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FINAL REPORT

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Climate Resilience, Health, and Socio-Economic Vulnerability of Adolescent girls in Rwanda. Western and Northern Provinces Karongi and Gakenke Districts.

Study Title:
Climate Resilience, Health, and Socio-Economic Vulnerability of Adolescents and Girls in Rwanda: Western Province – Karongi and Gakenke Districts

CONTENTS

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Rwanda Environment Management Authority (REMA)

Government of Rwanda
Role: Provided an official endorsement letter facilitating authorization and community entry for field data collection.

Country: Rwanda
Study Location: Western Province of Rwanda, specifically Karongi District and Gakenke District. The study is coordinated from Kigali City, Rwanda.

2. SUMMARY

This case study examined the intersection of climate change, adolescent health, education, and socio-economic vulnerability in Rwanda's climate-affected districts of Karongi (Western Province) and Gakenke (Northern Province). Rwanda is administratively divided into 5 provinces and 30 districts, among which Karongi and Gakenke are particularly exposed to floods, landslides, and droughts due to their mountainous terrain and reliance on subsistence agriculture. Karongi lies along the shores of Lake Kivu in Western Province, approximately 130 kilometers west of Kigali the capital of RWANDA. Gakenke is situated in Northern Province, about 80 kilometers north of Kigali, characterized by rugged highlands and valleys where landslides and soil degradation frequently disrupt livelihoods (Gakenke District official site).

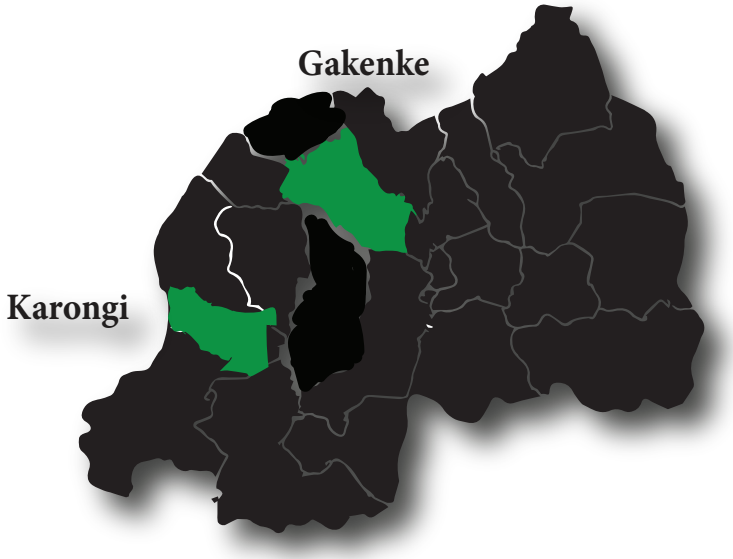
The research employed a mixed-methods approach, combining quantitative surveys of 200 adolescents (aged 14–19) with qualitative focus group discussions and key informant interviews. Quantitative sampling was drawn from villages in Rubengera Sector, Karongi (Kabuga, Kigarama, Makurungwe) and Mugunga Sector, Gakenke (Nemba, Nyagasozi). The qualitative component engaged 4 focus group discussions (FGDs) - 2 with adolescents and 2 with parents - across both districts, involving 64 participants. In addition, 6 key informant interviews (KIIs) were conducted with headteachers, health center officials, and government representatives (3 per district)

Key Findings: Climate shocks (floods, landslides, droughts) disrupted adolescent girls' access to education, SRHR services, and mental health support. While 86% of adolescents were aware of SRHR information, only 21% accessed services due to stigma and confidentiality concerns. Disasters caused an average of five missed school days, with dropout rates reaching 11% in affected areas. Yet coping mechanisms emerged: displacement sites located near schools helped sustain attendance, communities relied on savings groups to manage hardship, and government labor programs such as terracing provided income and stability. Government and NGO partners also supported households with food distributions, shelter, and vocational training.

Impact and Significance: The study generated district-level, adolescent-centered evidence linking climate hazards to health, education, and protection outcomes (such as heightened risks of gender-based violence in overcrowded camps and increased child labor during displacement). It positions GreenStars as a solutions-oriented partner within CBOs, the Council, and other allies, offering actionable recommendations for integrating resilience with SRHR, education, and psychosocial support. Findings inform Rwanda's NST2 and contribute to global agendas under SDGs 3, 4, 5, and 13, providing transferable lessons for climate-vulnerable contexts across Sub-Saharan Africa.

2. SUMMARY

STUDY LOCATION & CONTEXT

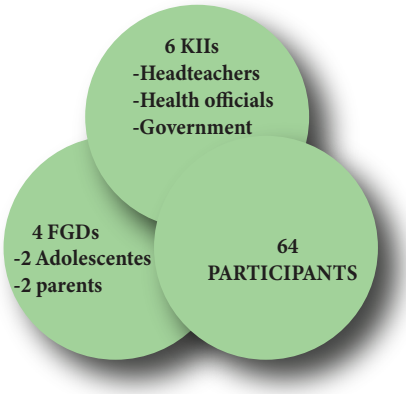


STUDY DESIGN AND METHODS

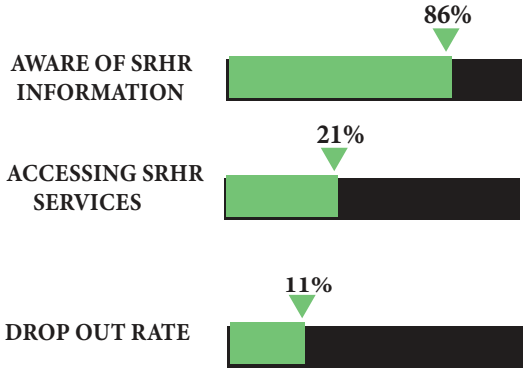
QUANTITATIVE

200 Adolescents
Ages 14-19

QUALITATIVE



ADOLESCENTS CONTEXT



5 DAYS AVERAGE OF SCHOOL MISSED AFTER DISASTERS

SUPPORT MECHANISHM

Schools near displacement sites

Community savings groups

Government labor programs (terracing)

