

The impact of climate and environmental change on education in Rwanda: a survey of school leaders

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Background

Rwanda has experienced temperature increases of 1.4°C since 1970, higher than the global average of approximately 0.8°C.^{2,3} It is expected that, as soon as the 2030s, Rwanda will experience temperature increases of a further 0.6°C. Rwanda's Climate Action Plan outlines climate change mitigation strategies focused upon agriculture, energy, waste and industry, with cross-sectoral adaptation priorities identified.⁴ This multi-sectoral way of considering the impacts of climate change could be strengthened further through the inclusion of education.

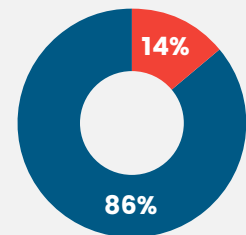
Following research into climate change and education in Kenya, Education Development Trust (EDT) are undertaking research to better understand the relationship between climate and environmental change and education in Rwanda. This working paper outlines emerging findings from a survey with school leaders across Rwanda.

The overarching research design adopts a mixed-methods approach, with the following broad steps:

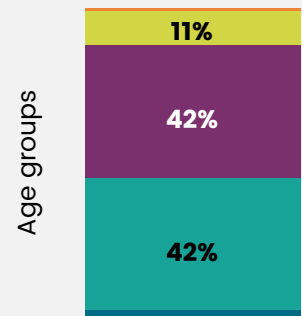
1. Literature and policy review
2. Survey of school leaders
3. Interviews with school leaders, teachers, students, community members and other relevant stakeholders identified during fieldwork.

This working paper focuses on emerging findings from the school leader survey (step 2). Survey questions were developed in collaboration with a research steering committee, which includes a range of international and local education specialists, researchers, and policy officials. Survey questions asked about how climate events are disrupting education and schools, how schools are responding to these disruptions, and preparedness for the future. The survey received a total of 273 responses from school leaders based in all 30 districts of Rwanda.^{5,6}

Profile of respondents



■ Male ■ Female



■ 26-30 ■ 31-40
■ 41-50 ■ 51-60
■ 60+

56%

leaders in combined (primary and secondary) schools

7%

leaders in secondary schools

37%

leaders in primary schools

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² Climate portal (2022) ³ Climate.gov (2023) ⁴ Ibid.

⁵ The survey was distributed between December 2022 and January 2023 via email to 3,169 school leaders across Rwanda, with 2,879 emails delivered.

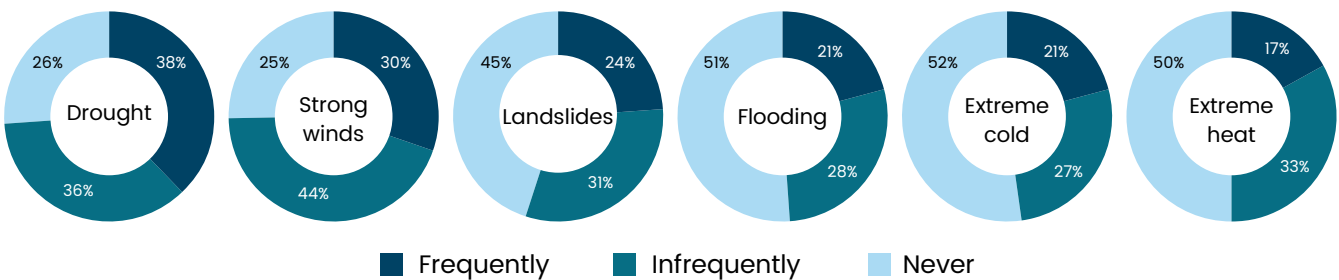
⁶ A key limitation of this research is the distribution of the survey through email. This limits the reach of the survey to those with access to email and connectivity who are able to respond to the survey online. The research also adopted a volunteer sample approach, meaning the results cannot be considered representative of the wider population of school leaders in Rwanda.



Key findings

School and community experiences of climate events

School leaders were asked to comment on the ways in which their schools and local communities have been impacted by climate and environmental change in recent years. A total of 75% of school leaders reported their schools and/or local communities have been negatively impacted by climate change at least once. Drought was the most frequently occurring climate event reported, with 38% of school leaders reporting drought to occur at least once annually, and a further 36% reporting it to occur less frequently.



Damage to school buildings

A total of 52% of school leaders reported school buildings experiencing damage as a result of extreme weather events. This damage was often reported to have a negative impact on the overall school budget, with 74% of school leaders who reported damage to their buildings reporting that the budget to fix the damage came from the school budget, reducing budget for teaching and learning activities. In only 18% of cases did school leaders report having repair costs covered by education authorities, with a further 13% reporting community fundraising being used to support school repairs. Amongst the school leaders reporting damage to schools, 64% reported this having a negative impact on learning.

