

TiGEN

Tidzuke Girls Engineering Network Project

Empowering Rural Girls Through STEM, Innovation, Water Resilience and Climate Action

A Transformative Initiative by Girl Engineer | Malawi, Southern Africa

150

Rural Girls
Directly Supported

\$210,500

Total Project
Investment

83%

Direct to
Beneficiaries

Every dollar invested creates a ripple effect: 150 girls gain STEM skills, confidence, and pathways to become engineers, innovators, and climate leaders—transforming their communities for generations.

Project Duration: 24 Months | Location: Rural Malawi | Organization: Girl Engineer

June 2026

EXECUTIVE SUMMARY

Tidzuke Girls Engineering Network (TiGEN) is a bold, youth-led initiative that unlocks the potential of 150 rural girls in Malawi through immersive STEM education, hands-on engineering, digital literacy, climate innovation, and mentorship. This is not just a project—it is a movement to build Africa's next generation of female engineers and climate leaders.

Why This Matters Now

Malawi faces one of the most severe gender gaps in STEM education globally. Rural girls are systematically excluded from science and technology due to poverty, lack of resources, deep-rooted gender stereotypes, and a critical shortage of female role models. Without intervention, thousands of brilliant young minds remain untapped, and communities lose the very innovators needed to solve water scarcity, climate vulnerability, and economic stagnation.

Our Unique Approach

TiGEN combines five powerful pillars into one integrated program: STEM Outreach Labs, Water & Climate Innovation Hub, Digital Skills Training, Mentorship from Female Engineers, and Sustainable STEM Clubs. Unlike traditional interventions, we do not just teach—we empower girls to design, build, and lead solutions to real community challenges.

Direct Beneficiaries	Investment Efficiency	Sustainability Model
150 girls in rural Malawi receive direct STEM training, materials, mentorship, and support over 24 months.	83% of every dollar reaches girls directly. Only 12% for administration and 6% for monitoring and evaluation.	School-based STEM clubs and trained teachers ensure impact continues beyond project funding.

The Ask

We seek \$210,500 to transform 150 lives, build 6 school STEM clubs, train 12 teachers, and create a replicable model for rural STEM empowerment across Africa. Your investment does not just fund a program—it fuels a generation of change-makers.

THE CRISIS: WHY RURAL GIRLS NEED TiGEN

The STEM Gender Gap in Malawi

Malawi is one of the poorest countries in the world, with over 70% of the population living in rural areas. For girls in these communities, the barriers to STEM education are not just challenging—they are systemic and overwhelming:

1. Economic Exclusion

Poverty forces families to prioritize boys' education. 65% of rural girls drop out before completing secondary school. STEM subjects require costly materials, equipment, and fees that families cannot afford.

2. Resource Desert

Rural schools lack laboratories, computers, internet, and qualified STEM teachers. Girls learn science from textbooks without ever touching a microscope, writing code, or building a circuit.

3. Cultural Barriers

Deep-rooted gender stereotypes tell girls that engineering is "for boys." Without female engineers as visible role models, girls internalize these limits and self-select out of STEM pathways.

4. Climate Vulnerability

Malawi faces devastating floods, droughts, and water scarcity. Girls bear the burden of water collection, walking hours daily. They have the lived experience to design solutions—but lack the skills and platform to do so.

The Cost of Inaction: Without targeted intervention, Malawi will continue to lose its brightest female minds to poverty and exclusion. Communities will remain without the engineers, scientists, and innovators needed to solve critical water, climate, and development challenges. TiGEN exists to break this cycle—permanently.

PROJECT GOAL & OBJECTIVES

OVERARCHING GOAL: To empower 150 rural girls in Malawi with STEM knowledge, practical engineering skills, digital literacy, and leadership abilities that prepare them for education and future careers in STEM fields—while enabling them to design climate and water solutions for their communities.

Five Strategic Objectives

01

Increase Access to Hands-On STEM Learning

Establish 6 STEM Outreach Labs in rural schools, providing 150 girls with direct access to robotics, coding, science experiments, and engineering activities. Each girl receives at least 120 hours of practical STEM instruction over 24 months.