NGO support: food, shelter, vocational training

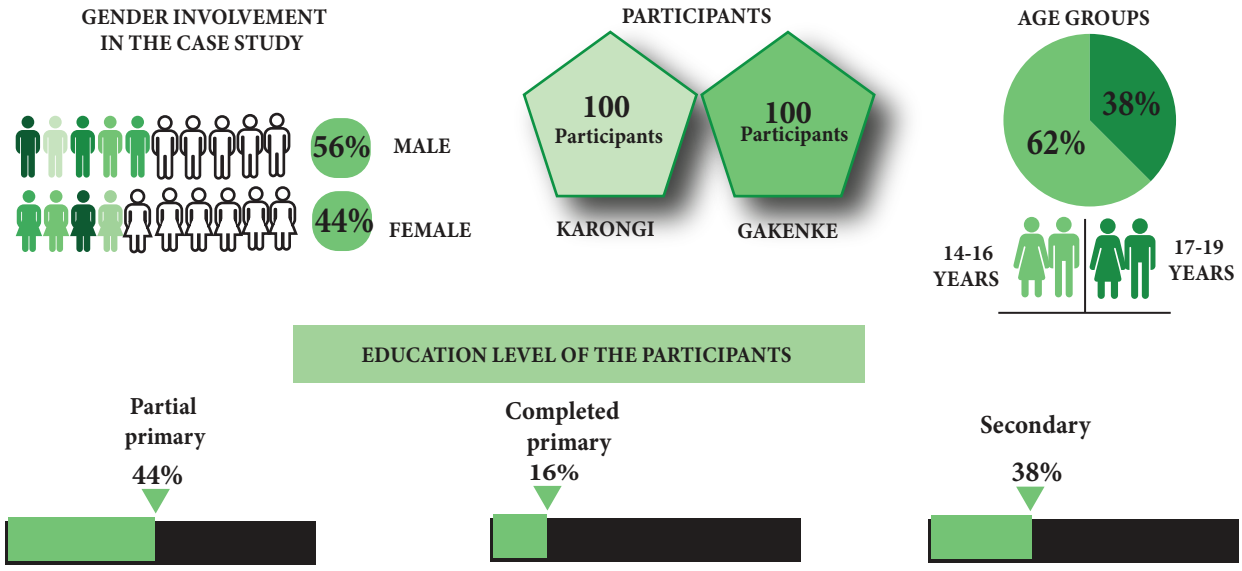
3. IMPLEMENTATION

The study adhered closely to the original mixed-methods protocol with minor field-level adaptations to ensure data quality and participant safety.

Methodological Adaptations: The research team extended field time from the planned duration to accommodate logistical challenges in remote villages, including damaged roads requiring motorcycle transport and poor connectivity. Some participants initially confused the study with direct aid distribution, requiring clarification of research objectives at each engagement.

Participation and Sample Characteristics: The study achieved its target sample of 200 adolescents (100 per district) with strong representation: 56% female, 44% male; 62% younger teens (14-16 years), 38% older adolescents (17-19 years). Educational distribution showed 44% with secondary education, 38% partial primary, and 16% completed primary. The qualitative component engaged 64 participants across 4 FGDs (adolescents and parents) and 6 KIIs (headteachers, health officials, government representatives).

Protocol Adherence: All ethical protocols were maintained, including Institutional Review Board (IRB) clearance from the Population Council, which reviewed and approved the study design, consent procedures, and safeguards for adolescent participation. National endorsements were secured from the Rwanda Environment Management Authority (REMA), alongside district authorization. Written parental consent and adolescent assent were obtained, with special attention to confidentiality in handling sensitive SRHR data. The study adhered to international standards for research with minors, ensuring voluntary participation, the right to withdraw, and trauma-informed approaches during qualitative sessions. Data protection compliance was ensured through GreenStars' registration with Rwanda's Data Protection and Privacy Office, guaranteeing secure storage and restricted access to all research data.



