

Improving Learning through Classroom Experience

Climate, Environment and Education
Adaptation Research (CLEEAR)
Tanzania Steering Committee

Updates 23/11/ 2023

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<https://opendeved.net>



Updates

Activities	Status
<i>First round of data collection (environmental data, walkthrough survey, comfort survey)</i>	Completed
<i>Permit for implementing retrofits in 3 schools</i>	Approved
<i>Preliminary findings report from data collection</i>	Ongoing
<i>Testing new sensors with base station</i>	Ongoing
<i>Cost estimates for different retrofits to share with Shule Bora</i>	Ongoing
<i>Building relationships with CoICT, Aga Khan Foundation, Aga Khan University, British council, Shule Bora, MEER, Hempel, Dunia, and experts on climate resilient buildings</i>	Ongoing

General information

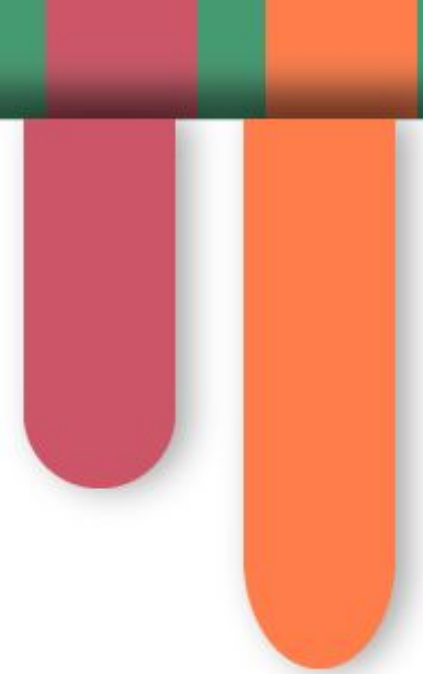
Location	<i>Temeke district, Dar es Salaam</i>
Regular school day	<i>8 a.m. to 2:30 p.m.</i>
Number of schools and classrooms	<i>5 schools / 15 classrooms</i>
Number of students per classroom	<i>65 - 80</i>
Age of students	<i>12 - 14 (Form 1 - Secondary level)</i>
Number of floors per school	<i>1</i>
Floor covering	<i>Ceramic tile</i>
Ceiling material	<i>Gypsum board</i>
Light fixtures	<i>Fixed light bulbs</i>
Wall material	<i>Brick</i>
Wall finishing and colour	<i>Paint / white and cream</i>
Exterior roof colour	<i>Silver</i>
Number of windows per classroom	<i>5</i>
Type of ventilation	<i>Natural</i>

Observations classrooms' conditions

High temperatures and noise levels are an issue, but also:

- Pollutants observed in several classrooms (wood burning in kitchen) / unpleasant smells coming from the toilets.
- Some classroom roofs are in rusty conditions and let water pass through
- In most of the classrooms, walls are peeling and present cracks
- In some classrooms, sunlight hits the students directly, making it difficult to concentrate.
- There are a limited number of toilets, considering the number of students and water system gets broken very frequently
- All older classrooms have broken floors as well as bathrooms
- The classrooms are limited by space because of the high number of students and the layout of the furniture.
- Furniture for students aren't enough or appear to be in bad condition

Classrooms' conditions



Possible retrofits

Temperature:
Reflective paint



Source: Green A Consultants

Sound:
Papyrus mat



Source: Referential image - MASS Design Group

Light
Shade covers using local wood



Source: Referential image- Sovereign play equipment

Mirror films



Source: MEER

Greenwood covering



Source: Referential image - Sound reduction systems

Shade covers using Danpalon



Source: Project Shade covers for Sierra Leone

Potential collaborators



Building company with experience in projects implemented in Dar es Salaam, Tanzania.



Global supplier of coatings and paints. Hempel foundation has different project supporting education.



Among their multiple green solutions, Green A provides a sustainable **passive cooling solution** for people who do not have the economical means to access mechanical cooling options. They were part of the project "Cool roofs"-Rwanda



Dunia designs furniture uses a material called Greenwood that it's created completely from low-grade plastic waste. It is cleaned and shredded before being formed in greenwood plank. These planks are then used by our carpenters as a **wood substitute**.