02

Strengthen Confidence, Leadership & Problem-Solving

Build girls' self-efficacy through project-based learning, public speaking, team leadership roles, and community presentations. 90% of participants will report increased confidence in STEM abilities.

03

Promote Climate & Water Innovation Solutions

Launch the Water & Climate Innovation Hub where girls design, prototype, and present solutions for water access, sanitation, and climate resilience. At least 10 community-relevant innovations will be developed.

04

Provide Mentorship from Female STEM Role Models

Connect each girl with a female engineer, scientist, or innovator mentor. 150 mentorship pairings with monthly virtual sessions and quarterly in-person workshops.

05

Support Vulnerable Girls with Learning

Provide uniforms, STEM kits, learning materials, and transportation support to the most vulnerable girls. Ensure no girl is excluded due to poverty.

PROJECT ACTIVITIES & METHODOLOGY

TiGEN delivers impact through five interconnected activity pillars, designed to create a comprehensive ecosystem of support, learning, and innovation for rural girls.

STEM Outreach Labs

Hands-on workshops in 6 rural schools covering robotics, coding fundamentals, electronics, science experiments, and engineering design challenges. Each lab session is 4 hours, held bi-weekly, reaching 25 girls per school. Girls build real projects—from simple circuits to programmable robots—developing tangible skills and confidence.

Water & Climate Innovation Hub

A dedicated innovation space where girls identify local water and climate challenges, brainstorm solutions, prototype designs using low-cost materials, and present their innovations to community leaders and engineers. This hub transforms girls from passive learners into active problem-solvers and community innovators.

Digital Skills Training

Comprehensive digital literacy program including basic computer operations, introduction to coding (Scratch and Python), internet safety, digital storytelling, and online research skills. Girls learn to use technology as a tool for learning, expression, and advocacy. 30 computers and tablets provided across hub locations.

Mentorship Program

Structured mentorship connecting each girl with a female engineer, scientist, or technology professional. Monthly virtual mentoring sessions, quarterly in-person workshops, career guidance, university application support, and personal development coaching. Mentors are recruited from Malawi's engineering sector, universities, and diaspora networks.

STEM Clubs & Teacher Training

Establishment of sustainable school-based STEM clubs in all 6 partner schools, supported by trained teachers. 12 teachers receive intensive STEM pedagogy training, ensuring project activities continue beyond the funding period. Clubs meet weekly, run by peer leaders, creating a self-sustaining culture of STEM excellence.

TARGET BENEFICIARIES

TiGEN is designed to reach the girls who need it most—those who have been systematically excluded from STEM opportunities due to poverty, geography, and gender discrimination.

Primary Beneficiaries: 150 Rural Girls

Demographic Profile	Vulnerability Criteria	Geographic Focus
Ages 12-18 (primary and secondary school)	Girls from child-headed households	6 rural schools in 3 districts
70% from households below national poverty line	Orphans and vulnerable children	Communities with limited water access
60% from single-parent or guardian-headed households	Girls with disabilities	Areas with high climate vulnerability
40% at high risk of school dropout	Girls from families affected by climate disasters	Schools with no existing STEM programs
	Girls with no prior STEM exposure	Communities within 50km of project hub

Secondary Beneficiaries

- 12 Teachers trained in STEM pedagogy and gender-responsive teaching
- 30+ Female Mentors engaged in professional development and leadership
- 6 School Communities with improved STEM infrastructure and culture
- 3,000+ Community Members reached through innovation showcases and awareness campaigns
- Future Generations of girls who will benefit from established STEM clubs and trained teachers

Selection Process: Girls are identified through school counselors, community leaders, and social workers using a vulnerability index. Parental consent is obtained and a commitment agreement ensures regular participation. Priority is given to girls with the highest need and lowest existing

opportunity.

EXPECTED IMPACT & OUTCOMES

TiGEN is designed for measurable, transformative impact at the individual, community, and systemic levels. Our theory of change is simple: when girls gain STEM skills, confidence, and mentorship, they become innovators who transform their communities.

