

Green Corridors, Growing Gaps: Leveraging Urban Green Infrastructure for Student Wellbeing and Equity in Addis Ababa

Adnan Sirage Ali, Getachew Dagnew Gebreeyesus, Seid Habtamu Yimer, Assefa Adane Demoz

Kotebe University of Education

Executive Summary

This brief presents critical findings from a mixed-methods study on the association between Addis Ababa's urban green corridors, developed under Ethiopia's Green Legacy Initiative, and secondary school student outcomes in emotional wellbeing, physical health, and environmental stewardship. The research reveals clear dose-response benefits: students within 500m of a corridor and those who use them daily report significantly higher stress reduction (92% vs. 48% for never-users), stronger pro-environmental attitudes (NEP score 3.8/5 vs. 2.9/5), and five times more pro-environmental actions (6.1 vs. 1.2 actions). However, a critical equity challenge emerged. Contrary to the "equigenesis" hypothesis from European studies, socioeconomic status (SES) amplifies benefits—advantaged students gain disproportionately more, while disadvantaged students (especially girls facing safety concerns and those experiencing time poverty) remain marginalized. Without targeted interventions, green corridors risk reinforcing urban inequalities.

The key implication: building corridors is insufficient. Sustainable, equitable benefits require deliberate policy, programming, and maintenance. This brief recommends a three-tier action framework for urban planners, school administrators, and policymakers.

1. Problem Statement

Ethiopia's Green Legacy Initiative has planted over 40 billion seedlings, creating extensive linear green corridors in Addis Ababa. While their ecological benefits are recognized, their potential as multifunctional assets for adolescent wellbeing and environmental education is underexplored. Secondary students in dense, resource-constrained settings face high stress, limited recreation, and passive environmental learning. Corridors could serve as restorative sanctuaries and outdoor classrooms—but without evidence-based guidance, they risk being underutilized or exacerbating disparities.

The core problem is twofold:

A) Uneven access and utilization: 68% of students attend schools within 500m of a corridor, yet only 42% use them daily/weekly. Educational use is particularly low (28%), a missed pedagogical opportunity.

B) Socioeconomic amplification of benefits: Higher-SES students (educated parents, books at home, private schools) gain significantly more from corridor access ($\beta = 0.15\text{--}0.32$, $p < 0.05$). This contradicts the equigenesis hypothesis and suggests that without intervention, corridors will widen existing gaps.

2. Policy Context

Ethiopia's ESDP and Green Legacy Initiative create a unique window to integrate green infrastructure with education and health. However, implementation has focused on infrastructure provision rather than equitable utilization. Teachers rarely organize outdoor lessons (28% educational use). Urban planning prioritizes planting targets over maintenance and safety—particularly for girls.

International evidence shows green spaces can reduce health inequalities when combined with targeted programming. Our findings from Addis Ababa show the opposite pattern, indicating that policy transfer requires local adaptation to address high baseline inequality, time poverty, and gendered safety concerns.

3. Key Findings

- Dose-response benefits (daily vs. never users):
 - Stress reduction: 92% vs. 48% ($p < 0.001$)
 - Pro-environmental actions: 6.1 vs. 1.2 ($p < 0.001$)
 - Preference for outdoor learning: 68% vs. 41% (OR = 2.8)
- Proximity gradient: Students within 500m scored higher on NEP scale (3.8/5) than those beyond 1000m (2.9/5; $p < 0.001$).
- SES amplifies benefits:
 - Home garden access \rightarrow 23% greater stress reduction ($\beta = 0.31$)
 - Books at home (>50) \rightarrow stronger environmental awareness ($\beta = 0.32$)
 - Private school attendance \rightarrow amplified emotional & environmental benefits
- Gendered safety barriers: Female students face disproportionate restrictions (poor lighting, safety concerns), contributing to 15% never-user rate.
- Qualitative themes: Corridors as “emotional sanctuaries” and “social hubs,” but also “time poverty” and maintenance deficits deter use.

4. Policy Options

Option	Description	Pros	Cons
Infrastructure-Only (Status Quo)	Continue building corridors based on planting targets.	Low short-term cost; meets political goals.	Fails to address low utilization & equity gaps.
Equity-Focused Programming	Combine corridors with targeted programming,	Addresses root causes; maximizes	Requires cross-sectoral coordination; higher

	safety, maintenance, and outdoor learning mandates.	returns on green investment.	upfront cost.
School-Led Activation	Mandate outdoor learning hours and train teachers, without structural safety/maintenance changes.	Leverages existing school system.	Risks superficial compliance; may exclude disadvantaged students.

Recommended path: Equity-Focused Programming as core strategy, supported by school activation and safety investments.

5. Recommended Actions

A. For Ministry of Urban Planning & Infrastructure (with MoE and MoH):

1. Adopt 500m accessibility standard for all new secondary schools.
2. Mandate annual equity audits (disaggregated by gender, SES, maintenance quality); tie budgets to parity metrics.
3. Require safety by design: lighting, sightlines, secure seating, supervised after-school hours.

B. For Ministry of Education & School Administrators:

1. Mandate 2 weekly outdoor learning hours for schools within 500m; train teachers in place-based pedagogy.
2. Establish “Green Ambassador” programs targeting girls and low-SES students (stipends or credit to address time poverty).
3. Mitigate gendered barriers: supervised walking groups, female-only hours where appropriate, and student safety consultations.

C. For HERQA & Teacher Education Institutions:

1. Revise teacher competency standards to include place-based, outdoor learning facilitation.
2. Model constructivist pedagogy in training—move from telling to facilitating outdoor sessions.

6. Implementation Considerations

- Phasing: Pilot in 10 schools (5 high-SES, 5 low-SES) with active corridors; scale city-wide after 12 months.
- Capacity building: Train a national cadre of “Green Pedagogy Facilitators” using train-the-trainers.
- Resources: Reallocate 15% of Green Legacy maintenance budgets to equity programming (lighting, supervision, stipends).
- M&E: Track utilization frequency by gender/SES, outdoor lesson frequency, and student wellbeing annually; publish equity dashboards.

7. Risks & Mitigation

Risk	Mitigation
Teacher resistance to outdoor pedagogy	Frame as empowerment; provide co-planning time and small grants.
Superficial compliance (taking students outside but lecturing)	Use peer observation rubrics assessing student-led inquiry; link to promotion pathways.
Uneven maintenance widening equity gaps	Establish mobile-based complaint system; tie administrator performance to parity.
Exclusion of disabled students	Mandate universal design for pathways, furniture, programming; include disability advocates.

8. Conclusion

Addis Ababa's urban green corridors are powerful assets for adolescent wellbeing and environmental education. Daily users derive transformative benefits. However, without equity-focused intervention, these same corridors will amplify socioeconomic disparities. By adopting the recommended 500m standard, equity audits, targeted programming, and safety investments, policymakers can transform green infrastructure into a tool for inclusion. This investment is not merely about planting trees—it is about cultivating healthier, more equitable, and environmentally responsible citizens for Ethiopia's future.

9. References

- Adnan Sirage Ali et al. (2025). Urban Green Corridors as Multifunctional Assets... Kotebe University of Education.
- Kaplan, S. (1995). The restorative benefits of nature. *J. Env. Psych.*
- Mitchell, R. & Popham, F. (2008). *The Lancet*.
- Rigolon, A. et al. (2021). *IJERPH*.
- Tsegaye, D. et al. (2021). Ethiopia's Green Legacy Initiative. *Env. Management*.