MEER

Mirrors for Earth's Energy Rebalancing (MEER) takes action to address the high temperature issues by implementing **reflective film technology on rooftops**. This innovative approach has significantly reduced indoor temperatures, providing a safer and more comfortable environment for those affected by the heat.

Communications + Dissemination (1)

Title	Author(s)	Date
1. Blog: Benefits of using ISSB in school buildings	Civ. eng. Mauricia Nambatya	21/11/2023
2. Blog: Is indoor environmental quality in my school classroom safe?	Prof. Pawel Wargocki	07/11/2023
3. Blog: Education and climate change – What retrofits could make classroom environments more conducive to learning?	Oluyemi Toyinbo and Xuzel Villavicencio	02/11/2023
4. Blog: IMPROVING TANZANIAN CLASSROOMS: Conducting surveys in Tanzanian Schools – Second pilot	Oluyemi Toyinbo and Xuzel Villavicencio	28/09/2023
5. Blog: IMPROVING TANZANIAN CLASSROOMS: Trialling environmental sensors in Tanzanian Schools – First pilot	Oluyemi Toyinbo and Xuzel Villavicencio	26/09/2023
6. Panel with experts: Advocating for better policies regarding the regulation of school building	Pawel Warwocki, Mauricia Nambatya, Olamide Eso, Khadija Suleiman, Eunice Jengo, Bjoern Hassler, Oluyemi Toyinbo and Xuzel Villavicencio	09/08/2023
7. Infographic: FAQ about study	Oluyemi Toyinbo and Xuzel Villavicencio	21/07/2023
8. Post: Field trip in Dar es Salaam	OpenDevEd team	14/07/2023
9. Infographic: Possible retrofits interventions	OpenDevEd team	06/07/2023
10. Blog: The Importance of Climate-Friendly School Buildings in Africa	Civ. eng. Mauricia Nambatya	29/06/2023
11. Blog: School: A Second Home for the Children	Prof. Pawel Wargocki	14/06/2023
12. Presentation: “ Climate, Environment and Education ” - Education Donors Partners	OpenDevEd team	25/05/2023
13. Presentation: “ Adapting to the impacts of climate change ” - Utafiti Elimu	OpenDevEd team	20/04/2023
14. Post: Quote from Utafiti Elimu	OpenDevEd team	12/04/2023
15. Blog: Introduction to the study	OpenDevEd team	27/03/2023

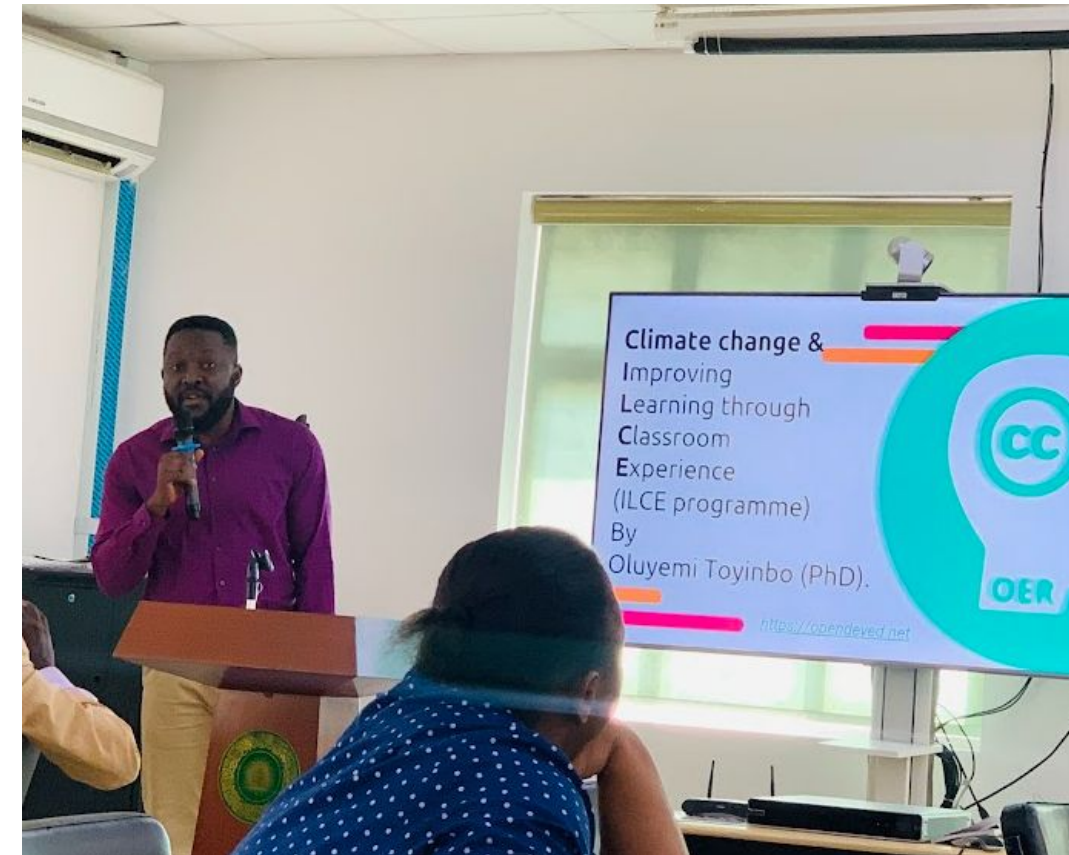
Communications + Dissemination (2)



