OpenEMIS Concept Note – Climate and Education

Monitoring and Planning for Climate Change in Education using OpenEMIS

March 2026

Monitoring and Planning for Climate Change in Education using OpenEMIS

Executive Summary

This concept note proposes the deployment of OpenEMIS to enable governments to monitor, analyze, and respond to the impacts of climate change across the education sector through integrated, data-driven systems.

Climate change is increasingly disrupting education systems worldwide—affecting infrastructure, access, participation, and learning outcomes. However, most countries lack the data systems needed to systematically track these impacts and inform timely policy responses.

OpenEMIS provides a government-owned, open-source Education Management Information System (EMIS) that can be rapidly configured to collect, manage, and analyze climate-related education data. By integrating climate indicators into routine education data systems, OpenEMIS enables ministries to strengthen resilience, improve planning, and safeguard learning continuity from early childhood through secondary education, TVET, and higher education.

The Challenge

Climate change poses a growing threat to education systems globally. Rising temperatures, extreme weather events, flooding, droughts, and other climate-related hazards are increasingly disrupting teaching and learning environments.

Education systems face multiple challenges:

- School closures due to extreme weather and environmental conditions
- Damage to infrastructure and learning facilities
- Increased student absenteeism linked to climate-related factors
- Reduced learning performance due to heat stress and environmental conditions
- Unequal impacts on vulnerable populations and regions

Despite these challenges, most education systems lack:

- Systematic data collection on climate-related disruptions
- Tools to monitor the impact of climate on access, participation, and learning
- Integration between education data and environmental or climate data
- Evidence to support climate-resilient education planning

These gaps limit governments' ability to:

- Anticipate and respond to climate-related risks
- Ensure continuity of learning
- Target investments in resilient infrastructure
- Align education sector planning with national climate strategies

Why Now

Growing global attention to climate change, combined with increasing investment in climate adaptation and resilience, presents a timely opportunity to strengthen education data systems.

Global initiatives such as climate-smart education systems emphasize the need for:

- Integration of climate considerations into education sector planning
- Strengthened data systems to monitor climate impacts
- Evidence-based decision-making aligned with national climate commitments

At the same time, advances in digital public infrastructure enable countries to modernize EMIS platforms to capture new types of data and generate actionable insights in near real time.

OpenEMIS Initiative

The OpenEMIS Initiative aims to deploy a high-quality Education Management Information System designed to collect and report data on institutions, students, teachers, and staff across the education sector.

Now in its 15th year, the initiative is coordinated by Community Systems Foundation (CSF). OpenEMIS supports national system strengthening while addressing evolving data needs, including emerging priorities such as climate resilience.

OpenEMIS is deployed as a web-based application and is mobile responsive, enabling access via smartphones, tablets, laptops, and desktop computers. A suite of tools supports data collection, management, analysis, and planning across all levels of the education system.
OpenEMIS is already deployed at scale in multiple countries, including climate-vulnerable contexts such as small island states in the Caribbean and Pacific.

Solution and Value Proposition

OpenEMIS offers a customizable, non-commercial platform that enables countries to integrate climate-related data into education systems and strengthen resilience through evidence-based planning.

OpenEMIS can be configured to capture climate-related data, including:

- Daily temperature and environmental conditions
- School infrastructure readiness for climate change
- School closures due to climate-related events
- Student absenteeism linked to climate factors

Through OpenEMIS, governments can:

- Monitor climate impacts across the education sector in near real time
- Analyze relationships between climate conditions and education outcomes
- Identify vulnerable schools, regions, and populations
- Support planning for climate-resilient infrastructure and service delivery

OpenEMIS uniquely enables countries to build government-owned systems without vendor lock-in, while supporting interoperability with other national systems and alignment with digital public infrastructure principles.

Approach

The implementation of OpenEMIS for climate and education monitoring follows a results-oriented approach:

Inputs

- OpenEMIS platform and tools
- Configuration of climate-related data modules
- Capacity building and training

System Functionality

- Integration of climate-related data fields into EMIS
- Data capture on infrastructure, attendance, closures, and environmental conditions
- Dashboards, reports, and data portals

Outputs

- Real-time climate and education data
- Integrated datasets across institutions, learners, and environmental conditions

Outcomes

- Improved understanding of climate impacts on education
- Better targeting of resources and interventions
- Enhanced planning for resilient education systems

Impact

- Strengthened resilience of education systems
- Improved continuity of learning in the face of climate-related disruptions

System Functionality

OpenEMIS Core provides a robust solution to collect, manage, and analyze climate-related education data across all levels of the sector.

The system supports:

- Institution-level data on infrastructure readiness and environmental conditions
- Learner-level data on attendance, participation, and performance
- Event-based tracking of school closures and disruptions

Data collected through OpenEMIS can be linked across the education system, from early childhood through primary, secondary, TVET, and higher education, enabling comprehensive system-wide analysis.

OpenEMIS supports integration with other government systems, including those related to environment, health, and social services, providing a holistic view of climate impacts.
The platform enables transformation of raw data into actionable insights through dashboards, reports, and interactive data portals.

Use Cases

School Level

- Monitor temperature and environmental conditions affecting learning environments
- Track infrastructure readiness and identify climate risks
- Identify patterns of absenteeism linked to climate conditions

Teacher Level

- Adjust teaching approaches based on environmental factors

District Level

- Monitor school closures and disruptions
- Target support to high-risk areas

National Level

- Analyze climate impacts on access, participation, and learning outcomes
- Inform infrastructure investments and resilience planning
- Align education sector strategies with national climate policies

Measurement Framework

OpenEMIS supports the production of climate-related education indicators, including:

Access and Continuity

- Number of school days lost due to climate-related closures
- Student attendance rates during climate events

Learning and Participation

- Changes in participation linked to environmental conditions
- Trends in learner performance associated with climate factors

Infrastructure and Readiness

- Percentage of schools meeting climate resilience standards
- Availability of essential infrastructure (e.g., water, cooling, safe buildings)

Equity

- Disparities in climate impact across regions and populations

These indicators can be produced in near real time and disseminated through dashboards and data portals to support decision-making.

Implementation and Support

To ensure sustainable implementation, OpenEMIS provides a comprehensive package of services, including:

- Policy and Planning Services
- Analytical Services
- Implementation Services
- Support Services
- Software Development Services
- Ad Hoc Services

OpenEMIS is ready to be deployed and configured, requiring no lengthy development process. This enables rapid implementation and early generation of value.

Structured training programs support national capacity building, while a dedicated Service Desk provides ongoing technical support.

Community Systems Foundation (CSF) provides technical support across all phases of implementation, emphasizing country ownership, capacity development, and long-term sustainability.