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#EU GREEN WEEK

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Integrating Intersections of Climate Resilience and School Education for Holistic Sustainable Development: Insights from Bangladesh

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THE WATER-ENERGY-FOOD NEXUS: BUILDING RESILIENCE TO GLOBAL CHALLENGES

NexusNet

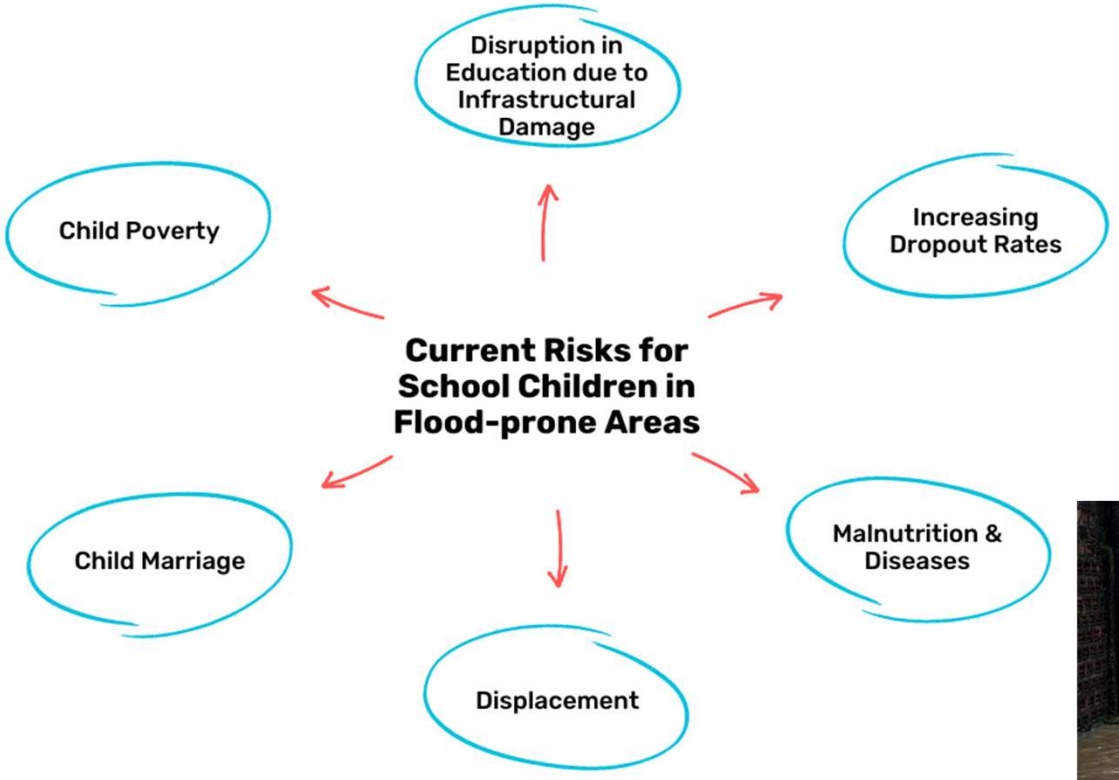
cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Climate Change -Education Nexus

- Interdisciplinary and action-oriented pedagogies, supported by accessible teaching materials and teacher training, are vital for effective climate education.
- Embedding climate change knowledge, skills, and values for mitigation and adaptation across all grade levels and subjects ensures that students develop a comprehensive understanding and capacity to address climate challenges from an early age.
- Education equips individuals and communities with the skills to reduce vulnerability, enhance adaptive capacity, and drive local innovations for climate resilience.
- Schools become hubs for fostering ecological literacy, critical thinking, and the agency needed to participate in sustainable solutions and community transformation.
- Climate-resilient education includes adapting school infrastructure and operations to withstand climate impacts, ensuring continuity of learning during disruptions caused by extreme weather or environmental hazards.