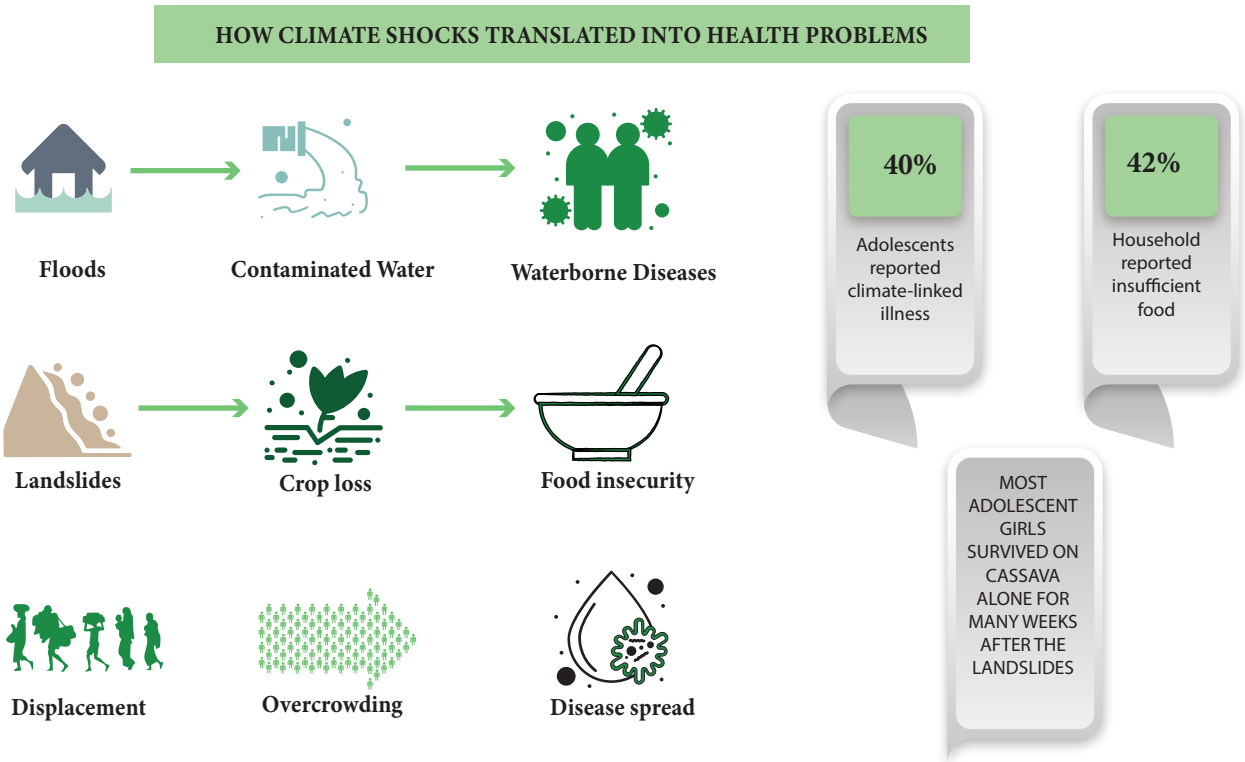
4. KEY FINDINGS

4.1. Primary Climate-Related Health Risks Identified

Climate shocks in Karongi and Gakenke translated into immediate and compounding health burdens for adolescent girls. Two in five respondents (40%) reported climate-linked illnesses, with disaggregation showing that respiratory infections were most common (53%), followed by waterborne diseases such as intestinal worms and diarrheal infections (37%), and heat-related illnesses including dehydration and fainting episodes (10%). The health impact pathway was clear: floods contaminated water sources, landslides destroyed crops leading to food insecurity, and displacement into overcrowded camps increased disease transmission.

Food insecurity emerged as a critical vulnerability, with 42% of households reporting insufficient food and 40% experiencing reduced dietary variety during disaster periods. Adolescents described struggling with limited diets after landslides buried harvests, contributing to visible malnutrition, anemia, and reduced cognitive performance in school.

Mental health impacts were pervasive yet under-addressed: the majority of adolescent girls reported trauma, anxiety, or depression linked to climate events-stemming from loss of homes, family members, crops, and the psychological burden of displacement. Despite this widespread distress, very few sought mental health support due to stigma, normalization of trauma by parents ("just part of life after disasters"), and limited adolescent-friendly psychosocial services.