Impact of climate change on pupil and teacher attendance and pupil concentration

A total of 21% of school leaders reported that climate change has had a significant negative impact on student attendance, with a further 58% reporting a small negative impact. School leaders also indicated climate change can have a negative impact on student concentration when at school (22% reported a significant negative impact, 53% a small negative impact). In addition to students' attendance, leaders also reported that climate events can impact negatively on teacher attendance, with 15% reporting this as being substantially negatively affected. This was due to a range of factors, including homes being destroyed by landslides, floods and high winds, and extreme weather creating unsafe conditions for travelling to schools. Two school leaders also reported learners being affected by the loud noise of rain on the roof during the rainy season.

“Because of flooding houses of some teachers and parents have been destroyed... teachers ask permission to spend time repairing or building their houses.”

“The school experienced poor diet due to lack of vegetables. From September to November 2022, the temperature was between 34 and 40 degrees. Some learners suffer from headaches.”

“There are lessons when the climate affects learners due to hunger from drought. Attendance becomes poor.”

“Climate change is affecting school feeding because the shortage of agricultural products and water.”



Understanding of climate and environmental change

Of the school leaders surveyed, 85% reported climate and environmental change being taught in their schools. The most popular approach was through integration into other subjects (reported by 76% of school leaders), followed by being taught as an extra-curricular subject (38%), and by being taught as an independent subject (24%). The challenges associated with teaching climate change were reported as a lack of training for teachers (74%), lack of curriculum resources (41%), lack of space in the curriculum to integrate climate change (22%), curriculum content not being relevant for learners (12%) and it not being considered a priority by the school leaders responding to the survey (12%).

The majority of school leaders rated their own understanding of climate and environmental change as excellent (21%) or good (59%). They had slightly lower perceptions of teachers' understanding of climate change, with 13% suggesting teachers have excellent knowledge, and 59% suggesting teachers have good knowledge. Interestingly, school leaders were more likely to consider primary school student understanding of climate and environmental change as excellent (15% rated primary student knowledge as excellent, compared to 11% rating secondary school student knowledge as excellent). This finding is likely linked to school leaders at primary school level being more likely to report climate change being taught in their schools. However, no school leaders considered secondary school students' knowledge to be poor, whereas 18% of school leaders considered primary school students' knowledge to be poor or very poor.

Preparedness for the future

School leaders were asked about their feeling of preparedness for future climate events. The majority of school leaders indicated they felt prepared, though to varying degrees (7% very prepared, 37% prepared, 39% somewhat prepared). Preparations included awareness-raising activities about common occurrences such as drought, improving school infrastructure, and working with local authorities or groups. Approximately 45% of school leaders reported working with local groups or organisations on climate and environmental change. The majority of these leaders reported working with authorities on reducing soil erosion through tree planting and other mechanisms. One school reported being part of an eco-schools programme.

Conclusions

Climate and environmental changes have had a significant impact on education, with 78% of school leaders responding to our survey indicating their schools and/or communities have been negatively impacted by climate and environmental change. There is acknowledgement from school leaders across all districts that climate and environmental change presents a threat to learning, though no preparedness activities referenced by school leaders were related to minimising the disruption to learning. This will be explored further in the next phase of the research.





Lessons for policymakers

These lessons draw on the school leader survey results and EDT's wider work on climate change.

- To effectively promote climate change education, it can be useful to integrate appropriate strategies into education plans and budgets.
- Considerations for the impacts of climate change on learning experiences, attendance and infrastructure maintenance should be factored into planning and budgeting.
- There is a need to collect data on the impacts of climate change in schools across the country to provide targeted support. This information can be used to identify areas that require additional resources and support, as well as to develop effective interventions to address the challenges that arise.
- Teachers require training and teaching materials to promote climate education.
- Strengthening teachers' capacities will increase their understanding of climate issues, provide pedagogical support, and enable connections to climate change in existing curricula and other school activities. This can be achieved through workshops, seminars and other forms of professional development that provide teachers with the knowledge and skills necessary to effectively teach climate change.
- Teaching materials will be useful to support learning activities. These also include relevant resource guides and manuals.
- There are opportunities for collaboration with the community and local organisations to promote learning and behavioural change.
- Students can actively identify, design, lead and implement projects that address local challenges related to climate change.
- Activities involving the community can also deepen the impact of climate education efforts by engaging a wider audience beyond the classroom.

References

Climate portal. (2022). Rwanda Profile. [Available online: <https://climateportal.rema.gov.rw/index.php?id=2#:~:text=Rwanda%20has%20experienced%20a%20temperature,by%20the%202030s%20from%201970> – accessed December 2022].

Climate.gov. (2023). Climate change: global temperature. [Available online: <https://www.climate.gov/news-features/understanding-climate/climate-change-global-temperature#:~:text=June%2028%2C%202022-,Highlights,based%20on%20NOAA's%20temperature%20data> – accessed February 2023].