Case-Study: Bangladesh

Source: Al Jazeera (2019)

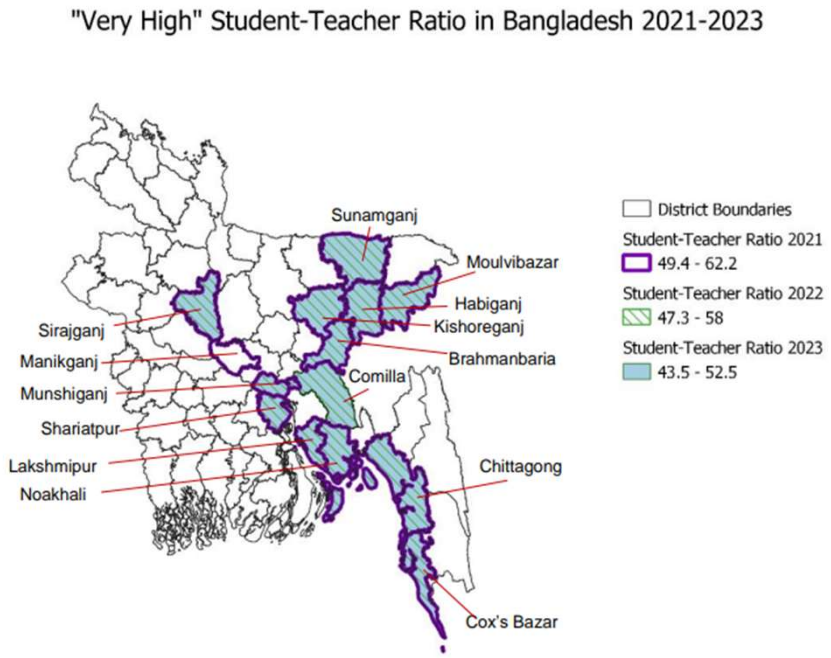


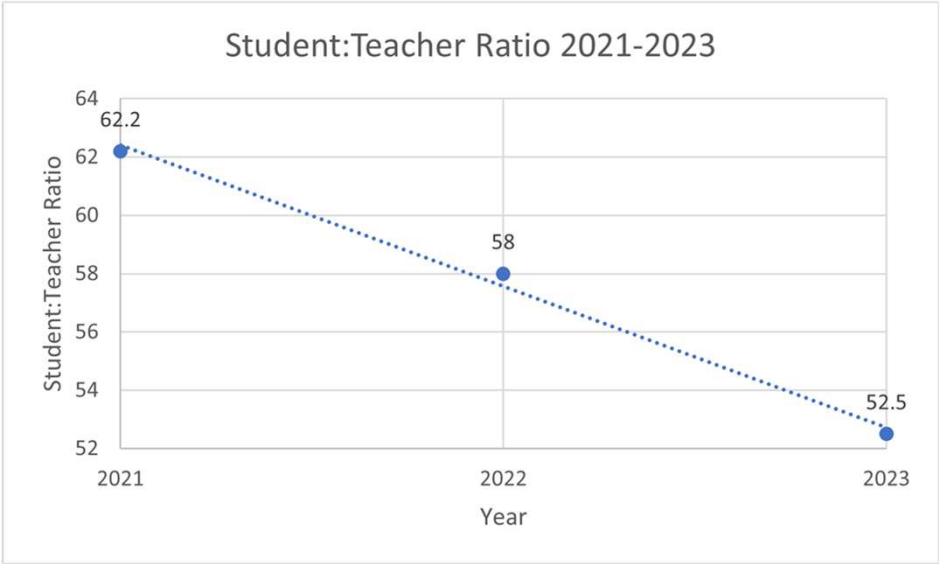
Source: ADRA

Source: Allison Joyce, ABC News (2015)

Source: UNICEF, Prothom Alo (2024)