Quantitative Impact Targets (24 Months)

Impact Area	Target	Measurement Method
Girls completing full STEM training program	150 girls (100%)	Attendance records, completion certificates, pre/post assessments
Girls reporting increased STEM confidence	135 girls (90%)	Standardized self-efficacy surveys, quarterly interviews
Girls improving academic STEM performance	120 girls (80%)	School grade tracking, national exam results comparison
Climate/water innovations developed	10 prototypes	Innovation showcase evaluations, community feedback
Girls staying in school (retention rate)	140 girls (93%)	School enrollment tracking, dropout monitoring
Teachers trained in STEM pedagogy	12 teachers	Training completion, classroom observation scores
STEM clubs established and sustained	6 clubs active at project end	Club activity logs, member participation rates

Qualitative Transformations

- From exclusion to belonging: Girls who felt invisible in STEM classrooms will become leaders and peer mentors.
- From dependency to innovation: Girls who once walked hours for water will design solutions for their communities.
- From limitation to ambition: Girls who saw no future beyond early marriage will envision careers as engineers, scientists, and entrepreneurs.

- From isolation to network: Girls will join a lifelong sisterhood of female engineers and innovators across Malawi and beyond.

SUSTAINABILITY STRATEGY

TiGEN is built to last. We reject the model of donor-dependent projects that vanish when funding ends. Our sustainability strategy ensures that impact continues, deepens, and expands for years beyond the initial investment.

Institutional Sustainability

School STEM Clubs: 6 permanent clubs established in partner schools, with trained teachers, peer leaders, and basic equipment. These clubs become self-sustaining hubs of STEM activity, continuing to engage new cohorts of girls each year.

Teacher Capacity: 12 teachers trained in STEM pedagogy, gender-responsive teaching, and hands-on instruction. These teachers become local champions who train colleagues and integrate STEM across the curriculum.

Community Ownership

Parent & Community Engagement: Quarterly community meetings, innovation showcases, and parent committees ensure families understand and support girls' STEM participation. Community leaders become advocates for girls' education.

Local Partnerships: Partnerships with district education offices, local universities, and engineering firms create ongoing support, internship opportunities, and resource sharing beyond the project period.

Financial Sustainability

Diversified Funding: While this proposal requests \$210,500, Girl Engineer actively pursues additional funding streams including corporate partnerships, government grants, crowdfunding, and alumni giving.

Innovation Commercialization: Promising climate and water innovations developed by girls will be supported for further development, with potential for social enterprise models that generate income for future club activities.

Knowledge & Replication

Documentation & Open-Source: All curriculum materials, training guides, and innovation toolkits will be documented, translated, and shared as open-source resources for other organizations across Malawi and Africa.

Replication Model: TiGEN is designed as a replicable model. By the end of Year 2, we will publish a comprehensive implementation guide enabling other organizations to launch similar programs in new districts.

BUDGET OVERVIEW

Every dollar is strategically allocated to maximize direct impact on girls while ensuring program quality, accountability, and sustainability. Our budget reflects our values: transparency, efficiency, and girl-centered investment.

Budget Category	Percentage	Amount (USD)	Key Investments
Direct Beneficiary Investment	83%	\$174,715	STEM kits, learning materials, uniforms, meals, transportation, mentor stipends, innovation hub equipment, digital devices, girls' direct support
Program Support & Administration	12%	\$25,260	Staff salaries, office operations, travel, communications, financial management, partnership coordination, reporting
Monitoring & Evaluation	6%	\$12,630	Baseline/endline surveys, data collection tools, external evaluation, impact documentation, learning reviews, reporting to donors
Reserve & Contingency	<1%	\$1,895	Emergency fund for unforeseen needs, currency fluctuation buffer, minor equipment replacement

Donor Transparency Commitment: 83 cents of every dollar goes directly to girls. This is among the highest direct-beneficiary ratios in the sector. We provide quarterly financial reports, annual audited statements, and real-time impact dashboards to all donors.

Cost Per Girl: \$1,403

This investment covers: 120+ hours of STEM instruction, complete STEM kit, learning materials, uniform, meals during training, digital skills training, mentorship program, innovation hub access, and club membership for 24 months. Compare this to the lifetime economic return of an educated female engineer in Malawi—estimated at \$150,000+ in community impact.

DONOR GIVING LEVELS

Every contribution, regardless of size, creates tangible, measurable impact. Our giving levels are designed to show donors exactly what their investment achieves.