1. Utafiti Elimu -Dar es Salaam, Tanzania



2. STICE -Dar es Salaam, Tanzania



3. Climate change & improving learning through classroom experience -Aga Khan University Dar es Salaam, Tanzania



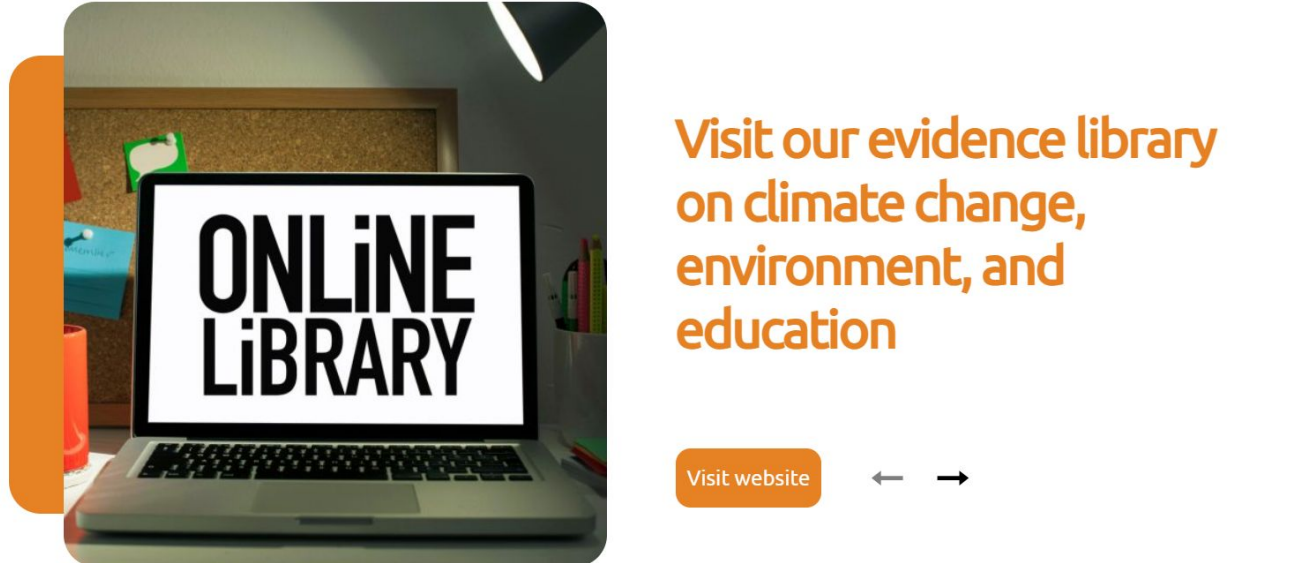
4. UKFIET The education and development forum - Oxford, UK

Communications + Dissemination (3)

Website for the project: www.opendeved.net/ilce/

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