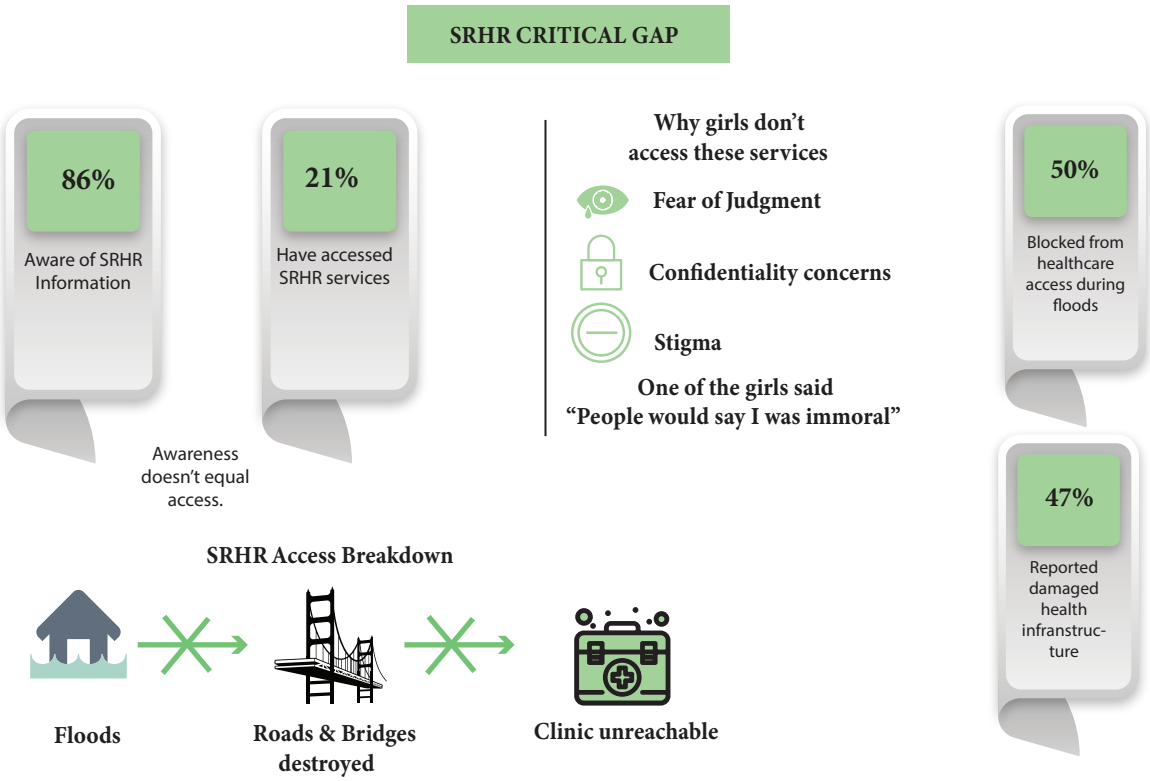
4. KEY FINDINGS

4.2. The Climate-SRHR Nexus: A Critical Gap

A paradox emerged around sexual and reproductive health: 86% of adolescents demonstrated awareness of SRHR information, yet only 21% had ever accessed services. This gap revealed systemic barriers beyond awareness. Adolescent girls in FGDs consistently described fear of judgment, confidentiality breaches, and stigma as primary deterrents. One girl stated: "I feared going to the clinic because people would say I was immoral."

Climate shocks amplified SRHR vulnerabilities through multiple pathways. Physical access barriers intensified: nearly half of respondents were prevented from reaching healthcare during floods due to destroyed roads and bridges, with 47% confirming damage to essential health infrastructure. For adolescent girls navigating unsafe routes, the risks extended beyond mobility; late arrivals home exposed them to harassment, violence, and parental punishment.

Protection risks escalated during displacement: overcrowded camps forced adolescent girls and boys to share confined spaces, increasing exposure to sexual harassment and abuse. Parents and leaders reported heightened risks of child labor, transactional sex, early pregnancy (with increases of 12-15% among 15-19 year-olds), and early marriage as poverty pressures mounted. Health officials acknowledged that 35-40% of adolescents reported disrupted SRHR access during disasters, yet adolescent-friendly, confidential service delivery have to be enforced.



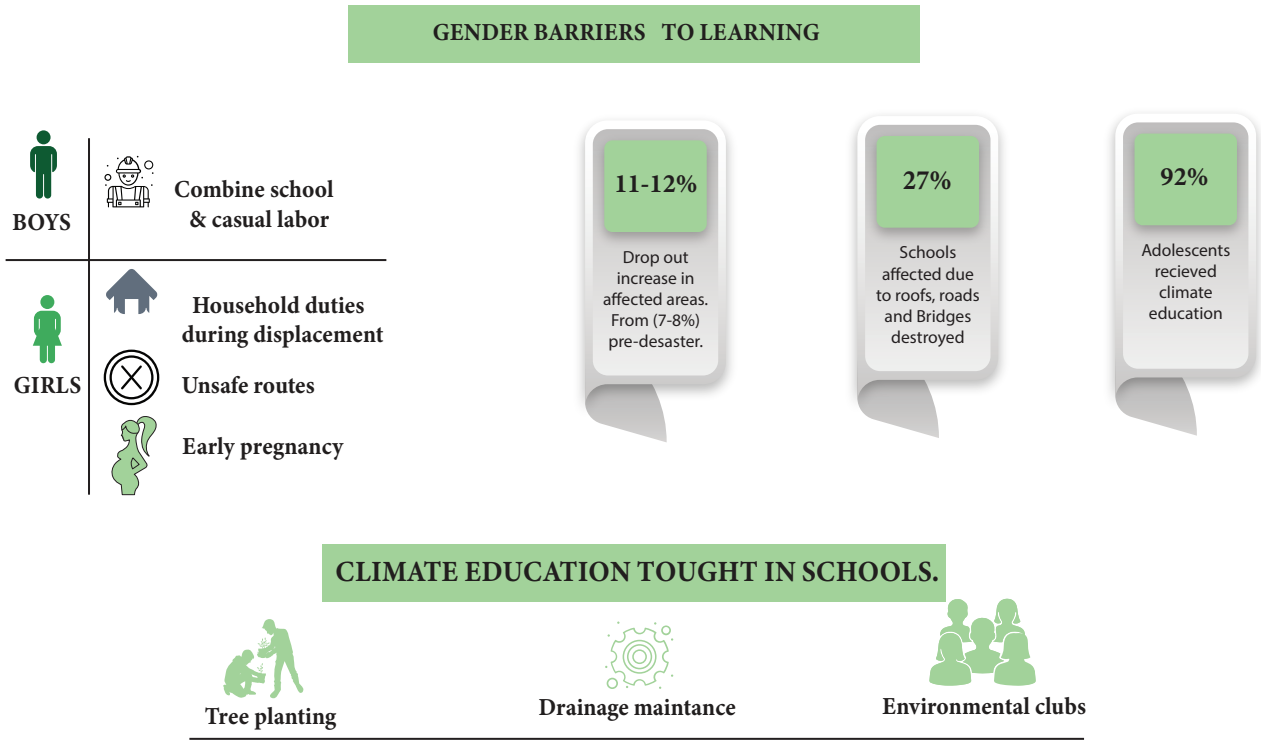
4. KEY FINDINGS

4.3. Education Disruption and Gendered Impacts

Climate shocks systematically undermined education continuity. Students missed an average of five school days during disaster periods, with dropout rates reaching 11-12% in affected areas (rising from 7-8% pre-disaster). Infrastructure damage destroyed roofs, blocked roads, flooded bridges made travel unsafe and forced temporary school closures affecting approximately 27 schools across both districts.

Gender-specific barriers emerged clearly: while boys often combined schooling with casual labor, girls faced compounded pressures. Adolescent girls were more likely to miss classes due to unsafe travel routes, increased household responsibilities during displacement, and early pregnancy. Teachers noted that even when displaced students remained enrolled (sometimes in camps near schools), hunger, trauma, and bereavement severely reduced learning outcomes.