\$10	Nourish	Meals and refreshments for 1 girl during a full STEM training day. Ensures no girl learns on an empty stomach.
\$20	Clothe	Complete school uniform for 1 vulnerable girl. Removes a critical barrier to school attendance and dignity.
\$25	Equip	Learning materials for 1 girl: notebooks, stationery, textbooks, and handouts for the full 24-month program.
\$50	Build	Complete STEM kit for 1 girl: robotics components, electronics, science tools, and building materials for hands-on projects.
\$100	Sponsor	Full sponsorship of 2 girls in STEM training: materials, mentorship, meals, and transportation for one semester.
\$150	Empower	Supports 5 girls in a STEM & Climate Innovation Workshop: design materials, facilitator fees, and innovation showcase costs.
\$250	Multiply	Provides STEM kits for 10 girls in underserved schools, creating a ripple effect of peer learning and inspiration.
\$500	Anchor	Supports an entire school STEM club reaching 25 girls: equipment, teacher support, and club activities for one year.

\$1,000 Transform

Funds a full STEM Outreach Lab reaching 50+ girls: mobile lab equipment, facilitator, materials, and community engagement.

Corporate & Foundation Partnerships: We welcome multi-year partnerships, matching gift programs, and in-kind contributions (equipment, software licenses, volunteer mentorship). Contact us to design a customized partnership that aligns with your CSR and impact goals.

MONITORING, EVALUATION & LEARNING

Rigorous M&E ensures accountability, continuous improvement, and evidence-based storytelling. Our 6% M&E budget is a strategic investment in program quality and donor confidence.

M&E Framework

Level	Indicators	Tools & Methods	Frequency
Output	Training sessions held, kits distributed, mentors matched, clubs established	Attendance registers, distribution logs, partnership agreements	Monthly
Outcome	STEM knowledge gains, confidence levels, academic improvement, retention rates	Pre/post tests, self-efficacy scales, school records, retention tracking	Quarterly
Impact	Career aspirations, community innovations, long-term education outcomes, role model effect	Annual surveys, innovation assessments, alumni tracking, community interviews	Annual + 2-year follow-up

Accountability Mechanisms

- Quarterly Progress Reports: Detailed updates on activities, outputs, challenges, and adaptations shared with all donors.
- Annual External Evaluation: Independent assessment by qualified M&E professionals to validate results and identify improvements.

- **Real-Time Dashboard:** Donors receive access to a live dashboard tracking key metrics, photos, and stories from the field.
- **Beneficiary Feedback:** Girls participate in quarterly feedback sessions; their voices shape program adaptation.
- **Financial Audits:** Annual independent audit of all project expenditures, with reports published and shared with donors.
- **Learning Reviews:** Biannual structured reflection sessions with staff, partners, and beneficiaries to capture lessons and adapt strategies.

Our Promise: We measure what matters. Every indicator is tied to a girl's real experience. We do not just count outputs—we listen to outcomes, learn from challenges, and continuously improve. Your investment is protected by rigorous accountability.

CONCLUSION & CALL TO ACTION

TiGEN is more than a project—it is a movement to unlock the potential of 150 rural girls in Malawi. By combining STEM education, innovation, and mentorship, we are building a generation of confident girls who will become engineers, innovators, and leaders shaping the future of their communities.

Why Invest in TiGEN?

In a world facing climate crisis, water scarcity, and technological disruption, the solutions we need will come from the minds we have excluded. Rural girls in Malawi hold the lived experience, the creativity, and the determination to design those solutions. They only need the opportunity.

TiGEN is that opportunity. It is a carefully designed, evidence-based, and passionately executed initiative that transforms individual lives while building community resilience. With 83% of every dollar reaching girls directly, your investment achieves maximum impact with complete transparency.

This is not charity. This is justice. This is innovation. This is the future.

INVEST
\$210,500

TRANSFORM
150 LIVES

BUILD
1 MOVEMENT

Contact Us

Organization: Girl Engineer

Project: Tidzuke Girls Engineering Network (TiGEN)

Location: Malawi, Southern Africa

Project Duration: 24 Months (2026-2028)

Email: info@girlengineer.org

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"The world needs more engineers. The world needs more girls. TiGEN bridges both."

Thank you for believing in girls. Thank you for investing in the future.