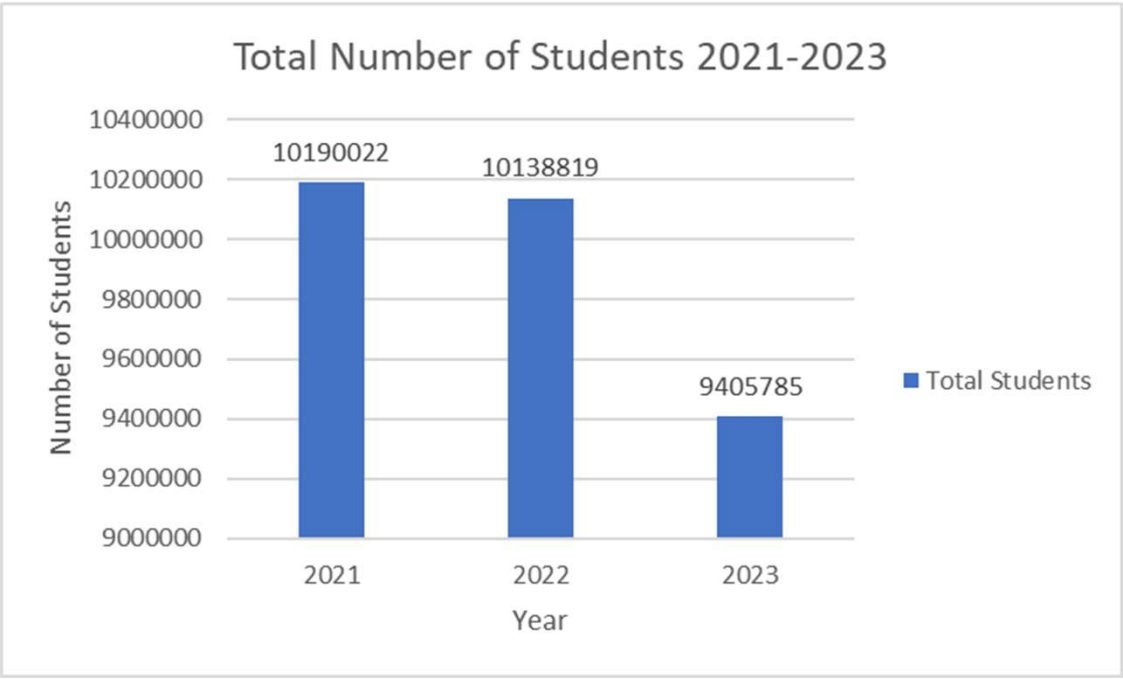
Distribution of Student-Teacher Ratio 2021-2023





- All the districts with “very high” student-teacher ratios experienced a fall in the values, regardless of the type of severe flooding they experience.
- All other districts remained with “very high” student-teacher ratio in relation to the statistics of the rest of the country.