Notably, 92% of adolescents received climate education in schools, engaging in environmental clubs, tree planting, and drainage maintenance. This high rate of climate literacy represents an untapped asset for building youth-led resilience. Adolescents' engagement in these activities can be translated into community-level adaptation by scaling school-based initiatives into neighborhood action - for example, student environmental clubs can extend tree-planting drives to communal land, drainage maintenance can be coordinated with local leaders to reduce flood risks, and climate education can empower youth to lead awareness campaigns for households on water conservation and safe sanitation practices. Such efforts position adolescents not only as beneficiaries of resilience programs but as active agents of change, strengthening community preparedness and adaptation capacity.

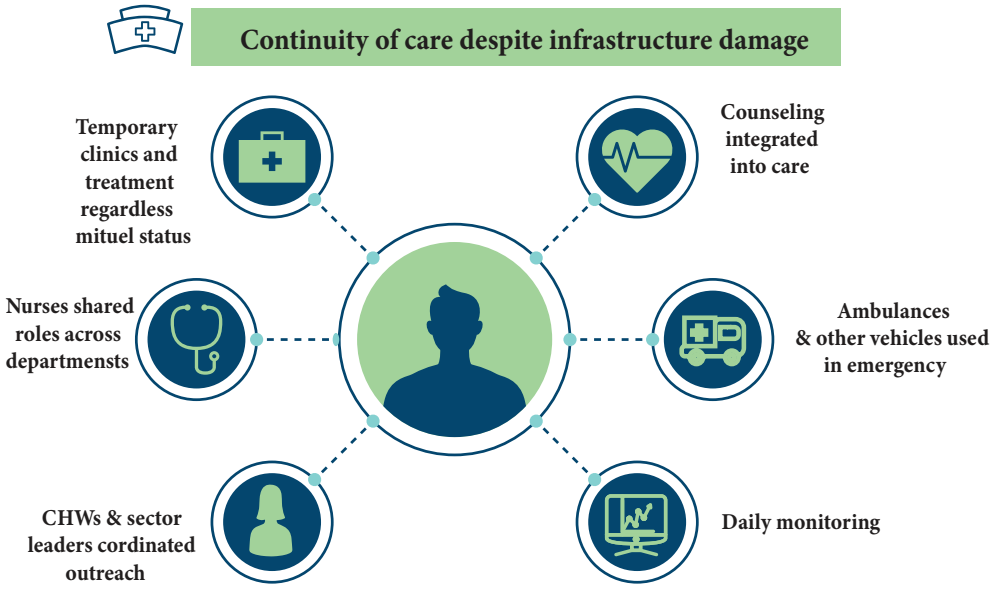


4. KEY FINDINGS

4.4. Health System Responses and Persistent Gaps

Rwanda's health system demonstrated strong institutional ownership during crises: health officials described flexible service delivery with temporary setups in camps, daily monitoring, counseling integration, and government directives ensuring treatment regardless of Mutuelle insurance status. Cross-departmental collaboration worked in practice by staff sharing responsibilities across units, pooling limited resources, and setting up temporary services in camps. For example, when health centers faced staff shortages due to damaged roads, nurses from different departments jointly managed trauma counseling and basic treatment, while community health workers coordinated with sector leaders to deliver medicines and monitor adolescents in relocation sites. Stretchers and vehicles were mobilized to transport patients when ambulances could not reach remote areas, ensuring continuity of care despite infrastructure damage.

Health officials acknowledged that younger adolescents were particularly hesitant to seek care, shy, and often lacked parental support. Even though community health workers (CHWs) helped a lot, they are still working on building confidence among adolescents and encouraging them not to fear requesting services. Some adolescents remain hesitant, worrying that their parents might become aware if they seek information or support - for example, when asking about contraceptives, condoms, or discussing menstrual health issues. This hesitancy, combined with inadequate private counseling spaces and limited dedicated adolescent staff, meant that services remained technically available but functionally inaccessible for many.



4. KEY FINDINGS

4.5. Local Coping Strategies and Resilience Practices

Three-quarters of adolescents (75%) reported learning coping strategies, demonstrating active engagement rather than passive victimhood. These included boiling water after floods to prevent diarrhea, planting anti-erosion grasses and trees to stabilize soil, and participating in Umuganda (community work) to dig drainage channels and terraces. These strategies highlight how adolescents are not only recipients of resilience programming but also active contributors to household and community adaptation.

Community resilience operated through multiple mechanisms: collective Umuganda for rebuilding terraces, savings groups providing emergency funds, and intergenerational knowledge transfer. Indeed, many of the coping strategies adolescents reported learning were directly related to household-level practices - for example, parents teaching children soil conservation, tree planting, and water safety measures. This transfer of knowledge ensured that resilience practices were embedded across generations, reinforcing both household and community adaptation capacities.

Parents emphasized that "every parent is also a teacher", demonstrating terracing techniques and explaining erosion control so resilience becomes embedded across generations. Adolescents took initiative by boiling water post-floods, clearing drainage channels, and removing mosquito breeding sites-practical actions reinforcing agency and community responsibility.

