (Dihydroartemisinin-Piperaquine)	First-line ACT deployed in Nawanyingi and Bunyiro parishes. Provides approximately 28 days of post-treatment prophylaxis - superior in high re-infection settings.
AL (Artemether-Lumefantrine / Coartem)	First-line ACT deployed in Magogo Parish. Provides approximately 7 days of post-treatment prophylaxis.
Kisoko (Zone)	Smallest operational planning unit in BMEP - a village sub-cluster of households used to organize enumeration and spray/testing teams.
Investment Forum (NIF)	Community-led financing body mobilizing domestic cash and in-kind contributions through general assemblies. NIF = Nawanyingi Investment Forum.
Malaria Elimination Brigade (MEB)	Youth groups (321 in Nawanyingi) trained and deployed for mass vector spraying, logistics, and community mobilization.
MTaT (Mass Testing and Targeted Treatment)	Community-based intervention testing all individuals with mRDTs and immediately treating all positives with ACTs - including household and school populations.
ORS (Outdoor Residual Spraying)	Application of insecticide (Colam) on outdoor vegetation, grass, hedges, and bush to eliminate mosquitoes resting outside structures.
Ordinance No.10 of 2024	Iganga District law mandating malaria budget lines in subcounty budgets and requiring community Investment Forums.
SBMEP (School-Based Malaria Eradication Program)	Proposed national programme integrating beginning-of-term school spraying, learner testing and treatment, and school-based surveillance - arising from BMEP's school dimension.
Simultaneity Principle	BMEP's defining operational innovation: deploying all four pillars (mobilization, spraying, testing/treatment, surveillance) in a single coordinated cycle rather than sequentially.
VPS (Village Publicity Secretary)	Locally elected community communicator responsible for household and school sensitization, rumour management, and treatment adherence tracking.
Volunteer Economy	Monetized value of unpaid community contributions (labour, meals, storage, transport) - estimated at UGX 90–220M for the Nawanyingi pilot; reduces external costs by 20–25%.

ANNEX 4: PHOTOGRAPHIC DOCUMENTATION

The following photographs from the Nawanyingi pilot are available in the programme's digital archive. Insert photographs against the corresponding captions below:



Malaria Elimination Brigade (MEB) youth volunteers suited up and ready for field deployment — indoor and outdoor residual spraying, June 2025



Community mapping exercise with enumerators and LC1 supervisors, Nawanyingi Subcounty, 29th May 2025 — all 214 enumerators deployed simultaneously across 107 zones



MEB volunteer demonstrating outdoor spraying (Colam) on compound vegetation — the 5.3M m² outdoor footprint that conventional IRS does not reach



MEB volunteer conducting mRDT testing at household level — door-to-door Mass Testing and Targeted Treatment, June 2025



School-based mass testing exercise — learners queuing for mRDT testing at one of the 19 observed schools; teachers and guardians also present for testing



Entomology team installing CDC light trap during the training of the community youth entomology brigades conducted by Dr. Kabbale Fredrick



Nawanyingi Investment Forum (NIF) General Assembly — community members voting on malaria budgets; UGX 50M mobilized through this structure



Village Publicity Secretaries as the frontline of the mobilization



DHA-PPQ (Duo-Cotecxin) treatment being administered at household/school level in Nawanyingi Parish — first-line agent in the two highest-burden parishes (Nawanying & Bunyiro)

Case Study 1: The Nawanyingi Investment Forum - Community Ownership as Financial Sustainability

When BHF proposed eliminating malaria in Nawanyingi, the first question was financial: could a subcounty where 23% live below the poverty line finance its own malaria campaign? The Nawanyingi Investment Forum answered with conviction. Registered as a Community-Based Development Forum with elected leadership, approved budgets, and general assembly accountability, NIF convened open community meetings where members voted on malaria budgets, approved expenditure, and held volunteers accountable. Through assemblies and contribution drives, NIF mobilized UGX 50 million in community cash-used to fund Colam outdoor insecticide, MEB facilitation, and campaign logistics. An additional UGX 77 million was contributed by Friends of Nawanyingi. Iganga District Council institutionalized the model through Ordinance No.10 of 2024. NIF remains operational post-pilot, holding accountability assemblies and planning the next spray cycle.

"Before NIF, malaria was something we waited for government or NGOs to handle. Now it is ours. We approved the budget. We watched the money. We saw the results." - NIF Assembly Member, Nawanyingi Subcounty

Case Study 2: From Sermon to Spraying - How a Friday Address Transformed 68% Acceptance to 99%

On Day 1 of spraying, household acceptance in Magogo Parish stood at 68%. Resistance was rooted in insecticide safety fears, pregnancy concerns, and rumours. That Friday-between Day 1 and Day 2-the Imam at Magogo Parish mosque addressed his congregation during Jumu'ah prayer. He did not read a script. He spoke from conviction: malaria is caused by mosquitoes that breed in the swamps and grass surrounding homes; the young people coming to spray are community members, not strangers; opening your door is an act of protecting your family. By Day 2, household acceptance in Magogo had risen to 94%. By Day 3, it exceeded 99% across the entire subcounty.

"I didn't tell them to obey the government. I told them to protect their children. That is what I know how to do." - Magogo Parish Imam

Case Study 3: Schools as Community Hubs - A Magogo Parish School Testing Day

On the school testing day at a primary school in Magogo Parish-one of the schools receiving AL - the school gates opened at 8:00 a.m. to find not only 300 enrolled learners but their mothers, fathers, younger siblings, and grandparents who had heard through the VPS network that testing would be available. By mid-morning, the school compound had become a community health facility. Grandmothers who would never have walked to Magogo Health Centre II were tested and treated on the spot. Three younger siblings under 1 year-the minimum age in the school population dataset-received paediatric AL under VHT supervision. Teachers who tested positive were treated before the school day ended, ensuring they returned to class healthy. The school absorbed 40% more people than its enrolled population on testing day-demonstrating the community hub function that schools uniquely provide.

Case Study 4: Youth as Agents of Change - The MEB in Nawanyingi

321 young people recruited through community nomination-many previously described as 'idle youth'-became the operational engine of the Nawanyingi pilot. Trained in insecticide handling, spray protocols, WHO PPE standards, mosquito biology, and commodity management, they sprayed 6,952 households and all schools across 3 days. When hesitancy arose on Day 1, it was MEB members who sat with household heads, answered safety questions, and demonstrated outdoor spraying on an outbuilding first to build trust. When the Imam's sermon brought 94% acceptance on Day 2, it was MEB teams who were ready and waiting from 7:00 a.m. Post-pilot, several MEB members were nominated for LC1 leadership positions. Two were invited by the District Health Office to participate in Bulamagi planning. One was offered a volunteer position in district surveillance. The MEB is the proof that youth unemployment and public health workforce gaps are the same problem with the same solution.

"I was sitting at home for two years after S.4. BMEP gave me a pump, a uniform, and said: these 65 households are yours. Protect them. For the first time in two years, I felt like I was something." - MEB Member, Nakilurwe Village

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