Geospatial Analysis

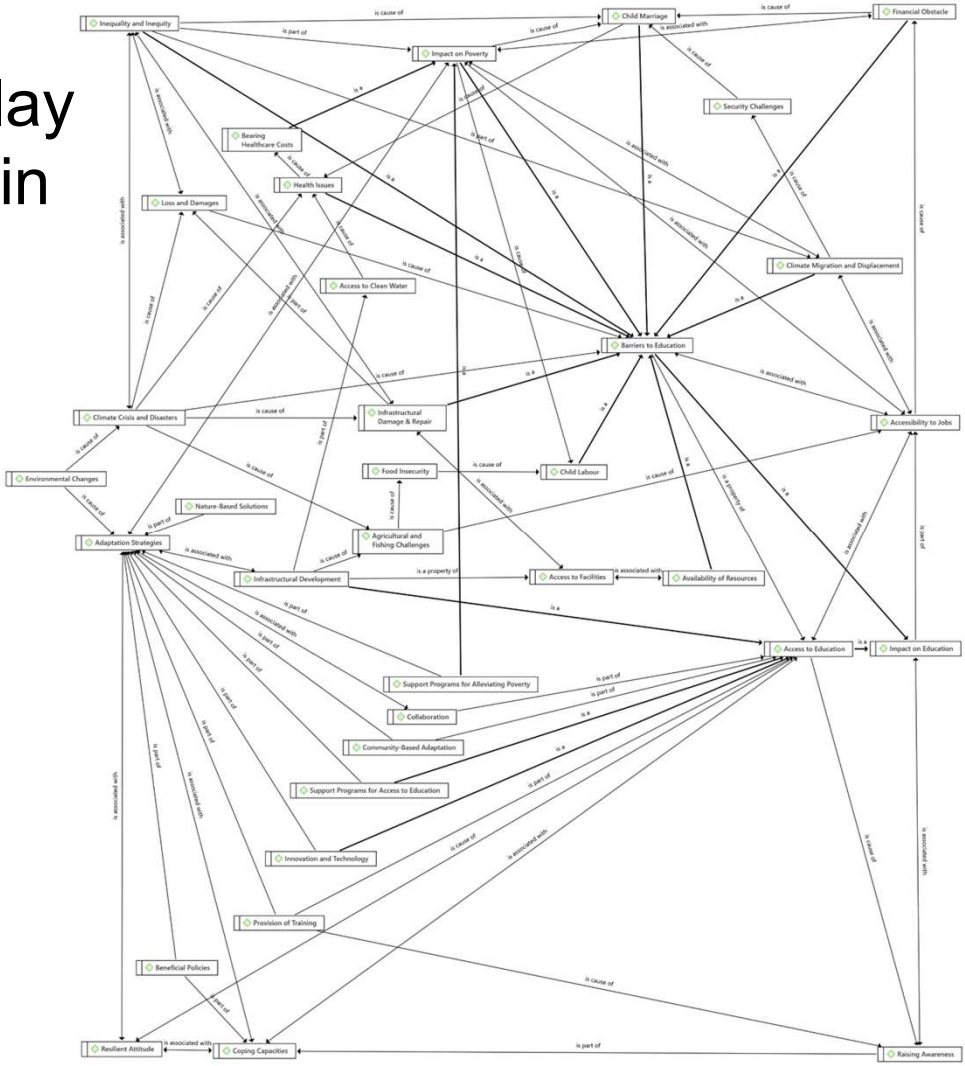


The decreasing student-teacher ratio is possibly due to:

- **sharp decreasing number of students** from over 10,100,000 to about 9,400,000 students, specially between 2022 and 2023
- **overall increasing number of teachers** from about 267,000 to above 278,000 teachers, though it dropped slightly between 2022 and 2023

Network of interacting factors in the interplay between climate resilience and education in Bangladesh

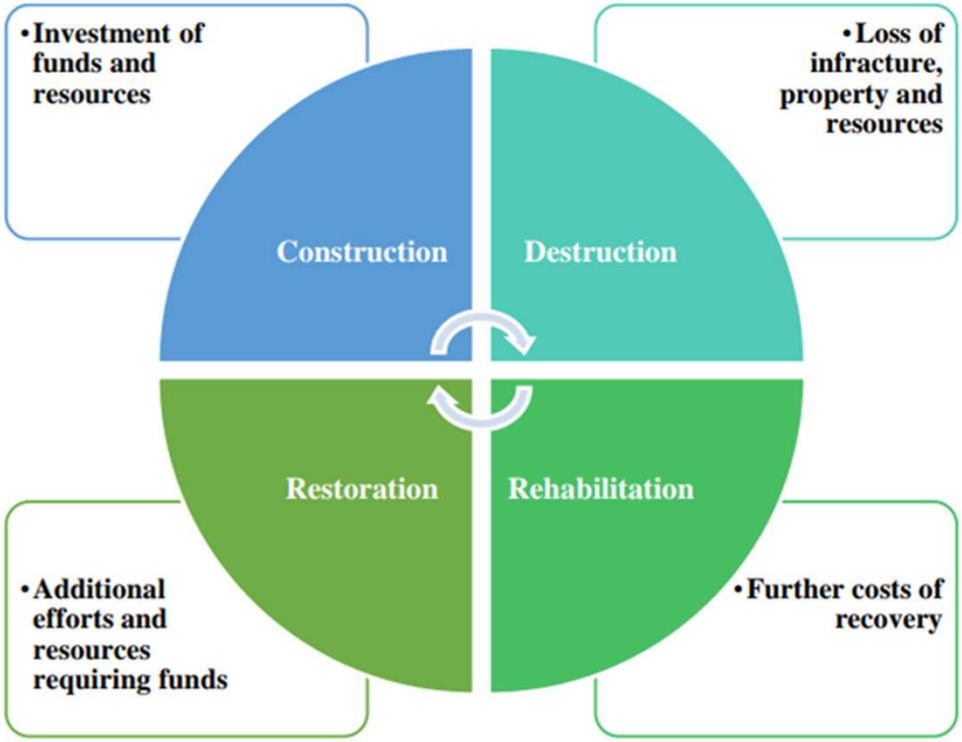
Source: UNICEF, 2022



Loop of losses in infrastructure due to floods

Source: Prothom Alo (2017)