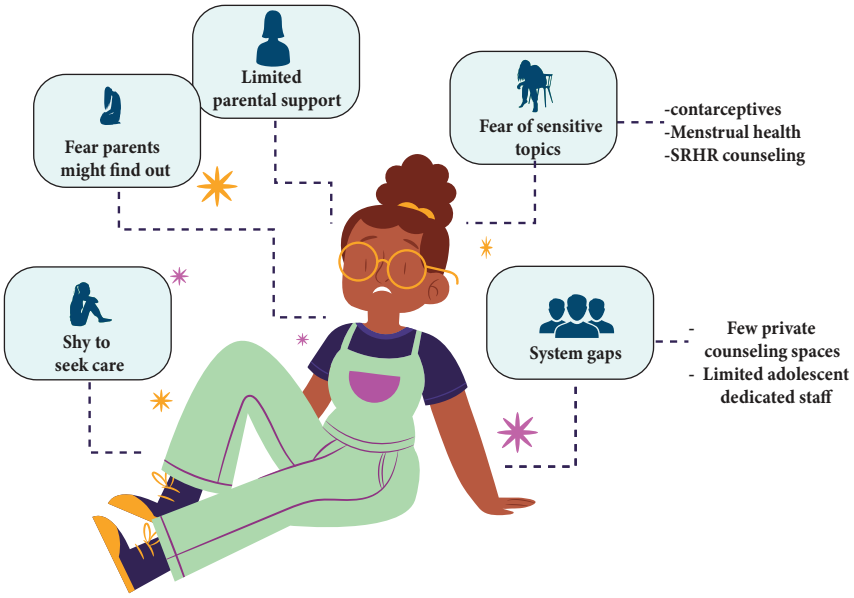
NGOs and government support complemented household coping: cash-for-work programs, crop diversification, early warning systems, and proactive relocation reduced losses. Health centers adapted by accelerating services so adolescents could return to school quickly. In practice, this acceleration meant that health workers prioritized adolescents for treatment and counseling, reduced waiting times, and organized school-linked health sessions. For example, when adolescents reported flu, diarrhea, or trauma after disasters, health centers provided immediate care and counseling so they could resume classes within a day or two instead of missing several days. Teachers also implemented safety protocols (keeping students at school until rains subsided) to reduce exposure to unsafe crossings.

4.6. Unexpected and Notable Findings

Displacement proximity paradox: Contrary to global literature showing that displacement drives long-term educational disruption, Rwanda's proximity-based relocation model (camps near schools) sometimes increased enrollment rather than causing dropout. Teachers reported receiving more students than usual when camps were nearby, though learning quality remained compromised by hunger and trauma.

4. KEY FINDINGS

Why Adolescents still struggled



75% Adolescents learnt coping strategies

- Boiling water after floods
- Planting trees & anti-erosion grasses
- Umuganda: drainage & terraces
- Removing mosquito breeding sites.

01 HOUSEHOLD & COMMUNITY RESILIENCE

- Umuganda rebuilding terraces
- Saving groups for emergencies
- Parents teaching soil & water conservation

"Every parent is now a teacher"

02 EDUCATION PROTECTION

- Teachers kept students safe during heavy rains
- Priority treatment & counseling
- School-linked health sessions
- Accelerated health services

5. IMPACTS AND APPLICATION

5.1. Immediate Applications at Multiple Levels

Local/District Level: Findings have immediate application in Karongi and Gakenke through actionable recommendations for district health and education authorities. The evidence supports establishment of adolescent-friendly SRHR corners with guaranteed confidentiality, mobile health outreach during disaster seasons, and school-based mental health support integrated with existing environmental clubs. District disaster preparedness plans can now incorporate gender-responsive continuity protocols ensuring safe mobility, protection in camps, and sustained access to essential services for adolescent girls.

National Level: The study directly informs NST2 implementation and Vision 2050 priorities by providing the missing district-level, adolescent-centered evidence base. Findings support integration of climate contingencies into education and health sector strategies, development of adolescent-specific provisions within Rwanda's Climate Adaptation Plan, and strengthening of shock-responsive social protection targeting vulnerable youth. The Ministry of Education can operationalize climate-responsive schooling models, while the Ministry of Health can embed adolescent SRHR continuity measures within disaster protocols.

Regional and Global Level: Through positioning within the CBOs findings offer transferable lessons for Sub-Saharan Africa on proximity-based relocation, climate education integration, and adolescent-responsive adaptation. The research demonstrates operationalizable pathways for achieving SDGs 3, 4, 5, and 13 simultaneously through integrated climate-health-education programming, providing a replicable model for other climate-vulnerable contexts.

5.2. Scaling Potential`

The study identifies highly scalable solutions: climate education through existing school structures (already reaching 92% of adolescents), community-based resilience mechanisms leveraging Umuganda traditions, and mobile SRHR delivery models adaptable across rural districts. Rwanda's strong institutional coordination and decentralized governance structures provide enabling conditions for rapid scaling, while the proximity-based relocation approach offers a cost-effective alternative to permanent displacement models prevalent elsewhere in the region.

5. IMPACTS AND APPLICATION

5.3. Value Added to Existing

This research addresses two critical evidence gaps. First, it traces the connections between localized climate hazards and adolescent outcomes such as disruptions in sexual and reproductive health services, school dropout, mental health challenges, and nutrition deficits. These patterns, consistently reported across adolescents, parents, teachers, and health officials, provide a level of detail rarely captured in broader regional assessments. Second, it highlights the paradox of "awareness without access" in SRHR: while information campaigns have reached most adolescents, stigma, lack of confidentiality, and structural barriers continue to limit effective service uptake - a finding with relevance well beyond climate contexts.

The study also enriches climate-health literature by documenting how displacement interacts with education in Rwanda's unique setting, showing that relocation does not automatically lead to prolonged schooling disruption when community and institutional supports are in place. In addition, it demonstrates how resilience practices are transmitted across generations - for example, parents teaching children soil conservation, tree planting, and water safety - offering culturally embedded strategies that are scalable and less dependent on costly technologies often emphasized in global frameworks but inaccessible in rural African contexts.