Source: The Daily Star (2023)



Discussion

The decreasing student-teacher ratio between 2021-2023 is due to overall decreasing number of students and relatively increasing number of teachers:

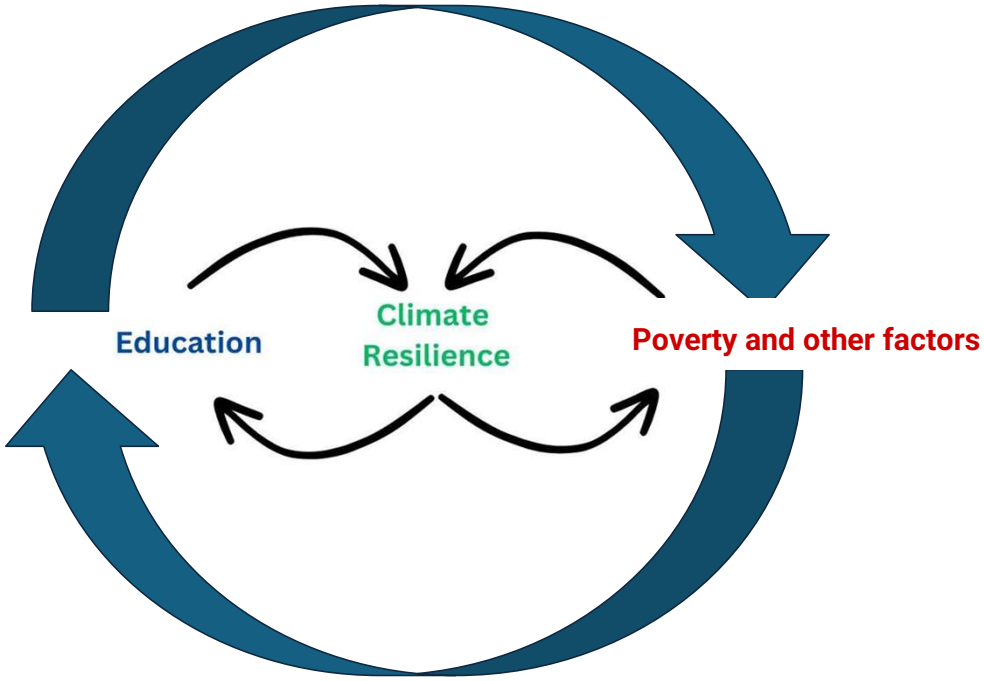
- The decreasing number of students and its driving factors were observed in both the thematic analyses
- The increasing number of teachers could be an intervention to improve education

The geospatial analysis was conducted using only secondary school data, but it shows that the student-teacher ratio does not in itself account the supposed improvement of statistics to attain the targets of SDG 4, and requires additional information to inform the improvement of quality as well.

The lens of the IRGC Framework (2017) shows the importance of risk governance in understanding, managing and implementing decisions to minimize and/or mitigate risks in a multi-level dynamics, also highlighted by the evident intersectionality of power, politics, and associated interactions of factors in the interplay of climate resilience & education.

The interacting factors from the reviewed literature, and thematic analysis of documentaries and stakeholder interviews complement each other, and reflect the distributions observed in the geospatial analysis.

Key Takeaways from the Case Study



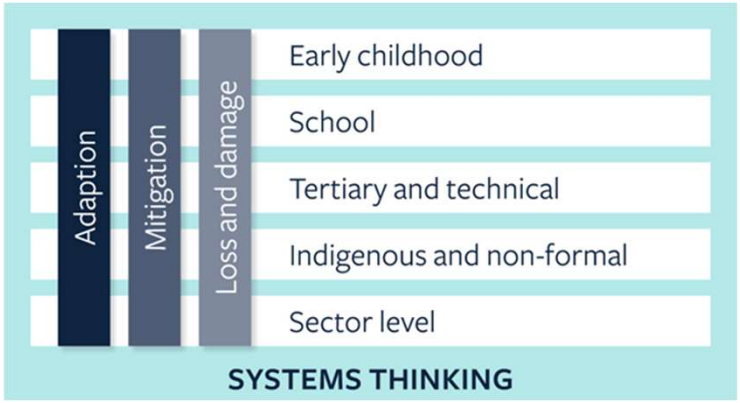
Feedback infinity loop mechanism of education, climate resilience and network of interacting factors.