6. RECOMMENDATIONS

6.1. Community-Based Interventions

Strengthen adolescent-centered resilience programming by expanding environmental clubs into comprehensive climate-health-education platforms. Leverage existing Umuganda structures to embed adolescent protection protocols during disasters, ensuring safe mobility and confidential SRHR access. Establish peer-led support networks where older adolescents mentor younger peers on climate coping, SRHR awareness, and mental health literacy, building on the 92% climate education coverage already achieved in schools.

Activate community safeguarding mechanisms during displacement by training village leaders and camp coordinators on GBV prevention, confidential reporting systems, and adolescent-friendly space management. Deploy mobile health teams with dedicated adolescent counselors during disaster seasons to overcome stigma associated with fixed community health worker points.

6.2. Health System Improvements

Redesign SRHR service delivery to address the "awareness without access" paradox: establish private counseling rooms in health centers, deploy youth-friendly staff specifically trained in confidentiality protocols, and reduce reliance on community health workers for adolescent SRHR services where trust is compromised. Integrate climate-responsive service continuity plans ensuring adolescent access during floods and landslides through pre-positioned supplies, temporary service points, and flexible appointment systems.

Scale adolescent mental health support by training teachers and health workers to identify and refer trauma cases, normalizing counseling through school-based sessions, and developing community psychoeducation programs to counter parental dismissal of adolescent distress as "just part of life."

6.3. Policy Changes Across Governance Levels

National: Embed adolescent-specific provisions within Climate Adaptation Plans and disaster response protocols, explicitly addressing SRHR continuity, safe mobility, and protection during displacement. Mandate climate contingencies in education sector strategies, including catch-up mechanisms, flexible schooling, and school feeding program activation during disasters.

District: Operationalize cross-sector coordination mechanisms linking climate, health, education, and social protection actors. Develop district-level adolescent resilience budgets within disaster preparedness allocations, ensuring targeted rather than household-only interventions.

Policy Coherence: Align gender policies with adolescent-specific realities by differentiating between women's and adolescent girls' vulnerabilities within climate frameworks, addressing intersecting risks of age, gender, poverty, and displacement.

6. RECOMMENDATIONS

6.4. Follow-Up Research Priorities

Longitudinal tracking of climate impacts on adolescent educational trajectories, SRHR outcomes, and mental health over multiple disaster cycles. Implementation research testing integrated climate-SRHR-education intervention models, particularly mobile service delivery and confidentiality-enhanced approaches. Economic analysis quantifying returns on investment in adolescent climate resilience programming for Vision 2050 human capital targets. Comparative studies examining Rwanda's proximity-based relocation model against regional displacement approaches to identify scalable best practices for CBO partners.

Table: Sequencing & Institutional/Funding Requirements

Recommendation Area	Pilot First (Short-Term)	Scale Later (Medium-Long Term)	Institutional / Funding Requirements
Community-Based Interventions	Expand school environmental clubs into climate-health-education platforms; pilot peer-led mentoring networks in schools.	Scale to community hubs; integrate safeguarding protocols into Umuganda; deploy mobile health teams seasonally.	District education offices, NGO partners, community leaders; funding for adolescent counselors and safeguarding training.
Health System Improvements	Establish private counseling rooms in selected health centers; train youth-friendly staff in confidentiality.	Nationwide redesign of SRHR service delivery; integrate climate-responsive continuity plans; expand adolescent mental health programs.	Ministry of Health, district health offices; donor support for infrastructure upgrades and staff training.
Policy Changes Across Governance Levels	Embed adolescent provisions in national Climate Adaptation Plans; pilot district-level resilience budgets.	Scale cross-sector coordination mechanisms nationally; align gender policies with adolescent realities.	MINEMA, MINEDUC, MOH, district governments; budget allocations within disaster preparedness frameworks.
Follow-Up Research Priorities	Longitudinal tracking in disaster-prone districts; pilot implementation research on integrated climate-SRHR-education models.	Comparative regional studies; economic analysis of adolescent resilience ROI for Vision 2050.	Universities, research institutes, donor agencies; funding for multi-year studies and regional collaborations.

7. REFLECTION ON RESEARCH PROCESS

7.1. Implementation Challenges and Solutions

The research encountered three primary challenges, each requiring adaptive solutions. Delayed IRB approval pushed back the data collection timeline, necessitating revised field schedules and extended coordination with district authorities to maintain community readiness.

Expired local research permits created access barriers mid-fieldwork. The team worked closely with district officials to expedite visa renewals, demonstrating the critical importance of strong local institutional relationships. District authorities' responsiveness prevented significant disruption, reinforcing that government partnerships are not merely procedural requirements but essential enablers of quality research.

Adolescent discomfort discussing SRHR topics emerged particularly among younger girls (14–15 years). To address this, we created ultra-private discussion spaces by holding one-on-one interviews in quiet, separate locations away from peers, and whenever possible we assigned female facilitators to lead the sessions. We also scheduled interviews at staggered times so participants did not encounter each other, used neutral venues outside schools to reduce visibility, and ensured only the enumerator/facilitators and participant were present. Seating arrangements were made less formal, with chairs placed side-by-side to ease tension, and adolescents were given the option to pause or skip questions without penalty. These adaptations helped younger girls feel safer and more comfortable, reduced anxiety, and encouraged more open sharing. Enumerators further learned to read body language, offer breaks, and reframe questions using age-appropriate language. This approach built trust and yielded richer, more honest data than rigid protocol adherence would have achieved.