Way Forward

- Achieving holistic sustainable development requires **coordinated action** between education and climate sectors, including policy reform, joint planning, and shared financing mechanisms.
- This nexus is crucial for **steering discourse** on inclusive disaster preparedness, sustainable building practices, and integrating green technologies in school operations.
- Support p**olicy decision to mainstreaming climate adaptation and environmental sustainability into education** sector plans and allocation of budgets for systemic resilience and long-term impact.
- We propose that **climate-resilient education should be reaching all learners**—especially those most vulnerable to climate impacts—to ensure equitable access to knowledge and skills for sustainability.
- Our research highlights the critical nexus between climate resilience and school education as a foundation for holistic, sustainable development also **supports the broader Sustainable Development Goals (SDGs)** by building human capital capable of driving economic, social, and environmental progress for people and the planet.

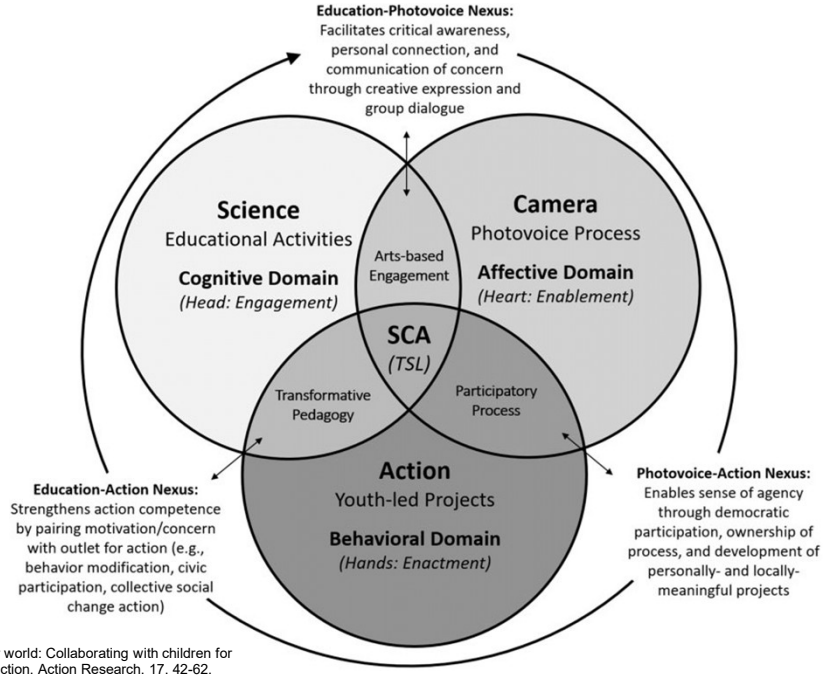
Way Forward

We argue that integrating climate resilience into education is a strategic lever for building capacity and resilience across the Water-Energy-Food nexus, equipping current and future generations to tackle global challenges and drive sustainable development.



https://www.ukfiet.org/2024/thinking-systematically-about-the-climate-change-education-nexus/

Need to detangle intricate interactions between climate change and education, inform development of effective educational policies and interventions, achieve better education and climate change outcomes.



1 Trott, Carlie. (2019). Reshaping our world: Collaborating with children for community-based climate change action. Action Research. 17. 42-62. 10.1177/1476750319829209.

1 Will this T be the same font size as the rest of the line?
Shuddha Srimoyee Das; 31/5/2025

2 With regard to WEFE Nexus thinking

Climate-resilient education fosters systems thinking, enabling learners to understand the interconnectedness of water, energy, and food systems.

Educated communities are better equipped to make informed decisions about resource management, supporting integrated approaches to water, energy, and food security.

Education empowers individuals and communities to anticipate, prepare for, and respond to global challenges such as climate change, resource scarcity, and disasters affecting the WEFE nexus.

Investing in climate-resilient education creates a foundation for resilient societies capable of addressing complex global challenges at the intersection of water, energy, and food systems.

2 Does this stand for Water-Energy-Food Nexus?

Shuddha Srimoyee Das; 31/5/2025