7.2 Lessons Learned About Climate-Health Research in This Context

Timing is critical for documentary evidence. Conducting fieldwork months after disasters meant physical traces had disappeared, destroyed infrastructure was rebuilt, displaced families had returned, and visual documentation opportunities were lost. Future studies should deploy rapid assessment teams immediately post-disaster to capture photographs, videos, and real-time testimonies, followed by structured data collection once communities stabilize. This requires not only flexible funding and institutional coordination, but also pre-established partnerships with local actors who can mobilize quickly, and investment in digital tools (e.g., mobile data kits, drones) to document evidence before it fades.

7. REFLECTION ON RESEARCH PROCESS

Enumerator and moderator/notetaker training must extend beyond technical skills to include trauma-informed approaches, cultural sensitivity around SRHR topics, and de-escalation techniques for emotionally charged discussions. The most effective enumerators were those who could balance empathy with professional boundaries, creating safe spaces without over-identifying with participants' distress. Sustaining this capacity will require longer training cycles, ongoing mentorship, and psychosocial support for enumerators themselves, who often carry secondary trauma. Embedding these practices into institutional training curricula would ensure continuity across projects.

Community entry protocols matter enormously. Working through village leaders, schools, and health centers built trust and prevented the "research fatigue" or "expectation of aid" confusion observed in some communities. Clear communication about research objectives versus service delivery prevented disappointment and ensured authentic participation. Future research should also budget for community feedback sessions, where findings are shared back in accessible formats. This not only sustains trust but also strengthens accountability and ensures communities see tangible value in their participation.

7.3. Observations on the Collaborative Process

The PERCC-GreenStars partnership functioned effectively despite initial IRB delays. The PERCC team's responsiveness and consistent communication-maintained momentum throughout the project. Regular updates, clear feedback loops, and mutual respect for each organization's expertise created a genuinely collaborative rather than transactional relationship. The partnership demonstrated that international-local research collaborations succeed when communication is prioritized and flexibility is built into timelines.

7.4. Suggestions for Improving Future Studies

Embed rapid response mechanisms allowing deployment within 48-72 hours of climate events for visual documentation and immediate impact assessment, followed by structured follow-up at 3, 6, and 12 months to capture recovery trajectories. Pre-position research teams in high-risk districts during hazard seasons with pre-approved protocols enabling quick activation.

Invest in longitudinal designs tracking the same adolescent girls across multiple disaster cycles to understand cumulative impacts and resilience pathways. Integrate participatory methods where adolescent girls co-design research tools and interpret findings, enhancing relevance and empowering youth voice.

8. PROJECT OUTPUT

8.1. Outputs Produced

The study has generated a comprehensive draft case study report documenting climate-health-education linkages for adolescent girls in Karongi and Gakenke districts. Upon final review and approval, the GreenStars team will produce:

- Policy brief tailored for national policymakers, summarizing key findings and actionable recommendations for NST2 implementation, Vision 2050 alignment, and Climate Adaptation Plan integration
- Presentation materials designed for multiple audiences: government ministries (REMA, Health, Education), district authorities, development partners, and other CBOs.

8.2. Dissemination Plans

Formal dissemination will commence upon receiving final approval from PERCC. Primary dissemination events are envisioned as presentations to REMA (Rwanda Environment Management Authority) and the PERCC research team as needed, followed by district-level validation workshops in Karongi and Gakenke engaging local government, schools, health facilities, and community leaders. The timing of these workshops will depend on the availability of district mayors, who are the ones to convene and invite us for such sessions. In practice, given the difficulty of securing these meetings, dissemination will most often take the form of sharing the final report directly with district authorities and partners, without necessarily requiring formal workshops or presentations.
Additional forums will target national ministries, donor partners, and regional C4CA platforms to maximize policy uptake and programmatic application, contingent on available funds.

8.3. Potential Publications and Follow-On Projects

The GreenStars team is pursuing peer-reviewed publication in climate-health or adolescent girls health journals to contribute evidence to global literature. More significantly, GreenStars will developing a longitudinal follow-up proposal (pending funding) to track how communities and adolescents cope with subsequent disaster cycles, document resilience trajectories, and evaluate intervention effectiveness over time. This would provide rare longitudinal data on adolescent girls climate adaptation in Sub-Saharan Africa, strengthening evidence for sustained investment in youth-centered climate resilience programming.

9. CONTACT AND ACKNOWLEDGEMENTS

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For inquiries regarding this research, collaboration opportunities, or access to detailed findings.

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Government and Regulatory Bodies: Rwanda Environment Management Authority (REMA) for providing the essential endorsement letter and facilitating district access. The district authorities of Karongi and Gakenke, sector and cell leaders for their cooperation, logistical support, and commitment to facilitating community engagement.
Research Participants: The 200 adolescent girls and boys who courageously shared their lived experiences, vulnerabilities, and resilience strategies. Parents, District officials and caregivers who participated in focus group discussions, providing critical household perspectives on climate impacts and coping mechanisms.
Frontline Service Providers: Headteachers, health center officials, and government representatives who generously gave their time for key informant interviews, offering invaluable institutional insights that enriched the study's depth and policy relevance.
Community Gatekeepers: Village leaders, community health workers, and local NGO partners who facilitated safe community entry, built trust with participants, and ensured ethical research conduct throughout fieldwork.
Research Team: The dedicated team of nine GreenStars researchers and enumerators whose professionalism, cultural sensitivity, and commitment to ethical practice ensured high-quality data collection under challenging field conditions.
Finally, we acknowledge the resilience and agency of adolescents in Karongi and Gakenke, whose voices and experiences are at the heart of this research and whose futures depend on our collective commitment to climate justice and inclusive development.